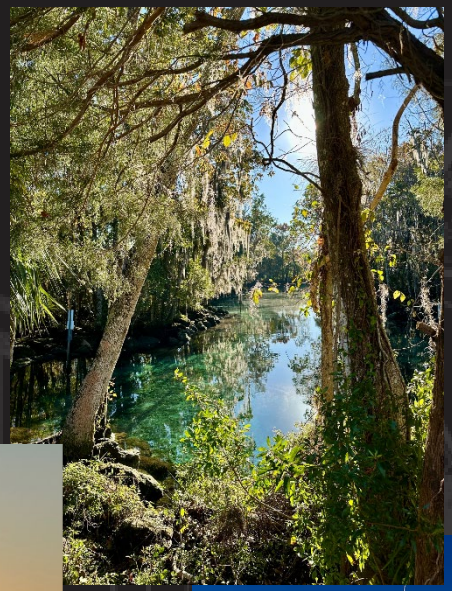
INTEGRATED DESIGN AND CONSTRUCTION (IDAC)

SOCIETY OF AMERICAN MILITARY ENGINEERS
FORT WORTH POST



27 days. . .

Bob Morris
Deputy Chief, Program and Project Management Division

4 December 2024

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US Army Corps of Engineers

CORNERSTONE OF THE SOUTHWEST

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AGENDA

- IDaC as presented 2023
- IDBB and ECI during BRAC 2005
  - Comparison of acquisition strategies
  - Description of IDaC / ECI
  - When to use IDaC / ECI
  - Lessons Learned
- Summary

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MBP

Innovative Delivery Methods for Complex Military Projects

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INTEGRATED DESIGN AND CONSTRUCTION

IDaC is an Alternative Delivery Method that maximizes team integration, collaboration, and partnering between the Government, Designer of Record, and Construction Contractor during the design phase and subsequently through construction.

TRADITIONAL DELIVERY METHODS

- No Perfect Plans & Specs
- Change Orders
- Disputes
- Adversarial
- Cost/Schedule Growth

