Construction Management At Risk

NWOWEA Pre-Conference Utility Workshop

June 22, 2015

MWH

BUILDING A BETTER WORLD

Agenda

- Introduction
- Construction Management at Risk (CMAR)
- CMAR Implementation
- Procurement Considerations
- Fremont Case Study

Owners are or will be facing relentless cost and time pressure to deliver water and wastewater projects.

- Population growth and aging infrastructure creating huge capital needs
- Shortened schedules and other time constraints more the norm
- Rising construction costs
- Looking for a better, faster, more cost-effective way to deliver projects
  - Getting away from low bid construction

Traditional Design Bid Build Approach has Drawbacks

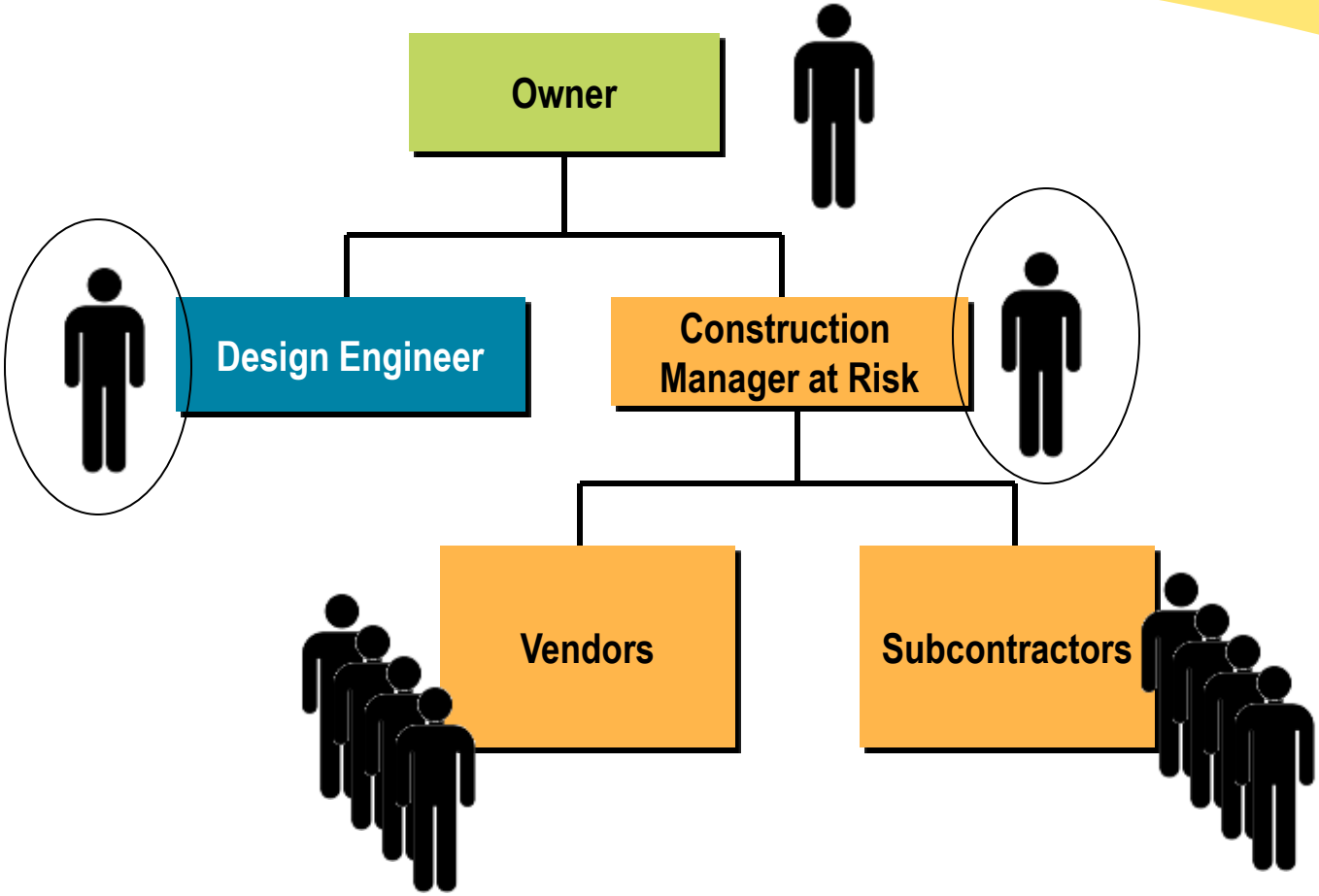
- Adversarial relationship can develop between owner, engineer, and contractor
  - Can lead to unsatisfactory results - cost, schedule, and quality
  - Can lead to change orders and disputes
- No input from contractor during design
  - Constructability considerations can impact cost and schedule
- Very time consuming process

