

APPA Effective and Innovative Practice Award Submission January 2009

University of North Texas, Facilities Management

Statement of Program

The University of North Texas Facilities department revised the small renovation project delivery process in response to widespread customer and employee dissatisfaction. The existing process was generally derailed from the beginning by insufficient lead time to prepare an accurate estimate and “surprise” cost overruns to the customer.

After a “peer review” of the many different methods used by other institutions for project delivery, the revelation came to us that *if we wanted to be compared to a contractor, we needed to act as if we were a contractor.*

The result was a new project delivery methodology with *guaranteed “contract pricing”* prepared from MEANS average pricing. Since *average* construction costs were now being used to build the estimate, Facilities would either retain remaining funds at the end of the project or cover cost overruns. Estimates using average pricing could be completed from the plans without time consuming site surveys.

The result has been consistent pricing for similar remodels whether constructed by in-house personnel or outsourced construction firms and the *guaranteed pricing* has been especially well received by the customers. This method of delivery provides productivity incentives for the in-house construction team to work efficiently as if they were a small contractor.

Innovation/ Creativity/ Originality

The small renovation projects were usually in trouble from the very start, as there was never sufficient time to prepare a detailed estimate. In an attempt to expedite the estimating process, contractors would be brought in. Their subsequent initial estimate generally exceeded the budget, and this would then precipitate scope reductions or cost overruns.

In addition, estimating challenges occasionally created the “\$10,000 outlet” when a new electric subpanel would be required for the addition of a single circuit because the existing panel was overloaded.

In addition to the estimating and pricing challenges, projects previously were billed to the customer through a combination of work orders and purchase orders and final billing could not be completed until the last work order was closed and the final vendor invoice had been paid. This resulted in a stream of charges that aggravated the customer’s financial staff as well as the Facilities Business Office.

Everyone was dissatisfied with the process. As a result, three major changes were made to the procedure:

1. *Estimates are prepared using average unit pricing.*
2. *These estimates are then guaranteed and invoiced as a “fixed price”.*
3. *Finally, billing was changed so that the customer is only billed twice; 50% when the notice-to-proceed is issued and 50% upon occupancy.*

The project billing was changed to “50 / 50” billing with 50% of the estimate being collected at the beginning of the project. Since materials generally comprise approximately 45% of the total project cost, these charges were used to cover the material cost. The final 50% plus any change orders are billed at client “move-in” or “project acceptance”.

This procedural change meant that Facilities was operating as a business enterprise with the same set of “best practices” used in businesses. Funds are collected in a revolving account. Because Facilities was now able to retain any efficiency that resulted from the work being completed under budget, the savings would ultimately be passed along on to all projects in the recalculated average.

Institutional Benefits

The institutional benefits realized from this procedure were numerous and some were unexpected.

The value of consistent estimates is obvious, because customers with similar remodels were now paying the same charges whether the project was completed in-house, by contract, or by a mix of the two. The sudden, unexpected \$10,000 outlet created by the need for a new subpanel when the existing one was filled largely disappeared, because these costs were now built into the “standard” price for an outlet.

We were a little surprised to find out how much self imposed pressure this relieved from the people creating the estimates. Knowing that the diversity of average pricing would compensate for many errors, estimates are now dispatched quickly and efficiently without dwelling over details. Facilities could now promise to deliver an estimate within 3 days from the receipt of plans and have the estimate be accurate.

The customers were thrilled to know that they were able to receive their project for an agreed upon price that would change only if they, the customer, requested additional services.

Costs incurred throughout the project were collected and reimbursed to the project fund account only after the client was satisfied. The final billing included any authorized change order to the scope and the administrative charges. By reducing the charges impacting client accounts and working from a signed and approved project budget, reconciliation of expenditures was improved, client expectations were better managed, and budgetary accounting was simplified for both Facilities and the clients.

