

CMAR Process – Lima WWTP Headworks Project

OWEA 2015 ANNUAL CONFERENCE



Agenda

- Project Team/Background
- Desire for a Different Project Delivery Method
- CMAR (Construction Management At-Risk) Process
- Lima WWTP
 - CMAR RFQ/RFP Process
 - Preconstruction Phase
- Lessons Learned, So Far

Project Team

- Owner:
 - City of Lima (Administration, Engineering, WWTP Staff, Data Systems Group)
- Engineer:
 - Jones & Henry
- CMAR Team:
 - Peterson Construction
 - AECOM (Formerly URS)
 - Commerce Controls Inc. (System Integrator)

Project Background

- Consent decree project to increase the wet weather capacity from 45 MGD to 70 MGD
- WWTP Improvements Included the Following:
 - Four new primary tanks
 - Expansion of the existing screen building
 - Four new aerated grit tanks
 - New primary sludge pump station
 - New secondary effluent pump station
 - New ferric storage tanks, containment, and chemical feed building



Project Background

- WWTP Improvements Included the Following:
 - Improvements to the existing chlorination/dechlorination system
 - Electrical power and control improvements associated with the new facilities
 - Replacement of existing plant PLCs
 - Replacement PLCs/radios at 30 lift stations regulator structures



Six Stages of a Project

- Enthusiasm
- Disillusionment
- Panic
- Search for the Guilty
- Punishment of the Innocent
- Praise and Honors for the Non-Participants

Communication Breakdown

- Contractor
 - Contractor - A gambler who never gets to shuffle, cut or deal
 - Owner/Engineer - Magician
- Bid Opening
 - Contractor - A poker game in which the losing hand wins
 - Owner – Is that within 10% of the Engineer's Estimate?
 - Engineer – How will I explain this?

Communication Breakdown

- Low Bidder
 - Contractor – What did I leave out?
 - Owner – Wow he really sharpened his pencil
 - Engineer – He must be missing half the plans

Communication Breakdown

- Schedule
 - Contractor – Merely a suggestion
 - Owner – So you are ahead of schedule, right?
 - Engineer – The contractor is responsible for the schedule

Communication Breakdown

- Change Order
 - Contractor – Profit
 - Owner – That should be a credit
 - Engineer – I am sorry, I am unavailable to take your call right now....
 - Engineer – That was clearly shown by the Contract Documents
 - Engineer – Those were Owner initiated changes

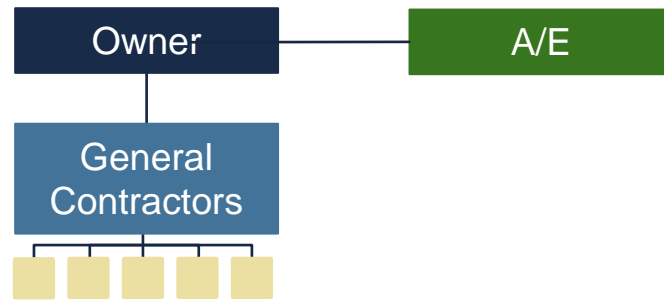


Communication Breakdown

- Completion Date
 - Contractor - The point at which liquidated damages begin
 - Owner – Wasn't he ahead of schedule last month?
 - Engineer – Delay claim?
- Liquidated Damages
 - Contractor - A penalty for failing to achieve the impossible
 - Owner – He is still not finished?
 - Engineer – I knew he did not read the Contract, its not a penalty

A Better Way?

Design Bid Build



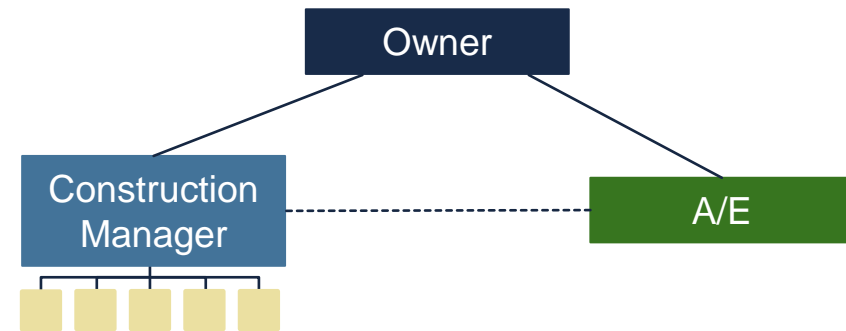
Pros

- Familiar Delivery Method
- Defined Project Scope
- Single Point of Responsibility
- Aggressive Bidding

