SAVING LIVES AND MONEY THROUGH THE PRE-DISASTER MITIGATION PROGRAMS

(110–122)

HEARING

BEFORE THE

SUBCOMMITTEE ON
ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS, AND EMERGENCY MANAGEMENT

OF THE

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TRANSPORTATION AND
INFRASTRUCTURE
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April 28, 2008

SUMMARY OF SUBJECT MATTER

TO: Members of the Subcommittee on Economic Development, Public Buildings, and Emergency Management

FROM: Subcommittee on Economic Development, Public Buildings, and Emergency Management Staff

SUBJECT: Hearing on "Saving Lives and Money through the Pre-disaster Mitigation Program"

PURPOSE OF THE HEARING

On Wednesday, April 30, 2008, at 9:00 a.m., in room 2167 of the Rayburn House Office Building, the Subcommittee on Economic Development, Public Buildings, and Emergency Management will hold a hearing on the Federal Emergency Management Agency's (FEMA) Pre-disaster Mitigation Program. The hearing will focus on the reauthorization of the Pre-disaster Mitigation Program, which provides assistance on a competitive basis to states and localities to perform hazard mitigation projects. The Pre-disaster Mitigation program sunsets on September 20, 2008[1].

BACKGROUND

The Pre-disaster Mitigation (PDM) program is administered by the Federal Emergency Management Agency through its Mitigation Division, and is authorized by section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act)[2], which was first authorized by the Committee on Transportation and Infrastructure in the Disaster Mitigation Act of 2000[3].

The PDM program provides cost-effective technical and financial assistance to state and local governments to reduce injuries, loss of life, and damage to property caused by natural hazards. Examples of mitigation activities include the seismic strengthening of buildings and infrastructure,

[1] Section 203(m) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act 42 U.S.C. 5133(m)
[2] 42 U.S.C. 5133
[3] Section 102 of P.L. 106-390.

relocation of buildings out of floodplains, installing shutters and shatter resistant windows in hurricane-prone areas, and the building of "safe rooms" in houses and other buildings to protect from high winds. The PDM program provides grants to states on a competitive basis, with each state receiving a statutory minimum of $500,000 or one percent of the funds appropriated whichever is less[4].

The PDM program is the companion to the post-disaster Hazard Mitigation Grant Program (HMGP) authorized by section 404 of the Stafford Act[5]. While HMGP has been recognized as successful, one of the often cited concerns about the program is that it only was available after a disaster struck a community. As a result, FEMA developed a pilot program known as "Project Impact" that first received appropriations in the Departments of Veterans Affairs, Housing and Urban Development, and Independent Agencies Appropriations Act, 1997[6]. Project Impact was subsequently funded in appropriations for fiscal years 1998, 1999 and 2001. The PDM program is the successor to that pilot program.

FEMA's mitigation programs - PDM, HMGP, the former Project Impact, and flood mitigation programs - have been found to be effective in accomplishing their goals of reducing the risk of future damage, hardship and loss from all hazards. A number of reports, including two mandated by Congress, have cited the cost effectiveness of these programs. In 2005, the Mutlihazards Mitigation Council, part of the National Institute of Building Sciences, found "that a dollar spent on mitigation saves society an average of $4"[7].

In September 2007, the Congressional Budget Office issued a report, required by section 209 of the Disaster Mitigation Act of 2000, which focused on the PDM program based on guidance from the Committee[8]. That report found that for the PDM program: "The best available information suggests that, on average future losses are reduced by about $3 (measured in discounted present value) for each $1 spent on those projects, including both federal and nonfederal spending"[9].

Anecdotal evidence also supports the effectiveness of pre-disaster mitigation. One often cited example is the Nisqually Earthquake which struck Seattle on February 28, 2001. Seattle Mayor Paul Schell and other public officials cited Project Impact as saving lives and property.[10]

While generally recognized as effective, one of the concerns often raised about PDM, is that there have been long delays in awarding grants. For example, of the $50 million made available in FY 2006, $39 million has been awarded, and in FY 2007 only $52.3 million has been awarded from an appropriation of $100 million[11]. There also have been questions raised whether funds should be distributed on a competitive basis, by formula or a hybrid of both.

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[4] Section 203(f), 42 U.S.C. 5133(f)

[5] 42 U.S.C. 5170c

[6] P.L. 104.204 see Conference Report 104-812

[7] "NATURAL HAZARD MITIGATION SAVES: An Independent Study to Assess the Future Savings from Mitigation Activities" Multihazard Mitigation Council, National Institute of Building Sciences, 2005 p. 5 This report was mandated by Senate Report 106-161 - Departments Of Veterans Affairs, Housing and Urban Development, and Independent Agencies Appropriations Bill, 2000

[8] Potential Cost Savings from the Pre-Disaster Mitigation Program, Congressional Budget Office September 2007

[9] Id.

[10] See, e.g., Christopher and Robert Block, *Disaster Hurricane Katrina and the Failure of Homeland Security*, Times Books, 2006 p. 67-68

[11] Data taken from FEMA website, www.fema.gov

PRIOR LEGISLATIVE AND OVERSIGHT ACTIVITY

This is the first hearing on the Pre-disaster Mitigation Program the Subcommittee on Economic Development, Public Buildings, and Emergency Management has held in the 110th Congress. In the 109th Congress, the Committee discharged the Pre-disaster Mitigation Program Reauthorization Act of 2005 to reauthorize the program until 2008, which was enacted into law (P.L. 109-139). In the 108th Congress, the Subcommittee on Economic Development, Public Buildings, and Emergency Management held a hearing on "Emergency Preparedness Issues, including Reauthorization of the Pre-disaster Mitigation Program" on September 24, 2003. In the 106th Congress, the Committee on Transportation and Infrastructure reported the Disaster Mitigation and Cost Reduction Act of 1999 which was enacted into law as the Disaster Mitigation Act of 2000 (P.L. 106-390).

WITNESSES

The Honorable R. David Paulison
Administrator
Federal Emergency Management Agency

Mr. James Mullen
Chairman, Mitigation Committee
National Emergency Management Association

Mr. Robert C. Bohlman
Director
York County Emergency Management Agency

Mr. Brent Woodworth
Chairman, Multihazard Mitigation Council
National Institute of Building Sciences

SAVING LIVES AND MONEY THROUGH THE PREDISASTER MITIGATION PROGRAMS

Wednesday, April 30, 2008

HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
SUBCOMMITTEE ON ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS, AND EMERGENCY MANAGEMENT,
Washington, DC.

The Subcommittee met, pursuant to call, at 9:07 a.m., in Room 2167, Rayburn House Office Building, Hon. Eleanor Holmes Norton [Chairwoman of the Subcommittee] presiding.

Ms. NORTON. I want to say good morning and welcome all of our witnesses and all who have come this morning. Today's hearing will focus on the reauthorization of the Predisaster Mitigation Program authorized by section 203 of the Stafford Act, which is due to sunset on September 30th of this year.

The Predisaster Mitigation Program was first authorized by this Committee in the Disaster Mitigation Act of 2000. The title of today's hearing, Saving Lives and Money Through the Predisaster Mitigation Program, perfectly describes a program that saves far more than is invested.

The Predisaster Mitigation Program is a companion for the Postdisaster Hazards Grant Mitigation Program, also authorized by this Committee in section 404 of the Stafford Act. The vast predominance of disasters in the country, of course, are from natural disasters. Examples of mitigation for such disasters include elevating or buying out structures in a floodplain and strengthening buildings to better withstand earthquakes or hurricanes. This program provides cost-effective technical and financial assistance to State and local governments to reduce injuries, loss of life, and damage to property that might otherwise be caused by natural disasters.

The Predisaster Mitigation Program has been developed based on a successful pilot program, Project Impact. One often-cited example of the effectiveness of predisaster mitigation is from Washington State. Immediately after the Nisqually earthquake struck Seattle on February 28th, 2001, Seattle Mayor Paul Schell and other public officials cited predisaster mitigation grants that fortified buildings as one of the primary reasons that lives and property were saved during the earthquake. Ironically, the mayor's statements came on the same day that the administration claimed that the project administration predisaster pilot program should be defunded because it was not effective. However, Congress had already written this program into law based upon compelling evi-

dence that the Predisaster Mitigation Program is an investment that has shown it works.

The evidence that had resulted in congressional action came from a successful pilot project and has been substantiated by anecdotal evidence such as provided by Seattle, and, more importantly, by empirical evidence provided later by two congressionally mandated studies. In 2005, the Multihazard Mitigation Council, part of the National Institute of Building Sciences, chaired by one of our witnesses today, found, quote, that a dollar spent on mitigation saves society an average of $4, end quote.

The Congressional Budget Office issued a September 2007 report on the Predisaster Mitigation Program as required under the Disaster Mitigation Act of 2000, which stated, and here I quote, the best available information suggests that on average future losses are reduced by about $3 for each dollar spent on those projects, including both Federal and non-Federal funding, end quote.

Choose whatever study you prefer, but unavoidably money for this program has consistently been shown to provide an excellent return on investment. Today's hearing will focus on investments in mitigation measures which affect the safety of infrastructure. The full Transportation and Infrastructure Committee is planning a hearing on other investment opportunities which also will focus on our Nation's infrastructure needs.

I am pleased to hear from our Ranking Member Mr. Graves.

Mr. GRAVES. Thank you, Madam Chair, and I appreciate all of our witnesses being here today and taking the time to come by.

Today's hearing will focus on the reauthorization of the Predisaster Mitigation Program administered by FEMA. The Predisaster Mitigation Program under section 203 of the Stafford Act sunsets on September 20th, 2008. The Predisaster Mitigation Program was originally authorized by the Disaster Mitigation Act of 2000 as a pilot program to study the effectiveness of mitigation grants given to communities before disasters strike. Prior to the creation of the Predisaster Mitigation Program, hazard mitigation primarily occurred after a disaster through FEMA's Hazard Mitigation Grant Program.

Every disaster costs us in damages to homes, businesses, and infrastructure, and potentially in the loss of lives. The Predisaster Mitigation Program prevents damage and destruction by helping communities to act proactively through planning and projects that reduce the costs and limit the adverse impacts of future disasters. With FEMA's assistance, local governments identify cost-effective mitigation projects. When approved, these projects may be funded by the Predisaster Mitigation Program, which operates as a competitive award grant program. Since its inception, the Predisaster Mitigation Program has assisted local communities across the country and has helped fund a wide range of mitigation projects such as mitigation plans, buyouts and improved shelters.

In 2005, the National Institute of Building Sciences issued a study that conclusively demonstrated that Federal mitigation programs save the Federal Government money. Specifically, the study found that for every dollar spent on mitigation, the American taxpayer saves over $3 in Federal disaster payments. In short, mitiga-

tion works. It saves lives, limits future damage, reduces Federal disaster costs.

The Predisaster Mitigation Program is a worthy program, and I look forward to working with the Chair to reauthorize it this year. Again, I want to thank our witnesses for being here today, and I look forward to the testimony.

Thank you, Madam Chair.

Ms. NORTON. Thank you very much.

We will go to our first witness, and his full name is David Maurstad, who is Assistant Administrator and Federal Insurance Administrator of the Mitigation Directorate. Pardon me. You may proceed, sir.

TESTIMONY OF DAVID I. MAURSTAD, ASSISTANT ADMINISTRATOR AND FEDERAL INSURANCE ADMINISTRATOR, MITIGATION DIRECTORATE, FEDERAL EMERGENCY MANAGEMENT AGENCY

Mr. MAURSTAD. Good morning, Chairwoman Norton, Ranking Member Graves, Members of the Subcommittee. I am David Maurstad, FEMA Assistant Administrator for Mitigation. Thank you for the opportunity to testify today about the success of FEMA's Predisaster Mitigation Grant Program and respectfully request reauthorization of the program.

FEMA's mission is to lead the Nation in an effort to prevent, prepare for, respond to, and recover from all hazards. This comprehensive emergency management system starts with mitigation: sustained efforts by communities, businesses, and individuals to reduce their vulnerability from future disasters. PDM has become an integral part of FEMA's mitigation strategy by providing grants to States, territories, tribal governments and communities so that they can develop mitigation plans and implement mitigation activities before hazards strike.

Community-level mitigation planning and activities save lives, reduce property damage, direct response and recovery efforts to where they are needed most, decrease reliance on Federal disaster funds, and reduce the financial impacts of disasters on the communities they strike as well as the Nation. All States and territories and more than 16,000 communities, involving approximately 64 percent of the Nation's population, now have mitigation plans. Many were funded by PDM. These plans not only help communities focus on reducing vulnerability to hazards, they open the door for PDM brick-and-mortar grants that support a wide range of cost-effective mitigation activities such as acquiring repetitively flooded homes; protecting utilities; and retrofitting, elevating or relocating hazard-prone homes and businesses.

PDM's basic premise, to help communities build stronger and smarter, is not new. FEMA has been facilitating community mitigation efforts since 1988, when the Hazard Mitigation Grant Program was created. An excellent example of a cost-effective HMGP project can be seen in Exhibit A. This photograph shows a coastal Mississippi home that was elevated using HMGP funds. Several years after the project was completed, this home was the only one left standing on a street ravaged by Hurricane Katrina's storm surge. This HMGP success not only offers a clear example of miti-

gation's effectiveness, but also underscores the fact that it often takes time to realize avoided losses. PDM, like the postdisaster HMGP, also funds elevations like the one shown in Exhibit A, and over time, States and communities will be able to highlight many similar successes.

In Rutherford County, Tennessee, for example, State and local officials used PDM funds to acquire a flood-prone home. A family closed on the home in 1997 after conducting a reasonable and prudent examination of the pros and cons of purchasing. What this family did not know, however, was the home's flood history. The home suffered 20 documented floods after it was purchased, with an annual recovery cost averaging $17,000. PDM funds enabled Rutherford County officials to acquire the property from the homeowner, demolish the structure, and return the property to open space, thus eliminating a persistent flood risk, and reduced the burden on the local services that protect the homeowner and his family from potential and actual flooding.

These mitigation success stories show how States and communities can benefit from both types of mitigation assistance.

PDM's success leads FEMA to be optimistic about the program's future, and in anticipation of reauthorization and related appropriations, the Agency is moving forward with the following grant cycle schedule: June 2nd, 2008, release of the unified hazard mitigation assistance guidance and opening of a 6-month application period; December 12th, 2008, close the application period and begin eligibility and completeness review; mid-January 2009, begin National Technical and Peer Evaluation Reviews; and in March of 2009, finalize selections and begin preaward process. This projected aggressive schedule reflects feedback FEMA has received from our constituents, and is consistent with Congress's desire that FEMA obligate all available PDM funding in a timely manner.

The administration supports reauthorization of the Predisaster Mitigation Grant Program through 2013. Doing so for 5 more years will assure a stable and dependable source of mitigation funding, and will promote consistent community efforts to pursue mitigation planning and activities. Without PDM, I am afraid that the momentum we have developed over the last 5 years in States and communities across the Nation to address hazards before disasters strike will be lost.

Thank you for this opportunity to testify this morning. I look forward to any questions that you might have.

Ms. NORTON. Thank you very much, Mr. Maurstad, for that testimony that lays out some of the results.

So I take it that, just for the record, that the administration does support reauthorization?

Mr. MAURSTAD. Yes, ma'am. Support reauthorization to 2013.

Ms. NORTON. How many grants have you received, and how many have been awarded, please?

Mr. MAURSTAD. I could get you—well, I am pretty sure I have got the number here. Through 2007 we have awarded 1,494 subapplications for projects and plans for a total of $485,359,000; 943 were plans and 551 projects. As of today, 85 percent of the funds have been obligated, but all of the funds have been dedicated to particular projects.

Ms. NORTON. How many did you receive in total, Mr. Maurstad?

Mr. MAURSTAD. Generally speaking, in a grant cycle, for the five grant cycles, we have received two to three times the amount of requests for the funding that was available.

Ms. NORTON. How do you evaluate? Here you have what looks like a very popular program, and a competitive program at that. But, by the way, do you think it should continue to be a competitive program? There have been some who have suggested that there should be some sort of formula. Which do you prefer?

Mr. MAURSTAD. I think that first it is—as you indicated, it is a nationally competitive program. And I think the amount of the applications indicate that there is a great deal of mitigation work that can be done throughout the country. The benefits associated with the nationally competitive program is that the limited funding that is available goes to the best projects. That is done through a series of activities starting at the local level in developing the project, knowing that it is a competitive project. I think that puts additional emphasis for the communities to develop good projects. They then go to the State that also looks at the projects, determines the best projects to forward for the national competitive review. The regions look at them.

But the benefits for the national peer review is consistency, to make sure that there is consistency with State and local plans, effective use of the resources, making sure that they have the proposed viability, likelihood of successful loss reduction. They go through technical review, engineering studies, make sure that they are again cost-effective.

The last 2 years we have had a blended program. We have had a national competitive program, and we have also had a minimum set-aside for each State of $500,000. That has proved to be a very workable process that allows all States to participate in PDM, and believe that is a good way forward.

Ms. NORTON. That is an important addition, the set-aside program. Of course, what you described as important in any competitive process are steps, and it is important for our grants—and most of our grants are competitive—for us to go through the kind of rigorous competition you have just suggested. And I think some have suggested a formula approach because of the sophistication needed in order to write such a grant.

We have made no decision on that, but the notion that some areas or States or counties are more sophisticated than others to engage in the competition, do you have any views on that, on how, for example, people might be helped, whether or not there is some way that FEMA could offer some assistance to the jurisdictions that don't have the technical sophistication or capability of writing a competitive grant in an area like this?

Mr. MAURSTAD. Well, first of all, I think there has been great progress made by all the States. This is a relatively new program, 5 years now, and certainly over that period of time, the applications have improved because of the technical assistance that we provide, the training that we provide at both the State and the local level, and because a significant component of the national review is a peer review that involves both individuals from headquarters of FEMA, region FEMA, but also individuals from States

and local communities. We had over 40 members of the technical review from local communities. That has helped get information out as to——

Ms. NORTON. Are those people who help evaluate——

Mr. MAURSTAD. Yes, it is a peer review evaluation, and we include members on the team from State and local governments.

Ms. NORTON. How are they chosen?

Mr. MAURSTAD. Primarily they are either advanced by the State, they come from one of the groups that is going to testify on the second panel, but they volunteer, essentially. So with the technical and training that we are doing, with the number of years now that the program has been under way, the involvement of State and local in the peer process, we believe the applications are becoming much better.

The 500,000 set-aside, however, does allow all States, regardless of their size, which I think is maybe more important than their technical capability, to receive funding from PDM. And we believe that this blended process certainly has worked. But in the competitive process we have had winners, so to speak, from all the States. So everyone has the capability.

Ms. NORTON. You have had from all the States?

