FEMA’s Pre-Disaster Mitigation Program

Lessons Learned from 2003 and Developing Quality Applications
Introductions

Robert McCord
Pre-Disaster Mitigation Program coordinator

FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA  94607

robert.mccord@dhs.gov
(510) 627-7059
Pre-Disaster Mitigation Competitive (PDM-C) Program

Authority and Appropriations

- Authorized by the Stafford Act, as amended by the Disaster Mitigation Act of 2000
- The Fiscal Year 2004 budget provides $150 million
  - No State allocations
  - Awards based on national competition
  - Includes funding for Disaster Resistant Universities
PDM-C Program

Purpose and Intent

- Consistent source of funding for pre-disaster mitigation planning and projects primarily addressing natural hazards

- Reduces overall risks to the population and structures

- Reduces reliance on funding from actual disaster declarations
Eligible Activities

- Mitigation Projects
- Mitigation Planning
- Sub-applicant management costs included in application
- Applicant management costs – separate application
Ineligible Activities (partial list)

- Major flood control projects
- Engineering designs not integral to project
- Feasibility studies not integral to project
- Response and communication equipment
- Warning systems
- Flood studies or flood mapping
- Generators not integral to the project
- Phased projects
FY 2003 PDM-C Sub-Applications Received

- Applications: 52 States/Territories, 13 Tribal governments and the District of Columbia
- Sub-applications: 459 competitive (134 planning and 325 project)
Sub-Applications Received
Total Subgrants = 495 ($373,059,364)

NOTE: Dollar amounts represent Federal share.
Sub-Applications Received by Hazard Type

<table>
<thead>
<tr>
<th>FEMA Primary Hazard</th>
<th>Count</th>
<th>%</th>
<th>Federal Share</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Storm</td>
<td>16</td>
<td>4.9%</td>
<td>$ 9,578,616</td>
<td>2.8%</td>
</tr>
<tr>
<td>Earthquake</td>
<td>22</td>
<td>6.8%</td>
<td>$ 41,343,615</td>
<td>12.0%</td>
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<tr>
<td>Fire</td>
<td>12</td>
<td>3.7%</td>
<td>$ 12,015,625</td>
<td>3.5%</td>
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<tr>
<td>Flood</td>
<td>186</td>
<td>57.2%</td>
<td>$ 218,683,426</td>
<td>63.6%</td>
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<tr>
<td>Hurricane</td>
<td>39</td>
<td>12.0%</td>
<td>$ 24,597,181</td>
<td>7.2%</td>
</tr>
<tr>
<td>Mud/Landslide</td>
<td>2</td>
<td>0.6%</td>
<td>$ 2,411,400</td>
<td>0.7%</td>
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<tr>
<td>Severe Ice Storm</td>
<td>2</td>
<td>0.6%</td>
<td>$ 1,059,870</td>
<td>0.7%</td>
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<tr>
<td>Severe Storm</td>
<td>25</td>
<td>7.7%</td>
<td>$ 21,821,215</td>
<td>6.3%</td>
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<tr>
<td>Snow</td>
<td>1</td>
<td>0.3%</td>
<td>$ 375,000</td>
<td>0.1%</td>
</tr>
<tr>
<td>Tornado</td>
<td>13</td>
<td>4.0%</td>
<td>$ 7,437,433</td>
<td>2.2%</td>
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<tr>
<td>Typhoon</td>
<td>1</td>
<td>0.3%</td>
<td>$ 90,219</td>
<td>0.0%</td>
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<tr>
<td>Windstorm</td>
<td>6</td>
<td>1.8%</td>
<td>$ 3,035,809</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>325</td>
<td>100.0%</td>
<td><strong>$ 342,449,409</strong></td>
<td>100.0%</td>
</tr>
</tbody>
</table>
National Evaluation

In FY 2003 there were a total of 118 evaluators:

- 51 State evaluators for three weeks (representing 31 states)
- 5 evaluators from 3 Tribes
- 61 FEMA staff
- 1 evaluator from another Federal agency
- Rigorous process
- Qualitative Factors evaluated and scored against published guidance
- States’ experiences from panels will help develop better applications in future
Unsuccessful Sub-Applications

- Notification of unsuccessful sub-applications is underway
- Unsuccessful sub-applications did not meet eligibility requirements
Unsuccessful Sub-Applications Fell Into 8 General Categories

- BCA/BCR Unsubstantiated: 137
- Ineligible Activity: 44
- Incomplete Application: 16
- BCR < 1.0: 6
- Performance Period: 5
- BCA - Insufficient Documentation: 3
- BCA Methodology Not Approved: 2
- Ineligible Sub-applicant: 2

Unsuccessful sub-application data has been forwarded to FEMA Regions
Sub-Applications: Post-Evaluation

