



# Cost Estimation

*Reviewing Cost Estimates for HMA Grant Applications*

*May 2022*



## Goals of the Webinar

---

- To cover the basics of construction cost estimates for common Hazard Mitigation Assistance (HMA) program project types and to provide guidance on how to review cost estimates
- Provides a general understanding of the principles of reviewing cost estimates for HMA projects (throughout the grant lifecycle).
- Provides a process for determining “reasonable costs” as part of grant application review.
- Does not provide cost estimation for developing mitigation plans.



**FEMA**

# Agenda

---

<b>15</b> MINUTES	<b>Introduction, Section 1</b> What is cost estimating?
<b>15</b> MINUTES	<b>Section 2</b> Reviewing a Cost Estimate
<b>15</b> MINUTES	<b>Section 3</b> Cost Estimate Examples
<b>5</b> MINUTES	<b>Section 4</b> Cost Estimate Review Summary
<b>30</b> MINUTES	<b>Questions &amp; Answers</b> (as needed)



**FEMA**



## **SECTION 1**

# What is Cost Estimating?

# What is Cost Estimating?

---

**Cost estimate** \kɒst 'ɛs tə mɪt\ **n** : An approximation of the probable cost of a product, program, or project, computed on the basis of available information.

- Each subapplicant/subapplication must provide a detailed construction cost estimate (budget) to support all components of the project Scope of Work (SOW)



**FEMA**

# What is Cost Estimating? (cont.)

## Cost estimate requirements in the HMA Guidance

- ◆ **Cost Estimate:** The cost estimate matches the proposed level of effort from the SOW and work schedule. Cost estimates include various cost item categories, such as labor, materials, equipment, and subcontractor costs. Source materials used to support the cost estimate are referenced and include sufficient detail so FEMA can determine whether costs are reasonable based on proposed activities and level of effort.
  - **Cost Share:** The cost estimate identifies the cost categories and value for anticipated cash and third-party in-kind contributions for meeting the non-Federal cost share.
  - **Pre-award Costs:** To be eligible for HMA funding and/or as a cost-share, pre-award costs must be included as separate line items in the cost estimate.
  - **Closeout:** The subapplicant must document actual costs for eligible activities at closeout.
  - **Ineligible Format:** Lump-sum cost estimates are not eligible and will be NOT be accepted.
  - **Contingency Cost:** An allowance in the total cost estimate to cover situations that cannot be fully defined at the time the cost estimate is prepared, but that will likely result in additional eligible costs. See Part VI, D.3.4. A contingency cost should be included as a line item in the budget section of a project application. As with other line items in the budget, the subapplicant should justify the contingency estimate based on the nature of the proposed project.



**FEMA**

# Why is Cost Estimating Important?

---



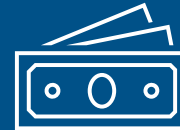
**Supports obligation  
of federal funds**



**Fairness and  
consistency**



**Complements  
the scope of work**



**Taxpayer dollars**



**Informs cost  
effectiveness**



**FEMA**

# Common Construction Cost Data Sources

---

- Cost Estimating Guides (RS Means, Cost Works, BNi)
- National Electrical Contractors Association (NECA) Manual of Labor Units
- Mechanical Contractors Association of America (MCAA) Labor estimating manual for labor productivities

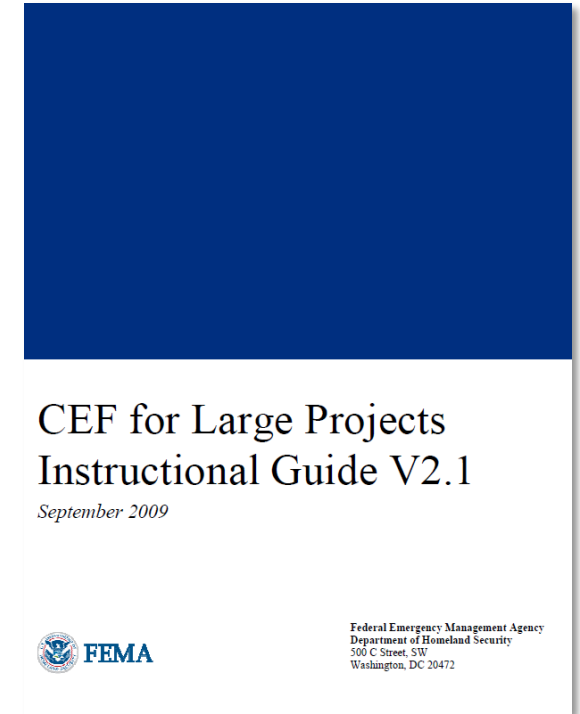
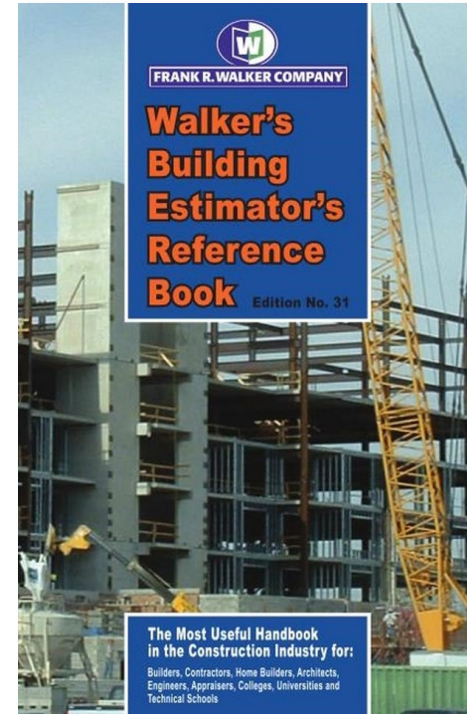
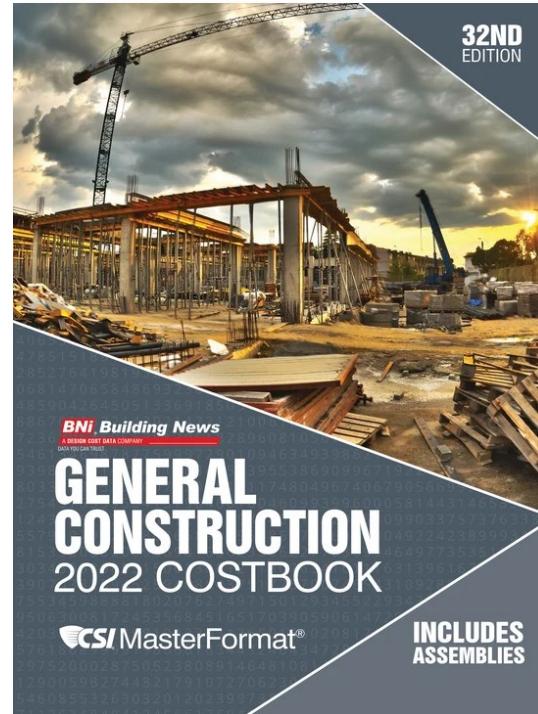
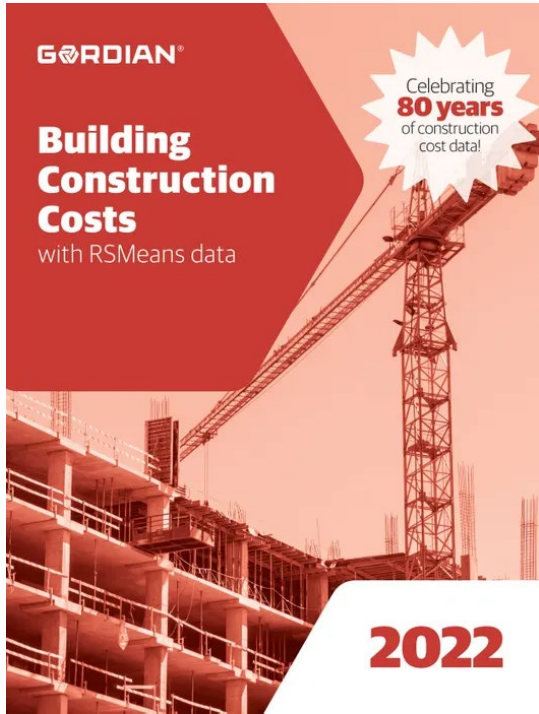
## **Construction Equipment Rental Rates:**

- FEMA Public Assistance (PA) Schedule of Equipment Rates
- Local Equipment Vendors





# Cost Resources for Estimators



# Common Cost Indexes (Location Factors)

- Engineering News Record (ENR)
- Building News (BNi)
- RS Means

Different indexes, different results



## Current Costs

ENR's most recent Construction Cost Index, Building Cost Index, Materials Cost Index, which are updated monthly. Tables include monthly and annual percent changes.

### Construction Costs

**+2.7%**  
Dec 2014

Annual inflation measured by the CCI increased to 2.7% from 2.5% in November and a low of 2.0% in October.

1913 = 100	INDEX VALUE	MONTH	YEAR
<b>CONSTRUCTION</b>	9936.44	+0.3	<b>+2.7</b>
<b>COMMON LABOR</b>	21149.34	+0.4%	+2.7%
<b>WAGE \$/HR.</b>	40.18	+0.4%	+2.7%

► [Click here to see the construction cost index hist](#)

### Building Costs

**+2.9%**  
Dec 2014

The BCI's annual escalation rate increased to 2.9% from 2.8% last month, primarily due to a 0.5% rise in the indexes labor component.