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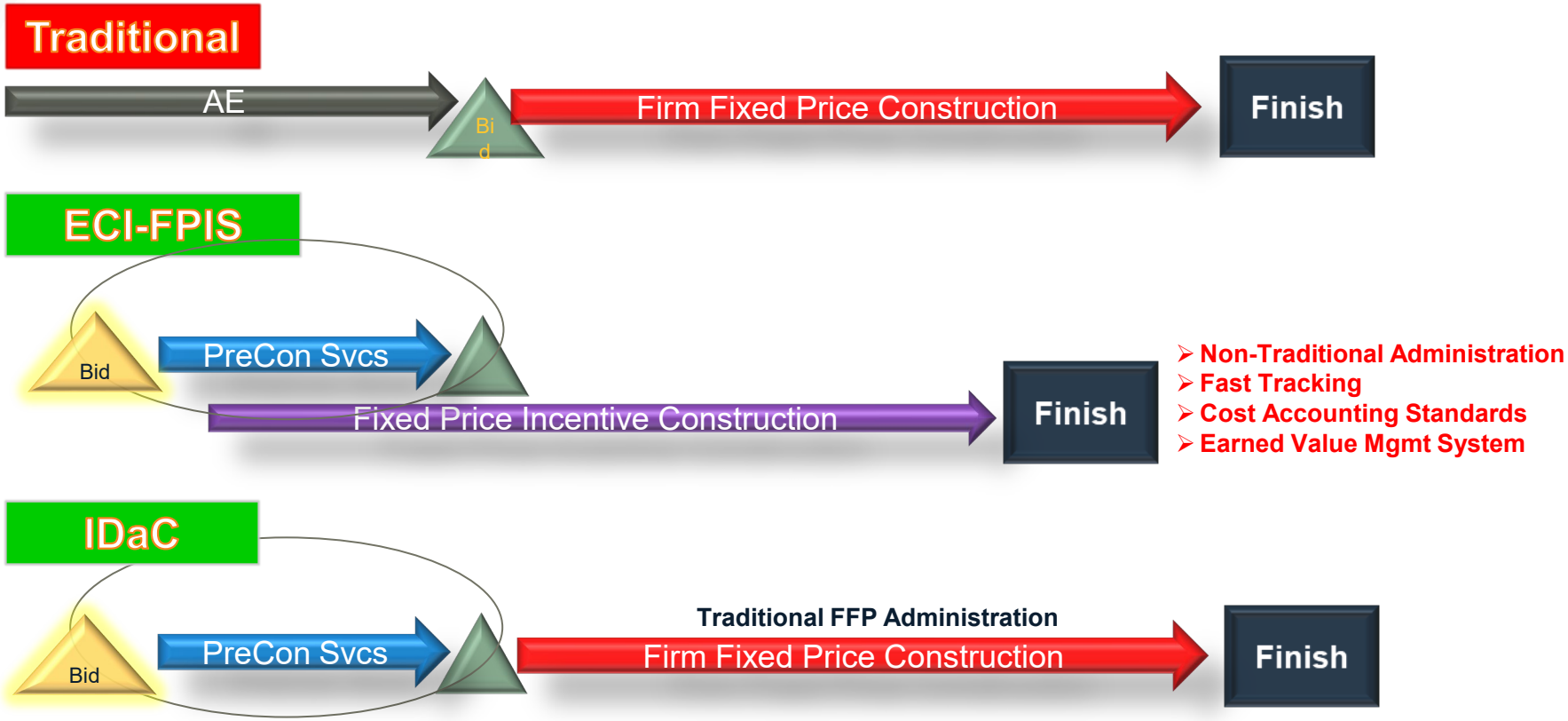
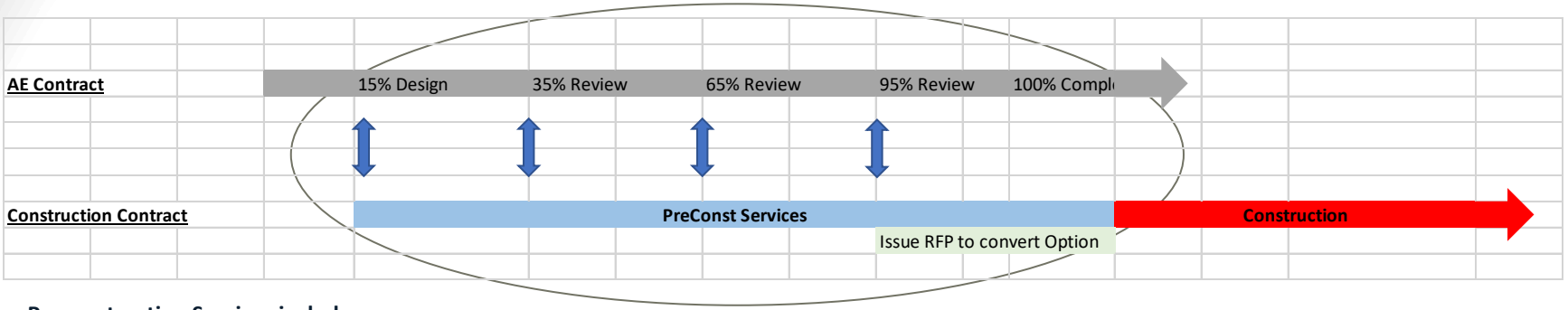
TRADITIONAL VS ECI METHODS



PRECONSTRUCTION SERVICES



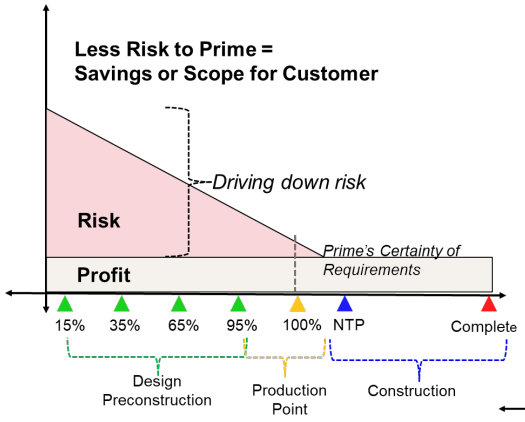
-**Preconstruction Services include**:

