

Appendix Q

PROJECT IMPACT

Q.1 Introduction

In the community studies, five of the eight communities (Freeport, New York; Horry County, South Carolina; Jamestown, North Dakota; Jefferson County, Alabama; and Multnomah County, Oregon) participated in Project Impact. This appendix contains first a description of Project Impact, how communities were selected, the goals of the community programs, the signing ceremony, and reporting requirements. Second, it contains descriptions of the activities undertaken by the five Project Impact communities including benefit cost analyses of the individual projects that were completed.

Q.2 Background: Why and How Project Impact Started

Between 1989 and 1993, the United States was devastated by a series of major natural disasters: Hurricane Hugo and the Loma Prieta Earthquake in 1989, Hurricane Andrew in 1992, and the Midwest Floods in 1993. The loss of life and property led FEMA to adopt “The National Mitigation Strategy – Partnerships for Building Safer Communities,” a proactive, predisaster mission “to strengthen partnerships among all levels of government and the private sector to empower all Americans to fulfill their responsibility for ensuring safer communities.”⁸¹ James Lee Witt, then Director of FEMA, explained

“In response to the unacceptable loss of life and property from recent disasters, and the awesome prospect of even greater, catastrophic loss in the future, the National Mitigation Strategy has been developed to provide a conceptual framework to reduce these losses. Hazard mitigation involves recognizing and adapting to natural forces and is defined as any sustained action taken to reduce or eliminate long-term risk to human life and property. The Strategy is intended to engender a fundamental change in the general public’s perception about hazard risk and mitigation of that risk and to demonstrate that mitigation is often the most cost-effective, and environmentally sound, approach to reducing losses. The overall long-term goal of the Strategy is to substantially increase public awareness of natural hazard risk and – within 15 years – to significantly reduce the risk of loss of life, injuries, economic costs, and disruption of families and communities caused by natural hazards”.⁸²

The content of The National Mitigation Strategy resulted from a series of eleven public Mitigation Forums conducted across the United States from September 1994 to June 1995 and completed questionnaires returned from 15,000 distributed to public and private sector entities.⁸³

⁸¹ Witt, James, L., “Forward” to *National Mitigation Strategy – Partnerships for Building Safer Communities*, Washington, DC: FEMA, Mitigation Directorate, December 6, 1995, page *i*.

⁸² *Ibid.*

⁸³ *Ibid.* The document does not provide details on the questionnaire, the recipients, how many were returned, or what analysis was performed on the returned questionnaires.

In 1996, Witt's conceptualization of a Natural Hazard Mitigation Strategy was transformed into the operational Disaster Resistant Communities Initiative (later renamed Project Impact), with the goal of providing seed money for selected communities to develop and sustain a comprehensive hazard mitigation program. In describing Project Impact, Tricia Wachtendorf and her colleagues at the University Delaware Disaster Research Center said,

“...rather than devising a program that would be managed through strict guidelines and tight regulation, FEMA designed Project Impact as a “bottom-up” approach to mitigation that gave local communities fairly wide latitude in deciding what mitigation goals they would pursue and how. The intent of the program was to establish a wide variety of community-based initiatives to address mitigation issues deemed important by the communities and to encourage the development of innovative solutions to hazard-related problems”.

Although communities were actively encouraged to develop their own strategies for reducing disaster losses, FEMA did outline general goals and objectives for the program. These overall goals were: (1) to build community partnerships; (2) to identify hazards and community vulnerability; (3) to prioritize risk reduction actions; and (4) to develop communications strategies to educate the public about Project Impact and disaster mitigation more broadly. Communities were then asked to formally establish locally-based organizations and to initiate activities that would address these objectives.⁸⁴

Project Impact was launched in the summer of 1997 with the selection of seven pilot communities, who each received \$1 million in seed money to implement their community programs. Project Impact was funded until fiscal year 2001. In total, 250 communities in every state and some U. S. territories received a total of \$77 million, ranging from \$60,000 to \$1,000,000 over three years or less. Most received \$150,000 to \$300,000 over a two-year period.

Q.3 Community Selection

Nothing in the natural hazards or public policy literature could be found that described exactly how communities were selected to participate in Project Impact. Information from documents obtained in the five Project Impact communities in this study suggests there was no uniform method of community selection. Available evidence suggests that communities were selected with a process that included input from the states, the FEMA regional offices, and FEMA national headquarters. Communities may or may not have participated in the initial decision process. In Oregon, communities like Multnomah County were asked to submit formal requests to be considered as a future Project Impact community. On the other hand, in New York, Freeport was notified by the state of New York after the decision to select had been made. In any event, all selected communities had to make an active agreement to participate at some point during the decision process.

⁸⁴ Wachtendorf, Tricia, Rory Connell, Brian Monahan, and Kathleen Tierney, *Disaster Resistant Communities Initiative: Assessment of Ten Non-Pilot Communities*, Report to the Federal Emergency Management Agency, Newark, DE: The University of Delaware, Disaster Research Center, August 30, 2002, pages 1-2.

All information presented herein is based solely on documents available to the project team. The most detailed information concerns the selection of Freeport, New York, as a Project Impact Community, which is presented next.

*Community Selection – Freeport, New York.*⁸⁵ The method by which the Village of Freeport, New York, was selected as a Project Impact community was based on “a combination of factors” listed in what was called the Project Impact Matrix developed by FEMA’s National Director of Project Impact. Using the matrix as a guide, Region 2 established priorities with state input and forwarded its recommendations to FEMA national headquarters, where ultimately a final decision was made.

Six New York communities were evaluated to become 1998 Project Impact communities.⁸⁶ The Project Impact Matrix used in the evaluation consists of 14 variables plus additional comments. See Table Q-1 for a list of the variables, a general description of the type of information that was used for evaluation, and the information that was provided for Freeport.⁸⁷

In Table Q-1, the first three variables (County, Square Miles, and Population) indicated whether the size of the community was manageable and located geographically close to the regional office in lower Manhattan so it was relatively accessible. A single variable, “Primary Hazard,” established the risk from natural hazards. The remaining variables were all related to existing relationships with FEMA or existing community programs that indicated whether the community could establish partnerships and pursue Project Impact goals. The highest priority was given to the communities that were accessible, had a significant natural hazards risk, and had the greatest number of positive characteristics that might indicate success in Project Impact.

Freeport received the highest priority rating. A discussion of Freeport in the FEMA memo stated that it was both relatively small in size and very accessible to regional staff, both good characteristics. Furthermore, “The Village of Freeport has already demonstrated a proactive mitigation effort through its packaging of a major elevation project funded under FEMA’s Flood Mitigation Assistance (FMA) program. Additionally, it has an updated and aggressive mitigation plan adopted by the Village Board of Trustees (to apply for CRS Class 8⁸⁸); a very high policy base for a mid sized New York community of 2,268 policies; and, a full time emergency manager that could dedicate time to Project Impact.”⁸⁹ The FEMA memo also noted

⁸⁵ This section is primarily based on an internal FEMA memorandum from Lynn C. Canton, Regional Director of FEMA Region 2 to Jane Bullock, FEMA Chief of Staff, and Michael J. Armstrong, Associate Director, Mitigation Directorate, with a c.c. to Maria Vorel (FEMA National Director for Project Impact) dated January 29, 1998 with the subject “Region 2 Project Impact Recommendations” describing the process used to recommend the first Project Impact communities in New York, New Jersey, Puerto Rico, and the Virgin Islands using a matrix of variables “identified by Maria Vorel and additional information that the Region thought would be helpful in making a determination on recommendations and potential selections.”

⁸⁶ The Canton memo referred to above includes a completed matrix for three New York communities; the Town of Southampton, the City of Rye, and the Village of Freeport.

⁸⁷ The Freeport comments are copied verbatim from the Canton FEMA memo except for some commas and the full spelling of some abbreviated words added for clarity. Similar comments for the Town of Southampton and the City of Rye have been omitted.

⁸⁸ The Community Rating Service or CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum National Flood Insurance Program (NFIP) requirements.

⁸⁹ *Ibid.*, p. 3.

that Freeport had a significant flood insurance repetitive loss history, specifying that since 1978, Freeport had 275 properties that suffered 796 losses.

Table Q-1 Project Impact – Matrix

Variable	Description	Village of Freeport
County	County name	Nassau
Square Miles	Area of community	5
Population	Approximate population of community	40,000
Primary Hazard	List of high risk natural hazards	Hurricanes, NorEasters, back bay flooding and high winds
CRS Class	Community Rating System class	Class 9 – close to Class 8 have excellent Hazard Mitigation Plan
HMGP Project (type & \$)	Current HMGP grants, if any	NA
NFIP Status – CAV	Number of NFIP policies, % coverage of structures in floodplain, number of losses, past payouts, number of substantially destroyed structures, risk and input from observations made during Community Assistance Visits	As of 3/97 1750 losses paid, 269 are repetitive, total claims close to \$10,000,000. This community is historically at significant risk for back bay flooding. Total of 2268 policies, about 70% covered
FMA Grant Status (type, plan, & \$)	Current FMA grants, if any	Rec'd 620K in 1997 for elevation of 40 structures, Region 2's largest FMA project
PA/CA Unique Activity	Public Awareness activities, if any	Their local public awareness activities have been very good according to state and they will have a full time Emergency Manager pushing all projects
PA 406 Mitigation Projects (type & \$)	Public Assistance grants with mitigation elements, if any	NA
B&I Status – Activity & Status	Current Business and Industry partnerships	NY SEMO will work with their B&I Loss Reduction Task Force with the community if selected
Political Overview	Names of Congresspersons with discussion of their interest in FEMA	Split (D) Carolyn McCarthy (R) Peter King
Potential Project Impact Funding Targets	Likely hazard mitigation projects that would be undertaken	Would continue with further elevation and retrofit projects consistent with FMA grant and their own mitigation plan
Local Leadership Support/Commitment	Evaluation of existing ties between community and business and industry	Recently hired a full time emergency manager to run all mitigation programs – have been very supportive of mitigation and state B&I
Comments	List of positive community characteristics not mentioned above	Very progressive – Community has Mitigation Planning Committee and the Village Board of Trustees have adopted their mitigation plan

The FEMA memorandum suggests that the selection in Region 2 communities in New York, New Jersey, Puerto Rico, and the Virgin Islands was based on (1) staff accessibility, (2) the receipt of FEMA hazard mitigation grants, (3) factors that indicated that the community was likely to develop partnerships with for profit businesses, and (4) political exigencies, whatever they might be. Risk from natural hazards was not a primary consideration in the ultimate selection of communities because all the communities that were evaluated apparently shared similar high risks and discrimination was not possible. High priorities were given for communities that were judged to have a high probability to succeed in developing partnerships that would lead to community-wide mitigation activities.

