



Change Order Pricing

APWA CAEC Change Order Workshop Series

February 2, 2017 - Renton

February 9, 2017 - Yakima

February 16, 2017 - Camas

February 23, 2017 - Everett

March 2, 2017 – Spokane Valley

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Presentation ground rules

- Please feel free to ask questions or express view points.



Presentation Content

This presentation will discuss these areas:

- Lessons learned from the 2010 change order pricing audit
 - Audit focused on design-bid-build projects
- Job order contracting
- Design-build contracts
- Recent SAO findings and management letters on change orders
 - Compliance audits
 - Performance audits



Presentation terms

- Unit prices
- Force account
- Change orders versus change order proposals
- Pre-established pricing
- Pre-established basis for change order pricing
- Job order contracting
- Work order
- Others (please ask during the presentation)



Why we did the change order pricing audit

- To identify practices that municipalities can use to save money by better managing potentially expensive change orders.
- Municipalities in Washington spend billions of dollars on construction projects every year. Change orders are often needed to respond to unforeseen conditions, imperfect project designs, owner-requested alterations, or requests for additional work.
- Change orders often increase the cost of the original contract by changing the amount or type of work to be delivered.
- Contracts are initially awarded competitively. But change orders are negotiated without competition.



Sources to identify leading practices for change order pricing

- Construction subject matter experts.
- Construction and procurement manuals:
 - U.S. Federal Transit Administration
 - Washington State Departments Enterprise Services (formerly known as the Department of General Administration)
 - Washington State Department of Transportation (WSDOT)
- Articles published by professional associations, including:
 - Association for the Advancement of Cost Engineering
 - Delaware Associated Builders
 - Contractors Partnership Committee
 - Municipal Research Services Center of Washington
 - National Institute of Building Sciences



**LEADING PRACTICES FOR CHANGE
ORDERS AND RESULTING
BENEFITS**



Leading practices for change orders

Establish terms in the original contract on how change order pricing will be handled.

- Establish in advance the basis for pricing the work performed under a change order.
- Contractually require contractors to submit detailed change order proposals when the work to be performed will not be based on unit prices.
- Specify the level of monitoring expected by A&E firms charged with overseeing change order pricing.



Leading practices for change orders

Manage and review construction and A&E change order costs.

- Obtain written change orders for all additional work or materials beyond the scope or price of the original contract.
- Accept unit pricing for change orders only when it's appropriate.
- Perform detailed reviews of contract change order costs proposed by contractors
- Perform independent cost estimates
- Spot-check the scrutiny provided by A&E firms.



Benefits of pre-established contract pricing for change orders

- Reduce or eliminate the negotiation of change order pricing.
- Discourage some contractors from artificially reducing (“low-balling”) initial bids while intending to benefit later from costly change orders.
- Reduce project managers’ costs associated with comparing contractors’ proposed pricing to their own independently developed estimates.
- Support a fair, reasonable and equitable business relationship.
- Decrease the likelihood that municipalities will overpay.



BENCHMARKS FOR CONTRACT TERMS USED TO LIMIT PRICING



Benchmarks for contract terms to limit pricing

Using unit prices from the original bid, or from other recent bids, to price change orders can be appropriate if:

- Market prices have not significantly changed
- The location, timing, nature, or conditions of the change work are similar to the work in the original contract

When these conditions do not exist, municipalities should obtain detailed and itemized change order proposals from the contractors that conform to the pricing or sources for pricing that are pre-established by contract.



Benchmarks for contract terms to limit pricing

The National Institute of Building Sciences:

The government ...should not rely on past generalized rates ...unless actually appropriate [for the] specific modification.

The Association for the Advancement of Cost Engineering:

Problems associated to unit pricing include...A contractor's unit costs can vary significantly, depending on the location, timing, and the extent of the work...changed work [may not correlate] to a pre-approved unit price ...

Guide to the WSDOT Construction Change Order Process:

...every effort must be taken to insure...the type and quantity of work used for the estimate is recent enough for prices to be current, and truly similar to the type of work and quantity to be performed as change work...

