Federal Acquisition Regulation (FAR); FAR Case 2011-018; Positive Law Codification of Title 41

DoD, GSA, and NASA are proposing to amend the Federal Acquisition Regulation (FAR) to conform references throughout the FAR to the new Positive Law Codification of Title 41, United States Code, "Public Contracts."
Final Rule Published July 2014

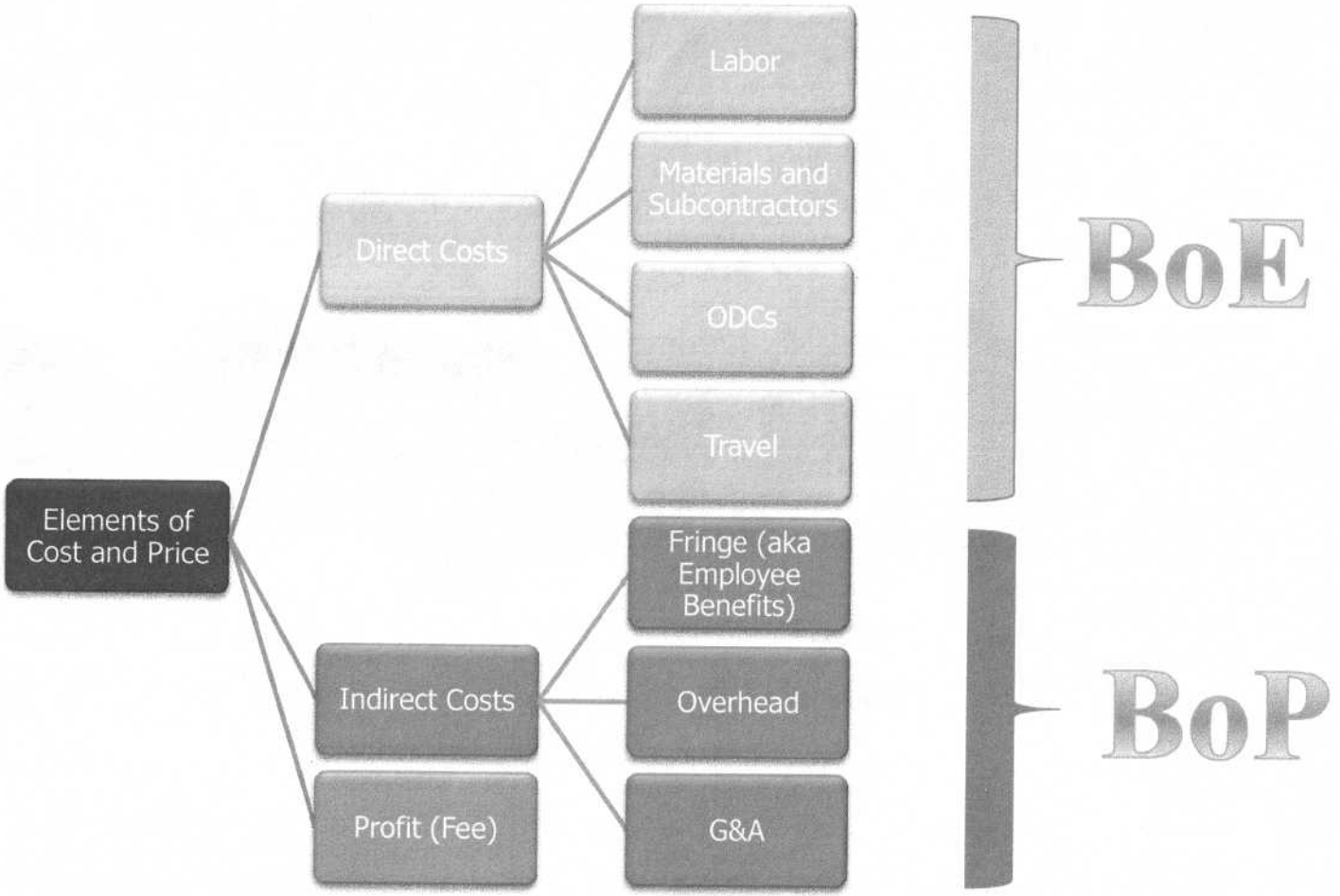
There are three types of changes throughout the FAR, including some standard forms:

A. Change to the citation (*e.g.,*"41 U.S.C. 10a-10d" now reads "41 U.S.C. chapter 83").
B. Change to the popular names of the Acts (*e.g.,* the "Service Contract Act of 1965" is now the "Service Contract Labor Standards statute"). A table providing the popular names of the Acts, the present statutory citation, and the new titles of the statutes is proposed at FAR 1.110. This table covers Acts under both titles 40 and 41.
C. Changes to terminology which did not involve substantive changes to the meaning of the statutes. The changes are summarized in the following table:

The following table provides cross references between the historical titles of the acts, and the current reference in title 40 or title 41.Show citation box

