US Army Corps of Engineers
Walla Walla District

National Dredging Meeting

Cost & Schedule Risk Analysis

May 2009

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Who am I?

Kim Callan P.E. C.C.E.

Chief, Corps of Engineers Cost Engineering
Directory of Expertise for Civil Works and SFO,
Walla Walla District

- **BS Civil Engineering**
- **20+ years cost engineering**
- **National Cost Steering Committee**
- **National Dredge Estimating Team**

Washington State University
Go Cougs!

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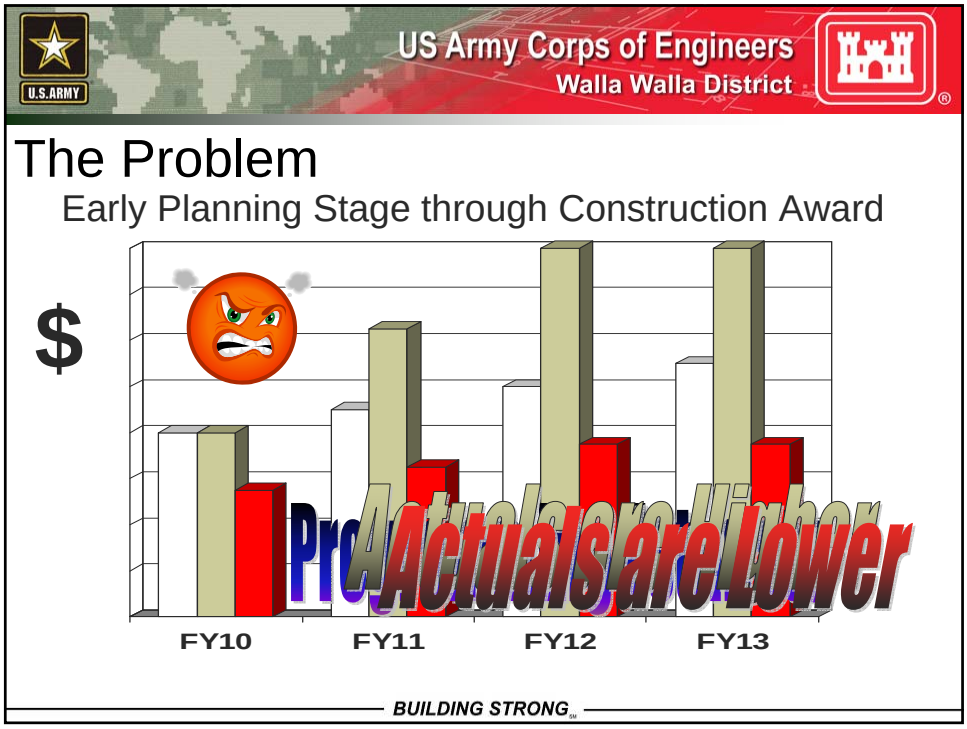
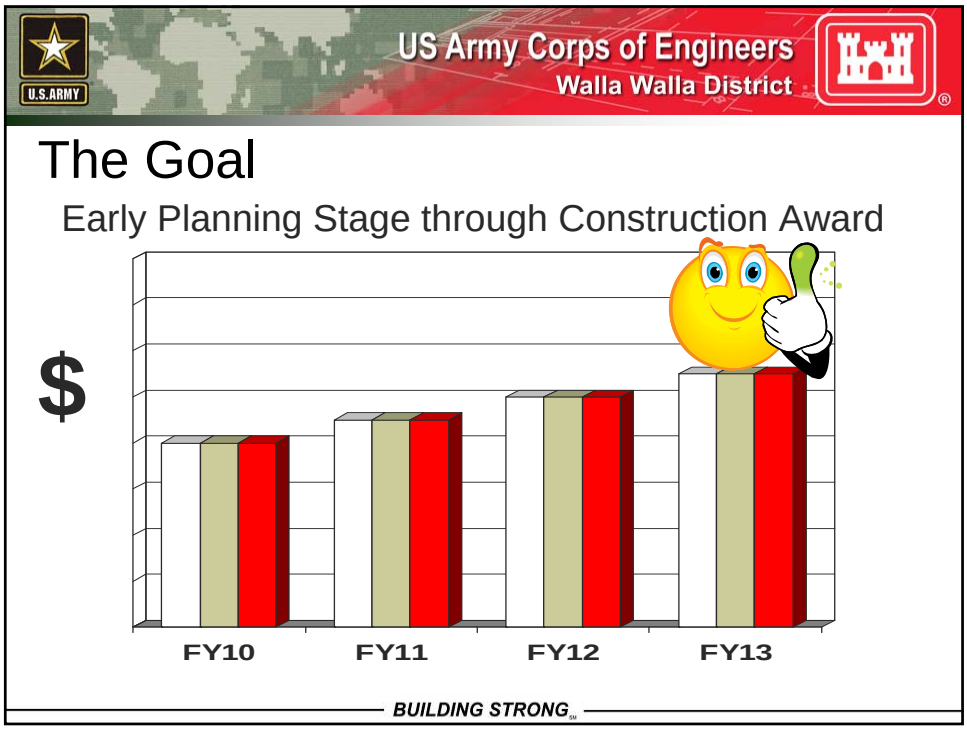
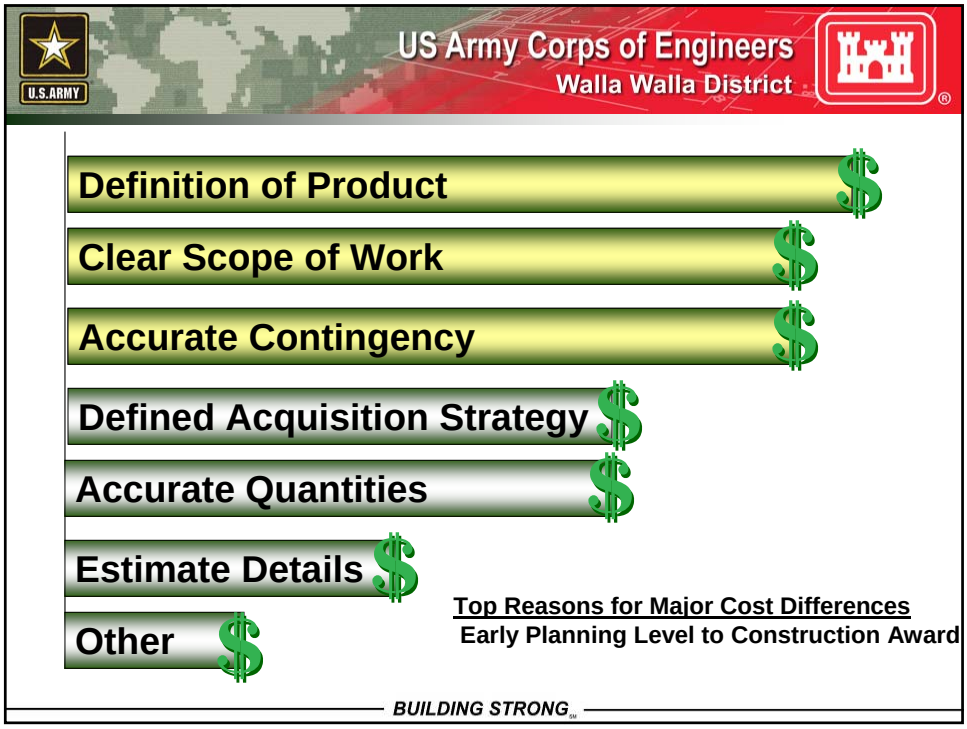
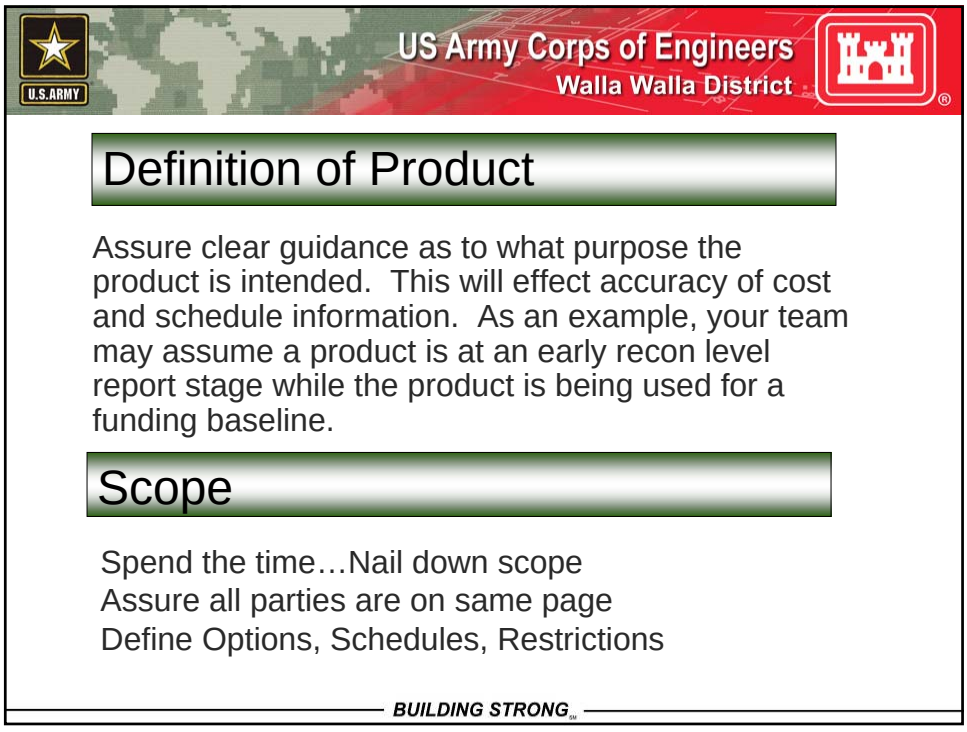
Project Cost





