

Appendix L: Project Scoring Examples

Requirement: §201.6(c)(3)(iii): The mitigation strategy section **shall** include an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

This appendix supports the above FEMA requirement by providing a few examples of Palm Beach County's current project scoring process using the criteria established at the program's inception. This process is used as the basis for ranking (prioritizing) proposed projects. In order for a mitigation project to be eligible for federal monies there must be a Benefit Cost Analysis completed with results of a ratio greater than 1. This appendix illustrates the current scoring process through four examples:

EXAMPLE 1: Community A - Library Wind Retrofit;

EXAMPLE 2: Community B - RV Park Flooding Prevention;

EXAMPLE 3: Community C - Hardening of an EOC; and

EXAMPLE 4: Community D - Initiation of a Burning Program to Prevent Wildfire Losses in the Urban Interface Zone.

EXAMPLE 1: COMMUNITY A - LIBRARY RETROFIT

Community A is a well-to-do community centered along the beach and on the Intracoastal Water. They have recently completed a large and very nice public library located on the Intracoastal Waterway. The library has many windows and a picturesque view of the waterway. The building itself is engineered to withstand category 5 hurricane force winds, but it is located in an area that can expect a 5 foot above mean high tide storm surge during storms rated at category 3 or higher. A storm surge of this magnitude will flood the bottom floor of this library to a depth of 2 feet. Equipment and books threatened by such an event are valued at an estimated \$200,000. It will cost approximately \$60,000 to raise the books and equipment in this library 3 ft above their current level. This would eliminate the \$60,000 of exposure in all but the most catastrophic hurricanes of category 5 strength, achieving an estimated 80% reduction in potential losses.

Applying the Benefit/Cost formula:

$(\$200,000 - \$40,000) / \$60,000 = 2.67$ Benefit/Cost Ratio therefore, this is a viable project.

Applying the Scoring Criteria (See Attached Score Sheet) this project would be scored as follows:

COMMUNITY BENEFIT

This is a Flood Damage Reduction activity and is awarded 10 points here;

Libraries are considered secondary critical facilities and 6 points are awarded here;

In terms of Community Exposure \$200,000 is considered moderate and the frequency of the hazard this project mitigates for, Category 3 or higher storm surge, is low. Therefore Moderate (M) Exposure (E) + Low (L) Frequency (F) = 4 points under category; and

Cost Effectiveness in terms of the Benefit/Cost Ratio is 2.67, therefore 12 points are awarded here.

This project's score under Community Benefit is 32.

COMMUNITY COMMITMENT

This project is not contained within a specific policy of Community A's Comprehensive Growth Management Plan, but this type of mitigation is addressed as a broad goal in the Coastal Management Element of that plan. Five points are awarded under this category;

Although libraries are considered secondary critical facilities this project is not part of any emergency management plan. It is, however, part of the Library Department's long-term strategic plan, which has been officially adopted by the City Council. Ten points are awarded here;

While there is considerable public support for the library in general, and there is every reason to believe there would be widespread public support for this mitigation project if it was presented to the public, this has not yet been done. Most of the citizens of Community A are not aware of the potential problem this mitigation project addresses. No points can be awarded here at this time. (Community A could change this score by holding public workshops on the problem and soliciting voter response questionnaires or other methods.)

This projects score under Community Commitment is 15 points.

PROJECT IMPLEMENTATION

There are no regulatory problems with this project and 5 points are awarded here;

Although the exposure is clearly visible, there has not been a severe hurricane since this library was constructed and therefore there is no history of loss or repetitive loss for this structure. Flood hazard mitigation money available now is directed toward structures suffering repetitive losses, and consequently no funds are immediately available. FEMA and other funding sources are being reviewed and it is believed that funds for this type of mitigation project will be available within the next 1 to 2 years. This project is awarded 6 points in this category;

Community A is an affluent community and despite the fact that the public is currently unaware of this problem, the City Council feels confident enough of public support to

commit a 50% match, or \$30,000 toward this mitigation effort. The project is awarded 5 points here; and

If funding was to become available, this project could accomplish its objective of raising library books and equipment above the category 3 storm surge level in less than one year. The project is awarded 5 points here.

This project's score under Project Implementation is 21 points.

The Final Score for this proposed mitigation project is 68 points.