1913 = 100	INDEX VALUE	MONTH	YEAR
<b>BUILDING</b>	5480.04	+0.2%	<b>+2.9%</b>
<b>SKILLED LABOR</b>	9434.17	+0.5%	+2.7%
<b>WAGE \$/HR.</b>	52.36	+0.5%	+2.7%

► [Click here to see the building cost index histor](#)

### Materials Costs

**+2.8%**  
Dec 2014

Both steel and lumber prices fell this month, pulling the MCI down 0.3%.

1913 = 100	INDEX VALUE	MONTH	YEAR
<b>MATERIALS</b>	3064.01	0.3%	<b>+2.8%</b>
<b>CEMENT \$/TON</b>	116.37	+0.1%	+5.0%
<b>STEEL \$/TON</b>	50.30	0.3%	+1.4%
<b>LUMBER \$/TON</b>	469.59	0.4%	+7.6%

► [Click here to see the material price index](#)



# Location Factors that Affect an Estimate

---

## **SITE**

Land, utilities, visibility, local access, amenities, environmental, historic preservation

## **ACCESSIBILITY**

Labor, materials, energy, markets, suppliers, customers

## **SOCIAL/ENVIRONMENTAL**

Capital, subsidies, regulations, taxation, technology

## **GEOGRAPHIC**

Short construction seasons, inclement weather



**FEMA**

# Location Factors that Affect an Estimate (cont.)

## How to Use This Data

### Localization Factors: Canadian (by City) and U.S. (by Zip), Cont.

#### United States, KS

664	0.86
665	0.86
666	0.86
667	0.86
668	0.80
669	0.83
670	0.85
671	0.85
672	0.85
673	0.85
674	0.83
675	0.75
676	0.85
677	0.79
678	0.86
679	0.74

#### United States, KY

#### United States, LA

700	0.86
701	0.86
703	0.84
704	0.81
705	0.82
706	0.83
707	0.82
708	0.82
710	0.80
711	0.80
712	0.79
713	0.80
714	0.80

#### United States, MA

010	1.03
011	1.03
012	1.01

#### United States, MD

218	0.78
219	0.82

#### United States, ME

039	0.86
040	0.90
041	0.90
042	0.90
043	0.87
044	0.90
045	0.86
046	0.86
047	0.87
048	0.85
049	0.86

#### United States, MI

480	1.01
-----	------



FEMA

# Eligible Costs

All costs that are required for the implementation of the mitigation project, examples include:

- **Engineering and Architectural**
  - Costs for engineering & design of a project and services during construction must be factored into the project estimate
- **Labor**
  - Wages paid to the field personnel who work on the project
- **Material**
  - Material price that is incorporated into a project. Includes all specified requirements and delivery charges
- **Construction Equipment**
  - The cost of equipment that a contractor uses to perform the work



**FEMA**

## Eligible Costs (cont.)

---

- **Subcontracts**
  - The total contractual cost to the general contractor for using a subcontractor to complete portions of the work
- **Non-Construction Costs**
  - Escalation, bonding, permits, etc.
- **Project Management**
- **Pre-Award Costs**
  - Incurred after the HMA application period has opened, but before a grant is awarded.
  - Costs can cover BCA development, EHP data gathering (not EIS preparation), application or design development.
  - Does NOT cover implementation costs incurred before the subgrant is awarded.
  - Are NOT reimbursed if a subgrant is not awarded



# Ineligible Costs

---

- **Cost that are not required for the implementation of the mitigation project, examples include:**
  - Landscaping for ornamentation
  - Irrigation systems
  - Site remediation of hazardous materials (with the exception eligible activities, such as the abatement of asbestos and/or lead-based paint and the removal of household hazardous wastes for disposal at an approved landfill)

For additional information about cost estimates and eligible and ineligible items, refer to Hazard Mitigation Guidance Addendum

- property acquisition and structure demolition or relocation projects, see Addendum, Part A;
- for safe room construction projects, see Addendum, Part C.3.2;
- for mitigation reconstruction, see Addendum, Part D.3.5;
- and for structure elevation projects, see Addendum, Part E.4.2.



**FEMA**

## Estimate Factors

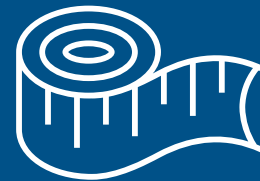
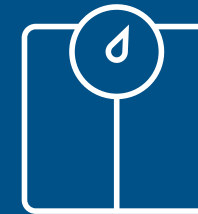
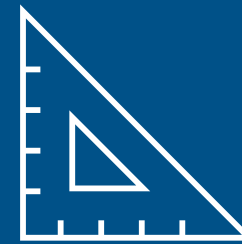
- Description
- Quantity
- Unit measure
- Material cost
- Labor costs
- Equipment costs
- Subcontract costs (if applicable)
- Non-construction costs
- Total cost (including mark ups)





## Common Quantities of Measure

- Each – EA
- Linear Foot – LF
- Square Foot – SF
- Cubic Foot – CF
- Cubic Yard – CY
- Ton – TN
- Lump Sum - LS



**FEMA**

# Common Quantities of Measure – Lump Sum

## HMA Guidance Part IV Section H.1 –

Ineligible Format: Lump-sum cost estimates are not eligible and will be NOT be accepted.

### Ineligible

Description	Unit	Quantity	Total
Engineering Design	LS	1	\$250,000
Administration	LS	1	\$50,000
Construction	LS	1	\$10,000,000
Legal	LS	1	\$75,000
<b>Total Cost</b>			<b>\$10,350,000</b>

- Not enough detail
- Cannot determine if costs are reasonable

### Acceptable

Description	Unit	Quantity	Unit Price	Total
Mobilization	LS	1	\$50,000.00	\$50,000.00
Traffic Control	LS	1	\$50,000.00	\$50,000.00
Erosion Control	LS	1	\$75,000.00	\$75,000.00
Remove Curb and Gutter	LF	50,000	\$3.00	\$150,000.00
Remove Asphalt Pavement	SY	240,000	\$3.00	\$720,000.00
Remove Concrete Driveway Pavement	SY	1000	\$8.00	\$8,000.00
Remove Casting	EA	10	\$500.00	\$5,000.00
Sawing Concrete Pavement (Full Depth)	LF	400	\$7.00	\$2,800.00

- Lump sum items within detailed cost estimate
- Industry standards for cost estimating
- Should be described in the cost estimate narrative



# Accuracy

Range of Accuracy Based on Application Development Stage:

- Class 5 – conceptual level design for a Community Flood Risk Reduction Project pending engineering studies(phased project)
- Class 1 – fully developed design for a FEMA P-361 Safe Room (post award, final budget)

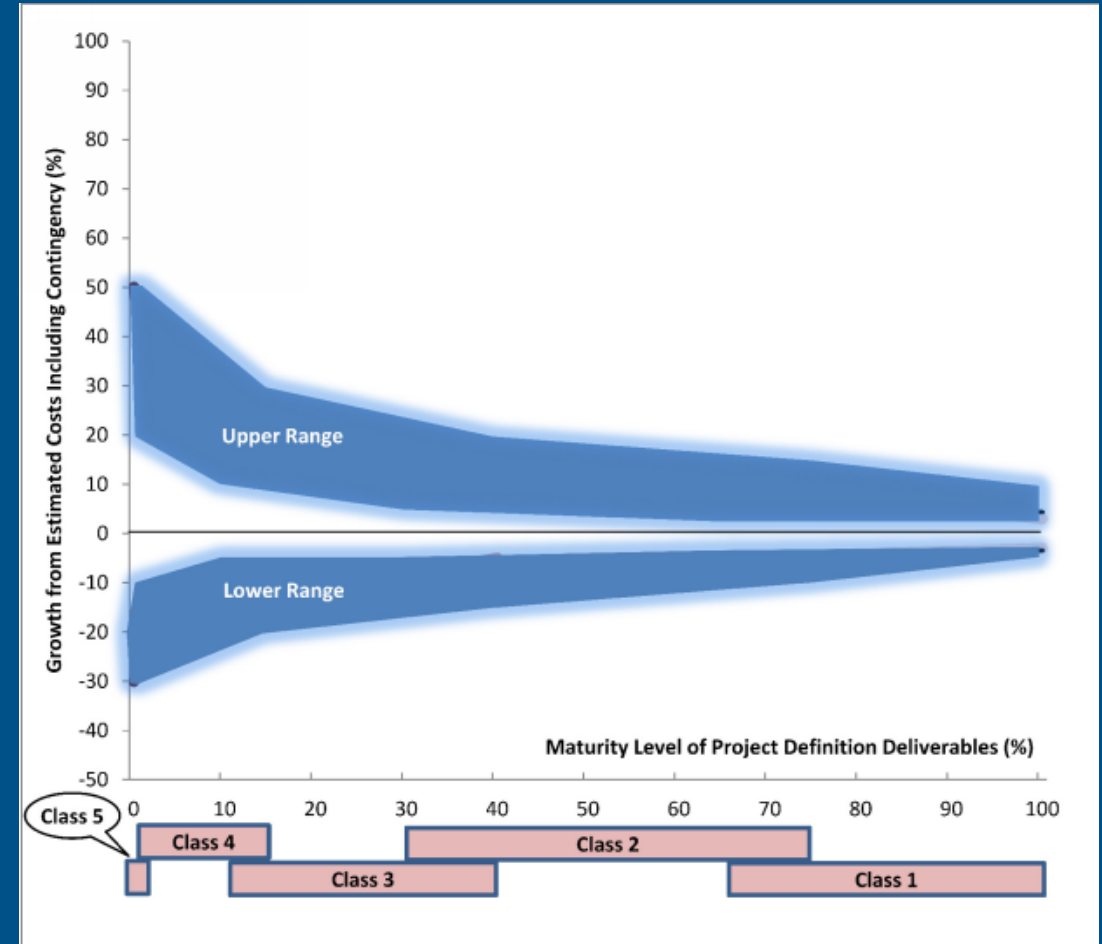


Figure 1 – Example of the Variability in Accuracy Ranges for a Building and General Construction Industry Estimate



FEMA

# Contingencies per the HMA Guidance

---

- Cover situations that cannot be fully defined at the time the cost estimate is prepared
- Allowances for major project scope changes, unforeseen risks, or extraordinary events may not be included as contingency costs.
- Cost estimates may include contingencies
  - Recommended total contingency range is 1 to 5 percent.
  - Contingency costs may be raised to 7 percent for historic properties
- A contingency cost should be included as a line item
  - Should be justified based on the nature of the proposed project.