The Washington State Department of Transportation (WSDOT) indicates that average unit bid prices may also be acceptable.



Benchmarks for contract terms to limit pricing

Construction labor costs

- Because they are tied to market conditions, many government agencies tie construction labor costs to the prevailing wage rate.
- The *General Conditions for Washington State Facilities Construction* limit labor rates on change orders to those submitted on the Statement of Intent to Pay Prevailing Wages OR higher amounts if approved by Department of Enterprise Services.
- WSDOT limits labor charges on force account change orders to the labor rates that contractors submit at the start of the contract. Some local governments use this practice on projects not funded by WSDOT.
 - Check these rates against prevailing wage rates for reasonableness.



Benchmarks for contract terms to limit pricing

In Washington, state and federal taxes typically add about 17 percent to the prevailing wage rate and consist of:

- Federal Insurance Compensation Act (FICA)
- Federal Unemployment Tax (FUTA)
- State Unemployment Tax (SUTA)
- Contractor's present rates for workers' compensation insurance



Benchmarks for contract terms to limit pricing

- **Materials prices** typically are limited to vendor quotes, the contractors' cost, or the original contract price.
- **Equipment rental rates.** The Rental Rate Blue Book is a common industry guide for determining reimbursement rates for heavy equipment use.
 - *Others?*



Benchmarks for contract terms to limit pricing

Change order mark-up rates for construction contracts typically cover profit and overhead costs such as wages of personnel above the foreman, office costs such as telephone, fax, postage, and photocopying, hand tools, accounting, B&O taxes, bonding, legal costs, insurance and the cost of overseeing subcontractors.

- **Be clear on what is covered by overhead markups**

Common change order markups for profit and overhead:

- 25 percent for labor
- 15 percent for materials and equipment.
- 5 percent for prime contractors' oversight of work performed by subcontractors.



Unit-priced change work should not be marked up

Project owners should:

- Be aware that markups are already built into unit prices
- So don't pay markups on unit priced change orders



RESULTS FROM CHANGE ORDER PRICING PERFORMANCE AUDIT



Most municipalities established in the original contracts the rates or prices they'd pay for some - but not all types of change order work.

- Two municipalities pre-established the **labor rates** they would pay for all change orders, but most established them only for “force account” change orders.
- One municipality limited **materials** pricing on all change orders. However, most limited materials pricing only for “force account” change orders.
- Four municipalities pre-established **markups** for all change orders, but others pre-established them only for “force account” change orders.



Most contracts did not require contractors to submit written change order proposals.

- However - most municipalities consistently obtained change order proposals. But only three consistently obtained proposals with detailed pricing information.
- Contractors are not obligated to provide detailed change order proposals unless that language is in the contract.
- Change orders track changes to the contract and help ensure that costs and quantities are controlled.



Municipalities generally did not provide guidance on the extent to which change order pricing should be scrutinized.

- Three municipalities used A&E firms to scrutinize change orders, but none included this expectation in their contracts.
- Only one municipality provided its staff with documented guidance on how they should conduct such reviews.



The unit prices used for two change orders were not based on recent, similar work, which could mean the local governments paid too much.

- First instance; officials and the contractor adjusted the unit pricing per the original bid to price additional work, but did not document how adjustments were determined.
- Second instance; contractor submitted unit prices that were for different work, and were significantly higher than the prices in the original contract. For example, contractor charged \$29 per square foot for work done under the original bid, but \$285 per foot when this work was extended by change order.
 - Agency should have required a detailed change order proposal OR obtained appropriate unit pricing from an outside source.



Municipalities did not always compare change order costs against original contract prices and terms, or spot-check the quality of A&E firms' scrutiny.

- Four municipalities thoroughly reviewed all or most change orders. Remaining local governments did not obtain detailed information for all change orders. Without detailed information and thorough reviews, the risk of overpaying increases.
- When municipalities relied on A&E firms to scrutinize change orders, they generally did not verify this scrutiny had occurred. Verification is important to avoid over-paying.



