

Section 8 – Program Management Capability

The following requirement(s) are met throughout this section:

- §201.4(c)(4)(iii): *[The section on the Coordination of Local Mitigation Planning must include] criteria for prioritizing communities and local jurisdictions that would receive planning and project grants under available funding programs, which should include consideration for communities with the highest risks, repetitive loss properties, and most intense development pressures.*

8.1 - Environmental Review Procedure

All eligible projects must have an Environmental Review completed before project approval can be granted. Although SEMO assists in the review process, FEMA is the responsible party for the environmental review and is responsible for final approval.

The review consists of contacting the relevant controlling agencies and requesting comments regarding the project in question.

The following agencies are contacted for most projects:

- NYS Historic Preservation Office
- United States Army Corps of Engineers
- United States Fish and Wildlife Service
- National Marine Fisheries Service (Coastal Projects Only)
- New York State Department of State (Coastal Projects only)
- New York State Department of Environmental Conservation
- Adirondack Park Agency (Projects within Adirondack Park)

The applicant is strongly encouraged to contact the following agencies:

- The State Regional Floodplain Administrator
- The Local Floodplain Administrator

Other agencies (e.g., the Occupational Safety and Health Agency [OSHA]) may also have to be contacted, depending upon the nature of the project.

Generally, the FEMA Environmental Officer will be notified by SEMO during the early stages of project environmental review, to facilitate the need, as determined by FEMA, for consultations with additional agencies.

All permits necessary to construct the project are the responsibility of the applicant. Copies of all necessary permits are required to be on file at SEMO prior to the beginning

of project work. Permits must cover the work in question, and have expiration dates beyond the established completion date of the project in question.

Upon receipt of FEMA's environmental approval, and the necessary permit copies, SEMO will authorize the applicant to proceed with the project.

8.2 – Responsible Entities – Other than Environmental Review

8.2.1 – Benefit-Cost Analysis in Mitigation Plan

The SEMO Mitigation staff engineers are responsible for reviewing the projects that are submitted to SEMO. The Engineering Staff checks the application for completeness and technical feasibility. Once those requirements are satisfied, the Engineering Staff is responsible for performing a B/C analysis for each project.

In each County Hazard Mitigation Plan, FEMA requires that the Counties describe a cost benefit review performed during the prioritization process to identify actions/projects with the greatest benefits. That cost-benefit review refers to a different procedure from benefit-cost (B/C) analysis. Since the cost-benefit review only aims to provide a rationale for the prioritization of the mitigation strategy, it could be very preliminary and simplistic. For the cost-benefit review, if cost and benefit data are missing, a qualitative assessment of the comparative benefits will suffice. However, for determining the eligibility of a specific mitigation project, the more sophisticated and quantitative approach should be employed. The Benefit-Cost (B/C) models are designed for doing the quantitative analysis to determine the cost effectiveness of a mitigation project. Mitigation staff determined that the FEMA B/C model was the best method to use for mitigation project analysis.

8.2.2 - Benefit-Cost (B/C) Analysis Determination Procedure for Mitigation Projects

B/C Analysis is the determination of the cost effectiveness of a proposed eligible mitigation project. It is a standardized, systematic way to count the benefits of a mitigation project and to compare these benefits to the costs of mitigation. This determination is based primarily upon the several factors/inputs. These factors/inputs and who is responsible for providing the information for these factors are summarized in **Table 8-1:**

Table 8-1 Summary of Information Needed for Benefit-Cost Analysis

| Information needed For Benefit-Cost Analysis | Source of the information |
|---|--|
| The useful lifetime of the mitigation project | Determined by Applicant, approved/denied by FEMA |
| The discount rate | Determined by FEMA |
| Total project costs <ol style="list-style-type: none"> 1. Construction and engineering costs 2. Annual maintenance costs | Estimated by the applicant of the mitigation project |
| Total project benefits, which can be calculated from: <ol style="list-style-type: none"> 1. Frequency of natural hazard events damages 2. Avoided damages associated with a particular event <ol style="list-style-type: none"> 1) Avoided physical damages 2) Avoided loss-of-function impacts 3) Avoided casualties 4) Avoided emergency management costs 3. Level of protection designed for the mitigation project, expressed in terms of frequency. | Estimated by the applicant of the mitigation project: The dollar value for per hour of the loss of function is determined by FEMA and it is equal to \$32.23 per hour of delay. NOTE: This is applicable only to loss of function for roadways. Electricity, water, sewer, etc... are based upon other criteria. |

Source: FEMA Guidance on Benefit-Cost Analysis of Hazard Mitigation Projects.

As shown in **Table 8-1**, some default values (**numbers are in bold in the sample B/C analysis**) for the B/C analysis are determined by FEMA. They include the discount rate, the useful life time for a mitigation project, and the dollar value for per hour of the loss of function (e.g. a traffic detour can be converted into dollar amounts) etc. **It is the responsibility of the project applicant to provide all of the information required for the B/C analysis.**

After a project has been deemed eligible for further consideration for HMGP funding, the applicant submits a completed application to SEMO for evaluation. This application should contain all of the information required to permit a B/C Analysis to be performed. If all of the information has been included, it is then incorporated into the relevant FEMA B/C Module for analysis. If sufficient information has not been included, the applicant is contacted to supply that which is required.

8.2.3 - Sample B/C Analysis

As a quick review, the principles of benefit-cost analysis are illustrated by one simplified example adapted from the FEMA Benefit Cost Analysis Case Study.

