

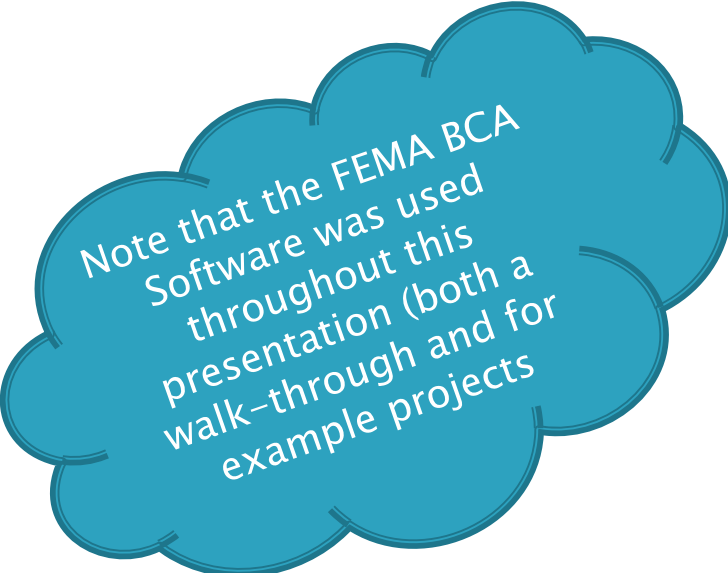
# Benefit–Cost Analysis for FEMA Mitigation Grants

FEMA BCA Toolkit

Molly O'Toole, P.E., D. WRE, CFM  
Molly O'Toole & Associates, Ltd.

# Benefit Cost Analysis

- ▶ FEMA Requirements for Cost-Effectiveness
  - $BCR > 1.0$  for the Project
  - BCA Toolkit
  - The “Pre-Calculated Benefits” Memo
- ▶ BCA Toolkit
  - Available Training
  - Benefit-Cost Analysis 5.3.0
  - Where to Start
  - Types of Projects
- ▶ General Recommendations



Note that the FEMA BCA Software was used throughout this presentation (both a walk-through and for example projects)

# FEMA Requirements for Cost Effectiveness

- ▶ Hazard Mitigation Assistance (HMA) Guidance (pdf)
- ▶ Section IV. I. for Cost Effectiveness
- ▶ FEMA approved method – BCA Toolkit



## Hazard Mitigation Assistance Guidance

Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program

*February 27, 2015*



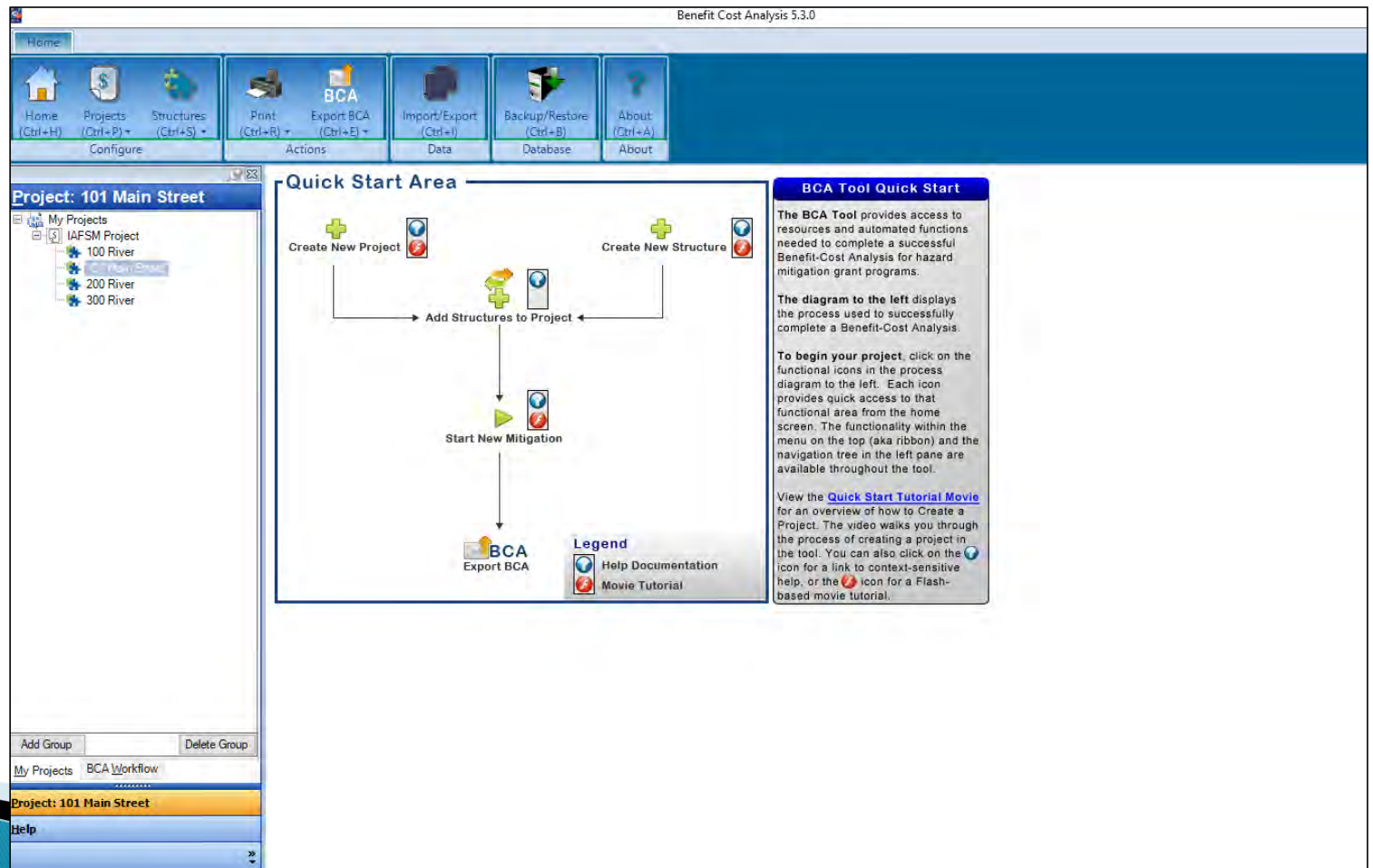
Federal Emergency Management Agency  
Department of Homeland Security  
500 C Street, S.W.  
Washington, DC 20472

# FEMA Requirements for Cost Effectiveness

## ► For the Project

| TOTAL PROJECT                          | Grant Amounts |
|--|---------------|
| Total Benefits                         | \$ 1,050,386  |
| Acquisition Costs                      | \$ 961,412    |
| Acquisition Costs Plus Maintenance     | \$ 968,547    |
| Pre-Application Costs                  | \$ 4,000      |
| Management Costs (5%)                  | \$ 50,000     |
| Total of All Project Costs             | \$ 1,022,547  |
| <b>Total Benefits/Total Costs</b>      | <b>1.03</b>   |
|  |               |
| Total Grant Project Amount (no Maint.) | \$ 1,015,412  |
| Federal Share @ 75%                    | \$ 761,549    |
| Local Match @ 25%                      | \$ 253,863    |
| Total:                                 |               |

# FEMA Approved Method – BCA Tool







Navigation

Search

Languages

Hazard Mitigation Assistance

- > Hazard Mitigation Grant Program
- > Flood Mitigation Assistance
- > Pre-Disaster Mitigation Grants
- > eGrants External system for Subgrant Applicant Users

Hazard Mitigation Assistance Communications

Hazard Mitigation Stakeholder Workshop

Latest News

## Benefit-Cost Analysis

This page provides information on FEMA's Benefit-Cost Analysis (BCA) program guidelines, methodologies, and tools for the [Hazard Mitigation Assistance \(HMA\)](#) and [Public Assistance \(PA\)](#) grant programs.

> Expand All Sections

> About Benefit-Cost Analysis

> Benefit-Cost Analysis Methodology

> Pre-Calculated Benefits

> BCA Tool Download

> Other Reference Materials

> Training

# *BCA Reference Guide*



Final

## BCA Reference Guide

*June 2009*



Federal Emergency Management Agency  
Department of Homeland Security  
500 C Street, SW  
Washington, DC 20472



## *BCA Tool Features*

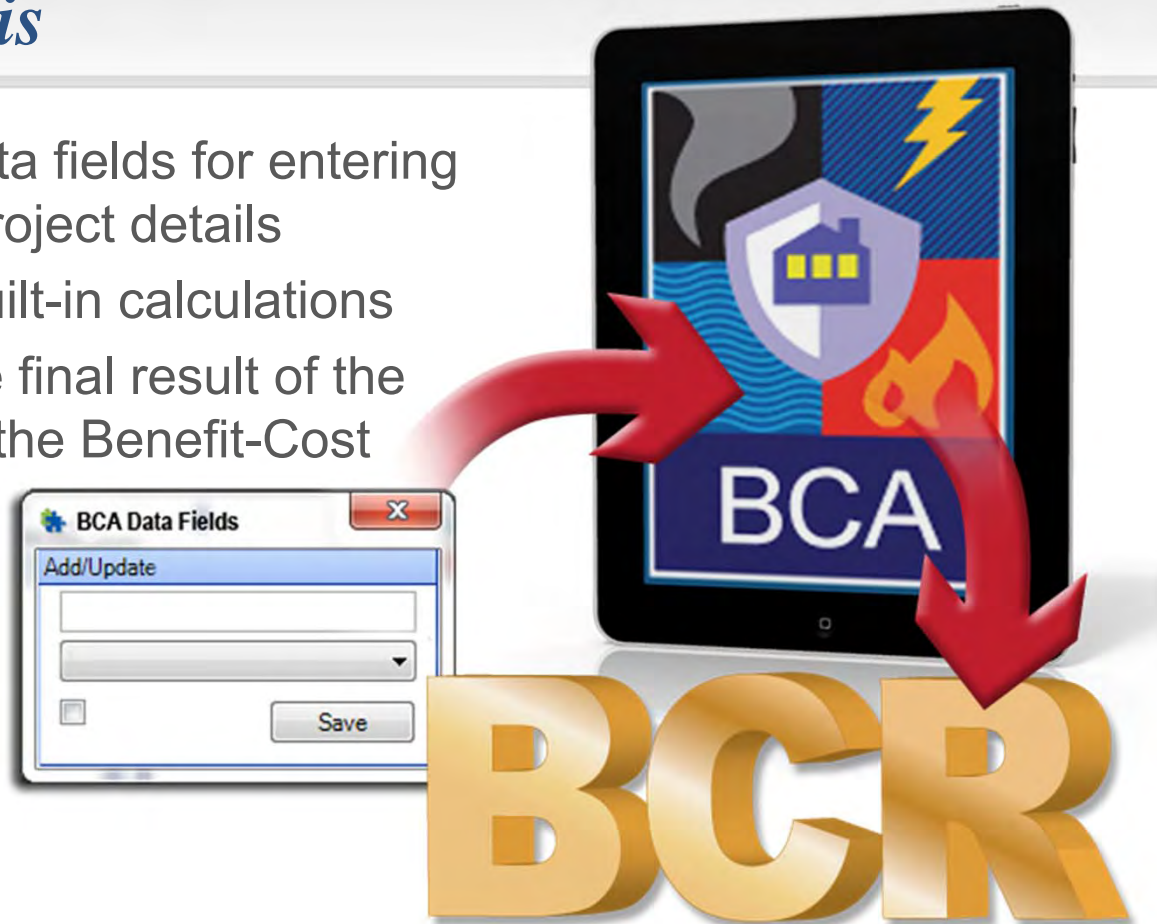
- Automates analysis of a project's cost-effectiveness
- Requires documentation to support entered data
- Provides standard values
- Provides modules for specific hazards