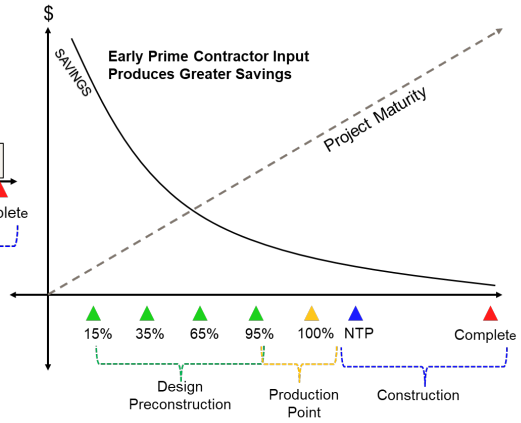
-Consultation in construction methodology, current market conditions and identification of coordination issues;

-Construction cost estimates
-to validate designer prepared estimates at each review phase
-for alternative designs and materials
-for changed market conditions

-Cost control
when there is a significant difference or the construction estimate exceeds the target, the estimates will be examined to determine the cause for the differences and steps made to correct the Government or contractor estimates

NOTE: The contractor shall not be responsible for any design services. The responsibility of the design will remain wholly with the Designer of Record.





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BENEFITS OF IDaC

- Improved Design Quality – Constructability
- Increased understanding of market conditions
- Pricing feedback from industry during design development
- Contractor incentivized to collaboratively work with Designer and Government team to meet cost objectives

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APPROPRIATE PROJECTS FOR IDaC

- Any complex project where design is subject to multiple construction methodologies and sequencing as well as requirements for interaction with numerous stakeholders, subcontractors, and subconsultants.
- Most appropriate would be fully funded or incrementally funded projects to avoid delays that result in cost growth overcoming the potential savings realized through preconstruction services.
- Projects that have funds available to properly staff design and pre-construction services management
- Projects that have no or little land acquisition requirement

LESSONS LEARNED

Currently only 3 projects solicited and/or awarded.

- NAB – ECB5 vertical construction awarded
- POA – FTG251 Maintenance SF awarded.
- MVS – LD25 horizontal solicitation phase.

Independent Government Estimate with an Initial Target Price and Ceiling Price vs FFP.

- Initial Target Cost – Estimate without fee
- Initial Target Price = Target Cost plus Target Profit.
- Ceiling Price – Max Price, includes market variability & perception of risk.

Change Management is key to success.

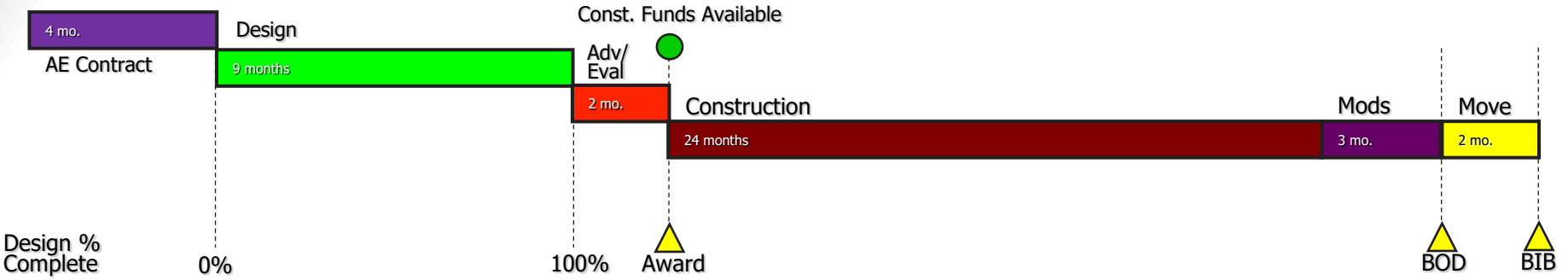
- Source Selection fully broken-down cost estimate “Open Book”
- Preconstruction Services scope must have a “Cost Reconciliation”
- Change in means/methods or design progression is NOT a modification.

