

BENEFIT-COST SUSTAINMENT ENHANCEMENTS

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BCA Toolkit Version 5.3.0

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INTRODUCTION

BCA Toolkit version 5.3.0 is a comprehensive release to address issues identified through the BC Helpline, update the standard economic values, update the Hazus lookup data, update the environmental benefits calculations, and implement enhancements. The purpose of this document is identify the changes to the BCA Toolkit version 5.3.0 and provide a brief description of the changes.

The BCA Toolkit version 5.3.0 will be released through the [Benefit-Cost Analysis](#) download page. This version of the BCA Toolkit can be installed along side all previous versions of the BCA Toolkit.

CONTENTS OF THE RELEASE

Home Screen and Ribbon Menu

- The Home screen no longer changes the location of the clickable icons when the font size changes.
- The Print and Export buttons no longer display projects that are selected as inactive.
- The Project Inventory button now includes an option to Create Project with Structure.

Project Inventory

- The copy project functionality now copies the project's attachments.
- The copy project functionality for Damage-Frequency Assessment (DFA) projects now properly copies any entered volunteer costs and displays the correct Benefit-Cost Ratio.
- The Project Inventory screen no longer has a Create, Copy, and Delete button at the bottom of the screen. Users can now copy or delete projects by first right-clicking on the project and then selecting copy or delete, respectively, from the menu.

Structure Inventory

- The Structure Inventory screen has been updated to provide users with the capability to delete multiple structures at one time.
- The Structure Inventory screen no longer has a Create, Copy, and Delete button at the bottom of the screen. Users can now copy or delete structures by first right-clicking on the structure and then selecting copy or delete, respectively, from the menu.

Flood Module

- Two new mitigation types were added to the module: (1) Floodplain and Stream Restoration and (2) Floodwater Diversion and Storage.
- The Acquisition, Drainage Improvement, Floodplain and Stream Restoration, Floodwater Diversion and Storage, and Other mitigation types can now include environmental benefits.
- The Volunteer Costs, Social Benefits, and Environmental Benefits Screens have been moved to come before the BCR Calculation Results screen in the Workflow Panel and in the screen navigation.
- Clicking on the NFIP checkbox prior to selecting a depth-damage function no longer generates an error.

DFA Module

- The Social Benefits screen now appears for approved hazard types and mitigation types.
- The Acquisition mitigation type can now include environmental benefits.
- The DFA Module now includes the hazard type Mud/Landslide. The user can select Vegetative Buffer Strips and Preserving Mature Vegetation as mitigation types for this hazard type.
- The Social Benefits and Environmental Benefits Screens have been moved to come before the BCR Calculation Results screen in the Workflow Panel and in the screen navigation.
- The name of the DFA Expert Module has been changed to be named the DFA Short Form.
- Users can now change the column names in the DFA Short Form.
- If an empty row exists in the Damages After Mitigation screen, it no longer causes an error during the Data Documentation Template (DDT) generation process.

Hurricane Wind Module

- The Acquisition mitigation type can now include environmental benefits.
- The Hurricane Wind Speed lookup data was updated using data compiled from the Hazus 3.1 database.
- The Social Benefits and Environmental Benefits Screens have been moved to come before the BCR Calculation Results screen in the Workflow Panel and in the screen navigation.

Earthquake Module

- The Earthquake lookup data was updated using data compiled from the Hazus 3.1 database.
- The structural displacement and non-structural displacement costs were updated.¹
- The life safety values (i.e., values for life, a major injury, and minor injury) were updated using data from Baseline Standard Economic Values Methodology Report as shown below.

Injury Category	Old Value	New Value
Fatal	\$ 6,600,000	\$ 6,900,000
Major	\$ 1,687,500	\$ 1,800,000
Minor	\$ 13,000	\$ 14,000

- The Volunteer Costs Screen has been moved to come before the BCR Calculation Results screen in the Workflow Panel and in the screen navigation.
- The precision of the rental and displacement costs has been corrected so that they no longer appear to be \$.02 higher than they should be.
- Changing the building type no longer resets the capacity parameters.
- The value for BCR no longer appears to randomly increase and decrease while navigating through the non-structural module.