Audit results – change order pricing paid

- We examined \$9.1 million in change orders across eight municipalities. We found that those municipalities would have paid up to \$174,000 less if they had paid typical rates and prices, or the rates and prices specified in the original contracts.



Audit results – change order pricing paid

Four municipalities paid markups for profit and overhead that were somewhat higher than typical industry rates.

- **For one contract** - contractors were allowed to charge WSDOT “force account” mark-up rates for change order work that was not funded by WSDOT. Municipalities are not prohibited from doing so, but some of those rates are 6 percent higher than typical rates.

The *Guide to the WSDOT Construction Change Order Process* cautions “...use of force account markups for overhead and profit should not be automatic and may not be appropriate for all change work.”



Audit results – change order pricing paid

- **For other contracts, municipalities:**
 - Established markup rates that were slightly higher than typical rates.
 - Did not specify the allowed markup rates and paid the rates the contractor submitted.
 - Paid for bonding costs and B&O taxes though they are typically covered by markups or were prohibited by contract.
- The higher markups totaled \$101,000 out of the \$3.2 million in markups reviewed.



Audit results – change order pricing paid

In addition, \$1.1 million of the \$9.1 million in change order charges examined did not have sufficiently detailed charges for labor, materials, equipment or markups.

- For some of these charges, municipalities may have paid more than typical rates and prices.
- As discussed earlier, one municipality paid \$29 per square foot for work done under the original bid, but \$285 per square foot when this work was extended by change order.
 - Again, the agency should have required a detailed change order proposal OR obtained comparable unit prices from an outside source.



WSDOT FUNDED CONTRACTS EXAMINED IN SAO AUDIT OF LOCAL GOVERNMENT CHANGE ORDER PRICING



WSDOT funded contracts

Contracts for transportation projects must comply with WSDOT change order requirements.

- Two of eight contracts examined were financed by WSDOT. Change orders for such contracts must meet the requirements of WSDOT's *Standard Specifications Manual for Road, Bridge and Municipal Construction*.
- WSDOT coordinates with the Association of General Contractors (AGC) and the American Public Works Association (APWA) to establish and update the requirements in this manual.



WSDOT funded contracts

- WSDOT indicates municipalities cannot contractually require contractors to submit detailed change order proposals using pre-established pricing for regular change orders.
- Instead, WSDOT instructs municipalities to establish the change order amount by performing independent cost estimates.



WSDOT funded contracts

Similarities and Differences Between the Transportation Department's Change Order Practices and the Leading Practices Identified in this Audit

Leading practice	Unit-priced change orders	Force account change orders	Regular change orders
Contractually pre-establish the basis for pricing <u>all</u> change orders. Does Transportation require?	Yes	Yes	No
Contractually require contractors to submit detailed change orders (for non-unit-priced work) Does Transportation require?	N/A	Yes	No (a)
Obtain written change orders for <u>all</u> additional work or materials beyond the scope of the original contract. Does Transportation require?	<u>Required</u> for new work that differs from the original contract. <u>Required or allowed</u> when additional quantities are needed to complete the work spelled out in the original contract. See Section 1-04.6 of the <i>Standard Specifications Manual</i> .	Yes	Yes



WSDOT funded contracts

In response to our audit, WSDOT indicated that:

- Pre-establishing the basis for pricing change orders could result in inflated bids, something that could happen if that pricing was not reasonable.
 - Go back to list at page 10. SAO believes a more likely outcome is more consistent bids.
- Requiring contractors to submit detailed change order proposals may not be cost-beneficial for situations involving very minor changes. However, WSDOT recognizes that obtaining detailed change order proposals from contractors is a best practice that should be followed when feasible.
- It is willing to explore the costs and benefits of these practices with the AGC and the APWA as it considers future updates to its *Standard Specifications Manual*.



COMMON RISKS FOR CHANGE ORDER PRICING AND JOB ORDER CONTRACTING WORK ORDERS



Why discuss risks common to change order pricing audit and JOC?