Funding stream can impact IDaC effectiveness

- Must preserve negotiation position to off-ramp and re-solicit
- Works best with Full/Incremental Funding
- Limit Number of Construction “Options”

DESIGN-BID-BUILD (DBB)

(TYPICAL $30M PROJECT)



- Pros:
  - Government retains full control of the design.
  - Full design reduces risk to the contractor and reduces construction costs.
- Cons:
  - No collaboration between contractor and design team.
  - Design Team and Government responsible for accuracy of design.
  - No fast track capability.

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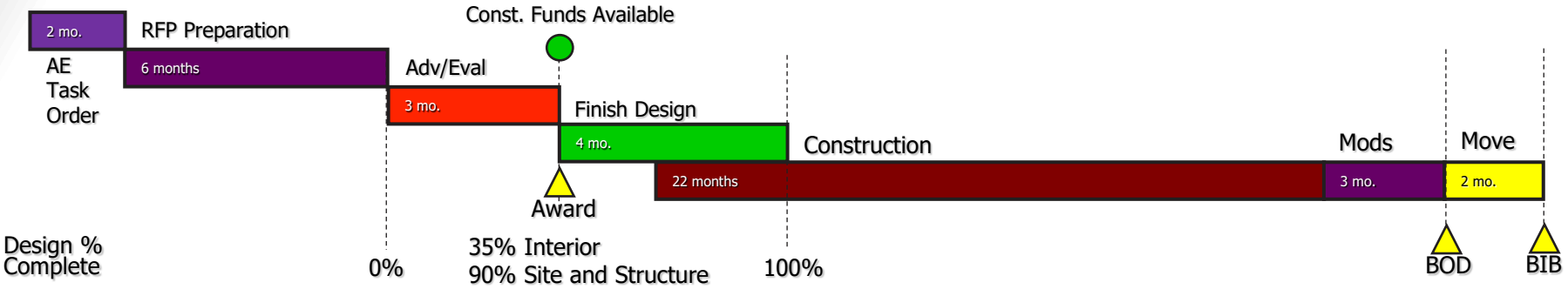
DESIGN-BUILD (DB)

(TYPICAL $30M PROJECT WITH FAST TRACKING)

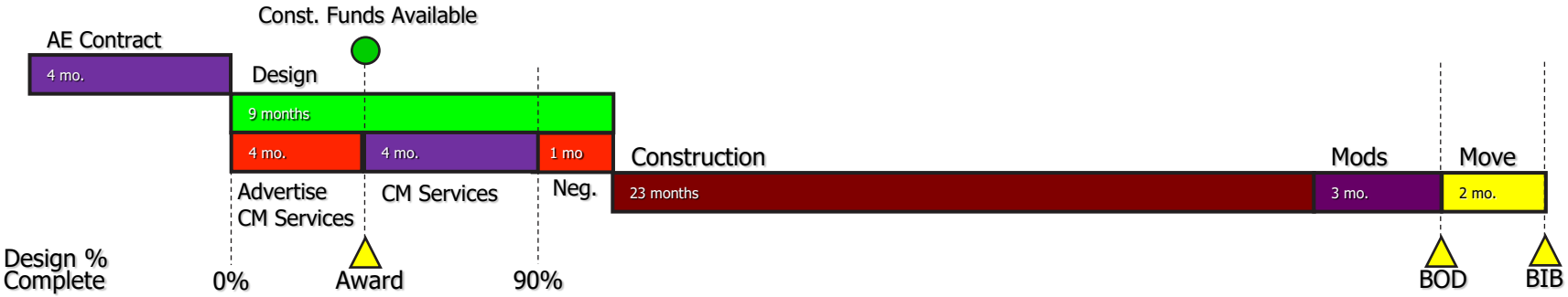


- Pros:
  - Design and Construction Teams work together.
  - Allows flexibility in construction methods.
  - Contractor responsible for design.
  - Allows fast tracking.
  - Suited for standard designs.
- Cons:
  - Contractor may interpret minimum performance requirements differently than the customer.
  - Government has limited ability to affect the design after award.