The decision process for Freeport did not end with the setting of priorities contained in the FEMA memo. On March 5, 1998, the New York State Emergency Management Office (SEMO) selected all six communities that were evaluated earlier by FEMA Region 2 as Project Impact – Disaster Resistant Communities in New York State.⁹⁰ The designation was misleading as each community was informed that it could become a Project Impact community by developing an acceptable program that would meet both SEMO and FEMA guidelines. On March 19, 1998, Freeport Village officials held their first steering committee meeting with representatives of local businesses, SEMO, and FEMA Region 2.⁹¹ The business attendees were Home Depot, Lea Ronal Inc., Fleet Bank, Meadowbrook Care Center, and the Chamber of Commerce. In the next few months, Freeport Village officials formed partnerships with these and other local merchants to work with the Village officials “to plan innovative educational and public awareness programs in the village.”⁹² On June 3, 1998, FEMA Director James Lee Witt invited the Village of Freeport to become a Project Impact community.⁹³

Q.4 Community Selection – General Comments

No information as detailed as that for Freeport was located for any of the remaining four Project Impact communities that were part of the community studies. However, the “Grant Guidance for FY99 Communities” provided by FEMA to all prospective Project Impact communities who wished to apply for 1999 funding (including Jefferson County, Alabama and Multnomah County, Oregon in this study) suggests that the Project Impact Matrix used in Region 2 to select Freeport was widely used elsewhere. In the section entitled “Application Review,” it is stated:

When the community’s grant proposal is received, the FEMA regional office shall review it to determine if its implementation will reduce disaster costs, and whether there are sufficient measures taken to reduce in a permanent or long-term manner the potential losses from natural hazard events before the hazard occurs. Factors that will be considered will include: the community’s current hazards and risks; mitigation projects already funded or completed in the

⁹⁰ *About FEMA – New York State Implements Project Impact Ideals in Six Communities*, FEMA News Release, www.fema.gov/about/r2webny.shtml

⁹¹ Ibid.

⁹² *Freeport, NY, Asked to Become a Project Impact Community to Reduce the Effects of Disasters*, FEMA News Release, June 3, 1998, www.fema.com/regions/ii/1998/98r2n003.shtml

⁹³ Ibid.

community; existing mechanisms for public-private partnering; and planned and implemented substantive mitigation measures in the community.⁹⁴

An identical “Application Review” section was included in the FEMA “Program Guidance FY2000” document provided to all prospective Project Impact communities who wished to apply for 2000 funding including Jamestown, North Dakota.⁹⁵ Similarly, the FY2001 “Mitigation Grant Guidance” that was sent to Horry County, South Carolina included the same “Application Review” section.⁹⁶

Q.5 Acceptable Project Impact Activities and Application Instructions for Communities

In their assessment of Project Impact, Wachtendorf and her colleagues stated that “Four activities – risk assessment, mitigation, partnership development, and public education and information – constitute core Project Impact goals.”⁹⁷ Wachtendorf and her colleagues did not mention whether FEMA provided instructions to Project Impact communities that specified the categories within which projects should be undertaken or the kinds of projects that were preferred. Wachtendorf and her colleagues did say that FEMA encouraged the communities to select their own activities to strengthen overall community hazard mitigation.

The three FEMA program guidance documents mentioned above include categories of acceptable activities that are broader than suggested by Wachtendorf and her colleagues. The *Grant Guidance for FY99 Communities* document instructs communities to “categorize mitigation projects as one of the following:

- Mitigation for existing structures
- Mitigation of existing infrastructure, utility facilities, and transportation systems that are publicly owned and operated on a non-profit basis
- Adoption of policies and practices for mitigation in existing structures, development or redevelopment
- Activities that lead to building or sustaining public/private partnerships, or that support public awareness of mitigation
- Hazard identification and risk assessment
- Mitigation of new construction
- Personnel support”⁹⁸

⁹⁴ *Program Description Disaster Resistant Community Mitigation Grant – Grant Guidance for FY99 Communities*, no date, page 3.

⁹⁵ *Program Guidance FY2000 – Disaster Resistant Community Mitigation Grant*, no date, page 4.

⁹⁶ *Project Impact Building Disaster Resistant Communities Mitigation Grant Guidance FY2001*, no date, page 4.

⁹⁷ Wachtendorf et al., op. cit., page iii.

⁹⁸ *Program Description Disaster Resistant Community Mitigation Grant – Grant Guidance for FY99 Communities*, no date, pages 2-3.

In slightly different language and order, the *Program Guidance FY2000* instructs communities to “identify each mitigation project or activity targeted for grant funding as one of the following:

- a. Category A – Hazard identification and risk assessment
- b. Category B – Adoption of policies or practices for mitigation in existing buildings or new construction
- c. Category C – Mitigation for existing buildings
- d. Category D – Mitigation of existing infrastructure: such as, utility facilities and transportation systems that are publicly owned and operated on a non-profit basis
- e. Category E – Activities that lead to building or sustaining public/private partnerships, or that support public awareness of mitigation
- f. Category F – Personnel support”⁹⁹

The *Mitigation Grant Guidance FY2001* instructions are virtually identical to those of FY2000 except for Category C. In FY2001, Category C was expanded to “Mitigation for existing buildings and properties-at-risk.”¹⁰⁰

The first document varies in several ways from the latter two. The language in some of the categories has changed and two of the categories in the first document have been combined in the second and third documents. Most important are the orders of the categories. Specifically, “hazard identification and risk assessment” has risen from near the bottom of the 1999 list to the top of the 2000 list, and mitigation activities have fallen from the top two places in 1999 to the third and fourth in 2000. If these lists were interpreted by FEMA regions, states, and/or communities as priority lists, then one would expect to find different mixes of approved activities in communities whose funding began in FY 1999 and communities whose funding began in FY 2000 and FY2001.

Q.6 The Signing Ceremony

The signing ceremony was an orchestrated media event that was intended to take place on the official starting date of the Project Impact contract between FEMA and the community. It represented the community formally joining Project Impact. In some public setting, community, state, and federal officials as well as representatives from public, private for profit, and private non-profit organizations met for the formal signing of the memorandum of agreement (MOA). As a sign of commitment, many representatives added their signatures to the MOA.

Because of the public nature of this important event, FEMA recommended that several months be spent in planning and that the event take place at a time chosen by the community. FEMA Region 4’s Project Impact Coordinator provided the following advice:

⁹⁹ *Program Guidance FY2000 – Disaster Resistant Community Mitigation Grant*, no date, page 3.

¹⁰⁰ *Project Impact Building Disaster Resistant Communities Mitigation Grant Guidance FY2001*, no date, page 3.

“Based on other communities [sic.] experience, we recommend formation of a special Signing Ceremony committee to organize, prepare for, and operate the event. Several of our Southeastern communities have done a superlative job in this regard. We encourage you to contact your sister communities that have already held Signing Ceremonies and to coordinate closely with your State Project Impact Coordinator. Please give us a two month’s “head’s up” so we can do our part to assist. Often we will be able to travel to your community to meet with the committee and State staff in advance of the Ceremony”.¹⁰¹

Q.7 Reporting Requirements

As conceived, Project Impact was designed to encourage local initiative and to grant local control over mitigation strategies and the selection of activities to achieve community goals. FEMA also promised minimal reporting requirements.

Documents in the files of the five Project Impact communities that were part of the community studies do not include sufficient information to state with certainty what the complete reporting requirements for communities were.¹⁰² However, it seems fairly certain that many of the following reports were required in most communities:

- A *Memorandum of Agreement (MOA)* (sometimes referred to as a *Memorandum of Understanding (MOU)*) that presented the intentions of the community, listing activities to be completed and their costs, including local contributions, and community partners. This was the document that was publicly signed by FEMA, the community, and community partners at the signing ceremony to begin the grant.
- A *Scope of Work (SOW)* (sometimes referred to as a *Statement of Work*) that provided details concerning the activities listed in the MOA and details concerning the time period in which work was to be completed. It might also contain revisions to the MOA after the community committees overseeing different aspects of Project Impact altered the activity mix. No specific required date of delivery was found; however, there apparently was some urgency in completing a SOW, as FEMA regions apparently required a SOW and a budget before FEMA approved the transfer of any funds.
- A *Budget* that accompanied the *Scope of Work*.
- A *Project Impact Baseline Report* due 60 days after the start of the grant that included a detailed risk assessment and vulnerability analysis. The questions asked mirrored the topics listed in the Project Impact Matrix (Table Q-1) but were more numerous and focused.
- A *Hazard Mitigation Plan* estimated to be completed within the first six months of the grant if the community had not written one prior to Project Impact.

¹⁰¹ Randolph, Steven, Regional Project Impact Coordinator, to Project Impact Coordinators – FY99 Communities, *Memorandum Re: Disaster Resistant Community Grants (DRCGs)*, April 6, 2000, page 3.

¹⁰² For each community, the Project Impact files found at the community and in the FEMA regional office were not identical. Differences between them were often substantial. Also different sets of documents were found for each community. It was therefore unclear if the combined records of the Project Impact grants were complete or if communities were asked to submit different sets of documents. The latter conclusion seems more valid because grant files found for other mitigation projects -- Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) -- were consistent and most often complete. It is hard to believe that Project Impact files would be treated differently.