Construction Management at Risk (CMAR)

Construction Management at Risk (CMAR)

- Early integration of key stakeholders
- Early collaboration by key stakeholders
- Preconstruction Services the big difference
  - Significant impact on time and cost efficiencies
  - Significant impact on risk profile
  - Greater owner control over project scope and quality, schedule and cost
  - High potential to meet owner project expectations

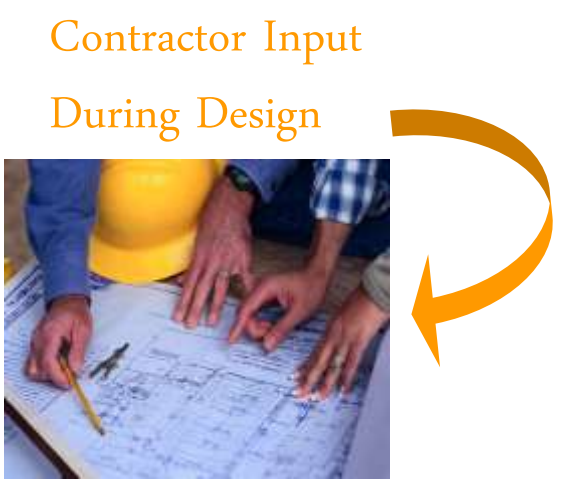
Construction Management at Risk (CMAR)



Two separate contracts

CMAR Attributes

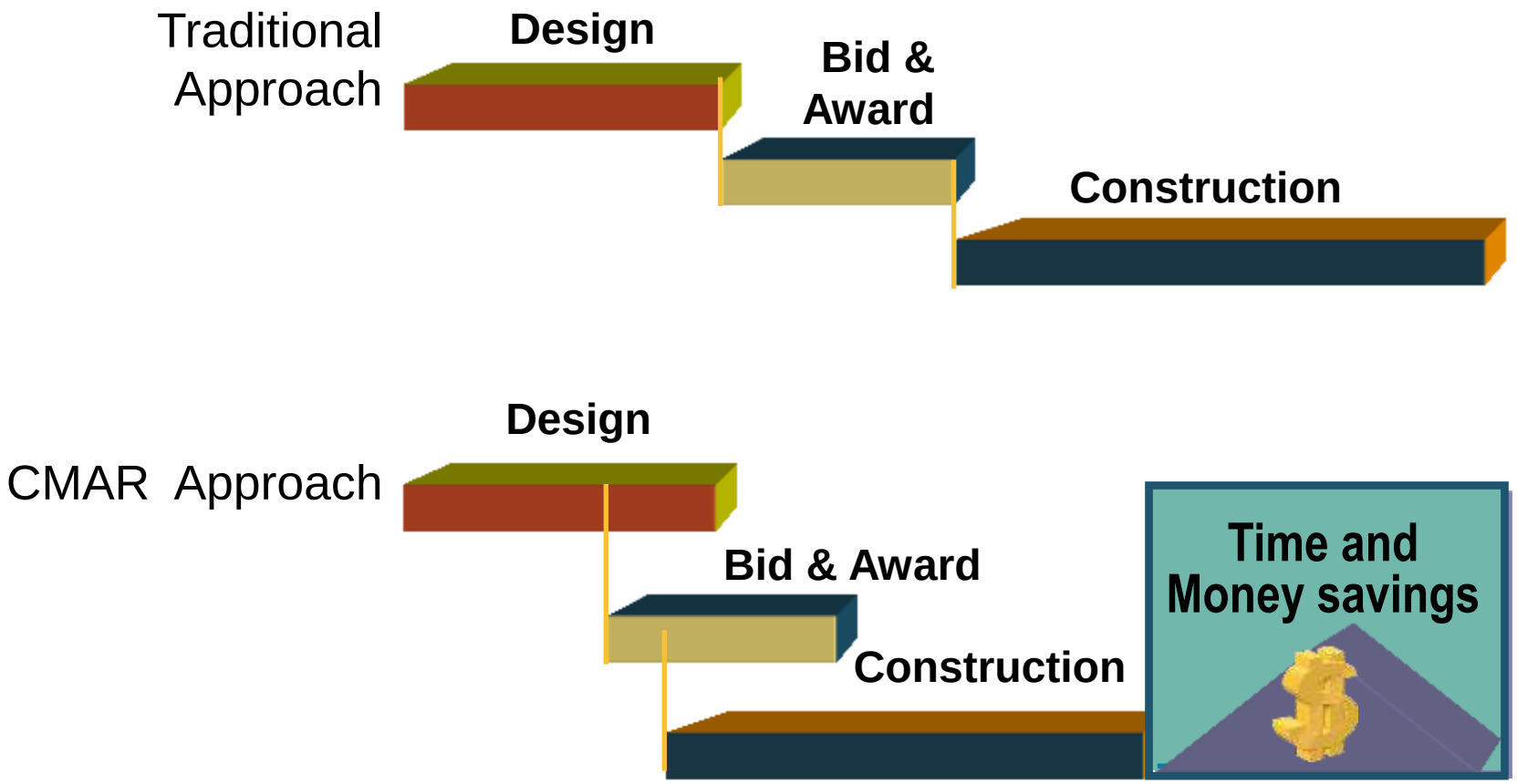
- Owner engages engineer for design
- Maintains owner-engineer relationship
- Owner engages CMAR (between 10 and 30% design)
- Two phases:
  - Preconstruction Services
    - Collaboration, contractor input, set GMP at a design complete milestone
  - Construction Services
    - subcontractors and self perform
- CMAR acts as consultant to owner in design phase but as at risk general contractor during construction
- Owner has two contracts



