Federal Arena Cost & Risk Management Process

DISCUSSION TOPICS

ABOUT Myself

GENERAL OVERVIEW OF The Federal Budgeting Process

Construction Cost ESTIMATE

Lessons Learned

Q&A

Introduction

BIO OVERVIEW

ABOUT Myself

Since 1987 I have been in the construction management industry beginning as an Industrial Engineer for Exxon USA till 1989. In 1989, I started a General Contracting business managing the construction of petroleum retail facilities for twenty years up until 2009. In 2010, I started working for a cost & risk management consultant group CCS International as the Mid-Atlantic Business Director, overseeing and participating in the following services:

SERVICES AREA PARTISPATION

Cost Management
Construction Cost Estimating
Programmatic Cost Modeling
Master Planning Estimates
Conceptual Estimates
Design Phase Estimates
Life Cycle Costing
CM Cost Reconciliation

Cost Segregation Studies
Bid Evaluation
Value Engineering
Quantity Surveying (International)
Change Order Analysis
Project Scheduling
Facility Condition Assessment

Owner's Representation
Capital Project Management
Program Management
Total Budget Development
Scope Management
Construction Audits
Litigation Support

General Overview of Federal Budgeting Process

Understanding federal budget information for decision makers is the initial step & core focus of understanding the feasibility of construction cost allocations.

Discussion Topics

- Specific Key Acronyms & Terminologies
- Dept of Defense (DD) 1391 Budget Form
- Certified Working Estimate – Key Components and measurements
- Understanding the reason for the possibility of Bid Options

General Overview of Federal Budgeting Process

DD 1391 Acronyms

•Programed Amount (**PA**): The total funds, and can include design cost if design built, which are available for the project including all construction and owners' markups.

•Estimated Construction or Contract Cost (**ECC**): Expected cost to construct a project inclusive of all construction labor, materials, and equipment, site development, utility fees, permits, design-built fees if applicable, design or estimate (risk) contingency, escalation, contractor markups and other cost directly associated with construction of the project.

•Construction Cost Limit (**CCL**): The maximum cost of construction allowable within appropriated fund amounts for a complete and usable project. Does not include Owners Cost and the ECC shall not exceed the CCL.

•Construction Contingency: Owners Mark-up generally set at (**5%**) to account for unforeseen problems beyond interpretation at the time of or after contract award.

•S&A (or **SIOH**): Owners Mark-up generally set at (5.6% – 5.7%) – Supervision, Inspection & Overhead

•Engineering During Design (**EDC**): Owners Mark-up generally set at (1% – 1.5%) or adjusted by local federal cost engineer

General Overview of Federal Budgeting Process

Dept of Defense – DD 1391 Military Construction Funding Request

1. COMPONENT	FY 2020 MILITARY CONSTRUCTION PROJECT DATA			2. DATE
3. INSTALLATION AND LOCATION		4. PROJECT TITLE:		
5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST ($000) $20,917	
9. COST ESTIMATES				
Item	**U/M**	**Quantity**	**Unit Cost**	**Cost ($000)**
PRIMARY FACILITIES				**10,055**
Public Works and Operations Support Building	SF	23,000	422.95	(9,728)
Antiterrorism Measures	LS	--	--	(201)
Building Commissioning	LS	--	--	(126)
SUPPORTING FACILITIES				**7,233**
Electrical Service	LS	--	--	(738)
Water, Sewer, Gas	LS	--	--	(1,499)
Paving, Walks, Curbs and Gutters	LS	--	--	(911)
Storm Drainage	LS	--	--	(241)
Site Imp (27,281) Demo (0)	LS	--	--	(3,383)
Information Systems	LS	--	--	(217)
Antiterrorism (AT) Measures	LS	--	--	(244)
ESTIMATED CONTRACT COST W/O DESIGN COST				**17,288**
Design/Build – Design Cost				1,295
ESTIMATED CONTRACT COST W/ DESIGN COST – CCL – Construction Cost Limit				**18,583**
"OWNERS COST"				929
Contingency Percent - Basic (5.00%)				
SUBTOTAL				**19,512**
Engineering During Construction (EDC) (1.50%)				293
Supervision, Inspection & Overhead (SIOH) (5.70%)				1,112
TOTAL REQUEST				**20,917**
TOTAL REQUEST (ROUNDED)				**21,000**
EQUIPMENT FROM OTHER APPROPRIATIONS (FF&E)				0