¹ Refer to the Hazus®-MH MR5 Technical Manual found at https://www.fema.gov/media-library-data/20130726-1748-25045-8725/hazusmr5_eq_tm.pdf for the detailed changes.

Wildfire Module

- The Defensible Space Activities, Hazardous Fuels Reduction Activities, and Other mitigation types can now include environmental benefits.
- The life safety values (i.e., values for life, a major injury, and minor injury) were updated using data from Baseline Standard Economic Values Methodology Report as shown below.

Injury Category	Old Value	New Value
Fatal	\$ 6,600,000	\$ 6,900,000
Major	\$ 850,250	\$ 1,764,750
Minor	\$ 13,000	\$ 14,000

- The Volunteer Costs and Environmental Benefits Screens have been moved to come before the BCR Calculation Results screen in the Workflow Panel and in the screen navigation.

Tornado Module

- The tornado counts were updated using methodologies from the Tornado Safe Room Module Methodology Report.
- The life safety values (i.e., values for life and different severities of injuries, i.e., that require hospitalization, involve treatment and release, and self-treatment) were updated using data from Baseline Standard Economic Values Methodology Report as shown below.

Injury Category	Old Value	New Value
Fatal	\$ 6,600,000	\$ 6,900,000
Hospitalized	\$ 1,237,000	\$ 2,300,000
Treat and Release	\$ 102,000	\$ 61,000
Self-Treat	\$ 13,000	\$ 14,000

Summary of Benefits

- The name of the Summary of Benefits screen was changed to be named the Benefit-Cost Ratio Calculation Results.
- The Benefit-Cost Ratio Calculation Results screen now displays any Social and Environmental Benefits included in the analysis and an adjusted BCR.

Environmental Benefits

- The Environmental Benefits screen has been updated to allow the user to either (a) enter the size of the project area in units of acres or (b) enter the size of the project area in square feet, and then the Tool will convert the value in units of square feet to a value in units of acres.
- In the previous version of the Tool, the user was prompted to select either Green Space or Riparian Area for the land use type. The screen has been updated to allow the user to

select from five land use types and enter the percentage of the total project size allotted for each.

Loss of Services

- The economic value of lost time was updated from \$30.07 to \$33.94.
- The economic value for traffic delay for road and bridges was updated from \$29.63 to \$33.44.
- The economic value for the loss of electrical services was updated from \$131 to \$148.
- The economic value for the loss of wastewater services was updated from \$45 to \$49.
- The economic value for the loss of water services was updated from \$103 to \$105.
- The economic values for the loss of fire station services, medical services, emergency medical services, hospital services, and police services were updated to use the latest statistical data.²

Importing and Exporting

- The Import Lookup Data screen now allows users to reimport data after an initial import has been performed.
- The Flood Project Import process has been updated to allow users to select Microsoft Excel files from Microsoft Office 2007 and higher.
- When a project for which the discount rate has been changed from the default of 7% is imported, the discount rate no longer resets back to 7%.
- If the Flood Import template is used, the projects costs now appear on the Cost Estimation screen.
- The Hurricane Wind and Earthquake lookup data import files are now .ZIP files instead of .DAT files so that meta-data about the lookup data can be packaged with the .ZIP file.
- To prevent the misuse of data, users can no longer select to import the Hurricane Wind lookup data but then actually select the Earthquake lookup data, and users can no longer select to import the Earthquake lookup data but then actually select the Hurricane Wind lookup data.

Reports

- The report viewer no longer provides options to save the reports to Microsoft Word or Microsoft Excel. It now only saves the reports to Adobe PDF.

² Refer to the Baseline Standard Economic Values Methodology Report for the detailed changes.