AAPA & USACE
Quality Partnership Initiative
Webinar Series – Fall 2013

PROJECT COST LIMITS

WRDA 1986 Section 902

Jeremy LaDart Economist, HQUSACE

&

Kim Callan, Walla Walla Cost-MDX

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US Army Corps of Engineers
PLANNING SMART
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Agenda

- Introduction: Jim Walker, AAPA
- Housekeeping & Webinar Guidelines: Marie Burns, Moderator
- Presentation: Project Cost Limits by Jeremy LaDart and Kim Callan
- Summary: Marie Burns, Moderator
- Close: Jim Walker

Housekeeping

- If you have comments you can write your questions/ comments in the chat room portion of the webinar. It is helpful if questions during the presentation are for clarification only.
- Eliminate all possible distractions, which may occur in your office during the webinar. It is important to keep smart phones turned off and away from the handset.
- Place your microphone on mute if you are not speaking.
- If you accidentally get disconnected from the website or the telephone, just reconnect as quickly as possible.

Outline

- Describe Section 902 Requirements
- Provide Guidance and a 902 Limit Example
- Describe what happens when there is a ‘902 bust’

Specifically Authorized Projects

- Projects that are directly authorized by name in a law, typically a Water Resources Development Act (WRDA)
- Are subject to Sec. 902 of WRDA 1986, if authorized in or after WRDA 1986
- Continuing Authorities Program (CAP) are not subject to Sec. 902, but Federal spending limits do apply per applicable laws

Section 902 of WRDA 1986

- The Law allows for the maximum cost to be
  - The total project cost stated in law
  - Plus Allowable Inflation
  - Plus 20%*
  - Plus additional studies, modifications, and actions required by subsequent law

*20% must be approved at HQUSACE. See #9 and #11 on Guidance Slide.

Example of 902 Limit Calculation

- Section 3a.(6) of WRDA 1988 Authorized "Lower Ohio River, Illinois and Kentucky.--The project for navigation, Lower Ohio River, Locks and Dams 52 and 53, Illinois and Kentucky: Report of the Chief of Engineers, dated August 20, 1986, at **a total cost of $775,000,000**, with a first Federal cost of $775,000,000, and with the costs of construction of the project to be paid one-half from amounts appropriated from the general fund of the Treasury and one-half from amounts appropriated from the Inland Waterways Trust Fund."

- What is the Estimated 902 Limit?
  - $775M (authorized cost)
  - + allowable inflation since 1988 (notice WRDA 1988 not the Chief's Report Dated 1986)
  - + $155M ($775M x 20%)*
  - + any modifications by law after WRDA 1988

*20% must be approved at HQUSACE. See #9 and #11 on Guidance Slide.

Guidance

- 1. Planning Guidance Notebook, ER 1105-2-100 Appendix G
- 2. Civil Works Cost Engineering, ER 1110-2-1302
- 3. Real Estate Handbook, ER 405-1-12
- 4. Civil Works Construction Cost Index System, EM 1110-2-1304
- 5. The US Army Corps of Engineers Civil Works Cost Definitions and Applicability Memorandum, 25 August 2012
- 6. Methodology for Updating Benefit-to Cost Ratios (BCR) for Budget Development (CWPM 12-001)(draft)
- 7. Certified Section 902 Tool
- 8. EC 11-2-200, 31 May 2011 “Budget EC”
- 9. Walsh Memo 7 March 2012
- 10. BLS Consumer Price Index Series ID CUUR0000SEHA
- 11. Delegated Authority for Project Cost Memo 24 May 2013

