



## Facilities and Services

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### MEMORANDUM

**AUGUST 9, 2012**

**TO:** Angela Throneberry  
Senior Vice President for Administration and Finance

**FROM:** Glen Haubold *Glen*  
Assistant Vice President of Facilities and Services

**SUBJECT:** Townsend Reports

As you know, over the past 5 years Townsend and Associates has prepared three reports for NMSU regarding the construction process in Facilities and Services. The firm was originally engaged in the spring of 2007 at the request of the NMSU Office of Audit Services to review the capital construction process in the Office of Facilities Planning and Construction as well as the change orders for Foster Hall, Pan American Center, and Chamisa I. During this time, allegations of undesirable activities surfaced in what was then the Office of Facilities Services, and the scope of Townsend's work was expanded to review the small project process there.

In 2011, after attending many conferences and discovering that other institutions were the beneficiaries of extremely low construction costs driven by the recession, we requested an additional study by Townsend to help determine why NMSU's construction costs remained high.

Interestingly, and most likely due to numerous changes in the NMSU administration, many of us were unaware of the first Townsend report until Debbie Townsend brought it to our attention. Most likely also related to these personnel changes, some of the issues from the first study remained unresolved.

These reports present a comprehensive review of Facilities and Services and provide numerous suggestions for improvement. Because the three combined reports present a much clearer picture than any single one does when taken alone, I have combined them into a PDF.

I believe that it is important to have these reports in one location, and am certainly willing to review them at your convenience.

# Construction Audit Report

**New Mexico State University**

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## **Section I**

**Review of the Capital Process for Foster Hall,  
Pan American Center and Campus Apartments**

**And**

## **Section II**

**Review of Change Orders for Foster Hall, Pan American  
Center, Campus Apartments and Freshman Hall**

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**Report Submitted By:**

**R. L. Townsend & Associates, Inc.**

Rich Townsend  
Debbie Townsend  
(972) 208-1222  
Plano, Texas

June 26, 2008

**Section I****EXECUTIVE SUMMARY****Review of the Capital Process for Foster Hall,  
Pan American Center and Campus Apartments****Audit Background**

As a part of an overall program of controlling construction costs, New Mexico State University (NMSU) engaged R.L. Townsend & Associates, Inc. to review the Capital process for Foster Hall Pan American Center and Campus Apartments.

**Project Background**

The following three projects were selected for review by NMSU:

<b>Project</b>	<b>Date Started</b>	<b>Est. Final Cost</b>
Foster Hall	November 2005	\$ 12,875,020
Pan American Center	September 2005	\$ 26,338,782
Campus Apartments	May 2005	\$ 18,020,154

It should be noted that Michael Rickenbaker started with the Architect's Office at the same time or after these projects had gone out for bid for the General Contractor. Although these projects had initial budgeting problems with both the outside Architects and the internal budgeting process, the Architect's Office has modified their process to eliminate the same problems from occurring in future projects. We reviewed several other projects and did not see any systemic budgeting issues.

**Review Scope and Objectives**

The Objectives of the review were to determine:

- The accuracy of the original budget
- The time required to complete a capital project including a measurement of actual construction time as a percentage of the total project time.
- The differences between estimated budgets, final budgets, and actual costs.
- Causes for material differences between estimated and final budgets and actual costs.
- The sources of funding for cost increases.

- Opportunities to improve the overall work management/estimation/project tracking process for the Architect's Office.

The Scope of the review included a review of the following documents for Foster Hall, Pan American Center and Campus Apartments:

- Minutes from NMSU Campus Planning meeting
- Board of Regents Submittals and Approvals
- Approvals by the NM Commission on Higher Education
- Approvals by NM State Department of Finance
- RFP for outside Architects
- Selection process for outside Architect
- Outside Architect Contract
- Outside Architect Correspondence Files
- Outside Architect timeline for project
- Refinement of the Budget & Redesign
- RFP for General Contractor
- Selection process of General Contractor
- General Contractor Contract
- Acceptance of Alternates
- Change Orders
- Outside Architect vs. Project Management Oversight
- Construction Close-Out process
- The budget and bidding process for several other large construction projects
- Status Report of Major Projects as of December 31, 2007

**Conclusions:****Process Reviews of Pan Am, Foster Hall & Campus Apartments**

- Depending on the size of the project, the Industry considers Change Orders between 5% - 10% for new construction and 10% - 20% for renovation work to be acceptable. As will be shown later in this report, the actual change orders for all three projects came well within acceptable industry standards.
- Subsequent to Pan American and Foster Hall, the Architect's Office has not had to rebid the General Contractor work. This is due to management making changes in the budgeting process so this does not occur in future projects.
- Based on conversations with the Architect's Office, their internal process has been modified to avoid or minimize the impact of underestimating costs or additive change orders on future projects. During our limited review, we did not identify any additional projects with similar issues however other projects were not included in the scope or reviewed in detail.
- The Architect's Office may want to review their punch list process to try and shorten the time to resolve the punch lists for each project.
- The selection process used to hire external Architects includes a review of any past experience with the Architect's being considered. Architect's providing less than satisfactory service to NMSU have not been hired to lead new projects.

**Change Order Reviews of Freshman Housing, Foster Hall, Pan Am & Campus Apartments**

- During the Freshman Housing audit, we reviewed all Owner Change Orders and backup. In addition we reconciled items charged to NMSU in Owner Change Orders to Subcontract Change orders at Wooten Construction, the General Contractor. Overall, the change order process at NMSU appeared to be well managed. There was nothing identified in the paperwork reviewed that would indicate the scope contracted for was not delivered.
- During the Foster Hall audit, we reviewed all Owner Change Orders and backup. In addition we reconciled items charged to NMSU in Owner Change Orders to Subcontract Change orders at Ray Ward & Sons, the General Contractor. Overall, the change order process at NMSU appeared to be well managed. There was nothing identified in the paperwork reviewed that would indicate the scope contracted for was not delivered.
- During the Pan Am audit, we reviewed all Owner Change Orders (OCO's) and backup. In addition we reconciled items charged to NMSU in Owner Change Orders to Subcontract Change Orders (SCO's) at Jaynes Corporation, the General Contractor. Overall, the change order process at NMSU appeared to be well managed. There was nothing identified in the paperwork reviewed that would indicate the scope contracted for was not delivered.
- Campus Apartments - Due to all the labor and contractor issues and discussion of possible legal action, it was decided that an audit of the contractor's records may not be the best use of resources. We did review the records and correspondence files maintained by NMSU. Overall, it appears that this project was managed appropriately by NMSU even though the General Contractor had a variety of internal problems.

# New Mexico State University

Review of Major Construction Expenditures

Report Date: June 26, 2008

## The Accuracy of the Original Budget

The following chart shows that budgets for the three projects increased by \$10,344,002 or 21.6% of the original budgets:

Table #1 - Financial History of Projects as of 12-31-2007						
Project	Original Board Approval Date	Original Project Budget Approved by Board	Current Revised Project Budget Approved by Board	Current Forecast of Amount to be Spent on Project	Budget Increases Approved by Board	% of Approved Budget Increases Compared to Original Budget
Pan Am Center Renovation & Addition	7/19/2004	\$ 22,868,141	\$ 26,624,143	\$ 26,581,986	\$ 3,756,002	16.4%
Campus Apartments	10/25/2004	\$ 13,900,000	\$ 18,188,000	\$ 18,174,585	\$ 4,288,000	30.8%
Foster Hall	7/19/2004	\$ 11,050,000	\$ 13,350,000	\$ 12,973,713	\$ 2,300,000	20.8%
Totals		\$ 47,818,141	\$ 58,162,143	\$ 57,730,284	\$ 10,344,002	21.6%

Note: The budget approved by the Board is intended to cover the following costs:

- Design, Testing, Interior Design and Administration
- Construction Cost which is approximately 75% - 85% of the total
- Other expenses such as Furnishings, Communications, Artwork, and Moving Cost

The majority of reasons for these Budget increases are due to the following:

- Scope changes were requested by NMSU,
- Outside architects underestimated the construction costs.
- Construction material costs were increasing.
- The rebidding process added time and cost to the construction cost.
- In order to meet the budget, the scope was reduced, but in some cases, added back again.

Conclusion:

Based on conversations with the Architect's Office, their internal process has been modified to avoid or minimize the impact of the above issues on future projects. During our limited review, we did not identify any additional projects with similar issues however, other projects were not included in the scope or reviewed in detail.

**The Timing to Complete a Capital Project:**

The following chart shows when the General Contractor bids were received, the estimated completion date and the status of the project as of 12/31/07:

Table #2 - Timing of Projects as of 12-31-2007					
Project	Original Date Approved by Board	Original Construction Bids Received	Revised Construcion Bids Received	Est. Completion Date	% Complete as of 12/31/07
Pan Am Center Renovation & Addition	7/19/2004	12/2/2004	9/13/2005	Oct 06	99%
Campus Apartments	10/25/2004	5/26/2005	NA	Aug 06	99%
Foster Hall	7/19/2004	11/18/2004	4/26/2005	Mar 07	95%

For these projects, the Architect's Office obtained approval from the Board prior to the drawings being finalized for General Contractor bid purposes. After approval was received by the Board, the outside Architect would finalize drawings before they were sent out for General Contractor bids. In the case of Campus Apartments, there were significant scope changes which resulted in additional time spent to determine what scope of work would be included in the General Contractor Request for Proposal package.

Each of these projects had hard completion dates which the General Contractors were able to meet. As with most hard completion dates, there are many punch list items that need to be resolved subsequent to the opening of the building. Once the building is open, the General Contractor moves on to their next project and it is difficult to get the punch list items completed. On these three projects, some punch list items were still unresolved as of 12/31/07.

The only leverage NMSU has to get these remaining items completed is by withholding a portion of the funds due to the General Contractor. In all cases, monies have been withheld and Project Management is following up with the General Contractors on a regular basis.

Although keeping these projects open for a year after they are occupied may seem excessive, it is not all that uncommon.

**Conclusion:**

The Architect's Office may want to review their punch list process to try and shorten the time to resolve the punch lists for each project.

# New Mexico State University

Review of Major Construction Expenditures

Report Date: June 26, 2008

## Details of Pan American Center Budget:

The following chart shows the detailed budget changes throughout the life of the project:

Pan Am							
Dates	7/19/2004	Original General Contractor Bids 12/2/04	General Contractor Rebid 9/13/05	9/16/2005	7/18/2006	10/22/2007	Actual as of 12/31/2007
Board Approved Budgets	\$ 22,868,141	\$ 22,868,141	\$ 22,868,141	\$ 23,415,404	\$ 26,165,404	\$ 26,624,143	\$ 26,624,143
Scope	Site Infrastructure, Interior Renovation, Additions, Office Build Out & Practice Court	Site Infrastructure, Interior Renovation, Additions, Office Build Out & Practice Court	Significantly reduced the Interior Renovation & Office Build Out	Added 2nd Elevator & Additional Cost with Cross Aisle Seating	Scoreboard & Fire Protection System	Additional Cost	
Outside Architect Construction Est. w/o Tax		\$ 16,997,287	\$ 18,596,190				
Low Bid w/o Tax		\$ 21,986,000	\$ 17,255,000	\$ 17,255,000	\$ 17,255,000	\$ 17,255,000	\$ 17,255,000
Alternates		\$ 2,795,800	\$ 1,934,700	\$ 1,779,900	\$ 1,779,900	\$ 1,779,900	\$ 1,779,900
Add Scoreboard CO Cost					\$ 1,672,973	\$ 1,672,973	\$ 1,672,973
Total Bid	\$ 19,660,593	\$ 24,781,800	\$ 19,189,700	\$ 19,034,900	\$ 20,707,873	\$ 20,707,873	\$ 20,707,873
Plus Contingency (Tax & CO's)	\$ 1,412,945	\$ 1,200,000	\$ 1,078,441	\$ 1,780,504	\$ 2,857,531	\$ 3,316,267	\$ 3,008,494
Plus Other Exp.		\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 442,029
Plus Design, Testing & Admin	\$ 1,794,873	\$ 2,300,000	\$ 2,300,000	\$ 2,300,000	\$ 2,300,000	\$ 2,300,000	\$ 2,423,590
Construction Budget Required to Meet Original Scope	\$ 22,868,411	\$ 28,581,800	\$ 22,868,141	\$ 23,415,404	\$ 26,165,404	\$ 26,624,140	\$ 26,581,986
Excess over original Budget	0%	25%	0%	0%	0%	0%	0%

### **Pan American Center:**

The \$22.8M budget was approved by the Board of Regents based on the outside Architects estimate. The first set of General Contractor bids came in significantly over the Board approved budget of \$22.8M. The Architect's Office had to go back to the Board for several million dollars or have the outside Architect redesign the project. They decided to have the outside Architect redesign the project and try to maintain the approved budget of \$22.8M. Approximately nine months later they went out for bid again and received a low bid of approximately \$19M including alternates, which totaled 83% of the budget.



Subsequent to the start of construction, the Board approved increases to the budget totaling approximately \$3.75M. These increases were primarily due to:

- Added 2<sup>nd</sup> Elevator & additional cost with Cross Aisle Seating – Approximately \$550K
- Scoreboard and Related Modifications & Fire Protection System – Approximately \$2.75M
- Miscellaneous Changes - Approximately \$450K

Although the budget increased by 16%, the majority of this budget increase was due to scope changes requested by the NMSU.

# New Mexico State University

Review of Major Construction Expenditures

Report Date: June 26, 2008

## Details of Campus Apartments Budget:

The following chart shows the detailed project changes throughout the life of the project:

Campus Apartments					
Dates	10/25/2004	Original General Contractor Bids 5/26/05	7/19/2005	9/16/2005	Actual as of 12/31/07
Board Approved Budgets	\$ 13,900,000	\$ 13,900,000	\$ 15,290,000	\$ 18,188,000	\$ 18,188,000
Scope	333 beds/open fall 2006	276 beds/open fall 2006	276 beds/open fall 2007	333 beds/open fall 2007	
Low Bid w Tax	\$ 9,217,500	\$ 12,082,729	\$ 12,082,729	\$ 12,082,729	\$ 12,082,729
Alternates	\$ 1,010,250	\$ -			
CO for 57 Additional Beds				\$ 2,452,734	\$ 2,452,734
Total Bid	\$ 10,227,750	\$ 12,082,729	\$ 12,082,729	\$ 14,535,463	\$ 14,535,463
Plus Contingency (CO's)	\$ 1,390,125	\$ 1,143,308	\$ 1,143,308	\$ 1,248,556	\$ 1,219,069
Plus Other Expense	\$ 1,176,000	\$ 1,068,600	\$ 1,010,478	\$ 1,218,956	\$ 1,266,109
Plus Design, Testing & Admin.	\$ 1,106,125	\$ 959,177	\$ 959,177	\$ 1,185,025	\$ 1,153,944
Construction Budget Required to Meet Original Scope	\$ 13,900,000	\$ 15,253,814	\$ 15,195,692	\$ 18,188,000	\$ 18,174,585
Difference between budget and actual	0%	10%	-1%	0%	0%

### **Campus Apartments:**

The outside Architect underestimated the cost per bed in the original estimate. When the Architect's Office realized they would not be able to build the 333 bed apartment complex as specified, they reduced the number of beds to 276. The General Contractor bids came in higher than estimated for the 276 beds so the budget had to be increased. Then NMSU decided that they wanted to go with the original scope for 333 beds. The additional 57 beds had been bid as an alternate totaling \$2.4M. The budget had to be increased again for the 57 additional beds to be added back to the scope.

The Architect's Office was able to complete this project on time and under budget.

# New Mexico State University

Review of Major Construction Expenditures

Report Date: June 26, 2008

## Details of Foster Hall Budget:

The following chart shows the detailed project changes throughout the life of the project:

Foster Hall					
Dates	10/25/2004	Original General Contractor Bid 11/18/04	General Contractor Rebid as of 4/26/05	4/13/2007	Actual as of 12/31/07
Board Approved Budgets	\$ 13,150,000	\$ 13,150,000	\$ 13,150,000	\$ 13,350,000	\$ 13,350,000
Scope	Complete renovation of 1930 bldg & 28,500 GSF of building addition.	Complete renovation of 1930 bldg & 28,500 GSF of building addition.	Reduced 4,500 of GSF and significantly reduced renovation of 1930 bldg.	Reduced 4,500 of GSF and significantly reduced renovation of 1930 bldg.	
Outside Architect Construction Est. w/o Tax	\$ 9,309,649				
Contractor Cost w/o Tax	\$ 8,562,315	\$ 10,675,000	\$ 9,077,000	\$ 9,077,000	\$ 9,077,000
Alternates	\$ 983,344	\$ 370,000	\$ 370,400	\$ 370,400	\$ 230,700
Total Contractor Bid	\$ 9,545,659	\$ 11,045,000	\$ 9,447,400	\$ 9,447,400	\$ 9,307,700
Plus Contingency (Tax & CO's)	\$ 1,300,317	\$ 1,300,317	\$ 1,300,317	\$ 2,009,641	\$ 1,763,563
Plus Other Expense	\$ 659,000	\$ 659,000	\$ 577,004	\$ 577,004	\$ 480,699
Plus Design, Testing & Admin.	\$ 1,645,524	\$ 1,645,524	\$ 1,619,248	\$ 1,315,955	\$ 1,421,751
Construction Budget Required to Meet Original Scope	\$ 13,150,500	\$ 14,649,841	\$ 12,943,969	\$ 13,350,000	\$ 12,973,713
Difference between budget and actual	0%	11%	-2%	0%	-3%

### **Foster Hall:**

The original scope included a complete renovation of the 1930 building and an addition of 28,500 Gross Square Feet. The outside Architect estimated this to cost \$13.15M. However when the bids from the General Contractors came in, the cost was significantly higher than estimated by the outside Architect. The Architect's Office decided to reduce the scope to and put the project out for bid again with the revised scope. The second bids were within the revised budget.

Due to the age of this building, it has serious HVAC problems. Instead of replacing the system as was originally planned, the scope reduction only allowed for the HVAC system to be repaired. However, due to continuous HVAC problems, an additional \$200K was added to the budget for additional repairs. Unfortunately, as of 12/08, the HVAC system was still not functioning properly. This was probably one case where additional funds should have been pursued up front in order to replace the HVAC system instead of trying to repair it.

The project was finished on time and under budget but there are ongoing problems due to the tight budget and ongoing HVAC problems.

The following chart describes the process being followed by the NMSU Architects Office:

**Table #3 - Traditional Design-Bid-Build Delivery System**

1	Preliminary Programming and Establishment of Preliminary Budget
	Hire outside Architect to Finish Detailed Programming and Develop Construction Documents to be used for
2	Competitive Bidding
3	Issue "100% CD's" and Request for Lump Sum Competitive Bids
4	Determine Lowest responsive Bidder and Evaluate Available Budget Compared to Bids
5	If lowest responsive bid is within budget, award contract and begin construction
6	If lowest responsive bid significantly exceeds available budget - either (1) request Board for Additional Funds or (2) request outside Architect to redesign and then rebid

This process has been used by University's in the past. The trend, however, is moving from the hard bid approach to CM at Risk type contract which offers more flexibility and teamwork in the construction process.

The following chart describes the basic process for a CM at Risk construction process:

**Table #4 - Construction Manager at Risk Delivery System**

	Preliminary Programming and Establishment of Preliminary Budget
	Use Quality based Selection method to Hire outside Architect and Construction Manager at Risk Contractor
	Outside Architect and Construction Manager to Finish Detailed Programming and Develop Construction Documents to be used for Competitive Bidding by Subcontractors
	Construction Manager performs "Pre-construction Services" during design phase to perform constructibility reviews, prepares estimates of probable construction cost, etc.
	Bids are obtained from Subcontractors and included with the CM's estimated general conditions costs and fee and a Guaranteed Maximum (GMAX) Contract Price is Established
	If GMAX contract price is within budget, award contract and begin construction
	If proposed GMAX exceeds available budget - Option (1) request Board for Additional Funds
	Or if proposed GMAX exceeds available budget - Option (2) coordinate with architect to redesign and then negotiate price adjustments with subcontractors

**Section II**

**EXECUTIVE SUMMARY**

**Review of Change Orders for Foster Hall, Pan American Center, Campus Apartments and Freshman Hall**

**Audit Background**

As a part of an overall program of controlling construction costs, New Mexico State University (NMSU) engaged R.L. Townsend & Associates, Inc. to review the change orders associated with the Construction of Freshman Housing, Pan Am, Foster Hall and Campus Apartments.

**Review Scope and Objectives**

The following documentation was reviewed:

- Lump Sum Subcontractor Contracts
- Subcontractor Change Orders
- Subcontractor Bid Documentation
- Subcontractor Payment Information
- Contractor Owner Change Orders with supporting documentation

The objectives of the audit were:

- To determine if there was any indication that the project’s scope was not delivered as contracted
- To evaluate the appropriateness and accuracy of the approved change orders

**Summary of Change Orders by Project**

The following chart shows the percentage of change orders to the Original Project Value. Depending on the size of the project, the Industry Standard for Change Orders is 5% to 10% on new construction and 10% to 20% on renovations. Both Foster Hall and Pan American included renovation work. Based on these percentages, NMSU has controlled change order work effectively.

Description	Freshman Housing	Foster Hall	Pan American	Campus Apts.
Original Project Value	\$ 9,227,697	\$ 9,848,710	\$ 20,141,304	\$ 12,082,729
Added Major Scope			\$ 1,547,731	\$ 2,452,734
Subtotal	\$ 9,227,697	\$ 9,848,710	\$ 21,689,035	\$ 14,535,463
Change Orders	\$ 347,050	\$ 1,033,113	\$ 1,923,147	\$ 237,167
Audited Contract Value	\$ 9,574,747	\$ 10,881,823	\$ 23,612,182	\$ 14,772,630
% of Change Orders to Original Project Value	3.8%	10.5%	9.5%	2.0%

# New Mexico State University

Review of Major Construction Expenditures

Report Date: June 26, 2008

## Freshman Housing

### Project Background

On June 13, 2005, NMSU contracted with Wooten Construction Company (Wooten) to serve as the contractor for the construction of Freshman Housing. The original contract price was \$9,227,696. There were 6 Owner Change Orders totaling \$347,050 resulting in a final contract price of \$9,574,746.

### Summary of Final Contract Sum

The Summary of the Final Contract Sum is shown as follows:

Original Contract Sum	\$ 9,227,696	Description of Major Work
Owner Change Order #1	\$ 7,459	Misc. Change Order Work
Owner Change Order #2	\$ 60,106	Utility Extension to underground tunnel
Owner Change Order #3	\$ 105,976	Upgrade carpet and backing
Owner Change Order #4	\$ 132,529	Misc. Change Order Work
Owner Change Order #5	\$ 41,031	Misc. Change Order Work
Owner Change Order #6	\$ (51)	Tax Adjustment
<b>Final Contract Sum</b>	<b>\$ 9,574,746</b>	

### Summary of Change Orders Reviewed

The following chart shows a breakdown of the six approved change orders to Wooten's contract:

	OCO #1	OCO #2	OCO #3	OCO #4	OCO #5	OCO #6	Total
Subcontractor	\$ 6,305	\$ 44,013	\$ 87,314	\$ 102,132	\$ 30,966		\$ 270,730
GC Mark Up	\$ 407	\$ 3,200	\$ 5,465	\$ 4,257	\$ 1,882		\$ 15,211
Subtotal	\$ 6,712	\$ 47,213	\$ 92,779	\$ 106,389	\$ 32,848	\$ -	\$ 285,941
Self Performed Work	\$ -	\$ 5,360	\$ 2,130	\$ 14,347	\$ 2,835		\$ 24,672
Fee on Self Performed Work	\$ -	\$ 1,250	\$ 400	\$ 450	\$ 1,122		\$ 3,222
Subtotal	\$ 6,712	\$ 53,823	\$ 95,309	\$ 121,186	\$ 36,805	\$ -	\$ 313,835
Division 1	\$ 268	\$ 2,363	\$ 3,845	\$ 2,621	\$ 1,507		\$ 10,604
Subtotal	\$ 6,980	\$ 56,186	\$ 99,154	\$ 123,807	\$ 38,312	\$ -	\$ 324,439
Bond	\$ 70	\$ 618	\$ 1,001	\$ 1,293	\$ 420		\$ 3,402
Total OCO	\$ 7,050	\$ 56,804	\$ 100,155	\$ 125,100	\$ 38,732	\$ -	\$ 327,841
NMGRT	\$ 410	\$ 3,302	\$ 5,821	\$ 7,428	\$ 2,299	\$ (51)	\$ 19,209
Total Change to Contract	\$ 7,460	\$ 60,106	\$ 105,976	\$ 132,528	\$ 41,031	\$ (51)	\$ 347,050

**Freshman Housing - Continued****Conclusion:**

During the audit we reviewed all Owner Change Orders and backup. In addition we reconciled items charged to NMSU in Owner Change Orders to Subcontract Change orders at Wooten Construction, the General Contractor. Overall, the change order process at NMSU appeared to be well managed. There was nothing identified in the paperwork reviewed that would indicate the scope contracted for was not delivered.

**Recommendations:**

Wooten did not credit Division 1 costs or Bond costs on Credit Change Orders.

- Wooten is billed bond premium on the final project cost which would be net of the credit change orders. Therefore, all change orders should reflect the credit for bond cost.
- Division 1 work should be credited back to NMSU on credit change orders for the same reasons they are added onto additive change orders.

Due to the immaterial amount this totals for these change orders, the lost credit was not quantified. However, as NMSU uses Wooten on a number of University projects, they should consider obtaining credits for Division 1 and Bond in the future.

# New Mexico State University

Review of Major Construction Expenditures

Report Date: June 26, 2008

## Foster Hall

### Project Background

On June 6, 2005, NMSU contracted with Ray Ward & Sons, Inc. (Ward) to serve as the contractor for the renovations and additions to Foster Hall. The original contract price was \$9,848,710. There were 12 Owner Change Orders totaling \$1,033,113, resulting in a final contract price of \$10,881,823.