- An *Action Plan* that appears to be an amended Scope of Work that was produced a year or more after the project commenced. It was a combination progress report and scope of work for the remaining time on the grant.
- A *Project Impact Progress Report* due annually after the start of the grant that listed in detail information concerning partnerships, risk, an evaluation of mitigation measures implemented, and a discussion of successes. Most grants ran for two years, so only one progress report was required.
- *Quarterly reports* describing activities completed in the previous three months and changes to the statement of work. These reports included narrative and financial information and were due every quarter. They were also required for communities to get reimbursed for the federal share of expenses incurred.
- *Semi-Annual Performance Reports* providing a narrative status report of the projects approved for federal funding.
- *Close out documents* to end the project that focuses mainly on the budget. Unspent monies were listed and deobligated by FEMA.
- A *final report*, often the last quarterly report, but sometimes a stand-alone document completed at the end of the grant. This report presents a discussion of exactly what was completed during the grant. Because of changes initiated throughout the life of the project, it is the only report that can be trusted as an accurate record of what the community achieved during Project Impact.

There were also indications that things did not always go smoothly, and changes were required. In 2000, FEMA realized that its reporting requirements did not provide communities sufficient time to make decisions that were needed to complete reports and later asked communities to make revisions. One year to the day after its signing ceremony, April 6, 2000, Jefferson County, Alabama, as well as all other Region 4 Project Impact communities was notified by Region 4:

This is to advise you that we are prepared to accept a major revision to the approved Scope of Work and budget for the Disaster Resistant Community grants (DRCSs) issued for FY98 and FY99.

The grant offer and application process for the ten FY98 and FY99 Project Impact communities was accelerated due to circumstances beyond our control. This did not allow most communities time to hire a Coordinator, form their Project Impact Steering Committees, develop partnerships with the private sector, conduct a complete risk assessment and vulnerability analysis, or develop a hazard mitigation plan. As a result, many of the DRCG grant awards do not reflect the Project Impact strategies and proposed projects now being formulated in these communities.

At the time we promised each community the right to revisit the Scopes of Work and budgets in the DRCG grants awards at a later date. That time has come. Each community now has in place a Project Impact Coordinator and Project Impact committee or task force. Most communities have their Project Impact initiative well

underway. And, as noted many projects are being proposed that are not within the approved Scope of Work.

Any substantive revision to the Scope of Work as well as revisions to the approved budgets must be submitted for prior approval. To revise the DRCG, please submit revised SF 424 B & C budget forms and a new Scope of Work clearly defining each project and the amount of federal funds involved.¹⁰³

Based on experience with past Project Impact communities, FEMA realized in 2000 that the start of Project Impact programs was often delayed because “most communities do not have the budgetary resources available...until receipt of the federal DRCG ‘seed money.’”¹⁰⁴ Therefore, in 2000 FEMA changed the rules on its expectations and funding. For FY2001 communities, Project Impact became a two-phased grant. Phase 1 or “the initial start-up phase” would provide 20% of the grant monies for the “community to hire a project impact coordinator and organize a Project Impact Task Force” that would develop specific projects that would be funded under Phase 2 using the remaining 80% of the grant.¹⁰⁵ This meant that the FY2001 Project Impact communities would have to write two SOW’s and two budgets, one for each phase.

The reporting documents collected in each of the five communities studied are shown in Table Q-2. It is clear that there is no consistency across communities.

The inconsistent reporting found in this research study was also found in the assessment of Project Impact completed by Wachtendorf and her colleagues. They found that some communities were pleased with their programs while others were “frustrated with bureaucratic requirements and inconsistencies.”¹⁰⁶ Among the many findings reported was “Several communities believed that information and procedures were inconsistent across the country and had received conflicting information from FEMA headquarters and their regional offices.”¹⁰⁷

Q.8 Partnerships

One of the goals of Project Impact was for communities to build partnerships with other government entities, for-profit companies, and nonprofit organizations “to foster a community-wide approach to mitigation.”¹⁰⁸ Partners would participate in the establishment of community activities, their management, and often provide services, materials, or funds for their completion. Partner contributions were eligible to be counted as part of the community share of the grant, 25% of the total.

¹⁰³ Randolph, op. cit., page 1.

¹⁰⁴ Randolph, Steven, Senior Project Impact Coordinator, to FY2001 Communities & State Project Impact Coordinators, Memorandum Re: Sample Budget: Initial One-Year Operation of a local Project Impact for FY 2001 *Disaster Resistant Community Grants*, October 27, 2000, page 1.

¹⁰⁵ Ibid.

¹⁰⁶ Wachtendorf et al., op. cit. page 64.

¹⁰⁷ Ibid., page 66.

¹⁰⁸ This goal is the foremost objective listed on the first page of the Grant Guidance documents for FY1999, FY2000, and FY2001.

Table Q-2 Project Impact reporting documents collected during visits to FEMA regional offices and communities¹

Document	Freeport, NY 1998	Jefferson County, AL 1999	Multnomah County, OR 1999	Jamestown, ND 2000	Horry County, SC 2001
Memorandum of Agreement (MOA)	Yes	No	No	Yes	No
Scope of Work (SOW)	No	Yes	Yes	No	Yes
Budget ²	No	Yes	No	Yes	Yes
Project Impact Baseline Report	Yes	No	No	Yes	No
Hazard Mitigation Plan	Yes	Yes	No	No	No
Action Plan	Yes	No	No	Yes	Yes
Project Impact Progress Report	Yes	No	No	No	No
Quarterly Reports (Number Present)	3	4	1	0	10
Semi-annual Performance Reports (Number Present)	0	0	2	0	0
Close Out Documents	Yes	Yes	No	No	No
Final Report	Yes	Yes	No	Yes	No

¹The communities are placed from left to right in the chronological order that they joined Project Impact.

²According to an internal FEMA memorandum dated April 6, 1999 discussing project funding found in the Jefferson County, Alabama files, FEMA began requiring separate budgets for *Construction* and *Non-Construction* projects. Neither term was defined.

FEMA did not provide a definition of a partner. Wachtendorf and her colleagues defined partners as those who signed the Memorandum of Agreement at the start of the grant period.¹⁰⁹ They also defined “active” partners as those who “were ranked by any community respondent as a 3, 4, or 5 (‘moderately active,’ ‘quite active,’ or ‘very active’)” in a questionnaire given to the Project Impact Coordinator and between one and four other respondents who were knowledgeable about Project Impact.¹¹⁰

While the Wachtendorf et al. definitions have some value, they ignore many complicating factors. First, communities often had partners before joining Project Impact. It is obvious that

¹⁰⁹ Ibid., page 9.

¹¹⁰ Ibid., page 20. The University of Delaware study was conducted while Project Impact grants were underway. The study ended before the researchers had the opportunity to review completed grants. Therefore, Wachtendorf and her colleagues were unable to update their definition of partners to include anyone who participated in Project Impact activities but who did not sign the MOA.

Project Impact was not responsible for the initiation of these partnerships. Second, during the life of the Project Impact grants, many community organizations and individuals beyond those who signed the MOA contributed services, materials, or funds. Some were involved at a single point in time and others over a period time. In the files of the five communities evaluated in this study, there are sometimes lists of people who contributed to Project Impact activities, but often there are not, making it impossible to know for certain all those who might have partnered with the communities. Third, communities did not keep records of how “active” partners were or even use the term “active” to describe partners. Fourth, because people or representatives of organizations who did not sign the MOA were not asked if they considered themselves partners, there is no method to determine their motivation or whether they would consider themselves partners.¹¹¹

In light of the difficulties of finding and evaluating the status of potential partners, no attempt has been made to impose a definition on who might be considered a partner. When partnership information provided by the community is available, it is reported in the context it was created.

Q.9 Descriptions of the Project Impact Activities Carried out in Five Communities¹¹²

As mentioned above, this research study included the evaluation of eight communities, five of which were Project Impact communities. Details of their Project Impact experiences and activities are presented next. The order is based on the starting date, the earliest first. Thus, the order of presentation is: Freeport, New York (1998); Jefferson County, Alabama (1999); Multnomah County, Oregon (1999); Jamestown, North Dakota (2000), and Horry County, South Carolina (2001).

Q.10 Freeport, New York

As mentioned above, Freeport was selected as a Project Impact community because it had a significant flood and wind risk, a positive record of hazard mitigation, a full-time emergency manager who could devote time to Project Impact, and had private sector partners who previously completed projects with the village. One example of a pre-Project Impact partnership activity was the construction of a model demonstrating wind resistant construction that was built by the local Home Depot and Simpson Strong-Tie Company, Inc. It was placed and still remains in the foyer of Village Hall outside the offices of the Building Department for everyone, especially contractors and builders, to see.

Freeport was notified that it could become a Project Impact community on March 5, 1998. The community established a Steering Committee chaired by the Mayor that first met on March 19. From initial work completed on the development of a list of activities that would become part of

¹¹¹ During some community site visits, a few individuals were encountered who participated in community activities but did not sign the MOA and were asked if they considered themselves “partners.” Some did and some did not.

¹¹² The community descriptions are based on records obtained from the FEMA regional offices and the communities. The records include the reporting documents listed in Table 2 and others that were produced by the community for other purposes. A review of the records indicates that there is significant missing information for each community. Therefore, the community descriptions include the best estimates provided in the record where omissions exist.

the Memorandum of Agreement (MOA) with FEMA, FEMA invited the village to become a Project Impact community on June 3. A signing ceremony was held on September 17, 1998.