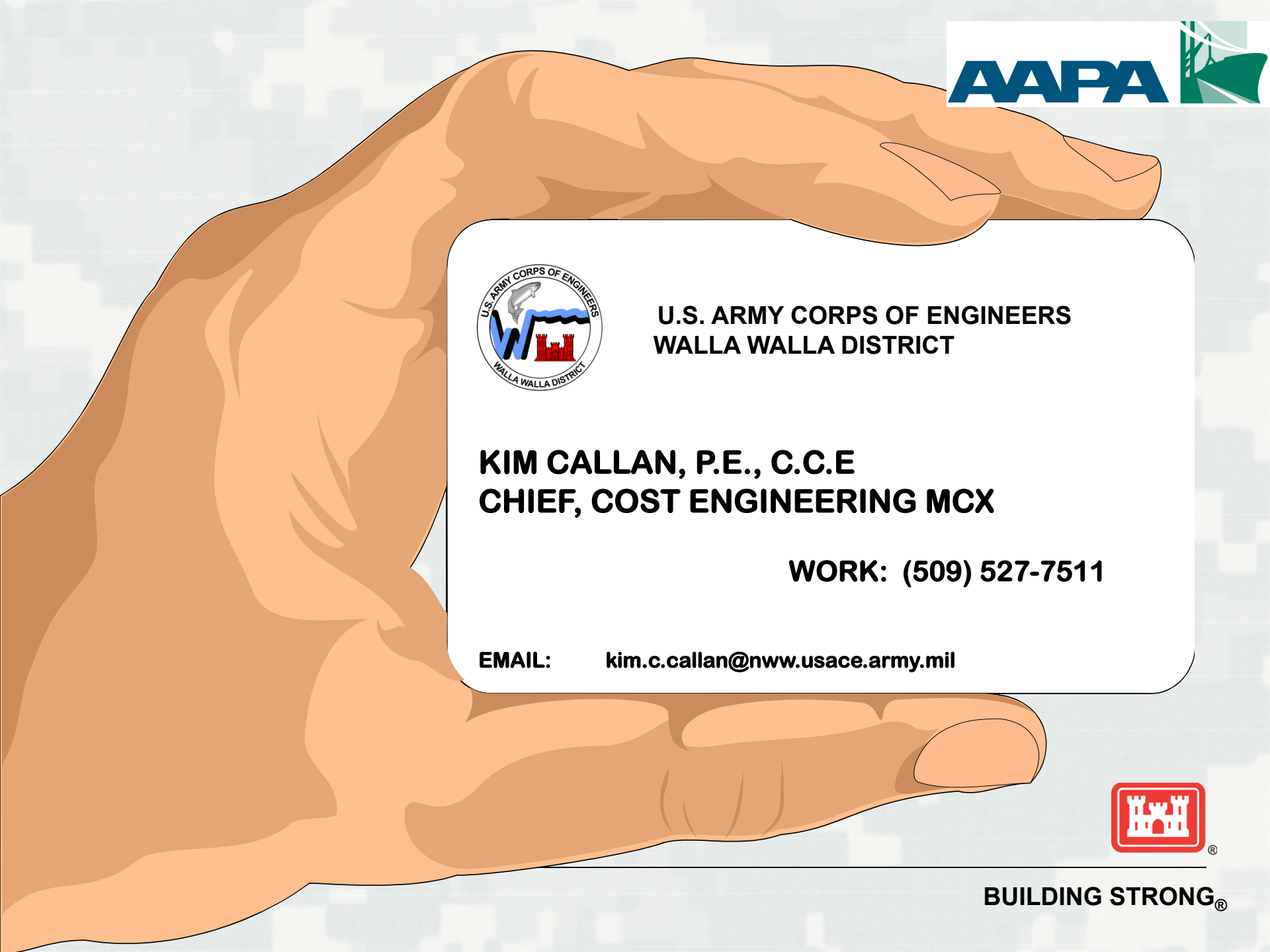
When are 902 Limits Calculated?

- ✓ Project Partnership Agreements (PPAs)
- ✓ Any Post Authorization Change Document
  - ✓ Dredge Material Management Plans (DMMPs)
  - ✓ Limited Reevaluation Reports (LRRs)
  - ✓ General Reevaluation Reports (GRRs)
  - ✓ Others
- ✓ Economic Updates for Annual Budget Support/Congressional Factsheets

What if there is a 902 'Bust'?

- Stop!
- Refer to Table G-5 ER 1105-2-100
- Prepare Project Cost Increase Fact Sheet (Exhibit G-11)
- Engage the Vertical Team as early as possible ("*Bad news does NOT get better with age!*")
- All cost changes above authorized plus inflation must go to HQ*

*See #9 and #11 on Guidance slide.