Mr. MAURSTAD. Uh-huh. I believe we have, yes.

Ms. NORTON. So virtually every State has received some funding?

Mr. MAURSTAD. Yes. Yes.

Ms. NORTON. Now, the grants, of course, like all Federal grants, are administered at the local level, yet FEMA obviously is held responsible because it is Federal money. How do you monitor compliance with Federal requirements for these grants?

Mr. MAURSTAD. Well, first of all, we rely on the close working relationship between the regions and the States. But the State is the applicant, so they work with their local communities to make sure that the Federal laws are followed. We follow up to make sure that the programs—or, I mean, the applications and the projects do what they are intended to do. Of course, there are random audits by IG of all of our grant programs, and certainly if there are difficulties associated, we will recover those funds from the local communities or the State.

So there is certainly the process, and the process is followed to make sure that the funds are spent like they are supposed to be spent.

Ms. NORTON. In this country where we are used to dealing with crises, you have to sell the government, you have to sell people on dealing with crisis before it becomes a crisis. The American way, having much to do with the great good fortune of living in a country with our kind of resources, kind of innovation our people show, seldom prepares for something terrible. And so if there is something terrible, we go in and fix it the best way we can. So this program in a real sense goes against the grain because it says nothing has happened yet, and yet you should spend some money in case something happens.

I ask you the program about compliance with Federal regulations because the program is new, and it has shown such results that if a concern arose because the money wasn't being spent for something that hadn't been authorized there, you would have somebody

saying, see there, we haven't had a flood, and these people haven't had a hurricane in 50 years, and these people are spending money; how come they are spending money on that rather than something else? So we are all trying to educate ourselves and the Congress, and, for that matter, the country, about why spending this money in this way is important to do.

Now, Katrina is kind of a case in point, but not really, because I am not sure what kind of mitigation—of course, you could have had some. But no one is talking about spending huge amounts of money on mitigation, and certainly not the kind of mitigation that it would take to ward off an unforeseen hundred-year notion, although at the very moment, if I may say so, FEMA is going through just such a process, because we are indeed requiring people to look at what would happen in the case of a hundred-year flood. And there have been whining and groans throughout the country, including my own jurisdiction here, about how we have never had any flood or anything like that, why are we have having to do this? Why are we having to spend this money? So your testimony on what this program has done and how you monitor it is important for us to hear.

Now we are going to hear some testimony that suggests that nonprofits, private nonprofits, should be allowed to be subapplicants for the program, as they offer some programs already under the Stafford Act. Would you support such a change in the legislation to allow, authorize private nonprofits to be a part of the program?

Mr. MAURSTAD. Before I get to that, could I make a comment on mitigation activities in the gulf coast based on what you said?

Ms. NORTON. Please.

Mr. MAURSTAD. There actually is quite a bit of mitigation going on in the gulf coast. We are going to have over 1 billion, 300 million dollars will be spent in Louisiana alone, nearly 500 million in Mississippi to help reduce that area's vulnerability to future events. A lot of the State mitigation plans that are in both of those States were funded by mitigation dollars that will help those communities better prepare for the future. So there is a considerable investment going on in the gulf coast in mitigation.

Ms. NORTON. Actually, I am very glad you intervened to make that point and to correct the impression that I have left that somehow if you are having an unforeseen matter, there is no mitigation to be done. You are absolutely correct, Mr. Maurstad.

Mr. MAURSTAD. And you do, you have outlined the challenge that mitigation faces and why the report that the Congress required has been so helpful, the CBO report. The private sector now is far more—is recognizing far more the benefits also associated with mitigation, and is helping spur local governments and individuals to take these activities that are long-term investments in reducing our vulnerability.

As far as the private nonprofits, they really have a mechanism right now, certainly different than in some grant programs, to apply for predisaster mitigation funds in working with a local community to sponsor their application with the State. Now, some communities have deemed that the nonprofit either has resources to do the activities on their own or have other priorities, as is what may

be the case at the State. So we certainly—it certainly can be workable within our process if it is the desire of Congress to allow them to work directly with the States. Quite frankly, we are just looking for as many good mitigation possibilities out there as we can, as we can find.

Ms. NORTON. Apparently there is some evidence that relatively small communities would have a better chance of competing for a grant if, for example, a private university were to—rather than the State, which doesn't, or the local jurisdiction which doesn't have the particular expertise. Again, we don't have particular evidence on it. We are just trying to widen the competition to make sure that all——

Mr. MAURSTAD. Exactly why competition is one of the issues; because of the limited funding that is available, you have more people competing for the same amount. So that is one of the difficulties. But again, what we are looking for is the best mitigation opportunities out there and to help those that want to develop those types of projects.

One point I forgot to mention that we are improving on is one of the issues that has been raised to me since the beginning of PDM was the cost-benefit in association with how to determine cost-benefit. We have made great strides in working with our State partners in better understanding cost-benefit, how that analysis should be done. And we are coming out with a new software tool that is going to again make that process more—easier for the applicants to comply with.

Ms. NORTON. I think that the Committee itself may want to look at some of our economic development project areas or areas which have not been able to be economic development project areas. That is where we have lots of competition for EDA funds. And I have in mind some of those areas where you are dealing with rural communities where you couldn't begin to get the kind of expertise within the community except through some kind of university or the like.

You made a good point, though, Mr. Maurstad: Widen the competition for limited funds.

Mr. MAURSTAD. Yeah, ma'am, if I may be so bold to interrupt, I come from a very small community, 12,500 people, and my old hometown after I left, they were successful recently in this competition for a PDM grant. So I think we are providing the technical assistance and the training that really any community that is interested in being able to put together a competitive grant application can do so. It really starts with the will at the local level to want to make a commitment to mitigation.

Ms. NORTON. Finally, could I ask what you do when you, for example, as a mitigation acquire a property, return it to open space, are there permanent restrictions on the use of that property once it is declared open space? How is that put in place?

Mr. MAURSTAD. Yes, there are. Because the local community is the subapplicant, and because it is on a willing-buyer/willing-seller basis, the community takes the deed and then deed-restricts the property for open space. And so it cannot be turned back to development. And we have been very successful in all of our grant pro-

grams. We have returned about 6,000 acres of previously developed property to open space.

Ms. NORTON. Well, thank you very much, Mr. Maurstad. Very good testimony.

And we would like to call the final witnesses: James Mullen, chairman of the Mitigation Committee of the National Emergency Management Association; Greg Woodworth, chairman of the Multihazard Mitigation Council of the National Institute of Building Sciences; and Robert C. Bohlmann, director of the York County Emergency Management Agency. We can just go left to right then. Mr. Mullen?

TESTIMONY OF JAMES MULLEN, CHAIRMAN, MITIGATION COMMITTEE, NATIONAL EMERGENCY MANAGEMENT ASSOCIATION; BRENT WOODWORTH, CHAIRMAN, MULTIHAZARD MITIGATION COUNCIL, NATIONAL INSTITUTE OF BUILDING SCIENCES; AND ROBERT C. BOHLMANN, DIRECTOR, YORK COUNTY EMERGENCY MANAGEMENT AGENCY

Mr. MULLEN. Thank you, Chairwoman Norton, Ranking Member Graves, and distinguished Members of Committee, for allowing me the opportunity to provide you with a statement for the record on the Predisaster Mitigation Program. In my statement I am representing the National Emergency Management Association, NEMA, whose members are the State emergency management directors.

The PDM program works as a companion to the Postdisaster Hazard Mitigation Grant Program. PDM means we don't have to wait until a disaster occurs to take mitigation actions, and the program broadens the Nation's efforts both geographically and in terms of the hazards that may be addressed.

As Congress considers the Predisaster Mitigation Program's reauthorization, adequate funding levels are needed to give the program the opportunity to demonstrate real value for the investments. NEMAsupports the program's reauthorization and looks forward to working with Congress to improve the program.

The title of DMA2K that authorizes the PDM program is scheduled to sunset on September 30th, 2008. Again, we ask for Congress to reauthorize this critical program before that September 30th, 2008, sunset as any funds appropriated cannot be used after the sunset date. We believe that PDM is an important program and is making significant strides to mitigate against future disasters.

Before coming to my current position with the State of Washington, I served as the city of Seattle's emergency management director and was intimately involved in developing Seattle's Project Impact pilot program, a public-private partnership that addressed and identified mitigation needs and promoted corrective strategies. The February 28, 2001, Nisqually earthquake demonstrated to the city and to the Nation there was significant value to that program. Many of the actions taken to retrofit and seismically protect buildings were helpful in preventing further damage, most notably in schools. We believe that these efforts saved the lives of schoolchildren in one school in particular.

While Project Impact provided value, there was concern that the communities were not being chosen in coordination with the State

emergency management agency, nor were the projects. PDM does allow for this coordination, particularly with the State's required hazard mitigation plan and identified projects. And while NEMA has concerns about some aspects of the PDM program, we remain firm that the program's reauthorization is particularly important.

PDM is a young program that is still evolving, and FEMA's Mitigation Division has worked very closely with the State emergency management directors to listen to our input and respond to our position papers, even though we do not always agree.

NEMA believes there are a couple of areas that do need to be looked at with respect to PDM. First, NEMA initially sought for PDM to be a formula-based program in which every State had a chance to receive funding. A competitive program, as is current practice, severely limits the ability of smaller States and those with less frequent disasters to successfully apply for and receive grants. Science cannot accurately predict where the next disaster may be or what kind of disaster may be faced. Attempting to prioritize limited predisaster mitigation funding on the national level is counterproductive to the establishment of State and local planning; therefore, NEMA supports the distribution of predisaster mitigation funds by a base-plus-population formula rather than by competitive grants.

The competitive system as it is presently funded creates more losers than winners. In an enterprise that seeks to encourage communities to protect themselves, it seems counterproductive to pit good programs against good programs where the objective is to promote the development of community predisaster mitigation programs overall. For small States and local jurisdictions, the cost of preparing the applications and the energy consumed through the various reviews are substantial and burdensome, particularly so when a good program is denied funding.

Secondly, we would like a longer rolling application window to allow States and communities to begin applications even before funding is available, because priority lists are based on the State plans that are already in place. One of the issues is the timing of the application process over the holidays and disaster declarations.

Finally, more technical assistance is needed to help States and communities before receiving the grants, as that would assist with the costly environmental and historic impact reviews.

Thanks in large part to PDM funding, about 85 percent of the 6-1/2 million people who live in the State of Washington live in communities that have developed hazard mitigation plans envisioned by DMA2K and funded in large part by PDM grants. I want to share with you just one key example from Washington State that illustrates the importance of this program.

Edmonds, Washington, School District obtained a 3 million PDM grant in 2005 to help it retrofit nine of its schools from earthquakes. The total project price is $8 million, and the project will be completed in the coming months. This project is important because the school district sits at the south end of the South Whidbey Island Fault, which scientists now tell us is the most dangerous earthquake fault in the State. The largest project the State of Washington anticipates funding through the Hazard Mitigation Grant Program in the next few years is $1-1/2 million.

The President's budget proposal includes 75 million in funding for the Predisaster Mitigation Program. The funding level is a $39 million decrease compared to fiscal year 2008 funding levels. Additionally, the program contained significant earmarks in 2008, thus reducing the amount available for State and local governments to openly apply to be considered for the grants. The program funding is sorely under the national need, especially with the original intent of the law to provide each State with a portion of funding so lessons learned from disasters could be taken advantage of by all States. Each year FEMA typically receives requests for grants averaging over $450 million.

With such low levels of funding, the Predisaster Mitigation Program has never been fully able to address the intent of DMA2K. In 2005, Multihazard Mitigation Council published a study that found that every $1 FEMA invested into mitigation projects saves society approximately $4. The same study also showed that every dollar spent on hazard mitigation saved the Federal Treasury $3.65 in postdisaster relief and increased Federal tax revenues. These findings are vitally important to knowing that Federal investments are getting a strong return, as well as the 25 percent cost share that State and local governments contribute to the PDM grants upon award.

In conclusion, Congress has continued to support PDM by reauthorizing this program three times. We must continue to build national preparedness efforts with a multihazard approach aimed at reducing lives lost and damage to property. We ask that Congress ensure that PDM authorization doesn't expire, and that a strong reauthorization is passed this summer. Thank you very much.

Ms. NORTON. Thank you, Mr. Mullen.

Mr. Woodworth?

Mr. WOODWORTH. Thank you very much, Madam Chair, Ranking Member Graves, and Members of the Subcommittee and distinguished guests. I truly appreciate this opportunity to speak with you today concerning a very important subject, the need for, the benefits of investing in predisaster mitigation.

My name again is Brent Woodworth, and I am president and CEO of a company called Global Crisis Services, which is an international risk and management consulting firm, but I also chair the Multihazard Mitigation Council, which is a voluntary advisory council of the congressionally authorized nonprofit NIBS, or National Institute of Building Sciences, which is why I am here today.

We are responding—we worked with FEMA in developing a study to take a look at the benefits of predisaster mitigation. The study included a review of FEMA grants, which included the FEMA Hazard Mitigation Grant Program, Project Impact, and the Flood Mitigation Assistance Programs, from 1993 through 2003. Over 5,000 grants were reviewed. The study was completed in 2005 and clearly shows that FEMA's mitigation grants have been extremely effective in reducing future losses from earthquake, wind, and flood. We were very, very pleased with these results, and again shared them up the line.

In taking a look at the study, we used a number of statistically representative samples to look at both project and process mitigation activities. The project activities included such things as brick-

and-mortar efforts, which might be elevating a house above flood level, installing hurricane clips, or bolting down a foundation. Process activities are aimed at increasing awareness and fostering mitigation action, including stimulating communities to adopt up-to-date building codes, purchase flood insurance, or update their disaster recovery plans.

We used some sophisticated modeling techniques in using our study, including software such as the HAZUSMH software tool to help analyze some of the earthquake and flood analysis. Bottom line, the total mitigation investment expenditure during the study period was $3.5 billion. The financial benefit to the population from investing in mitigation efforts during the study period was valued at approximately $14 billion, using 2004 as a constant dollar figure. Dividing the mitigation benefit by the mitigation expenditure yielded a benefit-cost ratio of 4 to 1.

The second part of our study, we also took a look at in-depth examination of eight different selected communities. Our findings there showed that the FEMA mitigation grant funds utilized by each of these communities was also highly cost-effective and led to additional non-Federal-funded mitigation activities. Communities have the greatest benefit when those particular funds were institutionalized into hazard mitigation programs, and it inspired a lot of activities within the community.

This brings me to our conclusions. First, mitigation is cost-effective and warrants Federal funding on an ongoing basis, both before disasters strike and during postdisaster recovery efforts. The Nation will always be vulnerable to natural disasters, and therefore it is only prudent to invest in mitigation. As the British philosopher Henry de Bracton in 1240 stated, an ounce of prevention is worth a pound of cure.

Number two, predisaster mitigation grant programs should not rely solely on benefit-cost ratios as the selection criteria for investment. Not all benefits can be easily measured. For example, the benefit of moving structures out of a known floodplain can be quantified, but it is difficult to measure the benefit of the same land being reclaimed as naturalized wetlands or converted into a community recreation area. Even more difficult to measure is the benefit of reducing the stress people feel when constantly threatened by some of these disaster events.

Finally, number three, mitigation is most effective when it is carried out on a comprehensive, communitywide, long-term basis. Single projects can help, but carrying out a coordinated set of mitigation activities over time is the best way to ensure that communities will be physically, socially, and economically resilient in coping with future hazards.

Our recommendations to this Committee are as follows: One, invest in natural hazard mitigation as a matter of policy. This should be done on an ongoing basis, both before and during and after disasters. Number two, give FEMA the ability to consider benefits to society in the broadest possible sense. And finally, number three, support mitigation activities that will build the resilience of communities by helping to fund programs that increase knowledge on the basis of mitigation, promote public- and private-sector invest-

ment, and motivate community members to engage in collaborative preparedness efforts.

In closing, we appreciate this opportunity and clearly urge you to reauthorize the PDM program.

Ms. NORTON. Thank you, Mr. Woodworth.

Mr. Bohlmann.

Mr. BOHLMANN. Good morning, Chairman Norton, Ranking Member Graves, and distinguished Members of the Subcommittee. I am Robert Bohlmann, the emergency manager and homeland security director for York County, Maine, and I am representing the International Association of Emergency Managers this morning. We believe that the PDM is an important program, and urge Congress to quickly take action to reauthorize it prior to the PDM's scheduled sunset on September 30th, 2008.

An adequate level of funding is necessary to ensure the success of PDM. The number of applications received this year would indicate there is a great need and an interest. The 75 percent Federal cost share of the 446 applications received this year would have totaled over $317 million, which far exceeds the $52 million available for competitive grants.

We understand there are concerns about the amount of PDM funding in prior years that remain in the FEMA account. We believe that the origin of the confusion regarding these funds is related specifically to the fact that even after a project is selected and the funding dedicated, it is not yet officially obligated.

IAEM members firmly believe that the PDM program is an investment in the community, the State, and the Nation. Included in my written statement are examples of benefits of PDM projects. One of them is York Beach, a tourist community in York County, Maine, which was especially hard hit by the Mother's Day flooding event of 2006. The project will place a gate on the ocean outfall, so that the silt cannot fill the catch basins. When this project is completed, 26 businesses will be able to remain open during the tourist season. The construction of this project will keep 200 jobs in place in the community, and keep the community producing tax revenue at the local and State level, as well as provide a great place to vacation during the summer.

We would like to suggest several possible improvements to the program. Our suggestions include FEMA should allow direct application of eligible private nonprofits. An eligible private nonprofit such as a college or a hospital can apply to the State as a subapplicant for Hazard Mitigation Grant Program and for assistance under FEMA public assistance; however, for the predisaster mitigation grant they are required to find an entity such as a city or a county to serve as the subapplicant on their behalf. This is an unnecessary and burdensome step, and we urge the Committee to work with FEMA on either a legislative change or a legislative interpretation which would allow PNPs to apply directly to the State. In many circumstances, PNPs have not been able to apply because already understaffed agencies are unwilling to serve as subapplicants.

FEMA should allow a cost escalation factor to cover costs of price increases. It may be 24 months or more from the time a vendor's

estimate is obtained for a project application to the actual time of beginning construction.

FEMA should simplify the cost-benefit analysis.

FEMA should allow more time for preparing applications. We believe that any additional time allowed to applicants in this process would result in higher-quality applications for projects.

In closing, we urge the Committee to reauthorize the program. We would appreciate consideration of improving the PDM program by allowing eligible private nonprofits to apply directly to the State as subapplicants, by including a cost escalation factor, and by simplifying the cost-benefit analysis, and by allowing more time for thoughtful applications.

I would be happy to answer any questions you may have.