The benefit to the institution of coordinating and consolidating the billing and payment process is to streamline processes and reduce redundancies, improve accountability, and improve the professional delivery process. The institution benefits when redundancies are minimized or deleted. Improving the accountability of any program benefits the institution by utilizing the available more productively.

Lastly, the benefits recognized by Facilities operating as a business enterprise cannot be overstated. Customers are impressed when estimates are calculated with a fixed price per square foot or square yard and the guaranteed. Workers feel as if they were competing against a standard. The bar of professionalism is raised.

Portability and Sustainability

In our survey, we found that small project delivery procedures varied widely. Some schools charged materials but not time. Other institutions included overhead in their time calculations while other did not. Still, however, everyone was burdened by final cost not matching the estimate for all the same reasons. Estimating using an average cost and then guaranteeing the estimate would solve this problem no matter what methodology is used for developing the hourly rates at the institution.

The only ingredient necessary is management commitment to the process, because while MEANS or average estimating provides a good starting point, developing accurate average rates means that some projects come in slightly over budget and thus "lose" while others make money. It takes a several month commitment to demonstrate that this will work out.

The reality is that in our experience that the University of North Texas never "lost" money but only made less recovery on some projects than we did on others.

Management Commitment and Employee Involvement

When average pricing is used, everyone involved needs to remember that "average" is just that. If \$2.65 per square foot is used as the price for new ceiling construction, then it should be remembered that this average will work out over the course of a year; panic on the first job where the ceiling costs \$3.00 per square foot because of an unforeseen problem will cause the program to fail. In that respect, the University of North Texas administration allowed this initiative to succeed by supporting it long enough for all involved to have confidence in the plan.

The construction employees grew to appreciate the new process because they now had a benchmark and standards. The estimators were glad to be relieved of the perceived pressure to foresee every contingency. The Budget Office and the Facilities Business Office enjoyed the simplicity. Best of all, the customers were satisfied for the first time.

Transforming the project construction activities was successful due to management support. Because projects combine the talents of trades, budget staff, architects, engineers and designers there needs to be strong support to work through the expected communication and procedural issues. Management supported the ideas and was present at all procedural meetings, as were staff from the trades shops and engineering. Employee involvement has grown in support of the procedures created through the group process as they have seen the benefits first hand in the successful culmination of projects.

Program Analysis and Documentation

This program will be successful when the average unit costs are realistic, as this approach provides value for the customer and incentives for the Facilities organization. Indeed, either *excess revenues* or *unrecovered costs* will lead to “*business*” or program failure, just as it would with the contractor.

The University of North Texas successfully used this methodology to “fast track” 45 remodel and renovation projects with an estimated value of \$6 million prior to the start of school in the fall of 2008. The final “costs” on nearly all of these projects were very close to the original estimate.

Not surprisingly, the estimates on the larger projects with multiple trades proved to be more accurate than the smaller remodels with only one or two trades involved. This is due to the fact that a single unforeseen condition on a small project might cause one trade estimate to miss the actual cost by a significant percentage, while on a larger project with more diversity the errors in the individual line items of the estimate will generally offset. Average pricing means that the unit costs will average out in the long run, and that is indeed the case even across the relatively small number of projects delivered to date.

There will be administrative problems with this model if it cannot be demonstrated conclusively that in the long run the construction and remodel operations are “non-profit” and at “zero sum”. State facilities organizations cannot legally subsidize auxiliary operations nor will Office of Management and Budget A21 guidelines tolerate excess revenues. A long term balance sheet needs to be created and the unit costs need to be monitored and re-adjusted as required.

Most Facilities organizations spend numerous accounting hours calculating overhead and shop rates for cost recovery to the nearest penny only to allow wide variances in how the trades account for their time defeat the entire exercise.