U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT

KIM CALLAN, P.E., C.C.E
CHIEF, COST ENGINEERING MCX

WORK: (509) 527-7511

EMAIL: kim.c.callan@nww.usace.army.mil

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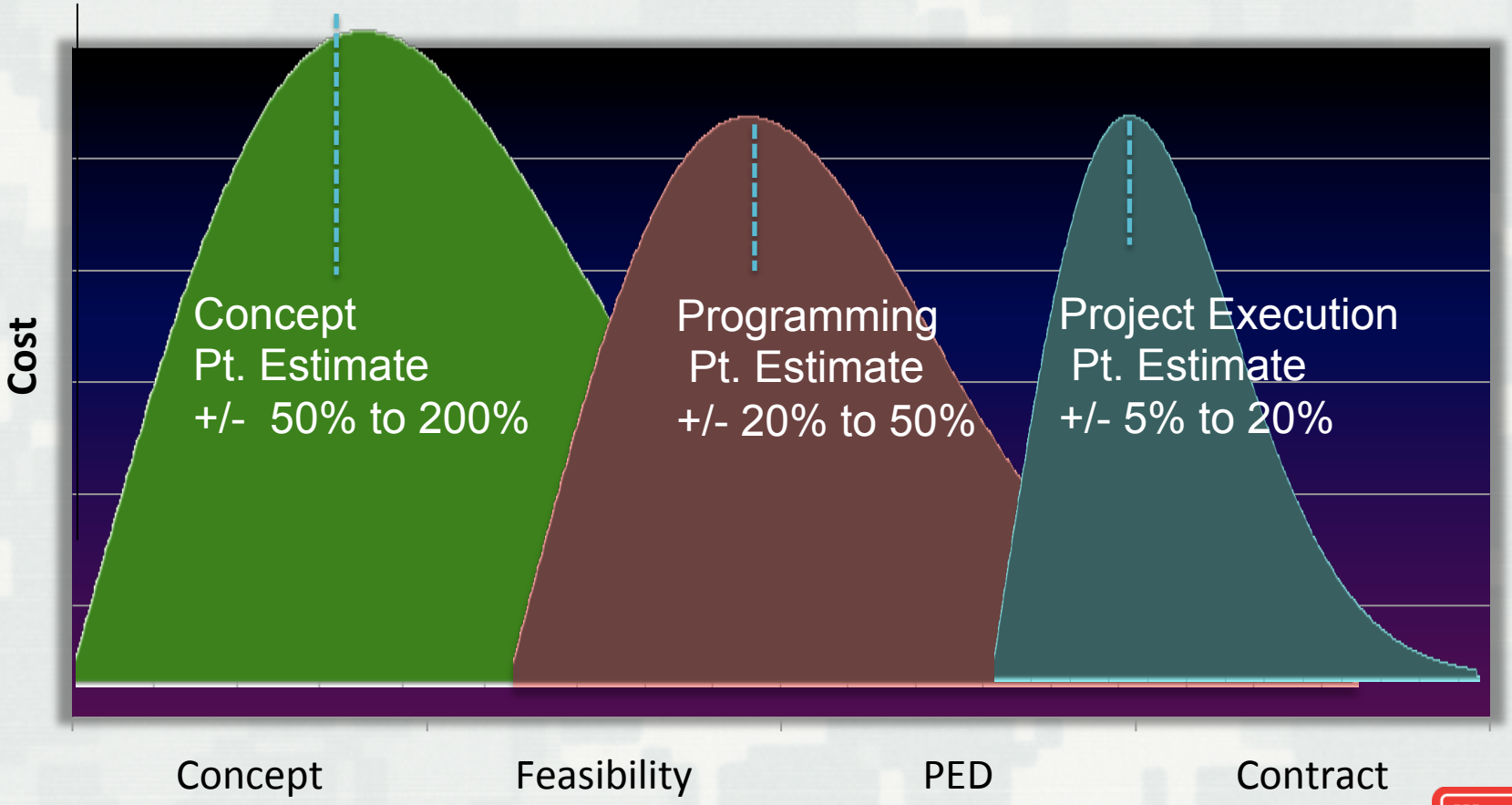
Cost Engineering Mission

"to focus USACE leadership on effective development, management, and control of cost estimates to ensure funds are adequately programmed, authorized and appropriated in all phases of the project. The USACE ability to provide quality project estimates is an essential element of our support to our customers and partners for the successful accomplishment of the project."