In the MOA signed on September 17, Freeport proposed to:

Strengthen the community's resistance to disaster by retrofitting and elevating homes and commercial structures. Improve the hazard resistance of the community's infrastructure. Develop and implement public awareness campaigns to insure that the public and private sectors and the residents of the community are educated to the need to support these Hazard Resistant Initiatives.¹¹³

To meet its goals, the village created five committees with mission statements:

- (a) Commercial and Industrial: Identify developed and vacant properties that are subject to flooding.
- (b) Bulkhead: Identify existing bulkheads that need to be repaired or replaced and areas without bulkheads that are a source of flooding.
- (c) Public Awareness: Develop a program to educate the public about hazards to which our community is exposed, such as hurricanes, nor'easters, flooding, etc.
- (d) Infrastructure: Identify essential infrastructure that are at risk and recommend preparedness response & recovery mitigation measures
- (e) Retrofitting Residential Structures: Identify residential structures that are prone to flooding and have repetitive losses.¹¹⁴

Also in the MOA in Appendix B, Freeport included an Action Plan that listed commitments or partnership agreements with three village departments, Nassau County, the Town of Hempstead, five corporations, one bank, and six nonprofit organizations. In all, including the Mayor representing Freeport and James Lee Witt representing FEMA, there were 21 signatures. The commitments were linked to the goals of the five committees and representatives of the partners made up the membership of the committees.

Although a MOA was signed on September 17, that day did not represent the start of the FEMA grant. The Project Impact Progress Report and other documents indicate that another MOA was signed on December 23, 1998 and that FEMA agreed to grant Freeport \$300,000 over a two-year period commencing January 1, 1999 and ending January 1, 2001.¹¹⁵ Freeport was obligated to provide a local match of \$100,000 or 25% of the sum.

As was typical of the five Project Impact communities studied, near the end of the two-year grant, Freeport requested and FEMA approved a no-cost extension to complete its activities. The ending date was extended one year to January 1, 2002.

¹¹³ *Memorandum of Agreement*, September 17, 1998, Appendix A, page i.

¹¹⁴ *Ibid.*, Appendix A, pages i-v.

¹¹⁵ The December 23, 1998 MOA was not located.

Q.10.1 A Review of the Project Impact Activities

Freeport proposed 13 activities that it divided into two general categories: those concerned with education and those broadly concerned with retrofitting. See Table Q-3 for a list of the activities, the benefits Freeport sought, and details of the activities with the final status of the project.¹¹⁶

The original five committees identified in the original MOA developed the 13 activities shown in Table Q-3. Over the three-year life of Project Impact, the partners identified in the MOA remained with the project as partners. While some Freeport documents mentioned partnership growth, none described or singled out any additional organizations having a partnership role.

According to the information provided in the February 2002 “Project Impact Close Out Summary,” the Village of Freeport reported expending all \$300,000 granted by FEMA and contributing \$217,402.30 in matching funds or in-kind services. However, there was no breakdown according to activity.¹¹⁷

Q.10.2 Benefit Cost Analysis

Table Q-4 presents the types of mitigation activities funded that were completed, the costs of these activities (including FEMA’s share), an estimate of the total benefits, an estimate of the benefit-cost ratio, and the range of the benefit-cost ratio. While the range of benefit-cost ratios is sometimes large for a particular activity, this estimate is meant to provide a general understanding of the extremes that are possible given the uncertainties present in the analysis. A more rigorous analysis would lead to a more statistically significant range.

For Freeport, the dominant activity was the development of a warning system, the installation of a tidal gage in the bay connected to a siren, that permits Freeport residents to use sandbags in order to avoid damages, especially to appliances and other items found in lower stories. Warning systems were assumed to permit 500 residences to use sandbags every two years, with a savings of \$1000 per residence per event. HAZUS was used to evaluate the benefits of hurricane windows and doors installed at the Village Emergency Operation Center. Benefits from other activities were not estimated.

¹¹⁶ The communities in this study each tracked their projects in different ways. The projects are discussed in their community context to avoid misrepresenting them.

¹¹⁷ Other Freeport documents issued during the life of Project Impact include estimates of federal and local costs for various activities. However, they changed over time and no final detailed accounting could be located that specifically identified federal and local costs for each activity. The Village of Freeport apparently did not issue a stand-alone final report; the last report issued was the narrative statement to the final quarterly report dated December 31, 2001 that contained the final status of each activity.

Table Q-3 Project Impact activities initiated by Freeport, New York

Activity	Benefits	Completion Details and Final Status
(Education)		
Project Impact Coord.	Salary	N/A
Public Awareness Events	Increase the public's awareness of natural hazard mitigation measures, preparedness and recovery	Held three Project Impact Awareness Days and one public awareness event for Nassau County elected officials. Village planned to continue to use public forums and mailings for disaster awareness and preparedness.
Mobile Fire Safety House/ Disaster Resistant House	Increase public's awareness of fire safety, natural hazard mitigation measures, and preparedness	Completed project. Purchased through contract, the Fire Safety House, a mobile classroom used mainly by the Freeport School District, a community partner. It is part of an on-going education program.
Seminars and Demonstrations on Retrofitting	Increase public's awareness of natural hazard mitigation measures	The Freeport Building Department conducted site visits to educate home and business owners on mitigation measures. Two community partners, Simpson Strong-tie and Home Depot, conducted workshops. These are on-going activities.
Adult Education Classes on Natural Hazard Preparedness	Increase public's awareness of natural hazard preparedness measures	Freeport Emergency Management Office developed and offered an adult education class on disaster preparedness through the Freeport School District. It is an on-going course.
Communication Network and Video Conferencing	Distance learning and transmission of emergency information	Completed project. Maintenance and expansion of the system will be supported by Village, Freeport Utilities, and the Freeport School District.
Early Warning System – Tidal Gage	Reduce loss of property, thus reducing NFIP claims	Completed project. Record keeping, data production, and maintenance jointly supported by the Village and the USGS.
(Retrofitting)		
Tree Removal	Reduce loss of property	Part of a long-term program to remove trees that pose a threat to power lines and buildings and replace them with smaller "power friendly trees." Approx. \$100,000 is allocated to the program each year.
Preliminary Design for Road Elevation Projects	Reduce the effects of flooding	Paid consultant to prepare designs for elevating 13,400 linear feet of roadway of which 1,500 feet were completed and 11,900 scheduled for later construction. Part of an on-going project that dates back to 1983.
Elevation of heating units	Reduction in flood insurance claims	Originally \$60,000 was allocated but all homeowners who were contacted to participate in the program withdrew. Nothing was accomplished.
Hurricane Resistant Windows and Doors for Village Emergency Operation Center	Reduction in damages due to wind	Project completed. The windows and doors were installed.
Bulkhead Program	Reduction in flood damage and business losses	Progress was made to develop program to replace existing bulkheads along Woodcleft Avenue and the approval of bonds for homeowners to take out loans to replace their bulkheads. The program began prior to Project Impact and had continued since with portions of the project being completed and the first loan made.
Roadway Grade Raise and Drainage Improvement Project	Reduce the effects of flooding	On-going program dating back to 1983 to raise all streets in the floodplain three feet above the level of the 100-year flood.

Table Q-4 Benefit cost analysis of completed Project Impact activities in Freeport, New York

Community	Brief Descriptor of Mitigation Activity	Total Costs including Annual Maintenance (2002\$M)	FEMA Costs (2002\$M)	Best Estimate		
				Benefits (2002\$M)	Benefit-Cost Ratio	BCR Range
Freeport	Community Early Warning System	0.44	0.02	7.86	17.9	1.8-71
	Education	0.13	0.10	Not calculated	Not calculated	Not calculated
	Hurricane windows and doors, bulkheads	0.03	0.02	0.01	0.3 (only windows and doors benefits estimated)	0.2-0.6
	Tree removal	0.02	0.02	Not calculated	Not calculated	Not calculated
	<i>Freeport TOTALS</i>	<i>0.63</i>	<i>0.16</i>	<i>7.87</i>	<i>12.6</i>	<i>1.3-50</i>

The unmeasured benefits were all seen as positive. The Village of Freeport was able to establish an ongoing education program to teach both school children and adults natural hazard preparedness and mitigation techniques. The contributions of Project Impact also were used to support and possibly accelerate ongoing street elevations and the bulkhead project. Because Freeport apparently did not keep a detailed cost accounting of its activities, there was no way to accurately estimate the value of its education programs or the efforts of the community to develop the bulkhead project.

One very positive benefit, according to the village officials interviewed during the community site visit and the letter of nomination sent by the FEMA Region 2 Project Impact Coordinator to the Project Impact Awards Committee nominating Freeport as a Project Impact Model Community, was that the community had undertaken the role of mentoring other Region 2 Project Impact communities and providing advice to neighboring communities in Nassau and Suffolk counties.¹¹⁸ In this role, Freeport developed a reputation that Village officials said opened new doors to them to find funding and other assistance in their quest to make the community disaster resistant.

The only negative aspect of the Freeport Project Impact activities was the Village’s inability to convince any homeowner to participate in the project to elevate a heating unit. The time and effort spent was unrewarded.

¹¹⁸ Mabry, Marshall, Project Impact Coordinator, and Jaye M. Sutton, Project Impact Liaison to the Village of Freeport, to the Project Impact Awards Committee, Letter of Nomination of the Village of Freeport as s Project Impact Model Community, September 28, 2000.

Q.10.3 Conclusions

Not counting the payment of salary to the Project Impact coordinator, Freeport completed or achieved its objectives on 12 of the 13 projects that it undertook in Project Impact.

Q.11 Jefferson County, Alabama

No documentary evidence was located that discussed the process by which Jefferson County was selected as a Project Impact community. What is known is that Region 4 notified the state of Alabama that it had \$300,000 that would be granted to a community of the state's choice for FY2000. The state of Alabama decided to split the award, asking FEMA to grant \$150,000 to Jefferson County and \$150,000 to Mobile County. Several telephone and on-site interviewees mentioned that this was a political decision based on a desire to divide the grant equally between recipients in northern and southern Alabama.