Historical title of Act	**Division/chapter/subchapter**	**Title**
* Except sections 3302, 3501(b), 3509, 3906, 4710, and 4711.		
** Except sections 1704 and 2303.		
Anti-Kickback Act	41 U.S.C. chapter 87	Kickbacks.
Brooks Architect-Engineer Act	40 U.S.C. chapter 11	Selection of Architects and Engineers.
Buy American Act	41 U.S.C. chapter 83	Buy American.
Contract Disputes Act of 1978	41 U.S.C. chapter 71	Contract Disputes.
Contract Work Hours and Safety Standards Act	40 U.S.C. chapter 37	Contract Work Hours and Safety Standards.
Davis-Bacon Act	40 U.S.C. chapter 31, Subchapter IV	Wage Rate Requirements (Construction).
Drug-Free Workplace Act	41 U.S.C. chapter 81	Drug-Free Workplace.
Federal Property and Administrative Services Act of 1949, Title III	41 U.S.C. Div. C of subtitle I*	Procurement.
Javits-Wagner-O'Day Act	41 U.S.C. chapter 85	Committee for Purchase from People Who Are Blind or Severely Disabled.
Miller Act	40 U.S.C. chapter 31, subchapter III	Bonds.
Office of Federal Procurement Policy Act	41 U.S.C. Div. B of subtitle I**	Office of Federal Procurement Policy.
Procurement Integrity Act	41 U.S.C. chapter 21	Restrictions on Obtaining and Disclosing Certain Information.
Service Contract Act of 1965	41 U.S.C. chapter 67	Service Contract Labor Standards.
Truth in Negotiations Act	41 U.S.C. chapter 35	Truthful Cost or Pricing Data.
Walsh-Healey Public Contracts Act	41 U.S.C. chapter 65	Contracts for Materials, Supplies, Articles, and Equipment Exceeding $15,000.

Elements of Cost and Price



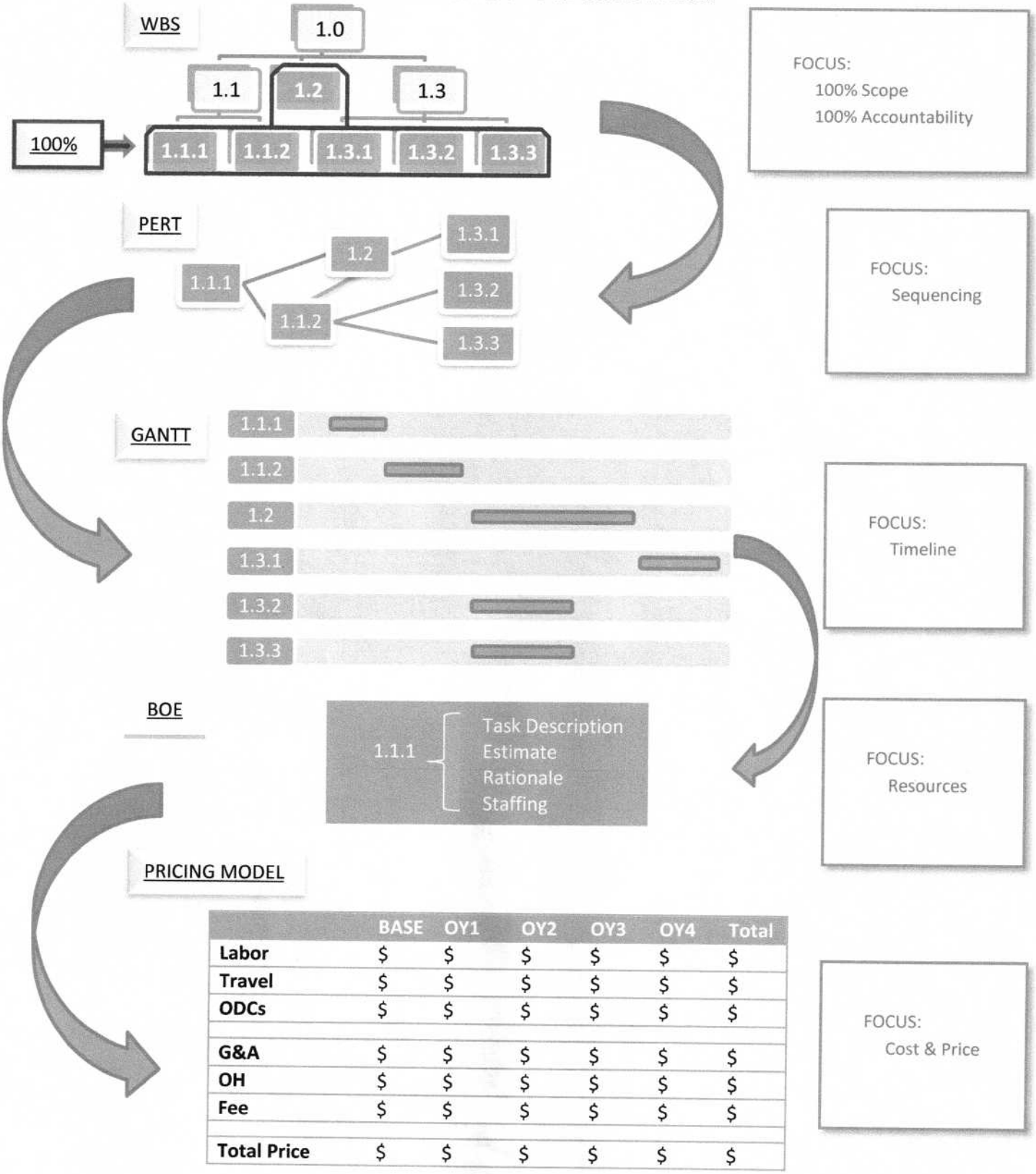
Cost Estimation and BoEs are Focused on Direct Costs