### Summary of Final Contract Sum

The Summary of the Final Contract Sum is shown as follows:

Original Contract Sum	\$	9,848,710	Description of Major Work
Owner Change Order #1	\$	18,795	Misc. Change Order Work
Owner Change Order #2	\$	61,792	Misc. Demo Work
Owner Change Order #3	\$	125,275	1930 Foster Hall New Wiring
Owner Change Order #4	\$	191,038	Misc. Change Order Work
Owner Change Order #5	\$	79,418	Misc. Change Order Work
Owner Change Order #6	\$	110,763	Replace Fan Coil Units in 1930 Foster Hall
Owner Change Order #7	\$	46,359	40 Corbels on New Lab Addition
Owner Change Order #8	\$	175,983	Misc. Change Order Work
Owner Change Order #9	\$	28,479	Misc. Change Order Work
Owner Change Order #10	\$	25,169	Misc. Change Order Work
Owner Change Order #11	\$	81,924	Misc. Change Order Work
Owner Change Order #12	\$	88,117	Plumbing Changes, Asbestos Abatement
Owner Change Order #13	\$	57,341	Misc. Change Order Work
Owner Change Order #14	\$	19,018	Modifications to 4th Floor braceframe
<b>Final Contract Sum</b>	<b>\$</b>	<b>10,958,182</b>	

We noted the following items charged to NMSU which were not reflected on Subcontract Change Orders at Ward:

CP	Owner Change Order #	Subcontractor	Description	Amount
62	8	Rodriguez	Relocate water coolers - 1930 Building	\$ 200
66	8	Casey	Supply and install sheet vinyl in rooms 300, 300A, 300B	\$ 5,200
105	11	Diversified	Filler at panel in Room 316	\$ 100
106	11	Diversified	Various changes in Room 450B	\$ 100
139	12	Southwest Abatement	Abatement of wall materials in Room 208	\$ 455
147	12	Diversified	Paint doors and transoms on 1st and 2nd floors	\$ 3,149
			<b>TOTAL</b>	<b>\$ 9,204</b>

All work represented by these change orders was completed. In addition, Ward completed Subcontract Change Orders when these items were brought to their attention. For those reasons, there did not appear to be an overcharge to NMSU.



**Foster Hall - Continued****Conclusion:**

During the audit we reviewed all Owner Change Orders and backup. In addition we reconciled items charged to NMSU in Owner Change Orders to Subcontract Change orders at Ray Ward & Sons, the General Contractor. Overall, the change order process at NMSU appeared to be well managed. There was nothing identified in the paperwork reviewed that would indicate the scope contracted for was not delivered.

**Recommendation:**

For future projects, NMSU may want to consider exercising their contractual Right to Audit clause to review subcontractor documentation to ensure the costs of change order work charged to NMSU and the General Contractor do not vary significantly.

**Pan American Center****Project Background**

On September 19, 2005, NMSU contracted with Jaynes Corporation (Jaynes) to serve as the contractor for the renovations and additions to the Pan American Center Building. The original contract price was \$20,141,304. There were 15 Owner Change Orders totaling \$3,470,878, resulting in a final contract price of \$23,612,182.

**Summary of Final Contract Sum**

The Summary of the Final Contract Sum is shown as follows:

<b>Original Contract Sum</b>	<b>\$ 20,141,304</b>	<b>Description of Major Work</b>
Owner Change Order #1	\$ 468,477	Misc. Change Order Work
Owner Change Order #2	\$ 66,803	Misc. Change Order Work
Owner Change Order #3	\$ 44,284	Misc. Change Order Work
Owner Change Order #4	\$ 108,462	Add'l Space for Cardiovascular Equipment
Owner Change Order #5	\$ 97,666	Misc. Change Order Work
Owner Change Order #6	\$ 265,074	Misc. Change Order Work
Owner Change Order #7	\$ 1,547,731	New Scoreboard
Owner Change Order #8	\$ 198,227	Structural Modifications to Roof
Owner Change Order #9	\$ 83,419	Food Service Equipment
Owner Change Order #10	\$ 45,442	Misc. Change Order Work
Owner Change Order #11	\$ 157,348	Misc. Change Order Work
Owner Change Order #12	\$ 121,160	Misc. Change Order Work
Owner Change Order #13	\$ 200,520	Misc. Change Order Work
Owner Change Order #14	\$ 44,885	Misc. Change Order Work
Owner Change Order #15	\$ 21,380	Misc. Change Order Work
<b>Final Contract Sum</b>	<b>\$ 23,612,182</b>	

**Pan American Center - Continued**

We noted the following items charged to NMSU which were not reflected on Subcontract Change Orders at Jaynes:

<b>OCO #</b>	<b>CP #</b>	<b>SUBCONTRACTOR</b>	<b>DESCRIPTION</b>	<b>AMOUNT</b>
5	36	Beaty	Additional CMU	\$ 215
5	36	Comm'l Door and HW	Metal thresholds at two locations	\$ 120
4	29	Coronado	Cardio Room demolition requested	\$ 1,840
5	24	Enoch Mechanical	Relocate existing roof drain at area D just to get it out of the way	\$ 450
11	52	Enoch Mechanical	Additional demolition required to relocate water main line	\$ 1,229
4	29	F&R Painting	Cardio Room additional paint	\$ 675
5	22	F&R Painting	Paint exposed and semi-exposed blocking	\$ 980
5	34	F&R Painting	Re-prime, paint walls	\$ 135
5	41	F&R Painting	RFI #116 Paint	\$ 875
5	46	Les File Drywall	Metal stud header	\$ 125
5	56	Les File Drywall	Paint wall around door frame	\$ 125
10	75	Les File Drywall	Patching walls	\$ 270
2	12	Steel Specialties	Steel framing support	\$ 225
14	102	Steel Specialties	Handrail extensions at N and S handicap seating areas	\$ 1,750
14	103	Steel Specialties	Add clips to transformer frames and shims at scoreboard	\$ 152
			<b>TOTAL</b>	<b>\$ 9,166</b>

When we inquired about these items, Jaynes responded that Subcontract Change Orders were not written. Instead, the proposed costs of these items were offset against credits due from the Subcontractors.

According to NMSU Project Management, all this work was completed. For those reasons, there did not appear to be an overcharge to NMSU for these items.

**Pan American Center - Continued**

In addition, for the following items, Subcontract Change Orders were written, but the full amounts of the credits received were not passed along to NMSU in Owner Change Orders:

CP #	SUBCONTRACTOR	SCO #	DESCRIPTION	SCO AMOUNT	OCO AMOUNT	DIFF.
2	American Nat'l Insulation & Steel	1	Thermal barrier ILO spray cellulose	\$ (22,500)	\$ (12,500)	\$ 10,000
	American Nat'l Insulation & Steel	6	Deduct ASI #29 - SCO #2	\$ (1,800)	\$ -	\$ 1,800
					<b>TOTAL</b>	<b>\$ 11,800</b>

For the first item, a credit for (\$12,500) was issued to NMSU on Owner Change Order #1, CP #2, however Jaynes received a credit from American National Insulation & Steel for (\$22,500). For the second item, Jaynes received a credit from American for (\$1,800), but the amount was not passed along to NMSU.

Jaynes stated the full Subcontractor credits were applied to offset the cost of work that was not charged to NMSU. There was no documentation on hand, however, to describe what work was done to absorb these credit amounts.

Without documentation to support the additional work, it could not be determined if these items represented overcharges. The University should require the contractor to provide further explanation as to why 100% of the credits were not passed on to NMSU. If satisfactory answers cannot be provided by Jaynes, NMSU should consider requesting a credit for the \$11,800.

**Conclusion:**

During the audit we reviewed all Owner Change Orders (OCO's) and backup. In addition we reconciled items charged to NMSU in Owner Change Orders to Subcontract Change Orders (SCO's) at Jaynes Corporation, the General Contractor. Overall, the change order process at NMSU appeared to be well managed. There was nothing identified in the paperwork reviewed that would indicate the scope contracted for was not delivered. However, NMSU should follow up on the credits from American National Insulation & Steel.

**Recommendations:**

For future projects, NMSU may want to consider exercising their contractual Right to Audit clause to review subcontractor documentation to ensure the costs of change order work charged to NMSU and the General Contractor do not vary significantly and that the cost of all work performed is fully documented.

**Campus Apartments****Project Background**

On June 28, 2005, NMSU contracted with DND contractors, Inc. (DND) to serve as the contractor for the Campus Apartments. The original contract price was \$12,082,729. There were 14 Owner Change Orders totaling \$2,689,901, resulting in a final contract price of \$14,772,630.

**Summary of Final Contract Sum**

The Summary of the Final Contract Sum is shown as follows:

<b>Original Contract Sum</b>	<b>\$ 12,082,729</b>	<b>Description of Major Work</b>
Owner Change Order #1	\$ 2,452,734	Add 2nd Building
Owner Change Order #2	\$ 66,353	Misc. Change Order Work
Owner Change Order #3	\$ 59,182	Additional Earthwork
Owner Change Order #4	\$ (90,689)	Value Engineering Changes
Owner Change Order #5	\$ 13,255	Revise Sewer Line
Owner Change Order #6	\$ 28,130	Scope Changes
Owner Change Order #7	\$ 11,011	Misc. Change Order Work
Owner Change Order #8	\$ 818	Misc. Change Order Work
Owner Change Order #9	\$ 5,710	Misc. Change Order Work
Owner Change Order #10	\$ 8,960	Misc. Change Order Work
Owner Change Order #11	\$ 58,184	Retaining Wall & Dumpster Pad
Owner Change Order #12	\$ 56,050	Add mow stripe
Owner Change Order #13	\$ 24,255	Misc. Change Order Work
Owner Change Order #14	\$ (4,052)	Furniture Set Up Charge
<b>Final Contract Sum</b>	<b>\$ 14,772,630</b>	

**Conclusion:**

Due to all the labor and contractor issues and discussion of possible legal action, it was decided that an audit of the contractor's records may not be the best use of resources.

We did review the records and correspondence files maintained by NMSU. Overall, it appears that this project was managed appropriately by NMSU even though the General Contractor had a variety of internal problems.

# Construction Audit Report

**New Mexico State University**

## **Special Project**

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Office of Facilities & Services

Review of the Following Shops in Utilities Services:

Refrigeration  
Plumbing  
Electrical  
Design/Engineering  
Central Utility Plant  
Heating Distribution  
Construction/Roofing

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**Report Submitted By:**

**R. L. Townsend & Associates, Inc.**

Plano, Texas

August 15, 2007

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**Executive Summary**

This document summarizes the audit report. The report has been discussed in detail with Utilities Services management and updated to reflect any clarifications.

**Scope of Review:**

Nine OFS Utilities Services projects with costs in excess of \$100,000 were reviewed to determine how well University resources were being utilized. Our scope included conversations with OFS employees as well as reviews of estimates, work orders, purchase orders, time sheets, etc. The total work order cost reviewed, estimate, cost overrun and overtime premium cost is shown in the following chart:

<b>Project</b>	<b>WO Cost</b>	<b>Estimate</b>	<b>Cost Overrun</b>
Water Utility Line Changes	\$ 755,681	None	\$ -
Freshman Hall Parking Lot 27	\$ 704,947	\$ 452,350	\$ 252,597
Alumni Loop	\$ 624,299	\$ 497,031	\$ 127,268
Reroof Jett Hall	\$ 517,327	Missing	\$ 93,000
Water Systems Maintenance	\$ 475,407	None	\$ -
Softball Parking Lot 39	\$ 301,909	\$ 190,544	\$ 111,365
Old Tennis Court Parking Lot 100	\$ 285,154	\$ 270,000	\$ 15,154
Sam Steel Way Road	\$ 110,922	None	\$ 20,000
Soccer Field Development	\$ 108,764	\$ 100,000	\$ 8,764
<b>Total</b>	<b>\$ 3,884,410</b>		<b>\$ 628,148</b>

**Results of Review:****Labor Cost of \$1,096,917 (Straight Time Cost = \$686,673, Overtime Cost = \$410,244)**

- Some major projects are assigned at the last minute with hard completion dates. This results in other projects being delayed and significant overtime worked. In May 2007, there were approximately 100 outstanding work orders in the Construction/Roofing shop that ranged from 1 to 341 days old. Also, none of the above projects were completed on a timely basis. Some projects linger for months after they have been started. i.e. The Jett Hall roof (a 4 month project) has been ongoing for 17 months.
- The Construction/Roofing shop worked excessive overtime which resulted in an increased labor cost to the University due to inefficiency. Based on RS Means, productive labor was estimated to be 72.5% of the total labor cost incurred. Therefore, the inefficiency cost was 27.5% or \$302,000 of total labor. This inefficiency cost would be a contributing factor to the Cost Overrun and is an avoidable cost to the University.
- We were told by supervisory personnel that overtime had been "Padded" by some employees. This probably occurred because employees and Shop supervision were trusted and therefore no independent verifications of time sheets were conducted. The overtime premium cost to the University is \$136,748 (1/3 of OT Cost) for the nine projects reviewed. The overtime premium cost would be a contributing factor to the Cost Overrun and is an avoidable cost to the University.



**Materials of \$1,908,223**

- Although Purchasing, the Warehouse and OFS accounting have processes in place to control their fiduciary responsibilities, they do not know if the materials purchased are for legitimate purposes. There is no review by OFS to determine how materials were used. Employees were trusted to do the right thing. We identified one invoice where \$21,485 of \$119,785 (18%) of roofing material appeared to be purchased in excess of the amount required for the for the Jett Hall roof.

**Estimates:**

- Three projects did not have estimates and the estimate for one project could not be located. Of the five estimates reviewed, none were prepared in enough detail to be meaningful and did not include all the direct and indirect costs.
- Individuals or Shops are not accountable for the actual cost vs. estimate. An independent verification is not made of the labor and materials billed to the project versus the work actually completed.
- Changes to work are not documented. For the projects above, we were told there were scope changes which contributed to the overrun cost and time, but the changes had not been estimated in advance or documented.
- Scope creep has resulted in an unknown amount of extra time and cost due to no project accountability. Monitoring project time and cost would help reduce scope creep.

**Work Orders:**

- None of the work orders reviewed included estimates, detailed scopes or completion dates. In many cases, multiple work orders are opened for one project. Project numbers are not set up to link multiple work orders. Therefore, it is difficult to identify all the costs related to one project. As a result, a comparison of the estimate vs. actual cost is generally not done.
- Work orders are not reviewed for accuracy and some employees have not made an effort to code time and materials correctly. As a result, the work order charges lack integrity.

**Shop Processes:**

- Processes between the shops are inconsistent. Internal controls vary between shops. Procedures/guidelines are not well documented. There is confusion or lack of knowledge regarding tax rules, purchasing agreements/savings opportunities, PCards, Equipment cost, etc. Utilities Services does not have the right type of information/reporting available to them to effectively operate.

**Next Steps:**

- Interim Solution
  - Schedule Impacts - Backlog
  - Labor Cost – OT & Inefficiency
  - Material Cost – Open WO's & Special Reviews i.e. Copper
  - Changes already started by Utilities Services – Documentation & Consistency
- Long term Solution
  - Leadership of OFS
  - Procedures/Reporting/Controls
  - Work Orders
  - Labor Cost/Efficiency
  - Material Cost
  - Estimates/Change Orders
  - Budget vs. Actual Analysis
  - Schedule Impacts

## Detailed Audit Report

### **Audit Background**

The New Mexico State University (NMSU) Audit Department engaged R.L. Townsend & Associates, Inc. to review the procedures, processes and controls associated with the Utilities Services group which is a part of the Office of Facilities and Services (OFS) organization. This request was in response to several allegations received regarding time sheet fraud and material theft which is being investigated by the New Mexico State University Police.

### **Project Background**

The Utilities Services group reports to Rick Lobato, the Director of Utilities Services who reports to Rich MacRorie, the Associate VP of Facilities Services, who reports to Ben Woods, the Senior VP of Planning, Physical Resources & University Relations. The Utilities Services group is made up of 7 shops including Engineering, Electrical, Plumbing, Construction/Roofing, Refrigeration, Heating Distribution, and Central Utility Plant. Termination proceedings were begun on the Supervisor and another employee of the Construction/Roofing shop prior to the start of our review.

Projects can be initiated by any NMSU Dept.; however, they are typically initiated by shop personnel, top management or individuals requesting a service. In most cases, a work order is opened to the shop(s) that will perform the work. For larger projects, plans are developed by Engineering, then an estimate is prepared in conjunction with shop personnel. If the plans and estimate are approved, and funding is available, a work order is opened to the appropriate shops and the work is started. Work orders include an index Code and Account number which are used to charge the work cost to the appropriate budget and accounting codes for budgetary purposes.

Each shop receives a report each day showing the open work orders. The shop supervisor determines priorities and assigns work to the shop personnel. As work is completed, time sheets, petty cash receipts, PCard receipts, Purchase Orders, Equipment charges, and warehouse charges are coded with a work order number and submitted to Facilities Accounting to be input into the Financial Services system which updates work order cost on a daily basis. When the work is completed, the work order is closed.

### **Review Scope and Objectives**

The following Utilities Services documentation was reviewed:

- A sample of Utilities Services projects over \$100,000
- Procedures
- Financial Reports
- Organization Charts
- Process Flows
- Work Orders
- Estimates
- Purchase Orders
- Petty Cash Charges
- P Card Charges
- Labor Costs
- Time Sheets
- Warehouse Charges
- Work Order System

The objectives of the audit were:

- To review the procedures, processes and controls of Utilities Services.
- To compare the Utilities Services processes with Industry Standards.
- To make improvement recommendations as needed

Clarifications regarding the audit work performed:

- All Work Orders may not have been obtained for a project due to the difficulty in identifying all related work orders.
- Non related Work Orders may be included for a project as the project description is not always specific.
- We are assuming the total cost shown on the work order is correct. We did not reconcile each of the work orders to the Banner System.
- Although there have been allegations regarding the “padding” of time sheets, we have analyzed these projects using the assumption that all time was actually worked.
- Although we have been told that time may have been incorrectly coded on work orders, we have analyzed these projects using the assumption that the billed time and dates are correct.
- Although work orders were not always closed, the last “labor charged date” was used as the completion date of the work unless the work is currently ongoing.
- An efficiency factor of .725 was used for all projects based on the overtime reviewed. The impact for all nine projects is included in the Overtime section of the report. The impact on efficiency for each project is included in the Observation Section for each project.
- The “Other Observations” section of the report primarily focuses on the Construction/Roofing shop as it is the largest of the shops.
- A section was not included on the reasonableness of the Billing Rates by shop.

### Summary of the Nine Projects Reviewed

Nine Utilities Services work orders in excess of \$100,000 were reviewed. This sample reflects a variety of project approaches and results. The following is a listing of these projects and the amounts reviewed:

No.	Project Name	Open Date	Amount Reviewed
1	Freshman Hall Parking Lot (Lot 27)	Jun-06	\$ 704,947
2	Water Utility Line Changes	Feb-06	\$ 755,681
3	Alumni Loop	May-05	\$ 624,299
4	Reroof Jett Hall	Apr-06	\$ 517,327
5	Water Systems Operation & Maintenance	Jul-01	\$ 475,407
6	Softball Parking (Lot 39)	May-06	\$ 301,909
7	Parking lot at old Tennis Court (Lot 100)	Jul-06	\$ 285,154
8	Sam Steel Way Road Construction	Nov-06	\$ 110,922
9	Support for Soccer Field Development	Aug-05	\$ 108,764
	Total Reviewed		\$ 3,884,410

The Amount Reviewed shown on the chart above is composed of various related work orders and indexes. The work orders selected to be included in the review were based on the following criteria:

- Projects with costs in excess of \$100,000
- Projects where the work was primarily performed by Utilities Services employees

Each project was quantified for:

- Estimate vs. Actual
- Timing of Project
- Inefficiency Cost
- Premium Portion of Overtime

The results for each project will be discussed individually on the following pages.

# New Mexico State University

Special Project – Office of Facilities & Services

Report Date: August 15, 2007

## #1 Freshman Hall Parking Lot (Lot # 27)

### Overview:

The Parking Lot was not included in the Freshman Hall construction scope contracted with Wooten Construction Company. A quote totaling \$422,054 was prepared by Utilities Services in March/April 2006. No overtime was included in the estimate as they thought they would have 3 to 4 months to complete the parking lot. In early June 2006, a Change Order Proposal was requested and received from Wooten Construction totaling \$791,914 for the parking lot, curbs & sidewalks, new lighting and irrigation sleeves. The work was to be finished by July 31, 2006.

Management made the decision to have Utilities Services construct the parking lot. A work order was opened 6/16/06. An accelerated schedule was implemented as the University required that the parking lot be operational in time for the freshmen to move in. Although some work orders were still open in February 2007, the lighting, paving and striping portions of the project were completed by the deadline. We identified three work orders related to the project which are summarized below and compared to the revised Utilities Services estimate, revised Wooten Construction estimate and Index budgets: (The revisions to the estimates are discussed on the following pages)

Type of Cost	Amount	Amount	Amount	Total WO Cost	Overrun
	Index 110550	Index 111093	Index 110907		
	WO #392533	WO #400779	WO #409273		
Labor - Straight Time	\$ 75,502	\$ 36,922		\$ 112,424	
Labor - Over Time	\$ 75,178	\$ 15,709		\$ 90,887	
Warehouse	\$ 17,157	\$ 1,828		\$ 18,985	
Equipment	\$ 88,951	\$ 12,790		\$ 101,741	
Petty Cash & Pcard	\$ 33,661	\$ 19,776		\$ 53,437	
Purchase Orders	\$ 270,691	\$ 13,204		\$ 283,895	
Outstanding Encumbrances	\$ 12,548	\$ 1,260		\$ 13,808	
Subtotal WO Cost	\$ 573,688	\$ 101,489	\$ -	\$ 675,177	
PO Handling Charge	\$ 27,069	\$ 1,320		\$ 28,389	
Encumb. Handling Charge	\$ 1,255	\$ 126		\$ 1,381	
Less: Transfers of Cost	\$ (338,209)	\$ -	\$ 338,209	\$ -	
Total WO Cost	\$ 263,803	\$ 102,935	\$ 338,209	\$ 704,947	
Revised Utilities Services Quote				\$ 452,350	\$ 252,597
Revised Wooten Proposal				\$ 690,791	\$ 14,156
Index Budget	\$ 250,000	\$ 50,000	\$ 250,000	\$ 550,000	\$ 154,947

### Observations:

The following observations were made regarding the cost billed and the budgets:

- The project cost exceeded the revised Utilities Services Quote by \$252,597. (See chart on next page).
- The project cost exceeded the revised Wooten proposal by \$14,156. (See chart on next page).
- The project cost exceeded the Index budget by \$154,947.
- The project ran approximately 9 months (June 06 - February 07)
- The inefficiency cost to the project is calculated at \$55,911 – Refer to Overtime section of the report.
- The premium portion of overtime totaled \$30,296

# New Mexico State University

Special Project – Office of Facilities & Services

Report Date: August 15, 2007

## Estimate vs. Actual:

### Utilities Services Estimate:

The following chart shows the Utilities Services quote revised to include the premium portion of overtime for the project.

Description	Amount	Comments
Base Course, Primer & Asphalt	\$ 218,004	Vendor Provided
Concrete Work	\$ 94,890	OFS Self Performed
Earthwork	\$ 109,160	OFS Self Performed
Original Quote without Overtime	\$ <b>422,054</b>	
Increase for Overtime Premium	\$ 30,296	Actual Premium Portion of OT billed
Revised OFS Quote	\$ <b>452,350</b>	
Work Order Cost	\$ 704,947	
<b>Overrun</b>	\$ <b>252,597</b>	

Utilities Services exceeded the revised quote by \$252,597 or 56%. (\$252,597/\$452,350)

### Wooten Proposal:

The following chart shows the Wooten proposal as submitted, and scope revisions which make the proposal more comparable to the Utilities Services quote. The Wooten quote would have resulted in a change order to the Freshman Hall contract. Change Order work is generally more expensive than competitively bid work especially since it included an accelerated schedule.

Description	Wooten Proposal	Revised Proposal	Scope Revisions	Reason For Revision
Extended Overhead	\$ 37,657	\$ 37,657	\$ -	
Grading, Base, Asphalt	\$ 511,000	\$ 503,047	\$ 7,953	Cost of Striping not in Utilities Services Quote
Concrete	\$ 23,084	\$ 23,084	\$ -	
Furnish & Install lighting	\$ 130,702	\$ 65,351	\$ 65,351	Premium Light poles quoted. Old style used. Adj quote for difference.
Landscaping	\$ 3,400	\$ 3,400	\$ -	
OH&P	\$ 48,212	\$ 41,412	\$ 6,800	Calculated difference due to above adjustments
General Conditions	\$ 30,018	\$ 10,000	\$ 20,018	GC's included in Extended Overhead above. \$10K for risk insurance.
Bond Premium	\$ 7,841	\$ 6,840	\$ 1,001	Calculated difference due to above adjustments
Total of Proposal	\$ 791,914	\$ 690,791	\$ 101,123	
Work Order Cost		\$ 704,947		
Overrun		\$ 14,156		

Based on this analysis, it may have saved the University \$14,156 to use Wooten instead of Utilities Services.

**Utilities Services Explanation for Overrun:**

According to Utilities Services, the overrun in cost was primarily due to the accelerated schedule and the resulting overtime cost. Some of the additional labor cost was due to unforeseen grade and driveway access changes. In addition to the tight schedule, the area was experiencing heavy rain which resulted in the need for some earthwork rework. These additional costs would have been incurred during the June – August timeframe. In addition, the Construction/Roofing work force was over extended due to the paving of lot 39 which was assigned to this shop during the same time frame with the same accelerated schedule.

**Impact of Overtime:****Overtime and loss of Efficiency:**

The following chart shows the distribution of labor for 9 months and the portion related to overtime.

Month	Total Labor Billed	Overtime	Premium Portion of OT
Jun-06	\$ 26,728	\$ 10,455	\$ 3,485
Jul-06	\$ 70,522	\$ 41,743	\$ 13,914
Aug-06	\$ 48,022	\$ 21,907	\$ 7,302
Sep-06	\$ 12,963	\$ 3,056	\$ 1,019
Oct-06	\$ 27,865	\$ 9,915	\$ 3,305
Nov-06	\$ 13,400	\$ 3,335	\$ 1,112
Dec-06	\$ -	\$ -	\$ -
Jan-07	\$ 2,789	\$ 327	\$ 109
Feb-07	\$ 1,022	\$ 149	\$ 50
Total	\$ 203,311	\$ 90,887	\$ 30,296

During the month of July 06, there were 8 to 17 individuals working 7 days a week for 1 to 4 weeks. These individuals were working 10 – 11 hours per day from July 5, 2006 to July 31, 2006.

According to RS Means, continuous overtime results in inefficiency. Using a factor of .725 to estimate the Utilities Services inefficiency for this project, the cost to the University due to inefficiency totals \$55,911.

Also, the premium portion of overtime totaled \$30,296 (1/3 of Overtime cost) for this project.

The total estimated cost of \$86,207 (\$55,911 inefficiency and \$30,296 overtime premium) was attributable to overtime which may have been an avoidable cost.

# New Mexico State University

Special Project – Office of Facilities & Services

Report Date: August 15, 2007

## Evaluation of Utilities Services Estimate:

The following two charts show the Subcontractor cost to be over the estimate by 16% and the Self Performed cost to be over the estimate by 55%.

