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Early Contractor Involvement (ECI)

aka: Construction Management @ Risk (CM@R)

Integrated Design Bid Build (IDBB)

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Agenda



- Briefing Objectives
- What is ECI? – an alternative to the DBB or DB Delivery methods
- Terms of Reference
- Results of NWD's ECI Projects/Lessons Learned
- Current Template of Best Practices
- Questions



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Briefing Objectives

- What this is “not”
 - A sales pitch
 - A lecture
 - A contracting class
 - A detailed explanation of how NWD has used ECI
- What this brief “is”
 - Understand fundamental aspects of ECI as an alternative delivery method to DBB or D-B.
 - Understand intent, risks, and rewards in ECI (CM@R)



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“Primer on Project Delivery”

A Joint Publication from AIA/AGC – 2004



Delivery vs. Management

Before defining the project delivery methods, it is important to distinguish between the delivery and management aspects of project delivery. “Delivery” refers to the method for assigning responsibility to an organization or an individual for providing design and construction services. “Management” refers to the means for coordinating the process of design and construction (planning, staffing, organizing, budgeting, scheduling, monitoring).

For example, CM@R is a project delivery method and CM-adviser is a form of project management. While this difference in leadership may appear subtle, it is nonetheless important to the understanding of the different delivery methods. Leadership implies the authority to legally bind the owner. Assignment of contractual responsibility is a key concept for differentiating project delivery methods. Outsourcing of such responsibility and administration is an option that owners should address in any project.



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Construction Management at Risk

Construction management at risk (CM@R) approaches involve a construction manager who takes on the risk of building a project. The architect is hired under a separate contract. The construction manager oversees project management and building technology issues, in which a construction manager typically has particular background and expertise. Such management services may include advice on the time and cost consequences of design and construction decisions, scheduling, cost control, coordination of construction contract negotiations and awards, timely purchasing of critical materials and long-lead-time items, and coordination of construction activities.

In CM@R the construction entity, after providing preconstruction services during the design phase, takes on the financial obligation for construction under a specified cost agreement. The construction manager frequently provides a guaranteed maximum price (GMP). CM@R is sometimes referred to as CM/GC because the construction entity becomes a general contractor (GC) through the at-risk agreement.



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“Early Contractor Involvement”

- Modeled after Private Sector’s CM@Risk (see AIA/AGC primer)
- History of USACE application
 - **KC and NWD (“CM@Risk”): 4+ yrs, 8+ projects (L&C; 1ID HQs; ...)**
 - **NAD (“IDBB”): 2+ yrs, 2 mega-projects recently awarded (NGA, Hosp)**
 - **SWD (“IDBB”): 1+yr, 2 projects on-deck (Ft. Sam Med Ctr & Trauma Ctr)**
- Basics
 - **“Different allocation of risk among parties”**
 - **Uses FAR 52.216-17 Incentive Price Revision (Successive Targets) to get at private sector model**
 - **AE selection is by normal (Brooks Act) procedures (or In-House!)**
 - **Construction Contractor solicitation and award is via RFP / Best Value Source Selection**
 - **Fastest of the Fast Track methodologies**



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ECI is...



- A project delivery method where the Corps engages the services of a general contractor to provide “preconstruction services” concurrent with design effort
- The contract includes the Government’s ability to exercise an option for the construction
- Contract includes terms and conditions to allocate risk among the parties
- A Fixed Price Incentive contract IAW FAR 16.403
- Useful tool to deliver projects that achieve MT goals (leverage industry input, cost/time savings), while maintaining technical (engineering) competency



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An ECI Contract is NOT a....



- **Design Contract** - Corps retains design responsibility either through in-house or with a separate A-E contract. Preconstruction services are not “Brooks Act” services
- **Non-competitive Acquisition** - Contract is procured IAW FAR 15 and application of FAR 16.403. Price and non-price factors are evaluated
- **Design-Build Contract** - Two separate entities (designer & construction manager/general contractor) both report to the owner (Corps)



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Terms of Reference

- What are Design Bid Build and Design Build?
 - not a string of verbs
 - proper nouns for distinct acquisition strategies differentiated in terms of risks and relationships
- What is the key to Acquisition Strategy Theory?
 - Not price, scope, or time
 - The key is proper allocation of Risk among the parties
- Some may have “trouble” with term “CM@Risk” Why?
 - Does it mean that it is a “risky” acq strategy?
 - How did industry get the term (CM to CM@R)?
 - Does the “CM” supplant the Corps’ traditional role?
- What is FAR Clause 16.403-2 Fixed-price incentive (successive targets) contracts? A means to an end



The applicable FAR Clause

16.403 Fixed-price incentive contracts.

(b) *Application.* A fixed-price incentive contract is appropriate when—

(1) A firm fixed-price contract is not suitable;

(b) *Application.* A fixed-price incentive (successive targets) contract is appropriate when—

(1) Available cost or pricing information is not sufficient to permit the negotiation of a realistic firm target cost and profit before award;

(2) Sufficient information is available to permit negotiation of initial targets; and

(3) There is reasonable assurance that ... information will be available ...to permit negotiation of either (i) a firm fixed price or (ii) firm targets and a formula for establishing final profit and price that will provide a fair and reasonable incentive.

