



FEMA

BENEFIT-COST ANALYSIS Reengineering

Reengineering Contributors

FEMA has collaborated with many applicants and subapplicants on enhancements to make the software more simplified and efficient. So far, more than 200 stakeholders have participated in workshops and meetings to develop and design the new BCA software, including:

- State Hazard Mitigation Officers
- Local Officials
- Consultants/Contractors
- Nationally Recognized Subject Matter Experts
- Association of State Floodplain Managers (ASFPM)
- National Institute of Building Sciences (NIBS)
- U.S. Army Corps of Engineers (USACE)
- FEMA HQ
- FEMA Regions

Roll-Out Schedule

We will soon be conducting beta tests on the software and training. Once all improvements from these tests are integrated, FEMA will release the software package and training schedule in phases beginning in 2008. Training on the new software will not be conducted until the software is released.

There will be a grace period during which either program can be used for fiscal year 2009 grants, announced upon release.

Introduction

The FEMA Benefit-Cost Analysis (BCA) program, initially developed in the early 1990s, is used to determine the cost-effectiveness of proposed mitigation projects for several FEMA mitigation grant programs.

The original BCA program consists of methodologies and software modules for a range of major natural hazards, including:

- Flood (Riverine, Coastal Zone A, Coastal Zone V)
- Hurricane Wind
- Earthquake
- Tornado
- Wildfire

Today, FEMA is reengineering the BCA program to increase software usability and update guidelines, policies, program data, default and standard values, user manuals, and training.

Improved Features

The BCA Reengineering effort consists of five major components:

METHODOLOGY

- Update and create methodologies and approaches that are easy to understand, defensible, and easy to implement and update
- Conduct a peer review (industry and academic experts) of existing and updated methodologies

RISK ANALYSIS

- Evaluate current BCA program and develop new risk and economic functions and parameters
- Document the basis for existing and new risk functions and parameters

COST ESTIMATION

- Develop guidelines to help users estimate mitigation project costs
- Incorporate an easy-to-use cost estimation framework from other FEMA programs such as Public Assistance (PA)

SOFTWARE

- Provide one easy-to-use application suite for multiple hazards
- Update software to modern technology
- Create context-sensitive help menus, including on-line help and training

TRAINING

- Provide an integrated training platform consisting of on-line prerequisite training and webinars, intermediate refreshers and bridge training, as well as revised classroom training
- Update user and software manuals

Software Updates

SECTION	THEN	NOW
General Approach	Hazard was the basis of each module.	Structure and project are the basis of the process.
Module Approach	Separate Excel worksheets for each hazard.	One software where inventory (structures) can be linked to one or multiple hazards.
Very Limited Data	Separate Excel spreadsheet required to perform screening calculations.	If the user enters limited information, the software will pull up a Frequency Damage (previously called Limited Data) screen automatically. There is no Very Limited Data module.
Manual Calculations	Coastal one-year flood data had to be calculated manually.	Expected annual number of flood (EANF) calculations no longer require a one-year elevation.
Cost Estimation	No cost estimating in the spreadsheets, other than to break out displacement and maintenance.	The software walks the user through a typical project Scope of Work (SOW) so costs are more comprehensive.
Building Replacement Value (BRV) Calculation	There was a difference between the total enclosed area and the occupied (heated) area of a residential structure. The BRV included the heated area only.	Total square footage will be used for the BRV.
Default for Contents	Previous default was 30 percent of the BRV.	Incorporated into default Depth-Damage Function (DDF).
Disruption of Life	Disruption of Life calculations were separate.	Disruption of life is included in displacement benefits by increasing the standard displacement time and costs.
BCA Toolkit	Toolkit database with large, outdated documents. Parts of the Toolkit were hard to navigate.	Toolkit database organized by hazard, with updated documents and a glossary. Dynamic and fully searchable to improve navigation.
BCA Dynamic Help	Help was available only through guidance documents found in the Toolkit and through the BCA Helpline.	Several help functions are built into the BCA Software, including definition rollovers and context-sensitive help that provides in-depth explanations, visuals, and job aids.
Data Documentation Templates (DDTs)	Manual DDT required to ensure complete documentation. Limited error/missing data checks.	Software automates the DDT process. Software informs the user of missing items before the BCA is completed.
BCA Submission	Completed BCA sent via e-mail, regular mail or eGrants with separate attachments.	BCA can be submitted electronically from the software, including attachments.

FOR MORE INFORMATION ON THE BCA REENGINEERING, PLEASE CONTACT:

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