General Overview of Federal Budgeting Process

Certified Working Estimate (CWE)

% ESTIMATE OF TOTAL PROJECT COST
FOR
PROJECT
FY - 20xx PN - xxxxx
LOCATION

This estimate is based on a % design package prepared by *Architect Name* dated

								PA
PROGRAMMED AMOUNT ----------								$183,084,112
		QTY	UM	UC	BASE BID		OPTIONS	TOTAL
CONTRACT COST - Present Day								
BASE BID (MCA Funded)								
0001	PRIMARY FACILITIES	300,000	SF	$426.67	$	128,001,831		
0002	SUPPORTING FACILITIES	1	EA	$10,876,606	$	10,876,606		
OPTIONS [Not in TOTAL]								
Options No								
0003	Parking	0	LS	$1,090,453	$	-	$ -	
0004	Partitions	0	LS	$684,394	$	-	$ -	
0005	Classroom Finish Upgrade	0	LS	$201,682	$	-	$ -	
0006	Flooring	0	LS	$1,204,429	$	-	$ -	
CONTRACT COST					$	138,878,436	$ -	$ 138,878,436
ESCALATION TO CONSTRUCTION MIDPOINT [2.0 X MCP Index]				8.83%				
MIDPOINT OF CONSTRUCTION(MCP INDEX) ----------				3170				
CURRENT MCP INDEX ----------				3036				
ESCALATED CONTRACT COST (ECC) ----------				108.83%	$	151,137,798	$ -	
SUBTOTAL (EXPECTED PROPOSALS)					**$**	**151,137,798**	**$** -	**$ 151,137,798**
Contingencies ----------				5.00%	$	7,556,890	$ -	
SUBTOTAL----------					$	158,694,688	$ -	
S&A(SIOH) ----------				5.70%	$	9,045,597	$ -	
SUBTOTAL----------					$	167,740,285	$ -	
E & D (Percentage of ECC + $190,000)		ECC	X	0.10%	$	341,138	$ -	
Enhanced Commissioning (A/E) ----------					$	547,564	$ -	
Construction Phase Services (A/E)					$	650,000		
NEC (Telecommunications)					$	2,568,710		
CWE					**$**	**171,847,697**	**$** -	**$ 171,847,697**
CWE / PA						**93.86%**		93.86%

General Overview of Federal Budgeting Process

Reasoning & Possibility for Bid Options

OPTIONS [Not in TOTAL]								
Options No								
0003	Parking	1	LS	$1,090,453	$ 1,090,453	$ 1,090,453		
0004	Partitions	1	LS	$684,394	$ 684,394	$ 684,394		
0005	Classroom Finish Upgrade	0	LS	$201,682	$ -	$ -		
0006	Flooring	0	LS	$1,204,429	$ -	$ -		
CONTRACT COST					$ 138,878,436	$ 1,774,848	$	140,653,284
ESCALATION TO CONSTRUCTION MIDPOINT [2.0 X MCP Index]				8.83%				
MIDPOINT OF CONSTRUCTION(MCP INDEX)				3170				
CURRENT MCP INDEX				3036				
ESCALATED CONTRACT COST (ECC)				108.83%	$ 151,137,798	$ 1,931,521		
SUBTOTAL (EXPECTED PROPOSALS)					**$ 151,137,798**	**$ 1,931,521**	**$**	**153,069,319**
Contingencies				5.00%	$ 7,556,890	$ 96,576		
SUBTOTAL					$ 158,694,688	$ 2,028,097		
S&A(SIOH)				5.70%	$ 9,045,597	$ 115,602		
SUBTOTAL					$ 167,740,285	$ 2,143,699		
E & D (Percentage of ECC + $190,000)		ECC	X	0.10%	$ 341,138	$ 2,144		
Enhanced Commissioning (A/E)					$ 547,564	$ -		
Construction Phase Services (A/E)					$ 650,000			
NEC (Telecommunications)					$ 2,568,710			
CWE					**$ 171,847,697**	*$ 2,145,843*	**$**	**173,993,540**
CWE / PA					**93.86%**			95.03%

- In this example USACE set a 95% of PA expectation and without Options currently at 93.06%.
- USACE can choose the % and normally ranges between 90 -95% pending the market
- Options can be Add or Deduct
- In our example they are all add and currently accepting the first two (2) CLINS 0003 & 0004 the final cost would be 95.03%.