Estimate of Subcontractor Cost vs. Actual Cost

Description	Qty	Rate	Estimate Amount	Actual Qty	Rate	Actual Amount	Overrun	Note
<b>Subcontractors</b>								
Base Course	9885 tons	\$ 5.60	\$ 55,356	6526 tons	\$ 10.75	\$ 80,397	\$ 25,041	A
Primer	27290 SY	\$ 0.38	\$ 10,370	27290 SY	\$ 0.38	\$ 10,370	\$ -	
2" Asphalt	27290 SY	\$ 5.58	\$ 152,278	27290 SY	\$ 5.58	\$ 152,278	\$ -	
Tax		\$ -	\$ -			\$ 9,454	\$ 9,454	B
Total Subcontractors			\$ 218,004			\$ 252,499	\$ 34,495	16%

### Notes:

- A. Price Increase for Sanchez - According to Utilities Services, the Pricing Agreement expired a few days prior to the purchase of the materials (despite their best efforts to get a PO in before the expiration date). Although the base course quantity was reduced by 1/3, the difference in price totaled \$25,041.
- B. The Utilities Services quote did not include tax.



Estimate of Self Performed Cost vs. Actual Cost

Description	Qty	Rate	Estimate Amount	Notes
<b>Self Performed</b>				
Curb & Gutter	1430 LF	\$ 13.00	\$ 18,590	
Sidewalk	6400 SF	\$ 3.50	\$ 22,400	
Header Curb	2060 LF	\$ 10.00	\$ 20,600	
Rock Wall	370 CF	\$ 90.00	\$ 33,300	
Cut, Fill & Compact	27,290 SY	\$ 4.00	\$ 109,160	
<b>Total Self Performed Estimate</b>			<b>\$ 204,050</b>	
Labor			\$ 203,311	C
Warehouse			\$ 18,985	E
Pcard			\$ 53,437	E
PO's			\$ 45,204	
Equipment			\$ 101,741	D
Handling Chg			\$ 29,770	
<b>Total Self Performed Actual</b>			<b>\$ 452,448</b>	
Self Performed Overrun			\$ 248,398	55%

**Notes:**

- C. Actual labor cost totaled approximately 100% of the total Self Performed estimate of \$204,050.
- D. It does not appear that wire, PVC, barricades, rebar, etc. were included in the quote.
- E. Actual equipment cost totaled approximately 50% of the total Self Performed estimate of \$204,050.  
 Utilities Services had the following comments regarding equipment cost:
  - They don't have a specific explanation for the high equipment cost.
  - Equipment charges are not consolidated on a weekly basis, thus making it difficult to keep track of the costs.
  - Equipment is not ordered on an as needed basis but for the project duration. This process insures it is available when needed. Since April 2007, an effort has been made by the construction shop to minimize idle time.
  - The equipment billing rates may be higher than the rates used to create the estimate.
  - Utilities Services would like more accountability and better tracking for equipment and fuel charges.
- F. Handling charges are not included in quotes.

**#2 Water Utility Line Changes**

## Overview:

The scope of this project was to create a dedicated supply water line to the water storage tanks. The purpose of this project was twofold. First, this would help in reducing the “brown water” complaints experienced around campus. Second, it would establish a static water pressure zone for campus fire protection. A second larger diameter line was installed from the water tanks to the Travis area for increased fire flow to campus buildings. These improvements were funded from three BRR funding indexes.

A detailed estimate was not prepared. Instead, the Utilities Services group works on the project as budget funds allow. As a result, this project has been in progress since November 2005. An overall budget amount is given to Utilities Services for Infrastructure Repair and Improvements. This budget amount is broken down by specific projects and designated to a responsible individual. Our review included nine work orders totaling \$755,681 opened during calendar year 2005/2006. The work orders are summarized in the following chart by Index number.

The total costs and Index budgets related to this project are shown below:

Index	Description	Budget	Actual	Difference
109005	Water System Improvements	\$ 45,000	\$ 273,512	\$ 228,512
109002	Upgrade Water Flow Capacity	\$ 200,000	\$ 211,232	\$ 11,232
110908	Infrastructure Repair & Improve	\$ 848,108	\$ 270,937	\$ (577,171)
		\$ 1,093,108	\$ 755,681	\$ (337,427)

Note: We did not include other work orders charged to the three Index numbers, which were not related to the Water Line project. There were two additional work orders totaling \$2,680 for Index #109005 and seven work orders totaling \$271,472 for Index #110908.

## Observations:

- \$755,681 of cost was incurred without an estimate for work. As a result, it is difficult to determine how efficient University resources are being utilized.
- The project started in November 2005 and the most recent work order remains open.
- The inefficiency cost to the project is calculated at \$67,075 – Refer to Overtime section of the report.
- Even though this is an ongoing project, significant overtime has been incurred.
- The premium portion of overtime totals \$34,126.

Each Index and related work order is shown on the following pages. A cost vs. estimate analysis of the \$755,681 was not completed as estimates were not available.

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The work order cost for fiscal year 2005/2006 is shown as follows for Index 109005 (Water System Improvements):

Type of Cost	Amount WO# 388320	Amount WO# 385130	Amount WO# 385196	Amount WO# 385873	Amount WO# 386580	Amount WO# 387475	Total WO Cost
Transfer Cost						\$ 25,587	\$ 25,587
Labor - Sraight Time	\$ 39,610	\$ 6,310			\$ 2,182		\$ 48,102
Labor - Over Time	\$ 32,431	\$ 2,400			\$ 3,762		\$ 38,593
Warehouse	\$ 1,412	\$ 270			\$ 5		\$ 1,687
Equipment	\$ 18,928	\$ 4,977			\$ 5,761		\$ 29,666
Petty Cash & Pcard	\$ 3,616	\$ 686			\$ 713		\$ 5,015
Purchase Orders	\$ 104,656	2656	\$ 2,900	\$ 7,681		\$ 8,819	\$ 126,712
Outstanding Encumbrances	\$ (17,210)	3442	\$ 169	\$ 446			\$ (13,153)
Subtotal WO Cost	\$ 183,443	\$ 20,741	\$ 20,741	\$ 8,127	\$ 12,423	\$ 34,406	\$ 262,209
PO Handling Charge	\$ 10,466	257	\$ 290	\$ 768		\$ 882	\$ 12,663
Encumb. Handling Charge	\$ (1,721)	344	\$ 17				\$ (1,360)
Total WO Cost	\$ 192,188	\$ 21,342	\$ 21,048	\$ 8,895	\$ 12,423	\$ 35,288	\$ 273,512
Budget Amount 2005/2006							\$ 45,000
Difference							\$ 228,512

## Utilities Services Explanation for the Overrun:

The \$45,000 BRR budget allocation was originally for valves and other miscellaneous plumbing work. However, in order to support the 5-million gallon water storage tank installation project, they were required to go ahead and start the water utility line project with the understanding that they would significantly exceed the \$45,000 and fund the excess cost with the following fiscal years' BBR money.

Some of the reasons given by Utilities Services for the \$228,512 overrun are as follows:

- The cost of the materials for the 24" water line was more than expected due to Hurricane Katrina.
- Approximately \$80,000 was used for the installation of an additional water pipe line to the Pan Am building. (This project was directly related to the water line project; however, there was not enough funding in the budget to provide for it. The need to provide unforeseen support to the Pan Am project required increased OT in order to make the February time line for the 24" line.)
- There were a number of unforeseen construction issues.

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The work order cost for fiscal year 2005/2006 is shown as follows for Index 109002 (Upgrade Water Flow Capacity to Campus):

Type of Cost	Amount		Total
	WO #377253	WO #383953	
Labor - Straight Time	\$ 16,972	\$ 126	\$ 17,098
Labor - Overtime	\$ 19,284	\$ -	\$ 19,284
Warehouse Sales	\$ 1,060		\$ 1,060
Equipment	\$ 20,931		\$ 20,931
Petty Cash & Pcard	\$ 7,173		\$ 7,173
Purchase Orders	\$ 21,829	\$ 120,335	\$ 142,164
Outstanding Encumbrances	\$ 7,128	\$ 6,994	\$ 14,122
Transfer Cost	\$ -	\$ (25,588)	\$ (25,588)
Subtotal WO Cost	\$ 94,377	\$ 101,867	\$ 196,244
PO Handling Charge	\$ 2,183	\$ 12,033	\$ 14,216
Encumb. Handling Charge	\$ 72	\$ 700	\$ 772
Total WO Cost	\$ 96,632	\$ 114,600	\$ 211,232
Budget Amount for Index			\$ 200,000
Difference			\$ 11,232

WO #377253 was replaced with WO #386580 which was coded to Index 109005 – Water System Improvements on the previous page. The work order cost exceeded the index budget by \$11,232.

The work order cost for fiscal year 2006/2007 is shown as follows for the summary level Index 110908 (Infrastructure Repair & Improve):

Type of Cost	Amount
	<b>WO #400719</b>
Labor - Straight Time	\$ 76,329
Labor - Overtime	\$ 44,502
Warehouse	\$ 4,422
Equipment	\$ 57,745
Petty Cash & Pcard	\$ 20,747
Purchase Orders	\$ 55,655
Outstanding Encumbrances	\$ 5,428
Subtotal WO Cost	\$ 264,828
PO Handling Charge	\$ 5,566
Encumb. Handling Charge	\$ 543
Total WO Cost	\$ 270,937
Budget Amount of Index	\$ 848,108
Difference	\$ 577,171

The difference of \$577,171 was used for a number of other projects which were not related to the water line project. Therefore, it could not be determined if the Index budget was exceeded or not.

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## #3 Alumni Loop

### Overview:

This project consisted of the extension of chilled water lines and electrical service from the Alumni pit to Garcia Hall. Although this project had been planned for some time, it became a higher priority with the addition of New Freshman and Pan Am projects. If the Alumni Loop project had not been initiated, the Pan Am and Freshman Housing construction group would have had to include these in their project scope in order to ensure these two new buildings had satisfactory utilities. The cost of this work had not been included in the Pan Am Building scope with the intent that Utilities Services would perform the work. An estimate was prepared by the Electric and HVAC groups along with Engineering and the current Director over Utilities Services. The estimate totaled \$557,031 as shown on the following pages. A work order was opened 5/17/05 to begin the work. A separate work order was opened 8/11/05 to purchase two pieces of Electrical equipment listed on the estimate.

### Summary of Cost:

Type of Cost	Amount	Amount	Total WO Cost
	WO #364148	WO #370701	
Labor - Straight Time	\$ 127,943		\$ 127,943
Labor - Over Time	\$ 64,305		\$ 64,305
Warehouse	\$ 38,132		\$ 38,132
Equipment	\$ 60,049		\$ 60,049
Petty Cash & Pcard	\$ 22,345		\$ 22,345
Purchase Orders	\$ 189,643	\$ 61,455	\$ 251,098
Outstanding Encumbrances	\$ 32,107		\$ 32,107
Subtotal WO Cost	\$ 534,524	\$ 61,455	\$ 595,979
PO Handling Charge	\$ 18,964	\$ 6,145	\$ 25,109
Encumb. Handling Charge	\$ 3,211		\$ 3,211
Total WO Cost	\$ 556,699	\$ 67,600	\$ 624,299
Estimate Total			\$ 557,031
Less: Amount in Est paid for by the Pan Am project			\$ (60,000)
Revised Estimate			\$ 497,031
Difference			\$ 127,268

### Observations:

- The project cost exceeded the estimate by \$127,268
- The project lasted approximately 18 months (May 05 – October 06)
- There was \$60,000 in the estimate for a transformer and switch which ended up being paid for by the Pan Am project. Therefore, the estimate for the Alumni Loop had to be reduced by the \$60,000.
- The inefficiency cost to the project is calculated at \$52,868 – Refer to Overtime section of the report.
- The premium portion of overtime totaled \$21,435.

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## Utilities Services Explanation for Overrun:

- During trenching across Lot 39, they ran into an abandoned underground storage tank (16' x 100") that needed to be excavated and removed. They completed the installation of the water line, and graded the lot so it would be available for parking. This was an example of unplanned work performed because there were already plans to develop the parking lot in the near future.
- Landscaping costs ran higher because of intermingling of the work area with the Pan Am project. Since both OFS and the Janes Corp were working in the same area, it became unclear as to whose responsibility it was to restore the landscaping. Thus efforts tended to be doubled.
- The 10% markup for handling charge was not included in the estimate.

## Analysis of Estimate:

The Utilities Services estimate vs. selected actual cost (labor, equipment & major electrical equipment) is shown as follows:

Description	# of Units	Unit Cost	Est. Total	Actual Qty	Actual Cost	Difference	Notes
<b>Trenchng &amp; Mechanical</b>							
Trenching				4,292 ST	\$ 79,039		
Trenching				1833 OT	\$ 50,620		
Trenching				Equipment	\$ 60,049		
<b>Total Trenching</b>	<b>3000 LF</b>	<b>\$ 35</b>	<b>\$ 105,000</b>		<b>\$ 189,708</b>	<b>\$ 84,708</b>	<b>A</b>
Mechanical Materials			\$ 145,000				
Labor pipe Installation				478 ST	\$ 10,039		
Labor pipe Installation				252 OT	\$ 7,924		
<b>Total Labor - Pipe Install</b>	<b>400MH</b>	<b>\$ 20</b>	<b>\$ 8,000</b>		<b>\$ 17,963</b>	<b>\$ 9,963</b>	<b>B</b>
Insulation Labor				990.6 ST	\$ 14,265		
Insulation Labor				87.5 OT	\$ 1,896		
<b>Total Insul. Labor</b>	<b>300MH</b>	<b>\$ 20</b>	<b>\$ 6,000</b>		<b>\$ 16,161</b>	<b>\$ 10,161</b>	<b>C</b>
Concrete/Landscaping/ Pavement Repair	1	\$ 12,000	\$ 21,400				
15% Contingency			\$ 42,810				
			\$ 328,210				
<b>Electrical</b>							
Electrical Materials			\$ 76,375				
<b>Labor-Straight Time</b>	<b>300</b>	<b>\$ 21</b>	<b>\$ 6,300</b>		<b>\$ 23,430</b>	<b>\$ 17,130</b>	<b>D</b>
<b>Labor-Over Time</b>	<b>200</b>	<b>\$ 31.5</b>	<b>\$ 6,300</b>		<b>\$ 3,293</b>	<b>\$ (3,007)</b>	<b>D</b>
1500 KVA transformer	1	\$ 30,000	\$ 30,000		\$ -	\$ (30,000)	E
Auto transfer switches	2	\$ 25,000	\$ 50,000		\$ 61,455	\$ 11,455	F
Pad Switch	1	\$ 30,000	\$ 30,000		\$ -	\$ (30,000)	E
15% Contingency			\$ 29,846				
Subtotal			\$ 228,821				
Total			\$ 557,031				

See Notes on next page.

**Notes:**

- A. The cost of labor and equipment for the trenching work exceeded the quote by \$84,708 or 81%.
- B. The labor cost to install pipe exceeded the quote by \$9,963 or 124%
- C. The insulation labor cost exceeded the quote by \$10,161 or 169%
- D. The electrical straight time and overtime exceed the quote by \$14,123 or 112%.
- E. \$60,000 for the Transformer and Pad Switch, which was billed directly to the Pan Am project. Therefore, \$60,000 was removed from the estimate.
- F. The cost of two transfer switches exceeded the quote by \$11,455 or 23%.

**#4 Reroof Jett Hall**

Overview:

OFS maintains a standing BRR project for roof repair and replacement. The money is allocated based on the Construction Shop recommendations and repair history. Utilities Services management and the construction shop made the decision that the Jett Hall roof would be the next roof to be replaced. According to the Construction Shop, an estimate was prepared but has subsequently disappeared. A work order was opened 4/17/06. An additional work order was opened 10/4/06 for budget purposes. As of May/June 2007, this project was approximately 60% complete. The Construction Shop has set a completion target date of August 31, 2007. To date, the job cost is approximately \$550,000 and based on labor projections could go up to \$560,000 to \$580,000.

In order to analyze the cost incurred, we obtained or developed three quotes:

1. A telephone quote of \$517,000 was obtained from an outside roofing contractor familiar with the NMSU campus for comparison purposes. We were told this quote was probably on the high side. We were also told that it would take a contractor 8 to 10 weeks to complete this roof.
2. The Projects group estimated the roof cost at \$10 per square foot x 42,345 sq feet or as estimated \$425,000.
3. We developed our own estimate based on RS Means and adjusted for internal pricing. This estimate totaled approximately \$460,000.

Type of Cost	Amount	Amount	Total WO Cost	Overrun
	WO #388219	WO #401557		
Labor - Straight Time	\$ 24,219	\$ 92,628	\$ 116,847	
Labor - Over Time	\$ 4,751	\$ 24,688	\$ 29,439	
Warehouse	\$ 22	\$ 1,857	\$ 1,879	
Equipment	\$ 8,540	\$ 9,662	\$ 18,202	
Petty Cash & Pcard	\$ 925	\$ 7,651	\$ 8,576	
Purchase Orders	\$ 284,066	\$ 25,589	\$ 309,655	
Outstanding Encumbrance	\$ -	\$ 1,603	\$ 1,603	
Transfer of Cost	\$ (32,396)	\$ 32,396	\$ -	
Subtotal WO Cost	\$ 290,127	\$ 196,074	\$ 486,201	
PO Handling Charge	\$ 28,406	\$ 2,558	\$ 30,964	
Encumb. Handling Charge	\$ -	\$ 162	\$ 162	
Total WO Cost	\$ 318,533	\$ 198,794	\$ 517,327	
Projected WO Cost			\$ 560,000	
Roof Contractor Estimate			\$ 517,000	\$ 43,000
Projects Estimate (\$10 per sf)			\$ 425,000	\$ 135,000
Audit Estimate			\$ 460,000	\$ 100,000



**Observations:**

- If the project cost totals \$560,000, the overrun will total:
  - \$43,000 or 8% higher than the Roofing Contractor estimate of \$517,000.
  - \$135,000 or 32% higher than the Projects quote of \$10 per sq. ft.
  - \$100,000 or 22% higher than the Audit estimate of \$460,000 (See Chart on following pages)
- The project is estimated to run approximately 17 months (April 06 - August 07)
- Construction/Roofing stated this project was anticipated to last 3 – 4 months
- The inefficiency cost to the project to date is calculated at \$40,229 – Refer to Overtime section of the report.
- The premium portion of overtime totaled \$9,813.

**Utilities Services Explanation for Overrun:**

According to Utilities Services, the overrun in cost and time was primarily due to the heavy rain that occurred in 2006 and the assignment of several other critical projects. Also, due to hailstorms and related roofing problems in Las Cruces, roofers were in demand. Utilities Services experienced a lot of turnover in roofing personnel.

**Other Possible Explanations:**

**Possible Excess quantities of Roofing Materials Ordered:**

The PO cost included \$119,785 paid to Tremco for rolls of PowerPly HEFR and PowerPly HE Base. Tremco was contacted to understand the calculation to order these specific materials. This quantity calculation was then verified with roofing personnel from the Construction Shop. The difference between the Tremco quantity calculation and the actual amount purchased is shown below:

Description	Qty of Rolls Purchased	Unit Cost per Roll	Total Cost	Qty of Rolls Per Tremco	Excess Material Ordered	Cost Differential	Notes
PowerPly HEFR	500	\$ 121.34	\$ 60,670.00	465	35.00	\$ 4,246.90	A
PowerPly HE Base	480	\$ 101.11	\$ 48,532.80	310	170.00	\$ 17,188.70	B
Burmastic Adhesive	850	\$ 12.45	\$ 10,582.50	846	4.00	\$ 49.80	C
Total			\$ 119,785.30		209.00	\$ 21,485.40	

**Notes (Calculation of roof material quantities):**

A. PowerPly HEFR calculation: (1 roll per roof square)

Roof Sq Footage/100 = # of Squares                      42,345 sq footage / 100 = 423 Squares  
 # of Squares Plus 10% for Waste                      423 squares plus 10% for Waste = 465 Squares or Rolls

B. PowerPly HE Base calculation: (1 roll per each 1.5 roof square)

Roof Sq Footage/150 = # of Equivalent Squares                      42,345 sq footage/150 = 282 Equivalent Squares  
 # of Equivalent Squares Plus 10% for Waste                      282 Equivalent Squares Plus 10% = 310 equiv. Sq.

C. Burmastic Adhesive: (1.5 – 2 gallons per square)

423 squares x 1.5 = 635 gallons  
 423 squares x 2 = 846 gallons

According to the Construction Shop, they will probably not need to purchase additional materials but they are uncertain whether they will have any materials left over from this job.

Since these materials were purchased approximately 1 ½ years ago, a variety of explanations could account for the possible missing materials. Utilities Services does not have an explanation for excess purchase of materials and the individual who placed the order has been terminated.

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## Estimate Prepared by Audit:

The following estimate was developed by using an estimate prepared after the fact by the Projects group and adjusted by audit for the correct square footage and a more reasonable Mark Up percentage.

RS Means	Description	Qty per Projects	Labor Hrs	Total Hrs	Labor Factor	Labor Cost	Material Factor - 2006	Material Cost & Equip Cost	Total Cost	Mark Up	Total Cost
2350	Insulation Removal, Rigid board	46,600	0.002	93.2	\$35.00	\$3,262	0	\$-	\$3,262	130%	\$4,241
2650	Roofing and siding demolition, coping, sheet metal, up to 12" wide	2,106	0.033	69.5	\$29.00	\$2,015	0	\$-	\$2,015	130%	\$2,620
3405	Roofing and siding demolition, Build-up, roof insulation board over 2" think	46,600	0.005	233	\$30.00	\$6,990	0	\$-	\$6,990	130%	\$9,087
3450	Roofing and siding demolition, roll roofing, cold adhesive, to 4"	466	0.667	310.82	\$28.75	\$8,936	0	\$-	\$8,936	130%	\$11,617
9000	Roofing and siding demmolition, minimum labor/equipment charge	1	4	4	\$28.75	\$115	0	\$-	\$115	130%	\$150
100	Dump Charges	20	0	-			90	\$1,800	\$1,800	130%	\$2,340
20	Roof Deck Insulation, fiberboard low density, 1/2" think, R1.39	46,600	0.008	372.8	\$31.25	\$11,650	0.24	\$11,184	\$22,834	130%	\$29,684
1932	Roof Deck Insulation, install polystyrene insulation, 4" thick, R20, 15 PSI compressive strength	46,600	0.008	372.8	\$31.25	\$11,650	1.56	\$72,696	\$84,346	130%	\$109,650
1934	Roof Deck Insulation, install pollystyrene insulation, tapered for drainage, 2" thick	139,800	0.005	699	\$34.00	\$23,766	0.5	\$69,900	\$93,666	130%	\$121,766
2000	Modified Butumen Roofing, SBS modified, granular surface flashing, 160 mils	46,600	0.044	2,050.40	\$30.00	\$61,512	0.75	\$49,357	\$110,869	130%	\$144,130
1300	Reglet, counter flashing for galvanized steel, 12" wide, 24 guage	2,106	0.053	111.62	\$43.75	\$4,883	0.79	\$1,664	\$6,547	130%	\$8,511
100	Pitch Pockets, adjustable, welded corners, 4" to 7", 4" deep	10	0.167	1.67	\$31.25	\$52	11	\$110	\$162	130%	\$211
300	Cants, mineral or fiber, trapezoidal, 1" x 4" x 48	2,106	0.025	52.65	\$31.25	\$1,645	0.19	\$400	\$2,045	130%	\$2,659
9000	Cants, mineral or fiber, trapezoidal, 1" x 4" x 48	1	2	2	\$31.25	\$63	0	\$-	\$63	130%	\$81
70	Modified Bitumen Roofing, base sheet, #15 organic felt, fully mopped to deck	466	0.292	136.07	\$29.75	\$4,048	10.5	\$4,893	\$9,905	130%	\$12,877
				4,509.53		\$140,588		\$197,597	\$353,556		\$459,623

This is shown for informational purposes only.

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## #5 Water Systems Operation & Maintenance

### Overview:

Utilities Services set up this standing work order in 2001 to track the water systems operation, maintenance, and repair costs. Maintenance includes any activities to keep the existing system operational including replacing valves, broken water lines, changing pipe from steel to copper, etc. Time and material totaling \$475,407 has been accumulating in this work order for several years. According to Utilities Services management, they have not identified any benefit in this process. The cost to date is shown by year in the chart below:

### Summary of Cost:

Type of Cost	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Total
WO #263508	2001	2002	2003	2004	2005	2006	Jun-07	
Labor - Straight Time	\$ 7,314	\$ 20,331	\$ 20,328	\$ 19,874	\$ 37,669	\$ 18,041	\$ 50,568	\$ 174,125
Labor - Over Time	\$ 3,487	\$ 12,081	\$ 14,398	\$ 21,454	\$ 40,969	\$ 22,857	\$ 12,660	\$ 127,906
Warehouse	\$ 1,023	\$ 7,390	\$ 7,314	\$ 4,066	\$ 6,119	\$ 4,734	\$ 5,519	\$ 36,165
Equipment	\$ 690	\$ 6,953	\$ 996	\$ 196	\$ 2,038	\$ 3,828	\$ 22,816	\$ 37,517
Petty Cash & Pcard	\$ 19	\$ 164	\$ 584	\$ 142	\$ 2,211	\$ 2,778	\$ 9,006	\$ 14,904
Purchase Orders	\$ 2,583	\$ 13,077	\$ 4,094	\$ 12,314	\$ 10,357	\$ 13,583	\$ 28,782	\$ 84,790
Total WO Cost	\$ 15,116	\$ 59,996	\$ 47,714	\$ 58,046	\$ 99,363	\$ 65,821	\$ 129,351	\$ 475,407

### Observations:

- As of June 2007, the total cost incurred for Maintenance activities is twice the amount incurred for 2006. If this trend continues, the total cost for 2007 would total approximately \$260,000 or 4 times the amount for 2006.
- It is unclear how closely amounts on this work order are monitored.
- It is our understanding there are no estimates for maintenance activities.
- The inefficiency cost to the project is calculated at \$28,635 (\$104,126 x 27.5%) for 2006 & 2007– Refer to Overtime section of the report.
- The premium portion of overtime for 2006 & 2007 totaled \$11,839.

### Utilities Services explanation for increase:

According to Utilities Services, they cannot explain the increase in cost. They plan to close this and any other standing work orders and open up work orders by task.