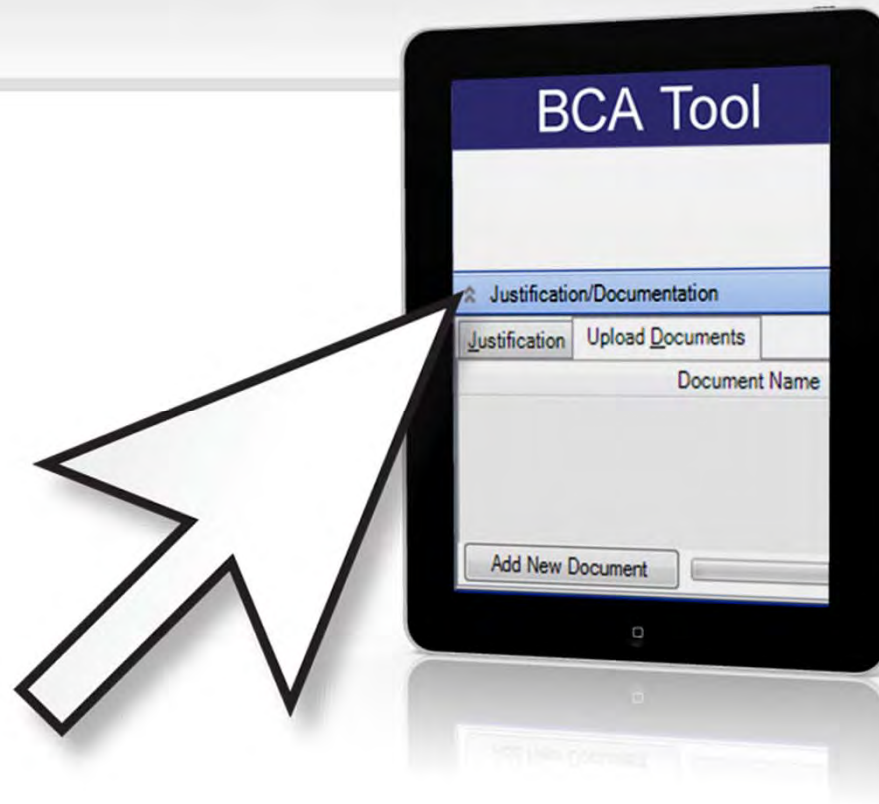
## *Automated Analysis*

- Provides data fields for entering mitigation project details
- Executes built-in calculations
- Displays the final result of the analysis as the Benefit-Cost Ratio



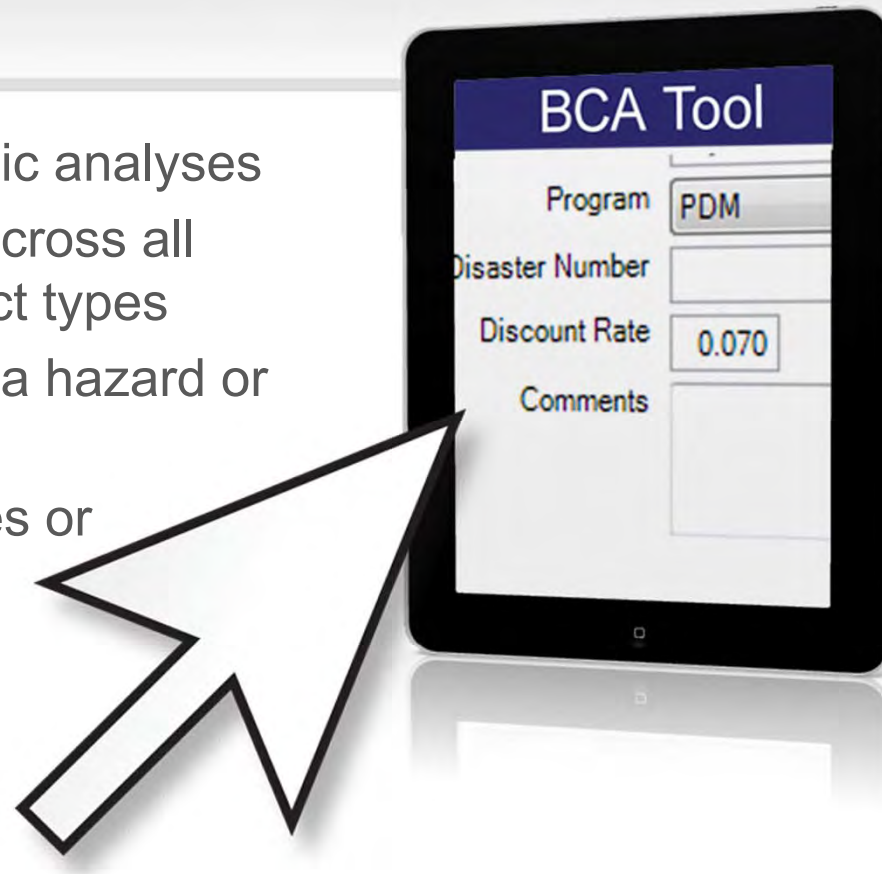
## *Documentation Support*

- Accurate
- Complete
- Consistent
- Reliable



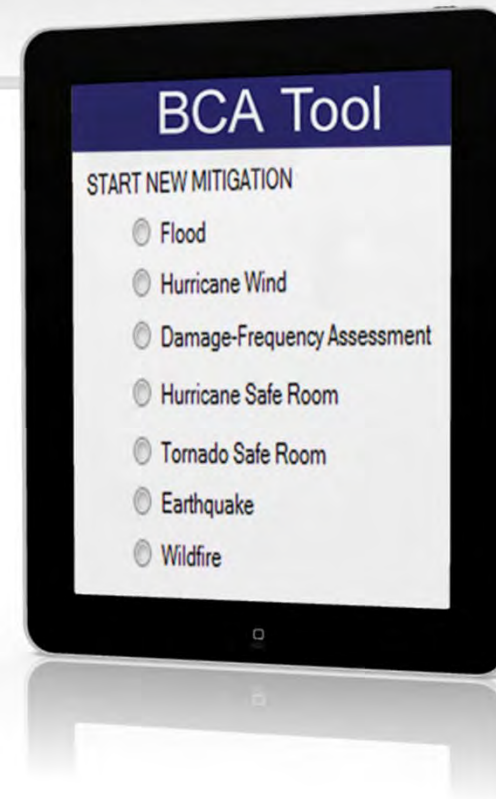
## *Standard Values*

- Results of economic analyses
- May be standard across all hazards and project types
- May be specific to a hazard or project type
- May allow overrides or may not



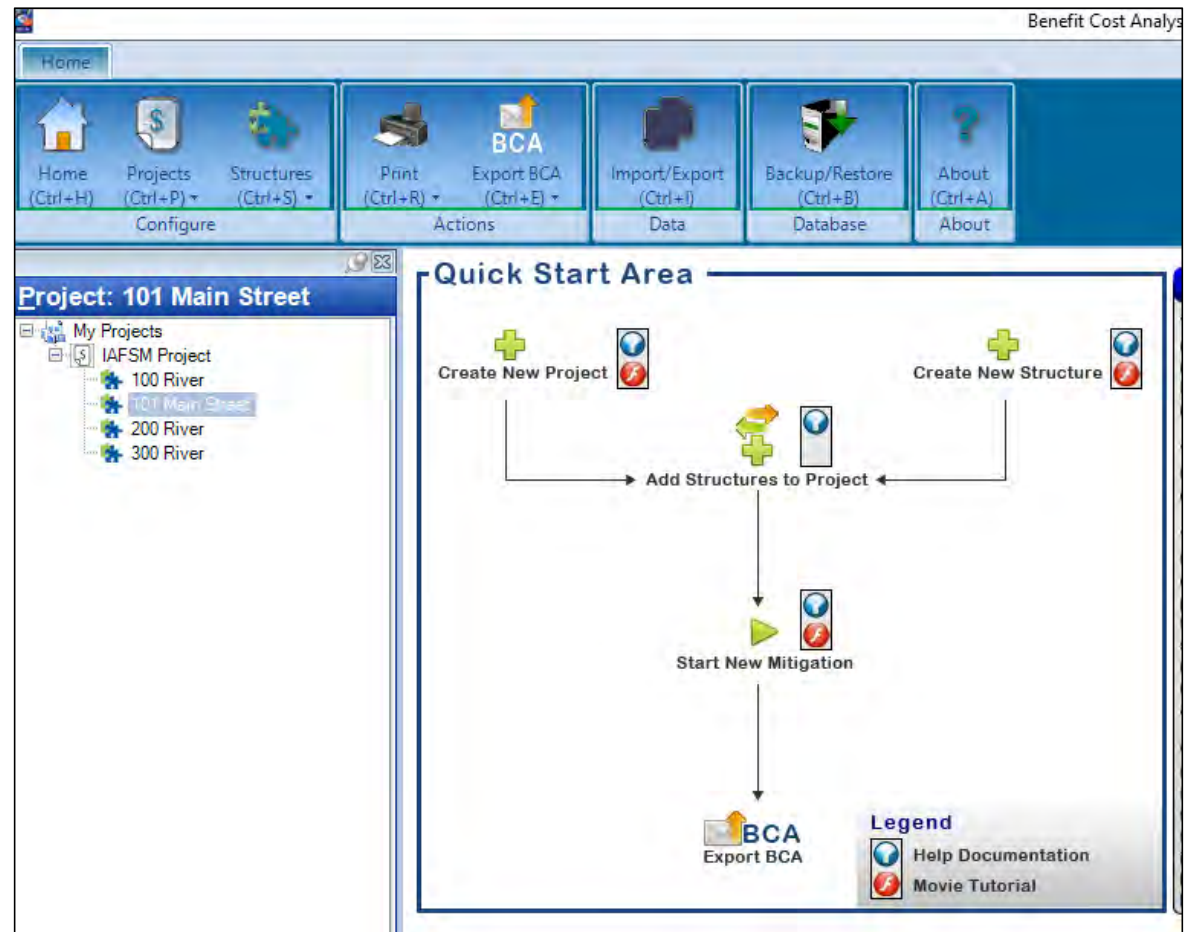
## *Seven Hazard Modules*

- Flood
- Earthquake
- Wildfire
- Hurricane Wind
- Tornado Safe Room
- Hurricane Safe Room
- Damage Frequency Assessment