CMAR

Advantages	*Advantages*
Time and cost effective procurement process	Can reduce overall project risk compared to DBB due to preconstruction services
Owner can make selection on quals, experience and pricing components	Can reduce potential of design misunderstandings and change orders
Owner maintains trusted advisor relationship with engineer	CMAR brings estimating and scheduling expertise for cost and schedule estimates
Accelerated project schedule; construction prior to design complete	Earlier cost certainty; GMP at some % design complete
Life cycle costing, operability and ease of maintenance considerations easily incorporated into design	Owner high degree of control in process for project scope, quality, cost, and schedule decisions
Contractor input into design-constructability considerations	

Overlapping Activities Reduces Total Project Time



CMAR

Disadvantages	*Disadvantages*
CMAR selected before GMP is known	Potential engineer and CMAR may not have a fully collaborative and cooperative relationship; i.e. a “forced marriage
Owner warrants design to CMAR	Uncertainty whether CMAR input utilized by engineer; engineer may reject some input as the engineer of record
Preconstruction services is an additional cost	High level of involvement of owner and staff resources during the design
Owner has two contracts to manage and administer	Potential of owner’s involvement can slow design down thus detracting from speed of delivery advantage

Why Owners Choose CMAR

- Having contractor involved in design process
- Speed of delivery
- Owner control
- Maintain relationship with engineer (trusted advisor)
- GMP open book compensation
- Better price certainty
- Life cycle cost focus
- Increased collaboration not confrontation

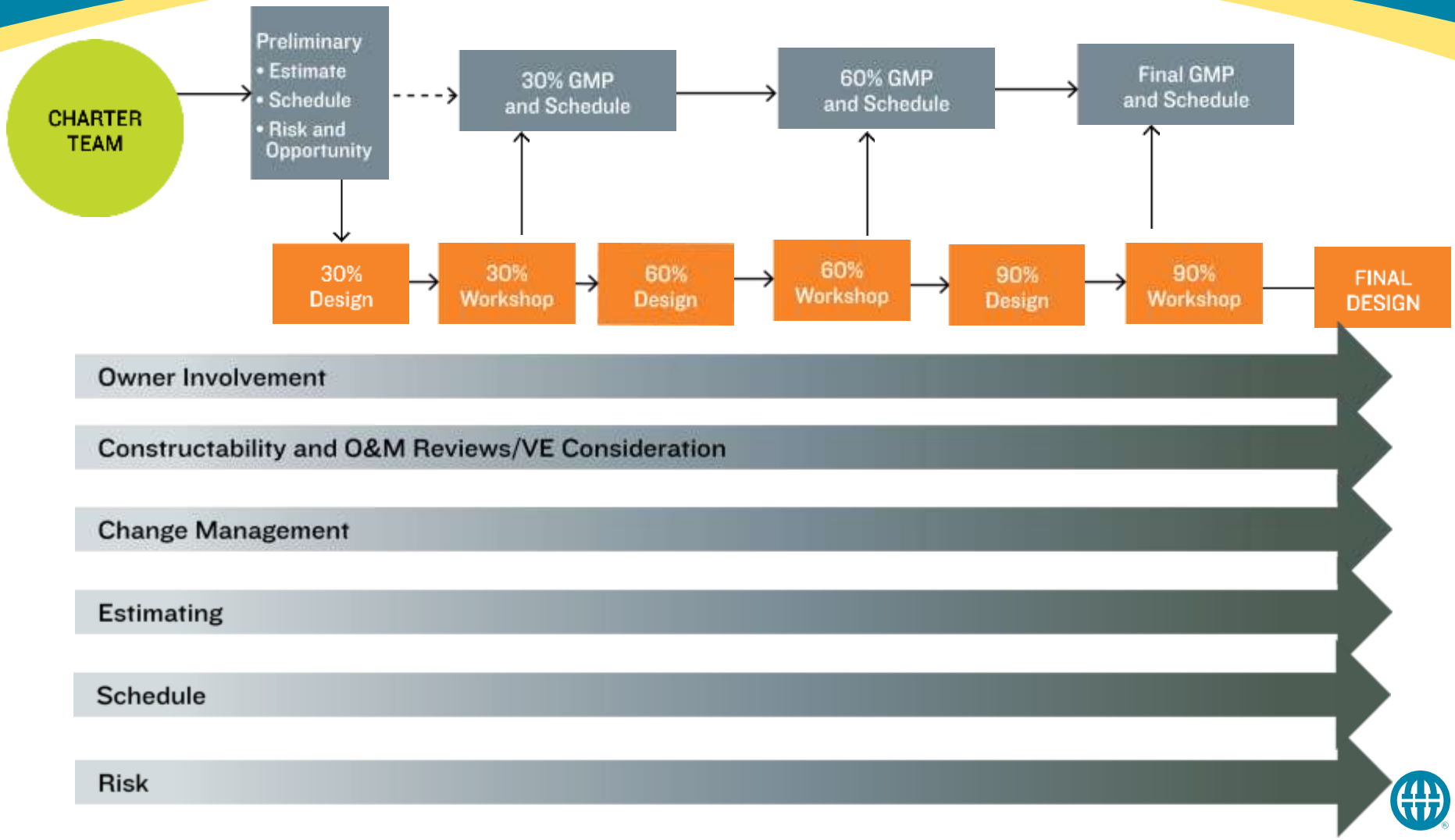
CMAR Delivery can be used on a wide variety of projects