(i) They may negotiate a firm target cost plus the firm target profit as a guide.

(ii) If negotiation of a firm target cost plus the firm target profit is not appropriate, they may negotiate a formula for establishing the final price using the firm target cost and firm target profit. The final cost is then negotiated at completion, and the final profit is established by formula, as under the fixed-price incentive (firm target) contract (see [16.403-1](#) above).

(b) *Application.* A fixed-price incentive (successive targets) contract is appropriate when—

(1) Available cost or pricing information is not sufficient to permit the negotiation of a realistic firm target cost and profit before award;

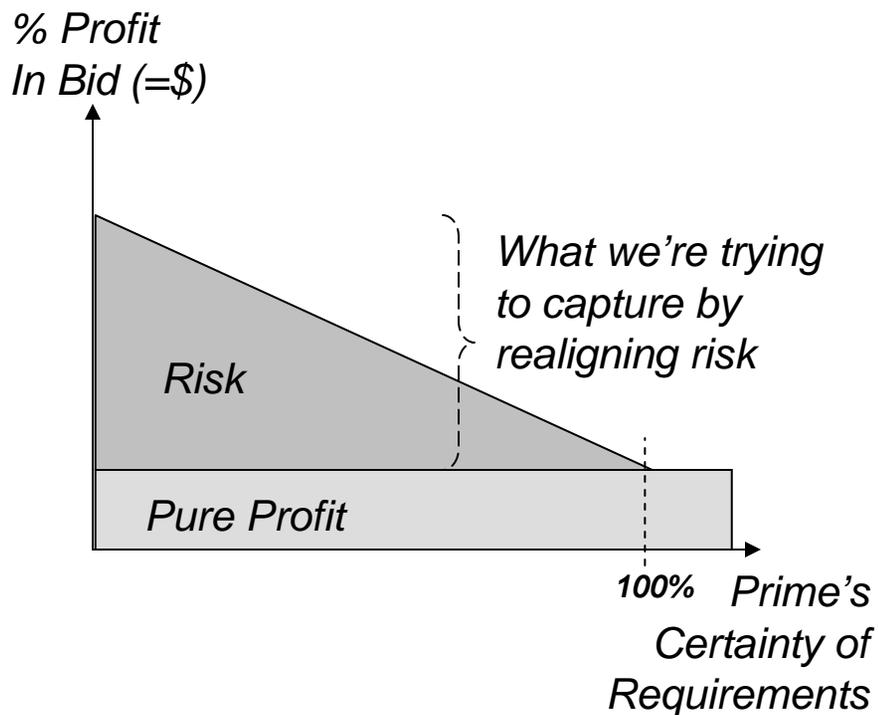
(2) Sufficient information is available to permit negotiation of initial targets; and

(3) There is reasonable assurance that additional reliable information will be available at an early point in the contract performance so as to permit negotiation of either (i) a firm fixed price or (ii) firm targets and a formula for establishing final profit and price that will provide a fair and reasonable incentive. This additional information is not limited to experience under the contract, itself, but may be drawn from other contracts for the same or similar items.



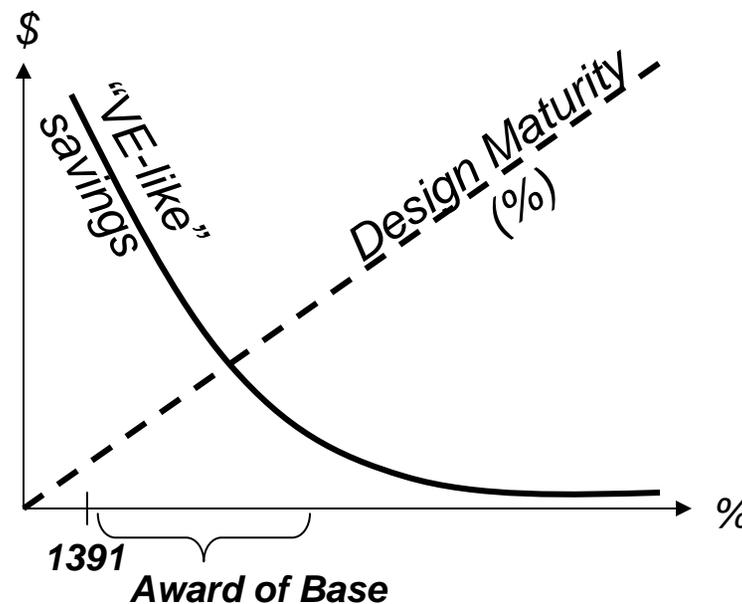
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Why Pursue ECI (besides speed)? “Cheaper” in Two Ways