n8Consulting
Creative Minds, Practical Solutions

n8 Consulting, LLC
http://n8-consulting.com

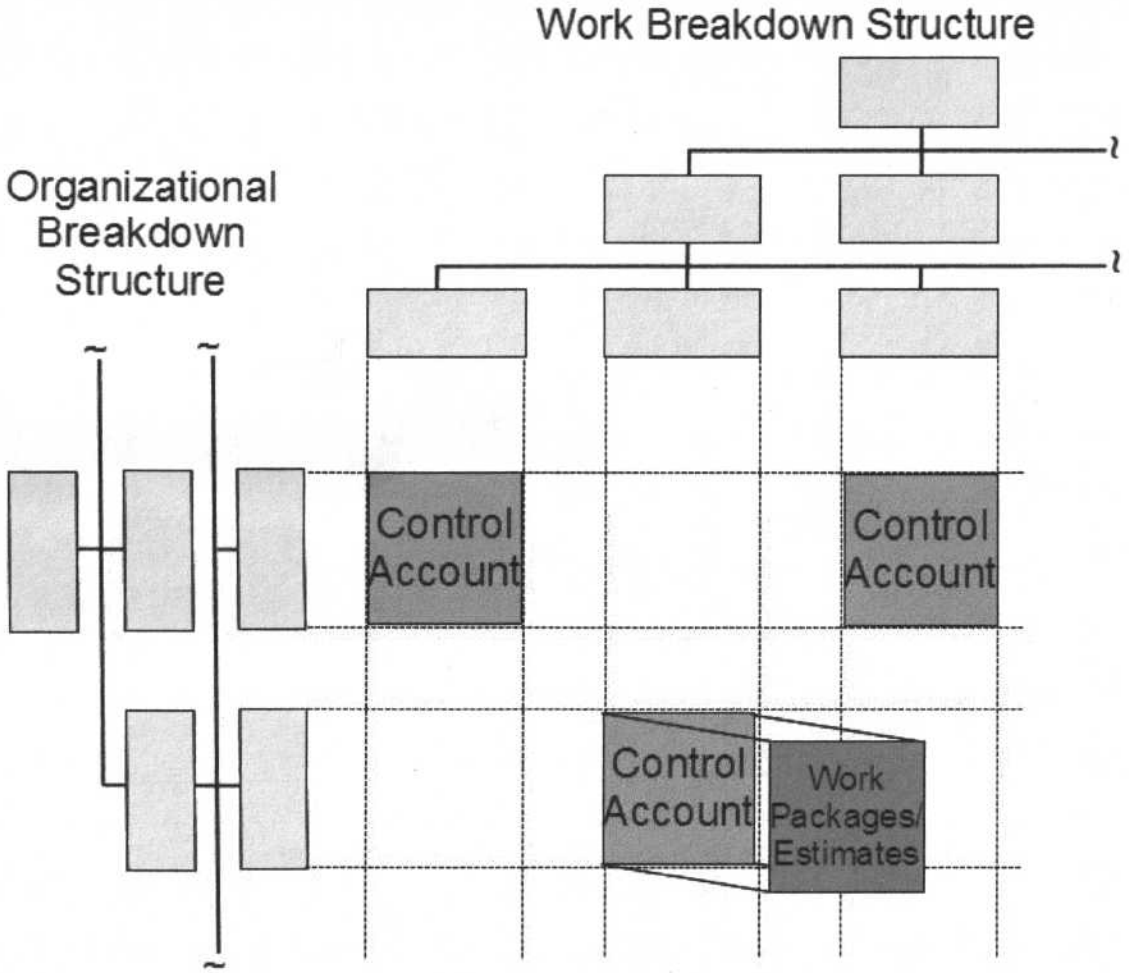
703-819-9340
525 N Sterling Blvd
Sterling, VA 20164

WBS—PERT—GANTT—BOE INTEGRATION



	BASE	OY1	OY2	OY3	OY4	Total
Labor	$	$	$	$	$	$
Travel	$	$	$	$	$	$
ODCs	$	$	$	$	$	$
G&A	$	$	$	$	$	$
OH	$	$	$	$	$	$
Fee	$	$	$	$	$	$
Total Price	$	$	$	$	$	$

Theory: WBS - OBS - RAM



Many Programs do not have Control Accounts and Work Packages

WBS Development Techniques

- **Primary**
  - Decomposition
  - Synthesis
- **Secondary**
  - Analogy (Borrowing)
  - Brainstorming
- **WBS is often formed from the use of multiple techniques (Hybrids)**

WBS Principal 2: If the customer gives you a WBS, use it!

Estimation Methods Summary

Method	Advantages	Disadvantages	Application
Analogy	• Inexpensive • Easily changed • Based on actual experience (of the analogous system	• Truly similar projects must exist and can be hard to find • Estimators have to make subjective evaluations of the cost impact of the differences between old and new systems • Large amount of uncertainty • Must have detailed technical knowledge of program and analogous system to make valid comparisons	• When few data are available • Rough-order-of-magnitude estimate • Cross-check
Parametrics	• Once created, CERs are fast and simple to use • Easily changed once collection mechanism is established • Seen as objective once statistically verified	• Relies upon large quantities of normalized data • Creation is not easy; few relationships can be abstracted to a single-variable • Does not provide access to subtle changes • Stable relationships as a top level may have much more volatility when decomposed • Have to be properly applied to what you are estimating • Must be maintained – external forces change CERs over time	• Budgetary estimates • Design-to-cost trade studies • Cross-check • Baseline estimate • Cost goal allocations
Expert Opinion	• Quickly created • Engineer's comfort zone	• Not substantiated by objective fact • Generally not accepted	• When there are no viable alternatives
Engineering Buildup	• Encourages detailed understanding of the project • Can be more accurate than other methods	• Less helpful during concept and design stages • Defining detailed information tends to be time and cost intensive • Historical data is not always available to support these estimates • There is a tendency to rely extensively on expert opinion	• Production estimating • Software development • Negotiations
Extrapolation From Actuals	• Very quick to develop once supporting data are available • One of the most accurate cost estimating methods because it is based on actual costs	• Actual costs are not available until late in the acquisition process • Applicable domain is limited to developed or integrated systems and commoditized services • Difficult to apply outside of currently executing or follow-on contracts	• Very quick to develop once supporting data are available • One of the most accurate cost estimating methods because it is based on actual costs
Commercial Price List	• Pre-defined	• NA	• Where required or allowed
RFP Specification	• Client Specified	• NA	• Where specified by RFP
Level of Effort	• Exacting conditions	• NA	• Where required by physical conditions of the defined work