- New facilities/systems
- Existing facilities/systems

  - Wastewater treatment
  - Water treatment
  - Pump Stations
  - Industrial pretreatment/ treatment
  - Residuals management
  - Energy projects
  - Collection/distribution conveyance systems

CMAR Implementation

Preconstruction Services provides continuous opportunities for Owners input and decision making



Preconstruction Services and Benefits

- Fosters a collaborative team relationship
- Constructability- reduce costs and save time
- Accurate estimating and scheduling to ensure budgets and schedules are met
- Reduce potential for change orders
- “VE” cost and time savings
- Can include life cycle considerations, operability, ease of maintenance

Reduce Cost

Reduce Time

Reduce Change Orders

GMP Development

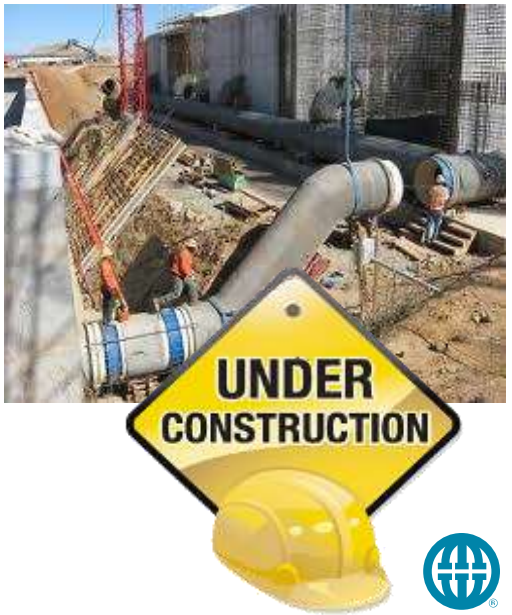
- Prequalified subcontracting pool
- Local subcontractors involvement
- Maximum competitive bidding
- Maximum owner involvement
- Tailor bid packages to match local capacity
- Keep revenues in community

Owners pay no more than GMP and share the savings if bids are under GMP

- If bidding results in lower GMP owner pays lower amount
- If bidding results in higher GMP Owner only pays GMP
- With GMP Owner achieves competitive bidding
- Savings can be shared with a saving cap, after that all savings to Owner

Construction

- General Conditions provided
- Separates design into appropriate packages
- Competitively bids work and self performs, if applicable
- Acts as General Contractor and completes construction
- Responsible for project safety