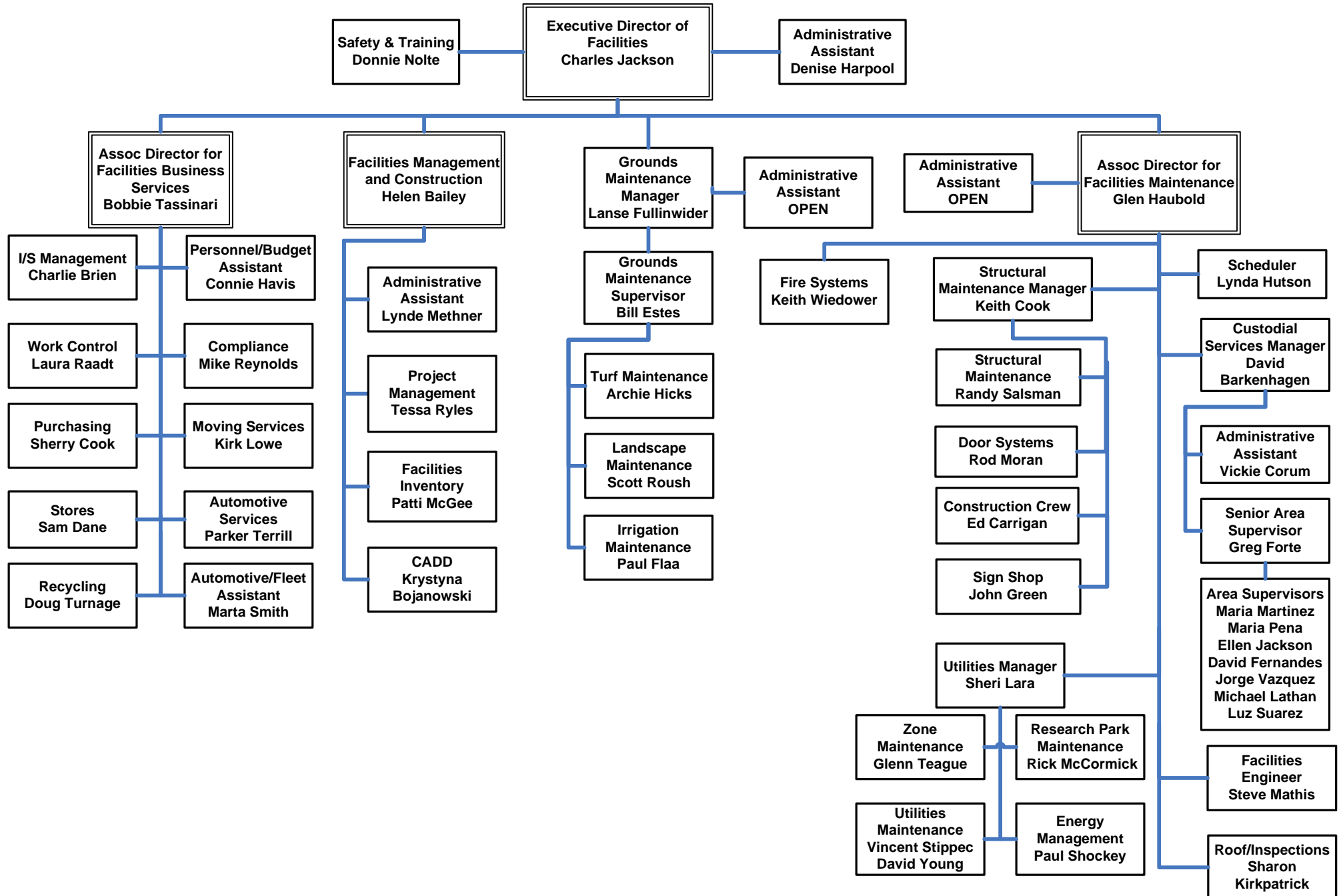
A customer would be irate if they went to pay for having the oil changed in their vehicle and were told that there would be an additional charge because the mechanic dropped the oil plug down the drain and spent an hour retrieving it. Yet, most Facilities organizations take that approach with their customers all the time and then wonder why their credibility suffers. Unit price estimating and *guaranteed “contract pricing”* resolves this conundrum.