Jefferson County was chosen by FEMA to become a Project Impact Community on December 10, 1998. In the news release announcing the choice, FEMA noted the hazard risks faced by the county:

The numerous small rivers and streams and hilly terrain of the metro area make flooding a chronic natural hazard. The area is also at risk from tornadoes and ice storms. Hazardous materials are a problem because of the region's heavy industrialization.¹¹⁹

The implication of this announcement was that FEMA had expanded Project Impact to include not only natural hazards but also man-made hazards.

FEMA notified Jefferson County on January 17, 1999 that it was "invited to submit an application to participate in [Project Impact]" and that the application must be received by February 17, 1999.¹²⁰ Although no copy of the completed application was found, a summary of a Scope of Work attached to the application that specified projects for funding was included in two internal FEMA memos containing technical evaluations of the projects.¹²¹ (See Table Q-5 below for a list of the projects.)

According to the many financial statements in the Jefferson County documents, the official start date of the Project Impact grant was February 17, 1999, not the date of the signing ceremony, April 8, 1999. The project was originally scheduled to end on February 16, 2001.¹²²

¹¹⁹ *Jefferson County Joins Project Impact*, FEMA Region 4 News Release, December 10, 1998, www.fema.com/regions/iv/1998/98r4_099.shtml

¹²⁰ Housand, Helen J., FEMA Region 4 Contracting Officer, to Mary Buckelew, Commissioner, Jefferson County Commission, January 13, 1999, page 1.

¹²¹ Randolph, Steven, FEMA Region 4 Project Impact Coordinator, to Helen Housand, Region 4 Contracting Officer, re: Jefferson County, Alabama Technical Evaluation for Disaster Resistant Community Grant, March 5, 1999 and a second letter from Randolph to Housand with a revised technical evaluation, April, 6, 1999.

¹²² Several amendments to the grant eventually changed both the starting and ending dates of the Performance Period of the grant. The starting date was changed from February 17, 1999 to the date of the signing ceremony April 8, 1999, and the ending date was extended from February 16, 2001 to December 31, 2001. By the end of the grant period, Jefferson County had completed its projects but had not spent the full \$5,000 given to each Project Impact community for "mentoring" or sharing its experiences

April 8, 1999 was selected as the signing ceremony date because it was the first anniversary of the devastating F-5 tornado that struck Jefferson County killing 32 and injuring hundreds. Included in the signing ceremony was a memorial service. Because no Memorandum of Agreement was found, it is not clear if one was signed at the ceremony or if the previously submitted application served as the MOA. However, among the documents found in the field were a copy of a list of names that was signed by 32 partners on April 8 and a typed list of unknown date that indicates there were 50 signing day partners. Among the partners were representatives of the 32 incorporated cities within the county.

The Statement of Work established that the Jefferson County Emergency Management Agency (EMA), in partnership with officials from Jefferson County and the 32 incorporated cities, would coordinate the Project Impact program. Four Project Impact committees were created to help manage the program and develop ideas for new projects. These committees were:

- Community Preparedness
- Construction
- Environment
- Insurance and Finance

Members of the committees were largely Jefferson County officials. Representatives from only six for-profit companies or nonprofit organizations were members.

Q.11.1 A Review of the Project Impact Activities

In the original statement of work, Jefferson County proposed completing three nonconstruction projects. These are the first three activities listed in Table Q-5. The remaining two projects were added after the project began. All of the \$150,000 in federal grant money was allocated to the first three activities. According to the financial records, \$20,000 was spent on the part-time Project Impact Coordinator's salary, \$30,000 on the update of the Hazard Vulnerability Assessment, and \$100,000 on the expanded and updated emergency operations center.

Jefferson County and the partners contributed funds and in-kind services totaling \$413,136.17 according to the last Financial Status Report that was submitted on May 6, 2002, as part of the close-out documents. No breakdown according to activity was provided.

In addition to the activities in Table Q-5, the four Project Impact committees discussed other topics including shelters and safe rooms to protect residents from future tornadoes. Beginning with its first meeting on September 13, 1999, the Construction Committee discussed shelters and safe rooms in apartments and mobile home complexes, the possible requirement that safe rooms be included in the construction of new churches, tax credits for safe rooms, and the use of public funds for the construction of private safe rooms or shelters.¹²³ No specific Project Impact

with other Project Impact communities. An extension of five months was granted. On May 30, 2002, the grant was closed out and Jefferson County de-obligated an unspent \$935.12 that was allocated for mentoring.

¹²³ Project Impact Construction Committee, Meeting One – September 13, 1999 Minutes.

Table Q-5 Project Impact activities initiated by Jefferson County, Alabama

Activity	Benefits	Completion Details and Final Status
Project Impact Coordinator	Salary	N/A
Update of 1996 Hazard Vulnerability Assessment (HVA)	Increase awareness of hazard risks and	Completed project. Information from the updated HVA combined with historical data for the county led to the creation of the <i>Local Mitigation Strategy</i> , a document published January 2001.
Community Emergency Information System or WEB EOC	Expand and update the county Emergency Operations Center (EOC)	Completed project. Brought the EOC up to a state-of-the-art information system capability that allows all governing officials, 28 police departments, safety and security personnel from business and industry, 59 fire departments, and the media to have access to up-to-the minute information during emergencies.
Community Education & Outreach	Increase the public's awareness of natural hazard mitigation measures, preparedness and recovery	Created an annual "Community Awareness Day" that was held for three years in 2000, 2001, and 2002. From 3 to 5,000 visitors were estimated to have attended each event.
Early Warning System	Increase the number of people that will be in the range of early warning sirens with and upgraded and expanded outdoor warning system.	During the grant period, the Jefferson County Commission raised money for the system. No Project Impact funds were used and the updating began after Project Impact ended.

activity emerged from these discussions but the committee supported the County's Community Development Agency's initiative to provide safe rooms in the new Edgewater Oaks subdivision that will ultimately contain 80 residences constructed for low-income families.¹²⁴

Q.11.2 Benefit Cost Analysis

Table Q-6 presents the types of mitigation activities funded that were completed, the costs of these activities (including FEMA's share), an estimate of the total benefits, an estimate of the benefit-cost ratio, and the range of the benefit-cost ratio. While the range of benefit-cost ratios is sometimes large for a particular activity, this estimate is meant to provide a general understanding of the extremes that are possible given the uncertainties present in the analysis. A more rigorous analysis would lead to a more statistically significant range.

For Jefferson County, the dominant activities were the update of the information systems in the Emergency Operations Center and the update of the Hazard Vulnerability Assessment. In addition, the community with the assistance of the Project Impact committees went forward with the construction of safe rooms in the Edgewater Oaks subdivision. The Jefferson County Emergency Management Agency Coordinator described the project thusly:

¹²⁴ The dedication of the Edgewater Oaks Subdivision took place on March 19, 2000.

Table Q-6 Benefit cost analysis of completed project impact activities in Jefferson County, Alabama

Community	Brief Descriptor of Mitigation Activity	Total Costs including Annual Maintenance (2002\$M)	FEMA Costs (2002\$M)	Best Estimate		
				Benefits (2002\$M)	Benefit-Cost Ratio	BCR Range
Jefferson County	Community Early Warning and Emergency Information Systems	0.12	0.09	0.40	3.4	0.3-34
	Other activities including Edgewater Oaks safe rooms	0.19	0.14	Not calculated	2.2	1.0-8.7
	<i>Jefferson County TOTALS</i>	<i>0.31</i>	<i>0.24</i>	<i>0.40</i>	<i>2.6</i>	<i>0.7-21</i>

“This subdivision will be an excellent example of Project Impact concepts – building partnerships within a community to help save lives and decrease repetitive losses. This subdivision is being developed through a partnership between the Jefferson County Commission, the Alabama Dept. of Economic and Community Affairs (ADECA), Federal Home Mortgage Assn., Habitat for Humanity, YW Homes, Other Non-Profits and Private Lenders. Only \$300,000 of county general fund monies will be used to leverage this \$8,000,000 project. Habitat for Humanity and others will aid in construction of the homes.

This subdivision will include eighty (80) single-family homes, a centrally located community center and a new fire station. Each home and the community center will include a safe room”.¹²⁵

In an internal FEMA e-mail message, a FEMA official stated that Jefferson County was successful in putting the Edgewater Oaks project together was “because they were a PI [Project Impact] Community it made it easier for them to get grants from the State, etc.” Furthermore, “They used the partners and teamwork developed through Project Impact to help develop support and leverage to receive the grant.”¹²⁶

The unmeasured benefits were all seen as positive. In terms of partners, Jefferson County kept many lists including a Partner List Screen, a Commitment List Report, a Project Impact Partner List, Project Impact Partnership Signees, and a running list of in-kind contributions. In all, many hundred people and organizations are listed as either partners or contributing to partnership activities.¹²⁷

¹²⁵ Odom, Woody, Coordinator – Jefferson County Emergency Management Agency, letter to Ms. Mary Lynne Miller, Acting Regional Director, Federal Emergency Management Agency, February 26, 2001.

¹²⁶ Denham, Steve e-mail to Christy Brown re: Jefferson Co. AL, May 7, 2001.

¹²⁷ No attempt was made to make a final determination of who in these lists should be considered Project Impact partners.

In addition, all of the Project Impact activities listed in Table Q-5 continued after Project Impact ended. The Local Mitigation Strategy became the foundation for the creation of the 2003 Natural Hazards Mitigation Plan. The EOC has been further upgraded with a new server, new software, and 40 laptops. The Community Awareness Day occurred one year after the end of Project Impact, but not thereafter. The U.S. Department of Justice awarded the county two grants in 2001 and 2003 to replace 30 old sirens in the early warning system, upgrade the remaining existing 127 sirens, and install between 80 and 90 new units. Finally, the Jefferson County Emergency Management Agency maintains its original Project Impact web site as www.impactalabama.com.

The only negative aspect associated with the Jefferson County Project Impact activities was the inability to sustain the momentum and keep the partners involved. The educational activities have virtually ended.

Q.11.3 Conclusions

Not counting the payment of salary to the Project Impact coordinator, Jefferson County completed or achieved its objectives on all four of the projects that it undertook in Project Impact.