703-819-9340
525 N Sterling Blvd
Sterling, VA 20164

BoE Structural Data Needs – Part 1

Data Need	Common Source	Description
Work Breakdown Structure	Management and/or technical team	Work Breakdown Structure to the level either required by the RFP or to the level needed to build estimates and BoEs
Calendar & Holiday Schedule	Pricing	Calendar to be used for the program and the holidays that will be used. Note: WD/SCA/UW employees are governed by the appropriate regulations and negotiated agreements.
Periods of Performance; Fiscal Year Definition	Proposal/Pricing	Periods during which work is performed
CLIN Structure	Derived from RFP	CLINs as specified by the proposal
CDRLs	Derived from RFP	CDRLs to be delivered
Labor Categories (WD/SCAs/UW Identified)	Pricing/HR/Capture	Labor Categories used for the program
Assigned Personnel	Pricing/HR/Capture	Individuals assigned to the project (named personnel).
Locations	Pricing/Capture	Locations where work will be performed
Organizations	Pricing Capture	Internal organizations performing work
Teammates (Teaming Agreements)	Capture Manager	List of Teammates; include specifics of teaming agreements that affect allocation of functions, labor categories, or hours to particular teammates

BASIS OF ESTIMATE (BOE)

Administrative

RFP NO.:	xxxxxx-xx-x-xxxx	RFPName	xxxxx xxxxx			
CLIN:	----	--Multiple--				
Sample Task Order:	TO 001					
WBS:	01.01.01. TO Management Plan				CPFF	O&M
Period of Performance:	Contract Term	FromPeriod	7/1/2012	ToPeriod	6/30/2017	
Estimation Author:	Cost Author 001	Sol Author:	Author 001			
Date Prepared:	5/2/2011					

Work Scope

Task Description:	Task Description
RFP References:	RFP Reference
Deliverables:	Deliverables
Assumptions:	Assumptions

Estimate Data

BOE Rationale:	Rationale	
Identified Risks:	Risks	
	Equations	Factors
Calculations	Equation	Factor explained

Labor

LABOR

Labor Category	Staff Name	Company	Start Date	End Date	Location	Organization	Total Hours
Program Manager	Joe Employee	Company 001	7/1/2012	6/30/2013	Location 001	Organization 001	1,200
Program Manager	Jane Employee	Company 002	7/2/2012	7/1/2013	Location 001	Organization 001	1,920
TOTAL LABOR:							3,120

Travel

TRAVEL ODCs

Travel Reason	From-To	Company	Start Date	# of Pers/Trip	# of Trips/Pers	# of Nights/Pers	# of Cars/Trip
Travel Reason	FromLocation-ToLocatio	Company 001	7/3/2012	1	1	1	1

ODCs

MATERIALS/OTHER DIRECT COSTS (ODCs)

Description (ie: Shipping, Postage, Equip Rental/Leasing, etc.)	Delivery Start Date	Delivery End Date	Company	Qty
Item to Buy	7/1/2012	8/5/2012	Company 001	11

General Instructions:

1. Each file is designed for the BOE for one WBS. Please name the file uniquely using the Sample Task Order number and the WBS number e.g., STO.001.WB.S01.01.01.xlsm Note that, by convention I use 2 digits for each level of the WBS. This helps avoid both formatting and sorting issues.
2. Fields in this form use mostly pull-down selections or are multi-line free text. Most of the labels for the fields have definitions for what go in them. Hover over the label; to see it.
3. Multiline fields all have text wrap and can be treated as paragraphs. You can insert lines in these fields. But we recommend not deleted lines.
4. Please do not insert or delete columns and do not move fields as this is how the system knows how to parse the data in the form.

Administrative Data
- RFP No, Program Name, Sample Task Order
- WBS Number and Name
- Period of Performance
- Optionally
  - Estimator and/or SME Name
  - Date Prepared

Work Scope Data
- Task Description
  - Describes what work will be done under this WBS
- References to RFP Documents
  - SOO, PWS, SOW, TRD, SRD
- Deliverables
- Assumptions and Constraints

Estimate Data
- Rationale
- Identified Risks
- Data Sources
- Planning Factors or Cost Drivers
- Calculations

Resource Allocation Data
- Labor Resources
  - Labor Resource: Category, Schedule, Individual
  - Companies and Organizations
  - Time-phasing
  - Locations
- Travel
  - Travel Purpose
  - Companies and Organizations
  - Time-phasing
  - Locations
  - How Often
  - How Long
  - Transportation
- Materials and ODCs
  - BOM, Material, ODC, Identification
  - Buying Companies and Organizations
  - Time-phasing
  - Delivery Locations
  - Quantities

KEEP IN MIND
- Best to provide more vs. less information
- Assume reader knows nothing about what is being estimated.
- Include step-by-step instructions for how the estimate was developed.
- Aim to provide enough information for the estimate to be recreated by a cost analyst independent of the team.
- Most users of the documentation will either be updating the estimate at a later date or will rely on data for estimating an analogous system.

