Historical Damage Requirements for the BCA

The Supplement to the Benefit-Cost Analysis Reference Guide (June 2011) is the best guide for determining what is considered to be acceptable costs for historical damage (Section 2.1.1). Sections 2.2.3 addresses other acceptable documentation for losses and non-traditional benefits including methods of estimation (2.2.3.1) and acceptable documentation for non-traditional benefit (2.2.3.2). Acceptable documentation for either would include:

- Receipts for repairs
- Flood insurance claims
- Estimates of flood depths and damages based on a homeowner affidavit
- Photographs of damaged items, equipment, outbuildings and vehicles and the associated value of the damaged items
- FEMA Project Worksheets/Damage Survey Reports
- Records of historical vehicle damages, including repair invoices and insurance claims
- High water marks, which can be used to determine the flood depth at which damages occurred
- RIs based on FIS, H&H study, stream or tide gauge data, insurance records (if used to assess how often events occurred), and newspaper accounts citing credible sources such as a public agency

The Supplement to the Benefit-Cost Analysis Reference Guide includes Figures 2.18, 2.19, and 2.20 show examples of acceptable documentation to support estimates for non-traditional benefits. The cost to repair or replace the item may be used in the BCA. Figure 2.18 shows a sample insurance claim documenting landscaping equipment and outdoor property damage. These damages should be associated with a flood depth or the RI of the flood event. Figure 2.19 shows a sample of repair records for vehicle damage. Only actual historical vehicle damages may be included in the BCA (i.e., Method 1 and 2 only). Figure 2.20 shows a sample photograph documenting vehicle damage due to flooding. Photographs may be used to estimate the depth of flooding associated with the vehicle damage and can be used in conjunction with documentation such as shown in Figure 2.19 to estimate damages.

Model Damages Requirements for the BCA

The Flood module analyzes proposed mitigation projects based on flood hazard conditions of riverine flood sources before and after implementing mitigation. The Flood module is designed for evaluating individual buildings within a project. The Flood module is recommended for BCAs when users have detailed flood hazard information and structural data. The following describes the essential flood hazard and structural data required to use the Flood module. Section 2.2 of the Supplement to the Benefit-Cost Analysis Reference Guide (June 2011) addressed this information in detail.

Generally the flood hazard information needed is:

- Flood Insurance Rate Map (FIRM with cross-sections and a flood profile or an H&H study (if the project area is unmapped or outside the SFHA)
- Streambed elevation
- 4 Flood elevations for the 4 recurrence intervals
- Flood discharge rates for the 4 recurrence intervals
- First floor elevation (may be basement if finished)
- Foundation type

- Building type and size of building
- Enter point of water for finished basement (Window well, walkout, etc.)
- Building replacement value (http://buildingjournal.com)
- Project cost
- Maintenance cost of open space