## **SECTION 2**

# Reviewing a Cost Estimate

# How do I know if a unit cost is reasonable? (1 of 3)

---

## 2 CFR Part 200.404 Reasonable costs.

A cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person under the circumstances prevailing at the time the decision was made to incur the cost. The question of reasonableness is particularly important when the non-Federal entity is predominantly federally-funded. In determining reasonableness of a given cost, consideration must be given to:

- (a) Whether the cost is of a type generally recognized as **ordinary and necessary** for the operation of the non-Federal entity or the proper and efficient performance of the Federal award.
- (b) The restraints or requirements imposed by such factors as: **sound business practices**; arm's-length bargaining; Federal, state and other **laws and regulations**; and **terms and conditions of the Federal award**.



# How do I know if a unit cost is reasonable? (2 of 3)

---

## 2 CFR Part 200.404 Reasonable costs.

*Continued*

- (c) **Market prices for comparable goods or services** for the geographic area.
- (d) Whether the **individuals concerned acted with prudence** in the circumstances **considering their responsibilities** to the non-Federal entity, its employees, where applicable its students or membership, the public at large, and the Federal government.
- (e) Whether the non-Federal entity **significantly deviates from its established practices and policies** regarding the incurrence of costs, which may unjustifiably increase the Federal award's cost.



**FEMA**

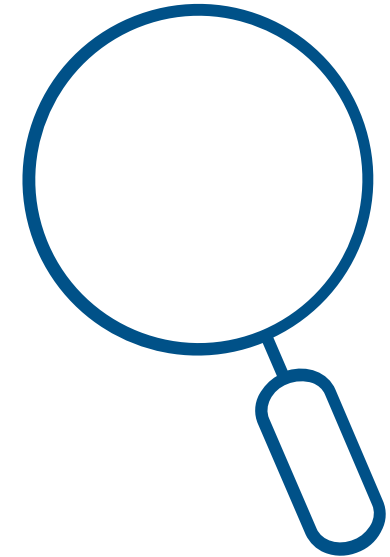
## How do I know if a unit cost is reasonable? (3 of 3)

---

- Comparability to similar projects (including non-federal projects)
- Evaluate using costing resources
- Focus on major cost items
- Must match the scope of work and schedule

### **2015 HMA Guidance**

- If a cost estimate is based on a contractor's bid or historic costs from another activity, detailed documentation must be provided.





# Major Cost Items

DESCRIPTION	UNIT	QUANTITY	UNIT COST	SUBTOTAL
ASPHALT CONCRETE TYPE S3 (PG 64-22 OK)	TON	1561	\$ 60	\$ 93,660
CONCRETE SIDEWALK (5" THICK)	S.Y.	1976	\$ 65	\$ 128,440
AGGREGATE BASE TYPE B	C.Y.	1336	\$ 50	\$ 66,800
CLASS A CONCRETE	C.Y.	2417	\$ 600	\$ 1,450,200
CLEARING & GRUBBING	L. SUM	1	\$ 30,000	\$ 30,000
COMBINED CONCRETE CURB AND GUTTER	L.F.	2112	\$ 20	\$ 42,240
ENGINEERING & CONTRACT ADMIN	L. SUM	1	\$ 858,772	\$ 858,772
INLET FLOW STRUCTURE	EA.	3	\$ 100,000	\$ 300,000
LAND (33 - 50' WIDE LOTS)	AC.	5	\$ 550,000	\$ 2,750,000
OUTLET FLOW STRUCTURE	EA.	1	\$ 200,000	\$ 200,000
SAFETY RAILING	L.F.	2047	\$ 75	\$ 153,525
REINFORCING STEEL - RETAINING WALL	LB.	134380	\$ 1	\$ 134,380
REMOVAL OF ASPHALT PAVEMENT	S.Y.	29364	\$ 5	\$ 146,820
REMOVAL OF CURB & GUTTER	L.F.	2112	\$ 3	\$ 6,336
REMOVAL OF SANITARY SEWER	L.F.	2410	\$ 25	\$ 60,250
REMOVAL OF STORM SEWER	L.F.	2120	\$ 30	\$ 63,600
REMOVAL OF WATERLINE	L.F.	160	\$ 25	\$ 4,000
SANITARY SEWER RELOCATION	L.F.	2320	\$ 95	\$ 220,400
STORM SEWER RELOCATION	L.F.	120	\$ 90	\$ 10,800
STRUCTURAL EXCAVATION UNCLASSIFIED	C.Y.	3347	\$ 20	\$ 66,940
TRAFFIC STRIPE (PLASTIC) (4" WIDE)	L.F.	8448	\$ 1	\$ 8,448
TYPE A - SALVAGED TOPSOIL	L. SUM	1	\$ 15,000	\$ 15,000
UNCLASSIFIED EXCAVATION	C.Y.	94916	\$ 15	\$ 1,423,740
SPILLWAY STRUCTURE	EA.	2	\$ 25,000	\$ 50,000
WATERLINE RELOCATION	L.F.	830	\$ 100	\$ 83,000
<b>TOTAL</b>			<b>\$</b>	<b>\$ 8,367,351</b>



# Scope of Work

---

## H.1 Required Components

The application must include a description of the activities and anticipated outcomes as a means for FEMA to determine whether the activities are eligible, whether the Applicant can complete the activities within the POP, and whether the proposed costs are reasonable.

A scoping narrative describes the proposed activity and includes three elements:

- ◆ SOW
- ◆ Schedule
- ◆ Cost estimate

The scoping narrative stipulates the deliverables, identifies the tasks required to complete the proposed activity, and defines the tasks to be accomplished in clear, concise, and meaningful terms. All cost elements must match tasks and provide sufficient detail for FEMA to determine whether the subapplication is eligible. The scoping narrative will become part of the conditions of the award.

All activities must be identified in the scoping narrative prior to the close of the application period.



# Schedule and Cost Estimate

---

The schedule and cost estimate must align with the scope of work.

- ◆ **Deliverables, Key Milestones, and Schedule:** The schedule includes all tasks identified in the SOW and the relationship of each activity to the cost estimate. The schedule identifies major milestones with target dates for meeting each milestone, including anticipated quarterly usage of Federal funds. Proposed schedules must not exceed the POP for the grant. Sufficient detail is provided so FEMA can determine whether the proposed activities can be accomplished within the POP. See Part VI, D.4.
- ◆ **Cost Estimate:** The cost estimate matches the proposed level of effort from the SOW and work schedule. Cost estimates include various cost item categories, such as labor, materials, equipment, and subcontractor costs. Source materials used to support the cost estimate are referenced and include sufficient detail so FEMA can determine whether costs are reasonable based on proposed activities and level of effort.



**FEMA**

# Cost Estimate Narrative

- Document the overall project scope.
- Communicate the estimator's knowledge of the project by demonstrating an understanding of scope and schedule as it relates to cost.
- Provide a record of all documents used to prepare the estimate.
- Act as a source of support during dispute resolutions.
- Establish a realistic baseline for the scope, quantities and cost, which should eliminate cost overruns.
- Facilitate the review and validation of the cost estimate.
- Identify non-eligible items that are excluded from the HMA grant subapplication

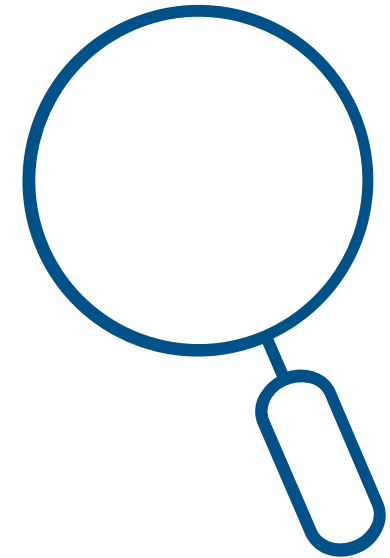


**FEMA**

# Reviewing a Cost Estimate

---

- Compare SOW, schedule, and cost estimate to ensure there is nothing missing
- Review the cost estimate narrative to determine how the cost estimate was prepared
- Determine if the cost estimate is reasonable
  - Are industry standards followed?
  - Are there any large cost items that are not sufficiently explained?
  - Compare cost estimate to any drawings, plans or schematics