**#6 Softball Parking Lot (Lot #39)**

**Overview:**

Lot 39 is located adjacent to the Softball field. In September 2005, a work order was opened to start the plan for the new parking lot. In November 2005, the Police Department received an estimated price from Utilities Services based on the Smith and Aguirre pricing agreement. The cost to develop 13,520 SY of parking lot, excluding curbs and sidewalks, totaled \$183,692. In early 2006, pipe and conduit was ordered by Utilities Services for the electrical work. The work order was closed 1/24/06. The Smith & Aguirre PO was then cancelled. An estimate of \$190,544 was prepared by Engineering for 15,913 SY of parking lot including an increase of the parking lot surface area, curbs, gutters and sidewalks in late April / early May. Although it was decided to have Utilities Services do the work, the project start was delayed for several months due to softball season. A work order was opened May 12, 2006 to proceed with the parking lot development. A lot of overtime was required because the University needed to have the lot operational for use during football season. Also, Utilities Services was already working an accelerated schedule on Parking Lot 27. The work was completed in mid September 2006.

**Summary of Cost:**

Type of Cost	Amount	Amount	Amount	Amount	Total
	WO #373132	WO #397003	WO #417993	WO #390261	
Billing Adjustments			\$ 52,061	\$ (59,621)	\$ (7,560)
Labor - Straight Time	\$ 755	\$ 17,883		\$ 17,390	\$ 36,028
Labor - Over Time	\$ 1,905	\$ 14,649		\$ 12,239	\$ 28,793
Warehouse		\$ 1,046		\$ 3,975	\$ 5,021
Equipment		\$ 40,052		\$ 12,003	\$ 52,055
Petty Cash & Pcard		\$ 15,489		\$ 5,291	\$ 20,780
Purchase Orders	\$ 3,171	\$ 140,528		\$ 7,931	\$ 151,630
PO Handling Charge	\$ 317	\$ 14,053		\$ 792	\$ 15,162
Total WO Cost	\$ 6,148	\$ 243,700	\$ 52,061	\$ -	\$ 301,909
Estimate Total					\$ 190,544
Difference					\$ 111,365

**Observations:**

- The project cost exceeded the Utilities Services budget by an estimated \$111,000.
- The project lasted approximately 6 months (May 2006 – October 2006)
- The work orders have not been completely closed out for this project.
- The inefficiency cost to the project is calculated at \$17,826 – Refer to Overtime section of the report.
- The premium portion of overtime totaled \$9,598.

**Utilities Services Explanation for Overrun:**

The primary reasons given for the cost increase was due to:

- Material cost increases
- Overtime due to accelerated schedule

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## Other Possible Explanations:

## Evaluation of Estimate:

The following chart shows the difference between the estimated subcontracted cost and the actual cost:

Description	Qty	Rate	Total Estimate	Invoiced Qty	Actual Cost	Difference	Notes
<b>Subcontract Work:</b>							
Base Course	5,012	\$ 5.60	\$ 28,067		\$ 37,188	\$ 9,121	A
Primer	15,913	\$ 0.38	\$ 6,047	17,500	\$ 6,588	\$ 541	
2" Hot Mix Asphalt	15,913	\$ 5.58	\$ 88,795	16,290	\$ 90,897	\$ 2,102	B
Tax on Primer & Hot Mix			\$ -		\$ 5,853	\$ 5,853	C
Total			\$ 122,909		\$ 140,526	\$ 17,617	

## Notes:

- A. Material Price Increase for Sanchez (Base Course)
- B. The finished parking lot is approximately 16,000 sq yards per Engineering.
- C. Tax not included in Utilities Services estimate

The following chart shows the difference between the estimated self performed cost and the actual cost:

Estimate of Self Performed Work:	Amount	Notes
Curb & Gutter	\$ 11,050	
Sidewalks	\$ 14,928	
Labor	\$ 20,000	
Equipment	\$ 21,659	
Total Estimate - Self Performed Work	\$ 67,637	
<b>Actual Cost related to Self Performed Work:</b>		
Labor - Straight Time	\$ 36,027	D
Labor - Overtime	\$ 28,794	D
Equipment	\$ 52,055	E
Material - Warehouse	\$ 5,021	
Material - Pcards	\$ 20,780	
Material - PO's	\$ 3,542	
Total	\$ 146,219	

## Notes:

- D. The actual straight time exceeded the budget by 80%. Total labor exceeded the estimate by 3.25 times.
- E. Equipment cost exceeded the estimate by 140%.

**Possible Savings Opportunity:**

The first estimate provided by Smith & Aguirre included asphalt millings in lieu of base course which is normally purchased from Sanchez Holdings. Smith & Aguirre quoted a unit price of \$12.33 per sq. yard for the development of the parking lot. This price would have included the dirt work, asphalt millings, primer and asphalt.

In an effort to develop a comparable estimate, we took actual prices and totals and made adjustments for the concrete work which Smith & Aguirre did not include in their quote. The difference in price is shown below:

Description	Unit	Cost	Total Price
Smith & Aguirre - Develop Lot	16,000 Sy	12.33	\$ 197,280
Sanchez - Base Course			\$ 37,188
Smith & Aguirre	16,000 SY	5.96	\$ 95,360
NMSU Labor @ 75% of Actual			\$ 48,616
NMSU Equipment @ 75% of Actual			\$ 39,041
Vendor Purchases @ 25% of Actual			\$ 7,336
Estimated Cost			\$ 227,541
Difference in Price			\$ 30,261

The difference in price may represent a savings to the University by using asphalt millings in lieu of base course. There could also be a labor cost savings by using Smith & Aguirre for the dirt work.

According to Utilities Services, there is no difference in quality by using asphalt millings instead of base course.

It was unclear why Utilities Services did not use Asphalt Millings instead of the Base Course purchased from Sanchez.

**#7 Parking Lot at old Tennis Court (Lot 100)****Overview:**

A “Not to Exceed” budget of \$600,000 was established to demo the old tennis facility and replace it with a parking lot in a two phase project. According to Utilities Services Engineering shop, the budget for Utilities Services was \$270,000 for the second phase. Phase I (approximately 50% of the lot) was to be completed before school started in August 2005. Phase II (the remaining 50% of the lot) was to be completed after the new tennis facility was completed during 2006.

Simultaneous with the construction of Phase I, was the construction of Parking Lot 41 at Garcia Annex. The cost for Parking Lot 100 came in on budget but Parking lot 41 was approximately \$200,000 over budget. Although there were “unforeseen conditions” with Lot 41 which would increase the cost, there was some question as to whether or not the costs were coded correctly. Utilities Services stated that it was difficult to ensure correct coding as labor and equipment was used on both jobs at the same time.

According to both Engineering and the Police Department, a detailed estimate was not prepared for Lot 100 Phase I and Phase II or Lot 41. Instead, the budgets were used as Not to Exceed amounts.

Our review only included the work orders related to Lot 100 – Phase II

**Summary of Cost for Phase II:**

Type of Cost	Amount
	<b>WO #391077</b>
Billing Adjustments	\$ 953
Labor - Straight Time	\$ 50,813
Labor - Over Time	\$ 35,326
Warehouse	\$ 1,673
Equipment	\$ 48,810
Petty Cash & Pcard	\$ 16,023
Purchase Orders	\$ 67,914
Outstanding Encumbrances	\$ 63,642
Total WO Cost	\$ 285,154
Budget Total Per Engineering	\$ 270,000
Difference	\$ 15,154

**Observations:**

- The cost for Phase II appears to have exceeded the budget by approximately \$15,000
- Parking Lot 100 – Phase II was to be completed by mid August 2005. Based on work order labor, the construction portion of the work was completed on time. However, Utilities Services stated that there was not enough money left in the 2006 budget to complete the landscaping restoration. The parking department has recently opened a PO and landscaping restoration was completed last month.
- The inefficiency cost to the project is calculated at \$23,688 – Refer to Overtime section of the report.
- The premium Portion of overtime totaled \$11,775.



**#8 Sam Steel Way Road Construction****Overview:**

Due to traffic congestion, the University decided to add a right turn lane at the intersection of Sam Steel Way and Union. BRR money was allocated to Major Paving account totaling \$250,000 and this was one of the projects which is included in that category. Although I was not able to obtain an estimate for this project, I was told that the project was approximately \$20,000 over budget.

The reason for the over budget was due to unforeseen conditions, i.e. they ran into a shallow water line which had to be moved deeper before the pavement work started and landscaping costs ran higher than originally expected. A work order for this work was opened 11/1/06. Although the majority of the road work was completed in November – December 2006, time was still being charged to this project as of June 2007 for curb and grounds work.

**Summary of Cost:**

Type of Cost	Amount
	<b>WO #403859</b>
Labor - Straight Time	\$ 17,691
Labor - Over Time	\$ 12,796
Warehouse	\$ 779
Equipment	\$ 28,398
Petty Cash & Pcard	\$ 13,623
Purchase Orders	\$ 36,394
Outstanding Encumbrances	\$ (2,180)
Subtotal WO Cost	\$ 107,501
PO Handling Charge	\$ 3,639
Encumb. Handling Charge	\$ (218)
Total WO Cost	\$ 110,922
Estimate Not Provided	
Difference Per Engineering	\$ 20,000

**Observations:**

The following observations were made regarding the cost billed:

- According to Engineering, the project cost will exceed the budget by approximately \$20,000 due to some additional landscaping work not included in the original scope.
- The roadwork was completed in December 06. The complete project lasted at least 6 months (November 06 – April 07)
- The inefficiency cost to the project is calculated at \$8,384 – Refer to Overtime section of the report.
- The premium portion of overtime totaled \$4,265.

**Utilities Services Explanation for Overrun:**

The work ran longer than anticipated because they couldn't close both lanes while working on the road. In addition, they had not anticipated the relocation of sprinklers.

**#9 Support for Soccer Field Development****Overview:**

A project was established to seed the Soccer Field which is also planned to be used for parking during football season. The scope of the project included leveling the dirt, installing a drip pipe irrigation system and the necessary electrical. A work order was opened 8/3/05. Costs were posted to the work order until 10/19/06.

**Summary of Cost:**

Type of Cost	Amount
	<b>WO #370020</b>
Labor - Straight Time	\$ 14,789
Labor - Over Time	\$ 10,802
Warehouse	\$ 1,178
Equipment	\$ 15,520
Petty Cash & Pcard	\$ 3,963
Purchase Orders	\$ 55,146
Outstanding Encumbrances	\$ 1,683
Subtotal WO Cost	\$ 103,081
PO Handling Charge	\$ 5,515
Encumb. Handling Charge	\$ 168
Total WO Cost	\$ 108,764
Index Budget	\$ 100,000
Difference	\$ 8,764

**Observations:**

- The project cost exceed the Budget by \$8,764
- The project lasted 15 months. (August 05 – October 06)
- The inefficiency cost to the project is calculated at \$7,038 – Refer to Overtime section of the report.
- The premium portion of overtime totaled \$3,601.

**Utilities Services Explanation for Overrun:**

The overrun is due to overtime billed to this work order.

## Other Observations

The following comments are based on conversations with Utilities Services personnel and review of paperwork.

### **Work Order Process Concerns:**

- It is difficult identifying all the work orders for a project. Index and account numbers help identify related work orders but there may be more than one project linked to an index or account number. There may also be more than one index number for a project. The work order system allows a project number to be assigned but this practice is seldom used.
- We understood that some Shops charge time to billable work orders when they don't want to charge the time as "Shop Time".
- We also understood that time is sometimes miscoded between two projects being worked on at the same time.
- Utilities Services stated that they have made an effort to more accurately charge standing utility support work orders. As a result, in some shops the recovery will be lower than in the past because cost will be shifted from billable work orders to non billable work orders.
- Work orders aren't always closed on a timely basis. Several individuals in OFS did not realize that some of their older work orders were still open. Utilities Services stated that there are so many work orders, the closing of work orders is often overlooked. Steps have recently been taken to review and close work orders on a weekly basis by all the shop Supervisors.
- Work order costs are not always reviewed for accuracy by Shop supervisors or by the organization being billed. Therefore, any questionable costs may go undetected and unresolved.
- Each shop receives a listing of all open work orders each morning. The lists may be several pages long and are overwhelming in some cases. The shops get behind because of all the large projects and they can't get to a lot of the work orders. Part of the reason the lists are so long is because work orders were not being closed on a timely basis. Utilities Services suggested that these lists be provided electronically and not printed each day or have the flexibility to print only the new work orders.
- Work orders include the following types of work:
  - Trouble call – Ex: No hot water in the restroom
  - Repair call – Ex: Water leak / burnt light bulb
  - Major Repair – Ex: Water line broken – Highest Priority
  - Maintenance work – Ex: Pro Active work
  - Major Projects – Ex: Roof, Parking LotAccording to Utilities Services, they shuffle projects as necessary to ensure the highest priorities are addressed.

**Petty Cash Concerns:**

- Petty cash is frequently used by the Shops to purchase materials. A lot of time is spent locating receipts and change. Accounting must reconcile the petty cash activity. Some individuals in OFS believe petty cash should only be used for actual “Emergencies”.

**PCard Concerns:**

- Some individuals in OFS do not want to have PCards because they believe the card is reflected on their credit rating and they are ultimately responsible for the card activity. This fact was not verified during the review.
- If the maximum amount is purchased on the card, the Shop may borrow another Shops card to purchase additional materials.
- Utilities Services recommended that standing purchase orders be established with vendors where they purchase small quantities on a frequent basis.
- Utilities Services would like an operating/procedures manual on how and when to use PCards so it is a cost beneficial practice for the University. For instance, there is some question about savings on concrete when purchased on a PCard vs. a PO.
- Reconciliation of PCard receipts – much time is spent tracking invoices by accounting and shop personnel.

**Purchase of Materials via Warehouse, Petty Cash, PO or PCard:**

- Controls are not in place to review the materials and quantities purchased or the materials and quantities used. Examples and discussions with Utilities Services identified the following:
  - Excess quantities may have been ordered and used for personal gain
  - Small tools are not monitored by all the shops and could be used for personal gain
  - Materials may be ordered and billed to a work order even though they are to be used for personal gain.
  - Materials in high demand or “hot commodities” such as copper wire may be used for personal gain.
- Utilities Services agree that material purchases and usage should be monitored. Working in conjunction with the warehouse, they plan to develop some checks to better control material distribution.

**Time Sheets:**

- In some shops, time sheets were filled out by the Supervisors rather than employees (although this practice was not supposed to be occurring). Employees sign the “supervisor prepared” time sheet at the end of the day. According to Utilities Services, this problem has been corrected in all of their shops.
- Time is coded to reimbursable projects whenever appropriate so the Shop can maximize their reimbursable recovery.

# New Mexico State University

Special Project – Office of Facilities & Services

Report Date: August 15, 2007

## Construction/Roofing Shop Overtime Analysis

A review of payroll data for OT by individual working in the Construction/Roofing shop for the July 05 to June 06 time period revealed the following number of pay periods with overtime and the total overtime hours worked:

Employee	Position	Reg/Temp	# of Pay Periods w/OT	# of OT Hours	Avg. OT Hrs Per Week
18705	Lead Mason	Reg	2	9	0
12191	Maint Tech II	Temp	3	28	1
18401	Roofer II	Reg	5	38	1
111518		Term	7	38	1
12330	Welder II	Reg	8	78	2
13830	Welder III	Reg	8	67	1
10747	Cement Finish I	Reg	9	119	2
13932	Maint Tech III	Temp	9	83	2
57795	Welder I	Reg	10	92	2
108927		Term	10	81	2
96826	Roofer II	Reg	12	137	3
11885		Term	14	134	3
14451	Cement Finish III	Reg	15	279	5
55968		Term	15	232	4
58054	Roofer II	Reg	17	286	6
17930	Maint Tech II	Reg	19	534	10
12177	Cement Finish II	Reg	20	548	11
13896	Roofer	Reg	20	659	13
12123	Cement Finish II	Reg	22	562	11
12385	Maint Tech II	Reg	22	666	13
14932	Equip Op II	Reg	22	578	11
15516	Maint Tech II	Reg	22	456	9
17204	Equip Op II	Reg	22	720	14
19046	Maint Tech III	Temp	22	642	12
14330	Cement Finish II	Reg	23	590	11
18739	Asst. Supervisor	Reg	23	974	19
12094	Roofer	Reg	24	829	16
12354	Tech Supervisor	Reg	24	766	15
18210	Maint Tech I	Reg	24	864	17
18298	Supervisor	Reg	24	1,018	20
18752	Maint Tech II	Reg	24	809	16
93268		Term	24	572	11
	Total		525	13,488	

**Construction/Roofing Shop Overtime Analysis – Continued**

Observations from the above chart:

- 16 of the 32 employees worked overtime during 20 to 24 pay periods or 10 to 12 months.
- 6 individuals worked overtime every pay period during the fiscal year.
- 11,254 hours of overtime or approximately 84% of the total overtime was worked by the 16 individuals working overtime during the 20 to 24 pay periods.
- The average overtime hours per person per week is approximately 8 (13,488 hours/32 individuals / 52 weeks).
- The average overtime hours for the 16 employees working the most overtime for a week is approximately 14 hours. (11,254 / 16 / 52)

Impact on Productivity:

- Based on RS Means, the productivity for the individuals in the Construction/Roofing shop would range from 100% down to 60% for 4 weeks of continuous overtime.
- The first 16 individuals with 10 hours or less of overtime per week would fall into the 90% to 100% productivity range for 4 weeks of continuous overtime.
- The next 16 individuals fall into the 60% to 85% productivity range for 4 weeks of continuous overtime.
- The RS Means efficiency factors are only calculated on 4 weeks of continuous overtime. Considering that 50% of the Construction shop employees were working up to 12 months of continuous overtime we used a productivity factor of .725 which is an average of the 60% to 85% productivity range.

**Comments About Overtime:**

- At least two individuals in Utilities Services stated that overtime for some of the shops was possibly “Padded”. In the past, no one questioned the overtime because of the number of projects and the accelerated schedules. Generally the overtime appeared to be reasonable for the amount of work being performed. In addition, there was a trust factor with supervisory personnel.
- Utility Services supervisors would stop by projects on weekends to check on the progress but would not look at time to verify time worked. This is a supervisory responsibility. Shop supervisor timesheets are reviewed by the next level supervisor.
- Overtime was not independently verified. Although supervisors were told about people wasting time by other Utilities Services personnel, it is not clear how the time sheets were coded for this “wasted” time.
- Per Utilities Services, average overtime should run in the 10% to 15% range. Overtime is seasonal so the percentages will vary by time of year.

**Inefficiency Due to Overtime:**

According to RS Means, *“the use of long term overtime is counterproductive on almost any construction job; that is, the longer the period of overtime, the lower the actual production rate. Numerous studies have been conducted, and while they have resulted in slightly different numbers, all reach the same conclusion....As the total hours per week are increased on a regular basis, more time is lost because of fatigue, lowered morale, and an increased accident rate.”*

There can be a difference between the actual payroll cost and the effective cost of payroll depending on the hours of continuous overtime worked. Based on the overall Utilities Services overtime, an efficiency factor of 72.5% is being used. Total labor multiplied by the Efficiency factor results in the actual productive or efficient labor cost. The difference, is the inefficiency cost to the University.

Project	Labor Cost	Project Efficiency Cost @ 72.5%	Inefficiency Cost @ 27.5%
Freshman Hall	\$ 203,311	\$ 147,400	\$ 55,911
Water Utility Line	\$ 243,908	\$ 176,833	\$ 67,075
Alumni Loop	\$ 192,248	\$ 139,380	\$ 52,868
Jett Hall Roof	\$ 146,286	\$ 106,057	\$ 40,229
Water Systems Maint	\$ 104,126	\$ 75,491	\$ 28,635
Softball Parking	\$ 64,821	\$ 46,995	\$ 17,826
Parking Lot 100	\$ 86,139	\$ 62,451	\$ 23,688
Sam Steel Way	\$ 30,487	\$ 22,103	\$ 8,384
Soccer Field	\$ 25,591	\$ 18,553	\$ 7,038
<b>Total</b>	<b>\$ 1,096,917</b>	<b>\$ 795,265</b>	<b>\$ 301,652</b>

Note: The labor cost for Water Systems Maintenance only included costs for 2006 and 2007.

**Shop Time: Construction shop only**

According to Utilities Services, shop time is coded for the following types of maintenance and repair activities:

- Obtaining materials from the warehouse for the shop
- Minor repairs that are too small to bill for
- Clean up work such as after a rain storm
- Inclement weather watch – when men must stay on University grounds to be available for work
- Charges that customers don't think they should be billed for.

Utilities Services management believes Shop Time should be about 5% of total direct time

A review of Construction/Roofing shop time from Work Order #51 was reviewed for the period July 05 – June 06. A total of 21,243 hours was charged to the work order. According to payroll records, 70,436 total direct hours were paid during the same time period. Based on these hours, 30% (21,243/70,243) of the total direct hours were billed to the Shop.

It was our understanding that the Construction/Roofing shop coded two hours per day (2hrs/8hrs) or 25% of their daily hours to the following:

- mobilization
- demobilization
- breaks

The coding of two hours of shop time per day accounted for 10,063 hours or about 48% of the hours billed to the Shop. According to Utilities Services, there have been customers who did not believe they should be charged for break time and time spent purchasing materials. As a result, the Construction/Roofing shop interpreted this to mean they should code 2 hours to shop time instead of to a project. Utilities Services stated that this practice has been discontinued and they plan to bill a project for all related time as is done in the industry.

Overtime hours billed to the shop accounted for 881 hours or approximately 4% of the hours billed to the Shop. According to Utilities Services, overtime would be justified in cases such as cleanup work after rain storms.

3 to 8 hours of shop time coded in a day accounted for 10,300 hours or approximately 48% of the hours billed to the Shop. Again, Utilities Services stated that rain usually causes them to spend a lot of time on general clean up and maintenance on dirt roads.



**Project Schedule:**

The following observations were noted regarding the project schedule:

- Utilities Services stated they are not always allotted the opportunity to time or schedule projects properly. Emergency projects are frequently dumped on them and they are forced to respond in an emergency fashion. When the project costs more than the estimate, they are criticized.
- Supervisory/Management personnel do not feel they are in a position to decline work.
- The following chart shows the amount of time spent on six large projects and the amount of time remaining for routine maintenance and paid time not worked. The Construction/Roofing Shop project time for six major projects was compared to the Total Wages of \$841,615 on the Cumulative Shop FY Status Report for fiscal year 06/07 as of 6/14/07. The labor rates were adjusted to approximate actual labor rates and multiplied by total hours so they would be comparable to actual labor costs. The cost for these six projects was estimated at \$396,144.

Project	OT Hours	ST Hours	Total
Jett Hall	859.0	4,306.5	5,165.5
Lot 27	1,832.5	4,009.0	5,841.5
Lot 39	892.5	1,568.0	2,460.5
Sam Steel	422.5	783.0	1,205.5
Water Maint	212.5	935.0	1,147.5
Water Utility Line	1,068.0	2,476.0	3,544.0
Total Hours	5,287.0	14,077.5	19,364.5
Adj Billing Rate to Approximate Actual Avg Wage Rate	\$ 27.00	\$ 18.00	
Total Estimated Cost for 6 projects	\$ 142,749	\$ 253,395	\$ 396,144
Actual Payroll Cost as of 6/14/07			\$ 841,615
% to Total			47%

The above chart shows that approximately 47% of the actual Construction/Roofing labor cost for the July 2006 to June 14, 2007 period was spent on six projects. This left only 53% of their time to spend on other large projects, shop, vacation, holiday, sick and routine maintenance work. In May 2007, an open work order listing was pulled for the Construction/Roofing Shop. There were 95 open unassigned work orders. An aging of these work orders is shown below:

Work Orders Aging	# of Open Work Orders
0 - 30 days	44
30 - 60 days	12
2 - 6 months	29
6 - 12 months	10
Total	95

Based on the above two charts, it does not seem that the Construction shop was able to adequately address their regular responsibilities. According to Utilities Services, 2006 was a very unusual year because the workload was extremely high for the Construction shop. Their recent analysis of the construction shop workload indicates that this will not occur during the remainder of 2007.

**Changes to Scope (Change Order Work):**

- There is no procedure established to document changes to project scope. There is an informal process where appropriate personnel discuss required changes and make decisions on an approach.
- Although there were changes to the scopes of some of the projects reviewed, we could not determine when the change was decided, the extent of the change or the estimated cost of the change.

**Estimates:**

- Estimates were not always prepared for high dollar projects. In cases where estimates were prepared, they could not always be located.
- The estimate may not have included the estimates for all shops involved.
- The estimates reviewed did not include money for taxes, handling charges, small tools, small consumable items or miscellaneous materials.
- The estimates were not dated.
- Estimates did not include inflation factors or accelerated schedule information.
- Customers don't always understand the details of the estimates and the inclusions/exclusions.
- Utilities Services stated they need to do a better job documenting estimates and some scope changes.
- Utilities Services plans to include all estimate information for large projects into one packet and have it maintained in a centralized location.
- Any missing information in the estimate needs to be in writing.
- There is confusion about the tax rules. (Service tax, Replacements, NM Gross Receipts Tax, etc.) Utilities Services would like some clarification on what is and is not taxable.

**Project Files:**

- Utilities Services believes they need to do a better job maintaining central project files.
- They agree that changes need to be documented.

**Cost vs. Benefit:**

- One individual in Utilities Services stated that management and customers force them to spend too much time on small money issues while the high dollar issues go unresolved. The example given was where ten individuals were involved in a meeting to discuss back hoe charges of \$300 - \$500 which needed to be back charged.
- This concern has been shared by others.

### Practices by Other Organizations

- Work Orders for the larger projects include a detailed estimate or Not to Exceed amount so the work order can easily be reviewed to see the progress of the work and billing.
- The scope of the work is well defined and included on the work order and/or on a supplementary document depending on size.
- A proposed completion date is included on the work order.
- One organization bills the “customer” the full amount when the work order is opened. Project cost is closely monitored by the organization performing the work. If the work is completed under budget, the savings is returned to the “customer”. If the construction cost exceeds the Not to Exceed estimate, the organization responsible for the overrun charges the excess cost to their own operating budget.
- Other Universities have petty cash funds but try to minimize their use.
- Two of the Universities we spoke with said they have had so many internal challenges controlling cost that they decided to outsource most of the work.
- One University has a crew to patch parking lots and roads. However, all major paving is outsourced.
- None of the Universities we talked to replaced complete roofs. Their internal people were limited to leak repairs.
- One University who has outsourced most projects including custodial made it clear that some contractors have taken advantage of their University and have been replaced.

## Overall Conclusion & Recommendations for Consideration

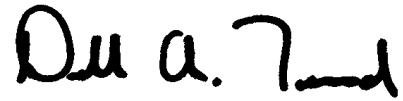
### Overall Conclusion:

- The University incurred an estimated \$628,000 in avoidable or unjustified cost for the nine projects reviewed due to:
  - Lack of proper planning and scheduling
  - Lack of control over time sheets
  - Lack of control over materials
  - Lack of monitoring project work
  - Lack of monitoring project paperwork

### Recommendations for Consideration:

- The University should implement controls to control time and materials.
- Management controls should be implemented to ensure proper use of University Resources
- Management and employees should be held accountable for results
- APPA provides a number of resources which can be used to help improve physical plant operations.
- The University should consider using contractors for selected projects that cannot be reasonably completed on time or within the budget or would have a negative impact on the OFS schedule or are over a certain dollar limit.
- Identify and implement best practices and productivity targets.