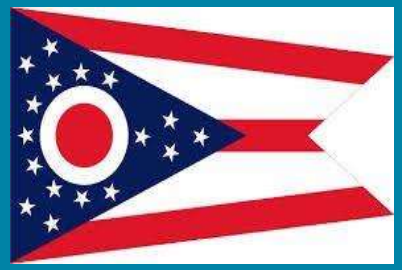
Construction

- Savings returned/shared with owner
- Open book policy- complete transparency
- Accelerated schedule via concurrent procurement process
- Owner involvement during construction
- Reduced RFIs and Change Orders
- “Early out” bid packages
- Unused contingency returned and or shared with owner

Comparison of Design Bid Build and CMAR

Project Attribute	Design Bid Build	CMAR
Procurement Selection	Low bidder	Qualifications only or combination of qualifications and cost parameters
Contracts	One with designer and one with contractor for construction	One with designer and one with contractor For preconstruction and construction
Contractor involvement during design	None	Yes along with significant owner involvement
Initiation of construction	After 100% design complete	Prior to 100% design complete
Control of design	Owner	Owner

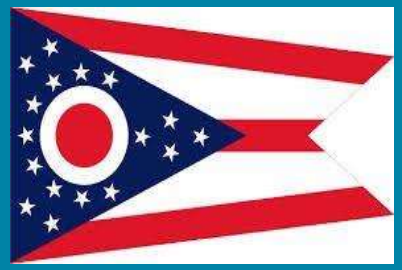
CMAR Procurement



CMAR and Ohio Law

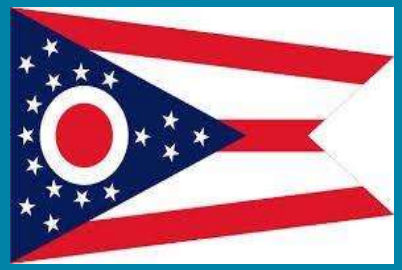
- 2011 Governor signed into law House Bill 153
- First changes to public construction in over 134 years
- Known as Ohio Construction reform
- Authority to use alternative construction delivery
  - General Contracting, CMAR and DB
- Each owner can now chose what is best for project, including multi prime
- OFCC, Ohio Attorney's General Office and The Ohio State University developed required admin rules and sample documents

http://ofcc.ohio.gov/
http://ofcc.ohio.gov/Compliance/ConstructionReform.aspx



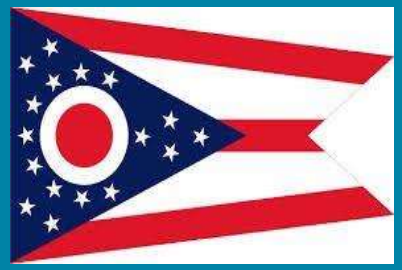
CMAR and Ohio Law

- ***Highlights to follow; please refer to law, admin requirements and other guidance at web site***
- A two step best vale procurement and selection process
  - Qualifications phase
  - Proposal phase
- Qualifications Phase
  - Owner to develop qualifications criteria in accordance with law
  - Establish Evaluation Committee
  - Owner will determine how it will evaluate qualifications
  - Short list to no fewer than three



CMAR and Ohio Law

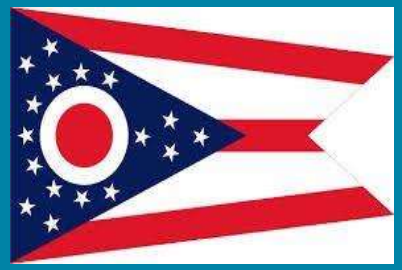
- Proposal Phase
  - Owner will establish performance criteria in accordance with law
  - Owner will establish pricing criteria
    - Preconstruction fee
    - Construction fee
    - At risk fee
    - General Conditions
    - Contingency
    - If applicable, GMP price proposal
  - Owner shall determine how it shall evaluate Technical and Pricing Proposal (i.e. discretion in weighting)



CMAR and Ohio Law

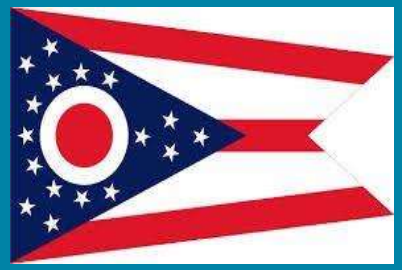
- CMAR RFP
  - Project description
  - Preconstruction services
  - Available design
  - How GMP will be developed
  - Form of contract
- Pre-proposal submission meeting with short list allowed

.