# BCA Toolkit

- Software
- BCA Guide
- BCA Supplement
- Templates
- Bchelpline
- Videos
- Webinars





Benefit Cost Analysis 5.3.0

Home

Home  
(Ctrl+H)

Projects  
(Ctrl+P)

Structures  
(Ctrl+S)

Configure

Print  
(Ctrl+R)

Export BCA  
(Ctrl+E)

Actions

Import/Export  
(Ctrl+I)

Data

Backup/Restore  
(Ctrl+B)

Database

About  
(Ctrl+A)

About

Project: 101 Main Street

My Projects

IAFSM Project

100 River

101 Main Street

200 River

300 River

Add Group

Delete Group

My Projects

BCA Workflow

Project: 101 Main Street

Help

Quick Start Area

Create New Project

Create New Structure

Add Structures to Project

Start New Mitigation

Export BCA

Help Documentation

Movie Tutorial

BCA Tool Quick Start

The BCA Tool provides access to resources and automated functions needed to complete a successful Benefit-Cost Analysis for hazard mitigation grant programs.

The diagram to the left displays the process used to successfully complete a Benefit-Cost Analysis.

To begin your project, click on the functional icons in the process diagram to the left. Each icon provides quick access to that functional area from the home screen. The functionality within the menu on the top (also ribbon) and the navigation tree in the left pane are available throughout the tool.

View the [Quick Start Tutorial Movie](#) for an overview of how to Create a Project. The video walks you through the process of creating a project in the tool. You can also click on the icon for a linked context-sensitive help, or the icon for a Flash-based movie tutorial.



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Admissions[Independent Study Program \(IS\)](#) > [IS-277 A: Benefit-Cost Analysis \(BCA\): Entry- Level](#)

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**Notice:** Independent Study Exams now require a FEMA Student Identification (SID) Number. If you do not yet have a SID, register for one today: <https://icdp.dhs.gov/femasid>. Please do not contact the Independent Study program office as they are unable to provide assistance with these requests.

If you have an inquiry regarding the FEMA Independent Study Program, NIMS or other Emergency Management Institute (EMI) related requests such as: requests for certificates, transcripts, online test scores/results, please contact the FEMA Independent Study program office at 301-447-1200 or email [IndependentStudy@fema.dhs.gov](mailto:IndependentStudy@fema.dhs.gov) for further assistance. Please do not contact the FEMA NIMS Help Desk as they are unable to provide assistance with these requests.

**IS-277.A: Benefit-Cost Analysis (BCA): Entry- Level****Course Date**

5/23/2017

**Course Overview**

This course is designed as an introduction to the fundamental concepts of benefit-cost (BC) analysis. Participants will learn how to obtain BC data and conduct analyses using the latest version of the Benefit Cost Toolkit. This course will not teach how to conduct level-two BC analyses.

**Course Objectives:**

- Demonstrate their knowledge of the basic BCA theory.

**TAKE THIS COURSE**[Interactive Web Based Course](#)**TAKE FINAL EXAM**

Please note that the IS Program now requires a FEMA SID to be used instead of your SSN. If you do not have a SID, [register for one here](#).

[Take Final Exam Online](#)

# FEMA Working to Simplify – “The Memo”

- ▶ August 2013 from Federal Insurance and Mitigation Administration (FIMA)

Acquisition project is cost-beneficial if all costs are less than \$276,000

Elevation project is cost-beneficial if all costs are less than \$175,000





FEMA

AUG 15 2013

MEMORANDUM FOR: Regional Administrators  
Regions I-X

ATTENTION: Regional Mitigation Division Directors  
Hazard Mitigation Assistance Branch Chiefs

FROM: Roy E. Wright  
Deputy Associate Administrator for Mitigation

SUBJECT: Cost Effectiveness Determinations for Acquisitions and Elevations  
in Special Flood Hazard Areas

Projects that are eligible for funding under the Hazard Mitigation Assistance (HMA) programs must be cost effective, i.e., have a Benefit Cost Ratio (BCR) equal to or greater than 1.0. The Risk Reduction Division has completed an analysis of 11,000 acquisition and elevation projects and determined that the average benefits for each type of project were \$276,000 and \$175,000 respectively. Therefore, FEMA has determined that the acquisition or elevation of a structure located in the 100-year floodplain (as delineated on the Flood Insurance Rate Map or based on best available data) that costs less than or equal to the amount of benefits listed above is considered cost effective. For projects that contain multiple structures, the average cost of all structures in the project must meet the stated criterion. There is no need for applicants to conduct a separate benefit cost analysis for a structure that meets this criterion.

Additionally, the specific geographic location of structures can greatly increase acquisition and elevation costs. The amount of benefits identified above may be adjusted by the applicant or subapplicant using locality multipliers that are included in industry accepted cost and pricing guides for construction. If a multiplier is used, a copy of the source document must be included as part of the grant application for review and the methodology demonstrated for the increase of benefits. Also, the applicant or subapplicant should use the most up-to-date locality multiplier at the time of application.

To qualify for these pre-calculated benefits, applicants must provide maps with the structure footprint clearly identified and the 100-year Special Flood Hazard Area (SFHA) delineated (Flood Insurance Rate Map or best available data) as part of the grant application. If the structure or any part of the structure lies in the 100-year SFHA, the structure can utilize the pre-

Cost Effectiveness Determinations for Acquisitions and Elevations in SFHA

Page 2

AUG 15 2013

calculated benefits. Alternatively, first floor elevations (FFE) can be included for each structure as well as the base flood elevation (BFE) for that location. If the FFE is less than BFE, structures can use the pre-calculated benefits. No other detailed analysis will be required. These pre-calculated benefits can be used for structures in 100-year floodplains in riverine and coastal areas that meet the stated criterion.

This methodology satisfies the cost-effective requirements for the Flood Mitigation Assistance program, any disasters with an open grant application period as of the date of this memorandum, and future disasters. We will discuss the methodology used in the analysis in a future call with the HMA Branch Chiefs.

This determination advances FEMA's commitment to streamline the HMA programs by eliminating the need to perform a complete benefit cost analysis for each structure; reducing time involved in data collection, application development and review; and assisting communities in recovering from disaster more quickly. This memorandum does not replace or supersede the substantial damage benefit cost analysis waiver memorandum.

If you have any questions, please contact me directly at (202) 646-3461, or Kayed Lakhia, Deputy Director, Risk Reduction Division at (202) 646-3458.



U.S. Department of Homeland Security  
500 C Street, SW  
Washington, DC 20472

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MEMO

ATTENTION

FROM:

SUBJECT:

Cost Effectiveness Determinations for Acquisitions and Elevations  
in Special Flood Hazard Areas

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This determination advances FEMA's commitment to streamline the HMA programs by eliminating the need to perform a complete benefit cost analysis for each structure; reducing time involved in data collection, application development and review; and assisting communities in recovering from disaster more quickly. This memorandum does not replace or supersede the substantial damage benefit cost analysis waiver memorandum.

If you have any questions, please contact me directly at (202) 646-3461, or Kayed Lakhia, Deputy Director, Risk Reduction Division at (202) 646-3458.

# “Pre-Calculated Benefits”

- ▶ Buildings in or partially in the SFHA
- ▶ Or outside the SFHA, if FFE is below BFE





# Pre-Calculated Benefits – Documentation

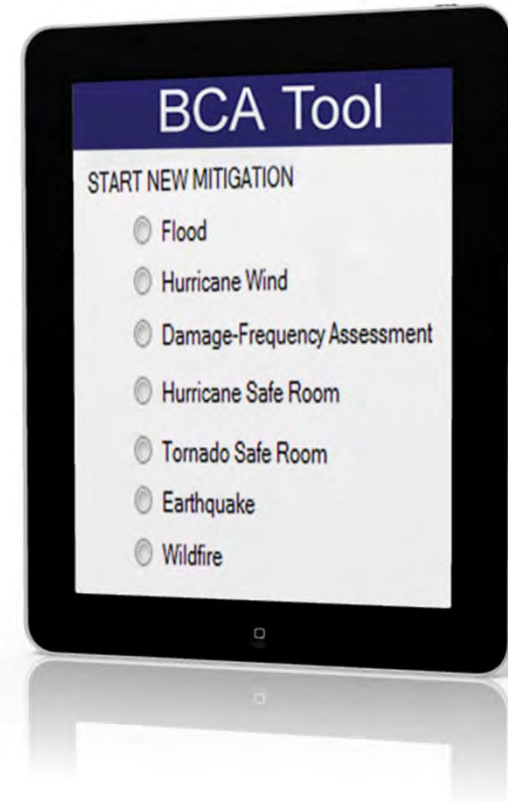
- ▶ Build a spreadsheet
- ▶ FIRM – FIRMette – must show building footprint
- ▶ Assessor's Data
- ▶ Cost Data
- ▶ Elevation Data if outside the SFHA



# Benefit Cost Analysis

## Get Organized

- Spreadsheet
- FIRM
- FIS
- Elevation Data
- Assessor's Data
- Building types
- Replacement costs