Submitted by:

A handwritten signature in black ink that reads "Debbie A. Townsend". The signature is written in a cursive, flowing style.

Debbie A. Townsend, Vice President  
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**New Mexico State University**

## Process Review Report

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**Reviews of:  
Arts Complex  
Chamisa Village – Phase II**

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**Report Submitted By:**

**R. L. Townsend & Associates, Inc.**

(972) 403-1829

Plano, Texas

May 30, 2012

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**EXECUTIVE SUMMARY****Background**

New Mexico State University (NMSU) engaged R. L. Townsend & Associates, Inc. to conduct a process review of the front end contracting process for two Construction Manager at Risk (CMAR) projects. The two projects selected for review are: Chamisa Village Phase II and the Arts Complex Phase I.

**Objectives**

NMSU identified the following objectives:

1. To determine why CMAR bids are usually higher than the Architect estimate
2. To determine if the additional fees to the Architect were appropriate
3. To determine the Owner's requirements at each step in the submission process

**Review Scope**

The following documentation was reviewed:

- Architect Contracts
- Architect Change Orders
- 3<sup>rd</sup> Party Estimator Correspondence
- NMSU Budgets
- NMSU Correspondence
- RFP for CMAR
- CMAR Bids
- Guaranteed Maximum Price (GMP) Contracts
- Guaranteed Maximum Price (GMP) Estimates
- CMAR Payment Applications
- Conversations with CMAR representatives
- Conversations with NMSU representatives
- Conversations with 3<sup>rd</sup> party architects

**Conclusion**

Based on the interviews and correspondence reviewed, we have a number of suggestions for future projects which should address the project objectives. However, it should be noted that the CMAR process is a new contracting methodology for NMSU which can result in additional cost for the owner if not properly managed. Therefore, it is appropriate to also list the NMSU controls which have been put in place to control the CMAR processes currently in progress.

The report is organized with an Executive Summary, the Details of Conclusions in **Section I** and Contract Language Exhibits supporting each item noted. A summary of the information reviewed for Chamisa Village is in **Section I** and for Arts Complex is in **Section II**.

Additional information or detail is available. See the following page for a summary of the conclusions for each objective.



**SECTION I**

**Conclusions for each Objective Relating to Chamisa Village II and the Arts Complex**

**1. Determine why CMAR bids are usually higher than the Architect estimate**

Both Sundt and McCarthy representatives stated that the design documents (DD) were more costly to construct than the Schematic Design (SD) budget would allow. For example:

- The square footage increased from SD to the DD stage for the Chamisa project which resulted in a higher CMAR estimate.
- The Arts Complex project included an estimated 40 transitions which is a more expensive construction method than with the typical ten transitions. This also was one example of the increased CMAR estimate.

The CMAR's felt this was due to the Architect having too much freedom in the design process and not enough communication between the owners, Architect and CMAR. The value of the CMAR process is to bring the construction knowledge in early to work with the drawings and develop a realistic budget by reconciling the cost and drawings with the CMAR, Architect and the owner.

Normally the three parties spend a lot of time during the SD and DD phases discussing the drawings and the related cost and making the adjustments before the job is bid. All parties need to be held accountable to the owner for the budget. The CMAR's did not believe this communication occurred on a frequent enough basis nor were the parties held responsible for the design or cost factors.

The RFP methodology used to hire the CMAR may have resulted in the bids being higher than the Architects estimate. Normally for a CMAR project, the owner will provide the Maximum Allowable Construction Cost (MACC) to the respondents and ask for the respondents to provide a general conditions percentage, a detailed breakdown of the estimated Not to Exceed (NTE) general conditions, a fee percentage and a proposed amount for pre-construction. The CMAR is selected based on these criteria. At the time these projects went out for the CMAR bid, the Architect was in the DD stage. This is too early for a contractor to provide an Initial Guaranteed Maximum Price (IGMP) with fixed general conditions and fee which was requested in the RFP document. CMAR's have stated that when they have to provide an IGMP early, they have taken on "risk" and therefore they will make sure the estimate provided with cover any perceived "risk". As a result of the high CMAR estimate.

An exhibit showing a typical CMAR RFP pricing document which is used to select a CMAR is included in this document. The attached document provides the owner budget and asks the bidding CMAR to provide the Pre-construction Fee, the fee percentage, the estimated fee amount, the General Conditions percentage, the estimated General Conditions amount, and detail of the General Conditions costs based on the owner budget. The CMAR is selected based on the Pre Construction fee and the percentages for Fee and General Conditions along with the other normal criteria such as safety, financial stability, track record, etc. **See Exhibit B**

A conventional hard bid project bid at the CD stage may have the same result if the Architect estimate was at the SD stage and the DD and Construction Documents (CD) drawings had scope or constructability issues which were not re-estimated by the Architect before the job was bid.

**2. Determine if the additional fees to the Architect were appropriate**

If the owner knows that a project will be a CMAR project, they will issue contracts for the Architect and Contractor which include language supporting the CMAR process. The CMAR language primarily relates to hiring the contractors early and the Architect and CMAR working together to reconcile the drawings with the cost estimate which is done at SD, DD and CD stages.

For the two projects reviewed, the Architect contact had not been modified to include pertinent CMAR related language. As a result, the following additional services were requested of the two Architects:

Additional fees were paid to Holzman Moss (Art Complex Architect) for the following reasons:

\$ 13,726	CMR Selection Process
\$ 75,128	CMR Cost Reconciliation Process

Additional fees were paid to Steinberg Architects (Chamisa Village II) for the following reasons:

\$ 35,007	To provide separate bid packages
\$ 27,333	To revise drawings in order to reduce the estimated cost

There was no language in the Holzman Moss or Steinburg contracts which required them to work with the CMAR to reconcile the estimated cost with the design or to assist with the CMAR selection process. Therefore, it would not be unreasonable for the Architects' to request additional funding.

An example of Architect Contract language has been included in this document for use by NMSU on any future CMAR type projects. The attached example includes language regarding the reconciliation of drawings with the CMAR's estimate at various stages prior to the subcontract bids. **See Exhibit A**

An example of CMAR Pre Construction Contract language has been included in this document for use by NMSU on any future CMAR type projects. The attached example includes language regarding the reconciliation of drawings with the CMAR's estimate at various stages prior to the subcontract bids. **See Exhibit C**

**3. Determine the Owner's Requirements at each Step in the Submission Process**

Based on our request for documents from NMSU and review of the files, it appears the process to control documentation could be improved. There did not seem to be a structured filing system and in many cases, documents could not be located.

There should be a checklist of contracting activities and a system of document preparation and retention.

The document provided by Emory (Not included in this document) appears to be a good checklist and could be modified for NMSU and used for all projects.

**SECTION II**

**Recommended Improvements to the NMSU Contracting Process**

**Architect Contract Language**

- It appears that the Architect contracts were not modified to include the detailed estimating process and the ongoing reconciliation of cost with the CMAR. Architects normally prefer to provide an estimate based on square footage using historical data with similar projects. As a result, these estimates are normally developed with heavy contingency factors to allow for the unknown factors. If detailed estimates are required to be provided by the Architect, they either hire an outside estimator or they have in house estimators. Although these estimates should be more detailed and therefore more accurate, they are still normally based on a SD. The SD may not include enough detail to obtain a good estimate for the MEP work which many times are underestimated. When the CMAR is brought on, they prepare their own estimates and reconcile cost and design with the architect and owner until the project cost is reconciled with the design. Architects are more involved in the pricing aspect of a CMAR process than with other contracting methods. As a result, pricing may vary but should not be significantly different.

We recommend the following:

1. The Architect should provide their experience with the CMAR process when submitting their RFP.
2. We recommend changes to the Architect contract to include specific CMAR language.  
**See Exhibit A - Architect Contract Language Excerpts**
3. The CMAR should be brought on the project early enough to maximize effective design/cost practices. Normally, the CMAR is brought on before or early in the SD process.
4. MEP Subcontractors should also be brought on early in the SD process to assist with the design and budget issues.

**RFP Document for CMAR**

- The RFP document and process for a CMAR should be revised. Section 2 – Scope of Work of the Arts Complex RFP includes the following:
  - Section 2.1 – Project Description. This section includes the Construction cost and the Project cost. Best Practices would only provide the Construction Cost to the potential CMAR. This eliminates the possibility of confusion on the part of the respondent.
  - Section 3 – Requirements for Proposal Responses. This section asks for an IGMP including all estimated costs by division. The RFP requires a detailed breakout for General Conditions and asks for a guarantee of a general conditions maximum cost. Finally, the RFP requests a fee in dollars instead of as a percentage. Normally, CMAR contracts are awarded based on the Pre Construction Fee, the General Conditions percentage and the Fee percentage. Since the award is early in the design process, a reasonable amount for Cost of Work cannot be determined with any accuracy. . If the Cost of Work cannot be determined, the respondent will error on the high side to cover any potential surprises. By locking into a fee and general conditions amount at this point may result as a disadvantage to the owner as the CMAR will error on the high side.

We recommend the following:

1. Only the Construction cost should be included in the RFP. Otherwise there may be confusion as to the cost the contractor is budgeting to. In addition, the square footage information should be included as part of the description as well as any other coordination, site conditions, demolition, phasing, etc.
2. The CMAR should be selected based on Pre Construction cost, General Conditions percentage and Fee percentage. This is the method used by most contractors and owners. As a result, the contractor can provide a better estimate by using a General Conditions percentage and fee percentage. Since these are best practiced benchmarks, they can be used to compare to other projects or other organizations projects.

**See Exhibit B – CMAR RFP Language**

### **Communication Process**

- Communication could be improved between the Architect, CMAR and NMSU during the Pre-Construction phase. Based on conversations with the CMAR's, meetings were limited and there was not enough owner participation.

We recommend the following:

- Owner expectations should be clearly communicated with the Architect and CMAR.
- Meetings should be scheduled on a frequent basis (weekly) and attended by all parties. Due dates should be set and minutes prepared.
- The owner should be in a position to make decisions.
- The owner should include members of the construction group to participate in these meetings as they will be required to implement and monitor the decisions.
- Meetings should include a review of the schedule and a current and 3 month review.

### **CMAR Contract Language – Pre Construction**

- The CMAR contract could be improved for the Pre Construction Section. The more specific the contract language, the fewer misunderstandings that will occur.

We recommend the following contract language:

**Exhibit C – CMAR Contract Pre Construction Language**

### **CMAR Contract Language – Construction**

- The CMAR contract could be improved. Our firm believes that neither the CMAR nor the owner should benefit unfairly. The American Institute of Architects (AIA) contracts are normally written with general terms and are sometimes modified with suggestions from the CMAR. These suggestions normally simplify the process but may have cost implications for the owner.

We recommend the following contract language:

**Exhibits A - J**

**Exhibit E – Right of Audit**

Most audit clauses are very weak and would not support the owner to conduct a detailed audit in the case of an adversarial relationship between the Owner and Contractor or if fraudulent accounting is suspected. The attached clause defines the following:

- Types of contracts to be audited
- Methods of reviewing/validating the documents
- Definition of “records”
- Audit clause should flow down to payees
- Access to contractor employees or former employees
- Overpricing/overcharging penalty

**Exhibit F – Business Ethics Expectations**

If no other ethics forms are required, the attached Ethics clause provides a basic expectation the Owner has regarding the Contractor and their business practices. The expectations include the following:

- The Contractor should not engage in any activities that would have an adverse impact on the Owner
- Contractor should prevent any Conflict of Interest situations
- The Contractor should be required to report any ethics violations
- A Management Representation Letter may be obtained from the Contractor
- Ethics clause should flow down to significant payees
- Owner should be able to validate contractor ethics standards/programs
- Contractor should have employees sign acknowledgement of ethics expectations

**Exhibit G.1 – Cost of Work**

The standard AIA agreement has a fairly brief definition of Cost of Work Reimbursements. This exhibit includes a detailed listing of the typical gray areas that are billed in GMP contracts. This exhibit includes the following items:

- Labor to be reimbursed at actual labor and labor burden cost
- Proceeds from sale of recyclable materials should be given to the Owner
- FMV of job owned equipment should be credited to Owner at the end of the project
- Equipment rental charges will be billed for the period of time equipment is being used
- Rental rates will be billed to a maximum of 75% of published rates
- Aggregate rental billings will not exceed 50% of FMV
- Definition of FMV (Fair Market Value)
- 3<sup>rd</sup> party rental equipment using a lease/purchase arrangement should be disclosed and credits given to the Owner at the end of the job
- Lost/stolen equipment is not reimbursable
- A detailed equipment inventory should be maintained by the contractor
- Only minor equipment maintenance and repair costs are reimbursable
- Local travel is not reimbursable
- Reproduction and telephone cost should be billed at actual
- Information Technology cost should be limited to on site computers
- Limits should be specified for relocation cost

**Exhibit G.2 – Cost Covered by Fee**

The standard AIA agreement has a fairly brief definition of non-reimbursable or costs covered by the fee. This exhibit includes a detailed listing of the typical gray areas that are billed in GMP contracts. This exhibit includes the following non reimbursable items:

- All home office services not performed on site
- Consultants not previously approved by the Owner
- Travel cost by home office employees
- Labor disharmony, unrest or strikes
- Negligence of the contractor or any payee of the contractor
- Non-conforming work
- Fines and penalties
- Warranty work
- General Conditions work after the final Completion date
- Costs of claim preparation by Contractor
- Trade or Professional dues
- Recruiting fees
- Legal fees
- Insurance deductibles

**Exhibit G.3 – General Conditions Matrix**

The attached matrix is an extensive listing of general conditions type costs and the organization responsible for the cost. The matrix is to be provided along with the RFP documents to the proposed contractor bidders. The purpose of the matrix is to obtain bids with an “apples to apples” General Conditions cost.

**Exhibit H – Subguard**

There are many ways contractors charge for Subguard or CDI (Contractor Default Insurance). Typically, contractors charge a fixed percent of the enrolled subcontracts. Generally this rate ranges from 1% to 1.5% and the enrolled subcontracts range from 100% participation to those subcontracts over \$250,000. In order to use a CDI product, the contractor must “prequalify” Subcontractors based on the underwriter’s criteria. Contractors also are required to maintain a fairly large deductible to keep the premium cost at a minimum. The contractor’s actual premium cost ranges from .3% to .6%. The difference between the premium cost and the percentage billed to the owner is a cost pool to cover contractor administrative costs, potential losses and any other potential costs. The attached exhibit describes one of the better programs used by owners.

**Exhibit I – Subcontracts & Self Performed Work**

The following language provides guidelines for subcontracting including, prequalification, bidding, subcontract methods, self-performed contracting and associated OH&P.

**Exhibit J – Contingency/Buyout Savings**

This language details what the contingency can be used for. It also provides for fee to be returned on buyout savings.

**Subcontract Buyout Cost**

- It is our understanding that NMSU has had problems with the Subcontract buyouts being higher than expected. Approximately 75% of the CMAR budget may be related to subcontracts. Depending on the project, a 3<sup>rd</sup> of the subcontract cost may be attributable to the MEP Subcontractors which have been discussed above. Some reasons that may cause higher buyouts than expected is as follows:
  - We have been told there is a “University Factor” that is added. This is common for university work due to more rigorous control environments and change order work.
  - Obtaining bids before documents are completed and ready to go on the street.
  - Not obtaining a sufficient number of qualified bidders.
  - Self-Performed work contracted on a lump sum basis may be inflated.
  - Subcontract labor rates may be overstated for Change Order work.
  - Using Subguard in lieu of bonding Subcontractors may result in higher costs depending how it is administered. **See Exhibit H**

We recommend the following:

- True competitive bids will keep the price in line. The CMAR should prequalify the bidding Subcontractors to ensure there are at least three responsive bids. Although we recommend this practice, it is our understanding that all local Subcontractors do not support this practice.
- If three responsive bids cannot be obtained, the work should be rebid. If this is not possible, the CMAR should either negotiate the contract value or require the sub to contract on a GMP basis. This would be determined by the original estimate for the scope of work and the total dollar value.
- The owner should be included in bid openings and approval of subcontract scope, especially for self-performed work performed by the CMAR.
- Labor rate breakdowns should be provided for each sub.

**MEP Subs – Design Assist**

- The MEP Subcontractors should be brought on the project early in the SD phase. The MEP subs can also be hired on a GMP basis in the same manner as the CMAR. (Pre Construction Fee, General Conditions percentage and Fee percentage). The MEP subs participate with the design along with any MEP engineers. At the point the CMAR is ready to bid the MEP work, they can get a price from the onsite MEP as well as other MEP’s. Normally, because the MEP on site is knowledgeable of the design details, they will submit a “best value” competitive bid. There should be a clause in their pre-construction contract stating they may not be selected to perform the work if they do not provide an acceptable price proposal. If the onsite MEP subs are selected, their contract may be converted to lump sum with appropriate adjustments if agreed to by the owner.

**SECTION III****Controls to Monitor the CMAR Process****NMSU Controls Currently In Place**

Based on our limited review of the construction process, it is our understanding that the construction group is monitoring the following:

- Detailed Payment Application with all CMAR adjustments
- Supporting documentation provided with Pay App.
- Payments to CMAR based on actual cost.
- Buyout of Subcontractors
- Change Orders and backup documentation

**Ways for CMAR's to Bill Owners for Hidden Profit**

- If the terms of the contract are not defined properly, the CMAR will have an argument to bill anything that is not included in the terms of the contract.
- In some cases the CMAR has GMP subcontract agreements which the CMAR/Subcontractor would like to convert to a lump sum basis. This makes the billing process easier for the Subcontractor and the CMAR. However, it is our experience that most of these conversions leave a lot of excess profit in the lump sum contract. We recommend not converting GMP contracts to Lump Sum.
- CMAR's normally like to bid and perform "self-performed" work packages on a lump sum basis. It is our experience that it is difficult to get quality competitive bids for a variety of reasons. As a result, these lump sum bids may have 15% to 50% profit included in the lump sum amount. We recommend the CMAR perform all "self-performed" work on a direct cost or "mini GMP" basis.
- If there are any allowances inside the Subcontracts, these must be trued up to actual cost. If these are not tracked, the Subcontractor may bill for the allowance in their lump sum contract even if the allowance is not used or is only used in part. We recommend a list of these allowances be provided by the CMAR and backup provided to the Owner for the use of the allowances.
- Unique scope or scope that has been changed during the project should be verified. For instance, if a less expensive piece of equipment is specified and installed by a Mechanical Subcontractor than was originally bid, a credit Change Order for the difference should be issued to the Mechanical Subcontractor by the CMAR. Another example is where pipe is to be painted but the work is not completed. A credit change order should be issued to the Painting Subcontractor. We recommend reviewing a sample of these items to validate the scope billed to the Owner is appropriate.
- Labor rates, labor burden and overtime priced on change orders may be overstated. In addition, change orders may be priced using only higher priced labor such as Journeymen and Foremen but not including Apprentices. We recommend reviewing these rates and labor burden components at the beginning of the project.
- Without specific contract language, the CMAR may bill for personnel that would normally be covered by their fee or should be included in the Pre-Construction phase or brought in to help catch up a "Contractor Delay". In any of these cases, the owner may be billed an excessive amount of payroll. We recommend specific contract language regarding reimbursable payroll and detail labor information provided to the owner along with the payment application. In most cases, the CMAR considers their payroll to be "Confidential". Therefore we recommend they provide the information in a separate document to a person designated by the Owner.



- Bonds, Builder's Risk and other insurance coverage are sometimes purchased and billed to the job based on a maximum risk scenario. In many cases, these coverages are true up at the end of the job and a credit given to the CMAR which is not passed on to the Owner. Again, contract language should specify that insurance/bond refunds or discounts be passed on to the owner. Also, the Owner should ask for the insurance true up at the end of the job from the 3<sup>rd</sup> party insurer to ensure proper accounting.
- In lieu of specific contract language specifying what the fee covers, the CMAR may bill for costs such as bonus which is sometimes accrued on the high side. It is our experience that the CMAR may bill up to 40% of the labor cost for bonus which is paid to the individual whether or not the Owner feels the bonus is warranted. We recommend bonuses to be covered by fee which is a component of the competitive bidding process.
- If the contract is not specific as to the OH&P allowed on Change Orders, the Owner does not have control over what the CMAR includes in the subcontract for OH&P. If the CMAR specifies a "reasonable OH&P, this may range from 10% to 35% depending on what the Subcontractor deems as "reasonable". We recommend that the contract language be specific as to OH&P.
- Monthly equipment rental charges should be capped or the rental rate could be more than if the Owner had purchased the equipment. We recommend contract language that caps the rental of contractor owned equipment at 75% of the FMV.
- CMAR labor should be billed at actual cost vs. "rates". When labor rates are used, they normally always include excess profit. In addition, if the rates include factors for vacation and holiday, these days cannot be billed to the project or a duplication of cost will be billed to the owner.
- Change Order pricing is an area where contractors who provide a low bid up front, try to make up some of the cost in change order pricing. The areas we most often find excess pricing is in the following areas:
  - Labor rates, Labor Burden, Overtime, Premium Portion of Overtime
  - Unit pricing in the contract not used or OH&P added to unit prices when the prices already include OH&P.
  - Material pricing billed at 2 or 3 times the Subcontractors cost.
  - Subcontract change orders or portions of change orders billed twice.
  - Back charges may be incorrectly billed. In some cases, the CMAR bills the back charge but not the credit.
  - Formula errors in spreadsheets and other calculation errors. Normally these are always in the favor of the CMAR.
  - Rework billed to the owner for Subcontractor errors.

We recommend specific language in the contract to eliminate some of these potential overcharges.

**SECTION IV**

**Background on Chamisa Village Phase II**

The following is a summary of the budgeting activities occurring from July 2009 thru July 2010:

As of July 15, 2009, NMSU budgeted \$21,000,000 for the Chamisa II project. This amount included \$17,881,000 for Construction and a 7.5% construction contingency. The \$3.1 million difference was to cover soft costs such as Design, Administration and Furnishings.

By the end of July, the Architect, Steinberg Architects had provided an estimate of \$18,480,000 for Construction. This estimate was based on the following:

Description	Chamisa I	Chamisa II
Year Built	2005	2010
Sq Footage		127,321
Cost		\$ 18,480,000
Cost Per Sq Ft.	\$ 105	\$ 122
Increase over 2005		16%
Average Annual Increase		3.2%

The September 23, 2009 AE Agreement for Chamisa II includes the following contract language using a Construction Budget of \$16,000,000 instead of the estimated \$18,480,000:

The AE Agreement for Chamisa II includes the following language:

*CHAMISA VILLAGE HOUSING COMPLEX-PHASE H*

*The Project has a maximum project cost of Twenty—One Million Dollars and Zero Cents (\$21,000,000.00) including New Mexico Gross Receipts Tax. The Project has an estimated Maximum Allowable Construction Cost (MACC) of Sixteen Million Dollars and Zero Cents (\$16,000,000.00), which includes ten percent (10%) in additive alternates and six and one-quarter percent (6.25%) in New Mexico Gross Receipts Tax. **The Architect agrees that the Project can be built within that budget.** It shall be the Architect’s responsibility to design the project within the budget.*

*Should the actual construction contract award be greater than \$16,000,000.00 (including New Mexico Gross Receipts Tax), the fee will be adjusted by the addition of 6% of the construction cost exceeding \$16,000,000.00.*

*(e) Should the actual bid price, as obtained from the construction documents and specifications, exceed the latest agreed-upon construction budget, if, and only if directed by the Regents, the Architect shall modify the contract documents to bring the project cost within the construction budget, The Architect may revise it only when instructed in writing by the Regents’ Representative and counter-signed by either the President or the Executive Vice President of the University. If the actual bid price exceeds the construction budget, no further compensation shall be due the Architect to bring the project within Regents’ construction budget.*

*EXHIBIT B*

# New Mexico State University

Process Review of Construction Process

Report Date: May 30, 2012

## ADDITIONAL SERVICES

The following services are not included in the services identified in Paragraph 18. The Architect shall provide these services if authorized or confirmed in writing by the Regents. The Regents shall compensate the Architect for Additional Services as per the Architect's Billing Rate Schedule (Exhibit A), or as otherwise agreed by the Regents and the Architect. Compensation for Additional Services shall be in addition to compensation for Basic Services.

1. Services related future facilities, systems and equipment which are not part of the Project.

2. **Detailed estimates or analysis of construction cost**, owning and operating costs or detailed quantity surveys or inventories of materials, equipment and labor.

Cumming Corporation, the Cost Consultant for Steinberg Architects, provided a "Statement of Probable Cost" based on 100% SD dated November 23, 2009. The cost per square foot increased from \$122 to \$173 based on the square footage decrease and the cost increase. The Construction Cost Summary is shown below:

Description	Phase II Housing	Sitework	Total Estimate by Cumming	Original Construction Estimate by Steinberg	Difference
<b>Square Footage</b>	<b>109,853</b>		<b>109,853</b>		
Cost of Work	\$ 13,744,149	\$ 1,866,505	\$ 15,610,654		
General Conditions @ 4%	\$ 549,766	\$ 74,660	\$ 624,426		
Bond @ 1%	\$ 137,442	\$ 18,665	\$ 156,107		
Liability Ins @ 1%	\$ 137,441	\$ 18,665	\$ 156,106		
Fee @ 3%	\$ 437,064	\$ 59,355	\$ 496,419		
Contingency @ 5%	\$ 750,293	\$ 101,893	\$ 852,186		
Total	\$ 15,756,155	\$ 2,139,743	\$ 17,895,898		
Escalation @ 1.22%	\$ 191,587	\$ 26,018	\$ 217,605		
Subtotal	\$ 15,947,742	\$ 2,165,761	\$ 18,113,503		
NMGRT @ 6.25%	\$ -		\$ 975,666		
Total	\$ 15,947,742	\$ 2,165,761	\$ 19,089,169	\$ 18,480,000	\$ 609,169

On December 9, 2009, the following excerpt from a letter sent from NMSU to the Architect approving the SD documents dated 11/23/09:

*We have reviewed and accepted the Schematic Design documents for Chamisa Village, Phase 2, dated November 23, 2009. Comments on the design and layout were covered in this morning's Design Workshop, You are hereby authorized to proceed to the Design Development phase of your contract.*

*On February 1, 2010, the Board of Regents approved the following project:*

Requested Action of the Board of Regents:

Approval of NMSU-Las Cruces Chamisa Village Phase Two Funding:

2010 Revenue Bonds

Total Funding: \$ 22,000,000

*February 11, 2010 – HED Submittal*

\$18,263,857 Construction Cost

127,321 Sq Ft. 300 Beds

\$143 per Sq Ft.