Q.12 Multnomah County, Oregon¹²⁸

The process by which Multnomah County got selected as a Project Impact Community was unusual. Every year the State of Oregon asked communities to submit applications to be considered for selection in the next fiscal year. According to an untitled and undated summary of the grant history written prior to the signing ceremony, the document stated:

In the Fall of 1998, both East Multnomah County and a group representing the Johnson Creek Watershed were pursuing independent applications to become designated as Project Impact Communities. Following a series of meetings and discussions, they combined their Project Impact Applications and requested Multnomah County be designated a Project Impact community.

The region of East Multnomah County extends from the common boundary between the cities of Portland and Gresham, Oregon eastward to the county line, a distance of over 30 miles. The area has a population of approximately 120,000 people in five cities and several unincorporated areas, covering about 130 square miles. The impetus for the grant application came from the Board of the East County User Group that ran the East County Emergency Management Program encompassing the four cities of Fairview, Gresham, Troutdale, and Wood Village, as well as most of the unincorporated area of Multnomah County. In 1997, the five jurisdictions adopted a comprehensive Inter-Governmental Agreement (IGA) that brought together city and county emergency managers to establish a comprehensive all-hazard East County Emergency Management Program. Under Oregon guidelines, IGAs were eligible to become Project Impact Communities.

¹²⁸ This community discussion is based on very little information as neither the FEMA region nor Multnomah County was able to find very many Project Impact documents. The discussion, like that for the other communities, will be limited to what was available. No attempt has been made to fill in the large gaps of knowledge.

According to the grant history mentioned above, the East County User Group was made up of a variety of public and private partners who were establishing programs in urban and rural hazard mitigation. These included the U.S. Forest Service, Columbia Gorge National Scenic Area, Chambers of Commerce, private businesses, school districts, and neighborhood associations. East Multnomah County originally applied to become a Project Impact Community to help build program identification, gain citizen confidence, and increase support for its mitigation programs.

The Johnson Creek Watershed is a large area extending from East Multnomah County, across the tip of Clackamas County, and into the City of Portland. Its geography features large floodplains in the lower watershed with a mixture of industrial and residential uses, forested dormant lava domes, and riparian and upland areas with agricultural and rural land uses. The watershed is subject to flooding on the average of every other year. The original Johnson Creek Watershed Project Impact application wanted to use Project Impact funds to inform residents, businesses, and industries about floodplain issues and how to mitigate damages.

The application of Multnomah County that was successful in getting the county named a Project Impact Community merged some of the original projects of both East Multnomah County and the Johnson Creek Watershed. See Table Q-7 below for a list of the projects.

Multnomah County was invited by FEMA to join Project Impact on December 10, 1998.¹²⁹ It held its signing ceremony on September 13, 1999.¹³⁰ No record was found of how many partners attended the ceremony or who they were. The initial partnership priorities were listed as “Establishing a flood hazard Community Rating System (CRS); developing a business and industry continuation plan; providing flood hazard information to homeowners and businesses; assisting schools in developing disaster educational programs; and establishing neighborhood emergency response teams.”¹³¹

There were no documents found that established the actual dates for Project Impact. The inference from the dates on the quarterly and semi-annual reports located was that this was a two-year program that was scheduled to end in 2001 but extended to 2002.

Q.12.1 A Review of Project Impact Activities

At the start of the program, Multnomah County entered into an Intergovernmental Agreement (IGA) with the City of Portland to transfer \$150,000 or 50% of the Project Impact grant to the City of Portland to manage the Johnson Creek Watershed portion. The duration of this IGA was originally specified as from March 31, 1999 until June 30, 2001. An amendment extended the IGA until March 30, 2002. One of the purposes of the Johnson Creek Watershed project was to enhance the City of Portland’s CRS application that would be submitted at the start of 2001.¹³²

¹²⁹ *Multnomah County Invited to Join Project Impact Disaster Resistant Community Partnerships*, FEMA Region 10 News Release, December 10, 1998, www.fema.com/regions/x/1998/98r10_053.shtm

¹³⁰ *Multnomah County and City of Portland Join “Project Impact,”* FEMA Region 10 News Release, December 10, 1998, www.fema.com/regions/x/1998/98r10_053.shtm

¹³¹ *Ibid.*

¹³² Except for some brief entries in the two semi-annual reports that were located, there is no information concerning the details of the Johnson Creek Watershed project. Multnomah County considered it a “pass thru” project. Also the procedures used to conduct community studies in this research project limited the investigation to the selected communities only; when counties

Table Q-7 Project Impact activities undertaken by Multnomah County, Oregon*

Activity	Benefits	Completion Details and Final Status
Schools Project	Increase the public's awareness of natural hazard mitigation measures, preparedness and recovery	Completed project. Included the development of the perennial 72-hour emergency preparedness kit program and a mitigation element that will assist students in making their classrooms and homes disaster resistant.
Business and Industrial Communities Project	Increase the capability of businesses, especially small businesses, to develop business continuation plans in light of disasters and mentoring skills	Due to a county budget shortfall and a change in administration, the county pulled its support and the project was unable to be completed before Project Impact ended.
Neighborhood Emergency Response Teams (NERT)	Increase the ability of neighborhoods to become self-reliant in the event of a major emergency or disaster	Due to a county budget shortfall and a change in administration, the county pulled its support and the project was unable to be completed before Project Impact ended.
Flood Hazard Information	Provide businesses and residents with real time data on a particular flood threat, including on a web-site	This was a major element in the Johnson Creek Watershed project. The outcome was not documented by this study.
Retrofitting an Older Flood Prone House	Train homeowners and contractors on alternative all-hazard retrofitting approaches	The retrofit building, nicknamed "the Bates Motel," was believed to have instructed the majority of contractors and engineers in the building community in earthquake retrofit methods.
Community Rating System Program	To create a more comprehensive flood mitigation strategy.	This was part of the Johnson Creek Watershed project. The CRS program was a City of Portland initiative. On September 26, 2001, FEMA announced that Portland had received a Class 6 rating (on a 10-point scale, the higher the flood protection activity, the lower the rating). At the time, this was one the best ratings in nationwide.

*The activities in this table are those listed in the *Project Impact Program – East Multnomah County & Johnson Creek Watershed – Executive Summary*, no date, but internal information suggests it was written while Project Impact was in progress.

Q.12.2 Benefit Cost Analysis

Table Q-8 presents the types of mitigation activities funded that were completed, an estimate of the costs of these activities (including FEMA's share), an estimate of the total benefits, an estimate of the benefit-cost ratio, and the range of the benefit-cost ratio. While the range of benefit-cost ratios is sometimes large for a particular activity, this estimate is meant to provide a general understanding of the extremes that are possible given the uncertainties present in the analysis. A more rigorous analysis would lead to a more statistically significant range.

were selected, there was no attempt to investigate actions taken by incorporated cities within them or their hazard mitigation activities. The costs to do otherwise were prohibitive.

Table Q-8 Benefit cost analysis of completed Project Impact activities in Multnomah County, Oregon

Community	Brief Descriptor of Mitigation Activity	Total Costs including Annual Maintenance (2002\$M)	FEMA Costs (2002\$M)	Best Estimate		
				Benefits (2002\$M)	Benefit-Cost Ratio	BCR Range
Multnomah County	Emergency kits and model home	0.15	0.11	0.08	0.53	0.2-0.6

As shown in Table Q-8, the benefit cost analysis indicates that the completed projects carried out by Multnomah County had a benefit cost ratio of less than one. Except for the continuation of the school’s commitment to continuing to prepare 72-hour emergency preparedness kits, the remaining Project Impact initiatives were discontinued and the web site was shut down.

On the positive side, however, because the final status of many activities, including those associated with the Johnson Creek Watershed, was unknown, a final conclusion cannot be drawn that Project Impact was not worthwhile in Multnomah County. The available quarterly and semi-annual progress reports, as well as telephone and on-site interviewees, indicated that all the activities listed in Table Q-7 were progressing and had shown positive results before the county suffered budgetary problems and the administration was changed. Interviewees suggested that Project Impact had some positive effects on the county. One stated that “it brought people to the table who had never been to the table before.” Open communications between members of the business community also led to the development of many business continuity plans. NERT trained many people in emergency response, increasing the capacity of the county to respond to potential disasters. And the retrofit building, nicknamed the “Bates Motel,” was believed to have instructed the majority of contractors and engineers in the building community in earthquake retrofit methods.

Q.12.3 Conclusions

Multnomah County completed or achieved its objectives on two of four projects that it undertook in Project Impact.¹³³

Q.13 Jamestown, North Dakota

No documentary evidence was located that discussed the process by which Jamestown was selected as a Project Impact community. Both the Action Plan and the Final Report indicate that Jamestown was named a Project Impact City in December 1999. The grant provided \$300,000 in federal funds to be matched by \$100,000 in local funds or in-kind services for a two-year period starting December 1, 1999 and ending December 31, 2001. Later the grant was extended by a year to December 31, 2002.

¹³³ No status is included on any projects associated with the city of Portland or the Johnson Creek Watershed project.

Jamestown had been included in seven disaster declarations in North Dakota between 1993 and 1999 all related to flooding. The main reason for the flooding was high water tables that caused basements to flood when the water table rose above the basement floor. Overland flooding from the James River, which runs through the city, had been effectively prevented by two dams north of the city, one established by the U.S. Army Corps of Engineers and the other constructed by the U.S. Bureau of Reclamation and was not considered a major threat. According to the Project Impact Baseline Report, only about 60 of city's 5,000 houses and 600 businesses were located in the regulatory floodplain. Current FEMA statistics showed that in the 26 years between and including 1978 and 2003 there had been just 26 paid National Flood Insurance Program (NFIP) insurance claims totaling \$64,000. The Baseline Report also listed high winds and tornadoes as threats to the community.