EXAMPLE 2: COMMUNITY B - RV PARK FLOODING PREVENTION

Community B has a large RV park with very poor drainage. Every time there is a minimal rain event this area floods, causing significant danger and health hazards to the residents in terms of flooded power outlets and sewage-contaminated standing water. These events also cause the town and county considerable expense and inconvenience such as traffic problems, emergency services disruption, and clean-up. This type of flooding happens approximately eight times per year with an estimated expense to the town and county of \$3,000 per event. Correcting this problem will require a substantial reworking of the local drainage system. The estimated cost for this mitigation effort is \$400,000.

If the flooding this project is designed to correct occurs eight times a year at a cost of \$3,000 per event to the town and county in terms of police, fire/rescue, and utility worker time involvement, then Community B has a documented exposure of \$24,000 per year to this hazard. If we assume the life expectancy of a drainage project to be 30 years, the potential savings to the town and county could be as high as \$720,000. A reduction in the frequency of these flooding events by 90% would make the Benefit/Cost ratio on this project:

$(\$720,000 - \$72,000) / \$400,000 = 1.62$ Benefit/Cost Ratio therefore, this is a viable project.

Applying the Scoring Criteria (See Attached Score Sheet) this project would be scored as follows:

COMMUNITY BENEFIT

This project is a Flood Damage reduction project and is awarded 10 points under the CRS Credit criterion.

This project addresses a problem within an RV park where there are no permanent residents. It does not address critical elements of the community infrastructure and must be considered as addressing only public convenience considerations. Award 4 points here.

Based on individual flooding events the community's exposure is low, but when considered over time this exposure becomes much higher. Points are awarded under

this criterion based on a Medium Exposure and a High Frequency of occurrence. Nine points are awarded under this criterion.

The cost effectiveness based on the Benefit/Cost ratio for this project is 1.62, therefore 8 points are awarded here.

Total project score under Community Benefit is 31 points.

COMMUNITY COMMITMENT

This proposed project is contained within a broad mitigation Goal under the Coastal Element of Community B's CGMP, but Community B has developed a proposed specific Policy amendment directed toward this type of drainage system retrofit. The project is awarded 8 points here.

This project is also contained within the Flood Plain Management Plan for Community B, which has been officially adopted. Award 10 points in this category.

This problem has been the subject of numerous letters and editorials in the local paper. It has also been the subject of one advertised public meeting. Award 5 points here.

Total project score under Community Commitment = 23 points

PROJECT IMPLEMENTATION

This project requires a considerable amount of construction work. While it is consistent within the local regulatory frame work there are regional and possibly national issues that will have to be addressed. Since the project will be discharging storm water runoff into some body of water there will be water quality issues that must be dealt with. If Federal money is used, an NPDES review will be required. While all these issues can be addressed, they will delay implementation of the project and increase its cost. Award only 1 point under this criterion.

At the moment there are no identified sources for funding for this project. Once the LMS is adopted it is believed the Federal Government will make available, through the State DEM some funds to implement priority mitigation projects. These funds may be available within 1 to 2 years. Award 6 points under this criterion.

While Community B is relatively affluent they are not in a position to match more than 10% or \$40,000 on a project of this magnitude. Award 1 point under this criterion.

If funding were immediately available for this project it would take approximately three years before this project could be permitted, bid, constructed, and operational. Award 3 points under this criterion.

Total project points under Project Implementation = 11

The Final Score for this proposed mitigation project is 65 points.

EXAMPLE 3: COMMUNITY C - DEVELOP A HARDENED EOC

Community C has no hardened Emergency Operations Center (EOC). They presently base their emergency management personnel in city office buildings that are highly vulnerable to both flooding and wind damage. They have an estimated \$300,000 worth of computer, communications, and emergency response equipment housed within these vulnerable facilities. The County provides Community C with its Fire/Rescue services and is presently building a new, hardened fire station to serve this section of the County. County Fire/Rescue Services have offered to provide Community C space within their new building, but Community C will have to have this space fitted for Emergency Management Operations. Fitting this space and moving Community C's existing equipment into it will cost Community C an estimated \$60,000. By undertaking this move Community C should reduce the exposure to its physical assets by 95% as well as position its Emergency Management Personnel in a much safer environment.

Applying the Benefit/Cost formula shows:

$(\$ 300,000 - \$15,000) / \$ 60,000 = 4.75$ Benefit/Cost Ratio therefore, this is a viable project.