During this time, the \$3,000,000 in estimated construction cost increase resulted in a series of corresponding adjustments to the soft costs. The original Maximum budget was adjusted several times from a low of \$21,000,000 to a high of \$27,800,000. When it seemed clear that \$22,000,000 would be approved, the budget was then adjusted to the \$22,000,000 and categories were adjusted to fit into the final budget.

#### **February 18, 2010 – Sundt Pre Construction Agreement**

*2.1.5.2 When Schematic Design Documents have been prepared by the Architect and approved by the Owner, the Construction Manager shall prepare a detailed estimate with the supporting data for review by the Architect and approval by the Owner. During the preparation of the Design Development Documents, the Construction Manager shall update and refine this estimate at appropriate intervals agreed to by the Owner, Architect and Construction Manager.*

Above clause Deleted – Sundt not brought on until DD stage. It is our understanding that it was not decided to use CMAR contracting until after the Architect had been hired. The following paragraph was included in the Sundt Pre Construction Agreement:

*2.1.5.3. Design Development Documents have been prepared by the Architect and submitted to the Construction Manager. The Construction Manager has used such Design Development Documents to prepare its Technical Proposal. During the preparation of the Construction Documents, the Construction Manager shall update and refine this estimate at appropriate intervals agreed to by the Owner, Architect and Construction Manager.*

Sundt provided a preliminary estimate of \$25 MM for the construction cost. This is a difference of \$6 MM or 32% increase over the Cumming estimate based on SD documents.

On March 8, 2010, Cumming submitted a document analyzing the \$6 million difference between their \$19MM November 23, 2009 estimate based on SD Documents and the \$25MM Sundt estimate based on DD Documents.

The following differences were noted by Cumming, a Cost Consulting Firm:

<b>Cumming</b>	<b>Sundt</b>	<b>Note</b>
Cumming used a square footage based on SD's	Sundt used a 40% higher site square footage and a 7% higher building square footage	A
Cumming used non union rates	Sundt was using union labor rates which Cumming estimated to account for \$2M of the difference	B
Cumming assumed a strong Competitive Bidding environment	Competitive Bidding received by Sundt was limited	C
Cumming did not consider Subguard	Sundt priced Subguard at 1.25%	D
Cumming included a General Conditions Percentage of 6%	Sundt included a General Conditions Percentage of 12%	E
Cumming used a Contractor Fee of 3%	Sundt has a Contractor Fee of 5%	F

Notes:

- A The difference in the square footage from SD to DD seems to be a considerable portion of the cost difference.
- B Considering the New Mexico environment, it may have been more reasonable to use a 50% Union participation.
- C Considering the Las Cruces environment, the competitiveness of the bidding is directly related to the effort by the CMAR to encourage multiple "qualified" bids.
- D Subguard vs. traditional bonding should be a net zero impact.
- E Based on the limited contract language and the possible travel required for out of town Subcontractors, a 10% General Conditions Percentage may have been more reasonable.
- F Based on the limited contract language and size of the contract, a 4% or 5% fee is probably reasonable.

Based on conversations with Sundt, they believe the \$6MM delta was due to the following:

- Sundt felt disconnected with the Owner and Architect. There was confusion over the Construction Budget amount. Sundt was not sure what number they were using as a target.
- There was not enough preplanning between the 3 parties: Architect, Owner and Sundt. Design meetings were not occurring and they tried to have meetings over the phone. As a result, the drawings were redesigned several times.
- The General Conditions were not discussed in enough detail on the front end.
- Sundt went out for bids with 90% CD's even though they thought they would end up over budget. The bids came back significantly over the budget and the Architect had to redesign.

## New Mexico State University

Process Review of Construction Process

Report Date: May 30, 2012

- It was difficult getting enough Subcontract bids to provide good competitive bidding.
- Even with competitive bidding, there is a "University Factor" added by the Subcontractors.
- The second time Sundt went out to bid they felt more comfortable they would come in close to the budget.
- Sundt did not feel the Architect or the Owner was familiar with the CMAR process
- Sundt in San Diego worked directly with Steinberg in LA to work out the final GMP of \$18.3M.

The following contract language is included in the Sundt contract regarding the GMP:

*2.2.1 When the Drawings and Specifications are sufficiently complete, the construction Manager shall propose a Guaranteed Maximum Price, which shall be the sum of the estimated Cost of the Work and the Construction Manager's Fee.*

Sundt GMP dated 10/18/10 totaled \$18,395,312 which is ultimately less than the Cumming estimate on 11/23/09.

Description	Per Cumming	Sundt GMP	Difference	Sundt Overages from Cumming
Plumbing Systems	\$ 918,605	\$ 1,759,880	\$ (841,275)	
HVAC	\$ 1,452,460	\$ 1,965,459	\$ (512,999)	
Electrical	\$ 2,191,510	\$ 1,757,127	\$ 434,383	
Fire Protection	\$ 260,084	\$ 456,434	\$ (196,350)	\$ (1,116,241)
Other Trades	\$ 10,787,995	\$ 8,499,681	\$ 2,288,314	
Subtotal	\$ 15,610,654	\$ 14,438,581	\$ 1,172,073	
General Conditions	\$ 624,426	\$ 1,281,840	\$ (657,414)	
Bonds	\$ 156,106	\$ 159,475	\$ (3,369)	
Liability Insurance	\$ 156,106	\$ 227,115	\$ (71,009)	
Fee	\$ 496,419	\$ 823,471	\$ (327,052)	\$ (1,058,844)
Contingency	\$ 852,186	\$ 362,408	\$ 489,778	
Escalation	\$ 217,605	\$ -	\$ 217,605	
Total	\$ 18,113,502	\$ 17,292,890	\$ 820,612	
NMGRT @ 6.25%	\$ 975,666	\$ 1,102,422	\$ (126,756)	
Total	\$ 19,089,168	\$ 18,395,312	\$ 693,856	\$ (2,175,085)
Original Estimate		\$ 25,217,915		
Estimate Adjustments		\$ 6,822,603		

It appears that the final GMP ended in \$2M more spent on HVAC, General Conditions and Fee than was estimated by Cumming.

**Conclusion on Chamisa II**

The Construction Budget was estimated to be \$18,480,000 by the Architect. These estimates normally err on the high side because the Architect does not want to end up with an estimate lower than what the work should cost.

Cumming was hired to provide a cost estimate which resulted in a \$19,089,170 estimate based on 100% SD's. This estimate included an \$852K contingency and \$218K for escalation in order to provide a conservative estimate for the Owner.

Between this estimate dated November 23, 2009 and the Sundt estimate in February 2010 based on DD's, there seems to have been a variety of design/communication issues which resulted in the \$6M difference. These communication issues resulted in a delay of the project start date by 3 – 4 months.

**Observations/Recommendations**

- Normally the Architect budget will exceed the estimate provided by the CMAR. However, the CMAR likes to start with an estimate which has plenty of room for any surprises that may come up. Although the CMAR contracting method is CM at Risk, the CM typically does not want to take on a lot of risk.
- The Architects contract should have language which discusses the requirement to reconcile the drawings to the contactors estimate. Sample language will be provided.
- Normally, owners like to bring on the CMAR before or during the SD phase so they can start working on reconciling cost and drawings.
- Normally, the CMAR is hired based on Pre-Construction Cost, General Conditions percentage and Fee percentage, a rough estimate of the cost of work and other factors such as safety, experience, etc. A document is included in the RFP which details the reimbursable General Conditions and what is to be covered by the fee. An example document is provided. In addition, the contract language should be very specific as to what is covered by the fee. Without this language, the CMAR can potentially bill high dollar costs such as bonuses, data processing, etc.
- The CMAR also likes to bring on the MEP Subcontractors during SD phase so they can start working with the design. They are generally competitively bid based on a General Conditions %, Fee % and an other factors as mentioned for the CMAR. The Subcontractor is paid a Pre-Construction fee to participate in this phase. When the GMP is complete, the MEP Subcontractor is asked to provide a price. If the price is not acceptable, the CMAR is allowed to go out and competitively bid the MEP work.
- The Owner, Architect and CMAR normally have frequent, regularly scheduled meetings to resolve differences. The Owner must participate and approve each budget adjustment.

**SECTION V**

**Background on Arts Complex Phase I**

The following is a summary of the budgeting activities occurring from July 2008 thru September 2010:

July 15, 2008 - An original NMSU budget showed the total budget to be \$42M and the Construction budget to be \$35M. The progression of budgets is shown in the following chart:

	5/1/2008	9/9/2009	12/7/2009	3/31/2010	3/4/2011
Design & Admin	\$ 6,593,678	\$ 7,222,673	\$ 7,228,227	\$ 6,993,978	\$ 7,018,167
Construction	\$ 30,549,803	\$ 27,987,866	\$ 28,130,117	\$ 28,935,918	\$ 29,267,076
Other	\$ 355,800	\$ 300,000	\$ 1,586,092	\$ 1,570,104	\$ 1,371,207
Total	\$ 37,499,281	\$ 35,510,539	\$ 36,944,436	\$ 37,500,000	\$ 37,656,450
McCarthy Only	\$ 25,318,003	\$ 24,943,515	\$ 25,162,418	\$ 26,900,000	\$ 27,400,000
Funding	\$ 37,500,000	\$ 37,480,000	\$ 37,555,000	\$ 37,555,000	\$ 37,555,000

A contract was signed with the Architect, Holzman Moss Architecture LLP on August 11, 2008. The contract included a maximum project budget of \$37,500,000 with no amount specified for the Construction budget. The fee for Basic Services totaled \$4,684,642. See the Architectural/Engineering agreement language as follows:

*ARTS COMPLEX – PHASE 1*

*The Project has a maximum project cost of Thirty Seven Million Five Hundred Thousand Dollars (\$37,500,000.00) including New Mexico Gross Receipts Tax. The Project has an estimated Maximum Allowable Construction Cost (MACC) to be determined, which includes ten percent (10%) in additive alternates and New Mexico Gross Receipts Tax. The Architect agrees that in their professional opinion the Project can be built within that budget. It shall be the Architect's responsibility to design the project within the budget.*

June 29, 2009 – Additional fee of \$13,726 to Holzman Moss was added for Architectural/Engineering Services during the CM at Risk Selection process.

August 4, 2009 – RFP Submittal due for CMAR. Construction budget shown as \$26M and the total project cost shown as \$37.5M. The SD package was completed on September 22, 2008 and was available for review by the CMAR. A copy of the proposed contract was attached.

December 8, 2009 – Additional fee of \$75,128 to Holzman Moss was added for Architectural/Engineering Additional Services during the CM at Risk Cost Reconciliation Process.

May 20, 2010 - Additional fee of \$111,773 to Holzman Moss was added for Architectural/Engineering Additional Services to create 2 additional bid packages for Subcontractor bidding by the CMAR.

September 17 2010 – CMAR contract signed with McCarthy Building Companies. Pre-Construction costs \$1,012,141. The total contract value is limited to \$26,900,000.



## New Mexico State University

Process Review of Construction Process

Report Date: May 30, 2012

The following chart shows the progression of IGMP budgets prepared by McCarthy and the estimated add-ons by NMSU:

	McCarthy IGMP	McCarthy IGMP	McCarthy IGMP	McCarthy IGMP	McCarthy IGMP
			DD	DD	DD
	8/18/2009	11/9/2009	3/22/2010	8/30/2010	9/14/2010
Construction	\$ 23,476,249	\$ 23,682,276	\$ 25,317,647	\$ 25,757,931	\$ 25,757,931
NMGRT @ 5.9375%	\$ 1,467,265	\$ 1,480,142	\$ 1,582,353	\$ 1,642,069	\$ 1,642,069
Subtotal	\$ 24,943,514	\$ 25,162,418	\$ 26,900,000	\$ 27,400,000	\$ 27,400,000
Fire Alarm	\$ 50,000	\$ 50,000	\$ 50,000	\$ 60,062	\$ 160,480
Utilities	\$ 100,000	\$ 100,000	\$ 100,000	\$ 21,000	\$ 21,000
EMS Configuration		\$ 75,487	\$ 80,700	\$ 82,200	\$ 81,976
El Paso Electric		\$ 54,218	\$ 54,218	\$ 54,218	\$ 54,218
Site Utilities	\$ 2,500,000	\$ 625,000	\$ 625,000	\$ 625,000	\$ 408,807
Impact Fee				\$ 16,334	\$ 7,466
Shop Support	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Contingency @ 10%	\$ 2,494,351	\$ 2,012,993	\$ 1,076,000	\$ 1,000,000	\$ 1,000,000
Total	\$ 30,137,865	\$ 28,130,116	\$ 28,935,918	\$ 29,308,814	\$ 29,183,947

Based on conversations with McCarthy, they believe the \$1.6M delta was due to the following:

- McCarthy was not given the Architects Budget and they did not know what number they were using as a target.
- The design is more technical then the McCarthy budget. They reengineered three times to bring the budget in line. The Owner had to identify additional funding to help with the budget situation.
- They finalized the GMP with 100% CD's.
- McCarthy is use to frequent and open communication on a CMAR project. Generally the Architect will listen to the CMAR's ideas and make suggestions. McCarthy felt this Architect was very defensive and ignores or says "no" to McCarthy's ideas.
- McCarthy said the Architect was always a step behind on drawings. There was a long time between when changes were submitted and when they were able to see the drawings. This only slows down the project.
- McCarthy does not feel there was a lot of teamwork. There were not enough meetings. They were limited to Monthly meetings vs. weekly meetings. They also didn't feel the Owner was involved in the design details.
- McCarthy felt that although the Architect was aware of this being a CMAR project, they didn't really understand how to work with it.
- It is also believed that the Architect had a more freedom on this project than what they are used to seeing and that the Owner was very accommodating. The Owner trusted the architect to make the decisions.
- The main reason the budget is higher than expected is due to constructability issues. Ex: The number of unique transitions. 10 is normal and this project has 40. In addition, even though they are constructing to the specifications, they feel the Owner may not like the final project. Ex: Exposed Concrete on the Ceiling.

**Observations/Recommendations**

- Normally the Architect budget will exceed the estimate provided by the CMAR. However, the CMAR likes to start with an estimate which has plenty of room for any surprises that may come up. Although the CMAR contracting method is CM at Risk, the CM typically does not want to take on a lot of risk.
- The Architects contract should have language which discusses the requirement to reconcile the drawings to the Contactors estimate. Sample language is provided.
- Normally, Owners like to bring on the CMAR during the SD phase so they can start working on reconciling cost and drawings.
- Normally, the CMAR is hired based on a General Conditions %, Fee %, a rough estimate of the cost of work and other factors such as safety, experience, etc. A document is included in the RFP which details the reimbursable General Conditions and what is to be covered by the fee. An example document is provided. In addition, the contract language should be very specific as to what is covered by the fee. Without this language, the CMAR can potentially bill high dollar costs such as bonuses, data processing, etc.
- The CMAR also likes to bring on the MEP Subcontractors during SD phase so they can start working with the design. They are generally competitively bid based on a General Conditions %, Fee % and an other factors as mentioned for the CMAR. The Subcontractor is paid a Pre-Construction fee to participate in this phase. When the GMP is complete, the MEP Subcontractor is asked to provide a price. If the price is not acceptable, the CMAR is allowed to go out and competitively bid the MEP work.

The Owner, Architect and CMAR normally have frequent, regularly scheduled meetings to resolve differences. The Owner must participate and approve each budget adjustment.

**Exhibit A - Architect Contract Language Excerpts***1.1 Basic Services*

*1.1.1 Basic Services. The Project Architect's Basic Services included all disciplines identified in Article 14 and all related usual and customary design, consultant, and other services necessary and reasonably inferable to complete the Project, or any phase of the Project, in accordance with the Owner's requirements and the terms of this Agreement.*

*1.1.3 The Facilities Program (see Article 2) describes the intended project scope and character along with the anticipated Project Schedule and the Preliminary Project Cost. It is the Project Architect's responsibility to review and understand the requirements of the Facilities Program and to perform his professional services so as to achieve those objectives.*

*.1.4 The Construction Cost Limitation for this Project is specified in Article 14.4.1. The Project Architect is responsible for managing the design of the Project so that its construction does not exceed the Construction Cost Limitation.*

*1.1.5 The Owner may require the Project Architect to provide services for the Project in multiple stages or parts identified as Construction Contract Stages (CCS). Each CCS shall have a unique Sub-Construction Cost Limitation (SCCL). The Project Architect is responsible for managing the design of each CCS so that its construction does not exceed the SCCL. The Project Architect is responsible for managing the design of the Project so that sum of all SCCLs does not exceed the Construction Cost Limitation.*

*1.1.6 The Project Architect shall manage the design of the Project to achieve the Facilities Program objectives of scope and cost through completion and acceptance of Construction Documents phase. The Project Architect shall advise the Owner of any adjustments to the scope or quality of the Project necessary to comply with the Construction Cost Limitation during design development as part of Basic Services.*

*1.1.7 The Project Architect shall submit the names of all consultants, persons, or firms, which the Project Architect proposes to use in the execution of its services and shall provide the Owner with a fully executed copy of each contract or agreement that the Project Architect enters into with any consultant. The Project Architect is responsible for coordinating the work of all of its consultants to assure that their services are appropriate for and adequately incorporated into the design of the Project. The Owner reserves the right, in its sole discretion, to reject the employment by Architect of any consultant for the Project to which Owner has a reasonable objection. Architect, however, shall not be required to contract with any consultant to which it has a reasonable objection.*

*1.1.8 The Project Architect shall pay for its consultants' services out of its fees. The Owner is not responsible for any consultant fees or costs unless expressly agreed to in writing.*

*1.1.16 The Project Architect, as part of Basic Services, shall engage a recognized and specialized construction cost estimating consultant acceptable to the Owner to prepare detailed Construction Cost Estimates of the Project in a form acceptable to the Owner following the Construction Specifications Institute (CSI) format. Updated Estimates shall be included with the plans and specifications submitted for review at completion of the Design Development phase and at the stages of completion of the Construction Documents required in Article 14. If the Construction Cost Estimate exceeds the Construction Budget at any time, the Owner will determine whether to increase the Construction Budget or require the Project Architect to revise the Project scope or quality to comply with the Construction Budget at no additional cost to Owner. Reductions in Project scope or quality are subject to Owner's review and approval. If the Construction Cost Estimate is below the Construction Budget, the Owner and Project Architect shall mutually agree on changes to the project scope or the Construction Budget.*

*1.1.17 The Project Architect shall submit documents to the Owner for review at completion of the Schematic Design and Design Development phases and at the stages of completion of the Construction Documents as described in Article 14. The Project Architect shall incorporate into the documents such corrections and amendments as the Owner requests, unless the Architect objects in writing and receives the Owner's consent not to make the changes. The Project Architect will be responsible for any damages incurred by the Owner that are caused by Project Architect's failure to incorporate requested corrections and amendments to the documents.*

*1.1.18 Project Architect shall provide a review and comment form acceptable to the Owner for Owner's use during document review. Owner will provide its review comments to Project Architect on the form and the Project Architect shall provide a detailed written response to each of the Owner's review comments indicating where and how they have been addressed in the design documents. At each required document submittal stage, the Project Architect shall include the completed comment form from the preceding submittal along with a cover letter signed by a firm principal affirming that the previous review comments have been fully addressed in the current submittal. Failure to respond to the previous comments or to provide the written affirmation may result in reduction or rejection of the Project Architect's then current Statement for Architectural/Engineering Services. Owner's approval of the revised drawing shall not be deemed to be an approval of any unlisted changes, and any costs or expense for any Project Architect's additional services subsequently incurred for such unlisted changes shall be borne or reimbursed by Project Architect.*

*1.1.19 The Project Architect, as part of Basic Services, shall become sufficiently familiar with the existing facilities, systems and conditions at the Project location so that the proposed Project will completely and properly interface functionally with them.*

*1.1.20 Project Architect agrees and acknowledges that Owner is entering into this Agreement in reliance on Project Architect's represented professional abilities with respect to performing Project Architect's services, duties, and obligations under this Agreement. Project Architect agrees to use Project Architect's best professional efforts, skill, judgment, and abilities in performing Project Architect's services. Project Architect shall perform its Services diligently and shall endeavor to further the interest of the Owner in accordance with Owner's requirements and procedures. Project Architect agrees to use its best efforts to perform its services (1) in accordance with the usual and customary professional standards of care, skill and diligence consistent with good architectural practices for architectural firms that provide professional design services for projects that are similar in size, scope, and budget to the Project, and (ii) in compliance with all applicable national, federal, state, municipal, and State laws, regulations, codes, ordinances, orders and with those of any other body having jurisdiction. There are no obligations, commitments, or impediments of any kind known to the Project Architect that will limit or prevent performance by Project Architect of its services. Project Architect hereby agrees to correct, at its own cost, any of its Services, and the services of its consultants, that do not meet the standard of care.*

*1.1.21 Project Architect shall take reasonable precautions to verify the accuracy and suitability of any drawings, plans, sketches, instructions, information, requirements, procedures, requests for action, and other data supplied to Project Architect (by Owner or any other party) that Project Architect uses for the Project. Project Architect shall identify to the Owner in writing any such documents or data which, in Project Architect's professional opinion, are unsuitable, improper, or inaccurate in connection with the purposes for which such documents or data are furnished. Owner does not warrant for the accuracy or suitability of such documents or data as are furnished unless Project Architect advises Owner in writing that in Project Architect's professional opinion such documents or data are unsuitable, improper, or inaccurate and Owner confirms in writing that it wishes Project Architect to proceed in accordance with the documents or data as originally given.*

**Exhibit B – CMAR RFP Language**

RESPONDENT’S PRICING AND DELIVERY PROPOSAL

Complete the attached “Pricing and Delivery Proposal” form.

Proposal of: (Respondent’s Company Name)

To: NMSU

Project Name: New Project

RFP No.: 111-111

Having carefully examined all the requirements of this REP, the proposed form of Agreement, and any attachments to them, the undersigned proposes to furnish Construction Manager-At-Risk services as required for this Project on the following terms:

**ESTABLISHMENT OF THE CONSTRUCTION MANAGER’S BUDGET LIMITATION:** The Owner has established a Construction Manager’s Budget Limitation (CMBL) amount of \$26,000,000, which includes the Owner’s Construction Contingency, Owner’s Cash Allowances, Pre-Construction Phase Fee and the Construction Guaranteed Maximum Price Proposal.

**RESPONDENT’S PRE-CONSTRUCTION PHASE FEE:** The Respondent shall identify a Pre Construction Phase Fee, pursuant to the Agreement.

Respondent’s Pre-Construction Phase Fee \$ \_\_\_\_\_

**ESTABLISHMENT OF THE CONSTRUCTION COST LIMITATION:** Using the CMBL and the Respondent’s Pre-Construction Phase Fee identified above, the Respondent shall identify the Construction Cost Limitation (CCL), pursuant to the Agreement:

Construction Manager’s Budget Limitation	\$ 26,000,000
Less Owner’s Construction Contingency	\$ 1,000,000
Less Owner’s Special Cash Allowance	\$ _____
Less Respondent’s Pre-Construction Phase Fee Above	\$ 100,000
Equals Respondent’s Construction Cost Limitation	\$ 24,900,000

**RESPONDENT’S CONSTRUCTION PHASE FEE:** Using the CCL identified above, the Respondent shall identify a Construction Phase Fee percentage, pursuant to the Agreement:

Respondent’s Construction Phase Fee Percentage \_\_\_\_\_%

Respondent’s Estimated Construction Phase Fee Amount \_\_\_\_\_%  
(percentage times the CCL above)

# New Mexico State University

Process Review of Construction Process

Report Date: May 30, 2012

RESPONDENT'S NOT-TO-EXCEED) GENERAL CONDITIONS COSTS: Using the Project Planning Schedule, the Respondent shall identify a General Conditions not-to-exceed percentage and amount as defined by exhibit of the Agreement, and other related Sections

Respondent's General Conditions Percentage. \_\_\_\_\_%

Respondent's Estimated General Conditions Amount (percentage times the CCL above) \$ \_\_\_\_\_

Total Construction Duration (Notice To Proceed for construction to Final Completion. 24 months)

Using the not-to-exceed General Conditions costs identified above, the Respondent shall identify all project management, bonds, insurance, field office and office supply costs for the Project as listed below:

Allowable General Conditions Subtotals	Estimated Total Cost
On-Site Project Management Staff	\$
Bonds and Insurance	\$
Subguard Percentage and estimated amount based on total subcontract amount	\$
Temporary Project Utilities	\$
Field Offices & Office Supplies	\$

## Estimated on Site Project Management Staff and Rates

Position	Quantity	Months	Monthly Salary Rate
Project Executive			
Sr. Project Manager			
Superintendent(s)			
Assistant Superintendent(s)			
Project Engineer/Expeditor(s)			
Field/Office Engineer(s)			
Field Office Support Staff			
CPM Scheduler			
Safety Coordinator/Assistant(s)			
Site/Struc/Skin Project Manager			
Interior Project Manager			
Interior Project Engineer			
Office Clerks/Secretaries			
Mechanical Support			
Electrical Support			
Safety Inspector #1			
Quality Manager #1			

**New Mexico State University**

Process Review of Construction Process

Report Date: May 30, 2012

ADDENDA: Receipt is hereby acknowledged of the following addenda to this RFP (initial if applicable).

No. 1                      No. 2                      No. 3                      No. 4                      No. 5

AWARD OF CONTRACT AND COMMENCEMENT OF SERVICES: The undersigned agrees to execute the Contract after notification that the Respondent has been identified by the Owner as the Respondent with the "best value" Proposal, and to commence services on or before the commencement date stated by the Owner in a Notice to Proceed. The Owner reserves the right to accept or reject and all Proposals and to waive proposal irregularities. Proposals shall be valid and not withdrawn for a period of ninety (90) days from the date of opening thereof.