Consider a proposed mitigation project for improving the storm drain system:

- The City of Albany, New York would like mitigation funds to improve the storm drain system along Mountain Drive, which frequently floods during smaller storm events (a 10-year event or greater). When flooding occurs, there is damage to the

road and two houses. Additionally, there are costs for emergency services used to close the road

- City traffic counts show that there are **800** one-way traffic trips per day along Mountain Drive. The FEMA default value for the Loss of Function for roads/bridges is **\$32.23** per hour of delay. When Mountain Drive is closed, it takes an average of **30** minutes per one-way trip to access the subdivision using secondary roads.
- The City’s Drainage Criteria Manual requires that storm drain systems for minor arterial roads such as Mountain Drive be designed for the **50-year** storm event with minimal damage occurring after mitigation.
- The cost estimate for the storm drain system is **\$150,000** for the engineering and construction. Additionally, there will be a **\$1,800** per year maintenance cost.
- Project Useful Life is **25** years (estimate of city engineer based on development rate)
- Frequency of Damages: flood frequency information and the flood damage data are shown in the tables below (**Table 8-2 and Table 8-3**).

Table 8-2: Before Mitigation Damages Adjusted to Present Day Value*

| Historical Event | Est. Flood Frequency | Present Day Value for Damages to Roads | Present Day Value for Damages to the Two Homes | Present Day Value for EMS | Downtime Due to Flooding (days) |
|------------------|----------------------|--|--|---------------------------|---------------------------------|
| 1998 | 10-year | \$12,594 | \$251,878 | \$6,297 | 1.00 |
| 2000 | 25-year | \$20,299 | \$388,067 | \$9,552 | 2.00 |
| 2002 | 50-year | \$28,138 | \$562,754 | \$16,883 | 4.00 |
| 2005 | 60-year | \$28,840 | \$618,000 | \$17,510 | 7.00 |

*Past damages have been adjusted to current day value with the discount rate = 7%

Table 8-3 After Mitigation Damages Adjusted to Present Day Value**

| Est. Flood Frequency | Present Day Value for Damages to Roads | Present Day Value for Damages to the Two Homes | Present Day Value for EMS | Downtime Due to Flooding (days) |
|----------------------|--|--|---------------------------|---------------------------------|
| 50-year | \$12,594 | \$251,878 | \$6,297 | 1.00 |
| 60-year | \$20,299 | \$388,067 | \$9,552 | 2.00 |

** After-mitigation damages were estimated by the design engineer and documentation was provided to show that the residual damages after mitigation were reduced by the project.

The information from the proposed project is inserted into a FEMA B/C Module to determine if the project is cost effective (i.e. the B/C ratio greater than 1.0). In this case, the FEMA B/C module used is the Limited Data Riverine Module. The key output of the B/C module, the Benefit-Cost Ratio, is shown below. In this case, the Benefit-Cost Ratio is 2.54, which is greater than 1.

Summary

| | |
|---------------------------|-------------|
| Project Costs | \$170,976 |
| Project Benefits | \$434,291 |
| Benefit-Cost Ratio | 2.54 |

It is important to note that a benefit-cost analysis always involves looking at damages twice: first, before mitigation (the as-is situation) and second, after mitigation. The benefits of a mitigation project are simply the difference in expected damages and losses before and after the mitigation project are completed.

Once all of the information has been entered into the correct module, the B/C program then determines if the project is cost-effective. A B/C Ratio of **1.0** or greater, as is the result in project example, is considered to be cost-effective. Should the B/C Ratio be determined to be less than 1.0, the project **may** still be considered provided that other considerations outweigh cost considerations (e.g., potential public health threat).

8.3 – Financial and Project Reports

The SEMO Mitigation Section is responsible for, and maintains all mitigation project records regarding both open and closed disasters. Documentation for all projects is up to date.

New York State can effectively manage the additional funds provided through DMA 2000 and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 and authorized the Repetitive Flood Claims (RFC) grant program and the Severe Repetitive Loss (SRL) grant program. New York State currently has a good record of managing various funding streams and maintaining all necessary reporting and documentation requirements. These funding streams are summarized below. See **Section 10** for a detailed description of the programs.

HMGP funds: New York State has had 22 disasters consisting of approximately 273 HMGP projects since 1997. Seven of those disasters were open and active within the last two years. Six of the remaining active and open disasters have been successfully closed within the past year. HMGP funds for the last four disasters have been used to fund multi-hazard mitigation plans. Currently, there are twelve multi-jurisdictional countywide plans and one public authority plan that have been funded; more planning grants are pending.

FMA funds: Since the Federal Fiscal Year 1996-1997, the State of New York has annually received FMA funding to support floodplain management plans and the implementation of flood mitigation projects. To date, the State has received approximately \$5.1 million dollars for FMA projects and over \$356,000 for floodplain management planning. Annual funding for projects has averaged less than \$1 million, while annual planning fund allocations has averaged approximately \$50,000. Approximately 40 plans have been approved by FEMA and another 5 are in various stages of plan development.

PDM funds: New York State currently has 31 PDM planning grants active under the FY02 PDM funding. An additional 10 planning grants are active under FY03 PDM funding. In total, these planning grants consist of 23 single-jurisdictional and 18 multi-jurisdictional plans, covering 385 communities. All documentation for these planning grants is current and the planning grants are on schedule.

RFC funds: New York State has administered funding through the first annual (FFY2007) cycle of the Repetitive Flood Claims (RFC) grant program RFC. See **Section 10** for a description of this program.

SRL funds: New York State will administer the first annual cycle of the Severe Repetitive Loss (SRL) grant program for FFY 2008 in the hopes of securing grant funding for the mitigation of SRL structures. See **Section 10** for a description of this program.