## **SECTION 3**

# Cost Estimate Examples

# Cost Estimate Examples

---

**1. Structural Elevation**

**3. Safe Rooms**

**2. Wind Retrofit**

**4. Stormwater System**



**FEMA**

## EXAMPLE: Structural Elevation

Task Name	Start Month	Task Duration (in Months)	Task Description
Preconstruction Activities	1	2	1. Design plans, contractor selection, building permits 2. Temporary relocation of residents
Elevate Structure	3	2	1. Disconnect utilities 2. Remove basement mechanicals 3. Remove basement finished interior 4. Lift house, chimney, and deck 5. Extend house and chimney foundations & deck supports 6. Remove basement floor slab and fill with sand/gravel
Restoration	5	2	1. Pour new floor slab at higher elevation 2. Replace basement mechanicals 3. Replace basement finished interior 4. Fill and grade to raise driveway and ground around foundation 5. Raise front steps and rear patio 6. Reconnect utilities
Miscellaneous	1	6	1. Town grant administration 2. Contingencies 3. Inflation
Estimate the total duration of proposed activities (in months)		6	

1

2

3

4



FEMA



## EXAMPLE: Structural Elevation (cont.)

Item	Amount	Item	Amount
Preconstruction Activities		Restoration	
1 Design plans, contractor selection, building permits	\$6,000	9 Pour new floor slab at higher elevation	\$15,000
2 Temporary relocation of residents	\$6,000	10 Replace basement mechanicals	\$18,000
Elevate Structure		11 Replace basement finished interior	\$65,000
3 Disconnect utilities	\$6,000	12 Fill and grade to raise driveway and ground around foundation	\$15,000
4 Remove basement mechanicals	\$6,000	13 Raise front steps and rear patio	\$10,000
5 Remove basement finished interior	\$10,000	14 Reconnect utilities	\$6,000
6 Lift house, chimney, and deck	\$45,000	Miscellaneous	
7 Extend house and chimney foundations & deck supports	\$32,000	15 Town Grant Administration	\$10,000
8 Remove basement floor slab and fill with sand/gravel	\$10,000	16 Contingencies	\$10,000
		17 Inflation	\$8,000
		<b>TOTAL</b>	<b>\$278,000</b>

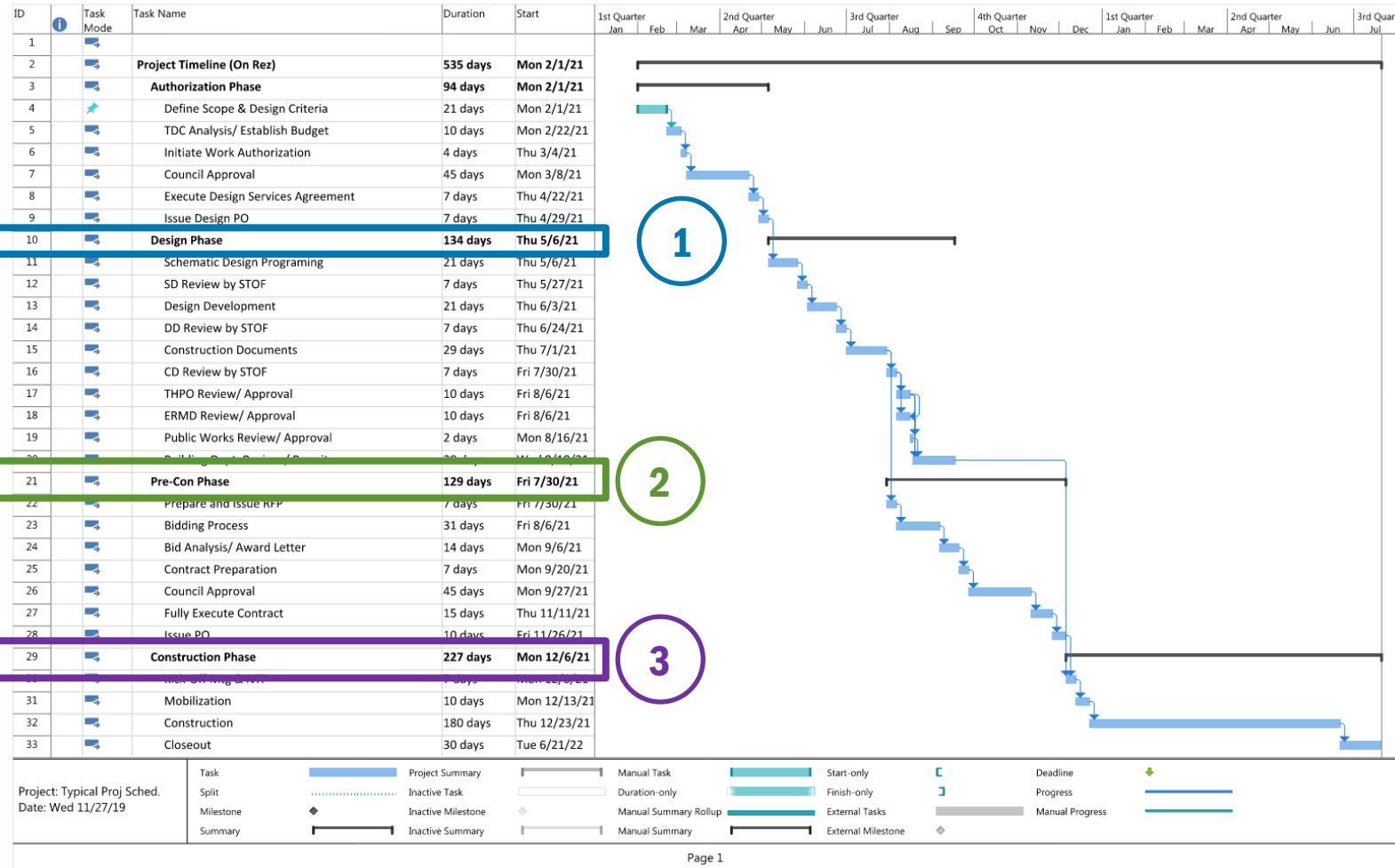
### Cost Estimate Comments:

- The cost estimate is consistent with the scope of work and schedule. However, the cost estimate does not explicitly state the inclusion of costs for **final inspection and obtaining a final elevation certificate**.
- The source of the cost estimate is not clear.
- The cost estimate appears to include several items that may not be eligible, such as **replacement of the basement finished interior** (\$65,000) and **inflation costs** (\$8,000).
- The cost estimate includes a line item called **Town Grant Administration** (\$10,000) which should be included as a Subapplicant Management Costs which are obligated separately



FEMA

# EXAMPLE: Wind Retrofit (1 of 5)



FEMA

# EXAMPLE: Wind Retrofit (2 of 5)

## Cost Estimate Comments:

- The cost estimate was prepared by the architectural and engineering firm who prepared the vulnerability assessment.
- Items listed in the cost estimate are consistent with the recommendations of the vulnerability assessment.

Office Building Hardening

Date

Date

Preliminary Budget Estimate  
Rev. 0

Engineering  
Firm

### CSI Cost Summary

Conceptual Budget	Total Project Costs	Cost / SF (84,000 RSF)	% of Total
2 Sitework	\$0	\$0.00	0.00%
3 Concrete	\$0	\$0.00	0.00%
4 Masonry	\$0	\$0.00	0.00%
5 Metals	\$25,000	\$0.30	0.85%
6 Woods & Plastics	\$8,250	\$0.10	0.28%
7 Thermal & Moisture Protection	\$46,650	\$0.56	1.59%
8 Doors & Windows	\$1,544,496	\$18.39	52.70%
9 Finishes	\$157,200	\$1.87	5.36%
10 Specialties	\$0	\$0.00	0.00%
11 Equipment	\$0	\$0.00	0.00%
12 Furnishings	\$277,400	\$3.30	9.47%
13 Special Construction	\$0	\$0.00	0.00%
14 Conveying Systems	\$0	\$0.00	0.00%
15 Mechanical	\$22,400	\$0.27	0.76%
16 Electrical	\$0	\$0.00	0.00%
17 Communications & Data	\$0	\$0.00	0.00%
<b>Subtotal</b>	<b>\$2,081,396</b>	<b>\$24.78</b>	<b>71.02%</b>
Construction Contingency @ 10%	\$208,140	\$2.48	7.10%
General Conditions and Requirements	\$218,458	\$2.60	7.45%
<b>Subtotal</b>	<b>\$2,507,994</b>	<b>\$29.86</b>	<b>85.58%</b>
Performance & Payment Bond	\$0	\$0.00	0.00%
Overhead & Profit	\$163,020	\$1.94	5.56%
Builder Risk Insurance	\$29,017	\$0.35	0.99%
General Liability Insurance	\$22,572	\$0.27	0.77%
Design Contingency @ 10%	\$208,140	\$2.48	7.10%
Escalation	Not Incl.	-	-
<b>Total Projected Costs</b>	<b>\$2,930,742</b>	<b>\$34.89</b>	<b>100.00%</b>



FEMA

## EXAMPLE: Wind Retrofit (3 of 5)

### Cost Estimate Comments:

- The cost estimate is consistent with the scope of work and schedule. However, the cost estimate does not explicitly state the inclusion of costs for permitting and inspections.
- For this project, a vulnerability assessment was already performed. If this assessment had not been provided, the vulnerability assessment should have been included in the cost estimate.
- **Contingency costs** exceed the recommended 1 – 5% from HMA guidance.