BUILDING & THE COMPONENTS of ESTIMATES

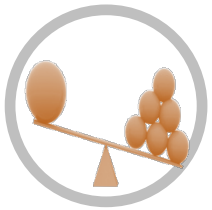
GENERAL OVERVIEW – HOW?

COMPONENTS OF AN ESTIMATE

The process of developing a construction cost estimate consists of two main components or tasks and the estimate itself. ***The accuracy and value of an estimate is dependent on the ability of the cost estimator to collect and process cost information.***

Data Collection

The process of gathering and analyzing quantities, cost data and project management information among other information.



Cost Normalization

The process of taking general cost information and applying normalization factors. **Working with RSMeans and balancing with current market pricing trends**

Estimate Formatting

There are several standardized formats that can be used including Uniformat & Masterformat. Custom forms and breakdowns can also be provided such as the GSA or Work Breakdown Structure (WBS) for USACE

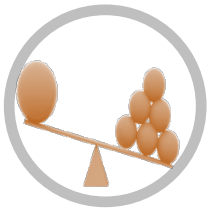
CONSTRUCTION COST ESTIMATES

COMPONENTS OF AN ESTIMATE – "EARLY STAGE"

Construction cost estimates gather information on various factors including, but not limited to ***physical building information, historical data, market trends, market interest, front end documentation, bonding and insurance requirements****. CCS's comparative cost studies are based upon proven cost data, technical skills, processes and tools.*

Data Collection

Gather and analyze project control quantities, **project specific** cost data, project profiles, and project management information among other information**. If possible Completed Revit Models at latter design stages become an important gauge to compare with 2D On screen take-offs**



Cost Normalization

Normalize market conditions over a broad range of **project specifics. Including Vendor Quotes**

CONSTRUCTION COST ESTIMATES

BALANCING SCOPE & QUALITY

EARLY-STAGE COST ESTIMATES

DATA COLLECTION PROCESS

Understanding DATA COLLECTION – **Not Just Take-off or Qnty Extraction**

1. Building Program
2. Stacking Diagram
3. Massing Diagrams / Floor Plans
4. Site Concept
5. Building Narrative
6. Scope Checklist

EARLY-STAGE COST ESTIMATES

DATA COLLECTION PROCESS

BUILDING PROGRAM

1. Anticipated Space Types

   Areas, Departments, Etc.

2. Number of Spaces

3. Net Square Footage

4. Grossing Factor

EARLY-STAGE COST ESTIMATES

DATA COLLECTION PROCESS

STACKING DIAGRAM

1. Number of Floors
2. Relationships Between Spaces
3. Vertical Circulation Requirements
4. Exterior Envelope Development

EARLY-STAGE COST ESTIMATES

DATA COLLECTION PROCESS

MASSING DIAGRAMS / FLOOR PLANS

1. Establish Floor Plate Requirements
2. Building Program Test Fit
3. Grossing Factor Test Fit
4. Preliminary Quantity Takeoffs / REVIT Model

EARLY-STAGE COST ESTIMATES

DATA COLLECTION PROCESS

SITE CONCEPT

1. Establish Existing Contours
2. Overview of Infrastructure Needs
3. Hardscape vs. Landscape Area Criteria
4. Utilities Location & Availability – Including Existing Ground & Utility Conditions and Site Contours