BASIS OF ESTIMATE (BOE)

RFP NO.:	WEXAT-99-R-A999	**RFPName**	**Example Contract**		
CLIN:	0001	CPFF			
Sample Task Order:	STO 001				
WBS:	01.02.02. Installation Requirements Drawings (SDD)			CPFF	--Multiple--
Period of Performance:	Contract Term	**FromPeriod**	10/1/2013 **ToPeriod**	9/30/2016	
Estimation Author:	Author 001	**Sol Author:**	Author 001		
Date Prepared:	7/15/2013				

Task Description: Provide technical support to include a technical lead person to review rack elevation drawings, block wiring diagrams, compartment arrangement drawings, foundation drawings, cabling drawings, distributive systems analysis, review Installation Requirements (IRD) drawings developed by COMPANY in accordance with MIL-D-231-23140C. Attend planned design reviews including EDR, PDR, CDR and TRR.

RFP References: STO 1
SOW Reference 3.2.3
IMP/IMS SDD: D.04.28

Deliverables: Reviewed rack elevation, compartment arrangement, foundation, cabling, IRD drawings and provided distributive systems analysis and attend scheduled design reviews.

Assumptions: None.

BOE Rationale: COMPANY has developed significant number of technical drawing reviews of similar work on contracts such as NEXAT-99-R-900, Delivery orders 0190 and 0191. Data derived from those contracts shows a review time of 0.35 hours per drawing sheet.
DO 0190 - 154 review hours / 442 drawing sheets reviewed - .348 hours per drawing sheet
DO 0191 - 95 reviews hours / 270 drawing sheets reviewed - .351 hours per drawing sheet

COMPANY has developed a predictive relationship between number of racks installed and the number of drawing sheets required based upon similar work under contracts AECAT-99-R800 , delivery orders 0222 and 0234. Date dreived from these shows and average 26.3 drawing sheets per rack.
DO 0222 126 sheets for 6 racks = 21 sheets per rack
DO 0234 125 sheets for 4 racks = 31.25 sheets per rack

Identified Risks: None Identified.

Calculations	**Equations**	**Factors**
	.35 [hours per drawing sheet] * 26.3 [drawing sheets per rack] * 15 [Racks] = 138 [hours]	Subcomponent A - 15 Racks per GFI
	.35 [hours per drawing sheet] * 26.3 [drawing sheets per rack] * 39 [Racks] = 359 [hours]	Subcomponent B - 39 Racks per GFI

LABOR

Labor Category	*Staff Name*	*Company*	*Start Date*	*End Date*	*Location*	*Organization*	*Total Hours*
Engineer Lead	George Custer	COMPANY	10/1/2013	9/30/2014	Location 001		249
Engineer III	Robert Meade	COMPANY	10/1/2013	9/30/2014	Location 001		248
TOTAL LABOR:							497

TRAVEL ODCs

Travel Reason	*From-To*	*Company*	*Start Date*	*# of Pers/Trip*	*# of Trips/Pers*	*# of Nights/Pers*	*# of Cars/Trip*

BASIS OF ESTIMATE (BOE)

RFP NO.:	WEXAT-99-R-A999		**RFPName**	**Example Contract**		
CLIN:	0001	CPFF				
Sample Task Order:	STO 001					
WBS:	01.02.02. Installation Requirements Drawings (SDD)				CPFF	--Multiple--
Period of Performance:	Contract Term		**FromPeriod**	10/1/2013	**ToPeriod**	9/30/2016
Estimation Author:	Author 001			**Sol Author:**	Author 001	
Date Prepared:	7/15/2013					

MATERIALS/OTHER DIRECT COSTS (ODCs)

Description (ie: Shipping, Postage, Equip Rental/Leasing, etc.)	*Delivery*		*Company*	*Qty*
	Start Date	*End Date*		

BASIS OF ESTIMATE (BOE)

RFP NO.:	WEXAT-99-R-A999	**RFPName**	**Example Contract**			
CLIN:	0001	CPFF				
Sample Task Order:	STO 001					
WBS:	01.04.01. Program Mgt Planning, Integration & Administration				CPFF	--Multiple--
Period of Performance:	Contract Term	**FromPeriod**	10/1/2013	**ToPeriod**	9/30/2016	
Estimation Author:	Author 001		**Sol Author:**	Author 001		
Date Prepared:	7/15/2013					

Task Description: The effort represents investment labor to provide overall direction to the program and the subcontractors, technical direction, and administrative support to PROGRAM. The Program Manager is the key interface to the customer. The Program Management effort includes the Program Manager, Deputy Program Manager and their administrative support. These personnel will perform the following tasks:

- Provide overall program management, direction and review.
- Provide input to the Management Plan (Integrated Management Plan). This CDRL is to be formatted per DI-MGMT-80004A and DoD IMP and IMS Preparation and Use Guide V9.
- Establish an IPT organizational structure for the program and staff the organization with qualified personnel.
- Ensure that various roles and responsibilities of the team are defined and coordinated.
- Provide technical direction to subcontractors and vendors.
- Implement the risk management program to ensure all medium and high risks are assessed and mitigation plans implemented.
- Support program quick start
- Manage day-to-day operations of the program
- Executability of the program baseline
- Implement the Integrated Management Framework (IMF).
- Perform overall program integration.
- Develop inputs to planning and scheduling
- Oversee configuration/change management
- Oversee quality assurance

RFP References: STO 1
SOW Reference 1.1.1
IMP/IMS MGMT: M.01.01

Deliverables:

Assumptions: None.

BOE Rationale: Rationale is based on Similarity to X-RAY a program of siilar size, scope and, complexity also performed under contract with AGENCY by COMPANY.

X-RAY was chosen as a comparable program, because it is a large scale integration program and the key areas of responsibility are the same as that of PROGRAM: system of systems engineering, integration and test, production, fielding and logistics support. The PROGRAM initial effort spans 6 months which is 50% less than the X-RAY sample. In addition, there will not be any customer interface and reporting duties and minimal program performance and oversight activities reducing the level of effort another 15%. The resulting scaling factor is therefore 0.35.
DO 0222 126 sheets for 6 racks = 21 sheets per rack

Program Management effort under X-RAY was 1920 hours; Administrative support was 1860 hours.