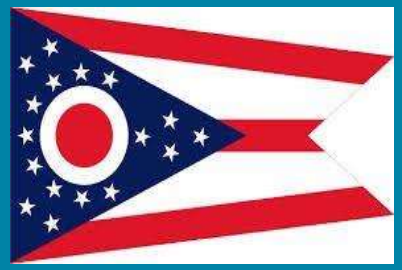
CMAR and Ohio Law

- CMAR submits Technical and Price Proposal
- CMAR Price Proposal
  - Key Personnel
  - A statement of the General Conditions and Contingency
  - Fee proposal which includes
    - Preconstruction fee
    - Construction fee
    - At risk fee
    - GMP option; not requirement



CMAR and Ohio Law

- Technical Proposal
  - Project specific plan
  - Identity of proposed team
  - Project specific approach to deliver the services
  - Performance criteria
- Evaluation Committee interview short list; cannot be scored or included in scoring of proposal .
- Committee evaluates Technical Proposal separately from Price Proposal; combine evaluations to reach final score
- Committee ranks and selects best value CMAR (highest score)

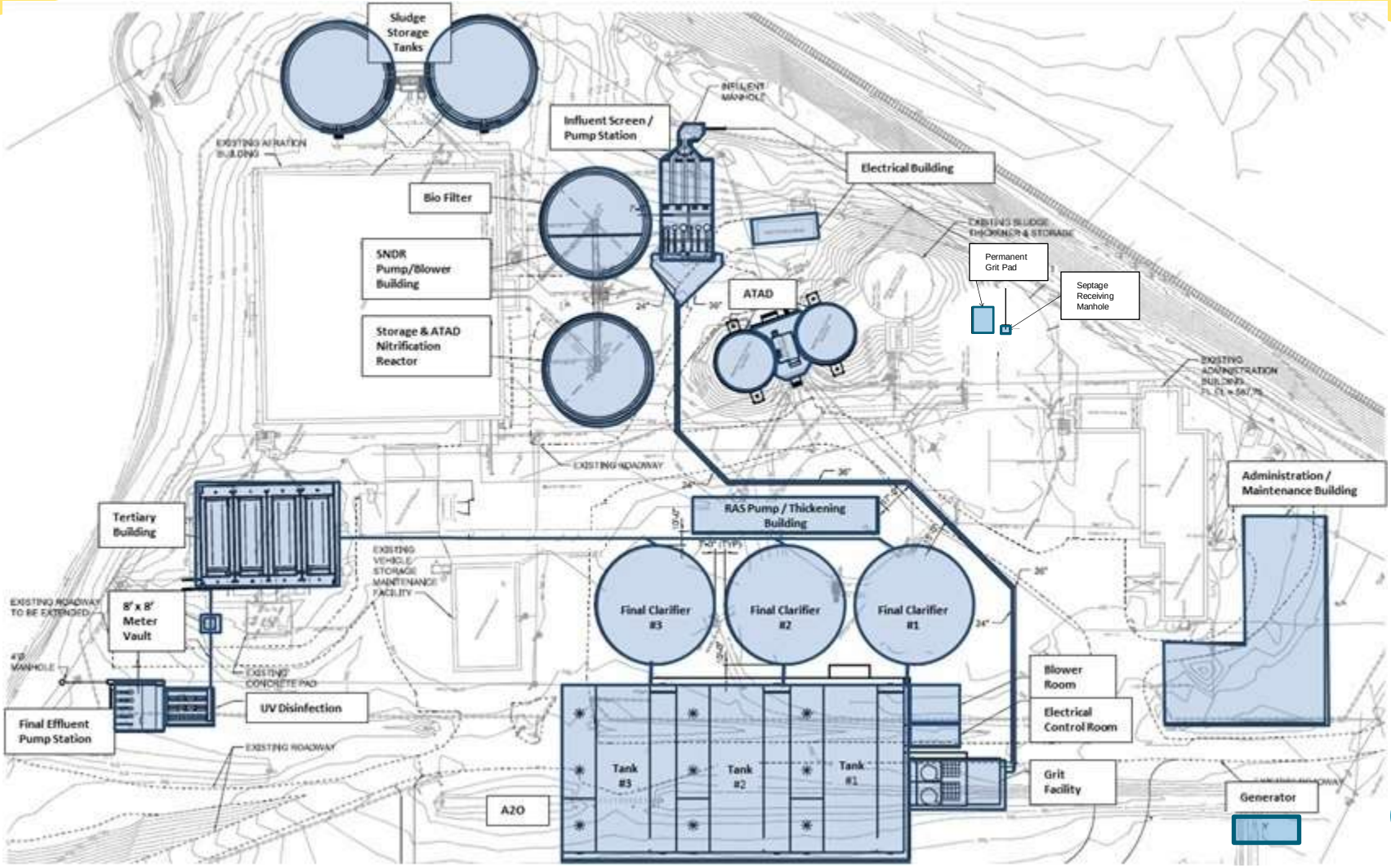


CMAR and Ohio Law

- Self perform if authorized by owner; CMAR can submit a bid prior to receiving and opening bids for same work package
- All subs prequalified by criteria established by CMAR and approved by owner