### CSI Cost Summary

Conceptual Budget	Total Project Costs	Cost / SF (84,000 RSF)	% of Total
2 Sitework	\$0	\$0.00	0.00%
3 Concrete	\$0	\$0.00	0.00%
4 Masonry	\$0	\$0.00	0.00%
5 Metals	\$25,000	\$0.30	0.85%
6 Woods & Plastics	\$8,250	\$0.10	0.28%
7 Thermal & Moisture Protection	\$46,650	\$0.56	1.59%
8 Doors & Windows	\$1,544,496	\$18.39	52.70%
9 Finishes	\$157,200	\$1.87	5.36%
10 Specialties	\$0	\$0.00	0.00%
11 Equipment	\$0	\$0.00	0.00%
12 Furnishings	\$277,400	\$3.30	9.47%
13 Special Construction	\$0	\$0.00	0.00%
14 Conveying Systems	\$0	\$0.00	0.00%
15 Mechanical	\$22,400	\$0.27	0.76%
16 Electrical	\$0	\$0.00	0.00%
17 Communications & Data	\$0	\$0.00	0.00%
<b>Subtotal</b>	<b>\$2,081,396</b>	<b>\$24.78</b>	<b>71.02%</b>
Construction Contingency @ 10%	\$208,140	\$2.48	7.10%
General Conditions and Requirements	\$218,458	\$2.60	7.45%
<b>Subtotal</b>	<b>\$2,507,994</b>	<b>\$29.86</b>	<b>85.58%</b>
Performance & Payment Bond	\$0	\$0.00	0.00%
Overhead & Profit	\$163,020	\$1.94	5.56%
Builder Risk Insurance	\$29,017	\$0.35	0.99%
General Liability Insurance	\$22,572	\$0.27	0.77%
Design Contingency @ 10%	\$208,140	\$2.48	7.10%
Escalation	Not Incl.	-	-
<b>Total Projected Costs</b>	<b>\$2,930,742</b>	<b>\$34.89</b>	<b>100.00%</b>

3

1

2



FEMA

# EXAMPLE: Wind Retrofit (4 of 5)

## Cost Estimate Comments:

- Construction costs were broken down into sufficient line items and quantities as shown in the example below.

Div. 8 Doors & Windows				
Exterior Glass & Glazing				
<b>Exterior Windows</b>				<b>\$1,376,196</b>
Remove and replace existing glazed windows and doors, replace with new	1	BU	\$1,011,471	\$1,011,471
Upgrade to Product B	1	BU	\$42,852	\$42,852
Demolition	1	BU	\$114,326	\$114,326
E-Missile Impact Glazing Upgrade	1	BU	\$190,557	\$190,557
P&P Bond for Glazing Systems	1	Allow	\$16,990	\$16,990
<b>Vision Glass Sidelights</b>				<b>\$0</b>
	0	SF	\$0	\$0
<b>Subtotal:</b>				<b>\$1,376,196</b>
Doors, Frames & Hardware				
<b>Doors &amp; Hardware</b>				<b>\$168,300</b>
Remove & Replace Hollow Metal Doors + Frames	33	BU	\$155,100	\$155,100 37 doors, 33 frames
Grouting of frames	1	BU	\$13,200	\$13,200
	0	Set	\$0	\$0
<b>Subtotal:</b>				<b>\$168,300</b>
<b>Total: Doors &amp; Windows</b>				<b>\$1,544,496</b>

Office Building Hardening

Date

Engineering

Preliminary Budget Estimate  
Rev. 0

Firm

## CSI Cost Summary

Conceptual Budget	Total Project Costs	Cost / SF (84,000 RSF)	% of Total	
2	Sitework	\$0	\$0.00	0.00%
3	Concrete	\$0	\$0.00	0.00%
4	Masonry	\$0	\$0.00	0.00%
5	Metals	\$25,000	\$0.30	0.85%
6	Woods & Plastics	\$8,250	\$0.10	0.28%
7	Thermal & Moisture Protection	\$46,650	\$0.56	1.59%
8	<b>Doors &amp; Windows</b>	<b>\$1,544,496</b>	<b>\$18.39</b>	<b>52.70%</b>
9	Finishes	\$157,200	\$1.87	5.36%
10	Specialties	\$0	\$0.00	0.00%
11	Equipment	\$0	\$0.00	0.00%
12	Furnishings	\$277,400	\$3.30	9.47%
13	Special Construction	\$0	\$0.00	0.00%
14	Conveying Systems	\$0	\$0.00	0.00%
15	Mechanical	\$22,400	\$0.27	0.76%
16	Electrical	\$0	\$0.00	0.00%
17	Communications & Data	\$0	\$0.00	0.00%
<b>Subtotal</b>	<b>\$2,081,396</b>	<b>\$24.78</b>	<b>71.02%</b>	
	Construction Contingency @ 10%	\$208,140	\$2.48	7.10%
	General Conditions and Requirements	\$218,458	\$2.60	7.45%
<b>Subtotal</b>	<b>\$2,507,994</b>	<b>\$29.86</b>	<b>85.58%</b>	
	Performance & Payment Bond	\$0	\$0.00	0.00%
	Overhead & Profit	\$163,020	\$1.94	5.56%
	Builder Risk Insurance	\$29,017	\$0.35	0.99%
	General Liability Insurance	\$22,572	\$0.27	0.77%
	Design Contingency @ 10%	\$208,140	\$2.48	7.10%
	Escalation	Not Incl.	-	-
<b>Total Projected Costs</b>	<b>\$2,930,742</b>	<b>\$34.89</b>	<b>100.00%</b>	



FEMA

# EXAMPLE: Wind Retrofit (5 of 5)

## Cost Estimate Comments:

- Impact-resistant windows and doors was the main cost item. To support this cost item, the subapplicant provided a vendor quote.

Div. 8 Doors & Windows					
Exterior Glass & Glazing					
Exterior Windows					\$1,376,196
Remove and replace existing glazed windows and doors, replace with new	1	BU	\$1,011,471	\$1,011,471	
Upgrade to Product B	1	BU	\$42,852	\$42,852	
Demolition	1	BU	\$114,326	\$114,326	
E-Missile Impact Glazing Upgrade	1	BU	\$190,557	\$190,557	
P&P Bond for Glazing Systems	1	Allow	\$16,990	\$16,990	
Vision Glass Sidelights					\$0
	0	SF	\$0	\$0	
Subtotal:					\$1,376,196

## Glazing Company

PROPOSAL/CONTRACT

AGREEMENT  
BETWEEN

Hereby made as of this date  
the customer:

PROJECT

Glazing Company

in accordance with the proposal documents:

ARCHITECT

Architectural Firm

Glazing Company  
shall execute the work described in the contract documents attached in "Exhibit A" or  
as briefly described below:

**Base Bid: \$1,011,471.00**

"Add-Alt": Product B (in lieu of Product A) - \$42,852.00  
 "Add-Alt": Trim caps at select locations (in lieu of exposed "butt-joints") - \$61,478.00  
 "Add-Alt": Demolition of existing exterior glazing & sill extensions - \$114,326.00  
 "Add-Alt": E-Missile impact only up to 30ft above grade (in lieu of D-Missile) - \$149,624.00  
 "Add-Alt": E-Missile impact at all glazing (in lieu of D-Missile) - \$190,557.00



FEMA

# EXAMPLE: Safe Room (1 of 3)

## Scope of Work:

- The subapplicant has submitted a subapplication for the construction of a new, aboveground, tornado, community safe room.
- The structure will serve as a classroom when not being used as a safe room.
- The safe room will provide protection to students, faculty, staff, and volunteers in the Elementary School in addition to residences and businesses within 0.5 miles.
- The safe room design will be compliant with FEMA P-361 and International Code Council (ICC) 500.

## Schedule:

- The schedule provided indicates the project would be completed in 30 months.

Task Name	Start Month	Task Duration (in Months)	Task Description
Grant Orientation / Execution	1	1	Grant Orientation and Grant Documentation Signatures
Procurement of A/E and Project Management (if applicable)	2	1	Proper procurement of A/E and Project Management Services if not already completed
Development of Design Plans	3	4	Planning and Design of Safe Room plans
FEMA Review of Design Plans/Deliverables & Submittal to FEMA	7	1	Safe Room design submittal packet reviewed and approval for moving into Construction phase
Procurement of General Contractor	8	2	Go out for construction bids utilizing Design Plans approved
Submittal and Approvals	10	1	Receive Bids and make selection of General Contractor
Site Development	11	2	Site preparation, testing and footings
Construction	13	15	Construction of safe room
Closeout Activities	28	3	Substantial Completion, Punch List, Final Completion, Closeout Meeting and Finalize Paperwork
Estimate the total duration of your proposed activities (in months)		30	

1

2

3

4



# EXAMPLE: Safe Room (2 of 3)

Item	Description				Total	FEMA Eligible	FEMA Ineligible
<b>SUMMARY:</b>							
1.0	Site				\$ 31,382.00	\$ 31,382.00	
2.0	Structural System				\$ 332,852.00	\$ 332,852.00	
3.0	Architectural			3	\$ 66,518.00	\$ 48,940.00	\$ 17,578.00
4.0	Electrical				\$ 73,036.00	\$ 47,836.00	\$ 25,200.00
5.0	Mechanical				\$ 95,707.00	\$ 64,657.00	\$ 31,050.00
<b>SUBTOTAL (Construction Costs)</b>					<b>\$ 599,495.00</b>	<b>\$ 525,667.00</b>	<b>\$ 73,828.00</b>
<b>DESIGN FEES</b>							
	Geotechnical Exploration (estimate)				\$ 4,500.00	\$ 4,500.00	
	Structural Engineering				\$ 16,984.00	\$ 16,984.00	
	Architectural Design			1	\$ 47,962.00	\$ 42,055.00	\$ 5,907.00
	Civil/Survey			2	\$ 7,279.00	\$ 7,279.00	
	MEP Engineering				\$ 10,628.00	\$ 9,705.00	\$ 923.00
	Project Management				\$ 30,810.00	\$ 30,810.00	
	Construction Materials Testing / Special Inspections				\$ 10,000.00	\$ 10,000.00	
<b>SUBTOTAL (Design Fees)</b>					<b>\$ 128,163.00</b>	<b>\$ 121,333.00</b>	<b>\$ 6,830.00</b>
<b>TOTAL (PROJECT COST)</b>							
<b>Project Totals</b>					<b>\$ 727,658.00</b>	<b>\$ 647,000.00</b>	<b>\$ 80,658.00</b>
	Final Project Cost				\$ 727,658.00		
	Total FEMA Eligible Cost			4	\$ 647,000.00		
	Federal Share (90%)				\$ 582,300.00		
	Local Share (10%)				\$ 64,700.00		
	Total FEMA Ineligible Cost				\$ 80,658.00		