Cons

- No Design Phase Assistance
- Limited Ability to Accelerate Schedule
- Price not Known Until Bid
- Limited of Flexibility for Change
- Contractor Keeps All Savings

Construction Management at Risk (CMAR)



Pros

- Selection Flexibility
- Design Phase Assistance
- Single Point of Responsibility
- Team Concept
- Schedule can be Accelerated
- Change Flexibility
- CM is at Risk for Schedule and Guaranteed Maximum Price

Cons

- New Process to Ohio Municipalities
- Funding and Regulatory Acceptance

CMAR Advantages

- Qualifications Based Selection
- Collaboration
- Transparency
- Construction Cost Control
- Schedule Enhancement
- Shared Savings
- Flexibility

Selecting a CMAR RFQ Process September – November 2013

- RFQ
 - Casting a Wide Net
- Scoring RFQs
 - Owner Involvement – Selection Committee 8 Members
 - Made up of City Auditor, Administrators, and Plant Supervision
 - Owner's Legal Council Reviewed Documents – Not on Selection Committee
- RFQs Sent to 9 Firms
- Shortlisted 4 Firms

Selecting a CMAR RFP Process December 2013 – April 2014

- RFP
 - Narrow Focus
- Scoring RFPs
 - Same Selection Committee as RFQ

Selecting a CMAR RFP Process December 2013 – April 2014

- Scoring RFPs
 - Same Selection Committee as RFQ
 - Guaranteed Maximum Price (GMP) was Requested
 - Based on 70% Design Drawings
 - Optional can be Only Qualifications Based

Selecting a CMAR RFP Process December 2013 – April 2014

- Scoring RFPs
 - Proposals Submitted with GMPs in Separate Envelopes
 - Proposers Interviewed
 - Scored
 - GMPs Opened
 - Best Value Selection

Best Value Rating Form

Project Name: _____ Proposer's Name: _____
 Evaluator's Name: _____ Evaluation Date: _____

A. Qualifications			
Criteria	Description	Range	Score
1. Understanding of Project Objectives	a. Quality of Project Approach / Strategy	0-15	
	b. Proposed Solutions to Unique Challenges	0-15	
	c. Alignment of CM's Team with Owner's Goals	0-10	
	d. Adherence to Project Timeline (Schedule)	0-5	
	e. Value Added Suggestions (Alternates)	0-5	
	f.	0-5	
	g.		
2. Understanding of Project Implementation	a. Availability / Quality of Proposed Team	0-10	
	b. Appropriate Staffing Levels to Flatten Project	0-10	
	c. Experience with CM at Risk Project Delivery	0-10	
	d. Change Management / Contingency Process	0-5	
	e. Subcontractor Prequalification Plan	0-5	
	f. Schedule Enhancements	0-5	
	g.		

Notes:

Total Qualifications Score		
Score	x	Weight = Subtotal (A)
		55%

Best Value Rating Form

B. Price Proposal						
Factor	Component	Proposal	Extension			
1. Preconstruction Stage ¹	a. Preconstruction Stage Fee (Fixed)	#REF!	#REF!			
	b. Preconstruction Stage Personnel Costs	#REF!				
	c. Preconstruction Stage Reimbursable Expenses Cap	#REF!				
2. Construction Stage ¹	a. Construction Stage Personnel Costs Cap	#REF!	#REF!			
	b. General Conditions Costs	#REF!				#REF!
	c. CM at Risk Fee	#REF!				#REF!
	d. Owner Accepted Schedule Enhancements (+/-)	\$0				
3. Post-Construction Stage	a. Post-Construction Stage Fee	#REF!	#REF!			
	b. Post-Construction Stage Personnel Costs	#REF!				
4. GMP Proposal ²	a. Guaranteed Maximum Price ²	- #REF!	=	#REF!		
		Total Price Proposal			#REF!	
5. Additional Information	a. CM Adviser Fee ³	#REF!	#REF!			
	b. CM Contingency ⁴	#REF!	#REF!			
	c. Construction Budget given in RFP	#REF!	#REF!			
6. Normalized Price Ranking	a. Proposed price from this CM team [x]	#REF!				
	b. Lowest proposed price from all CM teams [L]					
	NPR = [1 - ((x - L) / L)] * 100	NPR =				
1 Detailed price information provided in CM at Risk Proposal Form	2 Guaranteed Maximum Price included only if specifically requested in RFP	NPR	x	Weight	= Subtotal (B)	
3 For CM as Adviser services only	4 Percentage of Construction Budget less CM at Risk Fee			45%		