Ms. NORTON. Thank you very much, Mr. Bohlmann.

Mr. Mullen, you speak of the formula approach. How would you justify a formula approach, which would mean, I guess, that every State—and we already have a set-aside for every State—if it would mean that some legitimate projects of far more need would not get the funds that in any priority ranking they might otherwise receive?

Mr. MULLEN. Well, Madam Chairwoman, there are two ways of looking at this, I think, and one is that local governments and State governments need to have some certainty. Having been a local official for some time, it takes a lot to build the kind of community coalition to do the application process and get everyone excited about doing the work. And sometimes an emergency manager at the local level has to choose to do that as opposed to some other task that they are already understaffed for that they have to do. We spend a lot of time trying to get through the week at the local level. And so it is very difficult from a State perspective to say you need to ratchet up and do this work when they are not sure whether or not they are going to get funded or not or have any hope if it is a program of merit.

I think the problem here, the second part I want to say, is programs of merit are not getting funded now. And going back to my testimony, I would have to mention that science can't tell us where the next disaster will be. And one of the ways we can get consensus around mitigation in this country is to really promote everybody looking at their risks, their threats on the basis of their particular requirements and have some sense of certainty that at least their best projects will surface. And I do believe that that wouldn't replace a peer review or anything else. It wouldn't be competitive, though. The peer review then could be supportive and helpful and advisory in terms of you can make your project stronger if you do this. So I believe that would be my answer to that.

Ms. NORTON. Mr. Woodworth or Mr. Bohlmann, do you have a view on that matter?

Mr. WOODWORTH. Thank you very much, Madam Chair.

In looking at bringing in private and nonprofits, our particular view is that mitigation projects need to be broad-based, across the community, and have the greatest value they possibly can.

Ms. NORTON. But I am asking about the formula basis as opposed to competitive basis.

Mr. WOODWORTH. That I understand. And in putting together a formula to help meet that particular requirement, we haven't looked at what the specific formulas would be to do that. We are not opposed to it as long as it impacts the widest possible community as a result of the formula so that the greatest number of citizens within the community can indeed benefit from the formula.

Ms. NORTON. You, Mr. Bohlmann, do you have a view?

Mr. BOHLMANN. I became aware of this when I read Mr. Mullen's testimony last evening, and I have not had a lot of time to go over it. And I did talk to our leadership quickly, and we really don't have a solid position on it. We have not had issues in our communities with what has happened in the past by the competitive grant. And I think we have to do a little bit more study and have some more detail on this to see where our association is actually going to stand.

Ms. NORTON. Given the amount of money, there would be a presumption, I have to say to you, gentlemen, in favor of competition. I bring some experience from another Committee on which I serve, the Homeland Security Committee, which also has jurisdiction over FEMA for other disasters, disasters related to terrorism. And, of course, we started out with something of a formula, and we still have the legacy of something of a formula. And we have had some terrible examples of places where you would not expect al Qaeda to search out on a map receiving funds, while places, according to all the chatter, where terrorists seek, cry for funds.

So the notion of every State, some of whom have constant natural disasters, and some who rarely have them, raises in me a presumption or at least a burden that those who want the formula would have to bear. I am not closed to the idea. The Homeland Security experience has been horrible, because people think up projects if they know that there is a formula. That said, the Committee is open to looking at various ways to fund this program.

Mr. MULLEN. Madam Chairwoman?

Ms. NORTON. Yes.

Mr. MULLEN. I actually have a comment relevant to that. The EMGP program is a formula program much like——

Ms. NORTON. Which program?

Mr. MULLEN. The EMPG, Emergency Management Performance Grant program, is a formula program. Also one of the problems that maybe we are dealing with is there is insufficient money in the pipeline altogether. The program that asks for $450 million and only has 100 million or so in it creates more losers than winners, and that isn't productive if we are trying to promote mitigation. So the insufficiency of the funding at this level, I think, indicates that we have got to find a way to bridge the gap between the need and what we are able to deliver.

Ms. NORTON. Well, there is certainly an argument to be made to do both. The mitigation program assures, yes, there is a baseline ability of every community to handle a natural disaster. The what I can only call a tiny amount of money in this pot may also speak up on its own behalf about how the money should be distributed.

Could I ask you, Mr. Woodworth, I was very interested in your formula, and CBO came back with something close—yours was $1

invested—$4 for every $1 invested. They have $3 for every $1 invested in savings. Could you say a word about your methodology?

Mr. WOODWORTH. Yes, Madam Chairman. The difference between those two is that we did look at slightly different disasters. When you take a look at what the CBO report covered, it went beyond the three elements that we touched on, which were primarily wind, earthquake and flood. They also included fire and tornadoes and some other elements in additional detail beyond what was in our particular study.

The other difference is some of the discounting factors that were used in evaluating value of life over time, et cetera. In the CBO study they do comment that the numbers that they have on things such as wind and flood pretty much match with what the MMC study is. There were some variations on the earthquake side based on the samples that they took versus the samples that we took, which were completely random. So we saw that mathematical variance between the two, but in both cases we considered it a fairly small variance.

The positive news is that, of course, a 3-to-1 or a 4-to-1 benefit-cost ratio is very good. And some of the things that also would impact that over time are we are looking at analyzing the frequency of disasters, the magnitude of potential consequences of disasters and so forth as to how you truly value them.

Ms. NORTON. Thank you.

Yes, CBO has acknowledged that its own estimates have been low.

Mr. Bohlmann, I am very intrigued by parts of your testimony on page 4 about not letting cost-benefit analysis, traditional cost-benefit analysis, be the sole determinant regarding the effectiveness of these programs. And you speak about indirect benefits. Could you give an example of indirect benefits? And could you indicate how you think one might quantify or otherwise evaluate indirect benefits coming from the program?

Mr. BOHLMANN. Of course a cost-benefit analysis is a common way of doing it, but there are a lot of indirect benefits from these programs that we have seen out there in large communities and small communities. And that is the spin-off, as I mentioned in my testimony, of the communities where it may be just the access, allowing folks to go to work, allowing fire apparatus in. It is hard to put into a cost-benefit, but it is a tremendous benefit to the community. And those are the things that local emergency managers try to measure as well as purely the cost-benefit analysis.

Ms. NORTON. It is intriguing. Open space, for example, I am not sure how you would evaluate that, but communities might evaluate that very highly.

You have a view on that, too, Mr. Woodworth?

Mr. WOODWORTH. Yes, Madam Chairman. In looking at some of the benefits of mitigation that are not as tangible, for example, we talk a lot about environmentally green activities, and one of the things that is a benefit of investing in predisaster mitigation, making structures more sound or taking them out of flood areas, is frankly a reduction in debris when there is a disaster, so there is less debris and garbage, et cetera, to handle in those events. Another example I mentioned was just measuring the reduction in

stress and the ability of people to feel an ability to go back to work more effectively following a disaster, or even eliminating that stress through predisaster mitigation activities. Those things can have a very significant impact on social, economic, environmental issues.

Ms. NORTON. I think the challenge for us is to find ways to measure some of these, and until we do, we are stuck with how government measures effects of its programs. But what we are not stuck with is excessive bureaucracy.

I want to just put on the record once again from the time I ran a Federal agency until this very moment, I can tell you that bureaucracy—not that we have heard much in the way of complaints about this program, but I can understand why it leads people to hate government. They can't get to the issues that government is supposed to deal with. And government feels, of course, that it is dealing with taxpayer money, and it has got to go through a process. So my concern always is are we performing the government function itself in the most efficient and low-cost way? And when it comes to applying for a program out of which funds come, I would be very interested in what you would have to say about whether you believe there are ways to streamline this particular process.

Ms. NORTON. You heard me ask Mr. Maurstad about the technical way in which the applications have to be presented.

Would you, Mr. Mullen, Mr. Woodworth, or Mr. Bohlmann, have any suggestions about unnecessary requirements of the process or ways to streamline the process itself that could be helpful to us in the authorization?

Mr. MULLEN. Madam Chairman, I will take a stab at that.

I think it is very helpful to consider the notion of a rolling application process, which I mentioned in my testimony and which Mr. Maurstad referenced, which is that the idea of having more than a 3-month window to apply is very important. In the last 2 years, in 2006 and in 2007, we had three Presidential-declared disasters in the middle of that. I have a staff that is of a reasonably good size, but when we have a Presidential disaster and floods all over western Washington and storms that cut out 3 million people with power for 2 weeks, we have to put all hands on deck to deal with that. So my mitigation person comes in from the——

Ms. NORTON. How much lead time, do you think?

Mr. MULLEN. I think the 6 months is good. We would like 10 months, but 6 months is certainly a vast improvement, and it is a sign of the responsiveness that I mentioned also in my testimony also in the mitigation division. They have been very helpful in listening to us and in processing our requests and in evaluating our needs, and so I am encouraged by 6 months. If I ask for 10 and he gives me 6 and we are at 3 months, we are making good progress.

Ms. NORTON. You are getting somewhere, Mr. Mullen——

Mr. MULLEN. Yes.

Ms. NORTON. —because we do not want the time period to be such that it gets postponed. If it is only going to last 3 months, we are back where we were, but I certainly take your point. We are learning this new program essentially. We are learning the process. So we want to—particularly for the areas that are of concern the

most and that have the least expertise, we do not want time to be able to work against them.

Do either the rest of you have suggestions along those lines?

Mr. BOHLMANN. I will take a stab at that as well.

I think the 6-month extended period does help us a lot, and anything that can be done to reduce the application process would be helpful, especially in our smaller States and in our smaller communities. The technical training that is being offered by FEMA has improved, and I think that if they can enhance that even more, it would help. When you get down to the small, rural community, you have probably three full time municipal employees in the whole community, and a lot of the work is done by volunteers. We actually had a case in Maine where the lead person on a very large project was a volunteer who stepped up to the plate, and he pushed this process through, and it worked extremely well, but you do not find that capability in every small community. So, for any help that can be given in technical expertise to make those communities more viable to apply, the need is there. There is a tremendous need for mitigation all the way around in small and large communities, and there has to be a process, and it has to be one that is valid, which they certainly have with the peer review.

Again, the process needs to be as easy as we can make it. An extended time frame as we have stretched out now—and even the 10 months would be good because it does take time to bring these together and to make a good project if it is going to go on a competitive basis nationally.

Ms. NORTON. Well, in this case, time really is money for many communities that have the time to do it. They may, in fact, be better able to compete in the process.

Mr. Woodworth.

Mr. WOODWORTH. Thank you, Madam Chair.

I also believe that having at least the 6 months is very reasonable, of which Director Maurstad spoke, but I believe down at the local level we really have to do a job of training and education on how to fill out these forms; what applies and what does not; some great examples of grants that have been accepted; others that would not be accepted, so that the local community has a far better understanding of how to actively compete for these.

Ms. NORTON. Let me ask you a question. I think especially it is for Mr. Bohlmann. Actually, I would like all of you to take a stab at it. And that is suggestions regarding tightening building codes and zoning codes to help prevent damage and disaster. You know, if you think of something that on the surface may seem, of course, to be no cost, of course, communities may regard it as costly because it determines where people build, who people build. If you are looking at the funding, if you are looking at building codes that could help prevent a disaster or a zoning that could help prevent a disaster, you cannot help but think, my goodness, why isn't this community helping itself simply by its own building codes and zoning codes to prevent disasters which it may see coming time and again or which it may know is going to come?

Do you have views on this notion? If so, how might it be accomplished? How important is it or isn't it in this mitigation work?

Mr. BOHLMANN. Well, I believe it is very important. However, I have to couch this a little bit. I come from New England. New England is very steep in, ″do not tell me how to do things.″

Ms. NORTON. So is the rest of the country.

Mr. BOHLMANN. Well, I was trying to keep it localized.

A lot of our communities started out very small, and as growth came, they did not lean forward and put zoning into place. Now they are looking at that, but in many cases, the damage is already done. We have got buildings built in areas that, under today's standards, you probably would not, and with today's building codes, you might not allow some of those buildings. So we already have a lot of those places in harm's way that we have to look at, but I think we do need to work much harder with our communities to move forward with good planning.

Ms. NORTON. Well, one way is, for example, to ask you whether you think it should be a factor in evaluating applications.

Mr. BOHLMANN. Definitely. Definitely.

Building codes and what they are doing to upgrades certainly should be a factor. I mean, we do not want to rebuild again and again. Of course, the open space is answering some of that.

Mr. MULLEN. Madam Chairman, I have kind of a longer view of this.

It is interesting that the first time that FEMA in the previous administration approached me about Project Impact was in September of 1997. The immediate assumption was that we would run out and upgrade our building codes. It is interesting you would say that. We did four other things because we felt we could actually address those more easily. It is, oftentimes, that emergency managers are not in the zoning and building code food chains, so with a program like this, we deal with what we think is an immediate problem. But I will say there are a couple of things.

First, in order for people to adjust codes, they need information that says it is more valuable to take the cost and the burden and the political challenge of tightening a code. It is important to do that so that a bad thing does not happen. So people have to know what the risk is and know that this measure that is being proposed will match the risk. That is a local discussion that takes place.

I would say, in my State—and I cannot speak for other States—but in my State, we have pretty robust earthquake codes because of the seismic activity we have experienced over the years, and that has helped us a great deal. What really has to happen, I believe, nationally is that mitigation itself has to get back into the dialogue. It has to be discussed. It has not really been considered a primary element for a number of years in this country. Even in emergency management circles, there were times, frankly, in the early years of the century where you whispered the word ″mitigation,″ and people kept trying to find another word for ″mitigation.″

Mitigation, I think, has survived all of that. I think I see a comeback from all quarters among all of those others of us who are committed to disaster mitigation. I think we need to change the dialogue and bring up and really challenge local governments and State governments and the Federal Government to treat mitigation as a very critical priority. It is so much cheaper to avert damage than to repair it. It makes perfect sense.

Ms. NORTON. Mr. Woodworth.

Mr. WOODWORTH. Thank you very much, Madam Chair.

From a zoning and building code standpoint, I think building codes play a very, very important part. As part of the NIBS board, we have seen that time and time again.

From an earthquake example, if you look at the enforcement and the development of codes and at the use of codes in California for earthquake and then compare seismic activity that has occurred in the past to other countries which do not necessarily have those kinds of building codes, we can see dramatic examples of the huge advantage and the benefits in a reduction of damage, in saving lives, in increased productivity and so forth by implementing those codes. Things down in hurricane area, such as hurricane clips, bolting down foundations, putting on shutters, are all of huge benefit in reducing losses. There are a lot of inventions that continue to come out in the marketplace which help focus on this area.

Just to comment, I know Popular Science, a magazine, about a year and a half ago had their invention of the year that was actually a nail, and it was a nail that had a flatter head. It was then twisted and ribbed, and when used on construction projects, it would actually increase the holding strength of the structure by more than two to one over conventional nails. Yet, the cost to build a house with this was less than a $15 difference than building with standard nails. So we are seeing many things that are out there that can help us increase the resiliency of structures in high-risk areas, and I think we are all in favor of where it makes sense applying the building codes properly.

Ms. NORTON. This is very, very important testimony. Every community, as Mr. Bohlmann says—this is America, after all—does its own cost-benefit analysis when it comes to something like building codes. More power to them.

The problem I have is I have a hard time as Chair of this Subcommittee justifying spending Federal dollars, for example, for mitigation for a community that did not want to take any steps itself, a community that was flood prone, for example, and decided that they wanted a grant, but slight changes in its building codes was something that it did not want to make. I understand the political ramifications of these things, and the government certainly would never mandate such things, but when it comes to government dollars, it does seem to me that one factor ought to be, what has this community done to help itself that we can reinforce with the very small amount of government funding we have available in the first place? You have got to have some way to eliminate people.

You heard the testimony that there were—what?—three to one, the number of applications. Well, how do you sort that out when all of these people who have taken the time and effort must desperately want this grant? It is not an easy grant to apply for. Well, you have to have some criteria that are fair in sorting out, so you get down to those you are going to consider.

What Mr. Graves said with our first witness was so straightforward. He did not have any particular questions. I have gone on. I want to ask him if he has anything further to ask this panel.

We found your testimony very, very helpful. We would like to look more—or at least I would like to have the Subcommittee look more into eligible nonprofits.

I suppose my final question to you would be: Do you think that there is a substantial number of communities that would have no way whatsoever to compete without the help of a local expert like a university or a hospital or other nonprofit or do you think maybe that is one way we ought to use and eliminate people? Remember, I indicated we have got to find some way to decide who gets in the final pool. Would what amounts to increasing the pool by allowing some communities which do not have the capability to rely on an eligible nonprofit for the application process be an indicated thing to do in your judgment?

Do any of you have views on that?

Mr. MULLEN. Madam Chairwoman, I am getting two questions out of that. Let me try to answer them as fully as I can.

I think that the nonprofit issue is something that is interesting to me. I would have to go back and consult with the mitigation committee, my colleagues at NEMA, to see what the range of views would be across the Nation. It is a pretty diverse group, and I would really want to know what kind of feelings they had about that before I commented for NEMA.

Ms. NORTON. This is new to us, and we know it is allowed, though. We have allowed it before, so I suppose what would convince me is not so much opinion as some indication that there are substantial numbers of communities that are in terrible need that might, indeed, be made eligible. Do any of you have suggestions of such examples?

Mr. BOHLMANN. Well, Madam Chair, I think they currently could apply if they can find a State or a county or a local community, and what we were recommending——

Ms. NORTON. That is true.

Mr. BOHLMANN. —is that it follow the same standard as the HMGP—Hazard Mitigation Grant Program—or the FEMA disaster program where they could apply directly and remove that one piece. I do not think it would increase the numbers that want to apply. We have heard from our membership that it is difficult for a number of our members to take on that role of being the subapplicant for them. That is where the difficulty comes in.

Ms. NORTON. Mr. Woodworth.

Mr. WOODWORTH. I truly believe that there is a good role for the nonprofits on the academic side in, perhaps, helping and in working with some of the smaller cities and communities in developing the proper grant proposals. Again, looking at measurement activity, such as the frequency of disaster within the community, the impact on the community, the potential effect of the consequences, I do know that there are a number of national nongovernment organizations, nonprofits and so forth, that are focusing more and more on this year of predisaster mitigation both domestically within the U.S. and worldwide. So this has become a hot topic within the emergency management community.

An example of this is not a small city, but I will give you an example within a larger city in Los Angeles where with the support of the city and the mayor, a group of the NGOs along with busi-

nesses are coming together to try to put together a nonprofit foundation focused on predisaster mitigation and preparedness for the City of Los Angeles, and I think there are a number of other efforts similar to that that will be going on.