INTEGRATED DESIGN & CONSTRUCTION (ECI / IDBB)

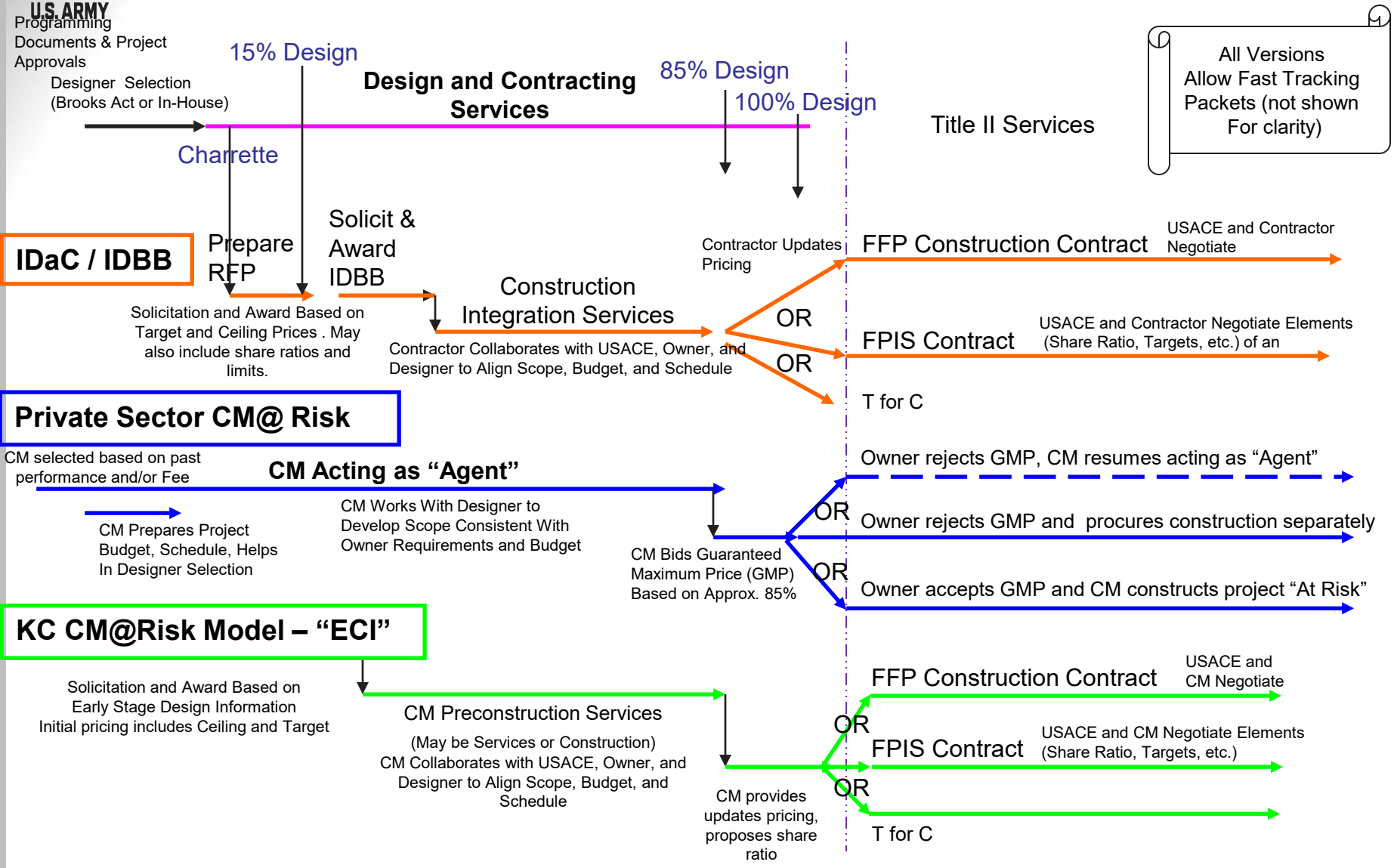
(TYPICAL $30M PROJECT)