This new practice accelerates service delivery, lowers costs, increases productivity, improves customer service, and generates revenue.

UNT Facilities

ORGANIZATIONAL CHART

May 2008





- **Bobbie Tassinari**

University of North Texas

Associate Director of Facilities Business Services

- **Glen Haubold**

University of North Texas

Associate Director of Facilities Maintenance

CAPPA • Oklahoma City • 2008



A Fresh Approach to Small Remodels

CAPPA • Oklahoma City • 2008

Demographics



- ▶ *34,000 FTE students*
- ▶ *4,109,000 E&G*
- ▶ *6,474,000 Total GSF*

CAPPA • Oklahoma City • 2008

Demographics



- ▶ *UNT owns 880 acres of property in and around Denton*
- ▶ *Facilities maintains*
 - *129 structures plus utility systems and pavements*
 - *254 vehicles and 170 pieces of equipment*
- ▶ *With 269.5 FTE*

CAPPA • Oklahoma City • 2008

Demographics



- ▶ *Facilities budget totals about \$20,400,000*
- ▶ *Utilities budget is \$8,930,000 or \$24,500 a day*
- ▶ *Salaries are \$7,962,000*
- ▶ *We must earn in excess of \$2,000,000 to enable us to fulfill our maintenance obligations*

CAPPA • Oklahoma City • 2008

Fresh Approach



- ▶ *Small remodels and customer driven renovations*
- ▶ *Definition*

CAPPA • Oklahoma City • 2008

Organizational Structure



- ▶ *Facilities Management and Construction*
 - *Project planning and design, Space Management*
 - *CAD and drawing archives*
- ▶ *Facilities Maintenance*
 - *Structural, Utilities, Custodial Groups, Facilities Engineering*
- ▶ *Facilities Business Services*
 - *Financial / Work Control / Automotive / HR*
- ▶ *Grounds*

CAPPA • Oklahoma City • 2008

Management & Construction



Design Department

- Staff of project managers and designers
- Provide design services for on-campus projects
- Furniture procurement
- Project management



CAPPA • Oklahoma City • 2008

Previous method



- ▶ *Customer requested project*
- ▶ *FMC planned and estimated*
- ▶ *Projects were billed through a combination
of purchase orders and work orders*

CAPPA • Oklahoma City • 2008

Challenges in planning



- ▶ *Uncertainty over delivery method*
- ▶ *Long estimate lead times*
- ▶ *Inconsistent pricing*

CAPPA • Oklahoma City • 2008

Challenges in delivery



- ▶ *Protracted billing*
- ▶ *Inconsistent costs*
- ▶ *The \$10,000 outlet*

CAPPA • Oklahoma City • 2008

Wide dissatisfaction



- ▶ *Customers*
- ▶ *Business office*
- ▶ *Business Services unhappy*
- ▶ *Morale and teamwork affected*

CAPPA • Oklahoma City • 2008

Reorganization



- ▶ *Achievement of System recognition led to reorganization and restructuring of campus functions*
- ▶ *New President / Vice President*

CAPPA • Oklahoma City • 2008

Peer Review of our own



- ▶ *University of Arkansas*
- ▶ *University of Texas*
- ▶ *University of Oklahoma*

CAPPA • Oklahoma City • 2008

University of Oklahoma



If the scope of the project appears to involve only one trade or that it will not exceed \$1,500, an estimate will be e-mailed to you (or the contact person). No detailed estimates are prepared for these types of projects. You may then accept or reject the estimate

CAPPA • Oklahoma City • 2008



For the first option, you may proceed at Actual Cost, which means you will not actually receive a detailed estimate. The project will be scheduled as soon as construction documents are prepared and approved. You will then be billed for the Actual Cost of the project, as well as costs associated with the estimate. These costs include document preparation and asbestos surveys.