Mr. MULLEN. Madam Chairwoman, I might add that adding applicants to the pool, unless there is sufficient funding for them to have a reasonable opportunity or prospect of receiving funds, is problematic, but I do not doubt that there are groups that put out applications that could benefit from more technical assistance and more support.

FEMA probably would have—I do not want to speak for FEMA certainly, but they might have some concerns, since they are in the decision chain, about giving assistance to specific groups that ask them, but I would think that some contracting capability or some arrangement with the universities or someone else could really—if it were funded so they could justify spending that time, it might attract people to the process, and it might also—if there were sufficient funding to give them to think they would have a chance of success, it might help. We would certainly work with the Committee to come up with an appropriate way to do that. Standards are always important. Even if you make it available to everybody, there should be some minimum criteria for entering into the pool, I think.

Ms. NORTON. Well, what you have all had to say, I think, is important to consider. The competitive process, obviously, has everything to do with whether you are able to carry out the process where you submit the application. I am concerned about people in our local community who are able to carry out that process, but there is an art and science to writing applications. If we want to make sure that need is truly factored in here so you get to some of the neediest parts or subparts of various States and, of course, the capability which is built into the application process automatically, you are still left with: Who are you leaving out for whom writing such an application would just be beyond anything they could do? Will the State give the required attention? Meanwhile, right next door is a university that is equally impacted, has a vested interest, has people who could write the application, who could assist the community, and for lack of opportunity to get the appropriate jurisdiction to pay attention, the community simply is not factored in. It is a very diverse kind of country, and there are very small communities in States and where the State has spent a lot of time on very large cities and on communities that are much more high-profile than obscure communities, which are always poorer, always have all of the problems often of big cities but have none of the expertise and could never have it.

So this is something that I am entirely open to and am almost agnostic about, but I think about the small amount of money also when considering who should get the money. I really have a hard time believing that small communities which experience what is constantly—for example, they are in the same position as the county seat of a big city. How do we make up for that? It does seem to me to be an obligation of this Committee. I speak as somebody from a big city who does not have much knowledge or understanding of life in very small towns, but I know in this town that

the government could write any kind of application it wants to, and you get on them when they do not because they have the capacity. I just cannot say that about smaller areas even close to Washington.

I very much appreciate your testimony. It has been very helpful to hear from those of you who have been, as it were, on the ground and who can, therefore, tell us what we surely need to know in the reauthorization process. Thank you very much for coming to testify.

[Whereupon, at 10:28 a.m., the Subcommittee was adjourned.]

Subcommittee on Economic Development, Public Buildings and Emergency Management

Hearing on "Saving Lives and Money through the Pre-disaster Mitigation Program"
Wednesday, April 30, 2008

Statement – Congressman Jason Altmire (PA-04)

Thank you, Chairwoman Norton, for calling today's hearing to examine the Federal Emergency Management Agency's (FEMA) Pre-disaster Mitigation Program. I look forward to hearing from each of our witnesses today and working with the subcommittee to reauthorize this important program.

Recognizing the need for pre-disaster planning, Congress created the Pre-disaster Mitigation Program in 2000 as part of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. This program provides state and local governments with technical and financial assistance, so that they may effectively mitigate the loss of life and the amount of damage caused by natural disasters.

Since its establishment, the Pre-disaster Mitigation Program has saved the nation a great deal financially. By providing local governments with mitigation grants, we ensure that they have the resources necessary to protect against natural disasters, which commonly affect their area. As the chairwoman mentioned in her opening statement, studies prove that every dollar spent on mitigation saves the nation an average of four dollars. Further, this program has been shown to save the lives of countless Americans. The strengthening of buildings in earthquake prone areas and the elevating of homes in flood prone areas take citizens out of harms way and ensure that they are not injured or killed because of a preventable incident.

Madam Chair, thank you again for holding this hearing. I yield back my time.

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STATEMENT OF
THE HONORABLE ELEANOR HOLMES NORTON
SUBCOMMITTEE ON ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS,
AND EMERGENCY MANAGEMENT
HEARING ON "SAVING LIVES AND MONEY THROUGH THE PRE-DISASTER MITIGATION PROGRAM" APRIL 30, 2008

Welcome to all the witnesses with us this morning. Today's hearing will focus on the first reauthorization of the Predisaster Mitigation program, authorized by section 203 of the Stafford Act (Robert T. Stafford Disaster Relief and Emergency Assistance Act), due to sunset on September 30th of this year. The Predisaster Mitigation program was first authorized by this Committee in the Disaster Mitigation Act of 2000.

The title of today's hearing, "Saving Lives and Money through the Predisaster Mitigation Program," perfectly describes a program that saves far more than is invested. The Predisaster Mitigation program is a companion for the post-disaster hazard grant mitigation program, also authorized by this Committee, in section 404 of the Stafford Act.

The vast preponderance of disasters in the country are from natural hazards. Examples of mitigation for such disasters include elevating or buying out structures in a flood plain and strengthening buildings to better withstand earthquakes or hurricanes. This program provides cost-effective technical and financial assistance to state and local governments to reduce injuries, loss of life, and damage to property that might otherwise be caused by natural hazards. The Predisaster Mitigation program has been developed based on a successful pilot program, "Project Impact." One often cited example of the effectiveness of predisaster mitigation is from Washington State. Immediately after the Nisqually Earthquake struck Seattle on February

28, 2001, Seattle Mayor Paul Schell and other public officials cited predisaster mitigation grants that had fortified buildings, as one of the primary reasons that lives and property were saved during the earthquake. Ironically, the Mayor's statements came on the same day that the Bush Administration claimed that the Project Impact predisaster mitigation pilot program should be defunded because it was not effective.
However, Congress had already written this program into law based on compelling evidence that the Predisaster Mitigation program is an investment that has shown it works.

The evidence that had resulted in congressional action came from the successful pilot project, and has been substantiated by anecdotal evidence as provided by Seattle, and empirical evidence provided later by two congressionally mandated studies. In 2005, the Multihazards Mitigation Council, part of the National Institute of Building Sciences, chaired by one of our witnesses today, found "that a dollar spent on mitigation saves society an average of four dollars." The Congressional Budget Office issued a September 2007 report on the Predisaster Mitigation program, as required under the Disaster Mitigation Act of 2000, which stated: "The best available information suggests that, on average future losses are reduced by about three dollars ...for each dollar spent on those projects, including both federal and nonfederal spending." Choose whatever study you prefer, but unavoidably, money for this program has consistently shown to provide an excellent return on investment.

Today's hearing will focus on investments in mitigation measures which affect the safety of infrastructure. The full Transportation and Infrastructure Committee is planning a hearing on other investment opportunities which also will focus on our Nation's infrastructure needs.

STATEMENT OF
THE HONORABLE JAMES L. OBERSTAR
SUBCOMMITTEE ON ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS,
AND EMERGENCY MANAGEMENT
HEARING ON "SAVING LIVES AND MONEY THROUGH THE
PRE-DISASTER MITIGATION PROGRAM"
APRIL 30, 2008

Thank you Chairwoman Norton for holding this hearing on "Saving Lives and Money through the Pre-disaster Mitigation Program", a program that helps protect communities across the country from the natural hazards they face every day.

An all-hazard mitigation program was first authorized by the Transportation and Public Works Committee (a predecessor to this Committee) in 1988, through the Hazard Mitigation Grant Program in the Stafford Act. This program provides grants to communities to build better after a disaster. While the hazard mitigation grant program is effective, it only provides assistance after a disaster strikes. No program existed to help communities mitigate risk before a disaster strikes.

As a result of this concern, the Transportation and Infrastructure Committee authorized the Pre-disaster Mitigation program ("PDM") in the Disaster Mitigation Act of 2000. The PDM program was the "marquee" provision of that legislation and followed a well regarded pilot program known as "Project Impact".

The PDM program reduces the risk of natural hazards, which is where the preponderance of risk is in our country. While it is prudent to prepare for the possibility of terrorist attacks, the occurrence of natural disasters of all types and sizes is a known certainty. Natural disasters strike our country every year, every month, and every week. For example, just last year in my home state of Minnesota, we faced the devastation of a fire in the spring and a flood in the summer.

As we will hear from witnesses today, there is empirical data to show that mitigation has been proven to save money. Studies by the Congressional Budget Office and National Institute of Building Sciences show that for every dollar spent on pre-disaster mitigation projects, future losses are reduced by three to four dollars. These are not just federal tax dollars, but also state and local tax dollars as well as the dollars of homeowners.

Mitigation is an investment. It is an investment that not only benefits the Federal Government but state and local governments as well. Mitigation reduces the damage that would be paid for by the Federal government and state and local governments in a Major Disaster under the Stafford Act. However, mitigation also reduces the risks from smaller, more frequent, events that state and local governments face every day as not every storm, fire, or flood warrants the assistance of the Federal government under the Stafford Act.

As the title of today's hearing points out, mitigation not only saves money but, even more notably, it saves lives. The Pre-disaster Mitigation program, through property improvements, takes citizens out of harms way, by elevating a house, or making sure a hospital can survive a hurricane or earthquake. In doing so, it allows first responders to focus on what is unpredictable in a disaster rather than on what is foreseeable and predictable.

I am eager to hear from our witnesses this morning and hear in more detail about the Predisaster Mitigation Program saves lives and property.

Testimony of Robert C. Bohlmann, CEM
U.S. Governmental Affairs Committee Chair
International Association of Emergency Managers

Before the

Subcommittee on Economic Development, Public Buildings and Emergency Management
Committee on Transportation and Infrastructure
U.S. House of Representatives

On

FEMA's Pre-Disaster Mitigation Program

April 30, 2008

Chairwoman Norton, Ranking Member Graves and distinguished members of the Subcommittee, I am Robert C. Bohlmann, the Emergency Management and Homeland Security Director for York County, Maine. I currently serve as the U.S. Government Affairs Chair of the International Association of Emergency Managers (IAEM) and am providing this testimony on their behalf. I am also a Certified Emergency Manager ® (CEM).

The International Association of Emergency Managers has over 4,200 members including emergency management professionals at the state and local government levels, tribal nations, the military, colleges and universities, private business and the nonprofit sector in the United States and in other countries. Most of our members are U.S. city and county emergency managers who perform the crucial function of coordinating and integrating the efforts at the local level to prepare for, mitigate the effects of, respond to, and recover from all types of disasters including terrorist attacks. Our membership includes emergency managers from large urban areas as well as rural areas.

Urge Reauthorization

We appreciate this opportunity to provide testimony in support of the Federal Emergency Management Agency's Pre-Disaster Mitigation (PDM) Program. We believe that PDM is an important program and urge that the Congress take quick action to reauthorize it prior to PDM's scheduled sunset on September 30, 2008. At the conclusion of these remarks, we would like to make some suggestions for improving PDM.

Established Need

An adequate level of funding is necessary to ensure the success of PDM – and we would encourage you to make sure the program is successful. The number of applications received last year would indicate there is great need and interest. It is our understanding that 43 states, one territory and five federally recognized Indian tribes submitted a total of 446 applications which included 196 for planning and 250 for projects. The 75% Federal share for these projects would have totaled over $317 million which far exceeded the approximately $52 million available last year for the competitive grant program.

We understand that there are concerns about the amounts of PDM funding from prior years that remain in the FEMA account. We also recognize that there are reasons for these amounts that are related to the process and not related to the demand for mitigation funding. The PDM process, by virtue of its nationwide and competitive nature, requires more time than most grant programs. In addition, even after a project is selected for funding, FEMA must perform various analyses and findings as required by the National Environmental Policy Act (NEPA) and other federal, state and local permits must be obtained before work can begin. We believe that the origin of the confusion regarding these funds is related specifically to the fact that even after projects are selected and the funding is dedicated, it is not yet officially obligated.

Program is an investment

IAEM members firmly believe that PDM is an investment in the community, the state, and the nation. Let me describe exactly why we think it is such a good investment.

In one area within my community, there are 14 homes that become isolated for a period of 24 to 48 hours in flooding events on an average of two to three times annually. There is no alternate way into the area to deliver emergency supplies or, frankly, respond to an emergency. A mitigation project to allow better drainage for this area – ensuring continuous access – would not only prevent the homes from being isolated, it would also provide the benefit of allowing those residents to go to their jobs and prevent them from being cut off from law enforcement, fire and emergency medical services in case of an emergency. I do not know how to place a value on these benefits.

Although we have always known the great benefit to our communities, it is hard to calculate "damages avoided." We were very pleased to see the congressionally requested report by the Multi-Hazard Mitigation Council released in December of 2005 which stated that mitigation saves society an average of four dollars for every dollar spent. The study further stated that mitigation results in significant net benefits to society as a whole—to individuals, to states and to communities—in terms of future reduced resource losses and savings to the Federal Treasury in terms of future increased tax revenues and future reduced hazard-related expenditures.

Examples of benefits

I would like to share some other examples of benefits that have accrued to communities as a result of PDM funded projects.

York Beach is an area frequented by tourists in the Town of York in my county in Maine. This area is in the process of benefiting from a PDM project that will place a gate on the ocean outfall, so that silt can not fill the catch basins. This area was especially hard hit by the Mother's Day flooding event in 2006. As a result of this PDM project, it looks like nearly 26 businesses will be able to remain open during the tourist season. This is, literally, the difference between being able to make their annual living during the 12 week tourist season or not. The construction of this project keeps 200 jobs in place in the community, and keeps the community producing tax revenues at the local and state level – as well as providing a great place to vacation during the summer!

The Town of Canton, Maine (population 1,161) located along the Androscoggin River in Oxford County flooded in 2004. Since that time, the community has been extremely active in seeking PDM grants to help deal with the repetitive flooding problems. Nearly 66 different properties have been removed from the danger of flooding in various ways – whether the homes on them were elevated above the base flood elevation, or purchased and converted to open uses, or physically relocated to areas not subject to flooding. This community has secured two PDM grants – one for $3 Million and a second for $2 Million to alleviate these problems. The truly noteworthy aspect of this project is the fact that it is overseen by a resident from the community who volunteers her time. Many times smaller communities appear to be afraid to undertake a project of this size – yet, Canton aptly demonstrates that whether the work is performed by a paid consultant or a volunteer, it is possible for literally any size of community to increase the safety and security of their residents with PDM.

The Maine coastal community of Saco has a river running through the center of the downtown area. It has also had a nearly constant flooding problem in a mid size mall and a nearby residential area. Utilizing funds from Project Impact – a precursor to the current PDM program – the community installed a 96" diameter drainage pipe approximately ¾ mile long. This relatively simple structural modification has prevented any flooding to the area even during two recent years when flooding was prevalent in other areas of the state. Some of the benefits from this project have included the fact that the business

community in Saco continues to be able operate during declared disasters – keeping residents employed and generating tax revenues. These programs have been able to make a real difference for many communities.

And, to help you understand these benefits extend beyond the borders of the great state of Maine, I would also like to share an additional example from my colleague in Sedgwick County (Wichita) Kansas. A new Emergency Operations Center was completed there about a year ago, and the increased cost of making it wind resistant was provided by a $250,000.00 PDM grant. This grant paid for the additional costs of making sure the structure complied with the wind-resistant construction standards outlined in FEMA 361. This is especially important in a state located where tornadoes are so likely to occur.

Suggestions for Improvement

We would like to suggest several possible improvements to the program. Our suggestions include:

- **Direct Application for Eligible Private Non Profits.** An eligible Private Non Profit (PNP) such as a college or a hospital can apply to the state as a subapplicant for a Hazard Mitigation Grant Program (HMGP) grant or for assistance under FEMA's public assistance program. However, for the Pre-Disaster Mitigation grant they have to find another entity such as a city or county to serve as a subapplicant on their behalf. This is an unnecessary and burdensome step. We urge the committee to work with FEMA on either a legislative change or a legislative interpretation which would allow PNPs to apply directly to the state. In many circumstances, PNPs have not been able to apply because already understaffed agencies are unwilling to serve as the subapplicant.

- **Inclusion of a Cost Escalation Factor.** An escalation factor should be allowed to cover costs of price increases. It may be 24 months or more from when a vendor estimate is obtained for a project application to the actual time of beginning construction. The State and FEMA review processes, the National Environmental Policy Act (NEPA) process, and permitting requirements extend the amount of time required before actual construction can begin. In many cases the costs escalate because of increased costs of materials. For example for hurricane shutter projects there was a significant increase in costs after the Hurricanes of 2004 and 2005.

- **Cost Benefit Analysis Simplification.** Many complain that the cost benefit analysis is too complicated.

- **More time for preparing applications.** Many of our IAEM members have expressed a desire that the amount of time available to an applicant to prepare the application should be increased. We believe that any additional time allowed to applicants in this process would result in higher quality applications for projects.

- **Streamlining overall process.** Many of our IAEM members have expressed a desire that FEMA find ways to streamline the overall application process and continue to seek ways to decrease the time from application submission to actually being able to begin a project.

In closing, we again want to emphasize to the committee that IAEM believes strongly in the PDM program and we respectfully request that it should be reauthorized, rather than allowed to sunset. In addition, we respectfully request the attention of the committee to the issue of adequately funding the program. We also respectfully offer for the committee's consideration several suggestions for improvement in the PDM program relating to eligible private, non-profit applicants, the consideration of including a cost escalation factor, simplification of the cost benefit analysis, and more time for the applicant to prepare thoughtful submissions for projects.

I would be happy to answer any questions you may have.

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Testimony of
David I. Maurstad
Assistant Administrator and Federal Insurance Administrator
Mitigation Directorate

Federal Emergency Management Agency
Department of Homeland Security

Presented Before the

House Transportation and Infrastructure Committee
Subcommittee on Economic Development, Public Buildings, and Emergency Management

April 30, 2008

Good Morning Chairwoman Norton, Ranking Member Graves, and Members of the Subcommittee. I am David Maurstad, Assistant Administrator for Mitigation and Federal Insurance Administrator for the Federal Emergency Management Agency (FEMA) within the Department of Homeland Security.

I am pleased to have the opportunity to testify before you today about the success of FEMA's Pre-Disaster Mitigation Grant Program (PDM), and respectfully request reauthorization of the Program. Without reauthorization, the Program will expire September 30, 2008.

Mitigation and PDM

FEMA's mission is to lead the Nation in an effort to prevent, prepare for, respond to, and recover from all hazards. This comprehensive emergency management system starts with mitigation: sustained efforts by communities, businesses, and individuals to reduce their vulnerability to all hazards. The Pre-Disaster Mitigation Grant Program has become an integral part of FEMA's mitigation strategy by providing grants to States, Territories, Tribal governments, and communities so they can develop mitigation plans and implement mitigation activities before hazards strike. Community-level mitigation planning and activities save lives, reduce property damage, direct response and recovery efforts to where they are needed most, decrease reliance on Federal disaster funds, and reduce the financial impact of disasters on the communities they strike, as well as the Nation.