Source: ER 1110-1-1300 Engineering and Design Cost Engineering Policy and General Requirements, 3 – 26 - 1993

Acquisition Life Cycle Cost Uncertainty



Project Phase	Project Definition Scope	Risk Level	Minimum Estimate Class
Pre-Budget Development	**Extremely Limited**	**Extremely High**	**5**
Pre-Authorization			
Reconnaissance Alternatives	Very Limited	Very High	4
Feasibility Alternatives	Very Limited	High	4
Feasibility – Federally Recommended Plan	Limited-Fair	Moderate	3
Feasibility Locally Preferred Plan	Limited-Fair	Moderate	3
Funding Request Decision Documents	Limited-Fair	Moderate	3
Post Authorization			
Continuing Authorities Program	Limited	Moderate to High	3-4
Civil Emergency Management Program	Limited	Moderate to High	3-4
Alternative Studies	Limited	Moderate to High	3-4
Post Authorization Change Reports	Fair	Moderate	2-3
Funding Decision Documents	Limited-Fair	Moderate	3
Preconstruction, Engineering & Design (working estimates)			
PED 30%	Fair	Moderate	3
PED 60%	Fair-Good	Moderate to Low	2
PED 90%	Very Good	Low	1
IGE <100% Design	Fair-Good	Moderate to Low	2
IGE 100% Design	Very Good	Low	1
Construction / Post Award			
Budgets (modifications / claims)	Fair-Good	Moderate to Low	2
IGEs (modifications / claims)	Very Good	Low	1

Cost Estimates

- Estimates are dependent on SCOPE!
- Estimates form the basis for decision-making (expectation management)
- Estimates are expected to be as accurate as possible

Top Reasons for Major Cost Differences
Early Planning Level to Construction Award

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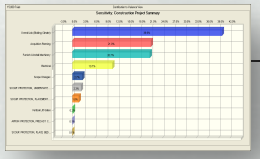
Cost & Schedule Risk Analysis (CSRA)

- Tool used to communicate potential risk early in project development.
- Used to identify key areas for potential risk mitigation efforts and for development of project contingency.
- Formal analysis is required on all projects seeking authorization, anticipated to be $40 Million or more in total project cost. An abbreviated version is available for projects less than $40 Million.
- Analyzes at both cost and schedule of a project.