Less Risk to Prime = Savings or Scope for Customer

Earlier Prime Contractor Input Affords Greater Savings

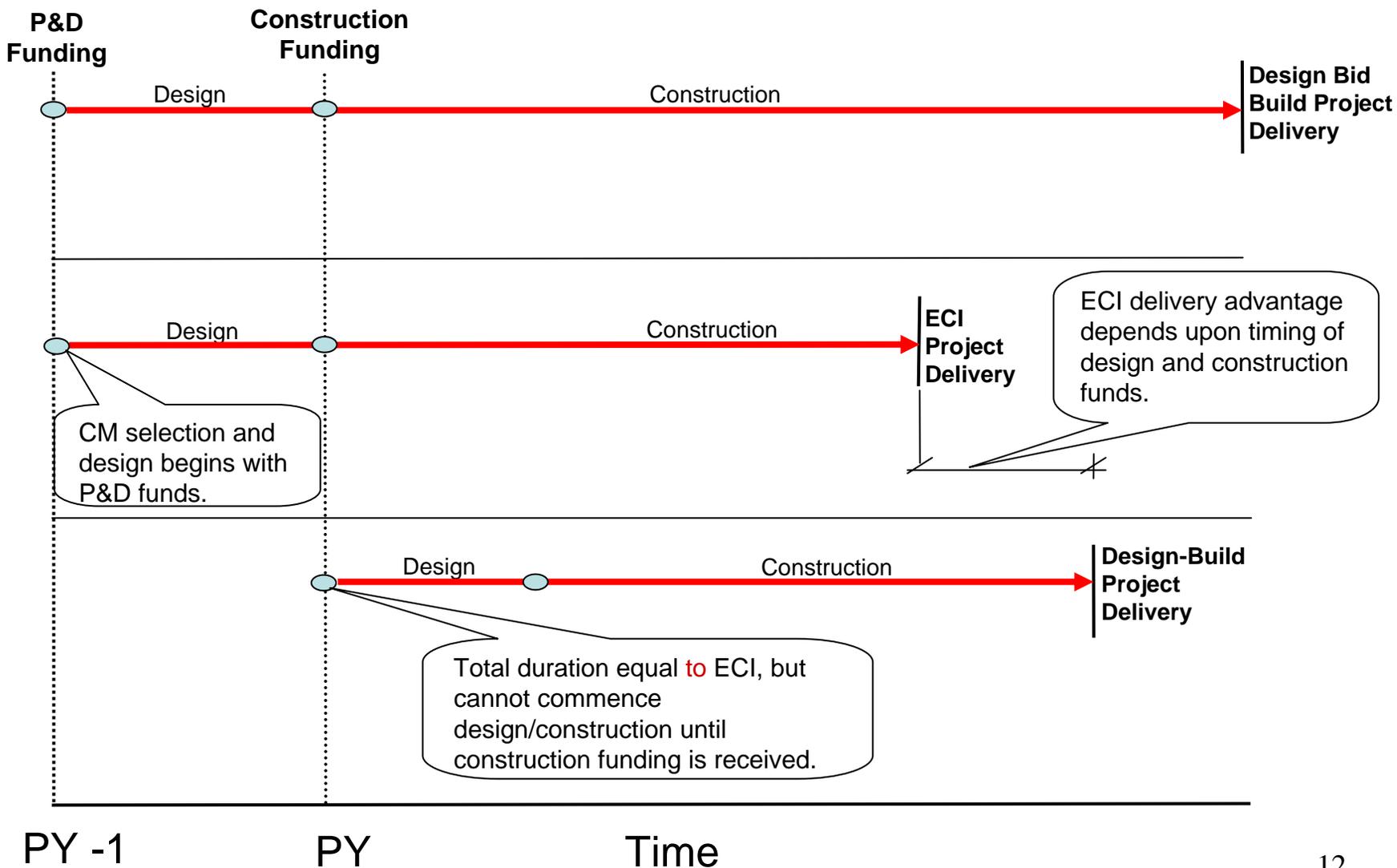




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Relative Project Delivery Timelines





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When is ECI right?