As evidence of mitigation's value, a 2005 Congressionally-mandated study by the Multihazard Mitigation Council (an advisory body of the National Institute of Building Sciences) concluded that cost-effective mitigation saves an average of four dollars for every dollar spent, with flood mitigation yielding even greater savings.[1] Furthermore, a 2007 Congressional Budget Office Report estimated PDM-funded projects from 2004 to

[1] Multi Hazard Mitigation Council, National Institute of Building Sciences
Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities. National Institute of Building Sciences, Washington, DC 2005

mid-June 2007 had total costs of nearly $500 million and that the reduction in future losses associated with those projects has a present value of $1.6 billion.[2]

Mitigation Works

All States and Territories, and more than 16,000 communities – involving approximately 64 percent of the Nation's population – now have PDM-funded mitigation plans. These plans not only help communities focus on reducing vulnerability to hazards, they open the door for PDM "brick and mortar" grants that support a wide range of cost-effective mitigation activities, such as acquiring repetitively flooded homes; protecting utilities; storm-water management; and retrofitting, elevating, or relocating hazard-prone homes and businesses.

PDM's basic premise – to help communities build stronger and smarter – is not new. FEMA has been facilitating community mitigation efforts since 1988, when the Hazard Mitigation Grant Program (HMGP) was created. This post-disaster mitigation program makes mitigation funding available to States and communities after a Presidentially-declared disaster. An excellent example of a cost-effective HMGP project can be seen in exhibit A. This photograph shows a coastal Mississippi home that was elevated using HMGP funds. Several years after the project was completed, this house was the only one left standing on a street ravaged by Hurricane Katrina's storm surge. This HMGP success not only offers a clear example of mitigation's effectiveness but also underscores the fact that it often takes time to realize avoided losses. Our Pre-Disaster Mitigation Grant Program, like the post-disaster HMGP, also funds elevations like the one shown in exhibit A, and over time States and communities will be able to highlight many similar successes.

Already, after only five years, stories of hazard-tested PDM projects are coming in from the field. In Rutherford County, Tennessee, for example, State and local officials used PDM funds to acquire a flood-prone home. A family closed on the home in 1997 after conducting a reasonable and prudent examination of the pros and cons of purchasing, which included building inspections, disclosure filing examinations, and a review of the area's Flood Insurance Rate Maps. What this family did not know, however, was that the sellers hid the home's flood history.

The home suffered 20 documented floods after it was purchased in 1997, with annual recovery costs averaging $17,000. PDM funds enabled Rutherford County officials to acquire the property from the homeowner, demolish the structure, and return the property to open space, thus eliminating a persistent flood-risk and reducing the burden on the local services that protect the homeowner and his family from potential and actual flooding.

Another successful PDM field-test can be found in Broward County, Florida, where, in July 2005, five fire stations were fitted with PDM-funded, roll-down storm shutter systems. Soon after project completion, Hurricane Wilma struck Florida, severely impacting Broward County. The retrofitted fire stations, however, emerged unscathed and were able to effectively operate before, during, and after the storm. In fact, this PDM

[2] The Congress of the United States, Congressional Budget Office
Potential Cost Savings from the Pre-Disaster Mitigation Program
Washington, DC, September, 2007

project enabled fire station personnel to help their communities prepare for the storm rather than spending time at their station installing shutter panels.

These mitigation success stories show how States and communities can benefit from both types of mitigation assistance. When a community guided by a mitigation plan and strengthened by pre-disaster mitigation activity is hit with a natural hazard, that area experiences less damage, is ready to capitalize on post-disaster HMGP mitigation resources and support, and is in a better position to recover faster. U.S. taxpayers also benefit from reduced disaster assistance expenditures.

PDM Process and Direction

PDM's success is due, in large part, to its competitive approach. The PDM National Evaluation Peer Review of Applications relies on peer review panels to assess PDM planning and project applications for consistency with State and local mitigation plans; effective use of resources; proposal viability; and the likelihood of successful loss reduction. In addition, National Technical reviews are performed to ascertain the feasibility and cost-effectiveness of PDM proposals, and to determine if the proposals comply with environmental and historic preservation laws and regulations.

From FY2003 through FY2006, PDM's competitive review and award process generated a new level of mitigation interest in communities Nationwide, as the Program distributed nearly one half billion dollars for viable, cost-effective mitigation activities. In fact, for each of the previous PDM grant cycles, the amount of funds applied for has been double to triple the amount available. PDM's competitive process has also built strong mitigation partnerships, and has been a primary factor in the consistent flow of high-quality mitigation applications.

In FY2007, the Congressional Appropriations process changed PDM implementation direction by removing the language prohibiting allocations and formulas in PDM's competitive process. Consequently, for FY2007 and FY 2008, FEMA revised PDM program guidance and implemented a nationally competitive program that follows the minimum and maximum allocations authorized by the Stafford Act in Section 203(f).

FY2007 PDM funding was administered with a base $500,000 funding allocation for States that submit at least that amount in eligible applications. All remaining FY2007 applications competed for the remaining PDM funds.

Projected PDM Schedule

PDM's success leads FEMA to be optimistic about the Program's future; and in anticipation of reauthorization and related appropriations, the Agency is moving forward with the following grant cycle schedule:

- June 2, 2008: release of unified hazard mitigation assistance guidance and opening of a six-month application period;
- December 12, 2008: Close application period and begin eligibility and completeness reviews;
- Mid-January 2009: Begin National Technical and Peer Evaluation Reviews; and
- March 2009: Finalize selections and begin pre-award process.

This projected, aggressive schedule reflects feedback FEMA has received from our PDM constituents, and is consistent with Congress's desire that FEMA obligate all available PDM funding in a timely manner.

Conclusion

The Administration supports reauthorization of the Pre-Disaster Mitigation Grant Program through 2013. Reauthorizing PDM for five more years will assure a stable and dependable source of mitigation funding, and will promote consistent community efforts to pursue mitigation planning and activities that reduce vulnerability. Without PDM, States and communities will not be able to (a) develop strategic frameworks within which they can learn about the hazards threatening them; (b) prioritize hazards of greatest concern; and (c) develop, implement, and maintain actions designed to reduce their vulnerabilities – all critical mitigation steps that are difficult to accomplish in the aftermath of a hazard event, when communities are picking up the pieces.

The Pre-Disaster Mitigation Grant Program is an integral component of FEMA's Mitigation strategy to help States, Territories, Tribal governments, and communities reduce their vulnerability to natural hazard events. When embraced at the community level, pre-disaster mitigation saves lives, reduces property damage, directs response and recovery efforts to where they are needed most, decreases reliance on Federal disaster funds, and reduces the financial impact of disasters in the areas they strike, as well as for the Nation as a whole.

By reauthorizing the Pre-Disaster Mitigation Program for five more years, with clear direction and consistent funding, Congress will enable FEMA to keep facilitating State and local mitigation plans and projects that reduce or eliminate future losses. Without PDM, I am afraid that the momentum we have developed over the last five years in States and communities across the Nation to address hazards before disasters strike, instead of only after them, will be lost.

Madame Chairman, thank you for this opportunity to testify before you today, and I will be pleased to address any questions that Members may have

JAMES MULLEN
MITIGATION CHAIR, NATIONAL EMERGENCY MANAGEMENT ASSOCIATION
AND DIRECTOR, WASHINGTON STATE EMERGENCY DIVISION

STATEMENT FOR THE RECORD

"SAVING LIVES AND MONEY THROUGH THE PREDISASTER MITIGATION PROGRAM"

THE UNITED STATES HOUSE OF REPRESENTATIVES TRANSPORTATION AND INFRASTRUCTURE SUBCOMMITTEE ON ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS, AND EMERGENCY MANAGEMENT

APRIL 30, 2008

INTRODUCTION

Thank you Chairwoman Norton, Ranking Member Graves, and distinguished members of the Committee for allowing me the opportunity to provide you with a statement for the record on the Predisaster Mitigation Program. I am James Mullen, Chairman of the National Emergency Management Association's Mitigation Committee and Director of the Washington State Emergency Management Division. In my statement, I am representing the National Emergency Management Association (NEMA), whose members are the state emergency management directors in the states, the U.S. territories, and the District of Columbia. NEMA's members are responsible to their Governors for emergency preparedness, homeland security, mitigation, response, and recovery activities for natural, man-made, and terrorist caused disasters.

NEMA's Mitigation Committee and membership supported the creation of the Predisaster Mitigation (PDM) Program during consideration of the Disaster Mitigation Act of 2000 (DMA2K) (P.L. 106-390). NEMA remains a strong partner for the PDM program. PDM is just one in a pair of critical components in the tool-kit for state and local governments, particularly for emergency managers, in reducing the costs of disasters and reducing the loss of life. The PDM program works as the companion to the post-disaster Hazard Mitigation Grant Program (HMGP). PDM means that we don't have to wait until a disaster occurs to take mitigation actions, and the program broadens the nation's efforts both geographically and in terms of the hazards that may be addressed. While NEMA is supportive of the Predisaster Mitigation Program, we remain supportive of both

pre- and post-disaster mitigation. The Hazard Mitigation Grant Program (HMGP) must not be changed in order to ensure a balanced, holistic national mitigation program that includes both pre- and post-disaster mitigation. As the Congress considers the Predisaster Mitigation Program's reauthorization, adequate funding levels are needed to give the program the opportunity to demonstrate real value for the investments. NEMA supports the program's reauthorization and looks forward to working with Congress to improve the program.

Program Background

As the nation continues to recover from the 2004 and 2005 hurricane season and the numerous other disasters, mitigation opportunities are the key way to take advantage of lessons learned during disasters. DMA2K authorized a national disaster hazard mitigation program "to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters and to provide a source of predisaster hazard mitigation funding that will assist States and local governments in implementing effective hazard mitigation measures that are designed to ensure the continued functionality of critical services and facilities after a natural disaster." The title of the bill that authorizes the Predisaster Mitigation program is scheduled to sunset on September 30, 2008. Again, we ask for Congress to act on the reauthorization before the sunset, as any funds appropriated cannot be used after the sunset date. We believe that PDM is an important program and is making significant strides to mitigate against future disasters.

Before PDM was created, FEMA ran a demonstration or pilot program directly with several cities to educate on the value of mitigation before a disaster occurs. Before coming to my current position with the State of Washington, I served as the City of Seattle's Emergency Management Director and was intimately involved in working with Project Impact in a public/private partnership that addressed and identified mitigation needs and promoted corrective strategies. While our community readily bought into the concept, after the February 28, 2001 Nisqually earthquake, it was very clear to the city and to the nation that there was significant value in the program. Many of the actions taken to retrofit and seismically protect buildings were helpful in preventing further damage, most notably in the schools. We believe that these efforts saved the lives of school children in one school in particular. While Project Impact provided value, there was concern that the communities were not being chosen in coordination with the state emergency management agency, nor were the projects. PDM does allow for this coordination,

particularly with the State's required Hazard Mitigation Plan and identified projects.

NEMA initially sought for PDM to be a formula-based program in which every state had a chance to receive funding. A competitive program, as is current practice and proposed in Presidential budget requests and advocated by some members of Congress, severely limits the ability of smaller states, the territories, and those with less frequent disasters to apply for grants and receive grants. These states and territories may face scrutiny because their grant applications would not be viewed favorably against those from larger states experiencing more frequent events. There is a distinct possibility that the competitive approach means the end of mitigation funding in many states, territories, and local communities. Additionally, the costs of preparing the application and the various reviews are substantial and burdensome to smaller jurisdictions. Smaller communities do not have access to the resources and tools to help them articulate their risks with the same level of sophistication as larger well-funded jurisdictions. Predisaster mitigation must include all, since science cannot accurately predict where the next disaster may be or what kind of disaster may be faced. Attempting to prioritize limited predisaster mitigation funding on the national level is counter productive to the establishment of State and local planning, therefore NEMA supports the distribution of predisaster mitigation funds by a base plus population formula rather than by competitive grants. The competitive system as it is presently funded creates more losers than winners: in an enterprise that seeks to encourage communities to engage to protect themselves, it seems counterproductive to pit good programs against good programs when the objective is that predisaster mitigation programs be undertaken.

While NEMA has concerns about some aspects of the PDM program, we remain firm that the program's reauthorization is particularly important. PDM is a young program that is still evolving and FEMA's Mitigation Division has worked very closely with the state emergency management directors to listen to our input and position papers on the program, even when we do not always agree. Changes such as the $500,000 base for each state that began in FY 2007 have been a positive development as a result of our conversations and partnership with FEMA. FEMA regularly works with NEMA to give states the chance to serve on the peer review teams as well, which allows states to gain more expertise on the process and how grant applications are reviewed. Still, we would like a longer rolling application window to allow states and communities to begin applications even before funding is available because priority lists are based on the state plans already in place.

More technical assistance to enable states and communities to have fewer costs before receiving the grants would assist with costly environmental and historical impact reviews.

Examples of PDM in Action

PDM, per its purpose as defined by Congress in the DMA2K, is enabling a larger number of communities throughout the nation than ever before to better understand their vulnerability to various natural hazards and to identify projects to reduce those vulnerabilities. Thanks in large part to PDM funding, about 85 percent of the 6.5 million people who live in the State of Washington live in communities that have developed hazard mitigation plans envisioned by DMA2K and funded in large part by PDM grants.

PDM allows communities to obtain funds for larger projects than many states can provide through HMGP alone. I want to share with you just two key examples from Washington State that illustrate the importance of this program.

Edmonds, WA, School District obtained a $3 million PDM grant in 2005 to help it retrofit nine of its schools from earthquakes. The total project price is $8 million and the project will be completed in the coming months. This project is important because the school district sits at the south end of the South Whidbey Island Fault, which scientists now tell us is the most dangerous earthquake fault in the state. The largest project the State of Washington anticipates funding through HMGP in the next few years is $1.5 million.

Washington State University, the state's land grant university, received PDM funding in 2005 to develop a hazard mitigation plan for the main campus in Pullman, two branch campuses in Vancouver and the Tri-Cities area, and more than two dozen other research and extension facilities scattered throughout the state. This plan just received pre-approval status from FEMA and currently is awaiting adoption by the university's Board of Regents.

Unlike in other states, the State of Washington has found that PDM benefits both large and small communities. Example: City of Kalama, population 2,100, received a $175,000 PDM grant in 2005 that helped fund a project to reduce flooding in its downtown area. The project received its first test in last December's flood disaster, and worked beautifully. Additionally, a new project funded by a 2007 PDM grant is helping the Town of Hamilton, population 330, to purchase homes in the Skagit River floodway and move their occupants out of harm's way.

The town just completed purchase of three of the five homes targeted in the project.

Following the devastating effects of Hurricane Isabel during the fall of 2003, the *Commonwealth of Virginia* welcomed an early FY 2004 Predisaster Mitigation Grant Program funding opportunity to develop Disaster Resistant University (DRU) plans. Proposals were submitted for five state universities: Virginia Tech, Virginia State, Radford, George Mason and Old Dominion University. Three were selected through this nationally competitive process, but funding through HMGP and PDM FY 2005 was obtained for the other two. While it is often said by the Virginia Hazard Mitigation Program Manager that university planning is critical since universities not only represent a microcosm of society, they concentrate populations of citizens, students, business enterprises, critical research and often medical institutions. Yet, each of the original five Virginia DRUs was unique and the three that have followed are different as well-varied university missions, programs, campuses, hazards, vulnerabilities, challenges and priorities. For example, the University of Virginia and the Virginia Commonwealth University are home to medical centers that host critical medical schools and Level I trauma centers; George Mason University, in the heart of the National Capital Region, is home to numerous secure databases; Thomas Jefferson's Academical Village and Rotunda at UVA is a World Heritage Site; and the University of Mary Washington's James Monroe Museum hosts a collection of more than 10,000 rare documents. The list is endless, as it is across the nation.

On April 16, 2007 the world became very small as a tragedy unfolded at Virginia Tech. It will never be fully known if tragedy could have been prevented, but elements of building analysis for traditional natural hazards and accidents familiar to campuses such as building fire or chemical spill can lead to system redundancy and protection again crime, terrorism and broader categories of accidents. As DRU development and plan implementation continues throughout the Commonwealth, lessons learned on eight DRU campuses will extend to other state colleges and universities as well as cities, counties and towns. It is notable that this effort began through Predisaster Mitigation funding, which has supported the development of five of the eight Virginia DRU Plans.

Investments in Predisaster Mitigation

The President's budget proposal includes $75 million in funding for the Predisaster Mitigation Program. The funding level is a $39 million decrease compared to FY 2008 funding levels. Additionally, the program contained significant earmarks in

FY 2008, thus reducing the amount available for state and local governments to openly apply to be considered for the grants. The program funding is sorely under the total national need, especially with the original intent of the law to provide each state with a portion of funding so lessons learned from disasters could be taken advantage of by all states. Each year, FEMA typically receives requests for grants averaging over $450 million. When the program was proposed for the first time in FY 2003, the President proposed $300 million annually. The FY 2003 figure was derived by taking a decade of mitigation opportunities annual averages, but took out the large disaster spikes such as Hurricane Andrew and the North Ridge and Loma Prieta earthquakes.

While federal costs towards disasters remain a concern, significant commitments must be made towards both predisaster and post-disaster mitigation in order to lower overall disaster costs in the long run. With such low levels of funding, the predisaster mitigation program has never been fully able to address the intent of DMA2K. In 2005, the Multi-Hazard Mitigation Council published a study that found that every $1 FEMA invested into mitigation projects saves society approximately $4. The same study also showed that every dollar spent on hazard mitigation saved the federal treasury $3.65 in post-disaster relief and increased federal tax revenues. These findings are vitally important to knowing that federal investments are getting a strong return, as well as the 25 percent cost share that state and local governments contribute to the PDM grants upon award.

FEMA examined losses avoided in three communities in the State of Washington hit by our two most recent flood disasters in November 2006 and December 2007. In those communities, a senior citizen mobile home park in the City of Sumner, and neighborhoods in the City of Snoqualmie and the City of Centralia, homes were elevated with FEMA mitigation funds following floods in the mid 1990s. The loss avoidance studies showed that the elevation of 14 mobile homes in the Rainier Manor community saved more than $960,000 in damages that otherwise would have occurred had the structures not been elevated; the elevation of 28 homes in the City of Snoqualmie saved more than $1.6 million in damage, which is $300,000 more than the homes cost to elevate; and the owners of 35 elevated homes in the City of Centralia avoided more than $1.9 million in damage in what the US Geological Survey called a 500-year flood event in December 2007. The point is, regardless of the funding source, mitigation saves homeowners the pain and suffering of having to clean up after a disaster, and saves taxpayers and insurance companies the cost of helping individuals, families, and their communities rebuild.