Single contractor selected to provide construction management services during design and submit a proposal to construct the final product.



- Pros:
  - Design is under Government control.
  - Allows early award of a construction contract.
  - Construction team involved in design.
  - Allows refinement of the design and cost data earlier.
- Cons:
  - MILCON construction funds must be available when the contract is awarded.
  - Awards the CM services later than CMR.
  - Contractor can walk away at anytime before 95%.

Process Flow Chart



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IDAC / IDBB / ECI

- **Modeled after Private Sector's CM@Risk**
- **Basics**
  - Different allocation of risk among parties
  - AE selection is by normal (Brooks Act) procedures (or in-house)
  - Construction Contractor solicitation and award is via RFP / Best Value Source Selection
  - Uses FAR 52.216-17 Incentive Price Revision (Successive Targets) to get at private sector model
  - Fastest of the Fast Track methodologies
- **Two Flavors** *(circa 2010)*:
  - NWD ("CM@Risk"): 4+ yrs, 8+ projects (L&C; 1ID HQs; …)
  - NAD ("IDBB"): 2+ yrs, 2 projects (NGA Campus, Belvoir Hospital)
  - SWD ("IDBB"): 2+yr, 2 projects (SAMMC-N Hospital and BHT)

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IDAC / ECI

- Potential for faster delivery schedule (time and $ savings)
- A-E interface with USACE and contractor construction team during design reviews
- Better cost-modeling using General Contractor’s numbers
- Mitigation of many future ECPs and costly RFIs
- Better General Contractor project understanding
- General Contractor’s knowledge of local contractor subs' capabilities
- Flexible response to changing conditions and requirements

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IDAC / ECI

- Completely different from our traditional methodology.
  - Work design and construction issues concurrently
  - Needs USACE construction staff on board sooner
- MAGIC WINDOW between 35 – 65% design
  - Too early: Constructor forced to pad their estimate
  - Too late: marginalizes the Constructor's ability to influence key cost saving elements in design
- Labor intensive
- Additional contracting actions
- Understanding of process by project manager, Contracting and Counsel

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IDAC / ECI

Rule of Thumb: 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.

IDaC / ECI: If you don't know what you want and you need it fast, or you have a very technical, one of a kind project, ECI might be best; or if the scope will challenge delivery within the PA.

When to Consider IDaC / ECI

- Complex “one of a kind” project, with no standard design
- 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 , e.g., project with a PA challenge
- Need reduced delivery time of completed facility
- When incentives can significantly improve results over alternate approaches (*required per FAR 16.403*)

IDAC / ECI

- IDaC / IDBB
  - Construction contract
  - CM onboard with MILCON funds
  - Preconstruction services with MILCON funds
  - Fully design or use fast track packages
  - CM onboard in project year
- ECI
  - Services contract with construction options
  - CM onboard with P&D funds, need MILCON for construction options
  - Preconstruction services with P&D funds
  - Fully design or use fast track packages
  - CM onboard when P&D available

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Lessons Learned - I

- Approach ECI with different mindset – more open way of doing business on all sides
- Better explanations to entire team of what ECI means
- Labor intensive – especially on large projects (dedicated 4-5 PMs, Contracting Officer, Contracting Specialist, Counsel, 70± in the field office)
- Choose method to definitize contract, proceed with construction
- Coordinate with HQUSACE early on use of P&D after construction award (if construction services paid with P&D instead of MILCON)
- Review risk analysis at each major milestone
- Bring CM@Risk/ECI contractor in early to maximize benefits of input
- How to handle continuing design during solicitation process
- Facilitate interaction between designers and contractor
- Need to get the right CM team member(s) co-located with design team (cost estimator, project executive, or quality control manager)