Rule of Thumb for me: When DB and DBB are not!

Design-Bid-Build: If you have time to develop detailed design and you want to get it at the lowest price, use DBB (actually, the FAR demands it).

Design-Build: If you know what you want (by at least the 35% design), you want it fast, and you're willing to take what is delivered in the end, use DB.

ECI: If you don't know what you want and you need it fast, ECI might be best.



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When is ECI the right Acquisition Strategy?

- Complex “one of a kind” project, with no standard design
- When incentives can significantly improve results over alternate approaches (*required per FAR 16.403*)
- Customer wants to provide input/shape design solution during design phase (*“I’ll know it when I see it”*)
- Challenging site, schedule, or other unique aspects that would benefit with a builder’s input during design phase
- When you want a collaborative effort during design and construction between Designer, Builder, Owner, User to be assured of project success



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Current Template of Best Practices Structure of the Contract



Base: Pre-Construction Phase Services – Lump Sum

Option(s): Initial Target Cost (ITC)
Initial Target Profit (ITP)
Initial Target Price (ITC+ITP)
ITP < Ceiling Price

TTP: split the options at natural break in work so as to get out of the ground at earliest (eg: site, steel, and skin) and exercise at MTP negotiations

Require 3 prequalified subcontractor quotes for all subcontracts over \$100K



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Application of FAR 52.216-17 FPIS Clause:



Profit adjustment based upon Firm Target Price

If the total firm target cost is more than the total initial target cost, the total initial target profit shall be decreased. If the total firm target cost is less than the total initial target cost, the total initial target profit shall be increased. The initial target profit shall be increased or decreased by a percent of the difference between the total initial target cost and the total firm target cost. The resulting amount shall be the total firm target profit; provided, that in no event shall the total firm target profit be less than x% or more than y% of the total initial cost. (To be determined by negotiation)

What does this mean?

- If $FTC > ITC \rightarrow$ profit is decreased
- If $FTC < ITC \rightarrow$ profit is increased



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Use of ECI within NWD



Completed and In-Progress Early Contractor Involvement (ECI) Projects - NWD		
District	Project	Remarks
NWK	FY04 Command & General Staff College (Lewis & Clark Center), Fort Leavenworth, KS, \$115.6M	Facility completed and turned over (Demolition of Old Bell Hall remains)
NWK	FY06 Tuttle Creek Dam Seismic Upgrade, Tuttle Creek Lake, Manhattan, KS, \$200M	Civil Works project. Construction on going.
NWK	FY06 1st ID Headquarters Fort Riley, KS, \$50.4M	Facility completed and turned over on schedule.
NWO	Mni Waste' Water Intake, SD, \$18.6M (Civil Works/ Emergency Response project for local tribe)	Civil Works project. Project substantially complete and in use.
NWO	FY07 4th ID Headquarters, Fort Carson, CO, \$38.4M	CMAR contract. FFP established \$5M under GMP. Construction awarded. 39% complete. On schedule.
NWK	FY07 Regional Correctional Facility, Fort Leavenworth, KS, \$95M	ECI contract awarded. Currently providing "Pre-Construction Services" Construction option not yet exercised
NWK	FY07 Civilian Education System (OMA), Fort Leavenworth, KS, \$29.2M	Construction underway with Demolition and Abatement started in 3 of 6 buildings. Design currently at 95% stage
NWK	FY09 Prime Power School, Fort Leonard Wood, MO, \$28M	Design in progress. Contractor currently providing "Pre-Construction Services" – construction option not yet exercised.



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ECI Results Dirtkicker/MT Metrics