University of Oklahoma



With the second option, construction documents are prepared. The Facilities Designer and Engineers will work with you to further develop the scope of work and details of the project. When completed, the drawings will be ready for your review, correction, and approval. Approved drawings are issued to the Estimator to prepare the detailed estimate.

CAPPA • Oklahoma City • 2008

Revelation



- ▶ *If you want to be compared to a contractor
you need to act as if you are a contractor*

CAPPA • Oklahoma City • 2008

Responsibilities



- ▶ *Facilities Management and Construction performs the planning function*
- ▶ *Facilities Maintenance handles project delivery through either in-house construction, JOC, or bid process*
- ▶ *Facilities Business Services tracks costs and bills the customer*

CAPPA • Oklahoma City • 2008

Changes made



- ▶ *Estimate with unit pricing to shorten turnaround*
- ▶ *Bill from estimates, i.e., guarantee estimates (and don't return the dollars if we're under)*
- ▶ *50 / 50 billing (half down)*

CAPPA • Oklahoma City • 2008

RS Means



- ▶ *Unit prices*

CAPPA • Oklahoma City • 2008

Pricing



- ▶ *Carpet - \$35 yd*
- ▶ *Lockset -\$250*
- ▶ *Door / frame - \$1,200*
- ▶ *Paint - \$1.25 sq ft*
- ▶ *New walls (w/ paint) - \$10 LF*

CAPPA • Oklahoma City • 2008

The process



- ▶ *Customer recognizes need*
- ▶ *Project Initiation Worksheet is completed*
- ▶ *A Project Manager is assigned*
- ▶ *Scope and estimate are prepared*
- ▶ *50 % is billed when customer approves signed estimate*
- ▶ *Final 50 % bills at walk through*

CAPPA • Oklahoma City • 2008

Project Initiation



| UNIVERSITY OF NORTH TEXAS™ | | | |
|---|---|--------------------------|-------------------|
| OFFICE OF FACILITIES MANAGEMENT & CONSTRUCTION ph: (940)565-4974 fax: (940)565-4650 | | | |
| PROJECT INITIATION WORKSHEET | | | Rev. 09/2007 |
| (RED Indicates a required field) | | | |
| CONTACT & PROJECT INFORMATION | | | |
| Authored Date: | Project Contact @ Phone: | E-mail Address: | |
| Requesting Department: | | | |
| Campus Location: | Desired Start Date: | Desired Completion Date: | |
| Building or Area Name: | Room Number(s) or Space Identifier: | | |
| if "Other" <input type="checkbox"/> | Project Type or Activity: <input type="checkbox"/> New construction <input type="checkbox"/> Renovation <input type="checkbox"/> Furniture procurement <input type="checkbox"/> Other: | | |
| Service(s) Requested: <input type="checkbox"/> Consultation <input type="checkbox"/> Preliminary Estimate <input type="checkbox"/> Final Estimate <input type="checkbox"/> Implementation Other - briefly explain below: | Project Description (as descriptive as possible): | | |
| FUNDING & APPROVAL INFORMATION | | | |
| Deptid or Projid: | Requested Project Budget: | | |
| Deptid/Projid Holder Approval | | | |
| Name: | Date: | Signature: | |
| Unidentified Funding Justification: <input type="checkbox"/> Application for grant <input type="checkbox"/> Seeking donor funding | | | |
| Other (explain): | | | |
| Dean/Director Approval | | | |
| Name: | Date: | Signature: | |
| *** OFFICE USE ONLY *** | | | |
| TMA creation date: | Created by: | TMA Project #: | TMA Project Name: |
| Budget Office Approval (required on all projects over \$5,000) | | | |
| Name: | Date: | Signature: | |
| Provost Approval (required on all projects involving space reassignment) | | | |
| Name: | Date: | Signature: | |

Return completed form using one of three methods:
 Electronically: Scan completed form and send to: piw@unt.edu
 Facsimile: (940) 565-4650 Attn: Peter Palacios
 Inter-departmental Mail: Facilities - Main Office Attn: Peter Palacios
 Questions? Comments? Please contact us at 565-4974.