# General Sense of Damage Curves

- ▶ First Floor Elevation (FFE) 2 feet below BFE, the cost-beneficial
- ▶ Impacted by 10-year flood, then cost beneficial
- ▶ Sometimes basement floor can be FFE

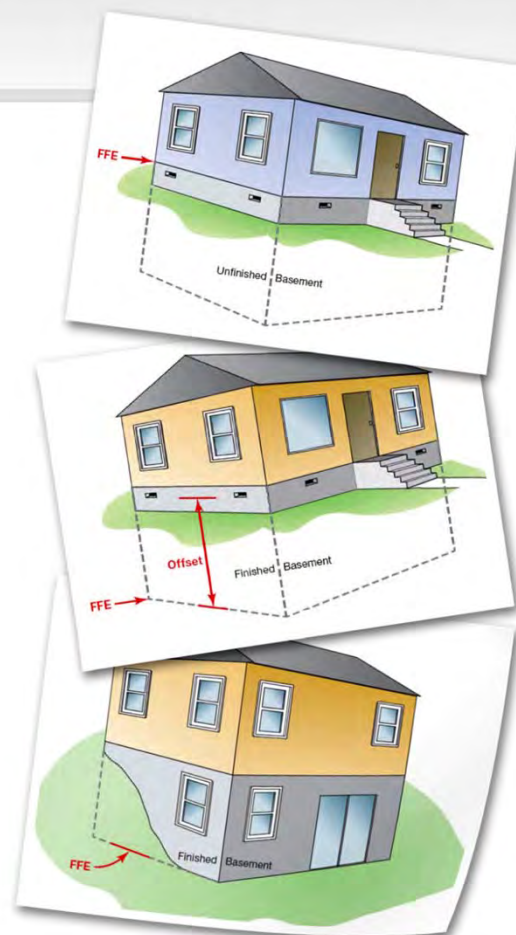


## Common Types of Basements

The most common types of basements are:

- Unfinished and non-walkout
- Finished and walkout
- Finished and non-walkout

See “Supplement to the BCA Reference Guide”  
to understand the FFE to use for basements.



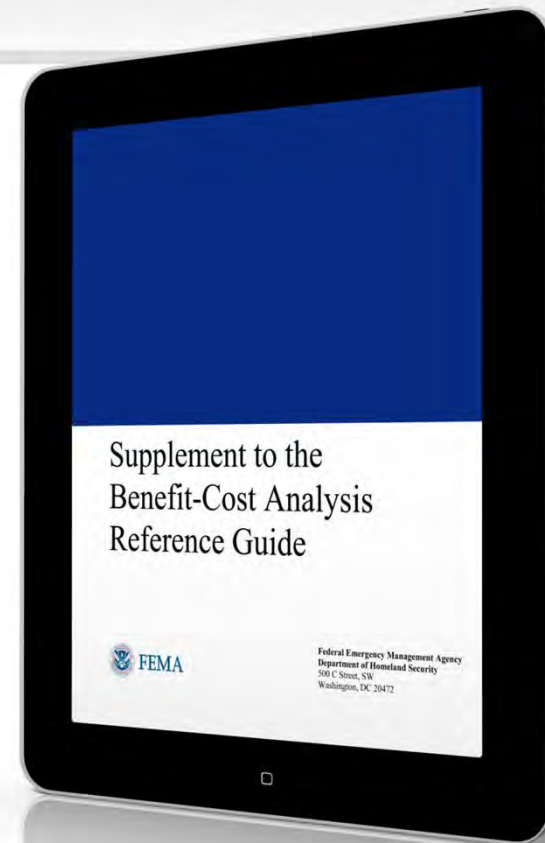
## *Types of Basements*

- Incorrect application of first floor elevation (FFE) for basements + structure type selection – common reasons why BCAs are changed during review
- Highlighted in the *Supplement to the BCA Reference Guide*



## *Other Basement Considerations*

- Other types of basements –  
*Help content and Supplement to  
the BCA Reference Guide*





## *Knowledge Check*

In a finished walkout basement, what do you enter for the question “Does the building have a basement”?

- Yes
- No

Answer is “No.” When the basement floor can be used at the FFE, then do not include a basement for that building.

(BCA Module includes some damage and values when there is a basement. Be sure not to double count damages/benefits)



*Poll*



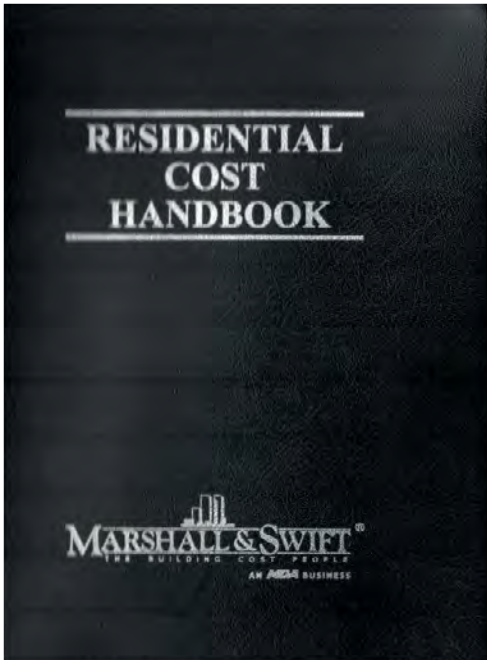
# Assessor's Data

- ▶ Value of property
- ▶ Foundation type
- ▶ Square footage
- ▶ Other information



# Replacement Cost

- ▶ To determine benefits
- ▶ Per square foot
- ▶ Marshall & Swift or other accepted sources



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## ONE STORY

Source: CostWatch  
Average Quality

### RESIDENCE

#### STUD FRAMED

| Total Area | Plywood or Hardboard | Metal or Vinyl Siding | Stucco | Wood Siding | Wood Shingles | Synth. Flt. (SPF) |
|------------|----------------------|-----------------------|--------|-------------|---------------|-------------------|
| 600        | 100.53               | 100.25                | 102.27 | 101.95      | 102.75        | 100.46            |
| 800        | 95.35                | 95.41                 | 96.97  | 96.58       | 97.30         | 95.62             |
| 1000       | 91.37                | 91.31                 | 92.87  | 92.60       | 93.28         | 91.64             |
| 1200       | 88.31                | 88.44                 | 89.73  | 89.47       | 90.12         | 88.25             |
| 1400       | 86.09                | 87.12                 | 88.38  | 88.15       | 88.76         | 86.05             |
| 1600       | 85.80                | 85.92                 | 87.16  | 86.91       | 87.53         | 85.60             |
| 1800       | 84.70                | 84.82                 | 86.03  | 85.79       | 86.39         | 84.46             |
| 1900       | 83.68                | 83.80                 | 84.98  | 84.75       | 85.34         | 83.45             |
| 1700       | 82.74                | 82.85                 | 84.02  | 83.79       | 84.37         | 82.50             |
| 1500       | 81.86                | 81.97                 | 83.12  | 82.88       | 83.46         | 81.45             |
| 1300       | 81.03                | 81.15                 | 82.28  | 82.05       | 82.61         | 80.57             |
| 1100       | 80.26                | 80.37                 | 81.48  | 81.26       | 81.82         | 79.74             |
| 900        | 79.53                | 79.64                 | 80.74  | 80.52       | 81.08         | 79.00             |
| 700        | 78.84                | 78.95                 | 80.02  | 79.81       | 80.35         | 78.22             |
| 500        | 77.57                | 77.67                 | 78.73  | 78.52       | 79.04         | 76.95             |
| 300        | 76.42                | 76.52                 | 77.55  | 77.34       | 77.85         | 75.83             |
| 100        | 75.36                | 75.46                 | 76.47  | 76.27       | 76.77         | 74.81             |
| 0          | 74.40                | 74.50                 | 75.48  | 75.28       | 75.77         | 73.84             |
| 2000       | 73.51                | 73.60                 | 74.57  | 74.37       | 74.85         | 72.92             |

#### STUD FRAMED

#### MASONRY

| Total Area | Rustic Log | Masonry Veneer | Concrete Block | Stucco on Block | Common Brick | Painted Concrete (SPF) |
|------------|------------|----------------|----------------|-----------------|--------------|------------------------|
| 600        | 114.03     | 112.87         | 106.81         | 105.40          | 118.78       | 113.30                 |
| 800        | 107.46     | 106.30         | 100.82         | 100.19          | 111.70       | 106.44                 |
| 1000       | 102.65     | 101.38         | 96.40          | 95.03           | 106.49       | 103.05                 |
| 1200       | 98.57      | 97.83          | 92.94          | 91.04           | 102.42       | 98.91                  |
| 1400       | 97.26      | 96.23          | 91.46          | 89.51           | 100.68       | 97.73                  |
| 1600       | 96.79      | 94.70          | 90.10          | 88.12           | 99.10        | 96.51                  |
| 1800       | 94.44      | 93.43          | 88.56          | 86.04           | 97.65        | 94.93                  |
| 1900       | 92.19      | 92.25          | 87.72          | 85.05           | 96.31        | 92.66                  |
| 1700       | 92.03      | 91.05          | 86.06          | 83.55           | 95.01        | 91.42                  |
| 1500       | 90.96      | 89.56          | 85.67          | 82.54           | 93.91        | 90.20                  |
| 1300       | 89.95      | 88.99          | 84.75          | 81.58           | 92.83        | 89.12                  |
| 1100       | 89.01      | 88.05          | 83.38          | 80.65           | 91.82        | 88.08                  |
| 900        | 88.12      | 87.17          | 82.06          | 79.64           | 90.87        | 87.12                  |
| 700        | 87.26      | 86.33          | 82.29          | 79.04           | 89.87        | 86.20                  |
| 500        | 86.73      | 84.80          | 80.88          | 82.57           | 88.51        | 84.50                  |
| 300        | 84.56      | 83.41          | 79.57          | 81.24           | 86.61        | 83.00                  |
| 100        | 83.35      | 82.74          | 78.40          | 80.03           | 85.44        | 81.81                  |
| 0          | 81.68      | 80.58          | 77.32          | 78.92           | 84.19        | 80.34                  |
| 2000       | 80.80      | 79.51          | 76.32          | 77.89           | 83.04        | 79.18                  |

### SQUARE FOOT ADJUSTMENTS

#### ROOFING:

|   |          |
|---|----------|
| Composition shingle or Built-up, small rock | (base)   |
| Clay tile                                   | + \$1.94 |
| Concrete tile                               | + 4.94   |
| Metal, preformed                            | + 1.34   |
| Wood shake                                  | + 2.47   |
| Wood shingle                                | + 2.16   |
| Composition roll                            | + 1.14   |

#### ENERGY ADJ.: Mod. Climate

|                 |          |
|-----------------|----------|
| Mild climate    | - \$1.37 |
| Extreme climate | + 2.21   |
| Superinsulated  | + 4.59   |

#### FOUNDATION ADJ.: Mod. Climate

|                          |          |
|--------------------------|----------|
| Mild climate             | - \$2.94 |
| Extreme climate          | + 3.27   |
| Hillside, moderate slope | + 1.85   |
| Hillside, steep slope    | + 7.82   |

Add for SEISMIC ZONES (Z)/HURRICANE (Wind) Adj.: See intro-B maps, Z=1, Frame (Z2) +\$1.94, (Z3-4wind) +\$3.05  
Masonry (Z2) +\$1.76, (Z3-4wind) +\$2.80

See Pages Avg-37 — Avg-38 for other Sq. Ft. Adjustments, Basements, Porches, Garages, etc.