CMAR at Fremont WPCC

Fremont WPCC Site Plan



Existing Site

Site - Oct 2013

Site – Oct 2014

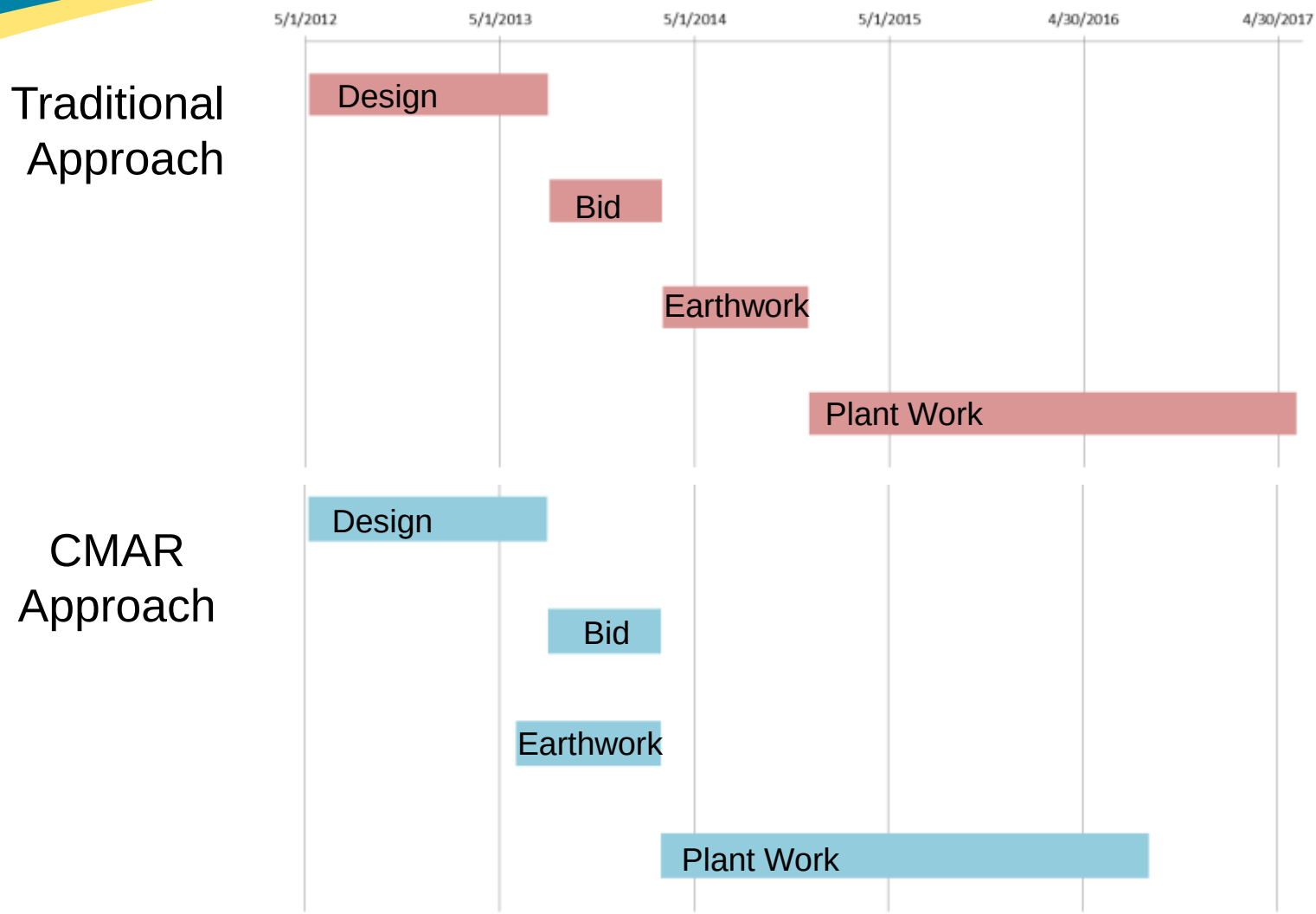
Site – April 2014

CMAR Benefits at Fremont WPCC

- Schedule Compression
- Pre-Construction Services
- Contingency and Shared Savings