Respectfully Submitted and Certified By:

Respondent's Printed Name                      Title

Authorized Signature                      Date

**Exhibit C – CMAR Construction Language – Pre Construction**

**PRE-CONSTRUCTION PHASE SERVICES**

*The Pre-Construction Phase shall be deemed to commence upon the date specified in a Notice to Proceed with Pre-Construction Phase Services issued by Owner and shall continue through completion of the Construction Documents and procurement of all major Subcontractor agreements. Construction Manager is not entitled to reimbursement for any costs incurred for Pre-Construction Phase Services performed before issuance of the Notice to Proceed. Pre-Construction Phase Services may overlap Construction Phase Services. The Construction Manager shall perform the following Pre-Construction Phase Services.*

**General Coordination**

*The Construction Manager’s Pre-construction Phase Services team shall attend Project Team meetings with the Owner, the Owner’s representatives, and the Project Architect at regularly scheduled intervals throughout the Pre-Construction Phase. Frequent Project Team meetings are anticipated prior to the Owner’s acceptance of the GMP and during completion of the Construction Documents.*

*Provide a preliminary evaluation of the Owner’s Design Criteria and the Construction Cost Budget, each in terms of the other.*

*Review and understand the standards and requirements in Owner’s Specifications and perform all services in accordance with those standards and requirements.*

*Visit the site and inspect the existing facilities, systems and conditions to insure an accurate understanding of the existing conditions as required.*

*Provide recommendations and information to the Project Team on: site usage and site improvements; building systems, equipment and construction feasibility; selection and availability of materials and labor; time requirements for installation and construction; assignment of responsibilities for safety precautions and programs; temporary Project facilities; equipment, materials and services for common use of the Construction Manager and Owner’s separate contractors, if any; cost factors, including costs of alternative materials or designs, preliminary budgets, and possible cost savings; recognizing and tracking the resolution of conflicts in the proposed Drawings and Specifications; methods of delivery of materials, systems, and equipment; and any other matters necessary to accomplish the Project in accordance with the Project Schedule (as defined below) and the Construction Budget.*

*Assist the Owner in selecting and directing the services of surveyors, soils engineers, existing facility surveys, testing and balancing, environmental surveys or other special consultants hired by the Owner to develop additional information for the design or construction of the Project.*

*At Owner’s request, attend public meetings and hearings concerning the development and schedule of the Project.*

**Constructability Program**

*Implement and conduct a constructability program to identify and document Project cost and schedule savings opportunities. The constructability program shall follow accepted industry practices and be in accordance with the requirements of the attached exhibit. Whenever the term “value engineering” is used in conjunction with this Agreement or the Project, it has its commonly accepted meaning within the construction industry and does not imply the practice of professional engineering without a license. If any*



*value engineering activities constitute the professional practice of engineering, then such activities shall be performed by an engineer licensed in Texas.*

*Prepare a "Constructability Report" that identifies items that, in the Construction Manager's opinion, may negatively impact construction of the Project. The Constructability Report shall address the overall coordination of Project Drawings, Specifications, and details and identify discrepancies that may generate Change Orders or claims once Project construction commences. The Constructability Report shall be updated at least monthly during the Pre-Construction Phase.*

*Provide and implement a system for tracking questions, resolutions, decisions, directions and other information matters that arise during the development of the Drawings and Specifications for the Project. The decision tracking system shall be in a format approved by the Owner and updated at least monthly during the Pre-Construction Phase.*

### **Scheduling**

*Develop a critical path method schedule ("CPM Schedule") for Project Team review and the Owner's approval, that coordinates and integrates activities on the Project, including the Construction Manager's services, the Project Architect's design services, the work of other consultants and suppliers, and the Owner's activities with the anticipated construction schedules for other contractors. The CPM Schedule must identify all major milestones through Project Final Completion. The CPM Schedule shall be created and maintained in accordance with the Owner's Specifications using the Owner specified format and software.*

*The Construction Manager shall update the CPM Schedule throughout the Pre-Construction and Construction Phases as described in the Owner's Specifications.*

*The CPM Schedule shall include other detailed schedule activities as directed by the Owner including, but not limited to, Owner-managed work under separate contracts such as equipment, furniture and furnishings, telephones, project security, property protection, life-safety systems, integration with central campus monitoring systems, information and instructional technology data-transmission systems, and computer technology systems.*

### **Budget and Cost Consultation**

*The Construction Manager is responsible for preparing and updating all procurement and construction cost estimates and distributing them to the Project Team throughout the duration of the Project.*

*Provide Estimated Construction Cost (ECC) reports at the required stages of completion of the schematic design, design development, and construction documents phases of the Project as required. The Estimated Construction Cost reports for the design development and construction documents phases shall be detailed estimates derived from cost quantity surveys based on unit prices for labor, materials, overhead and profit, organized in current Construction Specifications Institute Division format for each portion of the Work.*

*Provide continuous cost consultation services throughout the duration of the Project, including identification and tracking of decisions that affect the scope or quality of the Project and providing ongoing updates of their cost and budget impact. Advise the Project Team immediately if the Construction Manager has reason to believe that the most current ECC will exceed the Construction Cost Budget or not meet Schedule requirements and recommend reasonable strategies for bringing the Project in line with the Budget and the Schedule.*

*Construction Manager shall promptly identify all variances between estimated costs and actual costs during the Construction Phase, and shall promptly report such variances to the Project Team along with recommendations for action, but in any event no more than two (2) business days after acquiring such information.*

*Should any ECC exceed or fall significantly below the approved CCL, the Owner and Construction Manager shall negotiate changes to the Project requirements or the Budget as required.*

**Coordination of Design and Construction Contract Documents**

*Review all Drawings, Specifications, and other Construction Documents as they are developed by the Project Architect during the schematic design, design development, and construction documents design phases of the Project.*

*Consult with Owner and Project Architect on the selection of materials, equipment, component systems, and types of construction used on the Project. Advise Owner on site use, construction feasibility, availability of labor and materials, procurement time requirements, and construction coordination.*

*Advise Owner of any error, inconsistency or omission discovered in the Drawings, Specifications, and other Construction Documents.*

*Advise Owner on reasonable adjustments in the Project scope, quality or other options for keeping the Project cost within the Budget.*

*Review the Construction Documents for compliance with all applicable laws, rules and regulations and with Owner System requirements.*

**Construction Planning and Bid Package Strategy**

*Identify equipment or material requiring extended delivery times and advise Owner on expedited procurement of those items. Advise Owner and Project Architect on the preparation of performance specifications and requests for technical proposals for the procurement and installation of systems and components and for the procurement of long lead items. If requested by Owner, and subject to Owner's prior approval, issue requests for technical proposals to qualified sources and receive proposals and assist in their evaluation.*

*Make recommendations to the Project Team regarding organization of the Construction Documents to facilitate the bidding and awarding of construction subcontracts in a manner that promotes the interests of the Project and the Owner. These recommendations may include, but are not limited to, phased or staged construction or multiple separate contracts. The recommendations shall take into consideration such factors as time of performance, type and scope of work, availability of labor and materials, overlapping trade jurisdictions, provisions for temporary facilities, comparisons of factory and on-site production costs, shipping costs, code restrictions, the Owner's goals for HUB contractor participation, and other constraints.*

*Review the Construction Documents with the Project Team to eliminate areas of conflict and overlap in the work to be performed by the various Subcontractors or Owner's separate contractors.*

*Develop a bid/proposal package strategy in coordination with the Project Architect that addresses the entire scope of Work for each phase and stage of the Project. In developing the bid/proposal package strategy, the Construction Manager shall identify all bid/proposal packages on which the Construction*

*Manager intends to submit a self-performance bid/proposal. The bid/proposal package strategy shall be reviewed with the Owner on a regular basis and revised throughout the buyout of the Project so as to best promote the interests of the Project and the Owner.*

*Assist the Owner, the Project Architect, Owner's other consultants, and the Owner's separate contractors in obtaining all applicable risk management, code, and regulatory agency reviews and approvals for the Project including, without limitation, the Texas Higher Education Coordinating Board, the Texas Department of Licensing and Regulation, the State Fire Marshal, the local fire department, and the Owner's insurance provider.*

*Refine, implement and monitor required HUB Subcontracting Plans to promote equal employment opportunity in the provision of goods and services to the Owner for the Project.*

*Advise Owner of any tests to be performed, and assist Owner in selecting testing laboratories and consultants, without assuming direct responsibility for the work of such laboratories and consultants.*

*Construction Manager shall review the Construction Documents to ensure that they contain adequate provision for all temporary facilities necessary for performance of the Work, and provisions for all of the job site facilities necessary to manage, inspect, and supervise construction of the Work.*

*Provide an analysis of the types and quantities of labor required for the Project and review the appropriate categories of labor required for critical phases or Stages. Make recommendations that minimize adverse effects of labor shortages.*

*Furniture, Fixtures and Equipment. Consult with and make recommendations to the Owner on the acquisition schedule for fixtures, furniture and equipment, and coordinate with the Owner as may be required to meet the Schedule.*

#### **Obtaining Bids/Proposals for the Work**

*Construction Manager shall publicly advertise and solicit competitive lump sum bids/proposals from trade contractors or Subcontractors for the performance of all major elements of the work other than the minor work that may be included in General Conditions. Criteria for determining the bid/proposal that provides the best value to the Owner shall be established by the Project Team and included in the request for bids/proposals. The Construction Manager shall notify the Owner in advance in writing of the date it will receive the bids/proposals.*

*Schedule and conduct pre-bid conferences with interested bidders/proposers, Subcontractors, material suppliers, and equipment suppliers, and record minutes of the conferences.*

*Construction Manager and Owner shall review all trade contractor or Subcontractor bids/proposals in a manner that does not disclose the contents of any bid/proposal to persons outside of the Project Team during the selection process. Based on the selection criteria included in the request for proposals, Construction Manager shall recommend to the Owner the bid/proposal that provides the best value for the Project. Upon Owner's concurrence in the recommendation, Construction Manager may negotiate the terms of the subcontract with the apparent best value bidder/proposer.*

*All subcontracts must be on a lump sum basis unless other payment terms are approved in writing and in advance by the Owner. Upon Owner's concurrence in the final terms of the subcontract, Construction Manager shall enter into a written subcontract for the subcontract work and provide a copy to the Owner.*

*All bids/proposals shall be publicly available after award of the subcontract or within seven (7) days after the date of final selection, whichever is later.*

*If Construction Manager reviews, evaluates, and recommends to Owner a bid/proposal from a trade contractor or Subcontractor, but Owner requires another bid/proposal to be accepted, Owner shall compensate Construction Manager by a change in price, time, or Guaranteed Maximum Price for any additional cost and risk that Construction Manager incurs because of Owner's requirement that the other bid/proposal be accepted.*

*Construction Manager may seek to self-perform portions of the Work identified for self-performance in the bid/proposal strategy. The Construction Manager must submit a bid/proposal for the self-performance work in the same manner as all other trade contractors or Subcontractors. The Owner will determine whether the Construction Manager's bid/proposal provides the best value for Owner, which determination is final. Construction Manager must perform approved self-performance work in accordance with the same terms and conditions as its other Subcontractors. For payment purposes, the Construction Manager shall account for self-performance work in the same manner as it does all other subcontract costs.*

*For scope of work bid packages typically performed by Subcontractors, Contractor may "self-perform" such work on a cost plus fee (Not-To-Exceed 7.5%) basis subject to an agreed upon guaranteed maximum price for the "self-performed work". The Contractor may bid their proposed Guaranteed Maximum Price for the work to be "self-performed" against at least three other interested trade contractors. Any subcontract for "self-performed work" will provide for payment in an amount equal to the Cost of the Work (as defined in this agreement) and will not to exceed the agreed upon subcontract guaranteed maximum price. All terms and provisions of any subcontract for "self-performed work" will be consistent with the terms and conditions of this agreement with the exception of the agreed upon Fee percentage. All savings under any such subcontract for "self-performed work" shall be applied to reduce the Cost of the Work under this Agreement and the Guaranteed Maximum Price of this Agreement. For purposes of defining "self-performed work" subject to this contract provision, any division of Contractor, or any separate Contractor or Subcontractor that is partially owned or wholly owned by the Contractor or any of their employees or employee's relatives will be considered a related party entity and will be subject to this provision regarding "self-performed work". No self-performed work will be allowed to be performed on a lump sum basis.*

*Construction Manager shall identify every Subcontractor it intends to use on the Project, including Subcontractors used for self-performed work, to the Owner in writing at least ten (10) days before entering into any subcontract. Construction Manager shall not use any Subcontractor to which Owner has a reasonable objection. Construction Manager shall not be required to subcontract with any Subcontractor to which it has reasonable objection. Following Owner acceptance of a Subcontractor, that Subcontractor shall not be changed without Owner's written consent, which shall not be unreasonably withheld.*

*If a selected trade contractor or Subcontractor fails to execute a subcontract after being selected in accordance with this section or defaults in the performance of its work, the Construction Manager may, in consultation with the Owner and without further advertising, fulfill the subcontract requirements itself or select a replacement trade contractor or Subcontractor to do so.*

### **Safety**

*Construction Manager is responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. The safety program shall comply with all applicable requirements*

*of the Occupational Safety and Health Act of 1970 and all other applicable federal, state and local laws and regulations and with the requirements of Owner’s project safety specification.*

*Construction Manager shall provide recommendations and information to Owner and Project Architect regarding the assignment of responsibilities for safety precautions and programs, temporary Project facilities, and equipment, materials, and services for common use of the Subcontractors. Construction Manager shall verify that appropriate safety provisions are included in the Construction Documents. The existence or creation of any Owner controlled insurance program in connection with the Work shall not lessen or reduce the Construction Manager’s safety responsibilities.*

**Exhibit D.1 – Change Order Work**

Change Order Pricing Procedures. The Contractor shall submit invoices or vendor/Subcontractor proposals showing the price paid for all materials, supplies, equipment, rental cost, etc., used in the Change Order. In addition, the labor burden and labor rates used for the Change Order work shall be supported with documentation showing that these figures represent the actual cost. Any other cost included in the Change Order shall be documented as to actual cost to the Contractor. General Contractor fee percentages on change orders shall be the same as those stated as the Contract fee.

**Exhibit D.2 – Costs not to be Reimbursed**

Costs due to the negligence or failure to fulfill responsibility, whether imposed under the Contract Documents or under state, federal or local laws, rules, regulations or ordinances, of the Contractor, Subcontractor and/or suppliers, their independent contractors, agents, employees, or other individuals or entities acting on their behalf or for whose acts any of them may be responsible or liable. This provision shall not apply in the event specific advance written notice by Owner for Cost is provided elsewhere in this Agreement, and the full circumstances giving rise to the costs (i.e. the negligence, etc.) are known and acknowledged in advance in such approval. This approval may be withheld by the Owner in its sole discretion.

Bonuses, incentive compensation, contributions (other than Workmen’s Compensation Insurance, Federal Insurance Corporation of America. State Unemployment Insurance, Federal Unemployment Insurance), gratuities and entertainment expense. No secretarial or administrative assistant labor cost or salaries shall be reimbursed except as provided.

Cost for transportation and subsistence incurred by Contractor’s employees stationed at Home Office.

Expenses for travel, including Contractor supplied vehicles used for personal use, incurred by Contractor’s employees while traveling for purposes other than the direct execution of the Work.

Costs incurred due to labor disharmony, unrest, or strikes, including, but not limited to, delays, security, legal expenses, fines and work stoppages or slowdowns, resulting from Contractors acts or

omissions or such matters that are otherwise within Contractor’s control.

Consultants to the Contractor not previously approved, in writing, by Owner. Mailers between Owner and Contractor and any of its Subcontractors or suppliers requiring legal representation will not be reimbursed.

Cost of the Work performed pursuant to Guarantees or Warranties.

General Conditions Costs incurred after the final Completion Date, except those Project Accountant and similar costs associated with processing of the final pay request and close out of the Work, if such costs are approved by Owner.

Any costs resulting from non-conforming work or materials performed by or furnished by Contractor, Subcontractors, suppliers, or their independent contractors, agents, employees or other individuals or entities acting on their behalf or whose acts they may be liable, or anyone directly or indirectly employed by the Contractor, repairing or replacing damaged property. Corrective work, or excess costs for material or labor or otherwise as may be determined by the Architect and the Owner, which costs shall be borne by the Contractor without reimbursement or liability by Owner.

Any costs for claims preparation and Change Order negotiations.

Any and all overhead, labor or general expenses of any kind unless specifically allowed under General Conditions. These Costs include, but are limited to: costs for the purchase, lease, rental of or allowance for vehicles and their maintenance, radios/communication equipment, jobsite computers and other business equipment, and specialized telephone systems, including cellular/digital phones: trade or professional association dues: cost for relocation of any of the Construction Manager’s personnel; and travel, per diem and subsistence expense of Construction Manager, its officers or employees except as specifically allowed under General Conditions.

Any legal, accounting, professional or other similar costs incurred by the Construction Manager, including costs incurred in connection with the prosecution or defense any dispute, mediation, arbitration, litigation or other such proceeding related to or arising from the Project.

**Exhibit D.3 – Subcontractor Change Order Pricing with 15% Markup**

The contract language contained in this Exhibit will supplement and take precedence over all other change order pricing contract provisions in the contract documents provided by either the Owner, Construction Manager (Contractor), General Contractor (Contractor) and/or Architect/Engineer.

It is understood that these contract provisions will govern the pricing and administration of all change order proposals to be submitted by Subcontractors (Trade Contractors) and/or all other lower tier sub-Subcontractors (all referred to as “Contractor” in this Exhibit). **In the event of a conflict between the other contract documents used for the project, the change order pricing contract provisions in this Exhibit shall govern.**

Contractor agrees that it will incorporate the provisions of this Exhibit into all agreements with lower tier Contractors who will also include this Exhibit into agreements with all lower tier Subcontractors, etc. It is understood that these change order pricing provisions apply to all types of contracts and/or subcontracts *specifically including lump sum (or fixed price contracts), unit price contracts. It is further understood that*

*these change order provisions will apply to all methods of change order pricing specifically including lump sum change order proposals, unit price change order proposals, and cost plus Fee change order proposals.*

*Whenever change order proposals to adjust the contract price become necessary, the Owner will have the right to select the method of pricing to be used by the contractor in accordance with the pricing provisions found in this Exhibit. The options will be (1) lump sum change order proposal, (2) unit price change order proposal, or (3) cost plus Fee change order proposal as defined in the following provisions.*

**Lump Sum Change Order Proposals:** *The Contractor will submit a properly itemized Lump Sum Change Order Proposal covering the additional work and/or the work to be deleted. This proposal will be itemized for the various components of work and segregated by labor, material, and equipment in a detailed format satisfactory to Owner. The Owner will require itemized change orders on all change order proposals from the Contractor, Subcontractors, and sub-Subcontractors regardless of tier. Details to be submitted will include detailed line item estimates showing detailed materials quantity take-offs, material prices by item and related labor hour pricing information and extensions (by line item or by drawing as applicable.)*

**Labor:** *Estimated labor costs to be included for self-performed work shall be based on the actual cost per hour paid by the Contractor for those workers or crews of workers who the contractor reasonably anticipates will perform the change order work. Estimated labor hours shall include hours only for those workmen and working foremen directly involved in performing the change order work. Supervision above the level of working foremen (such as general foremen, non-working foremen, superintendent, project manager, etc.) is considered to be included in the Markup Percentages as outlined in paragraphs 1.6 and 1.7 of this Exhibit. Note: No separate allowances for warranty or safety expenses will be allowed as a direct cost of a change order. Costs attributed to warranty expenses and safety expense will be considered to be covered by the Markup Percentages as outlined in paragraphs 1.6 and 1.7 of this Exhibit.*

**Labor Burden:** *Labor burden allowable in change orders shall be defined as employer's net actual cost of payroll taxes (FICA, Medicare, SUTA, FUTA), net actual cost for employer's cost of union benefits (or other usual and customary fringe benefits if the employees are not union employees), and net actual cost to employer for worker's compensation insurance taking into consideration adjustments for experience modifiers, premium discounts, dividends, rebates, expense constants, assigned risk pool costs, net cost reductions due to policies with deductibles for self-insured losses, assigned risk rebates, etc. Contractor shall reduce their standard payroll tax percentages to properly reflect the effective cost reduction due to the estimated impact of the annual maximum wages subject to payroll taxes. (An estimated percentage for labor burden may be used for pricing change orders. However, the percentage used for labor burden to price change orders will be examined at the conclusion of the project and an adjustment to the approved change orders will be processed if it is determined that the actual labor burden percentage should have been more or less than the estimated percentage used.)*

**Material:** *Estimated material change order costs shall reflect the Contractor's reasonably anticipated net actual cost for the purchase of the material needed for the change order work. Estimated material costs shall reflect cost reductions available to the Contractor due to "non-Cash" discounts, trade discounts, free material credits, and/or volume rebates. "Cash" discounts (i.e. prompt payment discounts of 1.5% or less) available on material purchased for change order work shall be credited to Owner if the Contractor is provided Owner funds in time for Contractor to take advantage of any such "cash" discounts. Price quotations from material suppliers must be itemized with unit prices for each specific item to be purchased. "Lot pricing" quotations will not be considered sufficient substantiating detail.*

**Equipment:** *Allowable change order estimated costs may include appropriate amounts for rental of major equipment specifically needed to perform the change order work (defined as tools and equipment with an*

individual purchase cost of more than \$750). For contractor owned equipment, the "bare" equipment rental rates allowed to be used for pricing change order proposals shall be 75% of the monthly rate listed in the most current publication of The AED Green Book divided by 173 to arrive at a maximum hourly rate to be applied to the hours the equipment is used performing the change order work. Further, for contractor owned equipment the aggregate equipment rent charges for any single piece of equipment used in all change order work shall be limited to 50% of the fair market value of the piece of equipment when the first change order is priced involving usage of the piece of equipment. Fuel necessary to operate the equipment will be considered as a separate direct cost associated with the change order work.

**Maximum Markup Percentage Allowable on Self-Performed Work:** With respect to pricing change orders, the maximum Markup Percentage Fee to be paid to any Contractor (regardless of tier) on self-performed work shall be a single markup percentage not-to-exceed fifteen percent (15%) of the net direct cost of (1) direct labor and allowable labor burden costs applicable to the change order or extra work; (2) the net cost of material and installed equipment incorporated into the change or extra work, and (3) net rental cost of major equipment and related fuel costs necessary to complete the change in the Work.

**Maximum Markup Percentages Allowable on Work Performed by Lower Tier Contractors:** With respect to pricing the portion of change order proposals involving work performed by lower tier contractors, the maximum Markup Percentage Fee allowable to the Contractor supervising the lower tier contractor's work shall not exceed five percent (5%) of the net of all approved change order work performed by all Subcontractors combined for any particular change order proposal.

**No Markup on Bonds and Liability Insurance Costs:** Change Order cost adjustments due increases or decreases in bond or insurance costs (if applicable) shall not be subject to any Markup Percentage Fee.

**Direct and Indirect Costs Covered by Markup Percentages:** As a further clarification, the agreed upon Markup Percentage Fee is intended to cover the Contractor's profit and all indirect costs associated with the change order work. Items intended to be covered by the Markup Percentage Fee include, but are not limited to: home office expenses, branch office and field office overhead expense of any kind; project management; superintendents, general foremen; non-working foremen, estimating, engineering; coordinating; expediting; purchasing; detailing; legal, accounting, data processing or other administrative expenses; shop drawings; permits; auto insurance and umbrella insurance; pick-up truck costs; and warranty expense costs. The cost for the use of small tools is also to be considered covered by the Markup Percentage Fee. Small tools shall be defined as tools and equipment (power or non-power) with an individual purchase cost of less than \$750.

**Deduct Change Orders and Net Deduct Changes:** The application of the markup percentages referenced in the preceding paragraphs 1.6 and 1.7 will apply to both additive and deductive change orders. In the case of a deductive change order, the credit will be computed by applying the sliding scale percentages as outlined in paragraphs 1.6 and 1.7 so that a deductive change order would be computed in the same manner as an additive change order. In those instances where a change involves both additive and deductive work, the additions and deductions will be netted and the markup percentage adjustments will be applied to the net amount.

**Contingency:** In no event will any lump sum or percentage amounts for "contingency" be allowed to be added as a separate line item in change order estimates. Unknowns attributable to labor hours will be accounted for when estimating labor hours anticipated to perform the work. Unknowns attributable to material scrap and waste will be estimated as part of material costs.