Between the time Jamestown was named a Project Impact Community and the signing ceremony on June 15, 2000, the city held three open community-wide planning meetings. Seventy-five people attended the first meeting, 15 the second, and 40 the third. During these meetings, the community vulnerabilities and the upcoming Project Impact grant were discussed and attendees were asked to sign up as themselves or their companies as partners and to be placed on committees that would develop possible Project Impact projects. The committees were:

- Public Awareness and Education
- Storm Water Damage, Flood Control, and River Clean-Up
- Hazardous Materials
- Building and Zoning,
- Early Warning System, and
- Steering.¹³⁴

By the signing ceremony, the first five mentioned committees had created lists of possible projects to be completed as part of Project Impact. The lists were sent to the Steering Committee, which selected 13. These 13 projects were the first and only ones that were attempted. See Table Q-9 for a list of the projects.

The signing ceremony was held on June 15, 2000 at the Civic Center culminating a 3-day Community Awareness Week, “with awareness activities on community safety, dam safety, boating and water safety, emergency management, Red Cross, and storm shelters.”¹³⁵ Sixty-three partners signed the Memorandum of Agreement.¹³⁶ Describing what Project Impact intended to do, the Action Report related that “Jamestown plans to look at flood and tornado early warning systems, improvements to the storm water system, river channel clean-up,

¹³⁴ The Project Impact Final Report is a Power Point slide presentation. It is undated but issued in 2004. The community-wide planning meetings are discussed on slides 4, 5, and 6.

¹³⁵ *Jamestown, North Dakota Action Plan*, no date, page 3.

¹³⁶ This was the only list of partners created by Jamestown found in the documents.

emergency response training, tightening of building and zoning ordinance enforcement, safe school initiative and increased public awareness and education programs.”¹³⁷

Q.13.1 A Review of the Project Impact Activities

As mentioned above, Jamestown developed its activity list in time for the signing ceremony. Over the three-year period that Project Impact was operational, the city completed ten of these activities. See Table Q-9.

In its final report, Jamestown included the amount of federal funds and local in-kind match for each activity. The city also included either the lead or major partners. It was the only community of the five reviewed in this study that provided this information. See Table Q-10.

Jamestown spent the entire \$300,000 allocated to it in the Project Impact grant even though a little less than \$8,000 is unaccounted for in Table Q-10; other financial documents show that these funds were approved for start-up activities.

Q.13.2 Benefit Cost Analysis

Table Q-11 presents the types of mitigation activities funded that were completed, the costs of these activities (including FEMA’s share), an estimate of the total benefits, an estimate of the benefit-cost ratio, and the range of the benefit-cost ratio. While the range of benefit-cost ratios is sometimes large for a particular activity, this estimate is meant to provide a general understanding of the extremes that are possible given the uncertainties present in the analysis. A more rigorous analysis would lead to a more statistically significant range.

For Jamestown, the tornado model developed in this project was used to estimate benefits of the community early warning system. It was assumed that up to 3,000 people could use the civic center as a safe room during tornado events. For the other activities, a benefit-cost ratio of 1.2 (via benefit transfer methods) was used for the city-wide storm study, whose uses were only beginning at the time of this study; benefit-cost ratios of 1.0 were used for the development of a training center and the purchase of a HAZMAT trailer.

There were many unmeasured positive benefits. Jamestown had a much better understanding of its hazard risks and was much better prepared to respond to both floods and tornadoes. Interviewees mentioned that the early warning system eased the minds of the residents. The city officials believed that their experience was a foundation for future developments and many groups had begun to apply what was accomplished during Project Impact. Since Project Impact ended, Jamestown has maintained all the completed projects above and begun either follow-on or additional projects. The local schools have instituted two follow-on projects to make schools safer and a new high school has been designed using the storm water runoff analysis developed in activity 1. In its final report, Jamestown also reported receiving grants from five organizations (Calgill Malting Company, Burlington Northern Santa Fe, North Dakota Farmers Union, RC&D, and Walmart) totaling \$11,250 in support of the Fire Training Facility (activity 13).

¹³⁷ *Jamestown, North Dakota Action Plan, op. cit.*

Table Q-9 Project Impact activities initiated by Jamestown, North Dakota*

Activity	Benefits	Completion Details and Final Status
1 – City-wide Storm Water Runoff Study	Identify current storm water problem areas within the city and describe alternatives for alleviating problems	Activity #8 “Implement Storm Water Runoff Study” was moved into this project. It was completed by a consultant on June 10, 2002. Detailed maps were produced that can be used in the design of new structures to prevent flooding.
2 – Storm Ready Designation	Community is designated by the National Weather Service as being able to prepare for and respond to hazardous weather events	Activity completed on January 15, 2001. Jamestown was the fourth city in North Dakota to receive this designation.
3 – GIS Implementation	Installation and implementation of flood plain map on GIS system	Activity completed on April 4, 2001.
4 – 24-Hour Skywarn System	Provide emergency communications 24 hours each day	Activity completed on March 7, 2001. A trailer was modified and equipped for emergency communications.
5 – Post Disaster Community Shelter	Provide community with emergency shelter from wind and flooding events	Activity completed on June 10, 2002. An emergency generator was installed at the Civic Center along with storage areas for the Red Cross and National Guard. Contracts were being developed with the Jamestown Hospital and other organizations for using the Civic Center as an emergency evacuation center.
6 – Early Warning System Improvements	Update outdoor sirens in community early warning system for tornadoes and floods	Activity completed on November 14, 2001. Five new sirens were purchased and installed providing a larger reception area.
7 – Haz Mat Training and Equipment	Equip Haz Mat trailer and provide training to 2 firefighters and Red Cross official	Activity completed on November 14, 2001. Haz Mat trailer donated by a partner was equipped and three persons were trained, including 2 of 6 full time fire fighters.
8 – Implement Storm Water Runoff Study	N/A	Merged with Activity #1.
9 – Storm Sewer Flood Gate Controls	N/A	Community was unable to do this project.
10 – Public Awareness and Education	Increase the public’s awareness of natural hazard mitigation measures, preparedness and recovery	Activity completed in November 2002. Multiple activities were completed including the purchase of materials for the emergency shelter run by the Red Cross, the purchase and distribution of weather radios, the purchase of computer equipment for disaster presentations and other safety classes, and the development of course for students and adults.
11 – Community Rating System Application	Join the CRS and lower CRS rating from a 10 to 9	Activity not completed.

*Data in this table was taken from the Jamestown Project Impact Final Report.

Table Q-9 Project Impact activities initiated by Jamestown, North Dakota (continued)

Activity	Benefits	Completion Details and Final Status
12 – Model Home Mitigation Project	Train homeowners and contractors on alternative all-hazard retrofitting approaches	Activity completed on September 1, 2002. Worked with students of James Valley Vocational Center to construct a model home demonstrating methods of flood and wind proofing.
13 – Fire and Police Training Facility	Increase fire and police capabilities	Completed project, date unspecified. The project involved building a concrete training pad, a cistern for testing truck pumps, and a building for use as a smoke building, which would provide firefighters with simulated fire situations. The facility will be also be used for Haz Mat drills and will be available for fire departments in smaller cities in the area.

Table Q-10 FEMA and local shares and partners of Project Impact activities*

Activity	FEMA Funds	Local In-Kind Match	Major or Lead Partners
1 – City-wide Storm Water Runoff Study	\$60,000.00	\$26,646.48	Interstate Engineering, Inc.
2 – Storm Ready Designation	0.00	7,500.00	Stutsman County Emergency Manager
3 – GIS Implementation	5,718.00	5,319.87	Interstate Engineering, Inc. and ESRI
4 – 24-Hour Skywarn System	6,237.25	22,400.00	Jamestown Amateur Radio Club
5 – Post Disaster Community Shelter	59,548.42	30,706.11	Jamestown Hospital
6 – Early Warning System Improvements	104,893.98	30,184.29	(None listed)
7 – Haz Mat Training and Equipment	25,392.28	32,932.10	Jamestown Fire Department and Bob Baumann
8 – Implement Storm Water Runoff Study	N/A	N/A	N/A
9 – Storm Sewer Flood Gate Controls	N/A	N/A	N/A
10 – Public Awareness and Education	28,770.02	24,791.39	Red Cross
11 – Community Rating System Application	0.00	2,000.00	N/A
12 – Model Home Mitigation Project	1,636.48	2,817.50	Jamestown Public Schools and Richard Laqua, Vocational Building Instructor
13 – Fire and Police Training Facility	0.00	190,000.00	(None listed)
Totals	\$292,196.43	\$375,297.74	

*Data in this table was taken from the Jamestown Project Impact Final Report.

Table Q-11 Benefit cost analysis of completed Project Impact activities in Jamestown, North Dakota

Community	Brief Descriptor of Mitigation Activity	Total Costs including Annual Maintenance (2002\$M)	FEMA Costs (2002\$M)	Best Estimate		
				Benefits (2002\$M)	Benefit-Cost Ratio	BCR Range
Jamestown	Civic Center as saferoom, warning for saferooms	0.12	0.10	0.24	1.96	0.93-6.07
	Other activities	0.19	0.14	0.18	0.93	0.3-0.93
	<i>Jamestown TOTALS</i>	<i>0.31</i>	<i>0.24</i>	<i>0.42</i>	<i>1.33</i>	<i>0.56-2.92</i>

Q.13.3 Conclusions

Jamestown undertook 13 projects at the start of the Project Impact. Two were later merged. Of the 12 remaining projects, 10 were completed or met their objectives.