EARLY-STAGE COST ESTIMATES

DATA COLLECTION PROCESS

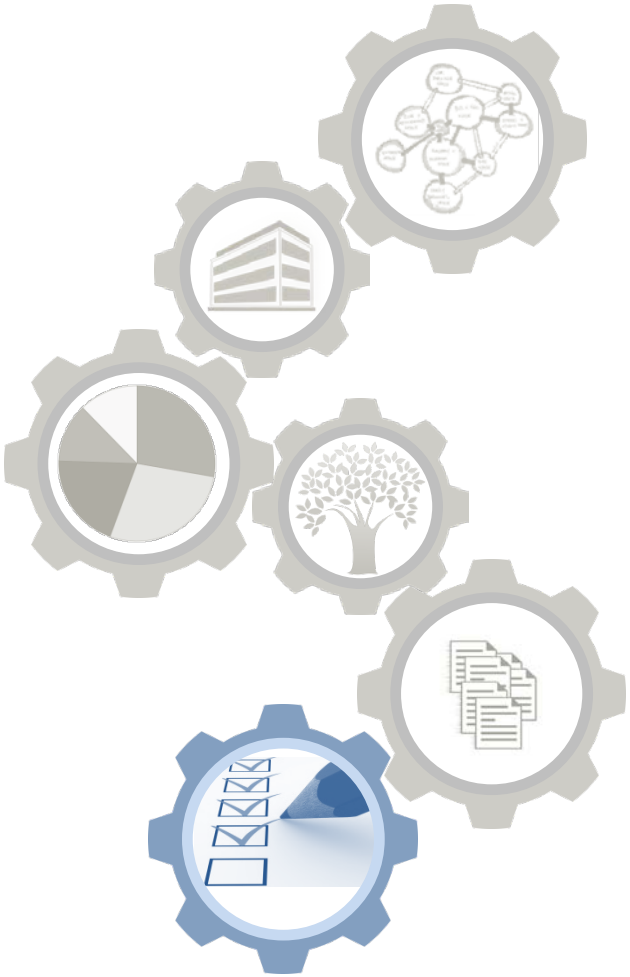
BUILDING NARRATIVE

1. Foundation
2. Structure
3. Interior Construction
4. Finish Quality
5. Specialties
6. MEP Systems
7. Site Development
8. Site Improvements
9. Site Utilities

EARLY-STAGE COST ESTIMATES

CCS' DATA COLLECTION PROCESS

SCOPE CHECKLIST



1. Verbal Dialog to supplement plans, narrative, etc.
2. Last key in the establishment of the scope for the estimate element
3. Benchmark for future decisions
4. Requires early decision making

How Normalizes Cost

*Analying numerous factors that play into the initial costs to **normalize cost factors for specific projects and regions**.*