- Understanding how JOC contract/work order risks mirror change order risks should strengthen your:
 - Decisions about when it is appropriate to use the JOC contracting approach
 - Development of JOC contracts
 - Development of JOC work orders
 - Decisions about when to avoid unit priced work orders
 - Oversight of JOC work orders



What the remainder of this presentation will address

- Why is job order contracting used and what are the requirements?
- Job order contracting and risks
 - JOC addresses some risks identified in our change order audit
 - Other risks associated with JOC work orders
 - Practices to reduce these other risks



WHY IS JOB ORDER CONTRACTING USED?



Why Job Order Contracting?

The winter 2011 edition of Owners Perspective, the Magazine of the Construction Owners Association of America, identifies these benefits:

- Speed
- Savings
- Simplicity

Other benefits:

- JOC is designed to avoid many of the risks identified in our recent change order pricing audit.



WHAT IS JOB ORDER CONTRACTING?



What is Job Order Contracting?

Job Order Contracting (JOC) helps governments finish large numbers of commonly encountered construction projects quickly through multi-year contracts. These contracts reduce unnecessary levels of engineering, design and procurement.

Key elements:

- Standard specifications established in a master contract with a summary of work including any specific or client-driven conditions.
- A unit price book lists preset unit prices for construction tasks.
- The government issues a request for proposals (RFP).



Key elements of Job Order Contracting, continued

- Government guarantees minimum work for contractor. This is usually a small amount for consideration – a contract requirement in most states.
- Contractor issues work orders based on government's requirements.
- Costs for individual work orders are calculated by multiplying the preset unit prices by the quantities multiplied by the contractor's coefficient.
- Open communication between facilities team and JOC contracting team, including a kick-off partnering session between everyone using the contract.



Principles of Job Order Contracting

- **Unit pricing:** Contract uses a unit price book to provide preset costs for specific construction tasks. The book can cover nearly every construction, repair or maintenance task, or it can be limited to specific areas of work, or a particular trade. If a task is not in the book, it can be negotiated, priced and added to the book.
- **Contractor proposal:** As part of its proposal or bid, the contractor submits a coefficient or multiplier, which is applied to the preset unit prices appearing in the book. The coefficient includes the contractor's overhead and profit.
 - **Contract formula:** *Payment = unit price x quantity x contractor coefficient.*
- **Contract value ranges:** JOC contracts do not define actual, individual projects but award a potential maximum amount of work over a year.



JOB ORDER CONTRACTING REQUIREMENTS (We will skim these)



Awarded through a competitive process using public requests for proposals (RFPs):

- Requires effort to solicit proposals from certified minority or certified woman-owned contractors.
- At least once in a statewide publication and legal newspaper of general circulation published in every county in which the public work is anticipated, publish an RFP for job order contracts and the availability and location of the RFP documents.



Ensure the RFP documents include:

- A detailed description of the scope of the job order contract including performance, technical requirements and specifications, functional and operational elements, minimum and maximum work order amounts, duration of the contract, and options to extend it.
- Reasons for using job order contracts.
- Contractor qualifications required.
- Specific unit price book to be used.

Minimum contracted amount committed to the selected job order contractor.

- Description of the process to evaluate qualifications and proposals.
- Form of the contract to be awarded
- Method for pricing renewals or extensions to the job order contract.



The evaluation and award process:

- Establish a committee to evaluate the proposals.
- After the committee has selected the most qualified finalists, the finalists shall submit final proposals, including sealed bids based upon the identified unit price book. Such bids may be in the form of coefficient markups from listed price book costs.
- Award the contract to the firm submitting the highest scored final proposal using the evaluation factors and the relative weight of factors published in the RFP and will notify the board.
- Provide a protest period of at least ten business days following the day of the announcement of the apparent successful proposal to allow a protester to file a detailed statement of the grounds of the protest.
 - The public body shall promptly make a determination on the merits of the protest and provide to all proposers a written decision.
 - Local government shall not execute the contract until two business days following the decision on the protest.