Project Initiation Worksheet

- Describe what you want
 - Include DeptID with DeptID holder and dean/director signature
 - Budget Office approval if over \$5,000
 - Facilities web page at <http://www2.facilities.unt.edu>
- CAPPA • Oklahoma City • 2008

Estimate lead time improved



- ▶ *Went from disjointed and inconsistent prices to standard prices*
- ▶ *3 day turnaround*
- ▶ *Ceiling is good example*

CAPPA • Oklahoma City • 2008

Improved service level



- ▶ *Billing is immediate when customers are satisfied*
- ▶ *The \$10,000 outlet (this is not always possible)*

CAPPA • Oklahoma City • 2008

Costs are the same for all



- ▶ *No "discrimination"*
- ▶ *\$10,000 outlet goes away*

CAPPA • Oklahoma City • 2008

Maximize dollars



- ▶ *Combine maintenance \$\$'s with remodels*
- ▶ *Deliver a complete project*

CAPPA • Oklahoma City • 2008

Summer '08 Facilities Projects



- *45 projects underway to complete for Fall semester*
- *Totaling almost \$6.1 million*
- *Projects include:*
 - *Renovation of the Union Parking Garage*
 - *Math Emporium*
 - *CART offices*
 - *Relocation of ROTC*
 - *Various Art dept projects*
 - *Chestnut Hall Optical Clinic*
 - *Various Chilton projects*
 - *And more.....*

CAPPA • Oklahoma City • 2008

Where does it go?



- ▶ *Work Orders*
 - *Trades work recharged trade accounts*

50 / 50 Billing



- ▶ *Project Manager Initiates Request for Initial Collection of Revenue.*
- ▶ *All Associated Work Orders are Charged Against Facilities Internal Accounts.*

CAPPA • Oklahoma City • 2008

50 / 50 Billing



- ▶ *All Purchase Orders are Processed Against Facilities Clearing Account.*
- ▶ *Project is Completed. Project Manager Notifies AD to Collect Final 50% of Revenue.*
- ▶ *Project is Closed Out. Warranty and Punch Item Activities Tied to Sub-Project.*

CAPPA • Oklahoma City • 2008

50 / 50



Pros:

- ▶ *Clean and concise billing for customers.*
- ▶ *Initial revenue collection funds start-up of project.*
- ▶ *Purchase Orders impact clearing account – easier to track.*

CAPPA • Oklahoma City • 2008

50 / 50



Pros:

- ▶ *Final revenue collection funds administrative charges, profits/losses, and unforeseens.*
- ▶ *Reconciling project "actual cost" as compared to "original estimate" faster and easier.*

CAPPA • Oklahoma City • 2008

50/50



Cons:

- ▶ *Initial start up cost may exceed initial revenue collection.*
- ▶ *Scope of project may cover several months activities.*

CAPPA • Oklahoma City • 2008

50/50



Cons:

- ▶ *Cost overruns.*
- ▶ *Timeliness of project close out as compared to funding needs.*

CAPPA • Oklahoma City • 2008

What is cost anyway?



- ▶ *\$35 an hour tech time*
- ▶ *Full material cost recovery*
- ▶ *Combine with deferred maintenance
where feasible*
- ▶ *4.5 % and 12 % administrative charges*

CAPPA • Oklahoma City • 2008

What's next?



- ▶ *Developed good feedback loop to test our pricing*
- ▶ *Customer satisfaction survey*

CAPPA • Oklahoma City • 2008

Questions ?



- ▶ *Have a safe trip home!*

CAPPA • Oklahoma City • 2008