FEMA-eligible costs

FEMA-ineligible costs

Federal Emergency Management Agency



FEMA



# EXAMPLE: Safe Room (Budget Part 1)

SUMMARY:			
1.0 Site	\$	31,382.00	\$ 31,382.00
2.0 Structural System	\$	332,852.00	\$ 332,852.00
3.0 Architectural	\$	66,518.00	\$ 48,940.00 \$ 17,578.00
4.0 Electrical	\$	73,036.00	\$ 47,836.00 \$ 25,200.00
5.0 Mechanical	\$	95,707.00	\$ 64,657.00 \$ 31,050.00
<b>SUBTOTAL (Construction Costs)</b>	<b>\$</b>	<b>599,495.00</b>	<b>\$ 525,667.00 \$ 73,828.00</b>

Item	Description	Quantity	Units	Unit Price	Total	FEMA Eligible	FEMA Ineligible
<b>1.0 Site</b>							
	Excavation (Building SF +10%)	2035	SF	\$ 2.313022	\$ 4,707.00	\$ 4,707.00	
	Building Pad Preparation (Building SF + 10%)	2035	SF	\$ 5.281572	\$ 10,748.00	\$ 10,748.00	
	Site Grading (Building SF + 10%)	2035	SF	\$ 5.088943	\$ 10,356.00	\$ 10,356.00	
	Erosion Control & SWPP (50ft Beyond Perimeter)	588	LF	\$ 1.200680	\$ 706.00	\$ 706.00	
	Storm Piping (Perimeter of Building + 40%)	263	LF	\$ 2.387833	\$ 628.00	\$ 628.00	
	Low Volume Change (Building SF + 10%)	2035	SF	\$ 1.773464	\$ 3,609.00	\$ 3,609.00	
	Entry Pads (7.5% of SF)	139	SF	\$ 4.517986	\$ 628.00	\$ 628.00	
	<b>SUBTOTAL (Site)</b>				<b>\$ 31,382.00</b>	<b>\$ 31,382.00</b>	
<b>2.0 Structural System</b>							
	Continuous Perimeter Footing	188	LF	\$ 252.29255	\$ 47,431.00	\$ 47,431.00	
	Interior Footings (5% of Building SF)	93	SF	\$ 35.79570	\$ 3,329.00	\$ 3,329.00	
	Gravel Backfill (Building SF + 10%)	2035	SF	\$ 3.27125	\$ 6,657.00	\$ 6,657.00	
	Slab on Grade (Building SF)	1850	SF	\$ 9.44595	\$ 17,475.00	\$ 17,475.00	
	Pre-Cast Walls and Double T's (Building SF)	1850	LF	\$ 133.59081	\$ 247,143.00	\$ 247,143.00	
	Structural Steel	1850	SF	\$ 2.69892	\$ 4,993.00	\$ 4,993.00	
	Embeds/Edge Angles	188	LF	\$ 22.13298	\$ 4,161.00	\$ 4,161.00	
	Railings	62	LF	\$ 26.82258	\$ 1,663.00	\$ 1,663.00	
	<b>SUBTOTAL (Structural System)</b>				<b>\$ 332,852.00</b>	<b>\$ 332,852.00</b>	
<b>3.0 Architectural</b>							
	Foundation Moisture/Air Barrier	188	LF	\$ 3.90426	\$ 734.00	\$ 734.00	
	Slab on Grade Moisture/Air Barrier	1850	SF	\$ 0.66162	\$ 1,224.00	\$ 1,224.00	
	Exterior Caulking	720	LF	\$ 5.43750	\$ 3,915.00	\$ 3,915.00	
	Roof Deck Insulation	1850	SF	\$ 4.76162	\$ 8,809.00	\$ 8,809.00	
	Roofing	1850	SF	\$ 7.40703	\$ 13,703.00	\$ 13,703.00	
	Parapet Coping	188	LF	\$ 6.51064	\$ 1,224.00	\$ 1,224.00	
	Scuppers, Downspouts, and Gutters	188	LF	\$ 6.51064	\$ 1,224.00	\$ 1,224.00	
	Flashing	273	LF	\$ 1.34432	\$ 367.00	\$ 367.00	
	FEMA Doors	4	EA	\$ 2,202.25000	\$ 8,809.00	\$ 8,809.00	
	Hollow Metal Frames	5	EA	\$ 81.60000	\$ 408.00	\$ 245.00	\$ 163.00
	Hollow Metal Doors	5	EA	\$ 122.40000	\$ 612.00	\$ 367.00	\$ 245.00
	Interior Partitions (FEMA interior spaces only)	920	SF	\$ 8.65435	\$ 7,962.00	\$ 4,282.00	\$ 3,680.00
	Gypsum Board Ceilings	460	SF	\$ 2.00000	\$ 920.00	\$ -	\$ 920.00
	Acoustical Ceilings	460	SF	\$ 2.00000	\$ 920.00	\$ -	\$ 920.00
	Interior Painting	1850	SF	\$ 5.00000	\$ 9,250.00	\$ -	\$ 9,250.00
	Toilet Compartments & Accessories	460	SF	\$ 5.31957	\$ 2,447.00	\$ 2,447.00	\$ -
	Sealed Concrete Flooring	1850	SF	\$ 0.39676	\$ 734.00	\$ 734.00	\$ -
	Graphics (signs)	10	EA	\$ 325.60000	\$ 3,256.00	\$ 856.00	\$ 2,400.00
	<b>SUBTOTAL (Architectural)</b>				<b>\$ 66,518.00</b>	<b>\$ 48,940.00</b>	<b>\$ 17,578.00</b>



# FEMA

# EXAMPLE: Safe Room (Budget Part 2)

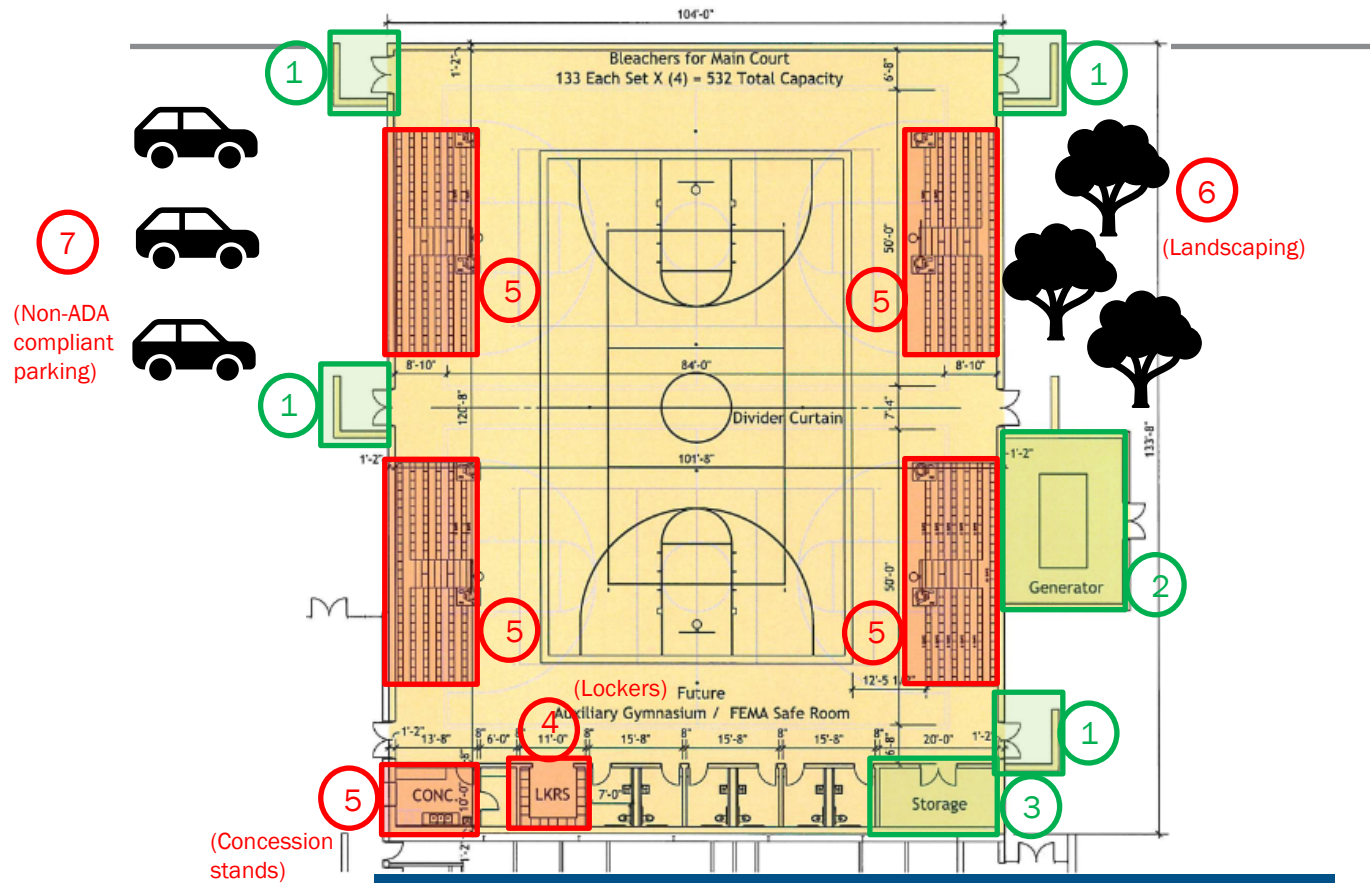
SUMMARY:				
1.0 Site	\$	31,382.00	\$ 31,382.00	
2.0 Structural System	\$	332,852.00	\$ 332,852.00	
3.0 Architectural	\$	66,518.00	\$ 48,940.00	\$ 17,578.00
4.0 Electrical	\$	73,036.00	\$ 47,836.00	\$ 25,200.00
5.0 Mechanical	\$	95,707.00	\$ 64,657.00	\$ 31,050.00
<b>SUBTOTAL (Construction Costs)</b>	<b>\$</b>	<b>599,495.00</b>	<b>\$ 525,667.00</b>	<b>\$ 73,828.00</b>