Identified Risks: None Identified.

Calculations	**Equations**	**Factors**
	1920 [program management hours] * .35 [analogous scaling factor] = 672 [hours]	Program Manager
	1860 [administrative support hours] * .35 [analogous scaling factor] = 651 [hours]	Administrative Support

LABOR

Labor Category	*Staff Name*	*Company*	*Start Date*	*End Date*	*Location*	*Organization*	*Total Hours*
Program Manager	George Custer	COMPANY	10/1/2013	9/30/2014	Location 001		672
Administrative Specialist I	Robert Meade	COMPANY	10/1/2013	9/30/2014	Location 001		651

BASIS OF ESTIMATE (BOE)

RFP NO.:	**WEXAT-99-R-A999**		**RFPName**	**Example Contract**			
CLIN:	**0001**	**CPFF**					
Sample Task Order:	**STO 001**						
WBS:	**01.04.01. Program Mgt Planning, Integration & Administration**					**CPFF**	--Multiple--
Period of Performance:	**Contract Term**		**FromPeriod**	**10/1/2013**	**ToPeriod**	**9/30/2016**	
Estimation Author:	**Author 001**			**Sol Author:**	**Author 001**		
Date Prepared:	**7/15/2013**						
TOTAL LABOR:							1,323

TRAVEL ODCs

Travel Reason	*From-To*	*Company*	*Start Date*	*# of Pers/Trip*	*# of Trips/Pers*	*# of Nights/Pers*	*# of Cars/Trip*

MATERIALS/OTHER DIRECT COSTS (ODCs)

Description (ie: Shipping, Postage, Equip Rental/Leasing, etc.)	*Delivery*		*Company*	*Qty*
	Start Date	*End Date*		

BASIS OF ESTIMATE (BOE)

RFP NO.:	WEXAT-99-R-A999	**RFPName**	Example Contract			
CLIN:	0001	CPFF				
Sample Task Order:	STO 001					
WBS:	01.03.06.01 Website Development and Maintenance				CPFF	--Multiple--
Period of Performance:	Contract Term	**FromPeriod**	10/1/2013	**ToPeriod**	9/30/2016	
Estimation Author:	Author 002			**Sol Author:**	Author 001	
Date Prepared:	7/15/2013					

Task Description: The Offeror will present an implementation plan to consolidate existing 653 CLIENT web sites into two unified sites, one on NIPRNet and one on SIPRNet, in order to eliminate duplication of functionality across existing disparate program sites. The plan must comply with all applicable AF and DoD regulations (Attachment 5) and must be Public Key Enabled (PKE) based on the DoD PKI infrastructure. The sites must, at a minimum, provide functionality to enable distribution of documentation, software and software patches, working group information and status information related to program activities. The site must also contain discussion forum and feedback functionality accessible by system users in the field. The site design plans must make maximum utilization of existing CLIENT web infrastructure. (CDRL A001)
No later than 90 calendar days after the approval of this plan, the Offeror will implement the approved systems and complete transition of any content identified by the responsible program from existing web sites over to the new systems.
The Offeror will fulfill day to day content management responsibilities of all existing 653 CLIENT individual program websites beginning immediately after contract award, and will continue as content manager and site manager for the unified 653 CLIENT sites after implementation. Content management responsibilities include those tasks normally associated with a "webmaster" including user account and access issues, monitoring and control of discussion forums, posting and removal of program related documentation, notices, software, patches, Kits, etc. Site manager responsibilities include continuing site development and expansion.

RFP References: STO 1

Deliverables: CDRL A001 DI-MISC-80711A/T Scientific and Technical Reports/Website Consolidation Plan.

Assumptions: The Government will provide 8x5x business day access to facilities at CLIENT SITE for use in support of this objective.
The Government will provide a PKE overview briefing, including contact information for the CLIENT PKI program office, as GFI.

BOE Rationale: Estimate equates to:
We expect to maintain the consolidated web site during option year 2. We expect the period of performance will be January 1, 2009 – December 31 2009.

a. We expect the content manager duties are best performed by a Programmer I. Duties will include user account/access issues, monitoring/control of discussion forums, posting/removal of program related documentation, notices, software, patches, and kits. We expect it will take a the content manager 16 hours per week to perform these duties. Staff requirement for one full year: 16 hours per week X 52 weeks = 832 hours.

b. During option year 1, we expect continued site development and expansion of website will require 8 hours of Programmer II time per week. Programmer II: 8 hours X 52 weeks = 416 hours.

Identified Risks: None Identified.

	Equations	Factors
Calculations	16 [hours] * 52 [weeks per year] = 832 [hours]	Programmer I
	8 [hours] * 52 [weeks per year] = 416 [hours]	Programmer II

LABOR

Labor Category	*Staff Name*	*Company*	*Start Date*	*End Date*	*Location*	*Organization*	*Total Hours*
Programmer II	George Custer	COMPANY	10/1/2013	9/30/2014	Location 001		416
Programmer I	Robert Meade	COMPANY	10/1/2013	9/30/2014	Location 001		832
TOTAL LABOR:							1,248

TRAVEL ODCs			*# of*	*# of*	*# of*	*# of*

BASIS OF ESTIMATE (BOE)