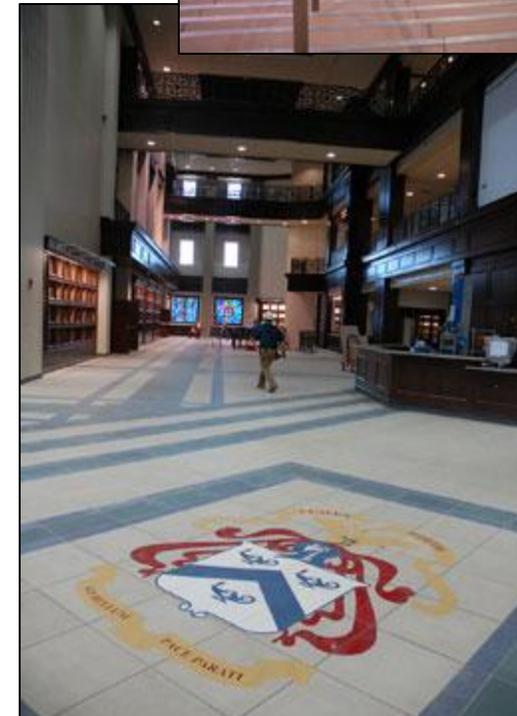
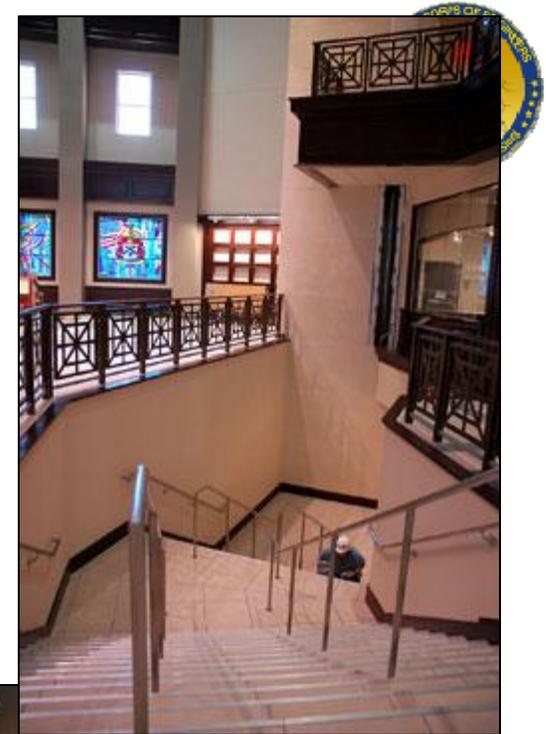


Project	15% Cost Savings or Awd w/in PA?	30% Time Savings Achieved?	Cost Growth	BOD Growth	Meets Construction Timeline (NTP-BOD days)?
FY04 CGSC (Lewis & Clark Center), Fort Leavenworth, KS, \$115.6M	Yes	Yes	3.20%	0%	No - 945 CD
FY06 1st ID Headquarters Fort Riley, KS, \$50.4M	Yes	Yes	1.60%	0.70%	Yes - 503 CD
FY07 4th ID Headquarters, Fort Carson, CO, \$44.4M	Yes	N/A	-13%	0%	Yes - 593 CD
FY07 Regional Correctional Facility, Fort Leavenworth, KS, \$95M	Yes	N/A	N/A	N/A	Yes - 730 CD
FY07 Civilian Education System (OMA), Fort Leavenworth, KS, \$29.2M	Yes	N/A	N/A	N/A	N/A - OMA\$ sequential renovation of multiple bldgs