Component Cost Allocation

Material & Labor Allocation

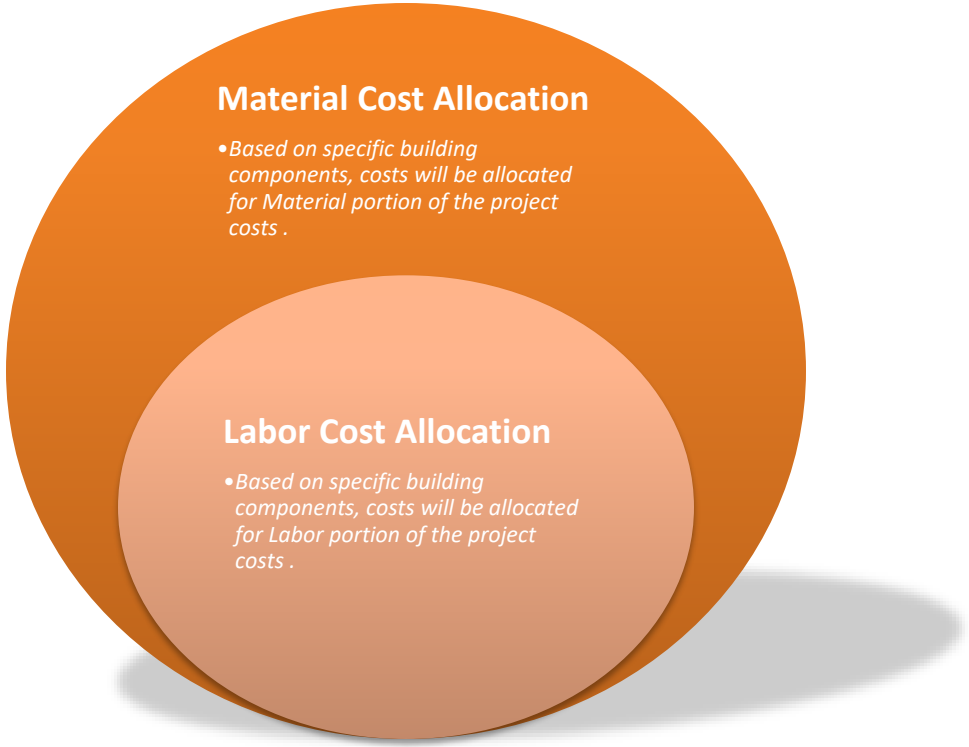
Time & Schedule Normalization

Geographic Normalization

Market Conditions Normalization

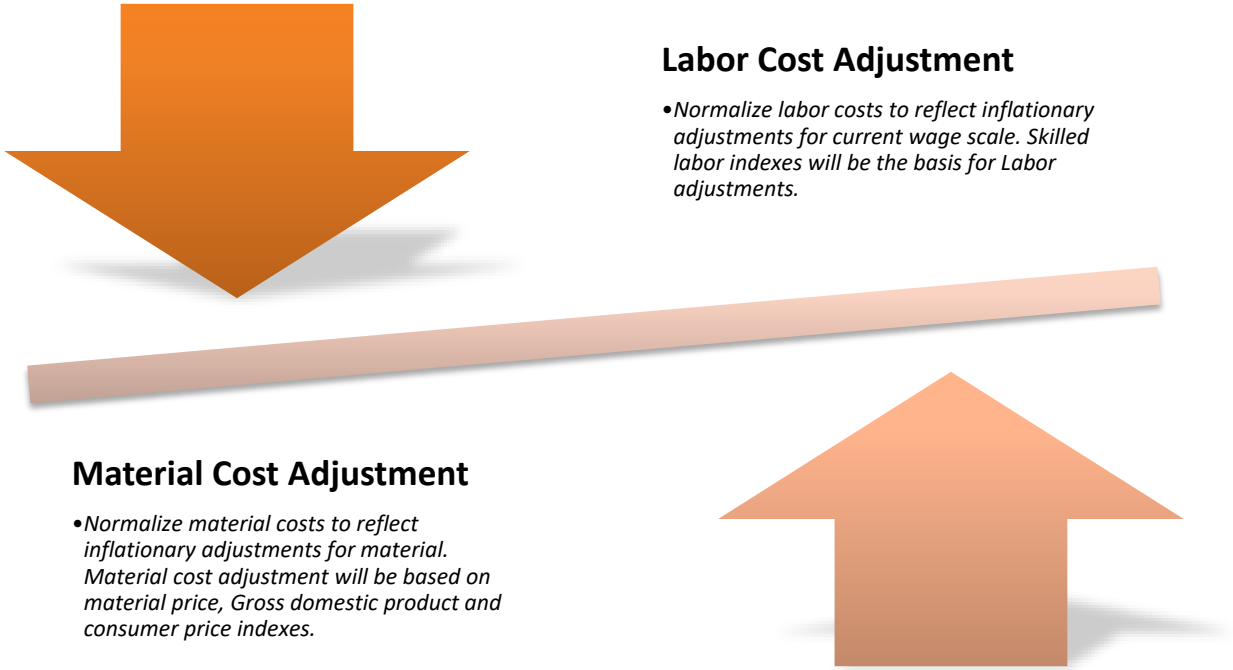
MATERIAL & LABOR COST ALLOCATION

*The **allocation of material and labor varies between each building system component**. Taking a more specific approach to designating material and labor costs increases the accuracy of the cost normalization process.*



TIME & SCHEDULE NORMALIZATION

Normalization for time and schedule on a project includes escalating costs from a mid-point of construction to a base line. ***Costs reflect inflationary factors that effect both labor and material****.*



Labor Cost Adjustment

- *Normalize labor costs to reflect inflationary adjustments for current wage scale. Skilled labor indexes will be the basis for Labor adjustments.*