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## ONE AND ONE HALF STORY

Source: CostWatch  
Average Quality  
(Unfinished 2nd Floor)

### RESIDENCE: (Apply to first floor area only.)

#### STUD FRAMED

| First Floor | Plywood or Hardboard | Metal or Vinyl Siding | Stucco | Wood Siding | Wood Shingles | Synth. Flt. (SPF) |
|-------------|----------------------|-----------------------|--------|-------------|---------------|-------------------|
| 600         | 108.82               | 109.00                | 110.76 | 110.41      | 111.25        | 114.37            |
| 800         | 102.76               | 102.92                | 104.53 | 104.25      | 105.01        | 107.84            |
| 1000        | 98.29                | 98.44                 | 99.94  | 99.64       | 100.39        | 103.03            |
| 1100        | 96.44                | 96.59                 | 98.04  | 97.75       | 98.47         | 101.04            |
| 1200        | 94.76                | 94.93                 | 96.34  | 96.05       | 96.76         | 99.25             |
| 1300        | 93.28                | 93.42                 | 94.80  | 94.52       | 95.21         | 97.84             |
| 1400        | 91.90                | 92.05                 | 93.39  | 93.12       | 93.80         | 96.18             |
| 1500        | 90.66                | 90.79                 | 92.10  | 91.84       | 92.50         | 94.83             |
| 1600        | 89.50                | 89.63                 | 90.92  | 90.66       | 91.30         | 93.59             |
| 1700        | 88.43                | 88.55                 | 89.81  | 89.56       | 90.19         | 92.43             |
| 1800        | 87.43                | 87.55                 | 88.79  | 88.54       | 89.16         | 91.36             |
| 1900        | 86.49                | 86.61                 | 87.83  | 87.58       | 88.19         | 90.35             |
| 2000        | 85.61                | 85.73                 | 86.92  | 86.68       | 87.26         | 89.41             |
| 2200        | 84.00                | 84.11                 | 85.27  | 85.04       | 85.62         | 87.59             |
| 2400        | 82.58                | 82.69                 | 83.79  | 83.57       | 84.13         | 85.94             |
| 2600        | 81.25                | 81.36                 | 82.45  | 82.23       | 82.78         | 84.74             |
| 2800        | 80.06                | 80.16                 | 81.23  | 81.02       | 81.55         | 83.47             |
| 3000        | 78.96                | 79.07                 | 80.11  | 79.90       | 80.42         | 82.30             |
| 3200        | 77.96                | 78.06                 | 79.08  | 78.87       | 79.35         | 81.22             |

#### STUD FRAMED

#### MASONRY

| First Floor | Rustic Log | Masonry Veneer | Concrete Block | Stucco on Block | Common Brick | Painted Concrete (SPF) |
|-------------|------------|----------------|----------------|-----------------|--------------|------------------------|
| 600         | 122.34     | 121.40         | 114.56         | 113.95          | 132.18       | 126.94                 |
| 800         | 114.99     | 114.22         | 107.60         | 106.98          | 122.94       | 118.07                 |
| 1000        | 109.58     | 108.95         | 102.94         | 102.35          | 118.22       | 112.86                 |
| 1100        | 107.38     | 106.77         | 100.98         | 100.31          | 113.47       | 109.94                 |
| 1200        | 105.37     | 104.82         | 99.23          | 98.56           | 111.01       | 107.08                 |
| 1300        | 103.57     | 103.06         | 97.65          | 96.98           | 108.79       | 105.18                 |
| 1400        | 101.93     | 101.45         | 96.21          | 95.53           | 106.78       | 103.36                 |
| 1500        | 100.43     | 99.96          | 94.86          | 94.18           | 104.94       | 101.58                 |
| 1600        | 99.04      | 98.63          | 93.66          | 92.97           | 103.25       | 100.88                 |
| 1700        | 97.75      | 97.37          | 92.53          | 91.84           | 101.69       | 99.51                  |
| 1800        | 96.56      | 96.19          | 91.47          | 90.78           | 100.23       | 98.25                  |
| 1900        | 95.44      | 95.10          | 90.48          | 89.78           | 98.87        | 97.00                  |
| 2000        | 94.39      | 94.07          | 89.58          | 88.88           | 97.60        | 95.94                  |
| 2200        | 92.47      | 92.19          | 87.65          | 86.95           | 95.25        | 93.58                  |
| 2400        | 90.75      | 90.51          | 85.83          | 85.04           | 93.22        | 92.00                  |
| 2600        | 89.20      | 88.99          | 84.05          | 83.26           | 91.36        | 90.36                  |
| 2800        | 87.79      | 87.60          | 82.30          | 81.51           | 89.67        | 88.66                  |
| 3000        | 86.49      | 86.33          | 80.55          | 79.76           | 88.13        | 87.47                  |
| 3200        | 85.30      | 85.16          | 78.88          | 78.09           | 86.71        | 86.20                  |

### SQUARE FOOT ADJUSTMENTS

#### ROOFING:

|   |          |
|---|----------|
| Composition shingle or Built-up, small rock | (base)   |
| Clay tile                                   | + \$8.86 |
| Concrete tile                               | + 6.18   |
| Metal, preformed                            | + 1.68   |
| Wood shake                                  | + 3.08   |
| Wood shingle                                | + 2.70   |
| Composition roll                            | + 1.30   |

#### ENERGY ADJ.: Mod. Climate

|                 |          |
|-----------------|----------|
| Mild climate    | - \$1.37 |
| Extreme climate | + 2.21   |
| Superinsulated  | + 4.59   |

#### FOUNDATION ADJ.: Mod. Climate

|                          |          |
|--------------------------|----------|
| Mild climate             | - \$3.88 |
| Extreme climate          | + 5.97   |
| Hillside, moderate slope | + 3.99   |
| Hillside, steep slope    | + 9.96   |

Add for SEISMIC ZONES (Z)/HURRICANE (Wind) Adj.: See intro-B maps, Z=1, Frame (Z2) +\$2.16, (Z3-4wind) +\$3.39  
Masonry (Z2) +\$1.96, (Z3-4wind) +\$2.87

See Pages Avg-37 — Avg-38 for other Sq. Ft. Adjustments, Basements, Porches, Garages, etc.

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Home Quality  
Home Type



## Home details from

- Assessor's data
- Homeowners (questionnaire)

# REFINEMENTS

average quality

## FOOT ADJUSTMENTS

|                                  |         | FLOOR COVER (Cont.)             |         |
|----------------------------------|---------|---------------------------------|---------|
| Overlaid                         | (base)  | Tile, ceramic or quarry         | + 12.50 |
| Wood-surface                     | 3.05    | carpet                          | + 30.00 |
| Carpet (for garage or ramp)      | 2.50    | vinyl composition tile or sheet | + 1.00  |
|                                  | 2.95    | vinyl sheet                     | + 4.00  |
|                                  |         | vinyl tile                      | + 5.00  |
|                                  |         | wood over concrete, hardwood    | + 15.00 |
|                                  |         | garage floor, polished          |         |
| <b>PLASTER INTERIOR</b>          |         |                                 |         |
| <b>FLOOR COVER</b>               |         |                                 |         |
| Aluminum (if not laminated)      |         |                                 |         |
| single family                    | + 3.50  | in mastic                       | + 12.50 |
| Asphalt tile                     | + 2.50  | asphalt                         | + 5.00  |
| Barrel-laminated planks          | + 12.00 | "Add for wood floor for custom  |         |
| Block, wood, treated             | + 8.50  | quality                         |         |
| Brick, common, as mortar         | + 10.25 | For polished asphalt, add       | + 14.50 |
| Brick pavers, in concrete        | + 12.15 |                                 |         |
| Carpet and pad                   | + 3.50  | Mild climate                    | + 1.50  |
| Concrete                         | + 12.25 | Moderate climate                | + 1.00  |
| inconcrete                       | + 2.75  | Extreme climate                 | + 1.50  |
| Tile, concrete                   | + 6.50  | <b>HEATING/COOLING</b>          |         |
| CORK                             | 1.25    | Forced air                      | (base)  |
| Flagstone, random local stone,   |         | Oil, fire                       | + 0.75  |
| in concrete                      | + 10.50 | Glass panel, electric           | + 0.50  |
| Hardener and sealer, concrete    | + 1.05  | For oil or wall furnace         | + 0.50  |
| Marble                           | + 10.00 | Electric, radiant               | + 2.50  |
| Marble granite                   | + 14.50 | Baseboard or panel              | + 0.50  |
| Marble tile                      | + 17.00 | Baseboard, radiator             | + 0.50  |
| Medium-laminated tile or sheet   | + 8.00  | Radiant                         | + 2.50  |
| Plastic tile, interlocking       | + 6.50  | Warm or cooled air              | + 2.50  |
| Reverberation tile               | + 17.50 | Warm pump                       | + 2.50  |
| Sticker tile or sheet            | + 3.00  | Automatic temp. control system  | + 4.50  |
| Stoneware, quarry, epoxy         |         | Baseboard, radiator             | + 0.50  |
| tile                             |         | Air-to-air exchange system      | + 2.50  |
| "12" x 12" x 5/8"                | + 4.00  | Blowers and ducts               | + 2.50  |
| "12" x 12" x 5/8"                | + 1.00  | Single room's fan and air       |         |
| For colored chips or glitter     | + 2.07  | inlets only                     | + 3.00  |
| Glass, grouted                   | + 18.00 | Refrigerated A/C only, cooled   |         |
| Surfboard                        | + 5.51  | air                             | + 2.50  |
| Terrazzo (fraction of base slab) | + 13.45 | package and short duct          | + 0.50  |
|                                  | + 25.00 | terrazzo                        | + 0.50  |