RCW 39.10.440 - Job order contract requirements

Contract requirements:

- **Maximum contracts:** Contracts cannot exceed **\$4 million** per year for maximum of three years. Original contracts must not exceed two years and can be extended one year.

The maximum total dollar amount that may be awarded under a job order contract for the department of enterprise services, counties with a population of more than one million, and cities with a population of more than four hundred thousand is **\$6 million** dollars per year for a maximum of three years.

- **JOC contract duration:** Job order contracts may be executed for an initial contract term of not to exceed two years, with the option of extending or renewing the job order contract for one year. All extensions or renewals must be priced as provided in the request for proposals. The extension or renewal must be mutually agreed to by the public body and the job order contractor.
- **Limits on JOCs:** Governments cannot have more than two JOCs in effect at any one time.



RCW 39.10.440 - Job order contract requirements

Contract requirements:

- **Subcontracting:** At least 90 percent of the work must be subcontracted as equitably as possible among qualified and available firms, including minority and woman-owned businesses.
- **Annual advertising requirement:** The contractor shall advertise its intent to conduct public works projects annually statewide and in the counties where work will occur.
- **Wage requirements:** JOC contractors and their subcontractors must pay prevailing wages.
- **Guarantees:** If governments do not meet guaranteed minimum, it must pay the contractor the profit on the difference between the amount spent and the amount guaranteed.
- **Deadline:** All JOCs must be signed by **June 30, 2021**.



Requirements for work orders:

- **Maximum dollar amount for a work order** or project is \$350,000. If a project has multiple work orders, they must not exceed \$350,000.
- **No more than 20 percent** of the dollar value of a work order may consist of items of work not included in the unit price book.
- **Any buildings constructed** must be under 2,000 gross square feet.
- The contractor must have its subcontractor opportunity plan approved by the Office of Minority and Women's Business Enterprises or the equivalent local agency prior to issuing work orders.



JOC BENEFITS, RISKS AND PRACTICES TO REDUCE RISKS



Benefits of Job Order Contracting

- JOC procurement process is quicker than the design, bid, build process.
- JOC capitalizes on the benefits of pre-established pricing or sources for pricing. When properly structured, JOC can greatly reduce the:
 - need to negotiate,
 - potential for paying too much.



Risks Associated with Job Order Contracting

- Difficulty finding unit price sources that sufficiently match the project or enough of the project, but the JOC contract approach is used any way.
- Work order scope and specifications are too rough to accommodate a good unit price match.



Risks Associated with Job Order Contracting

- Owner specifies a unit pricing source that is too generalized,
 - Most databases don't specifically tell you how to measure the unit of work or what is or isn't included. This can lead to arguments when the contractor starts asking for additional cost items to be added.
 - Unless you are very specific up front about what is included in the unit price and what is considered an indirect cost, arguments can arise when contractors want additional money for things like scaffolding, cranes, etc.
 - These circumstances allow a contractor to low-ball the multiplier but make it up when negotiating adjustments to the unit price.



- Contractor selects a higher priced unit that does not match the work order.
- When unit prices do not accommodate the work order:
 - Contractor obtains quotes for work that differs or exceeds the work order
 - Owner uses unit price anyway
- Even if the correct unit pricing is used, the contractor proposes more quantities of work than needed.

- Establish work order scope and specifications that are precise enough to accommodate strong unit price matching.
- Select unit price sources that are detailed enough to match the job specifications.
- Make sure you understand what costs are included and excluded from the unit prices you select and how those units are measured. Consider whether your request for proposal needs clarification around the source you are using for unit prices.
- Use unit-priced work orders only when it's appropriate. When not appropriate, the contract should specify how work will be priced.
 - Contract instructs the contractor to obtain a minimum number of quotes.
 - Others