Predisaster mitigation programs and initiatives have proven their value in not only saving lives and property in recent disasters, but have also in many cases negated the need for any emergency response and recovery. The key to the value of the programs is that predisaster mitigation is coordinated through the Governors and the state and local hazard mitigation plan as required by DMA2K. The program addresses the unique areas of greatest need to prepare for and reduce the overall costs of a disaster event. These are not ad-hoc pet projects, but valued projects that meet the benefits-cost analysis and other reviews proving their worth to a community.

Conclusion

Congress has continued support for PDM by reauthorizing the program three times. We must continue to build national preparedness efforts with a multi-hazard approach aimed at reducing lives lost and damages to property. We ask that Congress ensure that the PDM authorization does not expire and that a strong reauthorization is passed this summer. We also ask you to recognize the importance of adequately funding the PDM program to have the ability for all states to utilize mitigation before a disaster occurs. I thank you for the opportunity to testify on behalf of NEMA and appreciate your partnership.

Brent Woodworth's Testimony
on the Value of Pre-disaster Mitigation
before the
U.S. House Committee on Transportation and Infrastructure's
Subcommittee on Economic Development, Public Buildings, and Emergency Management
April 30, 2008
Hearing on Saving Lives and Money Through the Pre-disaster Mitigation Program

Madam Chairman, members of the subcommittee, distinguished guests – thank you for inviting me to speak with you today concerning a very important subject -- the need for, and the benefits of, investing in pre-disaster mitigation.

My name is Brent Woodworth and I am the President / CEO of Global Crisis Services, Inc., an international risk and crisis management consulting firm. My experience in crisis management includes the development of an international Crisis Response Team that has responded to over 70 major crisis events in 49 countries. I have often seen the tragedy that results when known risks from natural hazards go unmitigated and disasters strike.

I also am chair of the Multihazard Mitigation Council (MMC), a voluntary advisory council of the Congressionally authorized, nonprofit National Institute of Building Sciences (NIBS). The MMC was established to help reduce the total costs of natural and other hazards by promoting consistent and improved multihazard risk mitigation strategies and by providing the federal government with sage counsel on this subject. Given the MMC's independent status and its ability to enlist contributions of time and effort from national experts, the Federal Emergency Management Agency (FEMA) asked the MMC to conduct a Congressionally

mandated independent study[1] to quantify the future savings from mitigation efforts.

The study of mitigation activities was conducted under FEMA's natural hazard grant mitigation program and included a review of FEMA grants from 1993 through 2003. The study was completed in 2006 and clearly shows that FEMA's mitigation grants have been extremely effective in reducing future losses from earthquake, wind, and flood.

The study used a statistically representative sample of FEMA grants for both project and process-type mitigation activities. Project mitigation typically includes brick and mortar efforts such as elevating a house above flood levels, installing hurricane clips, or bolting down a foundation. Process-type activities are aimed at increasing awareness and fostering mitigation action including: stimulating communities to adopt up-to-date building codes, purchasing flood insurance, or updating disaster recovery plans.

A number of hazard models were utilized when conducting our study. When reviewing seismic risk-mitigation, for example, the HAZUS®MH software tool was used to model the overall hazard vulnerability risks and to estimate expected annualized property losses and casualties. The MMC researchers then supplemented the estimates generated by the models with analyses of losses that are difficult to quantify or model. These include historic and environmental damage and the cost of indirect business interruption.[2]

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[1] The Senate Appropriations Committee, Subcommittee for the Veterans Administration, Department of Housing and Urban Development, and Independent Agencies of the 106th Congress (Senate Report 106-161) stated: "The Committee recognizes that investing in mitigation will yield reductions in future disaster losses, and that mitigation should be strongly promoted. However, an analytical assessment is needed to support the degree to which mitigation activities will result in future 'savings.' Therefore, the Committee directs FEMA to fund an independent study to assess the future savings from the various types of mitigation activities."

[2] Casualties were valued using dollar amounts the federal government considers to be an acceptable expenditure to prevent future statistical deaths and injuries.

The present value of these potential future losses was calculated and the difference between the losses with and without mitigation investment was treated as the benefit of the mitigation effort.[3] The total mitigation investment expenditure during the study period was $3.5 billion. The financial benefit to the population from investing in mitigation efforts during the study period was valued at approximately $14 billion (2004 constant dollars). Dividing the mitigation benefit by the mitigation expenditure yields a benefit-cost ratio (BCR) of 4 to 1.

While the timing of our study was such that we could not include any Disaster Mitigation Act grants, there is no reason to believe that these grants are not equally cost-effective.

In a second part of the study, we conducted an in-depth examination of eight selected communities. Our findings showed that the FEMA mitigation grant funds utilized by each of these communities was cost-effective and led to additional nonfederally funded mitigation activities. Communities having the greatest benefit were those with institutionalized hazard mitigation programs. We observed, time after time, that federal mitigation activities truly inspire local and private mitigation activities.

Finally, we found that a dollar spent on mitigation potentially saves the U.S. Treasury an average of $3.65 in avoided post-disaster relief costs and increased federal tax revenues.

This brings me to our conclusions:

1. Mitigation is cost-effective and warrants federal funding on an ongoing basis – both before disasters strike and during post-disaster recovery efforts. The nation will always be vulnerable to natural hazards; therefore,

[3] A range of discount rates was considered in the present value calculations.

it is only prudent to invest in mitigation. "An ounce of prevention is worth a pound of cure." (Henry de Bracton, 1240)

2. We send out a word of caution that pre-disaster mitigation grant programs should NOT rely solely on benefit cost ratios as the selection criteria for investment. Not all benefits can be easily measured. For example, the benefit of moving structures out of a known flood plain can be quantified, but it is difficult to measure the benefit of this same land being reclaimed as naturalized wetlands or converted into a community recreation area. Even more difficult to measure is the benefit of reducing the stress people feel when constantly threatened by a disaster event. For example, think about families who now worry far less about tornados because their apartment complex has a community safe room.

3. Mitigation is most effective when it is carried out on a comprehensive, community-wide, long-term basis. Single projects help, but carrying out a coordinated set of mitigation activities over time is the best way to ensure that communities will be physically, socially, and economically resilient in coping with future hazard events.

Based on our conclusions, we recommend the following actions be considered:

1. Invest in natural hazard mitigation as a matter of policy. This should be done on an ongoing basis both before disasters occur and through federally funded disaster recovery and rebuilding activities and programs. We hope the subcommittee will keep this recommendation in mind as they debate reauthorization of the Pre-Disaster Mitigation Act.

2. Give those responsible for evaluating grant requests the ability to consider benefits to society in the broadest possible sense.

3. Support mitigation activities that will build the resilience of communities by helping to fund programs that increase knowledge on the benefits of mitigation, promote public and private sector investment, and motivate community members to engage in collaborative preparedness efforts.

CLOSING COMMENTS

In conclusion, I'd like to add that this MMC study has been widely cited and well received. For example, it has been cited in recent reports issued by both the Congressional Budget Office (*Potential Cost Savings from the Pre-disaster Mitigation Program*, Publication 2926, September 2007) and the Government Accountability Office (*Various Mitigation Efforts Exist, But Federal Efforts Do Not Provide a Comprehensive Strategic Framework,* GAO-07-403, http://www.gao.gov/cgi-bin/getrpt?GAO-07-403).

NATURAL HAZARDS
Observer

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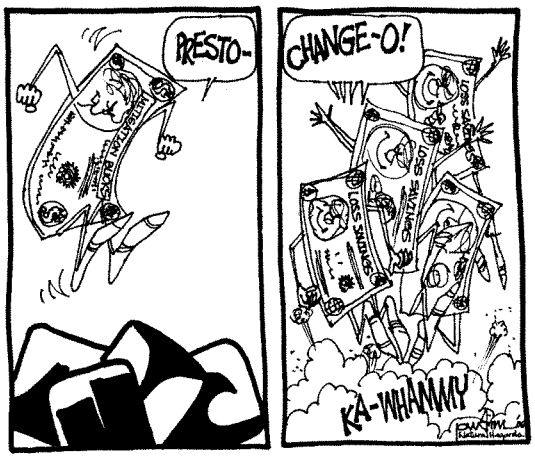
Mitigation Generates Savings of Four to One and Enhances Community Resilience



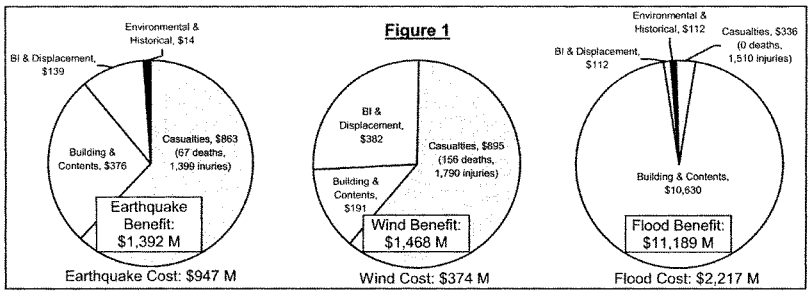
MMC Releases Study on Savings from Mitigation

— an invited comment

In December, the Multihazard Mitigation Council (MMC) of the National Institute of Building Sciences released to the Federal Emergency Management Agency (FEMA) ***Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities***, the culmination of a three-year, congressionally mandated independent study. The MMC Board of Direction and oversight committee, a team of more than 30 researchers from academic institutions and private-sector organizations across the United States assembled by the Applied Technology Council, and many others contributed to the study, which represents the most comprehensive quantitative analysis of hazard mitigation activities to date.

The research findings provide independent evidence to support what nearly every member of the hazards community knows anecdotally—generally, FEMA mitigation grants are highly cost-effective. On average, across all grants, regions, and hazards studied, each dollar spent on mitigation saves society an average of $4 in avoided future losses. Results also indicate that, based on the eight communities studied in depth, FEMA mitigation grants, including those associated with Project Impact, play a significant role in a community's mitigation history and often lead to additional loss reduction activities.

The study, which examined 10 years of FEMA mitigation grants (1993-2003), consisted of a statistical analysis and community analyses. The statistical analysis estimated the future savings from expenditures using a statistically representative national sample of FEMA-funded mitigation grants. The community analyses assessed the future savings from mitigation activities through quantitative and qualitative research in eight communities where FEMA-funded



mitigation activities were conducted, including five Project Impact communties.

Statistical Analysis

The statistical analysis of individual grants focused on FEMA-funded mitigation activities in three broad hazard categories: flood (coastal and riverine), wind (hurricane, tornado, typhoon, and severe storms), and earthquake. The MMC chose these hazards because of both the number of FEMA grants and the size of FEMA expenditures dedicated to their mitigation.

The analysis distinguished between project and process mitigation activities. Project mitigation activities are akin to investments in physical capital and are frequently referred to as brick-and-mortar projects because they result in tangible physical change to the built or natural environment. Quantitative benefit-cost assessments are more easily conducted for grants funding these types of activity. Typical project mitigation activities funded by FEMA included drainage enhancement, acquisition and relocation of at-risk structures, structural and nonstructural improvements, lifeline improvements, and land improvement projects.

Process mitigation activities lead to policies, practices, and projects that reduce risk and are much like investments in human, social, or institutional capital. Outcomes of these activities, particularly over the short term, tend to be difficult to predict and quantify. Examples of process mitigation activities include vulnerability assessments, community priorities and action plans, education campaigns for decision makers and constituents, and development of codes and regulations. These activities stimulate the commitments needed to instigate and sustain mitigation over the long term and play a large role in building community resilience.

The research team obtained project cost data directly from FEMA's National Emergency Management Information System database. They applied, and developed where necessary, state-of-the-art methods grounded in benefit-cost analysis to measure the benefits from mitigation. HAZUS-MH (FEMA's software program for estimating potential losses from disaster) was used to estimate earthquake casualties as well as direct property damage and direct business interruption losses from earthquake and hurricane wind. Supplemental methods were used to assess direct property losses from floods and tornadoes; casualty losses from hurricanes, tornadoes, and floods; business interruption losses for utilities; environmental and historic preservation benefits; and process mitigation activities.

Using an innovative sampling strategy, the research team estimated mean benefits as losses avoided for each activity type and hazard (process and project mitigation activities for flood, wind, and earthquake hazards). The ratio of estimated benefits to costs produced the benefit-cost ratio that was then applied to each category in the population of FEMA grants from which the sample was taken. The sample estimates were then scaled up to the population of FEMA grants for wind, flood, and earthquake mitigation issued between 1993 and 2003.

The study estimated that societal benefits from FEMA mitigation grants during the period studied had a discounted present value of $14 billion compared to the $3.5 billion value of the resources employed for an overall benefit-cost ratio of 4:1. Sensitivity analyses showed that these results are robust to the assumptions made and to uncertainties of parameters and models.

Figure 1 provides a graphical representation of the avoided losses compared to program costs for each hazard. It shows the contribution to total savings from avoided losses to buildings and contents, business interruption (BI) and household displacement, the economic equivalent value of environmental and historical losses, and casualties. (Casualties are measured both in terms of the number of avoided future deaths and injuries as well as the dollar amount the federal government would deem a reasonable expense for life-safety measures with similar effectiveness).

Community Analyses

The community analyses component of the study featured in-depth examinations of eight communities to assess the influence of FEMA-funded mitigation activities in a holistic context. The study included all FEMA mitigation grants received by the communities since the grant programs began. It also explored how additional mitigation activities percolated throughout the communities in the form of synergistic activities, which accrued benefits ultimately attributable to FEMA grants.

The researchers selected communities with diverse characteristics to obtain a variability of contexts in which to observe mitigation outcomes. Researchers ensured that the eight communities were diverse in size, the kinds of hazards present, the number and type of grants received, and

geographic distribution. Each community had received at least $500,000 in funds from as many as 15 FEMA grants. The communities were Freeport, New York; Hayward, California; Horry County, South Carolina; Jamestown, North Dakota; Jefferson County, Alabama; Multnomah County, Oregon; City of Orange, California; and Tuscola County, Michigan.

The community studies were designed to identify the impact of FEMA-funded mitigation activities in situations where multiple FEMA and non-FEMA funded projects and processes may have coexisted and interacted. Data on mitigation activities were collected and reviewed, key people were interviewed by telephone, field visits were conducted to gather more data and to followup with those interviewed, and extensive postvisit analyses were undertaken.

During the community studies, the researchers noted activities and effects that reduced risks (or increased benefits of risk-reduction activities) that were not funded by FEMA. Qualitative analysis of these activities found that mitigation efforts funded by FEMA often led to additional, nonfederal mitigation efforts. Termed synergistic activities, they were divided into three categories:

- Spin-off activities—activities that resulted from FEMA hazard mitigation grant support
- Collateral activities—activities that did not result from FEMA hazard mitigation grant support
- Spillover effects—effects that enhanced the value of community assets because of FEMA hazard mitigation grant support

Five of the eight communities had spin-off activities, three had collateral activities, and three had spillover effects.

In the communities studied, FEMA mitigation grants were a significant part of the community's mitigation history. The researchers found that the FEMA-funded mitigation activities brought about the most nonfederally funded mitigation benefits if the grant was of the sort that helped to institutionalize mitigation. Interviewees reported that the grants were important in reducing community risks, preventing future damages, and increasing a community's capability to reduce losses from natural hazards. Most interviewees believed that the grants permitted their communities to attain mitigation goals that might not otherwise have been reached and that the mitigation benefits of the activities funded by the grants went beyond what could actually be measured quantitatively (e.g., increased community awareness, esprit de corps, and peace of mind).

Savings from Mitigation

The detailed analysis of communities provides evidence to support the statistical analysis finding of positive net benefits from hazard mitigation. And, it goes even further to show that important additional benefits exist within communities across individual mitigation programs that are not reflected in the calculation of grant-level net benefits.

The overall study's main findings can be stated simply:

- The net benefits of FEMA's hazard mitigation program to society as a whole are positive with an average overall benefit-cost ratio of 4:1.
- The average benefit-cost ratio for all FEMA flood-related grants is 5:1.
- The average benefit-cost ratio for all FEMA wind-related grants is 3.9:1.
- The average benefit-cost ratio for all FEMA earthquake-related grants is 1.5:1.
- Synergistic activities occur in communities that have institutionalized their hazard mitigation programs.

In addition to the analytical results discussed above, the MMC report includes three basic recommendations derived from the study:

- Mitigation is sufficiently cost-effective to warrant federal funding on an ongoing basis both before disasters and during postdisaster recovery. The nation will always be vulnerable to natural hazards; therefore, it is only prudent to invest in mitigation. In this context, mitigation should be considered in the broadest possible sense to encompass projects and processes that relate to enforcing strong building codes and land use and zoning measures as well as developing comprehensive plans that limit disaster-caused damage and promote reduced losses.
- Mitigation is most effective when carried out on a comprehensive, communitywide, and long-term basis. Single grants or activities can help, but carrying out a slate of coordinated mitigation activities over time is the best way to ensure that communities will be physically, socially, and economically resilient to future hazard impacts.
- Continuing analysis of the effectiveness of mitigation activities is essential for building resilient communities. The need to integrate social science research into traditional hazard mitigation evaluation is strongly encouraged, especially when benefits are difficult to isolate and measure as in the case of process activities. The study highlighted the need for more systematic data collection and assessment of various mitigation approaches to ensure that hard-won lessons are incorporated into disaster public policy. In this context, postdisaster field observations are important, and statistically based postdisaster data collection is needed for use in validating mitigation measures that are either costly, numerous, of uncertain efficacy, or that may produce high benefit-cost ratios.

Philip T. Ganderton, University of New Mexico
Linda Bourque, University of California, Los Angeles
Nicole Dash, University of North Texas
Ron Eguchi, ImageCat, Inc.
David Godschalk, University of North Carolina at Chapel Hill
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Elliott Mittler, Consultant
Keith Porter, Consultant
Adam Rose, Pennsylvania State University
L. Thomas Tobin, Tobin and Associates
Craig Taylor, Natural Hazards Management, Inc.

The two-volume study report is available for free download at *http://www.nibs.org/MMC/mmchome.html*.

Multihazard Mitigation Council of the National Institute of Building Sciences

The purpose of the Multihazard Mitigation Council (MMC) is to reduce the total costs associated with natural and other related hazards to buildings by fostering and promoting consistent and improved multihazard risk mitigation strategies, guidelines, practices, and related efforts. Total costs are considered to include the direct and indirect cost of deaths and injuries; property damage; business, personal, and governmental/civil disruptions; disaster assistance and emergency services; and redundant or duplicative mitigation measures associated with training, planning, programming, design, construction, operation, maintenance, and enforcement.