## LUMP SUM ADJUSTMENTS

|                                 |          | BASELAPPLIANCES (Cont.)           |            |
|---------------------------------|----------|-----------------------------------|------------|
| Plumbing, 2 fixtures            | + 1.00   | 2,000 microwave (if necessary)    | + 2.00     |
| Per fixture                     |          |                                   |            |
| Per rough-in                    |          | 2,000 dishwasher                  | + 335.00   |
| <b>DORMERS: per linear foot</b> |          | ductless heater                   | + 1,400.00 |
| Finished, gable roof            | 100.00   | Exhaust Fan or Split-System       | + 100.00   |
| Finished, hip or gable roof     | 95.00    |                                   |            |
| Finished, hip or gable roof     | 200.00   | Garbage disposal                  | + 175.00   |
|                                 |          | plumbing, quality                 |            |
| <b>EXTERIORS:</b>               |          |                                   |            |
| Single chimney                  | 2,000.00 | wood & tile                       | + 200.00   |
| Single two-story                | 2,300.00 | custom, stainless steel or copper | + 3,425.00 |
| Single three-story              | 4,090.00 | countertop down draft             | + 1,900.00 |
| Double one-story                | 3,750.00 | Ovens                             | + 930.00   |
| Double two-story                | 2,950.00 | microwave combination             | + 2,350.00 |
| Double two-story                | 2,950.00 | warming oven                      | + 750.00   |
| Displacement, gas               | 2,170.00 | Over, custom double wall          | + 3,750.00 |
|                                 |          | Cookware racks                    | + 445.00   |

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# REFINEMENTS

## LUMP SUM ADJUSTMENTS (Cont.) BUILT-IN APPLIANCES (Cont.)

|                                |             |                                     |             |
|--------------------------------|-------------|-------------------------------------|-------------|
| Range and oven:                | \$ 578.00   | Water softener                      | \$ 1,736.00 |
| commercial quality             | \$ 4,450.00 | disposable, located at              | \$ 526.00   |
| custom, double slide           | \$ 8,000.00 | over door                           | \$ 175.00   |
| microwave or refrigerated      |             | above microwave                     | \$ 250.00   |
| combination                    | \$ 2,940.00 | ionizing                            | \$ 700.00   |
| Range-top:                     | \$ 545.00   | Refrigerator or                     | \$ 1,020.00 |
| induction-top                  | \$ 1,250.00 | disposal, built-in, each unit       | \$ 4,300.00 |
| per component                  | \$ 640.00   | Refrigerator or                     | \$ 1,020.00 |
| standard top                   | \$ 3,425.00 | icebox drawers, built-in, each      | \$ 3,200.00 |
| Radio Intercom                 | \$ 975.00   | Mixer/blender                       | \$ 435.00   |
| add per satellite              | \$ 115.00   | (food center processor)             | \$ 2,000.00 |
| Gas meter/boiler               | \$ 1,670.00 | Wine machines, residential          | \$ 565.00   |
| Alarm: security sys., wireless | \$ 1,545.00 | Wine capsule, undercounter          | \$ 1,500.00 |
| hard-wired                     | \$ 3,275.00 | stainless unit                      | \$ 2,730.00 |
| Toast-Compactor                | \$ 630.00   | Real-time entry system              | \$ 3,300.00 |
| Vacuum Cleaner System          | \$ 2,625.00 | each-side monitor station           | \$ 325.00   |
| add for extra units            | \$ 275.00   | size, built-in, small wall or floor | \$ 645.00   |
| Coffee, heater, range          | \$ 715.00   | add for                             | \$ 2,075.00 |
| dryer                          | \$ 1,420.00 | Music, built-in/In-Bathroom scale   | \$ 220.00   |
| combination unit               |             | Cat opener                          | \$ 52.00    |
|                                |             | Coffee-maker                        | \$ 310.00   |
|                                |             | Toaster                             | \$ 60.00    |

## BASEMENTS

| Unfin. Basements:                    | 200         | 400   | 800   | 1200        | 1600  | 2000  | 2400  |
|--------------------------------------|-------------|-------|-------|-------------|-------|-------|-------|
| Concrete walls, 8"                   | 35.31       | 26.91 | 21.68 | 19.29       | 17.56 | 15.82 | 14.15 |
| 10"                                  | 37.75       | 26.83 | 22.53 | 20.23       | 18.86 | 16.31 | 17.62 |
| 12"                                  | 42.71       | 32.13 | 25.46 | 22.27       | 20.64 | 17.91 | 19.09 |
| Concrete block walls, 8"             | 32.37       | 24.85 | 20.18 | 18.02       | 16.52 | 14.48 | 16.02 |
| 10"                                  | 34.78       | 26.25 | 21.29 | 19.05       | 17.65 | 15.16 | 16.62 |
| 12"                                  | 38.47       | 29.46 | 23.55 | 20.73       | 19.30 | 16.73 | 17.98 |
| Add for finish, minimal              | 6.33        | 7.43  | 5.86  | 6.63        | 6.53  | 6.38  | 6.36  |
| recreation room                      | 16.70       | 12.71 | 14.55 | 13.54       | 12.98 | 12.41 | 11.90 |
| Outside Entrance                     | 34.49       | 36.97 | 26.91 | 25.98       | 25.41 | 23.57 | 23.38 |
| For carport removal fee & alarm, add | \$ 1,950.00 |       |       | Above grade |       |       |       |
| For carport removal fee & alarm, add | \$ 380.00   |       |       | \$ 1,400.00 |       |       |       |

## PORCH/BREEZEWAYS

| FLOOR STRUCTURE    |           |                      |           | WALL ENCLOSURE |                       |            |                      |
|--------------------|-----------|----------------------|-----------|----------------|-----------------------|------------|----------------------|
| Square Feet (Each) | Open Slab | Open Slab With Posts | Wood Deck | Screen Only    | Frame Wall With Posts | Solid Wall | Add For Roof Ceiling |
| 25                 | 7.76      | 23.50                | 29.74     | 26.36          | 14.46                 | 44.80      | 95.65                |
| 50                 | 7.93      | 17.45                | 39.58     | 13.65          | 29.63                 | 29.80      | 14.74                |
| 75                 | 6.85      | 16.00                | 25.45     | 11.20          | 41.23                 | 24.83      | 14.20                |
| 100                | 6.87      | 14.60                | 20.41     | 10.20          | 37.20                 | 22.35      | 13.67                |
| 150                | 6.56      | 13.03                | 16.71     | 7.93           | 26.93                 | 17.38      | 13.14                |
| 200                | 6.46      | 11.85                | 15.65     | 6.80           | 24.83                 | 14.90      | 12.62                |
| 300                | 6.24      | 11.50                | 12.29     | 5.61           | 20.67                 | 12.42      | 10.36                |

## BALCONIES

| ENDERSIDE OF BALCONY | WOOD FLOOR   |           |              | CEMENT COMPOSITION FLOOR |           |           |
|----------------------|--------------|-----------|--------------|--------------------------|-----------|-----------|
|                      | On Iron Rail | Wood Rail | On Iron Rail | On Iron Rail             | Wood Rail | Wood Rail |
| Unfinished Soffit    | 28.75        | 22.20     | 32.25        | 25.75                    |           |           |
| Plastered Soffit     | 33.31        | 26.76     | 36.81        | 30.31                    |           |           |

Note: Add for balcony roof and ceiling from the porch/breezeway/side above

## EXTERIOR STAIRWAYS PER FLIGHT

(Approximately 14 steps per flight)

For landings, use balcony costs

| UNDERSIDE OF STAIRWAY | WOOD              | CEMENT COMPOSITION | STEEL    |
|-----------------------|-------------------|--------------------|----------|
|                       | Unfinished Soffit | 1,600.00           | 2,350.00 |
| Plastered Soffit      | 1,600.00          | 2,475.00           | ---      |

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## Regional and State Multipliers

### QUARTERLY MULTIPLIERS

DECEMBER 2016

The Current Cost and Local Multipliers should be used to convert the costs published on the preceding pages to a current date and to adjust the costs by location. This section is republished quarterly and is based on two Marshall & Swift building cost indexes from time statistics as published in the Marshall Valuation Service. Other conditional adjustments are found on Page F-11. Comparative Cost Multipliers for residential construction are found on Pages F-12 through F-15.

#### CURRENT COST MULTIPLIERS

Use the following Current Cost Multipliers by district (see map below) to trend the costs on the preceding cost pages to a current level.

| PAGES                                  | PUB. DATE | EASTERN |        | CENTRAL |        | WESTERN |        |
|--|-----------|---------|--------|---------|--------|---------|--------|
|  |           | Frame   | Second | Frame   | Second | Frame   | Second |
| <b>SECTION A</b>                       |           |         |        |         |        |         |        |
| Low-Fire Single-Detached House         | 12/15     | 1.00    | 1.00   | 1.00    | 0.99   | 1.00    | 1.00   |
| Good-VS-Ten-Single-Detached House      | 12/15     | 1.00    | 1.00   | 1.00    | 0.99   | 1.00    | 1.00   |
| High-Cost Single-Detached House        | 12/15     | 1.00    | 1.00   | 1.00    | 0.99   | 1.00    | 1.00   |
| Multi-Family Single-Detached House     | 12/15     | 1.00    | 1.00   | 1.00    | 0.99   | 1.00    | 1.00   |
| Multi-Family Two-Unit Detached House   | 12/15     | 1.00    | 1.00   | 1.00    | 0.99   | 1.00    | 1.00   |
| Multi-Family Three-Unit Detached House | 12/15     | 1.00    | 1.00   | 1.00    | 0.99   | 1.00    | 1.00   |
| Good-VS-Ten Single-Detached House      | 12/15     | 1.00    | 1.00   | 1.00    | 0.99   | 1.00    | 1.00   |
| Good-VS-Ten Single-Detached House      | 12/15     | 1.00    | 1.00   | 1.00    | 0.99   | 1.00    | 1.00   |
| Good-VS-Ten Single-Detached House      | 12/15     | 1.00    | 1.00   | 1.00    | 0.99   | 1.00    | 1.00   |
| <b>SECTION B</b>                       |           |         |        |         |        |         |        |
| Single-Family Detached House           | 12/15     | 1.00    | 1.00   | 1.00    | 1.00   | 1.00    | 0.99   |
| <b>SECTION C</b>                       |           |         |        |         |        |         |        |
| Single-Family Detached House           | 12/15     | 1.00    | 1.00   | 1.00    | 1.00   | 1.00    | 1.00   |
| Single-Family Detached House           | 12/15     | 1.00    | 1.00   | 1.00    | 1.00   | 1.00    | 1.00   |
| Single-Family Detached House           | 12/15     | 1.00    | 1.00   | 1.00    | 1.00   | 1.00    | 1.00   |

#### LOCAL MULTIPLIERS

LOCAL MULTIPLIERS reflect local cost conditions and are designed to adjust the basic costs to each locality. The multipliers are based on weighted labor and material costs, including local sales taxes. In some cases, local building problems and practices must be considered. Refer to Page F-11 for further discussion. Local multipliers should always be combined with the Current Cost Multiplier to obtain a cost multiplier which will bring the costs to the present date and locality of the estimate.