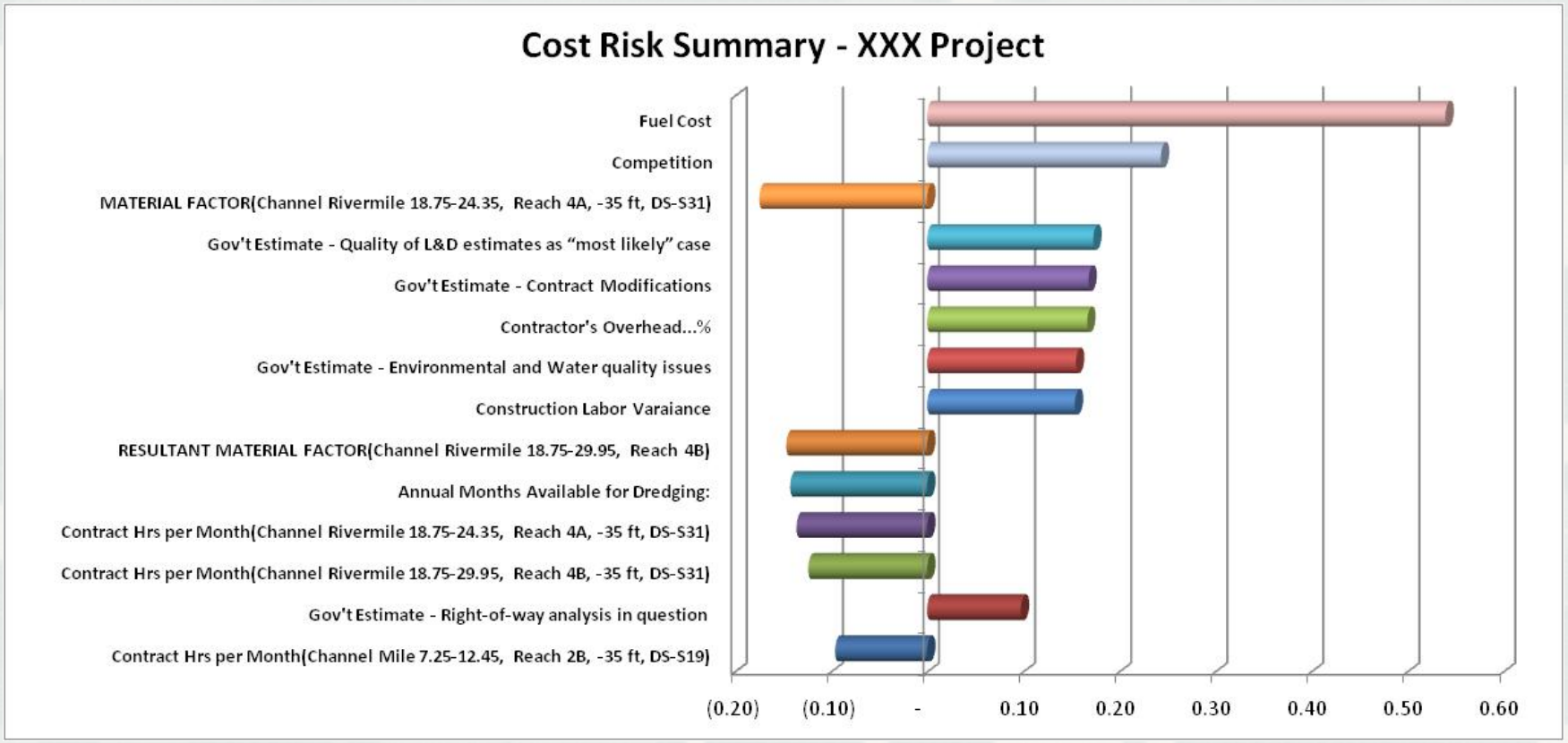


Risk Analysis Process

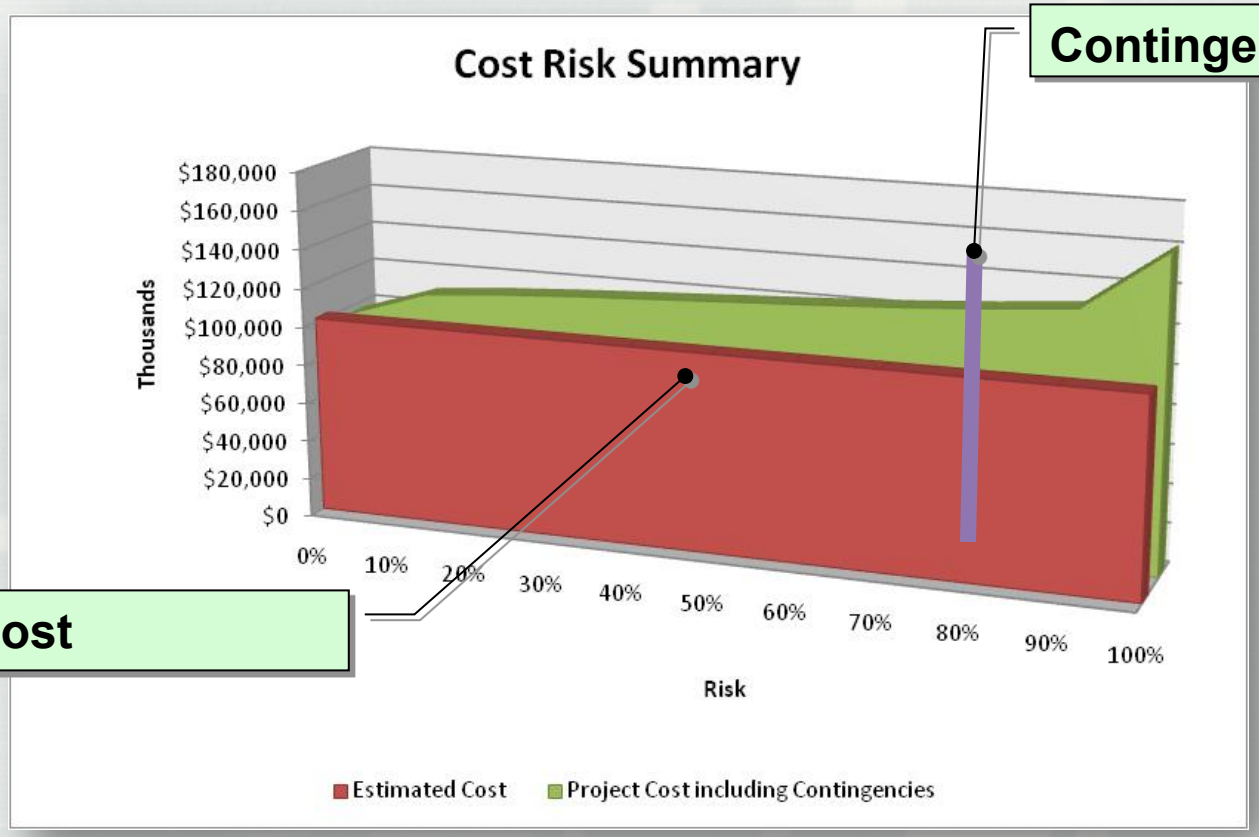
- The Team Develops the Risk Register
- Develop Cost and Schedule Model
- Identify Sensitivity of Risk Elements
- Identify Potential Risk Reduction Efforts
- Confidence Levels and Resultant Contingency
- Monitor and Act

``				Project Cost			Project Schedule		
Ref #	Risk/Opportunity Event	Description	PDT Discussions	Likelihood ©	Impact ©	Risk Level ©	Likelihood (S)	Impact (S)	Risk Level (S)
Contract Acquisition (CA)									
38	Undefined acquisition strategy	Acquisition strategy is undefined to date	PDT is confident project will be solicited for maximum competition.	Unlikely	Negligible	Low	Unlikely	Negligible	Low
44	Contract Modifications	Typ risk for contract mod's	Assume typical risk for potential contract modifications, since this is dredging in areas that have not been previously dredged.	Likely	Marginal	Moderate	Likely	Marginal	Moderate
Technical Design (TD)									
47	Risk from Remaining Architectural Design	Confidence in scope, investigations, design, critical quantities	Through initial screening of potential risk, PDT has determined this Risk Element is not a factor for this Project	Unlikely	Negligible	Low	Unlikely	Negligible	Low
48	Risk from Remaining Geotechnical Design	Confidence in scope, investigations, design, critical quantities	Through initial screening of potential risk, PDT has determined this Risk Element is not a factor for this Project	Unlikely	Negligible	Low	Unlikely	Negligible	Low
49	Risk from Remaining Civil Design	Confidence in scope, investigations, design, critical quantities	Tight schedules, Little float in design schedule, high risk to meeting design milestones	Unlikely	Negligible	Low	Very Likely	Significant	High