Project Cost





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Contingency Analysis

Has the Project Delivery Team defined what the risks are?

- Scope
- Contract Strategy
- Cost
- Schedule
- Construction

What are the effects?

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Risk Analysis Process

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

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Development of the Risk Register

- Brainstorming effort
- Brings focus to risk levels on specific areas
- Communication tool

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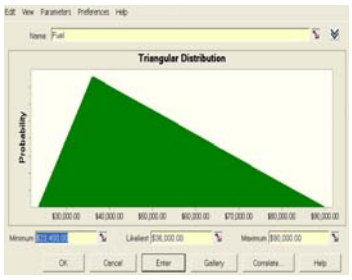
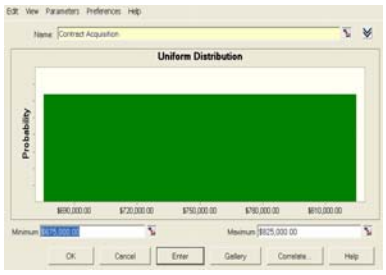
Develop Cost and Schedule Model





Most Likely - High - Low - Distributions

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Identify Model Parameters

Present Year.....	Low	Most Likely	High
Economic Index.....	7441	7667	8500
Labor Adjustment Factor.	1.170	1.170	1.250
Full Cost of Money Rate.	4.75	5.65	6
Project Window	6	9	9
Current Fuel Price.....	$2.30	$2.80	$5.00
Equip Purchase Value Adj	1.20	1.30	1.50
Construction Labor Adj	0.90	1.00	1.25

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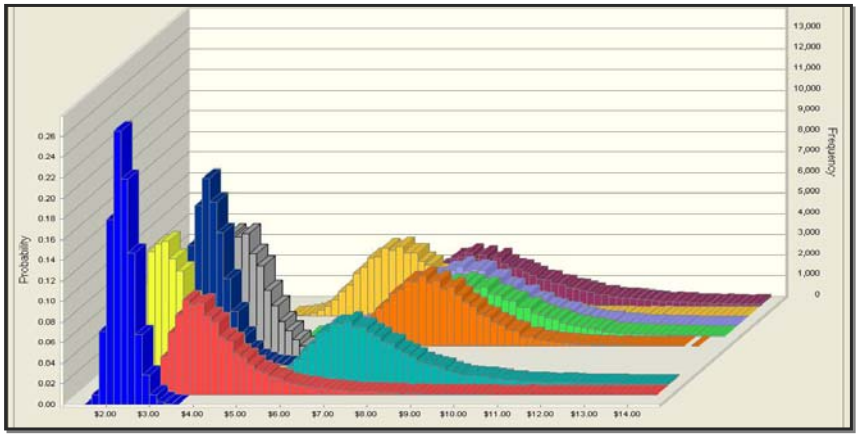
Alternative Cost