The data is received by us from sources we believe to be reliable; however, no warranty, guaranty or representation is made by Marshall & Swift as to the correctness or sufficiency of any information, prices or representations contained in the Residential Cost Handbook, and Marshall & Swift assumes no responsibility or liability in connection therewith.

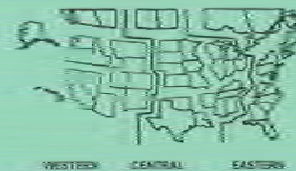
#### EXAMPLE

After establishing a replacement cost from a preceding cost page, you should use both a Current Cost and a Local Multiplier. For this example, a Square Foot Method cost page for a wood frame, single-family, detached residence has been used. The assumed Central District Current Cost Multiplier for frame is 1.02. The Current Cost Multiplier will trend the costs on the Square Foot Method cost page to a current dollar average.

To adjust the cost to your location, a Local Multiplier should be used. For this example, the assumed location is Canton, Ohio. The Local Multiplier for frame construction is assumed to be .99. If the cost from the Square Foot Method cost page is \$145,000, the current cost for the residence in Canton, Ohio would be \$146,421.

$$\$145,000 \times 1.02 \times .99 = \$146,421$$

#### DISTRICT MAP



WESTERN CENTRAL EASTERN

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### LOCAL MULTIPLIERS

| HAWAII          | Frame | Second | INDIANA (Cont'd.) | Frame | Second |
|-----------------|-------|--------|-------------------|-------|--------|
| Honolulu        | 1.00  | 1.00   | Logansport        | 0.92  | 0.91   |
| Maui            | 1.00  | 1.00   | Marengo           | 0.92  | 0.91   |
| Manoa           | 1.00  | 1.00   | Mishawaka         | 1.21  | 1.21   |
| Waipahoehoe     | 1.00  | 1.00   | Muncie            | 0.95  | 0.95   |
|                 |       |        | St. Joseph        | 0.94  | 0.93   |
| <b>IDAHO</b>    |       |        |                   |       |        |
| Boise           | 0.98  | 1.00   | South Bend        | 0.98  | 0.98   |
| Coeur d'Alene   | 1.00  | 1.00   | Twin Falls        | 0.98  | 0.98   |
| Idaho Falls     | 0.98  | 1.00   |                   |       |        |
| Jerome          | 0.98  | 0.98   | <b>IOWA</b>       |       |        |
| Meridian        | 0.98  | 0.98   | Burlington        | 0.99  | 0.99   |
| Pocatello       | 0.98  | 0.98   | Decorah           | 0.99  | 0.99   |
| Shoshone        | 0.98  | 0.98   | Council Bluffs    | 0.92  | 0.92   |
| Twin Falls      | 0.98  | 1.00   | Des Moines        | 0.97  | 0.97   |
|                 |       |        | Dubuque           | 0.98  | 0.98   |
| <b>ILLINOIS</b> |       |        |                   |       |        |
| Alton           | 1.14  | 1.15   | East Moline       | 1.00  | 1.00   |
| Aurora          | 1.24  | 1.25   | Keosauqua         | 1.00  | 1.00   |
| Calumet         | 1.14  | 1.15   | Marion            | 1.00  | 1.00   |
| Champaign       | 1.14  | 1.15   | Peoria            | 1.00  | 1.00   |
| Chicago         | 1.14  | 1.15   | Rockford          | 1.00  | 1.00   |
| De Kalb         | 1.14  | 1.15   | Springfield       | 1.00  | 1.00   |
| Decatur         | 1.14  | 1.15   | Union             | 1.00  | 1.00   |
| East St. Louis  | 1.14  | 1.15   | Waukegan          | 1.00  | 1.00   |
| Elgin           | 1.14  | 1.15   |                   |       |        |
| Granite         | 1.14  | 1.15   | <b>KANSAS</b>     |       |        |
| Greenville      | 1.14  | 1.15   | Chanute           | 0.98  | 0.98   |
| Jefferson       | 1.14  | 1.15   | Dodge City        | 0.98  | 0.98   |
| Kankakee        | 1.14  | 1.15   | Empire            | 0.98  | 0.98   |
| Marion          | 1.14  | 1.15   | Fort Scott        | 0.98  | 0.98   |
| Meriden         | 1.14  | 1.15   | Garden City       | 0.98  | 0.98   |
| Normal          | 1.14  | 1.15   | Goodland          | 0.98  | 0.98   |
| Peoria          | 1.14  | 1.15   | Harlem            | 0.98  | 0.98   |
| Rock Island     | 1.14  | 1.15   | Lawrence          | 0.98  | 0.98   |
| St. Louis       | 1.14  | 1.15   | Leavenworth       | 0.98  | 0.98   |
| Union           | 1.14  | 1.15   | Manhattan         | 0.98  | 0.98   |
| Waukegan        | 1.14  | 1.15   | Overland Park     | 0.98  | 0.98   |
|                 |       |        | Perkins           | 0.98  | 0.98   |
| <b>KENTUCKY</b> |       |        |                   |       |        |
| Asheville       | 0.94  | 0.94   | Salina            | 0.98  | 0.98   |
| Birmingham      | 0.94  | 0.94   | Texas             | 0.98  | 0.98   |
| Chattanooga     | 0.94  | 0.94   | Wichita           | 0.98  | 0.98   |
| Cincinnati      | 0.94  | 0.94   |                   |       |        |
| Columbus        | 0.94  | 0.94   | <b>LOUISIANA</b>  |       |        |
| Dayton          | 0.94  | 0.94   | Baton Rouge       | 0.98  | 0.98   |
| Denver          | 0.94  | 0.94   | Bossier City      | 0.98  | 0.98   |
| Des Moines      | 0.94  | 0.94   | Gretna            | 0.98  | 0.98   |
| Detroit         | 0.94  | 0.94   | Hammond           | 0.98  | 0.98   |
| Indianapolis    | 0.94  | 0.94   | Metairie          | 0.98  | 0.98   |
| Jacksonville    | 0.94  | 0.94   | New Orleans       | 0.98  | 0.98   |
| Kansas City     | 0.94  | 0.94   | Shreveport        | 0.98  | 0.98   |
| Los Angeles     | 0.94  | 0.94   |                   |       |        |

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# Replacement Cost

- ▶ To determine benefits
- ▶ Per square foot
- ▶ Marshall & Swift or other accepted sources
- ▶ Collect as much building information as possible
  - More Assessor information
  - Homeowner survey/questionnaire in interior features or improvements




## *BCA Tool Home Page*

- Basic Navigation Toolbar
- Projects Window
- Quick Start Area



# BCA Module – Features


- ▶ Top Menu -- Left Menu -- Diagram
  - ▶ Right Click Features
  - ▶ Window Tabs --And page down!
  - ▶ “Save and Continue” at Top Right
  - ▶ Red Flags
- 

# Do a Test

- ▶ Run the BCA module
  - ▶ Add a couple of “Structures”
  - ▶ Create a “Project”
  - ▶ Assess results
- 
- ▶ In the 1.0 ball park?



# BCA Module – Documentation

- ▶ Build a spreadsheet
  - ▶ FIRM -- FIRMette
  - ▶ FIS
  - ▶ Assessor's data
  - ▶ Replacement Cost
    - Marshall & Swift
    - Assessor's Data
    - Homeowner-provided Data
  - ▶ Flood insurance claims data
  - ▶ Elevation data
- 



Benefit Cost Analysis 5.3.0

Home

Home  
(Ctrl+H)

Projects  
(Ctrl+P)

Structures  
(Ctrl+S)

Configure

Print  
(Ctrl+R)

Export BCA  
(Ctrl+E)

Actions

Import/Export  
(Ctrl+I)

Data

Backup/Restore  
(Ctrl+B)

Database

About  
(Ctrl+A)

About

Project: 101 Main Street

My Projects

IAFSM Project

100 River

101 Main Street

200 River

300 River

Add Group

Delete Group

My Projects

BCA Workflow

Project: 101 Main Street

Help

Quick Start Area

Create New Project

Create New Structure

Add Structures to Project

Start New Mitigation

Export BCA

Help Documentation

Movie Tutorial

BCA Tool Quick Start

The BCA Tool provides access to resources and automated functions needed to complete a successful Benefit-Cost Analysis for hazard mitigation grant programs.

The diagram to the left displays the process used to successfully complete a Benefit-Cost Analysis.

To begin your project, click on the functional icons in the process diagram to the left. Each icon provides quick access to that functional area from the home screen. The functionality within the menu on the top (aka ribbon) and the navigation tree in the left pane are available throughout the tool.

View the [Quick Start Tutorial Movie](#) for an overview of how to Create a Project. The video walks you through the process of creating a project in the tool. You can also click on the icon for a link to context-sensitive help, or the icon for a Flash-based movie tutorial.