50	Risk from Remaining Electrical Design	Confidence in scope, investigations, design, critical quantities	Through initial screening of potential risk, PDT has determined this Risk Element is not a factor for this Project	Unlikely	Negligible	Low	Unlikely	Negligible	Low
51	Risk from Remaining Mechanical Design	Confidence in scope, investigations, design, critical quantities	Through initial screening of potential risk, PDT has determined this Risk Element is not a factor for this Project	Unlikely	Negligible	Low	Unlikely	Negligible	Low
52	Risk from Remaining Structural Design	Confidence in scope, investigations, design, critical quantities	Through initial screening of potential risk, PDT has determined this Risk Element is not a factor for this Project	Unlikely	Negligible	Low	Unlikely	Negligible	Low
53	Risk from Remaining Environmental Design	Confidence in scope, investigations, design, critical quantities	Predredge Survey - Placements are ongoing. Potential for finding species which could halt project. If this occurs project is halted and therefore not modeled for contingency development	Very Likely	Significant	High	Very Likely	Significant	High
54	Risk from Remaining Controls Design	Confidence in scope, investigations, design, critical quantities	Benchmarks are being reestablished, as a result the overall qty of material could be effected.	Unlikely	Negligible	Low	Unlikely	Negligible	Low
55	Risk from Remaining Other Specialized Disciplines	Confidence in scope, investigations, design, critical quantities	Through initial screening of potential risk, PDT has determined this Risk Element is not a factor for this Project	Unlikely	Negligible	Low	Unlikely	Negligible	Low
69	Right-of-way analysis in question	Access to site through right of way	Access right of ways have not been granted. Lack of right away access would cause issues to disposal sites	Unlikely	Crisis	High	Unlikely	Crisis	High