Material Cost Adjustment

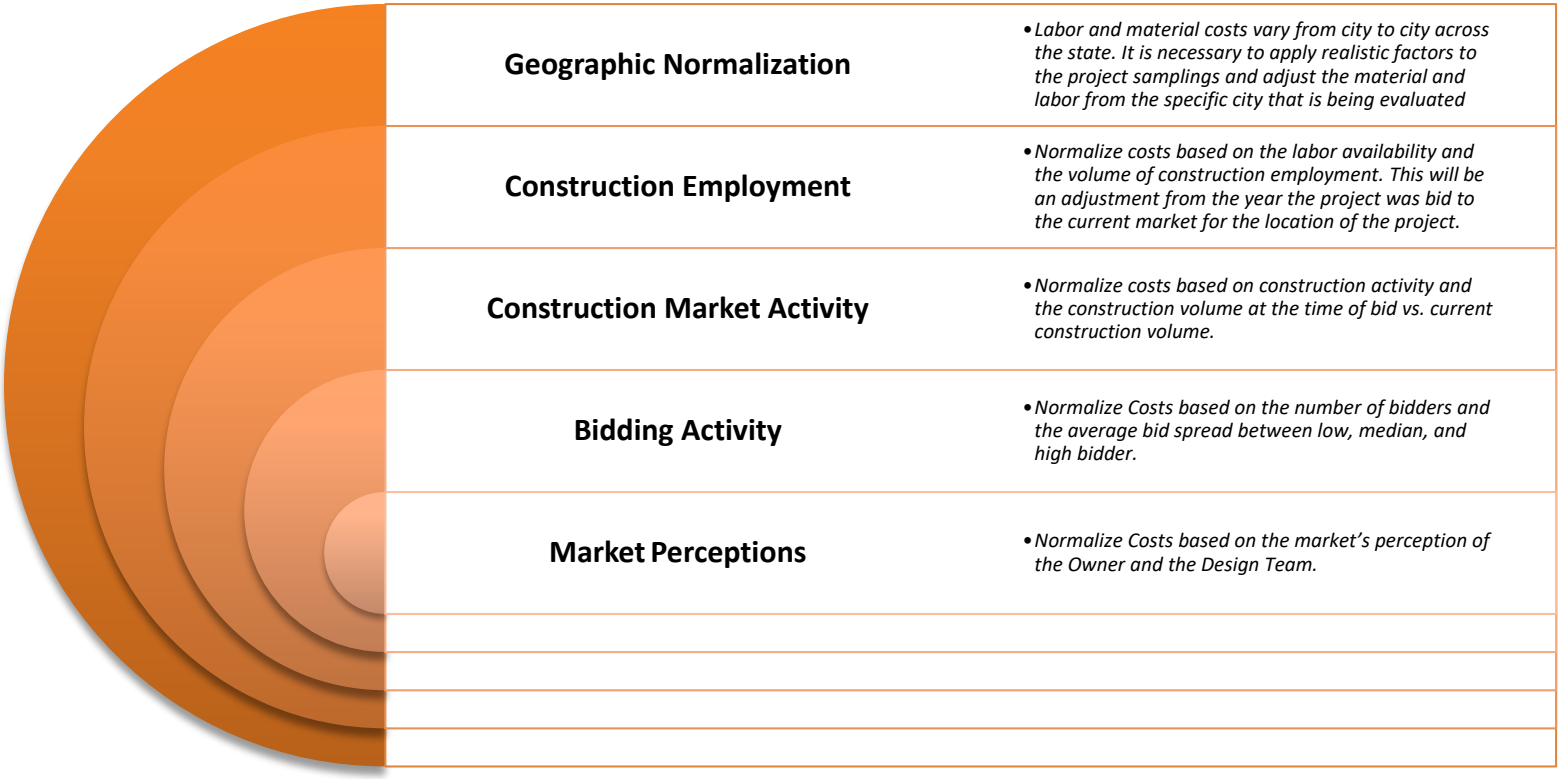
- *Normalize material costs to reflect inflationary adjustments for material. Material cost adjustment will be based on material price, Gross domestic product and consumer price indexes.*