Q.14 Horry County, South Carolina

Horry County was the only community in this study that entered Project Impact after FEMA revised its application instructions. The following discussion reflects major changes in how the program was managed, obligations of the communities, and the introduction of the two-phased grant in which there was a Phase 1 or start-up phase that permitted the community time to hire a Project Impact Coordinator, form committees, attract partners, and develop activities to be funded in Phase 2 when the activities would be completed. Phase 2 was considered “conditional;” it would begin only at the completion of a FEMA approved Scope of Work and budget.¹³⁸

On July 13, 2000, the Horry County Emergency Preparedness Director notified the South Carolina Emergency Preparedness Division (SCEPD) that Horry County would like to be considered to become a Project Impact Community.¹³⁹ No documents were located that confirmed the choice of Horry County as a Project Impact community. However, the FEMA Region 4 *Project Impact Grant Application Instructions [revised 10/27/00]* state that all FY 2001 communities were designated on September 13, 2000. Designated communities were then required to commit to the program and request an application and instructions from the FEMA regional office to qualify for the grant. On October 27, 2000, FEMA Region 4 responded to the request with a lengthy letter outlining what Horry County needed to do to complete the

¹³⁸ The Region 4 Grant Application Instructions FY 2001 [revised 10/27/00] contain very detailed requirements and deadlines. However, the only required reports after Phase 2 had begun were Quarterly Financial Reports and Quarterly Programmatic Reports or “Performance Report Narratives.”

¹³⁹ Whitten, Paul D., Horry County Emergency Preparedness Director, to Stan M. McKinney, SCEPD, July 13, 2000, letter expressing an interest to be selected as a Project Impact Community.

application.¹⁴⁰ In this letter, Horry County was notified that it would receive a \$150,000 grant that required a minimum local match of \$50,000.

Although the grant application instructions were very detailed and provided a laundry list of required community activities and a timeline, no mention was made of the signing ceremony. In the documents collected, there were also none that discussed the signing ceremony or the date it was held. Interviewees suggested that the signing ceremony set the tone for the entire project. They said it was held in 2001 after the Bush administration announced that Project Impact would not be funded after FY 2001, casting a pall over the proceedings.¹⁴¹ In the aftermath of the signing ceremony and the Bush administration announcement, interviewees also said that enthusiasm for the project was difficult to maintain and that many potential partners refused to participate. Horry County got off to a rocky start, and some interviewees said it never got better.

On September 21, 2001, an internal FEMA Region 4 memo indicated that the entire grant of \$150,000 had been obligated but the community was only eligible to use \$19,750 in Phase 1.¹⁴² The Phase 1 grant was awarded effective June 1, 2001. The date for the submission of the Phase 2 Scope of Work and Budget was listed as February 28, 2002. According to dates specified in the *Grant Application Instructions* for FY 2001, Horry County was lagging far behind the original deadlines. The due date in the Grant Application Instructions for the submittal of Phase 2 Scopes of Work and Budgets was May 14, 2001.

Not only was Horry County far behind in meeting the original deadlines established by FEMA, it could not meet the extended ones. The Phase 2 Statement of Work with a list of eleven activities was actually submitted on August 12, 2002 and approved by FEMA on August 19, 2002.¹⁴³ Considering that the project duration was established as starting on June 1, 2001 and ending on May 31, 2003, there was little time left to actually complete any proposed activities on time. Horry County attempted to have the grant extended but ran into opposition from FEMA.¹⁴⁴ Although no document was located that specifically stated an extension was granted, apparently one was granted because completed Quarterly Financial Status Reports up to December 31, 2003 were found and there were indications on them that there would be a final Quarterly Report due on March 31, 2004.

During the community site visit conducted between June 28 and July 1, 2004, interviewees in Horry County reported that the project had not ended at that time, that there were still some

¹⁴⁰ Housand, Helen J. FEMA Region 4 Regional Assistance Officer to Paul D. Whitten, Emergency Preparedness Director, Horry County, letter re: Request for Application: EMA-2001-RFA-0011.

¹⁴¹ One interviewee said that a FEMA representative refused to be in any photographs of the signing ceremony because he or she did not want to be seen as being associated with Project Impact.

¹⁴² Denham, Steven A., FEMA Region 4 Community Liaison, to Brett Bowen, Environmental Specialist, September 24, 2001, memo re: Horry County, SC Project Impact Community Phase I DRCG Grant #EMA-2001-GR-0081 CATEX Review for Grant Projects.

¹⁴³ Housand, Helen J., FEMA Region 4 Assistance Officer, to Paul Whitten, Public Safety Director, Horry County, August 19, 2002 informing him that Horry County “has been approved to expend funds based on your approved Phased [sic.] 2 Application for Federal Assistance.”

¹⁴⁴ An e-mail from Jacky Bell, FEMA Region 4 Hazard Mitigation Specialist, to Tabby Shelton, Horry County Emergency Management Department Emergency Planner, February 21, 2003, re: Time Extension Request, stated that “the Regional Director is not receptive to extending the Project Impact grants, so we have a challenge ahead.” Later in the e-mail Bell said “We also need to look at a six month time extension vs. a year...we would like to at least get you a 6 month vs. not one at all.” It should be noted that application instructions informed the communities that they would be eligible for one-year extensions if justified. All the other communities in this study were granted one-year extensions without difficulty.

activities to be completed. When data collection ended for this community at the end of July 2004, Horry County's Project Impact status had not changed.

Q.14.1 A Review of Project Impact Activities

The activities listed in Table Q-12 were those included in Horry County's Phase 2 Approved Statement of Work dated August 14, 2002. The completion details were provided by the county's Project Impact Coordinator during the community site visit. They reflect the status of the activities as of June 30, 2004.

Table Q-12 Project Impact activities initiated by Horry County, South Carolina

Activity	Benefits	Completion Details and Final Status
Program Administration	Salary	N/A
Enhanced Weather Detection System	Provides real-time weather data to the public and emergency responders	Completed project. Six freestanding weather stations were installed on existing fire stations in the county. A local television station agreed to provide the monthly service charges for each station and has exclusive rights to televise the information in the Horry County TV market.
GIS Critical Facilities and Risk Assessment	Incorporates information regarding critical facilities into existing GIS system, identifying risks that could be alleviated by future mitigation programs and providing information during emergencies	Partly completed. No details provided.
Fire Hydrant Awareness Program	Fire fighters will be able to locate fire hydrants, thereby reducing risk from wildfires	Completed project. Approximately 20,000 reflectors were purchased and installed on all roads in unincorporated areas of the county by fire fighters.
Resident/Tourist Hurricane Awareness Program	Inform residents and tourists regarding hurricane preparedness, evacuation, reentry, and recovery	Not completed. The intent was to create and broadcast public service announcements (PSAs) on local television stations. The person intended to create the PSAs went on maternity leave.
Hazard Analyses and Risk Assessment Exhibition	Inform residents of hazards affecting Horry County and what they can do to mitigate the risks	Not completed. The intent was to create a table top display called "Horry Town" made up of model railroad buildings that could taken to schools, expositions, and community awareness days.
Hazard Awareness Brochures/Posters	Inform residents of hazards, mitigation, and recovery	Partially completed. The community purchased 500 disaster books and passed all of them out. Some posters were created. Needed brochures were identified but not developed.
Hazard Awareness Poster Contest	Involve 4 th grade students participating in the <i>Master of Disaster</i> program to express what they are learning	Completed project. Twelve posters, one for each month and a different disaster, were created by students and the best were selected for display in various locations in the county.
Fire Rescue & Satellite Police Stations Weather Radios	Enhance the community's warning and response capability	Project completed. Approximately 50 radios were purchased and distributed to all county fire rescue and satellite police stations.
Library Disaster/Preparedness/Mitigation Books & Displays	Provide the public with disaster preparedness and mitigation information	Project completed. An identical collection of published disaster books was purchased and placed in 9 county libraries, one university, and a reference section within the Public Safety Department for Horry County employees.
Hurricane Strike CD	Provide the FEMA developed <i>Hurricane Strike</i> CD to all 6 th grade teachers in county	Cancelled. FEMA began to give out the CD at no cost.

Despite its late start, Horry County appears to have successfully implemented many of its proposed activities. However, without a final report, it is not possible to verify whether the uncompleted activities were ever finished. Also, the Project Impact Coordinator said that approximately \$40,000 in unspent federal funds as of July 1, 2004 might have to be deobligated.

Q.14.2 Benefit Cost Analysis

Table Q-13 presents the types of mitigation activities funded that were completed, the costs of these activities (including FEMA’s share), an estimate of the total benefits, an estimate of the benefit-cost ratio, and the range of the benefit-cost ratio. While the range of benefit-cost ratios is sometimes large for a particular activity, this estimate is meant to provide a general understanding of the extremes that are possible given the uncertainties present in the analysis. A more rigorous analysis would lead to a more statistically significant range.

Table Q-13 Benefit cost analysis of completed Project Impact activities in Horry County, South Carolina

Community	Brief Descriptor of Mitigation Activity	Total Costs including Annual Maintenance (2002\$M)	FEMA Costs (2002\$M)	Best Estimate		
				Benefits (2002\$M)	Benefit-Cost Ratio	BCR Range
Horry County	Warning Systems	0.13	0.04	.16	1.2	1.2
	Fire hydrant reflectors	0.04	0.02	0.05	1.2	1.2
	Education activities	0.04	0.03	N/C	N/C	N/C
	<i>Horry County TOTALS</i>	<i>0.16(limits of governmental funds)</i>	<i>0.12</i>	<i>0.21</i>	<i>1.28</i>	<i>1.03+</i>

It is difficult to estimate what benefits in addition to those shown in Table Q-13 were in Horry County. Because the overall Project Impact program was cancelled as the grant got underway, it did not have the cache that it had previously. However, Project Impact did bring people together to discuss and solve common problems and did increase the level of hazard and mitigation understanding among the public and emergency responders.

Q.14.4 Conclusions

Not counting the payment of salary to the Project Impact coordinator and the cancellation of the Hurricane Strike CD project, Horry County completed or met its objectives for five of the nine projects that it undertook in Project Impact.

Q.15 Overall Observations

One characteristic was common over all five Project Impact experiences. All five communities were unable to complete their grants in the initially contracted two-year timeframe. Two years

was not enough for any community to establish partnerships, determine projects, carry out public events, and complete reporting requirements. Every community applied for and received a time extension.

Overall, the five Project Impact communities completed or met the objectives of 79% of the projects that they undertook (33 of 42).