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Lewis & Clark Center





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ECI Results

1st ID Division Headquarters



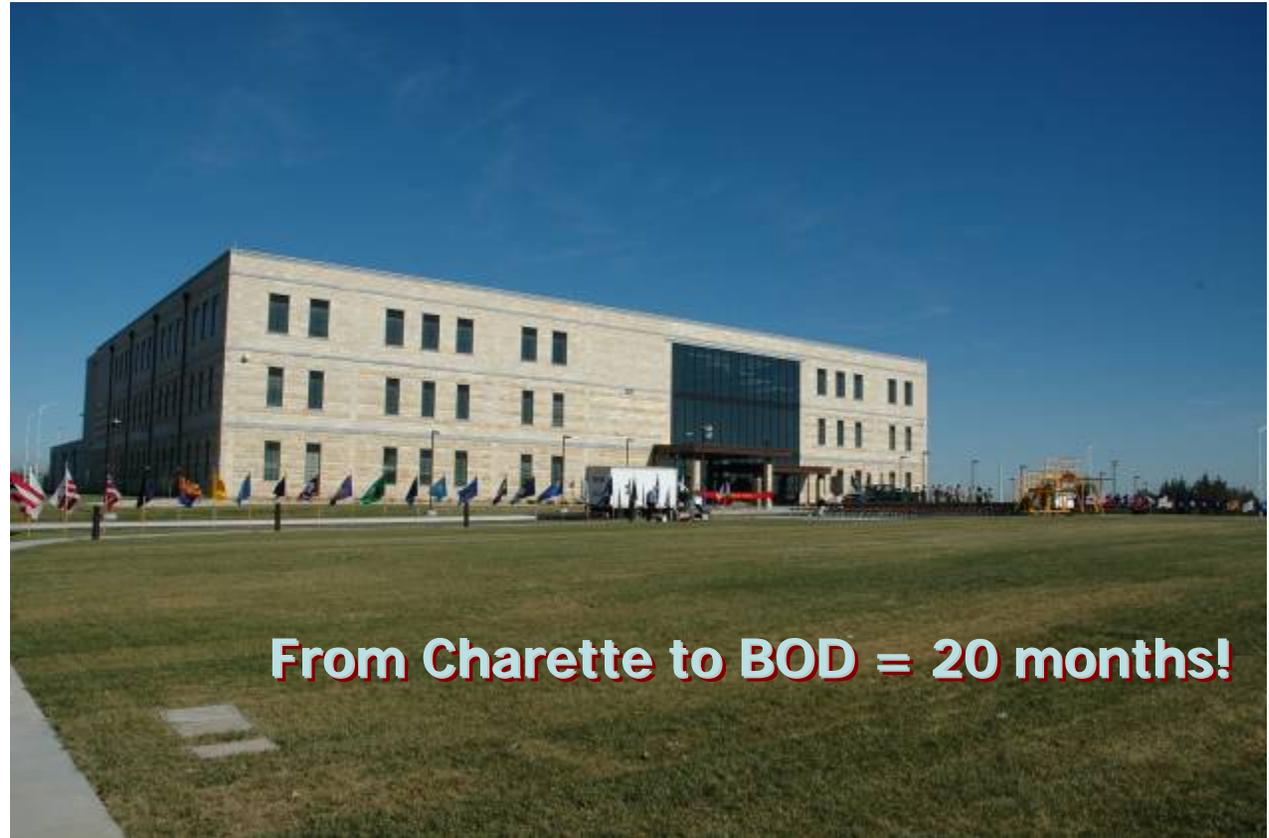
Construction Ceiling:
\$46.5M

Scope:

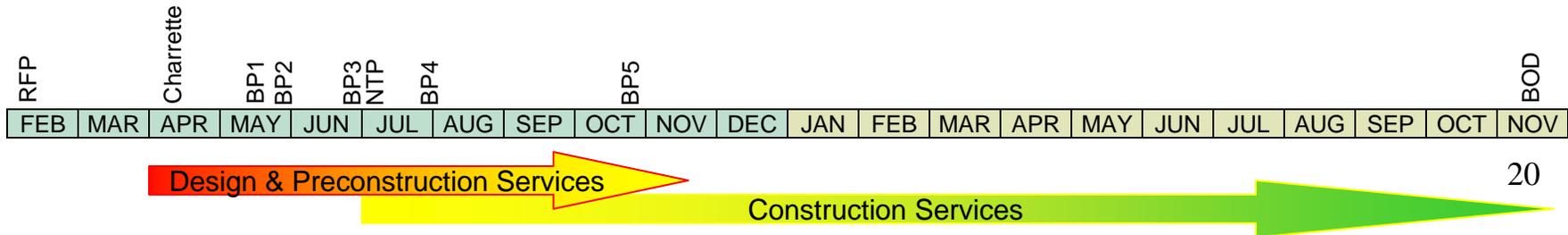
136,000 SF for 622PN, JOC, SCIF, NOC, 250 PN Briefing Room, General Admin. Office areas, Victory Park and supporting infrastructure

Schedule:

Need turnkey facility by November 2007. Ribbon cutting held 16 Nov.



From Charette to BOD = 20 months!





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ECI Results

4th Infantry Division Headquarters



Construction Ceiling:
\$40M

Scope:
136,000 SF for 622PN,
JOC, SCIF, NOC, 250
PN Briefing Room,
General Admin. Office
areas and supporting
infrastructure

Schedule:
Facility completed on
time, w/in budget.
Satisfied customer!





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Summary

- Acquisition strategy should include ECI option for PDTs to consider using for appropriate projects.
- NWD demonstrates that ECI successfully meets MILCON Transformation objectives:
 - Successfully awarded within PA
 - Good cost estimates in early-mid design stages allow PDT to identify PA issues early
 - Projects completed faster than traditional D-B-B or D-B
 - Allows construction (industry) input to design
 - Design either with in-house or by separate A-E Contract
- Achieved effective price competition
- Helps maintain in-house design technical competencies
- Satisfied customers!



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Questions?