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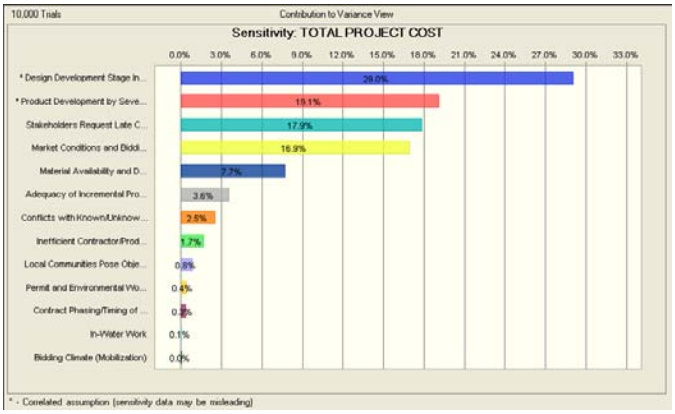
Identify Sensitivity of Risk Elements



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Identify Risk Mitigation Efforts

- After first run of risk model, project development team can evaluate sensitive elements for potential risk mitigation efforts.
- Examples: soil sampling, scope clarification, care and diversion, quantity takeoffs, define contract strategy…

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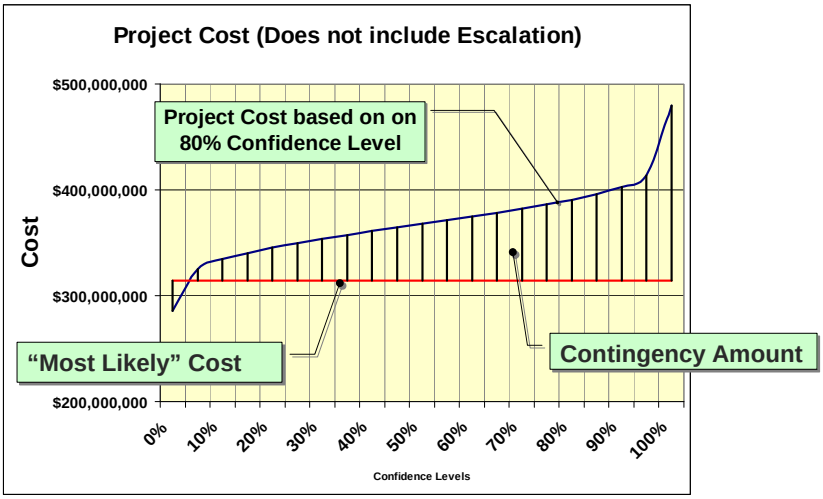
Confidence Levels and Contingency



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Monitor and Act

- Most critical aspects…….

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General Riley's Guidance on Risk

- "this memorandum directs the use of specific risk analysis methods for the development of the contingency on Civil Works Total Project Cost"
- "This is applicable for all decision documents requiring congressional authorization for **projects exceeding $40 million."**

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SUMMARY

- Emphasis on accurate cost and schedule.
- Accurate Cost and Schedule starts with DEFINED SCOPE
- Required Detailed Risk Analysis on Projects >= $40M and Risk Analysis is a team product
- Recommended on all projects where you might have any of the following conditions; high cost, complexity, high visibility, new one of a kind.

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Cost Engineering Directory of Expertise for Civil Works, Interagency and International Support

Walla Walla District's Cost Engineering Branch provides the United States Army Corps of Engineers with estimating services for the construction features on all projects from the planning phases through construction, maintenance, and rehabilitation of facilities.
Cost Engineering Branch also serves as a Directory of Expertise for Construction Equipment/Cost Index Database. We produce several national guidance documents and software programs which provide detail methodologies for estimating costs for construction and marine equipment, dredging, and cost escalation factors.
Our diversified cost team strives to provide technical and export support for all customers, both Corps and other government agencies.

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Thank-You

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