Identify Sensitivity of Risk Elements



Confidence Levels and Contingency



Thru Technical Review

Lessons Learned

- **Cost Product Development Process**
- **Programming Level (Feasibility) Development**

Lessons Learned
The Cost Product Development Process

1) Poorly defined scope that is not developed to the feasibility level in accordance with ER 1110-2-1150. The result is less confidence in the estimates and resulting higher contingencies. In certain cases, the AFB documents are used for the feasibility study, lacking adequate site investigations and further design development.

2) Estimates not developed to the level of detail required by ER 1110-2-1302 and ETL 1110-2-573, resulting in less confidence and resulting higher contingencies.

3) Inadequate project funding and time to support the necessary cost estimating products required at the respective design level.

Lessons Learned
The Cost Product Development Process

4) Inadequate trained staff to develop the estimating products related to cost, schedule, risk analyses and total project cost calculations.

5) Lack of construction schedules that reflect a well developed cost estimate that relate to productivity and duration.

6) Lack of risk-based contingency development that takes into account all feature accounts, internal and external risk factors that have been considered by the PDT.

Lessons Learned
The Cost Product Development Process

7) Lack of internal District Quality Control, resulting in the ATR serving as that function, placing higher risk and longer review duration into the process.

8) Poor presentation of the Total Project Cost Summary that is accurately reflected within the final report and within the Executive Summary of the report.

Lessons Learned

Common issues found relating to the feasibility level estimate, that also impact schedule and risk based contingency development include:

1) Basis of estimate notes related to critical cost assumptions for crew development, productivity and material costs.

2) Record of quantity development that reflects the design scope that should reflect the scope development requirements prescribed within ER 1110-2-1150.

3) Estimates reflected within the civil works work breakdown structure, depicting the costs separately for each feature of the total project cost estimate.

4) Lack of adequate estimate detail for major work activities that define reasonable crew development, productivities and material costs for the specific work being estimated.

Lessons Learned

Common issues found relating to the feasibility level estimate, that also impact schedule and risk based contingency development

include:

5) Overuse of lump sum or allowances for high cost or risk items that can impact the total project cost and resulting risks.

6) Overuse of cost book items on critical tasks that do not accurately reflect the type of work being performed related to crews and productivity.

7) Lack of a documented internal District Quality Control review, relying on the ATR to perform that function.

8) A-E contract scopes and resulting products not adhering to the USACE cost engineering regulations and guidance (ETL 1110-2-573).

QUESTIONS?

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BACKUP SLIDES FOR REFERENCE ONLY

WRDA 1986 Sec 902 (as amended) Maximum Cost of Projects

WRDA 1986 Sec 902 (as amended). Maximum Cost of Projects

In order to insure against cost overruns, each total cost set forth with respect to a project for water resources development and conservation and related purposes authorized to be carried out by the Secretary in this Act or in a law enacted after the date of the enactment of this Act, including the Water Resources Development Act of 1988, or in an amendment made by this Act or any later law with respect to such a project shall be the maximum cost of that project, except that such maximum amount –

(1) may be increased by the Secretary for modifications which do not materially alter the scope or functions of the project as authorized, but not more than 20% of the total cost stated for the project in this Act or any later law; and

(2) shall be automatically increased for---

(A) changes in construction costs applied to unconstructed features (including real property acquisitions, preconstruction studies, planning, engineering, and design) from the date of enactment of this Act or any later law (unless otherwise specified) as indicated by engineering and other appropriate cost indexes; and

(B) additional studies, modifications and actions (including mitigation and other environmental actions) authorized by this Act or any later law or required by changes in Federal law.