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ECI Results

Project-Specific Results

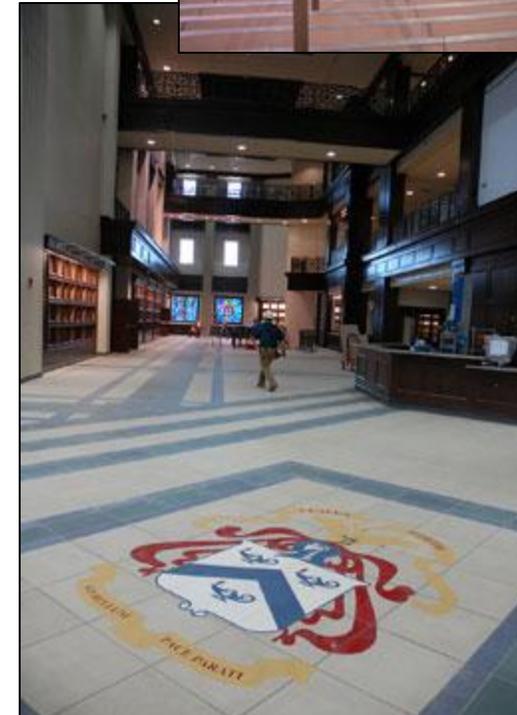
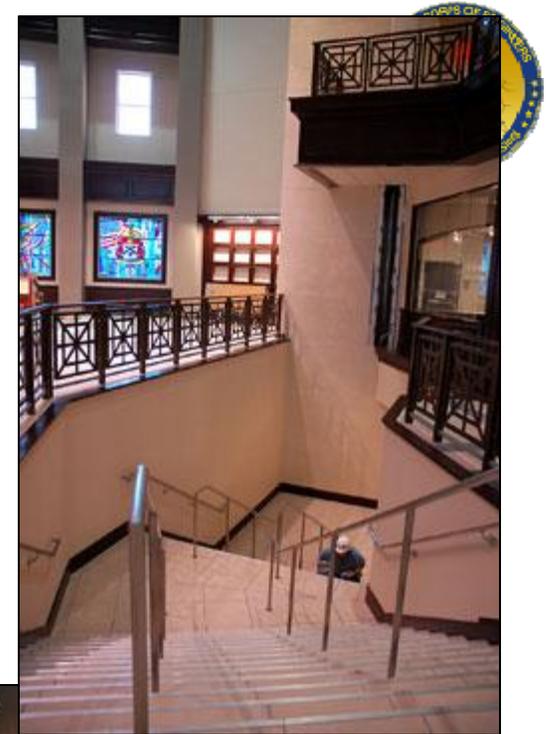


- Lewis & Clark Center, Command & General Staff College, Fort Leavenworth, KS
- 1st Infantry Division Headquarters, Fort Riley, KS
- 4th Infantry Division Headquarters, Fort Carson, CO



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Lewis & Clark Center





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ECI Results

Lewis & Clark Center



- **Project Features:**
 - 420,000 sq ft college level educational facility – home of the Command and General Staff College
 - IT intensive
 - Progressive collapse
 - Selected construction manager at 35% design
- **ECI Results:**
 - Moved building at 65% design to avoid \$10M cost overrun (contractor input)
 - Started construction 12+ months sooner than D-B or D-B-B method
 - School completed (Jan 07) in time for Aug 07 classes and under original budget
 - Satisfied customer!



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ECI Results

1st ID Division Headquarters



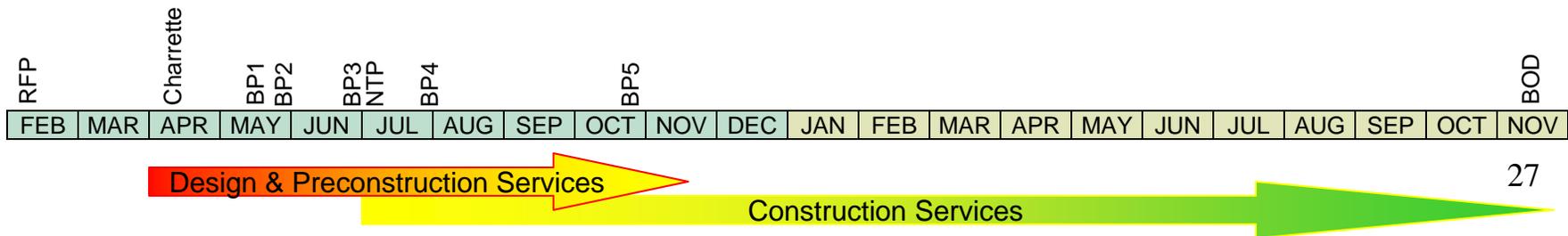
Construction Ceiling:
\$46.5M

Scope:
136,000 SF for 622PN, JOC, SCIF, NOC, 250 PN Briefing Room, General Admin. Office areas, Victory Park and supporting infrastructure

Schedule:
Need turnkey facility by November 2007. Ribbon cutting held 16 Nov.



From Charette to BOD = 20 months!