The scope of the Council's interests is diverse and reflects the concerns and responsibilities of all those public and private sector entities involved with building and nonbuilding structure and lifeline facility research, planning, design, construction, regulation, management, and utilization/operation and the hazards that affect them. In recognition of this diversity, the Council believes that appropriate multihazard risk reduction measures and initiatives should be adopted by existing organizations and institutions and incorporated into their legislation, regulations, practices, rules, relief procedures, and loan and insurance requirements whenever possible so that these measures and initiatives become part of established activities rather than being super-imposed as separate and additional. Further, the Council's activities are structured to provide for explicit consideration and assessment of the social, technical, administrative, political, legal, and economic implications of its deliberations and recommendations. Oversight of projects is provided by an elected Board of Direction functioning under the MMC Charter.

The Council was established in 1997 as a voluntary advisory, facilitative body of the National Institute of Building Sciences (NIBS), a nonprofit corporation incorporated in the District of Columbia.

To view the various MMC leadership, membership, and projects, please visit

http://www.nibs.org/MMC/mmchome.html

SUMMARY OF ECONOMIC ANALYSIS OF BENEFITS AND COSTS OF FEMA HAZARD MITIGATION PROJECTS

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Notes:
A paper summarizing the results of the study has been accepted for publication at the the Natural Hazards Review, and more details can be found in that paper. Readers should also refer to the full report available from the MMC/NIBS website: http://nibs.org/MMC/mmcactivity5.html

INTRODUCTION

Spurred by multi-billion dollar losses from earthquakes and hurricanes, Congress asked the Multihazard Mitigation Council (MMC) of the National Institute of Building Sciences (NIBS) to perform an independent study to quantify the future savings from hazard mitigation activities in late 2005. The study responded to a mandate from Congress[1] and was based on a detailed work plan formulated by a team of experts established by the MMC Board. Although funding for the study was provided by the Federal Emergency Management Agency (FEMA), the study was conducted independently of FEMA.

Future savings, in terms of losses avoided, were estimated for hazard mitigation activities related to earthquake, wind, and flood funded through three major natural hazard mitigation grant programs (the Hazard Mitigation Grant Program, Project Impact, and the Flood Mitigation Assistance Program), as well as various supplemental programs. Two types of mitigation activity were addressed: "project" and "process" mitigations. Project activities include physical measures to avoid or reduce damage from disasters. Typically they involve acquiring, elevating, or relocating buildings, lifelines or other structures threatened by floods; strengthening buildings and lifelines to resist earthquake or wind forces; and improving drainage and land conditions. Process mitigations include activities that lead to policies, practices, and projects that reduce risk and loss. These efforts typically focus on assessing hazards, vulnerability, and risk; conducting planning to identify mitigation efforts, policies, and practices and set priorities; performing research to develop new mitigation strategies or technologies; educating decision-makers and building constituencies; and facilitating the selection, design, funding, and construction of projects.

The MMC study involved two interrelated components. The first component estimated the future savings from FEMA mitigation grant expenditures using a statistically representative sample of FEMA-funded mitigation grants so that results could be generalized for the entire population of FEMA mitigation grants. The unit of analysis for this component was the individual FEMA-funded grant. The second component assessed the future savings from mitigation activities through empirical research on FEMA-funded mitigation activities carried out in community contexts. The community studies were both quantitative and qualitative and examined mitigation activities in a purposive sample of communities. By looking at mitigation in communities, the study provides clues how mitigation activities relate to each other and possibly create a net benefit greater than the original FEMA grant. The unit of analysis was the individual community. Both components employed common methodologies where possible based on benefit-cost analysis. The primary tool used to measure benefits for earthquake and wind hazard mitigation was HAZUS®MH, although supplemental methods were used to assess other reduced losses from flood and tornado, business interruption loss for utilities, environmental and historic preservation benefits, and process mitigation activities.

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[11] Ordered by the House Appropriations Committee, Subcommittee for the Veterans Administration, Department of Housing and Urban Development, and Independent Agencies of the 106th Congress (Senate Report 106-161):

> The Committee recognizes that investing in mitigation will yield reductions in future disaster losses and that mitigation should be strongly promoted. However, an analytical assessment is needed to support the degree to which mitigation activities will result in future "savings." Therefore, the Committee directs FEMA to fund an independent study to assess the future savings from the various types of mitigation activities.

The scope of the study of national federally funded mitigation was unprecedented, and the study has much to offer both the practitioner and the researcher. In this paper we will highlight the contributions made in the following areas: data, methods, benefit-cost analyses and case studies.

FEMA Mitigation Activities

The Federal Emergency Management Agency (FEMA), the lead agency in providing federal disaster relief, has made natural hazard risk mitigation a primary goal in its efforts to reduce the long-term cost of disasters. During the period studied, FEMA conducted three programs in support of this goal: the post-disaster Hazard Mitigation Grant Program (HMGP) and two pre-disaster programs, Project Impact (PI) and the Flood Mitigation Assistance (FMA) Program.

The Hazard Mitigation Grant Program, the oldest and largest of the three programs, was created in 1988 to assist states and communities in implementing long-term hazard mitigation measures following a presidential declaration. Between 1993 and 2003, FEMA obligated $3.5 billion for states and communities to invest in a variety of eligible mitigation activities selected as the most beneficial by local officials. Project Impact was a program funded between fiscal years 1997 and 2001.

Unlike the HMPG, Project Impact supported the development of pre-disaster mitigation programs. In total, 250 communities in every state and some U.S. territories received $77 million in grants ranging from $60,000 to $1,000,000 per community. The one-time Project Impact grants were considered seed money for building disaster-resistant communities and encouraged government to work in partnership with individuals, businesses, and private and nonprofit organizations to reduce the impact of likely future natural disasters.

The Flood Mitigation Assistance Program (FMAP) was created as part of the *National Flood Insurance Reform Act of 1994* with the specific purpose of reducing or eliminating claims under the National Flood Insurance Program (NFIP). The FMAP provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. Annual funding of $20 million from the National Flood Insurance Fund is allocated to states that, in turn, obligate it to communities. Like Project Impact, the FMAP supports pre-disaster mitigation.

Data

Data from grant applications under each of the three programs described above were analyzed in both the benefit-cost analysis of FEMA mitigation grants and the community studies. These data were used to:

- Establish the costs of all FEMA mitigation activities;
- Help select a stratified sample for the benefit-cost analysis of FEMA mitigation grants and the communities evaluated in the community studies analysis;

- Identify the location and physical characteristics of the activity, to aid in mathematically modeling it; and
- Help support comparative analysis studies of community mitigation.

To measure mitigation activity costs, FEMA files provided a first approximation with the FEMA grant allocation, a matter of public record and a definite expenditure. The allocation amount was adjusted for any significant transfer payments (e.g., taxes) and attention was paid, especially in the community studies when any matching funds from other government entities or the private sector were used to carry out the mitigation activity.

FEMA stores much of the grant data in the National Emergency Management Information System (NEMIS) database, whose emphasis is on project accounting. The database provides a current, cross-sectional snapshot of the status of FEMA-funded grants but provides complete accounting data for only those projects that are "closed." Information for all other FEMA-funded grants either reflects the project descriptions and costs indicated in the original project application or, if changes have been approved, information from the last posted quarterly report. Paper copies of the grant applications are stored in FEMA regional offices and elsewhere; these were examined to extract the bulk of the relevant characteristics necessary to create the mathematical model of the grants.

Within the three major hazard categories, approximately 64 percent of the funded projects dealt with the mitigation of flood hazards, while 29 percent addressed wind, and 7 percent addressed earthquake hazards. Flood grants represent 63 percent of costs, while wind and earthquake represent 11 percent and 27 percent, respectively. Earthquake mitigation efforts are generally more costly than flood or wind — $2.4 million for the average earthquake grant, compared with $630,000 and $240,000 for flood and wind, respectively. A breakdown of grant types indicates that 90 percent of the grant applications were for project mitigation activities and 10 percent were for process mitigation activities. In terms of cost, grant applications for process mitigation activities accounted for only 5 percent of total costs.

Project data were acquired in electronic format for 5,479 approved or completed grants to mitigate flood, earthquake, or wind risk. The data were stratified by hazard type (flood, earthquake, or wind) and mitigation type (project or process activity). A selection of 357 mitigation grants was made for examination and FEMA provided data for 312 of those applications. Many of the application files contained insufficient data to estimate benefits of mitigation, and a few produced results that caused investigators to exclude them from the final sample (these "outliers" are discussed later). Eventually, 136 grant applications remained in the sample. Table 1 summarizes the distribution of these grants by mitigation type and hazard for the entire population of grants and for the sample that was selected to represent the population. The table distinguishes grants that involve the actual mitigation of risk (project mitigation activities such as structural retrofit) from activities involving support functions (process mitigation activities such as public awareness campaigns or research).

Table 1 Distribution of grants by mitigation type and hazard (in 2004 dollars)

		Population		Sample	
Hazard	**Type**	**Count**	**Cost ($M)**	**Count**	**Cost ($M)**
Wind	Project	1,190	280	42	38
	Process	382	94	21	38
Flood	Project	3,404	2,204	22	84
	Process	108	13	6	2
Earthquake	Project	347	867	25	336
	Process	48	80	20	74
Total		5,479	$3,538	136	$572

Eight communities were selected from the NEMIS data base using the following eligibility criteria. Communities must:

1. have received grants from FEMA whose objective was to mitigate damage from earthquakes, flood, or wind (coastal storm, hurricane, severe storm, tornado, typhoon).
2. be at high risk for earthquakes, flood, or wind hazard(s).
3. be a single jurisdiction identified with a legal title as a city, town, borough, village or county within one of the 50 states.
4. have both project and process (includes Project Impact) activities funded.
5. have received FEMA grants that totaled at least $500,000.
6. have received no more than 15 grants.

One hundred thirteen (113) communities met Criteria 1 and 3 through 6, but only 76 communities were at high risk of at least one hazard. Communities were sorted and quota limits were set to maximize the probability that the communities selected for study varied in: (1) the combination of grants they had received from FEMA (earthquake only, wind only, flood only, earthquake and flood, wind and flood, earthquake, wind and flood); (2) whether they were at high risk of earthquake, flood, wind, or some combinations; (3) community population (10,000-49,999; 50,000-499,999; 500,000 and over); and (4) FEMA administrative region. Following a precise selection process, ten communities were selected, but because of current disasters, two of those communities were removed, leaving the eight finally studied.

For the community studies, grant applications were the main source of information. The grant applications often contained detailed explanations of the proposed mitigation activity, justifications for funding, engineering back-up if needed, descriptions of structures affected by the proposed activity, financial statements, benefit-cost analyses, and project schedules. There were some cases, however, with multiple applications because of a change in project scope after the initial grant. The grant applications were available at the regional, state and community sites and provided the basis for technical analysis. During field visits, the initial contact person in each community normally provided access to the written documents, set up interviews with key

informants to discuss the projects, and led tours of the project sites. The field visits often cleared up misconceptions and uncovered information not available at the FEMA regional and state emergency management offices. Following field visits, detailed analyses of the FEMA-funded grants were conducted. If questions arose, knowledgeable persons were contacted by telephone and e-mail for additional information.

Methods

In the benefit-cost analysis of past FEMA mitigation grants, a variety of methods were used to estimate the benefits of a sample of past FEMA-funded grants. This estimate was based on established principles of disaster loss modeling developed by academic and professional engineers and researchers and practitioners in other disciplines, and benefit-cost analysis as codified by several federal government agencies. These principles were applied to several categories of avoided losses (benefits): property damage, business interruption, casualties, negative societal and environmental impacts, and damage to historic buildings. These losses were measured in terms of real resources lost to the nation as a whole. The analysis of FEMA mitigation grants was structured to estimate the net benefits of hazard mitigation to the nation and see if these benefits vary across types of hazards and mitigation activities.

To complete a benefit-cost analysis, it is necessary to estimate all costs and all benefits. The cost side is usually the straightforward assessment of capital expenditures, and operation and maintenance expenses (where applicable). Benefits, or avoided losses from hazards, are more difficult to assess because they are not limited to a single structure or moment in time and are highly uncertain over the short term. Accordingly, sophisticated methods were developed to estimate these benefits by first estimating the future losses from hazards in the absence of mitigation, and the losses with mitigation in place. Two complications arise in estimating the benefits of hazard mitigation. First is the need to discount future values to the present so that benefits accruing at different times can be made comparable. An exception was made for the economic value of avoiding future statistical deaths and nonfatal injuries. Second is the need to express avoided losses in probabilistic terms (the number of times something will probably occur over the range of possible occurrences) to capture their uncertain frequency and severity of occurrence.

Direct property damage (or direct stock loss) from earthquake and hurricane wind was calculated using the standard version of HAZUS®MH. This tool is constructed to estimate, for various frequencies of occurrence, the excitation imposed by nature on the facility, e.g., the shaking intensity or hurricane windspeed experienced by a particular building with 1% probability in a given year. The probabilistic damage to the facility is calculated and the cost to repair the damage estimated. The frequency of occurrence and the severity of loss given that occurrence are multiplied together and numerically integrated, resulting in an estimate of the average annual loss to the facility, which can then be treated as an annuity in the benefit-cost analysis.

While property damage represents a decline in stock value and usually leads to a decrease in service flows, business interruption losses are a flow measure. Most of them, but not all, emanate from property damage. However, direct business interruption losses can take place even in the

absence of property damage. For example, a factory may be unscathed by a hurricane but may be forced to shut down if its electricity supply is cut off because of hurricane-induced damage to generation facilities or transmission or distribution lines. Flow losses represent a major challenge in catastrophe loss estimation—treating losses not as definite or set amount but as highly variable depending on the length of the "economic disruption," typically synonymous with the recovery plus reconstruction periods. Disaster losses are not simply determined by the hazard intensity and infrastructure vulnerability, but are also highly dependent on human ingenuity, will, resources, and post-disaster public policy.

Another aspect of loss estimation that needs to be incorporated to the extent possible is *resilience* or the ability to cushion losses by such actions as conservation, use of inventories, and input substitution. Several of these adaptations have been incorporated into the HAZUS-IELM (Indirect Economic Loss Model). However, one major aspect of resilience that is contained in the Direct Economic Loss Model is the "recapture" factor or the ability of a firm whose production has been interrupted to make up its lost output later by working overtime. Sectors, such as manufacturing, which have a steady demand and excess capacity have high recapture factors, whereas sectors like services (especially restaurants, hotels, theaters), which have a soft (time-related) demand and limited excess capacity, have low recapture factors.

A factor affecting overall business interruption losses was the level of outside aid, typically dominated by insurance payments and government relief. In the past, for example with the Northridge earthquake, where outside aid was very high, this inflow, coupled with the positive ripple effects of reconstruction, could even result in the economy reaching a higher level of economic activity than before the disaster. However, this seemingly beneficial depiction of extreme hazard events is misleading in a pure benefit-cost analysis sense. The increased economic activity was mainly attributable to transfer payments coming into the region at the expense of economic activity elsewhere. From the standpoint of the nation as a whole, there was no net gain. Therefore, outside aid was omitted from the simulations to avoid including what are essentially artificial benefits.

Expanding the range of losses considered

One innovation of the MMC study is the development of methods to supplement the HAZUS®MH loss estimation methodology and to address new types of benefits or losses. The additional methods include estimates of the direct property loss from flood, the direct property loss from tornado, the business interruption loss from utility outage, environmental and historic benefits, and benefits from grants for process mitigation activities. Because societal impacts are not readily quantifiable, they are often mentioned but not analyzed in cost-benefit analyses. This project has attempted to go further and better understand the relationship, on a societal level, between impact and mitigation. Although two types of societal impacts are measured in HAZUS®MH, casualties and displacement, some enhancements to the HAZUS®MH methodology were necessary. Two major methodological issues required resolution because the potential societal savings of mitigation had not been modeled and some of the savings/impacts could not be quantified. The first issue stemmed directly from the difficulty of quantifying many societal impacts as little work has been done to model them. Even more problematic was that the

data needed to evaluate the societal impacts and possible savings of mitigation are not routinely collected.

One modeling challenge was quantifying benefits from avoided casualties. Translating injuries and loss of life into quantifiable dollar figures is difficult and philosophically sensitive. Estimates of the acceptable cost to avoid a future statistical death or injury (often inappropriately labeled the value of human life) vary greatly — from $1 to $10 million or more, depending on the person or agency making the assessment, the agent of injury, and other factors. One authoritative figure comes from a study for the Federal Aviation Administration (FAA), in which a value of $3 million per statistical death avoided is recommended to value the benefit of investment and regulatory decisions, along with lesser values to avoid future nonfatal injuries.

It was beyond the scope of the study to develop and justify new, hazard-specific comprehensive costs to reflect HAZUS®MH injury levels. Thus, the FAA and Federal Highway Administration (FHA) figures were used. Note that these values are not limited to car crashes or aviation safety measures, and that they are comprehensive, reflecting medical costs, lost earnings, lost household production, emergency services, vocational rehabilitation, workplace costs, administrative, legal, pain and lost quality of life, and other factors. Medical costs alone represent a relatively small portion of the comprehensive cost, typically 10 percent or less. Further, the values are not mean values with statistical distributions but rather discrete amounts chosen by the agencies of the federal government to represent the benefit associated with avoiding one such statistical death or injury. The only exercise of judgment in applying these values was in the mapping between the injury severity scale to which the FAA and FHWA figures were indexed (the Abbreviated Injury Scale, AIS) and that of HAZUS®MH.

Table 2 Methods used to estimate benefits for grants for project mitigation activities[1]

	Hazard			
	Earthquake	**Wind**		**Flood**
Benefit Type		**Hurricane**	**Tornado**	
Property Damage	HAZUS®MH	HAZUS®MH	HAZUS®MH Reduced Form	HAZUS®MH Reduced Form
Business Interruption				
Utilities	HAZUS®MH Extension[2]	HAZUS®MH Extension[2]	HAZUS®MH Extension[2]	n.a.[3]
Other	HAZUS®MH	HAZUS®MH	HAZUS®MH	n.a.[3]
Displacement	HAZUS®MH[4]	HAZUS®MH[4]	HAZUS®MH Extension[2,4]	HAZUS®MH Extension[2]
Casualty[5]				
Structural	HAZUS®MH	Benefit Transfer	HAZUS®MH Reduced Form[6]	Benefit Transfer
Nonstructural	Benefit Transfer	n.a.[7]	n.a.[7]	n.a.[7]
Environmental and Historical	Benefit Transfer	Benefit Transfer	Benefit Transfer	Benefit Transfer

[1]A "surrogate benefit" method was used to estimate all benefit categories for process activities.

[2]Extension refers to a method that builds on HAZUS®MH with a similar and compatible approach.

[3]None of the sampled flood projects involved business interruption.

[4]Measured as part of business interruption.