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Lessons Learned - II

- Allocate resources according to design schedule (more civils early, more architects later)
- If fast tracking, identify bid packages early and design accordingly (steel, site/civil, structure, MEP, finishes, etc.)
- Bid packages need to be defined and documented early: establish early where every sheet and each specification falls into the bid packaging
- Clearly define process for notifying PDT of design changes, amendments and modifications
- Develop dispute resolution method between designers and contractor
- Clearly identify expectations of contractor during charrette (preliminary pricing, for instance)
- More time partnering with CM prior to charrette: more than one week, suggest four weeks

Lessons Learned - III

- Establish control of late stakeholder comments by emphasizing schedule and bid packages at charrette, strong change management
- Good risk decisions were made with contractor input
- Common estimating format
- Allow more time for joint estimates or different approach to joint estimates
- Improve subcontractor involvement in preconstruction phase
- Continue Corps involvement in subcontractor bidding
- Lock in price early, “when” is project dependent
- Control designer/user bright ideas after construction option exercised
- Need more in-depth discussion of construction phasing
- When to definitize packages, what is level of effort

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Lessons Learned - IV

- Determine how construction changes will be handled between option award and final target price award
- Who is responsible for construction cost over runs resulting from design
- Ownership of VE ideas, impacts on profit incentives
- Modifying GMP without undergoing audits

SUMMARY

- Improved design quality and constructability
- Increased understanding of market conditions
- Pricing feedback from industry during design development
- Contractor incentivized to work collaboratively with Designer and Government team to meet cost objectives
- A tool to allow USACE to be the premier project delivery organization in the Federal government

- So why aren't we using it?
  - We are - 3 "pilot" projects underway
  - Lack of experience - Experienced project managers, contracting officers, construction team, lawyers have moved on/retired
  - Requires a "sell" by USACE leadership with the USACE Project Delivery Teams and the customers
  - Finding the combination of the right project with the right funding