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ECI Results

1ST ID Headquarters



- **Project Features:**
 - Design Agent: NWK In-House design staff; Selected construction manager at 10% design
 - Extremely aggressive schedule (Design Charette: April 06; Start Construction: July 06; Completion: Nov 07)
 - Firm Target Price: \$2.7M under budget (Midway Target Price).
 - 1st BRAC05 project awarded & 1st BRAC05 project completed.
- **ECI Results:**
 - Project completed on-time; under budget & maintained technical competence of our in-house staff.
 - Extremely aggressive schedule, fast tracked design; multiple design packages.
 - ECI method allowed user to be engaged in design/ construction – allowing them to make value based trade offs during design phase to stay within budget.
 - Satisfied customer!



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ECI Results

4th Infantry Division Headquarters



Construction Ceiling:
\$40M

Scope:
136,000 SF for 622PN,
JOC, SCIF, NOC, 250
PN Briefing Room,
General Admin. Office
areas and supporting
infrastructure

Schedule:
Originally Needed facility
by October 2008.
Construction on track to
meet this date.





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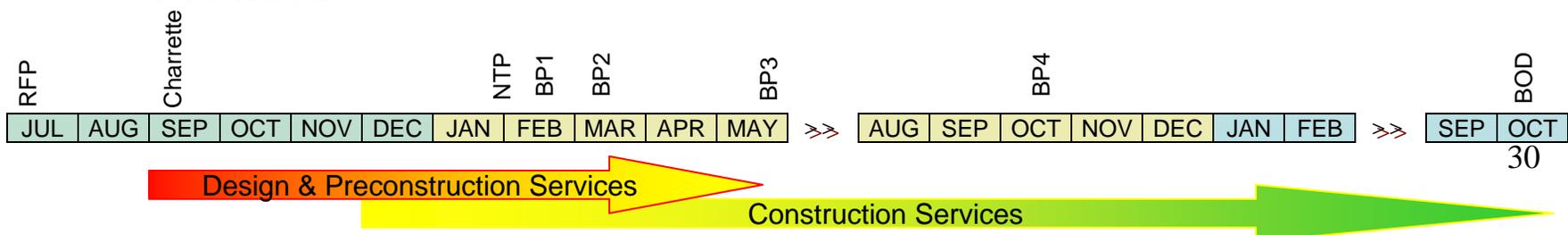
ECI Results

4th Infantry Division Headquarters



• Project Features:

- Design agent consisted of NWO in-house staff
- Pre-construction Services Contractor participated in the Design Charette
- Independent Tech Review performed by NWK
- Team Integration:
 - CM required to co-locate with design team
 - Stakeholder reviews held 4 times during design phase. Included PW, DOIM, Physical Security, end users, SCIF, DIA, ISEC & others.
 - CM attended all design review meetings
- Fast Track Project: 5 months of concurrent design and construction activities





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ECI Results

4th Infantry Division Headquarters



- ECI Results:

- The Division Headquarters C2F (PN 65478) was the first FY07 project that was awarded
- The Final Firm Fixed Price for the facility was \$5M under the Midway Target Price and the Programmed Amount (frees funding for At-Risk facilities in the Div HQ Complex)
- Customer pleased that process has provided the ability to modify scope during design that was important to them
- NWO Design Staff gained invaluable experience working directly with the CM throughout Design Phase



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NWD Lessons Learned - ECI



- Lock in price early. “When” is project dependent.
- Bring CM@Risk/ECI contractor in early to maximize benefits of input
- Facilitate interaction between designers and contractor
- Develop dispute resolution method between designers and contractor
- Allow more time for joint estimates or different approach to joint estimates
- Review risk analysis at each major milestone
- Continue Corps involvement in subcontractor bidding
- Approach ECI with different mindset – more open way of doing business on all sides
- Need more in-depth discussion of construction phasing
- Coordinate with HQUSACE early on use of P&D after construction award



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NWD Lessons Learned – ECI (cont.)



- Improve subcontractor involvement in preconstruction phase
- Identify bid packages early and design accordingly.
- Common estimating format
- Better explanations to entire team of what ECI means (particularly customer)
- Clearly identify expectations of contractor during charette (preliminary pricing, for instance)
- Good risk decisions were made with contractor input
- Control designer/user bright ideas after construction option exercised
- Determine how construction changes will be handled between option award and final target price award



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NWD Lessons Learned – ECI (cont.)



- Need to get the right CM team member co-located with design team (cost estimator, project executive, or quality control manager)
- Bid packages need to be defined and documented early: establish early where every sheet and each specification falls into the bid packaging
- More time partnering with CM prior to charrette: more than one week, suggest four weeks
- Establish control of late stakeholder comments by emphasizing schedule and bid packages at charrette
- Clearly define process for notifying PDT of design changes, amendments and modifications
- Allocate resources according to design schedule (more civils early, more architects later)