

PUBLIC ASSISTANCE PROGRAM

Benefit-Cost Analysis for 406 Mitigation Projects

The New York State Office of Emergency Management (State OEM) administers the Public Assistance (PA) program under the provisions of the Robert T. Stafford Disaster Relief and Emergency Act. The PA program helps governments and certain private non-profits to recover after a Presidentially-declared disaster by reimbursing up to 75 percent of eligible expenses. An important part of the program is its goal of breaking the disaster cycle by reducing the loss of life and future damage to property through funding cost-effective mitigation measures. This is called “Section 406 Mitigation.”

406 Mitigation measures must apply to damaged facilities in a declared county, and common examples include, but are not limited to: placing larger culverts, installing wing walls or rip rap to prevent erosion, and reducing the number of piers in a replacement bridge so as to not restrict flow. State OEM and FEMA encourage all applicants to discuss possible mitigation projects with our teams in the field as they review damaged facilities and prepare Project Worksheets (PWs) for their repair.

(FEMA also funds “Section 404 Mitigation” activities, which are measures undertaken prior to a disaster, and before a feature is damaged, with the same goal to reduce the loss of life and damage to property. 404 funds are awarded through competitive grant cycles also administered by State OEM.)

FEMA requires that all Mitigation projects be cost-effective, or result in savings (over the life of the project) that exceed their cost. State OEM and FEMA use FEMA software to perform a Benefit-Cost Analysis (BCA) to document past damages, calculate the value of damages avoided or reduced if the project occurs, and determine if the ratio proves cost-effectiveness.

Certain 406 Mitigation projects have been predetermined to be cost-effective. These include:

- Mitigation measures that cost up to 15 percent of the total eligible cost of the eligible repair work;
- Mitigation measures that do not exceed 100 percent of the eligible cost of the eligible repair work **and** are included on a list of project types shown in Appendix A of Disaster Assistance Policy (DAP) 9526.1.

Mitigation measures that do not fall into the above categories require the preparation of a BCA. **FEMA and State OEM perform the BCA based on damage and loss information provided by the sub-applicant.**

Until recently, the only benefits considered in the BCA for Section 406 Mitigation projects were damages to the facility and its contents, necessary emergency protective measures and temporary relocation assistance. Effective March 30, 2010 FEMA now also considers social net benefits, such as loss of function, cost avoidance and casualties.

When compiling data for the BCA, it's helpful to think of mitigation benefits as future damages and losses that would be eliminated or reduced by implementing the proposed mitigation project. The following categories of avoidable or reducible damages -- while not exhaustive -- offer a good starting point and should be considered when your team gathers data for the BCA Worksheet:

- **Casualties:** deaths, injuries, and illnesses;
- **Physical Damages:** buildings, contents, infrastructure, landscaping, site contamination, vehicles, and equipment;
- **Loss of Function:** displacement costs, loss of rental income, loss of business income, lost wages, disruption time of residents, loss of public services, loss of utility services, and the impact of road and/or bridge closures;
- **Emergency Management:** costs for emergency operations centers, evacuations and rescues, security, temporary protective measures, and debris removal and cleanup.

Information Required for the BCA

The BCA must include only documented losses and other costs that would be avoided if your project is implemented.

- Provide damages/losses for at least two events – the current disaster event and at least one additional event. *Note that the elimination of small, recurring costs—such as eliminating annual repairs and inspections as a result of the mitigation measure— are more advantageous to the BCA than reducing “storm of the century” losses.*
- Include date of event, magnitude if known (e.g. “this was determined to be a 50-year event” or “3 inches of rain in two hours,” etc.), type of loss and dollar value.

Examples of indirect damages to support a BCA

The following past damages or losses may be included, provided they will be avoided or reduced if the mitigation project is implemented.

- **Debris Cleanup & Removal:** Include all costs and/or man-hours associated with debris cleanup for both public entities and private owners.
- **Road & Bridge Closures:** If roadways or bridges were closed or travel was restricted, include the duration, daily traffic count, and costs involved in closing and re-opening each road or bridge. Where detours are established, include the costs involved in establishing and demobilizing them. (If costs are not available, provide the number of man-hours involved.) Specify the *additional* mileage and travel time required by the closure. (Example: normal travel from A to B is 20 minutes and 10 miles: the detour requires 30 minutes and 14 miles; *additional* travel time is 10 minutes and 4 miles.) Finally, specify the cost for any additional inspections or increased maintenance required as a result of the event.

- Residential Property Damage: List damages and/or losses to all buildings, contents, infrastructure, landscaping, site contamination, vehicles, and equipment for each individual residential property. Documentation could include receipts of repairs completed or estimates for work to be done, insurance claims paid, and surveys completed by the homeowner. (Note: homeowner's time for cleanup and/or repairs may be included.) If residents were displaced from the home, include all costs related to accommodating persons during and after the event (e.g., hotel costs).
- Business Property: In addition to the items requested for Residential Property Damages, where applicable also specify the number of days any business was closed, the net income lost, and the lost wages of hourly employees. Salaried employees are not included unless they were laid off and not paid during the shutdown.
- Public Buildings: Document damages and repair costs. If required to vacate, note the duration of the closure and the annual budget for department(s) housed in that facility.
- School Closure: Document damages and repair costs. If required to vacate, note the duration of the closure and any resulting loss of State aid.
- Municipal Services: Provide costs for all municipal services required to respond to the event.
- Examples include Fire and Police Department staff, and EMS and Public Works personnel activities such as pumping out cellars, directing traffic, setting up detours, cleaning culverts, overtime, etc. If costs are not available, provide the man-hours required.
- Electric Service: If electric service was interrupted, note the number of *people* (not customers) affected by the loss of service. Include the duration without service in days and/or hours.
- Water and/or Wastewater Services: If either service was interrupted, note the number of *people* (not customers) affected by the loss of service. Include the duration without service in days and/or hours. For wastewater services, indicate whether the loss of treatment was full or partial and cite any remedial actions, regulatory requirements, or resulting fines.
- Casualties, Illnesses, or Injuries: Include all that were caused by the event, specifying the type of illness and/or injury.