- FEMA Regional Pre-Award activities
- FEMA has awarded more than $33 million to date
- Rolling Awards

NOTE: Dollar amounts represent Federal share.
FY 2004 PDM-C Program

- Budget provides $150 million in funds
- FEMA is considering combining the FY04 and FY05 grant cycles to:
  - Incorporate lessons learned
  - Implement necessary “course corrections” to enhance program delivery and effectiveness
  - Enable States and locals to focus resources on meeting the planning requirements for November 1
- Expect to issue Guidance and timeline during summer
Application Development

Areas for Improvement:

- Eligible activities
- Project description
- Project design – feasible and reasonable
- Mitigation project applications consistent with FEMA-approved plan
- Supporting documentation/detail – complete, accurate, credible
  - Environmental / Historic Preservation
  - Engineering
  - Benefit-Cost
Mitigation Planning

- Must have approved Standard State Mitigation plan to receive any PDM-C grants within State

- In addition, local governments must have FEMA approved mitigation plan to receive PDM-C project grant
  - PDM-C planning grants still available for locals
Special Considerations for PDM-C ‘04

Engineering Feasibility

Environmental and Historic Preservation Considerations

Benefit Cost Analysis
Engineering Feasibility
Criteria for Engineering Review

“FEMA will review the engineering feasibility of projects to determine whether the information provided in the application demonstrates:

- the project is technically feasible
- the project conforms with accepted engineering practices
- the estimated cost of the project is consistent with the defined scope of work and accepted cost estimating principles”
Suggested Steps to Achieve Engineering Review Criteria

(1) Problem Description and Proposed Solution
(2) Description of Existing Conditions
(3) Scope of Work
(4) Work Schedule and Project Costs
Problem Description and Proposed Solution

- Describe in detail the source of the hazard (e.g., riverine flooding), and provide an explanation of the cause of the hazard (e.g., for flooding: pre-FIRM construction)

- List the history of previous hazard events including dates, extent and magnitude of impacts, photos of historic damage, overall cost of damages, and the estimated frequency of each specific event
Problem Description and Proposed Solution

- For flood, if the facility is in a FEMA Special Flood Hazard Area, list the corresponding flood depths and discharges from the Flood Insurance Study for the various storm recurrence intervals.
Problem Description and Proposed Solution

- Provide information on the design of the current building, building code at the time of construction, on design requirements for the location (if applicable), and what proposed standards will be met or exceeded [wind, seismic]

- Briefly state the proposed solution, which will be described in detail in the scope-of-work section

Link the problem to the solution!
Description of Existing Conditions

- Will be specific to each project—for example, for an elevation project:
  - List the number of properties that are being elevated
  - Describe the primary use of the structures
Description of Existing Conditions

- Provide a detailed description of the structure including:
  - Foundation type (e.g. slab-on-grade, crawl space, underground basement)
  - Construction type (e.g. wood frame, masonry, concrete)
  - Square footage, age, value of structure, condition, first floor elevation (elevation certificate), etc.
Scope of Work

- The proposed mitigation activity should be well-defined, with a clear and detailed written description of the entire scope of work.

- Technical documentation should be provided verifying that the proposed project successfully reduces future hazard levels and associated future damages.

- The anticipated level of project effectiveness should be stated as clearly as possible.
Scope of Work - Elevation Project

- Describe the elevation technique being employed
- If possible include calculations for all applicable loads (live, dead, lateral, soil, wind, flood and scour)
- Describe the new foundation type. Show pile or pier configuration, loads and connection details
Scope of Work - Elevation Project

- State what elevation the first floor of the structure will be raised to, and its relation to the BFE and/or storm surge elevations
- Show that all NFIP requirements have been addressed
- Include any Federal, State or Local building codes or standards that need to be followed
Work Schedule

- Describe the anticipated project schedule
- Include all phases of the task including: survey, appraisals, legal offers, closing, permitting, demolition, site preparation, etc.
Project Costs

- Make sure all anticipated project costs are detailed

- Avoid the use of lump sum costs. Whenever possible, quantify or provide additional breakdown of large lump sum costs items
Project Costs

- Provide the source of the estimate (e.g., documented local cost, bids from qualified professionals, published national or local cost estimating guides, etc.)

