Appendix A
Benefit/Cost Analysis Model for Tornado and Hurricane Shelters

Decisions regarding the effectiveness of hazard mitigation projects are often based on the cost-effectiveness of those projects. Evaluating the benefits of protecting against tornadoes and hurricanes involves a complex series of probability computations. To facilitate the analyses, FEMA developed a software application to calculate the benefit-cost (B/C) ratio of tornado and hurricane community shelters. The software can be found on the CD-ROM included in this appendix. The CD-ROM also includes a detailed User's Guide that contains instructions for installing the B/C model software and conducting sample runs. The User's Guide is provided in the form of a Portable Document Format (PDF) file that can be read and printed with the Adobe Acrobat® Reader, which is also provided on the CD-ROM.

A.1 Hardware and Software Requirements

The Benefit-Cost Analysis Model for Tornado and Hurricane Shelters is a stand-alone software application. The application requires the following:

- IBM-compatible computer (PC) with Pentium® 90MHz or higher microprocessor.

- VGA 1024 (768 or higher resolution screen supported by Microsoft Windows®.

- 24MB RAM for Windows 95®, 32MB for Windows NT® and Windows 98®.

- Hard drive with at least 40 MB of free disk space.

- CD-ROM drive

- Microsoft Windows 95® or later or Microsoft Windows NT® 3.51 or later

- Adobe Acrobat® Reader 3.0 or later (Adobe Acrobat® Reader 4.0 is included on the CD-ROM.)

A.2   Software Installation

It is recommended to close all other applications before installing the software. For Windows NT® users, be sure you have software installation privileges for your computer or have your system administrator install the software.

1. From Windows, run Setup.exe from the CD-ROM. One way to do this is to use Window Explorer® to navigate to the CD-ROM drive and double-clicking on the Setup.exe file. Also, the Run command under the Start button can be used to type d:\Setup.exe, where d: should be substituted by the actual letter for the CD-ROM drive.

2. The setup program will initially copy some temporary files. After this step has been completed, you will be prompted to start the software installation by clicking on the OK button. You can also cancel the installation program by clicking on the Exit button.

3. If you clicked OK, the next screen will contain the options to Exit, to change the installation directory, and to install the software to the specified directory.

4. By clicking the Change Directory button, you will have the option to change the directory where the software will be installed. The selected hard drive must have at least 40 MB of free space.

5. After the installation directory has been set, click the button with the computer and disk graphic to start the software installation. The installation software will then copy the required files to the specified installation directory and the Windows® system directory, and will update the registry.

6. During the installation process, you may be prompted about whether to overwrite an existing file with a new file from the installation program. The typical situation when this message is displayed is when the setup program detects a ".dll" file with the same name as the one about to be installed. In many cases, the file being written by the installation program is a more recent version of the dll in the computer and could replace the existing file. If you are unsure, you may skip overwriting the file; however, there is a chance that the benefit-cost software may not operate properly.

7. After all of the files have been copied and the registry updated, the installation program will display a window that indicates that the software installed correctly. Click the OK button and the installation program will close. Before running the model for the first time, be sure to restart your computer.

8. As part of the installation process, a new item, "Tornado and Hurricane Shelter Mitigation," will be added to the Windows® taskbar Start button Programs menu. Selecting this item from the menu will display a rollover

list that will give you access to the Benefit Cost Model, the Benefit Cost Model Help feature, the User's Guide (in PDF format), and a copy of the Evaluation Checklist from Appendix B (also in PDF format). If you would like to create a shortcut to the model on your desktop, right-click on Benefit Cost Model in the rollover list, drag the icon to your desktop, release the mouse button, and choose Create Shortcut Here from the displayed menu.

A.3. Uninstalling the Software

The install program automatically creates an uninstall procedure for the software. It will delete all files and directories created by the install program.

1. Under the Windows® taskbar Start button, select Settings and then Control Panel.

2. In the Control Panel window, double-click the Add/Remove Programs icon.

3. In the Add/Remove Programs window, on the Install/Uninstall tab, select Tornado and Hurricane Shelter Mitigation from the displayed list, and click the Add/Remove button.

4. The uninstall procedure will remove all files and directories installed by the install program. It will also remove Tornado and Hurricane Shelter Mitigation from the Programs menu. You may be prompted about removing shared files. Usually you do not uninstall shared files, since other programs may require those files. You may also be notified if there is a problem deleting certain files or directories.

5. A window will indicate when the software has been completely uninstalled.