**Change Order Proposal Time and Change Directives:** The Contractor's proposals for changes in the contract amount or time shall be submitted within seven (7) calendar days of the Owner's request, unless



*the Owner extends such period of time due to the circumstances involved. If such proposals are not received in a timely manner, if the proposals are not acceptable to Owner, or if the changed work should be started immediately to avoid damage to the project or costly delay, the Owner may direct the Contractor to proceed with the changes without waiting for the Contractor's proposal or for the formal change order to be issued. In the case of an unacceptable Contractor proposal, the Owner may direct the Contractor to proceed with the changed work on a cost-plus basis with an agreed upon "not-to-exceed" price for the work to be performed. Such directions to the Contractor by the Owner shall be confirmed in writing by a "Notice to Proceed on Changes" letter within seven (7) calendar days. The cost or credit, and or time extensions will be determined by negotiations as soon as practical thereafter and incorporated in a Change Order to the Contract.*

**General Liability Insurance and Bonds:** *In the event the Contractor has been required to furnish comprehensive general liability insurance and/or performance and/or payment bonds as part of the base contract price, a final contract change order will be processed to account for the Contractor's net increase or decrease in comprehensive general liability insurance costs and/or bond premium costs associated with change orders to Contractor's base contract price.*

**Unit Price Change Order Proposals:** *As an alternative to Lump Sum Change Order Proposals, the Owner or the Construction Manager acting with the approval of the Owner may choose the option to use Contract Unit Prices. Agreed upon Contract Unit Prices shall be the same for added quantities and deductive quantities. Unit Prices are not required to be used for pricing change orders where other methods of pricing change order work are more equitable.*

*The Contractor will submit, within seven (7) days after receipt of the Owner's written request for a Unit Price Proposal, a written Unit Price proposal itemizing the quantities of each item of work for which there is an applicable Contract Unit Price. The quantities must be itemized in relation to each specific contract drawing.*

*Contract Unit Prices will be applied to net differences of quantities of the same item. Such Contract Unit Prices will be considered to cover all direct and indirect costs of furnishing and installing the item including the Subcontractor's Markup Percentage Fee.*

**Cost Plus Change Order Proposals:** *As an alternative to either Lump Sum Change Order Proposals or Unit Price Change Order Proposals, the Owner may elect to have any extra work performed on a cost plus markup percentage fee basis. Upon written notice to proceed, the Contractor shall perform such authorized extra work at actual cost for direct labor (working foremen, journeymen, apprentices, helpers, etc.), actual cost of labor burden, actual cost of material used to perform the extra work, and actual cost of rental of major equipment (without any charge for administration, clerical expense, general supervision or superintendent of any nature whatsoever, including general foremen, or the cost or rental of small tools, minor equipment, or plant) plus the approved Markup Percentage Fee. The intent of this clause is to define allowable cost plus chargeable costs to be the same as those allowable when pricing Lump Sum Change Proposals as outlined in subparagraphs 1.1 through 1.13 above. Owner and Contractor may agree in advance in writing on a maximum price for this work and Owner shall not be liable for any charge in excess of the maximum. Daily time sheets with names of all Contractor's employees working on the project will be required to be submitted to the Owner for both labor and equipment used by the Contractor for time periods during which extra work is performed on a cost plus fee basis. Daily time sheets will break down the paid hours worked by the Contractor's employees showing both base contract work as well as extra work performed by each employee.*

**Accurate Change Order Pricing Information:** *Contractor (Subcontractor or sub-Subcontractor) agrees that it is responsible for submitting accurate cost and pricing data to support its Lump Sum Change and/or Cost*

*Plus Change Order Proposals or other contract price adjustments under the contract. Contractor further agrees to submit change order proposals with cost and pricing data which is accurate, complete, current, and in accordance with the terms of the contract with respect to pricing of change orders. Contractor agrees that any "buy-out savings" on change orders shall accrue 100% to Owner. "Buy-out savings" are defined as any savings negotiated by the Contractor with a Subcontractor or a material supplier after receiving approval of a change order amount that was designated to be paid to a specific Subcontractor or supplier for the approved change order work.*

**Right to Verify Change Order Pricing Information:** *Contractor, Subcontractor and sub-sub-contractor agrees that any designated Owner's representative will have the right to examine (copy or scan) the records of the Contractor, Subcontractor or sub-sub contractor's records (during the contract period and up to three years after final payment is made on the contract) to verify the accuracy and appropriateness of the pricing data used to price all change order proposals and/or claims. Contractor agrees that if the Owner determines the cost and pricing data submitted (whether approved or not) was inaccurate, incomplete, not current, or not in compliance with the terms of the contract regarding pricing of change orders, an appropriate contract price adjustment will be made. Such post-approval contract price adjustments will apply to all levels of contractors and/or Subcontractors and to all types of change order proposals specifically including lump sum change orders, unit price change orders, and cost-plus change orders.*

**Requirements for Detailed Change Order Pricing Information:** *Contractor, Subcontractor agrees to provide and require all Subcontractors and sub-Subcontractors to provide a breakdown of allowable labor and labor burden cost information as outlined in this Exhibit "A". This information will be used to evaluate the potential cost of labor and labor burden related to change order work. It is intended that this information represent an accurate estimate of the Contractor's actual labor and labor burden cost components. This information is not intended to establish fixed billing or change order pricing labor rates. However, at the time change orders are priced, the submitted cost data for labor rates may be used to price change order work. The accuracy of any such agreed upon labor cost components used to price change orders will be subject to later audit. Approved change order amounts may be adjusted later to correct the impact of inaccurate labor cost components if the agreed upon labor cost components are determined to be inaccurate.*

**Discounts:** *If a Contractor enters into an agreement to pay a Subcontractor before they receive payment the Owner and in return they negotiate an early payment discount, the amount of any such discount that the contractor is allowed to keep as a "cash discount earned" will be limited to one and ½ percent (1.5%) of the costs subject to discount. Any percentage of discount greater than 1 and ½ percent (1.5%) shall be credited to the Owner as a reduction to the reimbursable Cost of Work and a credit to trade contracts or material purchases, and change orders as applicable.*

**Exhibit E – Right of Audit**

*Records for all contracts, specifically including but not limited to lump sum contracts (i.e. fixed price or stipulated sum contracts), unit price, cost plus or time & material contracts with or without a guaranteed maximum (or not-to-exceed amounts) shall upon reasonable notice be open to inspection and subject to audit, scanning, and/or reproduction during normal business working hours. Such audits may be performed by any Owner's representative or any outside representative engaged by Owner for the purpose of examining such records. The Owner or its designee may conduct such audits or inspections throughout the term of this contract and for a period of three years after final payment or longer if required by law. Owner's representatives may (without limitation) conduct verifications such as counting employees at the Construction Site, witnessing the distribution of payroll, verifying information and amounts through interviews and written confirmations with Contractor employees, field and agency labor, Subcontractors, and vendors.*

*Contractor's "records" as referred to in this Exhibit shall include any and all information, materials and data of every kind and character, including without limitation, records, books, papers, documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information and matters that may in Owner's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Contract Document. Such records shall include (hard copy, as well as computer readable data if it can be made available), written policies and procedures; time sheets; payroll registers; payroll records; cancelled payroll checks; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, negotiation notes, etc.); original bid estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); backcharge logs and supporting documentation; invoices and related payment documentation; general ledger, information detailing cash and trade discounts earned, insurance rebates and dividends; and any other contractor records which may have a bearing on matters of interest to the Owner in connection with the contractor's dealings with the Owner (all foregoing hereinafter referred to as "records") to the extent necessary to adequately permit evaluation and verification of any or all of the following:*

- (a) Compliance with contract requirements for deliverables*
- (b) Compliance with approved plans and specifications*
- (c) Compliance with Owner's business ethics expectations*
- (d) Compliance with contract provisions regarding the pricing of change orders*
- (e) Accuracy of contractor representations regarding the pricing of invoices*
- (f) Accuracy of contractor representations related to claims submitted by the contractor or any of his payees.*

*Contractor shall require all payees (examples of payees include Subcontractors, material suppliers, insurance carriers, etc.) to comply with the provisions of this article by including the requirements hereof in a written contract agreement between Contractor and payee. Contractor will ensure that all payees (including those entering into lump sum contracts) have the same right to audit provisions contained in this contract.*

*Owner's authorized representative(s) shall have reasonable access to the Contractor's facilities, shall be allowed to interview all current or former employees to discuss matters pertinent to the performance of this contract and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this article.*

*If an audit inspection or examination in accordance with this article, discloses overpricing or overcharges to the Owner (of any nature) by the Contractor and/or the Contractor's Subcontractors in excess of \$100,000 in addition to making adjustments for the overcharges, the reasonable actual cost of the Owner's audit shall be reimbursed to the Owner by the Contractor. Any adjustments and/or payments which must be made as a result of any such audit or inspection of the Contractor's invoices and/or records shall be made within a reasonable amount of time (not to exceed 90 days) from presentation of Owner's findings to Contractor.*

*In addition, to the normal paperwork documentation the Contractor typically furnishes to the Owner, in order to facilitate efficient use of Owner resources when reviewing and/or auditing the Contractor's billings and related reimbursable cost records, the Contractor agrees to furnish (upon request) the following types of information. The following list is not all inclusive but an example of the typical records reviewed.*

Type of Record
Monthly Job Cost Detail
Detailed job Cost History To Date
Monthly Labor Distribution detail (if not already separately detailed in the Job Cost Detail)
Total Job to date Labor Distribution detail (if not already included in the detailed Job Cost History to date)
Employee Timesheets documenting time worked by all individuals who charge reimbursable time to the project
Daily Foreman Reports listing names and hours and tasks of personnel who worked on the project
Daily Superintendent Reports
Detailed Subcontract Status Reports (showing original subcontract value, approved subcontract change orders, subcontractor invoices, payment to subcontractors, etc.)
Copies of Executed Subcontracts with all Subcontractors
Copies of all executed change orders issued to Subcontractors
Copies of all documentation supporting all reimbursable job costs (subcontractor payment applications, vendor invoices, internal cost charges, etc.)

**Exhibit F – Business Ethics Expectations**

*During the course of pursuing contracts with Owner and while performing contract work in accordance with this agreement, Contractor agrees to maintain business ethics standards aimed at avoiding any impropriety or conflict of interest which could be construed to have an adverse impact on the Owner best interests.*

*Contractor shall take reasonable actions to prevent any actions or conditions which could result in a conflict with Owner's best interests. These obligations shall apply to the activities of contractor employees, agents, subcontractors, subcontractor employees, consultants of contractor, etc.*

*Contractor employees, agents, subcontractors, material suppliers (or their representatives) should not make or cause to be made any cash payments, commissions, employment, gifts, entertainment, free travel, loans, free work, substantially discounted work, or any other considerations to Owner's representatives, employees or their relatives.*

*Contractor employees, agents or subcontractors (or their relatives) should not receive any cash payments, commissions, employment, gifts, entertainment, free travel, loans, free work, or substantially discounted work or any other considerations from representatives of subcontractors, or material suppliers or any other individuals, organizations, or businesses receiving funds in connection with the project.*

*Contractor agrees to notify a designated Owner representative within 48 hours of any instance where the Contractor becomes aware of a failure to comply with the provisions of this article.*

*The telephone number to report any concerns related to any possible violations of the Owner's Business Ethics Expectations is \_\_\_ - \_\_\_ - \_\_\_\_.*

*Upon request by Owner, Contractor agrees to provide a certified Management Representation Letter executed by selected Contractor representatives in a form agreeable to Owner stating that they are not aware of any situations violating the business ethics expectations outlined in this contract or any similar potential conflict of interest situations.*

*Contractor agrees to include this clause in all contracts with Subcontractors and material suppliers receiving more than \$25,000 in funds in connection with the Owner's project.*

*Contractor shall permit interviews of employees, reviews and audits of accounting or other records by Owner representative(s) to evaluate compliance with the business ethics standards. Such reviews and audits will encompass all dealings and activities of Contractor's employees, agents, representatives, vendors, Subcontractors, and other third parties paid by Contractor in their relations with Owner's current or former employees or employee relatives.*

*Contractor agrees to implement a program requiring their employees sign acknowledgements that they have read and understand Owner's Business Ethics Expectations and the related obligations outlined in this contract exhibit.*

**Exhibit G.1 – Cost of Work**

***DIRECT CONSTRUCTION COST***

*Direct Construction cost means (he sum of the amounts that the Construction Manager actually and necessarily incurs constructing the Work in strict compliance with the Construction Documents. Direct Construction Cost includes only the cost categories set forth in this Article and does not include the Preconstruction Phase Fees or the Construction Phase Fees unless specifically noted.*

***General Conditions Costs***

*Construction Manager is entitled to receive payment for the actual cost of the allowable General Conditions items incurred after receipt of a Notice to Proceed with Construction from the Owner through Substantial Completion of the Project. Construction Manager is not entitled to reimbursement for General Conditions Costs incurred before receipt of the Notice to Proceed. General Conditions Costs incurred after Substantial Completion must be approved in advance by the Owner.*

*Allowable General Conditions items are identified by attached matrix. These items shall be included in the General Conditions cost amount shown as a line item in the Guaranteed Maximum Price Proposal and as detailed on the schedule of values. Items not specifically included in the matrix will not be allowed as a General Condition costs. Any cost outside of the Allowable General Conditions will be referred to as Cost of Work. Any reference to any other type of General Conditions (“i.e. indirect General Conditions”) will not be allowed.*

*Personnel Costs. The actual Worker Wage Rate for Construction Manager’s hourly employees and the Monthly Salary Rate of Construction Manager’s salaried personnel who are identified to the Owner in advance and in writing but only for the time actually stationed at the Project site with the Owner’s prior consent. The Project Manager’s Monthly Salary Rate may be included in the General Conditions Costs only when the Project Manager is directly managing the Project. All personnel costs are subject to audit to determine the actual cost of the wages, salaries and allowable employer contributions incurred by the Construction Manager for services performed for the Project.*

*Costs of long-distance telephone calls, telegrams, postage, package delivery and courier service, hardwired telephone service, and reasonable expenses of Construction Manager’s jobsite office if incurred at the Project site and directly and solely in support of the Work.*

*Costs of materials, supplies, temporary facilities, equipment, and hand tools (except those customarily owned by construction workers), supplied to the Project site by Construction Manager, if such items are fully consumed in the construction of the Work and are included in the list of allowable General Condition Line Items. Cost for used items shall be based on fair market value and may include transportation, installation, and minor maintenance costs, and removal costs. If an item is not fully consumed in the construction of the Work, its cost shall be based on actual cost of the item less its fair market salvage value.*

*Rental charges for temporary facilities, equipment, and hand tools (except those customarily owned by construction workers), supplied to the Project Site by Construction Manager, provided they are included in the list of allowable General Condition Line Items and Owner has approved the rentals and the rental rates in advance and in writing. Rental rates may include transportation, installation, and minor maintenance costs, and removal costs. For tools, machinery or construction equipment rented directly from the Construction Manager, the rental rate, including freight and delivery costs and all operating expenses except labor, shall be approved in advance by the Owner and shall be in accordance with the “Rental Rate*

*Blue Book for Construction Mobilization Costs” published by Primedia, latest edition, but no higher than the prevailing competitive rates for rental of similar equipment in the Project vicinity.*

*The aggregate rental cost of any item charged to Owner shall not exceed ninety percent (90%) of the purchase price and maintenance cost of the item. If the anticipated aggregate rental cost for an item of equipment exceeds ninety percent (90%) of the purchase and maintenance price, Construction Manager shall purchase the equipment and turn it over to Owner upon final completion of the Work or, at Owner’s option, credit the Owner with the fair market resale value of the item.*

*The original purchase price and date of purchase of the equipment will be documented with a copy of the purchase invoice for the piece of equipment. Such aggregate limitations will apply and no further rentals shall be charged even if a piece of equipment is taken off the job and is later replaced by a similar piece of equipment. For purposes of computing the aggregate rentals applicable to aggregate rental limitations, rental charges for similar pieces of equipment will be combined if the pieces of equipment were not used at the same time.*

*Permit and inspection fees that are not subject to exemption.*

*Premiums for insurance and bonds to the extent directly attributable to this Project.*

*Governmental sales and use taxes directly attributable to the General Conditions Items that are not subject to exemption. Taxes paid on materials or services that were entitled to tax exemption will not be reimbursed by Owner as Direct Construction Costs.*

### **Cost of the Work**

*Construction Manager is entitled to receive payment for the actual cost of the allowable Cost of the Work items incurred after receipt of Owner’s written authorization to commence the Construction Phase Work through Final Completion of the Project. Construction Manager is not entitled to reimbursement for Cost of the Work costs incurred before receipt of Owner’s written authorization. Cost of the Work includes the items listed in Exhibit C, Division of Project Cost Estimates (column headed “Cost of Work”).*

*Costs of materials and equipment purchased directly by the Construction Manager and incorporated into or consumed in the performance of the Work, including transportation charges, and a reasonable and customary allowance for Waste and spoilage. Payment for stored materials is subject to the Uniform General and Supplementary Conditions.*

*Costs of site debris removal and disposal in accordance with all applicable laws and regulations if not otherwise included in General Conditions.*

*Payments made to Subcontractors and their vendors or suppliers by Construction Manager for the subcontract work in accordance with the Construction Documents and the requirements of the subcontracts with the Subcontractors, vendors or suppliers.*

*Payments earned by Construction Manager for self-performed subcontract work, other than General Conditions work, in accordance with the Construction Documents and the terms of this Agreement and approved by the Owner.*

***Construction Manager's Contingency***

*The Guaranteed Maximum Price Proposal may include a Construction Manager's Contingency amount to be used to fund increases in the Direct Construction Cost of the Project identified through the refinement, development and completion of the Construction Documents or procurement of the Work and unknown factor that may adversely affect the cost such as bidding of Subcontractors and major material supply items; estimating assumptions and ambiguities; construction scheduling problems (manufacturer delays, strikes, disruptions, work area conflicts); weather, labor, and equipment availability; and productivity.*

*Any re-allocation of funds from the Construction Manager's Contingency to cover increases in the Direct Construction Cost must be approved by the Owner in advance and in writing, such approval not to be unreasonably withheld. In written requests to use the Construction Manager's Contingency, the Construction Manager shall provide detailed documentation of the scope of work affected and the bases for any increases in costs.*

*The Construction Manager's Contingency is specifically not to be used for Contractor rework, unforeseen conditions, cost increases caused by lack of coordination or communication with the Project Architect or trade Subcontractors, or to correct errors or omissions in the Construction Documents.*

*As the Construction documents are finalized and the bill out of the work progresses the Construction Manager's Contingency amount shall be reduced by mutual agreement of Owner and Contractor. Any balance in the Construction Manager's Contingency fund remaining at the end of the Project shall be returned to the Owner as savings.*

*The Construction Manager is to provide the Owner with a monthly accounting of the contingency as these monies are expended.*

*The Construction Manager's Contingency does not include the Owner's Construction Contingency the latter of which is to pay for scope changes. A scope change is defined as any change that increases the size, value, operation efficiency and quality of materials of the facility, time of performance, and sequence of work and is most generally initiated by the Owner or Architect.*

*The use of funds from the Construction Manager's Contingency that does not involve a change in the scope of work will not justify an increase in the Construction Manager's Construction Phase Fee.*



**Exhibit G.2 – Cost Covered by Fee**

*The Cost of the Work shall not include:*

*Costs due to the negligence or failure to fulfill responsibility, whether imposed under the Contract Documents or under state, federal or local laws, rules, regulations or ordinances, of the Contractor, Subcontractor and/or suppliers, their independent contractors, agents, employees, or other individuals or entities acting on their behalf or for whose acts any of them may be responsible or liable. This provision shall not apply in the event specific advance written notice by Owner for Cost is provided elsewhere in this Agreement, and the full circumstances giving rise to the costs (i.e. the negligence, etc.) are known and acknowledged in advance in such approval. This approval may be withheld by the Owner in its sole discretion.*

*Bonuses, incentive compensation, contributions (other than Workmen’s Compensation Insurance, Federal Insurance Corporation of America. State Unemployment Insurance, Federal Unemployment Insurance), gratuities and entertainment expense. No secretarial or administrative assistant labor cost or salaries shall be reimbursed except as provided.*

*Cost for transportation and subsistence incurred by Contractor’s employees stationed at Home Office.*

*Expenses for travel, including Contractor supplied vehicles used for personal use, incurred by Contractor’s employees while traveling for purposes other than the direct execution of the Work.*

*Costs incurred due to labor disharmony, unrest, or strikes, including, but not limited to, delays, security, legal expenses, fines and work stoppages or slowdowns, resulting from Contractors acts or omissions or such matters that are otherwise within Contractor’s control.*

*Consultants to the Contractor not previously approved, in writing, by Owner. Mailers between Owner and Contractor and any of its Subcontractors or suppliers requiring legal representation will not be reimbursed.*

*Cost of the Work performed pursuant to Guarantees or Warranties.*

*General Conditions Costs incurred after the final Completion Date, except those Project Accountant and similar costs associated with processing of the final pay request and close out of the Work, if such costs are approved by Owner.*

*Any costs resulting from non-conforming work or materials performed by or furnished by Contractor, Subcontractors, suppliers, or their independent contractors, agents, employees or other individuals or entities acting on their behalf or whose acts they may be liable, or anyone directly or indirectly employed by the Contractor, repairing or replacing damaged property. Corrective work, or excess costs for material or labor or otherwise as may be determined by the Architect and the Owner, which costs shall be borne by the Contractor without reimbursement or liability by Owner.*

*Any costs for claims preparation and Change Order negotiations.*

*Any and all overhead, labor or general expenses of any kind unless specifically allowed under General Conditions. These Costs include, but are limited to: costs for the purchase, lease, rental of or allowance for vehicles and their maintenance, radios/communication equipment, jobsite computers and other business equipment, and specialized telephone systems, including cellular/digital phones: trade or **professional association dues**: cost for relocation of any of the Construction Manager’s personnel; and travel, per diem and subsistence expense of Construction Manager, its officers or employees except as specifically allowed*

under General Conditions.

*Any legal, accounting, professional or other similar costs incurred by the Construction Manager, including costs incurred in connection with the prosecution or defense any dispute, mediation, arbitration, litigation or other such proceeding related to or arising from the Project.*

*Any Federal and/or State income and franchise taxes paid by Construction Manager. Any fines, penalties, sanctions or other levies assessed by any governmental body against Construction Manager.*

*The cost of any and all insurance deductibles payable by the Construction Manager and costs due to the failure of Construction Manager or any Subcontractor to procure and maintain insurance as and to the extent required by the Contract Documents. Owner will pay Builder's Risk deductible expenses unless Construction Manager and/or its Subcontractor is negligent in causing the associated claim.*

**Exhibit H – Subguard**

*OPTION 1*

**Prequalification of Subcontractors**

*The Contractor will evaluate all potential Subcontractors to determine if the expected cost, scope of work, design responsibility, current workload, and safety record dictate inclusion in our Subguard program or bonding. For example, our financial analysis will include a review of all potential subcontracts greater than \$300,000. Following initial prequalification, the Contractor will review the most recent audited financial statements to determine a financial rating grade of A, B, or C and an aggregate award limit with the Contractor. Subject to other factors, Subcontractors earning a score of A will not be required to be bonded. Subcontractors with a score of B will be bonded or will be enrolled in the Subguard program up to certain limits. Subcontractors with a score of C will be qualified only when bonded. We anticipate that approximately 60% of the contract value will be either bonded or enrolled in the Subguard program.*

**SDI/Subguard Percentage**

*The SDI/Subguard Percentage during the Construction Phase shall be stated below:*

*SDI/Subguard Percentage to be billed (of Subcontract Cost of Work) totals 0.985% of selected subcontract work.*

*SDI/Subguard Percentage to be refunded, if there are No Claims on Project, up to 50% of the rate noted above. If there are claims, the 50% split is based on the net claim cost amount.*

*OPTION 2*

*In the event that the contractor elects to utilize a Subcontractor default insurance program (sometimes referred to as SUBGUARD), the maximum amount to be considered reimbursable costs under this contract will be 1% of the total amount of subcontracts enrolled in such an insurance program. Enrollment in any such program will be limited to subcontracts in excess of \$100,000. Any contractor costs incurred in connection with the contractor's elected Subcontractor default insurance program that exceeds the amount reimbursed by the Owner under the formula in this paragraph will be considered to be covered by the Contractor's FEE. In the event the Contractor elects to bond selected Subcontractors rather than enroll them in the Subcontractor default insurance program, the net cost to purchase any such bonds will be reimbursed in lieu of the 1%*

**Exhibit I – Subcontracts & Self Performed Work**

*It requested by the Owner or Architect, all Subcontractors shall be prequalified by the Contractor to the extent required by the Owner or Architect and such pre qualifications reviewed by the Owner and Architect prior to the Subcontractor being requested to submit a bid on those portions of the Work. Bids will not be requested from Subcontractors who has not been prequalified.*

*Construction Manager and Owner shall review all trade contractor or Subcontractor bids/proposals in a manner that does not disclose the contents of any bid/proposal to persons outside of the Project Team during the selection process. Based on the selection criteria included in the request for proposals, Construction Manager shall recommend to the Owner the bid/proposal that provides the best value for the Project. Upon Owner’s concurrence in the recommendation, Construction Manager may negotiate the terms of the subcontract with the apparent best value bidder/proposer.*

*All subcontracts must be on a lump sum basis unless other payment terms are approved in writing and in advance by the Associate Director for Project Management, Office of Facilities Planning and Construction. Upon Owner’s concurrence in the final terms of the subcontract, Construction Manager shall enter into a written subcontract for the subcontract work and provide a copy to the Owner. All bids/proposals shall be publicly available after award of the subcontract or within seven (7) days after the date of final selection, whichever is later.*

*If Construction Manager reviews, evaluates, and recommends to Owner a bid/proposal from a trade contractor or Subcontractor, but Owner requires another bid/proposal to be accepted, Owner shall compensate Construction Manager by a change in price, time, or Guaranteed Maximum Price for any additional cost and risk that Construction Manager incurs because of Owner’s requirement that the other bid/proposal be accepted.*

*Construction Manager may seek to self-perform portions of the Work identified for self-performance in the bid/proposal strategy. The Construction Manager must submit a bid/proposal for the self-performance work in the same manner as all other trade contractors or Subcontractors. The Owner will determine whether the Construction Manager’s bid/proposal provides the best value for Owner, which determination is final. Construction Manager must perform approved self-performance work in accordance with the same terms and conditions as its other Subcontractors. For payment purposes, the Construction Manager shall account for self-performance work in the same manner as it does all other subcontract costs.*

*In the event the Contractor desires to self-perform any of the Work, the Owner’s prior written consent must be obtained. Furthermore, the Owner reserves the right to require the Contractor to seek competitive pricing for such portions of the Work that are less than \$50,000 in value. For portions or the Work greater than \$50,000.00 the Contractor will be required to submit a minimum of three competitive lump sum bids. The Contractor may elect to perform such work on a lump sum basis provided at least two comparable lump sum bids have been obtained from qualified Subcontractors and Contractor can perform work for a lower amount than the comparable bidders.*

*For scope of work bid packages typically performed by Subcontractors, Contractor may “self-perform” such work on a cost plus fee (Not-To-Exceed 7.5%) basis subject to an agreed upon guaranteed maximum price for the “self-performed work”. The Contractor may bid their proposed Guaranteed Maximum Price for the work to be “self-performed” against at least three other interested trade contractors. Any subcontract for “self-performed work” will provide for payment in an amount equal to the Cost of the Work (as defined in this agreement) and will not to exceed the agreed upon subcontract guaranteed maximum price. All terms and provisions of any subcontract for “self-performed work” will be consistent with the terms and conditions of this agreement with the exception of the agreed upon Fee percentage.*

*All savings under any such subcontract for "self-performed work" shall be applied to reduce the Cost of the Work under this Agreement and the Guaranteed Maximum Price of this Agreement. For purposes of defining "self-performed work" subject to this contract provision, any division of Contractor, or any separate Contractor or that is partially owned or wholly owned by the Contractor or any of their employees or employee's relatives will be considered a related party entity and will be subject to this provision regarding "self-performed work". No self-performed work will be allowed to be performed on a lump sum basis.*

*Construction Manager shall identify every Subcontractor it intends to use on the Project, including Subcontractors used for self-performed work, to the Owner in writing at least ten (10) days before entering into any subcontract. Construction Manager shall not use any Subcontractor to which Owner has a reasonable objection. Construction Manager shall not be required to subcontract with any Subcontractor to which it has reasonable objection. Following Owner acceptance of a Subcontractor, that Subcontractor shall not be changed without Owner's written consent, which shall not be unreasonably withheld.*

*Subcontractors shall conform to the requirements of the Contract Documents. Subcontracts awarded on the basis of the cost of such work plus a fee shall require Owner's prior written approval and also be subject to the provisions of this Agreement insofar as applicable.*

**Exhibit J – Contingency/Buyout Savings**

*A construction contingency in the amount of three percent (3%) has been set up for unknown and unforeseeable risks which are not Included directly or by inference in the schedule of values and the costs of which are not directly or by inference, precluded by any provisions of the Contract. The contingency amount is included within the Cost of Work.*

*If the allowable amount of the cost of Cost of Work, General Conditions and Construction Manager's Contingency is less than the amount established for each of those line items in the originally approved Guaranteed Maximum Price Proposal, the entire difference shall be credited to the Owner as savings and the contract amount shall be adjusted accordingly, including associated Construction Phase Fees. When buyout of the Project is at least 85% complete, the Owner may recognize any savings achieved to that point by issuing a deductive change order for the saved amount and moving the money to contingency or outside the GMP.*