Item	Description	Quantity	Units	Unit Price	Total	FEMA Eligible	FEMA Ineligible
<b>4.0</b>	<b>Electrical</b>						
	Electrical Service	1850	SF	\$ 13.01459	\$ 24,077.00	\$ 12,677.00	\$ 11,400.00
	Back-up Power-UPS	1	EA	\$ 4,784.00000	\$ 4,784.00	\$ 4,784.00	
	Transformer	1	EA	\$ 5,727.00000	\$ 5,727.00	\$ 3,827.00	\$ 1,900.00
	Wiring	1850	SF	\$ 9.28703	\$ 17,181.00	\$ 11,481.00	\$ 5,700.00
	Panels	1	EA	\$ 2,074.00000	\$ 2,074.00	\$ 1,674.00	\$ 400.00
	Disconnect	1	EA	\$ 2,553.00000	\$ 2,553.00	\$ 2,153.00	\$ 400.00
	Outlets/Switches	1850	SF	\$ 1.92973	\$ 3,570.00	\$ 2,870.00	\$ 700.00
	Lighting	1850	SF	\$ 6.41892	\$ 11,875.00	\$ 7,175.00	\$ 4,700.00
	Fire Alarm	1850	SF	\$ 0.64595	\$ 1,195.00	\$ 1,195.00	
	<b>SUBTOTAL (Electrical)</b>				<b>\$ 73,036.00</b>	<b>\$ 47,836.00</b>	<b>\$ 25,200.00</b>
<b>5.0</b>	<b>Mechanical</b>						
	HVAC Units/Equipment	1850	SF	\$ 28.834054	\$ 53,343.00	\$ 33,843.00	\$ 19,500.00
	HVAC Controls	1850	SF	\$ 2.253514	\$ 4,169.00	\$ 3,369.00	\$ 800.00
	HVAC Test/Balance (estimate)	1850	SF	\$ 1.149189	\$ 2,126.00	\$ 1,726.00	\$ 400.00
	HVAC Supply and Return Ducting	1850	SF	\$ 2.727568	\$ 5,046.00	\$ 2,696.00	\$ 2,350.00
	HVAC Diffusers/Grilles	1850	SF	\$ 1.203243	\$ 2,226.00	\$ 1,726.00	\$ 500.00
	Plumbing Waste Lines	94	LF	\$ 52.936170	\$ 4,976.00	\$ 3,226.00	\$ 1,750.00
	Plumbing Supply Lines	94	LF	\$ 54.776596	\$ 5,149.00	\$ 3,149.00	\$ 2,000.00
	Plumbing Vent Stacks	94	LF	\$ 33.308511	\$ 3,131.00	\$ 1,131.00	\$ 2,000.00
	Plumbing Clean Outs	47	LF	\$ 54.851064	\$ 2,578.00	\$ 828.00	\$ 1,750.00
	Plumbing Fixture - Sinks*	2	EA	\$ 229.500000	\$ 459.00	\$ 459.00	\$ -
	Plumbing Fixture - Toilets	2	EA	\$ 488.000000	\$ 976.00	\$ 976.00	\$ -
	Plumbing Fire Protection - Sprinkler System	1850	SF	\$ 4.864865	\$ 9,000.00	\$ 9,000.00	
	Plumbing Fire Protection - Fire/Smoke Detection	1850	SF	\$ 1.366486	\$ 2,528.00	\$ 2,528.00	
	<b>SUBTOTAL (Mechanical)</b>				<b>\$ 95,707.00</b>	<b>\$ 64,657.00</b>	<b>\$ 31,050.00</b>



# FEMA

# EXAMPLE: Safe Room (3 of 3)



7  
(Non-ADA compliant parking)

5  
(Concession stands)

For a list of eligible and ineligible components of residential and community safe rooms, refer to the HMA Guidance Addendum.

Table 4: Eligible and Ineligible Components of Residential and Community Safe Rooms

Building Systems and Components	Residential	Community
Structural systems that directly support or protect the safe room to provide near-absolute, life-safety protection	Yes	Yes
Doors, windows, and opening protection	Yes	Yes
Protection of backup mechanical, electrical, ventilation, and communication equipment necessary to provide life-safety for the safe room	Yes	Yes
Signage	Yes	Yes
Communications, including LAN drops and wiring if used for emergency communication during an event	Yes	Yes
Alternate source of power	Yes	Yes
First aid supplies and equipment	No	Yes
Fire-suppression systems (sprinklers systems and fire extinguishers)	No*	Yes
Electrical lighting and outlets	Yes	Yes
ADA Requirements	Yes	Yes
Ventilation	Yes	Yes
HVAC used for required ventilation	Yes	Yes
HVAC not used for required ventilation	No	No
Accessible toilets and hand washing stations in safe room	No	Yes*
Planning/engineering/architecture design fees	Yes	Yes
Engineering study to calculate undefined flood elevations	Yes	Yes
Engineering peer review	Yes	Yes
Site preparation	Yes	Yes
Inspections, including special inspections	Yes	Yes
Soil test	No	Yes
Storage room for food, water, and safety equipment	No	Yes
Purchase of land	No	Yes
Safe room maintenance	No	No
Restroom fixtures not required by code or FEMA P-361	No	No
Paint on walls and ceilings of safe room	No	No
Floor coverings – subfloors not required for life safety	No	No
Removal of structures from developed land	No	No
Kitchen cabinets, countertops, and other equipment not required for life safety	No	No
Security cameras and EOC-type equipment	No	No
Landscaping	No	No
Parking and all non-building elements unless required for ADA compliance	No	No
Community-wide, mass notification systems	No	No



FEMA

# EXAMPLE: Stormwater System

- **Scope of Work:**

- Subapplicant has submitted a subapplication for the installation of a new storm sewer system within city boundaries. The project includes (1) new stormwater pipes, inlets, and manholes; and (2) new wastewater lift station, and detention ponds.
- The proposed project is intended to reduce risk of street flooding and wastewater sewer backups into the homes in the community. The proposed storm sewer system is being sized for the 2-year event.

- **Schedule:**

- The schedule provided indicates the project would be completed in 25 months.
- The permitting process is not included specifically in the schedule.

Task Name	Start Month	Task Duration (in Months)	Task Description
Plans and specifications	1	6	Prepare the plans and specifications
Bid	6	1	Bidding the project
Construction	7	16	Construction of the project
Project Closeout	23	2	Closeout documents for the project.
Estimate the total duration of your proposed activities (in months)			25



## EXAMPLE: Stormwater System (cont.)

DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	LS	1	\$50,000.00	\$50,000.00
Remove Curb and Gutter	LF	50,000	\$3.00	\$150,000.00
Remove Asphalt Pavement	SY	240,000	\$3.00	\$720,000.00
Remove Concrete Driveway Pavement	SY	1000	\$8.00	\$8,000.00
Remove Casting	EA	10	\$500.00	\$5,000.00
Sawing Concrete Pavement (Full Depth)	LF	400	\$7.00	\$2,800.00
Common Excavation (P)	CY	104,000	\$4.00	\$416,000.00
Topsoil Borrow (LV)	CY	8000	\$20.00	\$160,000.00
Geogrid	SY	230,000	\$3.00	\$690,000.00
Subgrade Preparation	SY	200,000	\$1.00	\$200,000.00
Aggregate Base(16")	CY	104,000	\$25.00	\$2,600,000.00
Reinforcement Bars (Epoxy Coated)	LB	500	\$3.00	\$1,500.00
4" Perforated Drain Tile	LF	105,600	\$4.00	\$422,400.00
12" RCP Storm Sewer Lead	LF	5,707	\$30.00	\$171,210.00
12" RCP Storm Sewer	LF	3,080	\$35.00	\$107,800.00
15" RCP Storm Sewer	LF	3,416	\$45.00	\$153,720.00
18" RCP Storm Sewer	LF	4,124	\$55.00	\$226,820.00
21" RCP Storm Sewer	LF	3,638	\$65.00	\$236,470.00
24" RCP Storm Sewer	LF	1,694	\$65.00	\$110,110.00
27" RCP Storm Sewer	LF	3,418	\$70.00	\$239,260.00
36" RCP Storm Sewer	LF	3,001	\$80.00	\$240,080.00
48" RCP Storm Sewer	LF	1,098	\$100.00	\$109,800.00
60" RCP Storm Sewer	LF	337	\$110.00	\$37,070.00
Lift Station	EA	2	\$175,000.00	\$350,000.00
Stormwater Detention Pond	ES	1	\$110,000.00	\$110,000.00
Adjust Gate Valve & Box	EA	20	\$300.00	\$6,000.00

1

2

### Cost Estimate Comments:

- The cost estimate is consistent with the scope of work and schedule
- Several items such as the stormwater detention pond, engineering, and administration was presented as lump sum.

DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
Casting Assembly, Type A	EA	36	\$1,200.00	\$43,200.00
Casting Assembly Type C	EA	40	\$1,500.00	\$60,000.00
Install Catch Basin	EA	191	\$1,500.00	\$286,500.00
Construct Storm Manhole (48")	LF	800	\$450.00	\$360,000.00
4" Concrete Sidewalk	SF	1000	\$7.00	\$7,000.00
Concrete Curb and Gutter, Design B624	LF	55,000	\$18.00	\$990,000.00
6" Concrete Driveway Pavement	SY	1000	\$75.00	\$75,000.00
Traffic Control	LS	1	\$50,000.00	\$50,000.00
Storm Drain inlet Protection	EA	191	\$100.00	\$19,100.00
Seeding	SY	100,000	\$2.00	\$200,000.00
<b>Construction Cost</b>				<b>\$9,614,840.00</b>
<b>Engineering - Plans/Specifications</b>				<b>\$769,187.20</b>
<b>Engineering - Stake/Inspection</b>				<b>\$769,187.20</b>
<b>Administration</b>				<b>\$192,296.80</b>
<b>Legal</b>				<b>\$96,148.40</b>
<b>Contingency</b>				<b>\$480,742.00</b>
<b>Total Construction Cost</b>				<b>\$11,922,401.60</b>



FEMA



## **SECTION 4**

# Cost Estimate Review Summary

# Cost Estimate Review Checklist

---

- ✓ Job Name
- ✓ Project Type
- ✓ Scope of Work
- ✓ Basis of estimate document
- ✓ Quantities for all line items of work
- ✓ Unit prices applied to all line items
- ✓ Description
- ✓ Unit of measure
- ✓ Equipment, Labor, Material, Subcontractor
- ✓ Soft Costs
- ✓ Math Check



# Cost Estimate Review Summary (1 of 4)

Reasons for issuing a Request For Information (RFI) include:

1. Missing important info on previous checklist
2. Inconsistencies between SOW, Schedule, and Cost Estimate

**Cost Estimate Comments:**

- The cost estimate is consistent with the scope of work and schedule. However, the cost estimate does not explicitly state the inclusion of costs for **final inspection and obtaining a final elevation certificate.**

Task Name	Start Month	Task Duration (in Months)	Task Description
Preconstruction Activities	1	2	1. Design plans, contractor selection, building permits 2. Temporary relocation of residents
Elevate Structure	3	2	1. Disconnect utilities 2. Remove basement mechanicals 3. Remove basement finished interior 4. Lift house, chimney, and deck 5. Extend house and chimney foundations & deck supports 6. Remove basement floor slab and fill with sand/gravel
Restoration	5	2	1. Pour new floor slab at higher elevation 2. Replace basement mechanicals 3. Replace basement finished interior 4. Fill and grade to raise driveway and ground around foundation 5. Raise front steps and rear patio 6. Reconnect utilities
Miscellaneous	1	6	1. Town grant administration 2. Contingencies 3. Inflation
Estimate the total duration of proposed activities (in months)		6	

1

2

3

4



FEMA



# Cost Estimate Review Summary (2 of 4)

Reasons for issuing a Request For Information (RFI) include:

## 3. Lump sum cost items with no quantities

Casting Assembly, Type A	EA	36	\$1,200.00	\$43,200.00
Casting Assembly Type C	EA	40	\$1,500.00	\$60,000.00
Install Catch Basin	EA	191	\$1,500.00	\$286,500.00
Construct Storm Manhole (48")	LF	800	\$450.00	\$360,000.00
4" Concrete Sidewalk	SF	1000	\$7.00	\$7,000.00
Concrete Curb and Gutter, Design B624	LF	55,000	\$18.00	\$990,000.00
6" Concrete Driveway Pavement	SY	1000	\$75.00	\$75,000.00
Traffic Control	LS	1	\$50,000.00	\$50,000.00
Storm Drain inlet Protection	EA	191	\$100.00	\$19,100.00
Seeding	SY	100,000	\$2.00	\$200,000.00
<b>Construction Cost</b>				<b>\$9,614,840.00</b>
<b>Engineering - Plans/Specifications</b>				<b>\$769,187.20</b>
<b>Engineering - Stake/Inspection</b>				<b>\$769,187.20</b>
<b>Administration</b>				<b>\$192,296.80</b>
<b>Legal</b>				<b>\$96,148.40</b>
<b>Contingency</b>				<b>\$480,742.00</b>
<b>Total Construction Cost</b>				<b>\$11,922,401.60</b>

### Cost Estimate Comments:

The cost estimate is consistent with the scope of work and schedule. Several items such as the stormwater detention pond, engineering, and administration was presented as lump sum.



# Cost Estimate Review Summary (3 of 4)

Reasons for issuing a Request For Information (RFI) include:

4. Inaccurate math or calculations in the estimate
5. Contingency line item greater than 5%

### Cost Estimate Comments:

- Contingency costs exceed the recommended 1 – 5% from HMA guidance.

## CSI Cost Summary

	Conceptual Budget	Total Project Costs	Cost / SF (84,000 RSF)	% of Total
2	Sitework	\$0	\$0.00	0.00%
3	Concrete	\$0	\$0.00	0.00%
4	Masonry	\$0	\$0.00	0.00%
5	Metals	\$25,000	\$0.30	0.85%
6	Woods & Plastics	\$8,250	\$0.10	0.28%
7	Thermal & Moisture Protection	\$46,650	\$0.56	1.59%
8	Doors & Windows	\$1,544,496	\$18.39	52.70%
9	Finishes	\$157,200	\$1.87	5.36%
10	Specialties	\$0	\$0.00	0.00%
11	Equipment	\$0	\$0.00	0.00%
12	Furnishings	\$277,400	\$3.30	9.47%
13	Special Construction	\$0	\$0.00	0.00%
14	Conveying Systems	\$0	\$0.00	0.00%
15	Mechanical	\$22,400	\$0.27	0.76%
16	Electrical	\$0	\$0.00	0.00%
17	Communications & Data	\$0	\$0.00	0.00%
<b>Subtotal</b>		<b>\$2,081,396</b>	<b>\$24.78</b>	<b>71.02%</b>
Construction Contingency @ 10%		\$208,140	\$2.48	7.10%
General Conditions and Requirements		\$218,458	\$2.60	7.45%
<b>Subtotal</b>		<b>\$2,507,994</b>	<b>\$29.86</b>	<b>85.58%</b>
Performance & Payment Bond		\$0	\$0.00	0.00%
Overhead & Profit		\$163,020	\$1.94	5.56%
Builder Risk Insurance		\$29,017	\$0.35	0.99%
General Liability Insurance		\$22,572	\$0.27	0.77%
Design Contingency @ 10%		\$208,140	\$2.48	7.10%
Escalation		Not Incl.	-	-
<b>Total Projected Costs</b>		<b>\$2,930,742</b>	<b>\$34.89</b>	<b>100.00%</b>



FEMA

# Cost Estimate Review Summary (4 of 4)

Reasons for issuing a Request For Information (RFI) include:

- 6. Ineligible costs
- 7. Unreasonable costs

Item	Description	Total	FEMA Eligible	FEMA Ineligible
<b>SUMMARY:</b>				
1.0	Site	\$ 31,382.00	\$ 31,382.00	
2.0	Structural System	\$ 332,852.00	\$ 332,852.00	
3.0	Architectural	\$ 66,518.00	\$ 48,940.00	\$ 17,578.00
4.0	Electrical	\$ 73,036.00	\$ 47,836.00	\$ 25,200.00
5.0	Mechanical	\$ 95,707.00	\$ 64,657.00	\$ 31,050.00
<b>SUBTOTAL (Construction Costs)</b>		<b>\$ 599,495.00</b>	<b>\$ 525,667.00</b>	<b>\$ 73,828.00</b>
<b>DESIGN FEES</b>				
	Geotechnical Exploration (estimate)	\$ 4,500.00	\$ 4,500.00	
	Structural Engineering	\$ 16,984.00	\$ 16,984.00	
	Architectural Design	\$ 47,962.00	\$ 42,055.00	\$ 5,907.00
	Civil/Survey	\$ 7,279.00	\$ 7,279.00	
	MEP Engineering	\$ 10,628.00	\$ 9,705.00	\$ 923.00
	Project Management	\$ 30,810.00	\$ 30,810.00	
	Construction Materials Testing / Special Inspections	\$ 10,000.00	\$ 10,000.00	
<b>SUBTOTAL (Design Fees)</b>		<b>\$ 128,163.00</b>	<b>\$ 121,333.00</b>	<b>\$ 6,830.00</b>
<b>TOTAL (PROJECT COST)</b>				
<b>Project Totals</b>		<b>\$ 727,658.00</b>	<b>\$ 647,000.00</b>	<b>\$ 80,658.00</b>
	Final Project Cost	\$ 727,658.00		
	Total FEMA Eligible Cost	\$ 647,000.00		
	Federal Share (90%)	\$ 582,300.00		
	Local Share (10%)	\$ 64,700.00		
	Total FEMA Ineligible Cost	\$ 80,658.00		



**Q&A**

# Questions and Comments



**FEMA**