# BCA Module – Features

- ▶ Can import old projects
- ▶ Can import structures
- ▶ Templates available





# Acquisitions

- ▶ All costs, including demolition and restoration

# Elevations

- ▶ Contractor Estimates



# Mitigation Project Cost

- ▶ Picking a Multiplier
- ▶ Other Costs
- ▶ Flood damages
- ▶ Basements





# Mitigation Projects

- ▶ Acquisition
- ▶ Elevation
- ▶ Flood Control



## Top 5 mitigation project types in 2017

1



**Acquisition**

- 151 projects funded
- 930 properties approved



2



**Elevation**

- 64 projects funded
- 590 properties approved



3



**Flood Control**

- 56 projects funded



4




**Safe Room/  
Wind Shelter**

- 103 projects funded
- 789 properties approved




5



**Utility and  
Infrastructure  
Protection**

- 32 projects funded



FEMA

# Flood Control Projects

- ▶ Collect data
- ▶ Environmental and Historic Preservation (EHP) information




# Get off to a good start

- ▶ Collect data
  - ▶ Assess the data (check “the memo”)
  - ▶ Pick some test properties (one or two)
  - ▶ Enter those as Structures
  - ▶ Make a Test Project with those Structures
  - ▶ Get a feel for the calculated benefits
- 
- ▶ Missing data?
  - ▶ Would more data help?



# If you get serious about a project –

- ▶ Talk to the District or the County
  - ▶ Talk to IEMA
  - ▶ Is the project viable, can it qualify?
  - ▶ Talk to the District or the County
  - ▶ Talk to the State
  - ▶ Is there available HMA funding and cost share funding?
- 



# If you get serious about a project –

- ▶ Build the full spreadsheet
- ▶ Investigate project costs, for example
  - Assessment multiplier
  - Demolition costs
  - Engineering costs
  - Restoration costs
- ▶ Run the full BCA module for all structures
- ▶ Refine your project (larger – smaller)



# BCA Justification/Notes/Attachments

- ▶ Add at the end of the analysis (Save with “Yes”)
- ▶ Notes in multiple places
- ▶ Build files to attached to the BCA Module and to the eGrants application
  - Per property, or
  - By documentation type

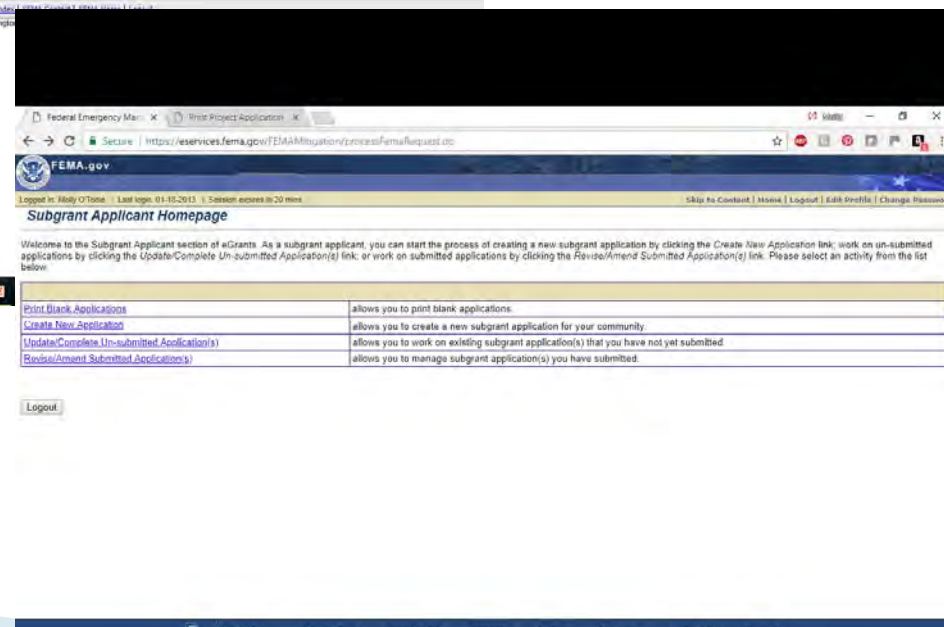
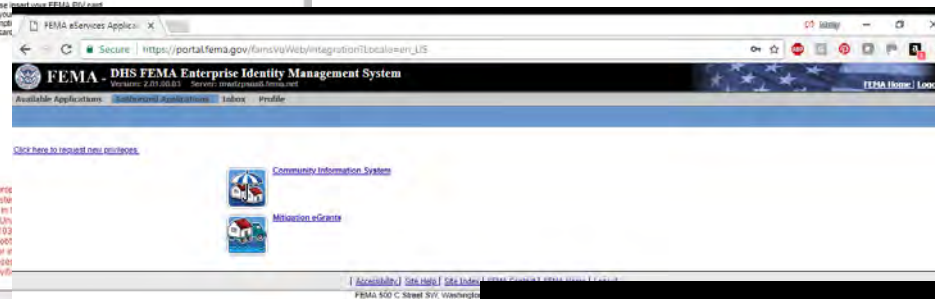
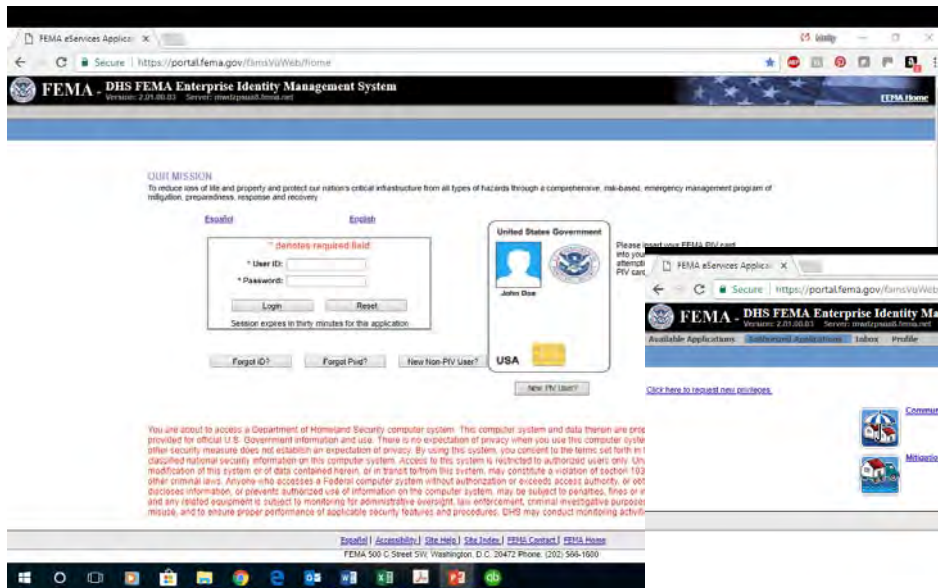


# Don't Hesitate



## BC Helpline

- ▶ [bchelp@dhhs.gov](mailto:bchelp@dhhs.gov) or
- ▶ 1-855-540-6744
- ▶ Look for FEMA webinars



Federal Emergency Man xPrint Project Application x

Secure | https://eservices.fema.gov/FEMAMitigation/processFemaRequest.do

Molly

ABP

6

Pin

YouTube

Facebook

Twitter

LinkedIn

Google Plus

Instagram


Facebook

Twitter

LinkedIn

Google Plus

Instagram

 **FEMA.gov**

Example - for viewing application

Planning Application

Logged in: Molly O'Toole | Last login: 01-18-2013 | Session expires in 20 mins

Skip to Content | Home | Logout | Edit Profile | Change Password

**Application Status**

1. Application Status

2. Subapplicant

3. Contact

4. Community

5. Mitigation Plan

6. Scope of Work

7. Schedule

8. Cost Estimate

9. Cost Share

10. Evaluation

11. Assurances and Certifications

12. Comments and Attachments

13. Review and Submit Application

Print Application

Return to Home Page

Logout

Privacy Statement

Disclaimers

**Application Status**

Application 18% complete

This screen shows the Status of the different sections of the full application. If the Status is Incomplete, you may click on the link to complete that section or you may use the menu on the left.

| Application Section           | Status                     |
|-------------------------------|----------------------------|
| Subapplicant                  | <a href="#">Incomplete</a> |
| Contact                       | <a href="#">Incomplete</a> |
| Community                     | <a href="#">Incomplete</a> |
| Mitigation Plan               | <a href="#">Incomplete</a> |
| Scope of Work                 | <a href="#">Incomplete</a> |
| Schedule                      | <a href="#">Incomplete</a> |
| Cost Estimate                 | <a href="#">Incomplete</a> |
| Cost Share                    | <a href="#">Complete</a>   |
| Evaluation                    | <a href="#">Incomplete</a> |
| Assurances and Certifications | <a href="#">Incomplete</a> |
| Comments and Attachments      | <a href="#">Complete</a>   |

Go Back

Save and Continue

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|                                   |  |                                    |  |   |                              |
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Independent Study Program (IS)

IS-277 A: Benefit-Cost Analysis (BCA): Entry- Level

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Critical Infrastructure Security and Resilience

Curriculum

Frequently Asked Questions

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If you have an inquiry regarding the FEMA Independent Study Program, NIMS or other Emergency Management Institute (EMI) related requests such as: requests for certificates, transcripts, online test scores/results, please contact the FEMA Independent Study program office at 301-447-1200 or email [Independent.Study@fema.dhs.gov](mailto:Independent.Study@fema.dhs.gov) for further assistance. Please do not contact the FEMA SID Help Desk as they are unable to provide assistance with these requests.

**IS-277.A: Benefit-Cost Analysis (BCA): Entry- Level**

**Course Date**

5/23/2017

**Course Overview**

This course is designed as an introduction to the fundamental concepts of benefit-cost (BC) analysis. Participants will learn how to obtain BC data and conduct analyses using the latest version of the Benefit Cost Toolkit. This course will not teach how to conduct level-two BC analyses.

**Course Objectives:**

- Demonstrate their knowledge of the basic BCA theory.

**TAKE THIS COURSE**

[Interactive Web Based Course](#)

**TAKE FINAL EXAM**

Please note that the IS Program now requires a FEMA SID to be used instead of your SSN. If you do not have a SID, [register for one here](#).

[Take Final Exam Online](#)



# Benefit Cost Analysis

- ▶ FEMA Requirements for Cost-Effectiveness
- ▶ BCA Toolkit
- ▶ General Recommendations



# Total HMA Grants Awarded in 2017



In FY 2017, the **Hazard Mitigation Assistance (HMA)** program awarded **941 grants** across 54 states, territories, tribes, and districts totaling more than \$625 million.



FEMA