CONSTRUCTION COST ESTIMATES

COST NORMALIZATION

MARKET CONDITIONS

*It is necessary to **normalize costs** to reflect local labor and material costs, market activity and market perceptions from the time the projects were planned to the current bidding climate.*

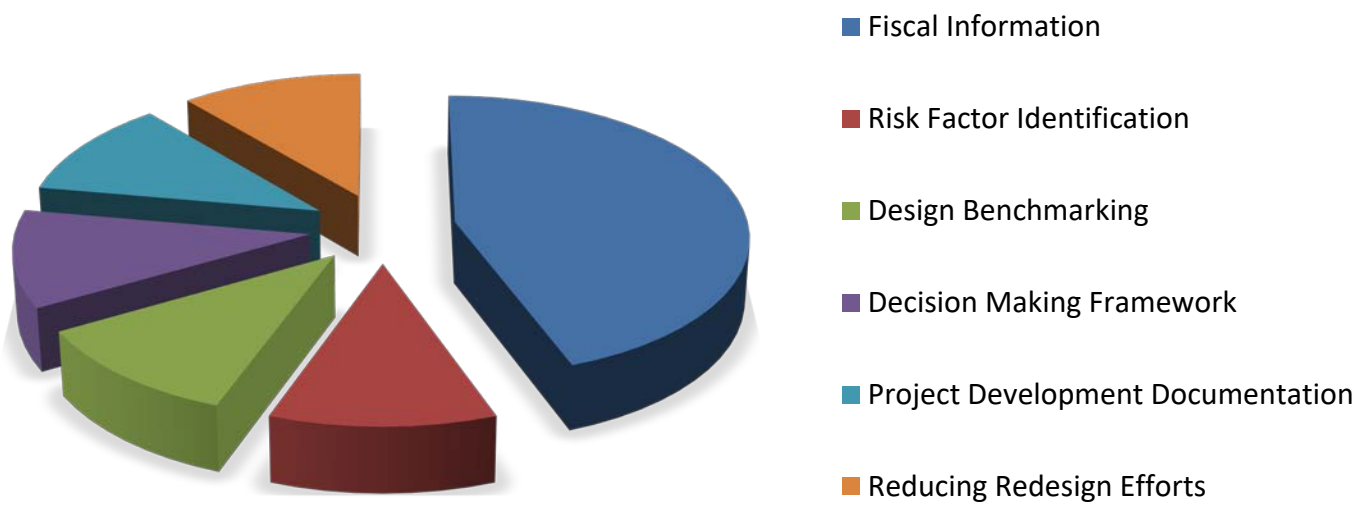


Geographic Normalization	• *Labor and material costs vary from city to city across the state. It is necessary to apply realistic factors to the project samplings and adjust the material and labor from the specific city that is being evaluated*
Construction Employment	• *Normalize costs based on the labor availability and the volume of construction employment. This will be an adjustment from the year the project was bid to the current market for the location of the project.*
Construction Market Activity	• *Normalize costs based on construction activity and the construction volume at the time of bid vs. current construction volume.*
Bidding Activity	• *Normalize Costs based on the number of bidders and the average bid spread between low, median, and high bidder.*
Market Perceptions	• *Normalize Costs based on the market's perception of the Owner and the Design Team.*

CONSTRUCTION COST ESTIMATES

PROVIDING ADDED VALUE

Through the process of data collection and cost normalization, cost estimators provide the design team and owners ***fact-based information with implications beyond pure fiscal data.***



Lessons Learned

•Spent time to fully understand the DOD federal project budget scope coverage & **key budget limitations** and the federal **stakeholder expectations**. In our example the DD 1391.

•Establish **cost normalization** such as market trends, comparable current project bid comparisons and possible risk contingencies to **balance** for example the RSMeans Data base required in some federal arenas. This can be a time-consuming process to work with the federal staff cost engineers since they have a limitation on the cost data references beyond for example RSMeans. Patience is definitely a virtue.

•Fully understand the design scope requirements to better assist the design team in establishing bid add/deduct options that may be used during the bidding process.

"Communication" – Open between all design & government team participants.

Q&A