- Consider the potential future date of construction when compiling the cost estimate
Environmental and Historic Preservation Consideration
Environmental and Historic Preservation Reviews

- FEMA is responsible for compliance with multiple laws, regulations, and executive orders.
- Applications must identify compliance issues.
- Resolution of issues must be included in scope of work and cost estimate.
- FEMA has two levels of review:
  - Screening during PDMc review
  - Actual compliance post-award.
Three Reasons to Identify Compliance Issues

- Applicants need to identify and understand requirements prior to project implementation
- PDMc screening process
- Expedited Post-award process
Importance of Questionnaire

- Must be attached to every application
- Answer all questions and provide support documentation
- Document treatment measures or mitigation requirements
Support Documentation

- Consultation with regulatory agencies
- Maps
- Photographs
Using Topozone to Make a Map

Web address: www.Topozone.com

1:24K/25K Series

Large map

1:24,000 Scale

Format

Decimal Degrees

How to print map

Mark directly on map the project area and nearby resources

Old warehouse, see pictures

Adjacent woods, see pictures

Proposed drainage pipe
Examples of Good Pictures

Approximate route of piping

Area for equipment staging

Approximate route of piping

Approximate route of piping
Examples of Bad Pictures

Area of disturbance

Site of drain outfall
The World of Potential Effects

- Describe potential effects at the project site
- Describe potential effects in the project area
- Identify potential mitigation measures
- Incorporate mitigation measures into scope of work and cost estimate
Typical Issues Associated with Mitigation Projects

- Acquisition/demolition
  - Historic structures
  - Hazardous materials such as asbestos and lead paint

- Relocation and elevation
  - Historic structures
  - Archeological resources (predominantly relocation)
Typical Issues Associated with Mitigation Projects

- Building retrofits
  - Historic structures
  - Floodplains
Typical Issues Associated with Mitigation Projects

- Storm water management / flood control
  - Archeological resources
  - Endangered species
  - Clean Water Act
  - Protection of wetlands
  - Floodplains
  - Prime farmland
BCA Checklist
BCAs MUST be:

- Credible and well documented
- Prepared in accordance with accepted BCA practices
- Cost-effective (BCR ≥ 1.0)
Technical Assistance

- BCA Helpline: 866-222-3580
- E-mail: bchelpline@urscorp.com
- *FEMA 2003 Mitigation BCA Toolkit CD*
Re-submittals of 2003 PDM-C Applications

- All 2004 applications will be treated as new applications

- All technical support data, including maps, plans, reports, and calculations for previous projects MUST BE RE-SUBMITTED with new applications
All applicants should use the appropriate FEMA Data Documentation Templates (DDTs) found on the *FEMA 2003 Mitigation BCA Toolkit CD*
General Data Requirements

1. All data entries (other than FEMA standard or default values) MUST be documented in the application

2. Data MUST be from a credible source

3. Provide complete copies of reports and engineering analyses
4. Detailed cost estimate

5. Identify the hazard (flood, wind, seismic, etc.)

6. Discuss how the proposed measure will mitigate against future damages
General Data Requirements (continued)

7. Document the Project Useful Life

8. Document the proposed Level of Protection

9. The Very Limited Data (VLD) BCA module cannot be used to support cost-effectiveness (screening purposes only)
10. Alternative BCA software MUST be approved in writing by FEMA HQ and the Region prior to submittal of the application
Damage and Benefit Data

1. Well documented for each damage event
2. Include estimated frequency and method of determination per damage event
3. Data used in place of FEMA standard or default values MUST be documented and justified
Damage and Benefit Data (continued)

4. The Level of Protection MUST be documented and readily apparent

5. When using the Limited Data (LD) BCA module, users **cannot** extrapolate data for higher frequency events for unknown lower frequency events
Building Data

1. Should include FEMA Elevation Certificates for elevation projects or projects using First Floor Elevations (FFE)

2. Include data for building type (tax records or photos)
Building Data (continued)

3. Contents claims that exceed 30% of building replacement value (BRV) MUST be fully documented.

4. Method for determining BRVs MUST be documented. BRVs based on tax records MUST include the multiplier from the County Tax Assessor.
5. Identify the amount of damage that will result in demolition of the structure (FEMA standard is 50% of pre-damage structure value)

6. Include the site location (i.e., miles inland) for the Hurricane module
7. Use correct occupancy data:

- *Design occupancy* for Hurricane shelter portion of Tornado module
- *Average occupancy per hour* for the Tornado shelter portion of the Tornado module
- *Average occupancy* for Seismic modules
Questions to be Answered

1. Has the level of risk been identified?
2. Are all hazards identified?
Questions to be Answered

3. Is the BCA fully documented and accompanied by technical support data?

4. Will there be residual risk after the mitigation project is implemented?
Common Shortcomings

1. Incomplete documentation

2. Inconsistencies between data in the application, BCA module runs, and the technical support data

3. Lack of technical support data
Common Shortcomings (continued)

4. Lack of a detailed cost estimate

5. Use of discount rate other than FEMA required amount of 7%

6. Overriding FEMA default values **without** providing documentation and justification
Common Shortcomings (continued)

7. Lack of information on building type, size, number of stories and value

8. Lack of documentation and credibility for first floor elevations (FFE$s$)

9. Use of incorrect Project Useful Life (not every mitigation measure = 100 years)