Schedule Compression

Overlapping Activities Reduced Total Project Time



Pre-Construction Services

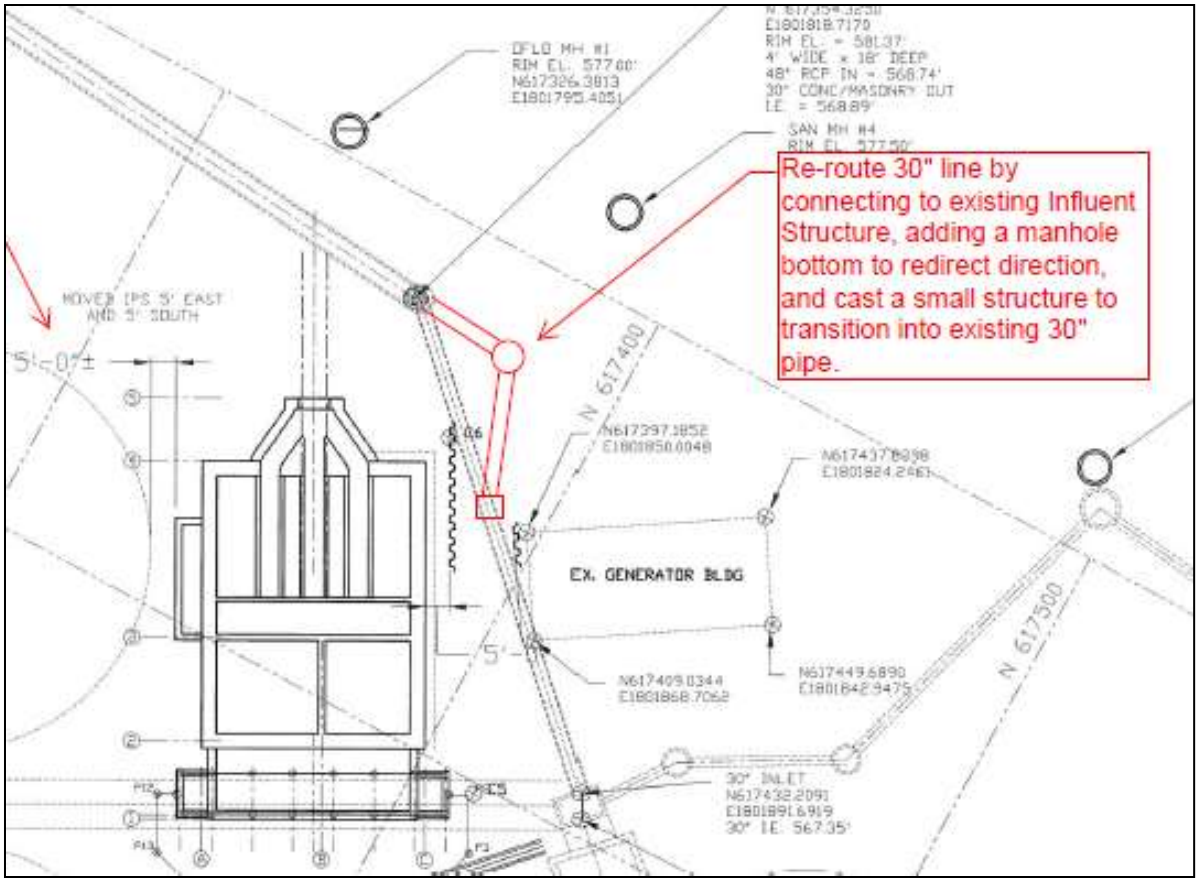
- Estimates at Design Milestones
- Value Engineering Sessions
- Constructability Reviews

Value Engineering Sessions

Design Stage	VE Savings
30%	$912,000
60%	$2,605,000
90%	$1,113,000
Post Bid	$1,508,000
Total Cost of Work Savings	**$6,138,000**

Example: Procured dual purpose centrifuge to eliminate dewatering building – approximately $1M in savings

Constructability Reviews



Contingency and Shared Savings

- Covers unexpected constructability issues and cost savings opportunities
- Shared Savings between Owner and CMAR

Examples of Contingency Use

- Modified Stands for Centrifuges – Saved $20,000

- DBRs for Aeration Basin Influent and Effluent Channels – Cost $30,000

Contingency Use

- Authorized Contingency → $1,615,110
- Remaining Contingency → $1,569,969
  - Used $45k to date (41 total items: +$140K, - $95k)

Combined Financials (thru April 2015)

- Authorized GMP Total → $63,780,104
- Projected Final GMP Total → $63,226,715
  - *So far, projected underrun of $553,389*
- Work In Place → $29,045,747 *(46% complete)*

Questions/Discussion

Thank you for your time

Jim Salerno
Midwest Regional Manager
james.a.salerno@mwhglobal.com
216-244-7012

Hillary Holmes
Field Engineer
hillary.holmes@mwhglobal.com
567-280-8440