Applying the Scoring Criteria (See Attached Score Sheet) to this project would be scored as follows:

COMMUNITY BENEFIT

Although not its specific aim, this project may be classified as a Flood Damage Reduction activity. Award 10 points under this criterion.

This project addresses hardening of a Primary Critical Facility. Award 10 points here.

The currently utilized location of emergency management operations is highly vulnerable to sever tropical storms, hurricanes, or tornadoes and all these types of storms occur with medium frequency. Thus, we have a High Exposure = Medium Frequency = 8 points for this criterion.

The cost effectiveness for this proposed project expressed as the Benefit/Cost Ratio is 4.75, thus 20 points are awarded in this criterion.

Total Community Benefit Points = 48

COMMUNITY COMMITMENT

The concept of developing a hardened EOC for Community C is expressed in both a Goal and a specific Policy of their CGMP. Award 10 points under this criterion.

Development of a permanent, protected EOC is also contained with Community C's Emergency Management Plan. Award 10 points under this criterion.

There is no real public support for, or opposition to, this project. Although it is believed the public would be highly supportive of this project if it were presented to them, they are at this time unaware of the problem. No points can be awarded in this criterion.

Total Community Commitment points = 20

PROJECT IMPLEMENTATION

There are no regulatory problems with this proposed project. Award 5 points here.

There is an identified funding source through the State Department of Emergency Management for the project at this time. Award 10 points here.

Community C will match with funds and in-kind services 20% of the cost of this project. Award 2 points for this criterion.

This project can be accomplished as soon as the new fire station is ready for occupancy in approximately six months. Award 5 points here.

Total Project Implementation Points = 22 points

The Final Score for this proposed mitigation project is 90 points.

EXAMPLE 4: COMMUNITY D - INITIATION OF A CONTROLLED BURNING PROGRAM TO PREVENT WILDFIRE LOSSES IN THE URBAN INTERFACE ZONE.

Community D has a large agricultural, ranching, and undeveloped land component within its jurisdiction. The community wishes to undertake a controlled burning program along the urban interface zone, but to do this it will have to upgrade its fire control equipment, pass a new controlled burning ordinance, and get the required permission from the forestry and environmental services. The cost of initiating this new program is estimated to be \$200,000 including the necessary upgrading of fire control equipment. Community C has an exposure, based on tax role data, of \$3 million within the area where wildfire is considered a threat. Controlled burning would reduce the potential risk of wildfire by 60%.

Applying the Benefit/Cost formula shows:

$(\$ 3,000,000 - \$ 1,200,000) / \$ 200,000 = 9.0$ Benefit/Cost Ratio therefore, this is a viable project.

Applying the Scoring Criteria (See Attached Score Sheet) to this project would be scored as follows:

COMMUNITY BENEFIT

This is not a flood-related project so no points are awarded here.

There are primary critical facilities located in the area threatened by wildfire so this project does mitigate for threats to critical elements of the community's infrastructure. Award 10 points here.

The community has a high exposure to wildfire (\$3 million) and wildfires have occurred with moderate frequency recently in south Florida. Award eight points for this criterion.

The project has a Benefit/Cost Ratio of 9.0. Award 20 points under this criterion.

Total Community Benefit Points = 38 points

COMMUNITY COMMITMENT

Controlled burning is currently expressed as a broad Goal under Community D's CGMP, but it is the subject of a specific Policy amendment which has been proposed. Award eight points here.

Controlled burning is not addressed in any existing emergency management plans, but following last summer's wildfire outbreaks, controlled burning plans have been developed and proposed. Award 6 points under this criterion.

The danger of wildfire and the desirability of a controlled burn program have been the subjects of two publicly advertised meetings and a considerable number of letters and written comments from the public at-large. Award 5 points for this criterion.

Total Community Commitment points = 19

PROJECT IMPLEMENTATION

The proposed controlled burn ordinance will have to be adopted by the City Council. Various permits will have to be obtained from the County and Division of Forestry when controlled burning is actually to take place, but these are not considered regulatory obstacles to the program itself. The only area of non-regulatory compliance is an issue in passing the ordinance creating the program itself. Award 4 points for this criterion.

The County and the City have agreed to put up the funding for this program so funds will be available as soon as the program has been legally adopted by Community D. Award 10 points here.

Community D will match 50% of the funds required for this program. Award 5 points here.

Once the program is in place it will begin to accomplish its stated goals immediately. Award 5 points here.

Total Project Implementation Points = 24 points

The Final Score for this proposed mitigation project is 81 points.