Source: ER 1105-2-100, Appendix G, Page G-78

Table G- 5 Section 902 Cost Limitation Action Matrix

IMPLEMENTATION STATUS AT TIME ESTIMATED TOTAL COSTS EXCEED SEC 902 LIMIT

	PRIOR TO EXECUTION OF THE PCA	*PCA EXECUTED, BUT NO CONTRACTS AWARDED*	*ONE OR MORE CONTRACTS AWARDED, FUTURE CONTRACTS/FUTURE PCA's*	*UNDER CONSTRUCTION LAST CONTRACT*
1. PROJECTS THAT HAVE ONE PCA, AND ONE CONTRACT	*1/*	*1/*	*N.A.*	*3/*
2. PROJECTS THAT HAVE ONE PCA, AND MULTIPLE CONTRACTS	*1/*	*1/*	*2/*	*3/*
3. PROJECTS THAT HAVE MULTIPLE PCAs AND MULTIPLE CONTRACTS	*1/*	*1/*	*2/*	*3/*

1. Await new legislation before proceeding with executing the PCA or award of the first contract if a PCA has already been approved.
2. Continue implementation of the project until implementation of the next PCA increment (or award of the next contract when the last PCA increment is already under construction) would require funds in excess of the 902 limit. Submit legislation to permit the authorization committees to consider inclusion of the legislative proposal in a biennial WRDA in time to prevent a break in project implementation whenever possible.
3. If completion of the current contract(s) would require funds in excess of the 902 limit, conclude current contract activities in the most practical and cost effective manner consistent with public safety and to minimize any obligations that exceed the 902 limit.

Source: Exhibit G-11. Project Cost Increase Fact Sheet
ER 1105-2-100, Appendix G, Page G-77

1. *Name of Project*
2. *Section and Law That Authorized or Modified the Project:*
3. *Section 902 Limit on Project Cost:*
    a. *Authorized project cost:(W/Price level)*
    b. *Price level increases from date of authorized cost: **
    c. *Current cost of modifications required by law: ***
    d. *20% of line 3a:*
    e. *Maximum project cost limited by Section 902:*
4. *Current Project Cost Including Inflation Through Construction: ****
5. *Computation of Percentage Increase:*
    a. *Current estimate: (Line 4)*
    b. *Less total of lines 3a, b, and c:*
    c. *Subtotal:*
    d. *Percent increase: (line 5c/3a)*
6. *Explain cost indexes used in 3b; whether national or regional for real estate, and single state or two state average for construction.*
7. *Explain increases in 3c; Legislation requiring the modification, and how accommodated.*
8. *Explain reasons for cost changes other than inflation.*
9. *Explain any changes in benefits and provide current BCR.*
10. *Provide detailed explanation of the status of the project.*

* *Line 1e from Table G-4, less the authorized cost.*

** *This includes cost of external credit under Section 104 of WRDA `86, for example. (Integral Section 104 credit is included in the authorized project cost on line 3a.) (See ER 1165-2-29).*

*** *Line 1b from Table G-4.*

Cost and Schedule Risk Analysis

Basis for the Risk Register development.

- Identify, mitigate and account for elements that could potentially cause a variance from estimated project cost and schedule.

Upcoming Webinar Topics

- Conducting Planning Studies in a Non-Earmark Environment
- Status of Smart Planning Outreach Efforts
- Alternative Financing of Corps Projects
- Planning Metrics
- Harbor Sym Overview
- WRDA Amend Section 101 – 10 percent Cost Share
- Continuing Contracts
- Section 204, 10, and 408 Processes
- Planning Principles and Guidelines

Thank You!