RFP NO.:	WEXAT-99-R-A999		**RFPName**	**Example Contract**			
CLIN:	0001	CPFF					
Sample Task Order:	STO 001						
WBS:	01.03.06.01 Website Development and Maintenance				CPFF		--Multiple--
Period of Performance:	Contract Term		**FromPeriod**	10/1/2013	**ToPeriod**	9/30/2016	
Estimation Author:	Author 002				**Sol Author:**	Author 001	
Date Prepared:	7/15/2013						

Travel Reason	*From-To*	*Company*	*Start Date*	*Pers/Trip*	*Trips/Pers*	*Nights/Pers*	*Cars/Trip*

MATERIALS/OTHER DIRECT COSTS (ODCs)

Description (ie: Shipping, Postage, Equip Rental/Leasing, etc.)	*Delivery*		*Company*	*Qty*
	Start Date	*End Date*		

BASIS OF ESTIMATE (BOE)

RFP NO.:	W15P7T-13-R-A204	**RFPName**	Technical Information Engineering Services (TIES)		
CLIN:	----	--Multiple--			
Sample Task Order:	----				
WBS:	01.01.01. RCID Hardware			**CR**	--Multiple--
Period of Performance:	Contract Term	**FromPeriod**	10/31/2013	**ToPeriod**	10/30/2016
Estimation Author:			**Sol Author:**		
Date Prepared:	5/2/2011				

Task Description: Receive and evaluate the GFE hardware components of the RCID capability. This effort includes learning about the concept of operation of the [redacted] Tag and evaluating the technical documentation to determine the most effective way to develop and integrate the wake-up algorithm.

Receive the ATP GFI - Emitter Library and Data Sets; and, the ATP+1 GFE - RFID Tag with Development tools.

RFP References: Attachment: 0004
RCID Division [redacted] Sample Task

Deliverables: Source & Executable Code and Make-File (DI-IPSC-81441A)

Assumptions: Technical Data on the Emitter List and RCID capability are assumed to be delivered prior to contract negotiation and ATP.
ATP GFI - Emitter Library and Data Sets; and, ATP+1 GFE - RFID Tag with Development tools are available.

BOE Rationale: Based on past research experience and development effort on prior programs (as referenced in our past performance), we will review the current hardware and capabilities to ensure compatibility with the new design.

One System Engineer III will work part time (average of 4 hours per day; 372 hours) over the 93 work days (744 hours) to develop the Source & Executable Code and Make-File. A second System Engineer III and the Engineer III (key) will provide oversight and review of the deliverable. The Engineer III (key) will lead the Engineer IIIs to evaluate the existing hardware and determine the compatibility and feasibility of the software design with the existing hardware.

Note regarding [redacted] estimating methodology: The estimating methodology used by [redacted] on the [redacted] Proposal was discrete estimates at the task level. By practice they do not estimate by name and submit pure level of effort or time and material pricing for development work. Once a scope of work is estimated, negotiated and definitized they staff their development programs with resources that can and do perform more than task during execution to ensure they are efficient and responsive.

Identified Risks: Detailed data on the GFE is not available before award.
Existing hardware may not support the software updates.

Calculations

Equations	Factors
System Engineer III: 1 week * 40 hours/week = 40 hours	
System Engineer III: 4 hours per day * 93 days = 372 hours	reduction factor: -372 hours for level of effort on other BOEs
Engineer III (key) and Engineer III: 5 weeks * 40 hours/week = 200 hours	reduction factor: -544 hours for level of effort on other BOEs
Engineer III: ~4 hours per day * 93 days = 375 hours	reduction factor: -369 hours for level of effort on other BOEs

LABOR

Labor Category	*Staff Name*	*Company*	*Start Date*	*End Date*	*Location*	*Organization*	*Total Hours*
Systems Engineer III		PrimeContractor	11/15/2013	4/1/2014	Contractor Site		40
Systems Engineer III		PrimeContractor	11/15/2013	4/1/2014	Contractor Site		372
Test Engineer II		PrimeContractor	11/15/2013	4/1/2014	Contractor Site		-
Administrative Specialist II		SubContractor001	11/15/2013	4/1/2014	Contractor Site		-
Project Control/Budget Specialist II		SubContractor001	11/15/2013	4/1/2014	Contractor Site		-
Program Manager		SubContractor001	11/15/2013	4/1/2014	Contractor Site		-
Engineer III		SubContractor001	11/15/2013	4/1/2014	Contractor Site		200
Engineer III		SubContractor001	11/15/2013	4/1/2014	Contractor Site		200
Systems Engineer III		SubContractor001	11/15/2013	4/1/2014	Contractor Site		-
Research/Documentation Specialist		SubContractor001	11/15/2013	4/1/2014	Contractor Site		-
INFOSEC Specialist		SubContractor001	11/15/2013	4/1/2014	Contractor Site		-
Quality Assurance Specialist II		SubContractor001	11/15/2013	4/1/2014	Contractor Site		-
Subject Matter Expert		SubContractor001	11/15/2013	4/1/2014	Contractor Site		-
Test Engineer II		SubContractor001	11/15/2013	4/1/2014	Contractor Site		-
Engineer III		SubContractor001	11/15/2013	4/1/2014	Contractor Site		375
TOTAL LABOR:							1,187

TRAVEL ODCs

Travel Reason	*From-To*	*Company*	*Start Date*	*# of Pers/Trip*	*# of Trips/Pers*	*# of Nights/Pers*	*# of Cars/Trip*

BASIS OF ESTIMATE (BOE)