- Perform detailed review of work order costs proposed by contractors. Ensure that:
 - Proper unit price line items were selected
 - Quantities of unit prices match the work order scope and specifications.
- When the unit price book is not appropriate for certain work orders, and the contract requires contractor to obtain quotes, the owner should review the quotes to ensure:
 - Work requested precisely matches the work order.
 - Lowest quote was selected or reasons for not doing so were provided
- Contract should specify the level of monitoring expected by A&E firms charged with overseeing work orders.
 - Owner should spot-check A&E firm's scrutiny

- The unit pricing source should be:
 - Comprehensive
 - Site specific
 - Recent
 - Detailed
 - Clearly state what is included and excluded

Local sources:

- King County maintains historical unit prices for sewer and water projects.
- WSDOT maintains historical unit prices for highway projects.
- Spokane maintains historical unit prices for highway projects.

Other sources:

- Gordian Group: Used at the City of Bellevue.
- RS Means Cost Data: Used by Architects for budget estimating.
- Building News INC (BNI): The first two on this list are more commonly used for JOC throughout the country.
- Recent bids (discussion)

Design-Build Contracts

What is a design-build contract and how does it result in fewer change orders?

- Design–build is a project delivery method in which the contractor is responsible for both the project’s design and its construction. This approach speeds up project delivery by overlapping these two phases.
- It also makes the contractor fully responsible for the project outcome at a guaranteed price.
- The owner receives more certainty over both cost and schedule.
- To use it, owners must first define the project’s design and performance requirements. To make these definitions, owners typically perform preliminary design, which they share with the contractor.
- Even if the contractor borrows from this preliminary design, the typical contract holds the contractor fully responsible for the final design and any unexpected costs or delays that result from it.

If properly drafted and managed, design-build contracts can significantly reduce change orders.

- Change orders for design errors should not occur as the contractor is responsible for design.
- Unless the owner changes the project's design and performance requirements or schedule, the contractor is not entitled to added compensation or time.
- The contractor is not typically entitled to change orders for unusual or unanticipated site conditions if it was contractually responsible for the survey work that determined those conditions.
- Contractor is entitled to compensation for unproductive staff time attributable to owner-caused delays, such as failure to obtain a permit.
- Even with a well-written contract, change order disputes can occur. For example, an owner may insist an added project element is necessary to fully meet the project's design requirements - while the contractor argues it is a scope change.

- Same pricing practices that are applicable to design-bid-build and to JOC are applicable to design-build.
- But remember, normally there will be fewer change orders on design-build contract versus a design-bid-build contract.
 - Studies indicate change rates for design-build fall in the 5 -7 percent range versus 9 -11 percent for design-bid-build.
 - <http://fire.nist.gov/bfrlpubs/build02/PDF/b02150.pdf>,
 - <http://www.fhwa.dot.gov/reports/designbuild/designbuild4.htm>.

- Change orders were for work that exceeded the original project scope. I I I I I I I I I I
- Work performed with no contract/added work lacked a contract change order. I I I I
- Change orders exceeded scope of council's emergency declaration. I I

- WSDOT. Change orders based on the bid's unit pricing would have cost less than the force account work that was approved. I
- ST1. Unit pricing significantly exceeded comparative market pricing.
- WSDOT, POS, KCLS. Inadequate change order reviews resulted in overcharges/excessive profit markups/direct charges for items covered in the overhead markup/increased risk for overpayment.
- ST1, KCLS. Improved frequency, format and guidance for independent cost estimates needed to better control change order costs.
- KCLS. Contract allowed for high markups on change work; 34% on labor and 23% on materials.
- KCLS. Owner was direct charged for items covered in the overhead markups
- POS. No change order to recognize deleted work, which resulted in overpayment.

The Local Government Performance Center within the State Auditor's Office offers tools and training to help local leaders who want their governments to work better, cost less, and earn greater trust. At ***no cost*** to local governments the Performance Center provides:

- An online resource center with tools and examples.
- Training on how to improve government services.
- Customized on-site technical assistance
- **Our goal: better results for citizens and customers at lower cost to government and taxpayers**

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