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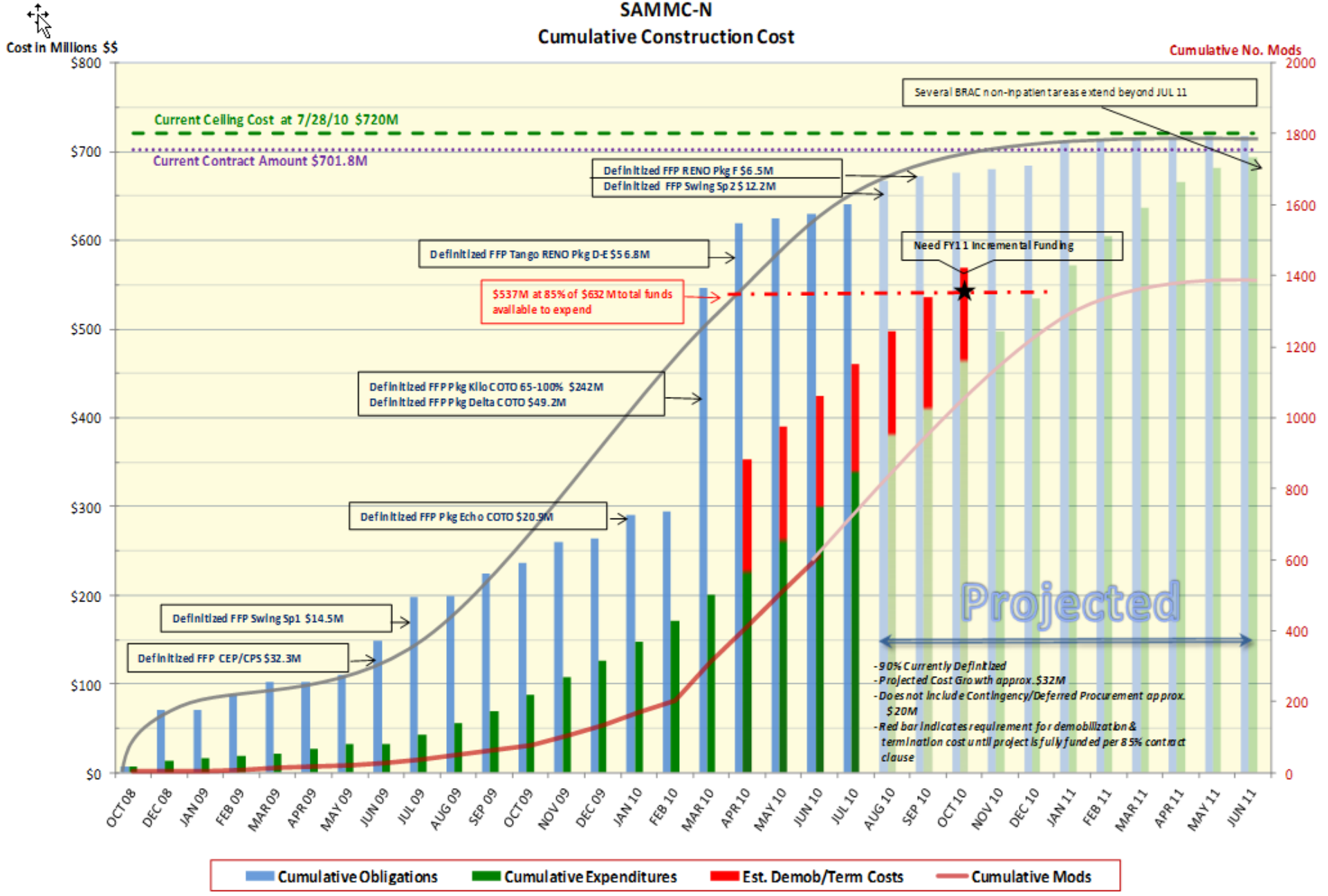
QUESTIONS?

Bob Morris, P.E., PMP, F.SAME
Email: robert.p.morris@usace.army.mil
Telephone: 817-886-1395


SAMMC-N
Cumulative Construction Cost
Cost in Millions $$
Cumulative No. Mods
$800
$700
$600
$500
$400
$300
$200
$100
$0
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Current Ceiling Cost at 7/28/10 $720M
Current Contract Amount $701.8M
Several BRAC non-inpatient areas extend beyond JUL 11
Definitized FFP RENO Pkg F $6.5M
Definitized FFP Swing Sp2 $12.2M
Definitized FFP Tango RENO Pkg D-E $56.8M
Need FY11 Incremental Funding
$537M at 85% of $632M total funds available to expend
Definitized FFP Pkg Kilo COTO 65-100% $242M
Definitized FFP Pkg Delta COTO $49.2M
Definitized FFP Pkg Echo COTO $20.9M
Definitized FFP Swing Sp1 $14.5M
Definitized FFP CEP/CPS $32.3M
Projected
-90% Currently Definitized
-Projected Cost Growth approx. $32M
-Does not include Contingency/Deferred Procurement approx. $20M
-Red bar indicates requirement for demobilization & termination cost until project is fully funded per 85% contract clause
OCT 08
DEC 08
JAN 09
FEB 09
MAR 09
APR 09
MAY 09
JUN 09
JUL 09
AUG 09
SEP 09
OCT 09
NOV 09
DEC 09
JAN 10
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JUN 10
JUL 10
AUG 10
SEP 10
OCT 10
NOV 10
DEC 10
JAN 11
FEB 11
MAR 11
APR 11
MAY 11
JUN 11
Cumulative Obligations
Cumulative Expenditures
Est. Demob/Term Costs
Cumulative Mods