RFP NO.:	**W15P7T-13-R-A204**		**RFPName**	**Technical Information Engineering Services (TIES)**			
CLIN:	**----**	**--Multiple--**					
Sample Task Order:	**----**						
WBS:	**01.01.01. RCID Hardware**					**CR**	--Multiple--
Period of Performance:	**Contract Term**		**FromPeriod**	**10/31/2013**	**ToPeriod**	**10/30/2016**	
Estimation Author:				**Sol Author:**			
Date Prepared:	**5/2/2011**						
TEM#1	FZY-IAD	SubContractor001	12/15/2013	1	1	1	1
TEM#2	FZY-IAD	SubContractor001	4/1/2014	1	1	1	1

MATERIALS/OTHER DIRECT COSTS (ODCs)	*Delivery*			
Description (ie: Shipping, Postage, Equip Rental/Leasing, etc.)	*Start Date*	*End Date*	*Company*	*Qty*

Writing WBS Task Descriptions

Our goal in the task description is to not only to define the work but also begin to make the argument that we know how to do this work. Essentially this is about establishing your credibility and expertise but it may also be about ghosting your competition by attempting to show that you are the only expert who can properly understanding this work.

In the task description, include a brief definition of the WBS element (product, function, deliverable, etc.) associated activities, milestones, and other information such as performance measurement criteria, inputs needed and dependencies with other WBS elements. Technical detail may be useful if it helps to better delineate the task, increase your credibility, or establish a differentiator in terms of your understanding versus that of the competition.

Be careful in knowing too much, however. Task descriptions define the scope of the work. This is one place where being an incumbent or being overly familiar with the work itself can have a negative effect. Your task description should be based on the work as defined in the RFP and associated documents (Statement of Objectives (SOO), Statement of Work (SOW), Technical Requirements Document (TRD), System Requirements Document (SRD), System/Subsystem Specification (SSS), etc.). Not addressing all the work in the RFP will cause the scope to be underestimated which can lead you to be deemed unrealistic. Adding more work because you "know what it takes" will cause the scope to be overstated and likely the estimate as well which leads you to be uncompetitive Achieving the correct balance can be difficult and is incredibly important.

One interesting idea when you do have a more complete understanding of the work than is expressed in the RFP document is to state explicitly explain the additional tasking to show that you know about but you did not include it since it was not requested. You must be careful in doing so; it is important not to come across as insulting to the customer; we find that using a mater-of-fact approach achieves the best results.

While you may also put this in the rationale section, this can also be a good place to reveal where you have done similar work previously and to establish how similar that work is to the work you are bidding.

Finally remember that the task description must be in concert with your other responses to the RFP (e.g., Technical Volume, Management Volume, or equivalents).The worst scenario is for a customer to find that the scope of work estimated is not that same as the scope of work for which a solution is proposed. This can cause the BoE in question to be considered non-compliant or unrealistic and can damage the credibility of all estimates.

Assumptions and Constraints

Assumptions are an integral part of developing basis of estimates. Assumptions are used to replace information which is not available as part of the RFP or not revealed during the interactions one has with the acquisition community as part of the RFP process. Assumptions usually have some available factual bases which are often derived from the estimators experience with similar projects or clients but which are not 100 percent certain. They serve the purpose instead of allowing the development of the estimate to proceed and be presented in the context of the defined assumptions. In all cases, the alternate would be to either not develop the estimate or to develop it using undocumented and thus unconstrained premises.

Constraints are a little bit different. In general, constraints limit an estimate by setting boundaries on aspects such as size, duration, productivity, and usability. Constraints tend to exist as a result of circumstances or events which often are external to the specific effort being estimated (for example, work must be complete by a specific but arbitrary date). In reality all contract or CLIN start and stop dates are a form of constraint but you should not document them as such unless they materially constrain the estimate (i.e., in a development effort which must be complete by the end of the contract but which would normally take longer, the duration is a valid constraint – it will cause the normal schedule the be shortened and probably both the risk and effort should be increased assuming it work is viable at all.

Notably, assumptions and constraints can change all aspects of the estimate to include but not limited to the size of the effort, the duration, the level of effort, and the mix of labor categories.

Sizing parameters are most often the subject of assumptions. For example, if the requirements do not tell you how many servers you must manage under a server management task, you usually have to make an assumption in this regard. On the other end of the spectrum, the effort it takes to do an instance of any task is and should be least often the subject of an assumption. Your perspective must be that assumptions are made for information that the client should have provided you in a perfect world – not that which you should be able to provide.

Duration or scheduling is a significant cost-related assumption and one that is the most difficult to get right. Its significance lies in that, for many types of work estimates, most every other assumption relies in part on timing. The difficulty lies in accurately determining the duration a project or task will require. An inaccurate assumption has the potential to make broad impacts on the estimates for multiple tasks.

Duration and level of effort are correlated factors in the sense that assumptions or constraints made on one can often affect the other. For example, in an alternate of our constraints example, perhaps the factors the is constrained or that you have had to assume is the number of people that can work on the task; in many cases this will cause a change in the duration of the task.

The mix of labor categories or skill levels may also be the subject of assumptions or constraints and, as a result, may have an effect on other dimensions such as size, duration, and level of effort. For example, assuming you may perform work with less skilled labor may

indeed reduce cost on a per unit basis, but it may also lengthen the duration to complete the overall task and may, in fact, actually cause it to cost more as a result.

Understanding the interaction of factors when making assumptions is critical to the development of estimates and to creating a reasonable basis for them.

To complete this discussion of assumptions and constraints, we need to include the related topic of ground rules. Typically ground rules are a common set of agreed upon guidelines used for estimating purposes. As an example, the number of hours in a person-year may be considered a ground rule. Almost by definition, the entire technical baseline is also a ground rule. When ground rules change, estimates may also change in the fashion of interplay of factors as discussed previously. However, for purposes of BoEs, ground rules are usually defined outside of the BoE and need only be mentioned if a particular characteristic has an unobvious impact on the estimate.