C. Best Value Calculation

Best Value = weighted combination of qualifications and price

Subtotal (A)	+	Subtotal (B)	=	Best Value

Contract and Legal Information on CMAR

- Ohio Administrative Code (OAC)153:1
- Documents
 - ofcc.ohio.gov/documents.aspx

CMAR Fees

- Fee Comparison Based on RFP Responses
 - Preconstruction Fees 0.4% - 1.1% of Engineers Estimate
 - Construction Stage Fees 6.3% – 15% of Engineers Estimate
 - Post Construction Stage Fees 0.07% - 0.7% of Engineers Estimate
 - Engineer's Estimate was \$27 million
- Typical Design Bid Build Contractor Fees

Preconstruction Process May – December 2014

- An Intervention Process
- Correct Communication Breakdown
- Meetings Held on a Bi-Monthly Basis

Preconstruction Process May – December 2014

- Detailed Feedback on Plans and Specifications
 - Went Through the Project Area by Area
 - Intensive Review of Construction Sequencing
- Value Added Suggestions
 - Evaluated Value Added Suggestions From All Proposers

Preconstruction Process May – December 2014

- Suggestions Taken
 - Location of Structures - Allow More Space for Construction
 - New Plant Outfall
 - Additional Underground Utility Investigations
 - Reconfigured Primary Pump Station
 - Changed Piping Thickness and Joints

Preconstruction Process May – December 2014

- Suggestions Taken
 - Prefabricated Small Buildings
 - Deleted Some Pile Foundations
 - Upgrade Materials to Stainless Steel
 - PLC Conversion Kits

Preconstruction Process May – December 2014

- Other Changes
 - PLC and Radio Changes at Outlying Lift Stations
 - Radio Changes and Instrumentation Replacements Plant/Offsite
 - Involvement of City Instrumentation Department
 - Early Selection of Integrator by RFQ/RFP Process
 - Plant Maintenance Items

Preconstruction Process May – December 2014

- Owner Involvement
 - Integrator/City DSG Group Part of the Project Team
 - PLC/Instrumentation Work Optimized
 - Process Lead to Greater Input from the Owner
 - Operations/Maintenance Based Changes

Preconstruction Process May – December 2014

- 95% Documents
 - Documents Developed Based on Preconstruction
 - Submitted to Team for Review
 - PTI Documents Submitted

Complete Construction Documents Develop GMP January – May 2015

- Received Comments from CMAR on 95% Documents February
- Revised Documents Feb - March
- CMAR Developed GMP from 100% Documents

How Did GMP Workout??

- Started at \$27,120,000 (70% Documents – May 2014)
- Ended at \$30,884,000 (100% Documents – May 2015)

What Went Wrong??

- PLC/Radio/Instrument Replacements
- Maintenance Work Additions
- These Two Items Consumed Savings Generated

So The Process Failed??

- Not so Fast
- Owner Indicated Importance of Original Budget
- Owner/Engineer/CMAR Met
 - Eliminated Maintenance Allowance Items
 - Eliminated Some Designed Maintenance Items – Not Permit Required
 - Altered Specifications for Items
 - Issued Addendum to 100% Documents

Final GMP

- CMAR Updated GMP
- \$27,549,000
- Owner Signed GMP Amendment in May
- All Items Required by NPDES are Included

Subcontractor Bid Packages May – June 2015

- This Slide Will be Updated when information is available
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What Would We Do Differently??

- Select the CMAR Earlier in Design
- Require More Project Estimates
- Firm Budget from Owner

Should You Choose CMAR??

- Maybe a New Acronym Will Help
- Complex
- Megaproject
- At
- Risk

Should You Choose CMAR??

- Does Your Project Fit the Criteria?
- Willing to Dedicate Time?
- Money?

Should You Choose CMAR??

- Potential Stumbling Blocks
 - Funding Agency
 - Regulatory Approvals

CMAR Highlights

- CMAR Selection Based on Best Value
- Single Contract with CMAR for Preconstruction and Construction
- Owner Contracts Engineer Separately
- Owner – Engineer Relationship Maintained
- Both CMAR and Local Contractors can Participate in Construction
- Transparency
- Flexibility

Questions??

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