[5]Also includes emergency services benefits.

[6]Reduced Form refers to the use of component parts, such as functional relationships and data, from a HAZUS®MH module.

[7]Only relevant to earthquakes.

Measuring benefits of a process mitigation activity presented considerable challenges for a number of reasons: process activities are intermediate inputs to other activities and act much like information; there has been very little work done to understand the role of information in mitigation; and there are few research findings that can be transferred to the mitigation application. An information campaign, for example, results in tangible benefits only if it induces behavioral changes that lead to mitigation efforts. The printing of brochures alone is not sufficient to generate benefits. It is difficult to establish a causal link between the process product and subsequent action and to accurately measure that linkage. The desired measure would incorporate the change in the probability that mitigation will occur that is attributable to the process grant and not to some other source, such as a project grant. The best way to determine the change in the probability might be to survey decision makers who are responsible for implementing mitigation actions. However, no such survey data that could be combined with information on process grant costs and benefits were readily available.

Measurement is further complicated by several factors including the possibility that one grant for process activities may lead to another process grant before eventually leading to mitigation action. It is much easier to observe savings in damages attributable to many different sources or inputs. In addition, other factors may obscure the relationship, including the event of a major disaster and funding from non-FEMA sources. A grant for a process activity yields a benefit primarily when it results in a "spin-off," a type of synergistic activity defined as a mitigation activity not directly funded by FEMA that is the direct result (an action that would have not otherwise taken place) or indirect result (an action that is accelerated in timing, but would have taken place eventually) of FEMA hazard mitigation grant support. A process that itself cannot lead to action or to a subsequent FEMA-funded project grant for project activities requires a spin-off to achieve benefits. The exceptions are economic spillovers or when the process grant involves the more effective use of the previous expenditure without incurring additional costs (e.g., brochures urging people to stay alert for existing tornado sirens). Information on the benefits and costs of process activity grants is scant, at best.

BCA Results and National Mitigation Program Estimates

The benefit-cost analysis of FEMA mitigation grants required three steps. First, a stratified sample of individual FEMA mitigation grants was created. The sample was stratified by hazard type (earthquake, wind and flood) and mitigation type (project and process activities), for a total of six strata. Second, the benefit-cost ratio for an individual project within a stratum was calculated. Third, the benefits and costs from the sample were scaled up to the entire population of project and process activities. All mitigation grant activities were classified into one of the six strata. Activities within a stratum do not contribute equally either to total benefit or to total cost. It is likely that a small number of costly activities dominate both cost and benefit. To ensure

representative results, this fact was reflected in the sample. The sample included 89 grants for project activities, costing $458 million (in 2004 constant dollars), and 47 grants for process activities, costing $114 million.

Using the tools outlined above, expected annualized losses for each property affected by the mitigation grant, pre- and post-mitigation, were calculated and the difference calculated to be the annualized benefit of mitigation for that property. The present value of the annualized benefit for these sampled properties was calculated and divided by the present value of the cost of the mitigation efforts. The result was taken to be the benefit-cost ratio for the project. The benefit-cost ratio for process mitigation activities was calculated in a slightly different fashion as described above. Once sample grant benefit-cost ratios were calculated for each grant, the average of these figures was taken as the benefit-cost ratio for the stratum sample. Recall that each stratum contains a number of grants that were not sampled and whose benefit is unknown. However, their costs are known. The total cost of the stratum (sampled and not sampled) was multiplied by the benefit-cost ratio for the stratum sample. The product is the estimated benefit for the entire stratum, including grants that were included in the sample and those that were not. The sum of the estimated benefits for all strata is the total estimated benefit of the population of grants (referred to as the estimated population benefit). The sum of the costs for all strata is the total cost of the population of grants (population cost). The ratio of the estimated population benefit to population cost is the population benefit-cost ratio.

Earthquake mitigation results

Benefit-cost ratios were calculated for each stratum. The earthquake stratum of grants for project mitigation activities includes grants for both structural activities (e.g., base isolation of public buildings) and nonstructural activities (e.g., retrofit of pendant lighting in schools). Overall, the stratum sample included 25 grants involving 128 buildings. Pendant lighting projects in schools accounted for the majority of the buildings analyzed in this stratum, with one grant addressing the replacement or mitigation of seismically vulnerable light fixtures in 78 sample buildings. Higher cost grants included seismic upgrades and seismic safety corrections of hospitals, university buildings, and other public buildings. The simple average benefit-cost ratio for the 25 grants in this stratum is 1.4, with a standard deviation of 1.3. The total benefit for this stratum is $1.2 billion. Individual grant benefit-cost ratios range from near zero for a nonstructural retrofit to an electricity substation (intended to reduce physical injury to workers) to 3.9 for a nonstructural retrofit of a hospital.

The largest component of benefits in the earthquake project stratum was the reduction of casualties, which accounted for 62 percent of the total benefits. Analysis shows that a reduction of about 542 statistical future injuries and 26 deaths in this stratum is expected, for which federal guidelines suggest it would be acceptable to spend approximately $130 million. The mean benefit per grant is about $6.3 million, with a standard deviation of $6.4 million. The projects with zero calculated casualty benefits included electrical substation upgrades (although admittedly some indirect reduction in casualties is possible, but could not be estimated), a school arcade replacement, and nonstructural mitigation activities to emergency power and communication facilities (rather than patient services) in a hospital. Three earthquake grants provided environmental or historical benefits, including improving water quality, protecting

historic buildings, and positive health benefits. The highest environmental benefit was for an earthquake retrofitting of a police headquarters building ($293,000), while the lowest pertains to health benefits of a hospital retrofit. The average benefit of these three grants is nearly $143,000, and they accounted for less than 1 percent of the total benefits in the earthquake project grant stratum.

Wind damage results

Although several mitigation measures are included in the sample grants for the wind project grant stratum, the majority are hurricane storm shutters and safe rooms. HAZUS®MH readily handles property benefit calculations for hurricane storm shutters. However, supplemental methodologies were developed by the study investigators to estimate property damage impacts of tornadoes and casualty impacts for both hurricanes and tornadoes. Benefit transfer methods were used to estimate environmental/historic benefits.

The simple average benefit-cost ratio for the 42 grants in the wind project stratum sample was 4.7, and the standard deviation was 7.0. The total estimated benefit for this stratum is $1.3 billion. Individual grant benefit-cost ratios range from less than 0.05 for retrofit of a police department building to greater than 50, for a variety of utility protection measures. Property loss benefits can be significant, with reductions measuring up to 4 times the cost of the retrofit. The sample average benefit-cost ratio associated with property loss reduction is 0.59. The estimated total reduction in property loss for all wind project grants (not just those in the sample) is $166 million. Casualty benefits apply to 25 grants in the wind stratum sample. All of these projects are either hurricane shelters or tornado safe rooms. The hurricane grants involved mitigation of multiple properties, usually schools; however, not all of the schools are on the shelter inventory. The methodology calculated benefits for only those schools that also serve as hurricane shelters. Collectively, the schools that met this condition were able to shelter, at capacity, about 33,189 evacuees. The tornado grants involved the building of safe rooms in public and private spaces, the majority of which were community shelters (sheltering 750 to 1,000) with one notable exception that sponsored the construction of safe rooms in hundreds of private residences. Considering both types of wind project grants — hurricane and tornado — together, mitigation activities reduced casualty losses in the sample by an amount equivalent to about $108 million, or an estimated $794 million for all wind project grants. The per-project mean casualty benefit is $4.3 million.

Flood damage results

HAZUS®MH damage functions formed the basis for estimating property damage resulting from flooding. The hazard calculations, however, were performed outside of the HAZUS®MH flood module because this component was not available at the time of this study. Instead, an alternative methodology was developed that used a probabilistic approach to locate properties in the flood plane and to estimate the expected distribution of flood heights. Casualties and displacement costs, and historic site and environmental benefits were calculated separately using other methodologies. Because all mitigation measures applied to residential properties, no business interruption benefit was calculated. The study investigators coded 71 grant files (consisting of 990 properties) into the project database. Over half these properties could be

geocoded resulting in a final selection of 483 properties corresponded to 22 grants. The majority of the grants in the flood project grant stratum were for residential structures that had experienced repeated flooding. Costs associated with residential flooding included displacement costs for the families to relocate while their homes underwent repair. By buying out repeatedly flooded properties, mitigation activities reduced displacement expenditures. Twenty-two sampled grants included sufficient information to estimate displacement costs. The total sampled stratum benefit is $2.3 million. The total of all benefits realized for each grant ranged from $0.19 to $116.5 million, with a standard deviation of $27.3 million. The high standard deviation is directly attributable to the differences in the number of acquisitions. All individual flood grants had benefit-cost ratios greater than 1.0, with an average benefit-cost ratio of 5.1, a minimum of 3.0, a maximum of 7.6, and a standard deviation of 1.1.

Results for process activities

We turn now to benefits estimated for process activities. Based on logic and effectiveness found in other contexts, there is reason to believe that grants for process mitigation activities provide positive net benefits in many situations. Project mitigation activities in many cases would never take place if a process activity had not generated the initial plan or building code that led to implementation. A common sense conclusion is that when net benefits from mitigation in a particular category, exclusive of a grant process for activities, are large, then a small grant certainly cannot reduce the net benefits by much; hence, any grant in that category is likely to be positive. However, when actual mitigation was quite costly, it was less likely that a grant for process activities was going to lead to positive net benefits, though the claim can be made that without the process grant the project grant might never have been implemented. A conservative estimate of the benefit-cost ratio for most grants for mitigation planning is about 1.4 based on previous studies most applicable to multihazard grants. For grants for activities involving building codes a conservative estimate is higher than for multihazard grants, at a value of approximately 4. Grants for building code activities likely will have a larger benefit-cost ratio than grants for information/warning and hazard mitigation plan activities.

Total benefits and benefit-cost ratios for all hazards

The estimated total population benefits and costs just described for project and process activities for the three hazards are summarized in Table 3. The results indicate that the present value discounted benefits for FEMA hazard mitigation grants between mid-1993 and mid-2003 is $14.0 billion. This is juxtaposed against grant costs of $3.5 billion, for an overall benefit-cost ratio of 4.0. The table summarizes the calculation of stratum benefit-cost ratio. The benefit-cost ratios for project mitigation activities in descending size are 5.1 for flood, 4.7 for wind, and 1.4 for earthquake. Benefit-cost ratios are the reverse order for grants for process mitigation activities, with 2.5 for earthquake, 1.7 for wind, and 1.3 for flood.

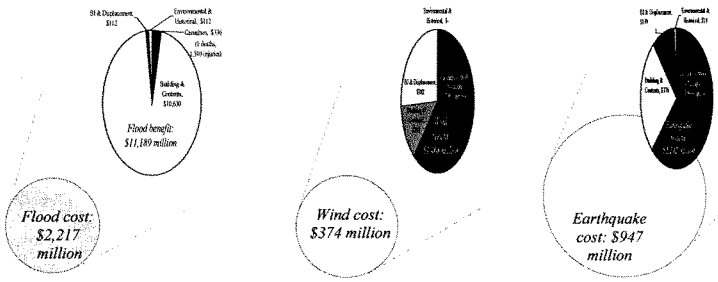
Table 3 Scale-up of results to all FEMA grants
(all $ figures in 2004 constant dollars)

	Project Grants			Process Grants			Total
	Quake	Wind	Flood	Quake	Wind	Flood	
Total grant cost ($M)	867	280	2,204	80	94	13	$ 3,538
Total grant benefit ($M)	1,194	1,307	11,172	198	161	17	$ 14,049
Total benefit-cost ratio (BCR)*	1.4	4.7	5.1	2.5	1.7	1.3	4.0
Standard deviation of BCR	1.3	7.0	1.1	n.a.	n.a.	n.a.	n.a.

*Row 2 (benefit) divided by row 1 (cost) equals row 3 (benefit-cost ratio)
n.a. = not applicable because of estimation method used

As shown in Figure 1, in terms of contribution to the benefit-cost ratio overall, casualty reduction was by far the dominant factor in earthquake and wind, and avoidance of property damage was the dominant factor in flood. This is attributable to a great extent to the life safety feature of most earthquake and wind-related project grants, and the property emphasis of flood grants (in addition to the longer warning time for the latter). Given the sample studied, business interruption (BI) avoidance was significant in earthquake and wind, but not for flood. This stems from the fact that the vast majority of flood project grants were for buyouts of residences in floodplains. Environmental and historic benefits proved to be very minor in dollar terms, but still do affect a large number of people in each affected community.

Figure 1 Comparative Project Benefits and Costs by Hazard



After scaling up from sample to the population, mitigation grants will prevent an estimated 4,699 injuries and 223 deaths over the assumed life of the mitigation activities, which in most cases is 50 years. Grants for wind mitigation activities will prevent the most injuries (1,790) and the most deaths (156). As with any casualty figures, these estimates require caution, as they are based on a scientifically sound methodology, but are difficult to validate because of limited available empirical data. The grants examined not only benefit society by reducing financial expenditures, but also, and equally as important, reduce associated stress and family interruption. While consideration was not able to be given to the financial benefit of these reductions, they are an important component of the benefit of mitigation.

The sampling approach used to create the strata produces some uncertainty regarding the true population benefit-cost ratio. A series of statistical tests was performed to estimate the degree of systematic error and uncertainty produced by this approach and it was found that this approach produced an average error of the benefit-cost ratio of less than 0.03, with a standard deviation of error of 0.39, where error is defined as the difference between estimated and true population benefit, as a fraction of true population benefit.
Many of the parameters of the mitigation effort are imperfectly known, as are many of the parameters used to model the resulting benefit. These uncertainties can include the site

characteristics of affected facilities: soil type, physical aspects of the facility such as the code design level, or their social and economic features such as the number of occupants. Uncertainties for process mitigation activities can include the number of people influenced (e.g., by a public-information campaign) and the material impact of the process (e.g., the degree to which a code change actually improves building performance). To deal with these uncertainties, sensitivity analyses were performed to quantify the effect that these input uncertainties have on the final calculations. An example would include how uncertainty in site-soil classifications affects the total benefit of earthquake project grants. As uncertainties propagate through the analysis they create variance in the estimate of the total mitigation benefit. The challenge was to estimate the mean value of total benefit and, perhaps, a measure of its uncertainty, such as the standard deviation considering the variability of the input uncertainties. The report provides many details of methods and calculations that detail the sensitivity and uncertainty analyses to substantiate the claim for robust estimates of benefit cost ratios for mitigation activities.

Community/Case Studies

The study of mitigation activities in a purposive sample of eight communities indicated that the benefits calculated for individual grants are conservative because federally-funded activities often foster additional mitigation activities and generate additional benefits. The community analysis found that FEMA mitigation grants are cost effective, often lead to additional non-federally funded mitigation activities, and have the greatest benefits in communities with institutionalized hazard mitigation programs. In the communities studied, which were sampled from around the country, FEMA mitigation grants were a significant part of the community's mitigation history. FEMA funded mitigation activities brought about the most additional non-federally funded mitigation benefits if the grant helped to institutionalize mitigation in communities. Interviewees reported that the grants were important in reducing community risks, preventing future damages, and increasing a community's capability to reduce losses from natural hazards. Most interviewees believed that the grants permitted their communities to attain mitigation goals that might not otherwise have been reached and that the mitigation benefits of the activities funded by the grants went beyond what could actually be measured quantitatively (e.g., increased community awareness, esprit de corps, and peace of mind).

Conclusion

Perhaps the most comprehensive study every undertaken to estimate the cost-effectiveness of disaster mitigation shows that FEMA-funded mitigation grants save far more than they cost. The $3.5 billion spent between 1993 and 2003 are estimated to save American society an estimated $14 billion in avoided future losses, or $4.00 per public dollar spent. These grants were calculated to prevent physical damage and economic disruption, avoid hundreds of fatalities and thousands of nonfatal injuries, prevent environmental damage and the loss of historic buildings, and reduce human trauma. Moreover, on average, FEMA-funded grants are estimated to be cost-effective across the spectrum of activities: whether project or process, whether for wind, flood or earthquake.

In addition to the benefits directly attributable to FEMA-funded mitigation efforts, detailed study at the level of eight communities indicates that FEMA mitigation grants tended to inspire additional non-federally-funded mitigation efforts, effectively multiplying the benefits of federal spending at the community level.

These conclusions were reached using well-established, thoroughly defensible principles of economics, catastrophe loss estimation, and advanced statistical methods. The study and its results were produced independently of FEMA. The source data, methodology, and findings were thoroughly vetted by a panel of experts acting independently of the analysts, and are publicly available for further independent assessment. The U.S. Congress commissioned this study and has been informed of its conclusions.

Hearing on

"Saving Lives and Money Through the Pre-disaster Mitigation Program"

Before the United States House of Representatives

Committee on Transportation and Infrastructure

Subcommittee on Economic Development, Public Buildings and Emergency Management

Testimony of The Honorable Betty Knight
President, National Association of Regional Councils
Commissioner, Platte County, Missouri
Board Member, Mid-America Regional Council

April 30, 2008

Chairwoman Norton, Ranking Member Graves and members of the Subcommittee, I am Betty Knight, Platte County, MO Commissioner, President of the National Association of Regional Councils (NARC) in Washington, DC and Board Member of the Mid-America Regional Council in Kansas City, MO. Please accept this written testimony for the Congressional Record in response to pre-disaster mitigation on behalf of the National Association of Regional Councils (NARC).

The National Association of Regional Councils is a national non-profit trade organization that serves as the national voice for regionalism, advocating for multi-regional cooperation as the most effective way to address community planning and development opportunities and issues. NARC is governed by local elected officials and represents member organizations composed of multiple local governments that work together to improve America's communities - large and small, urban and rural. Through advocacy and assistance, NARC's mission is to increase funding and authority for regional councils, regardless of their size, to strengthen American regions and communities in transportation, economic and community development, homeland security and the environment.

Regional councils (RCs) deliver an array of federal, state and local programs that provide planning support and technical assistance to local governments in the areas of transportation, economic and community development, homeland security and the environment. The network of nationwide regional councils includes organizations such as Metropolitan Planning Organizations (MPO), Councils of Government (COG), Rural Planning Organizations (RPO), Economic Development Districts (EDD) and Local Development Districts (LDD). Regional Councils and MPOs are created by compact and enabling legislation as consortia of local governments. As such, regional councils and MPOs represent local elected officials from cities, counties, townships, and villages. Their mission being the delivery of services and programs for economic development, first responder and 911, health care, infrastructure development, aging services, air and water quality, land-use planning, work force development, and transportation at a regional level.

One important function that many regional councils perform is that of regional pre-disaster preparation and planning that utilizes regional solutions to sustaining and improving vital national homeland security functions, which are imperative to the safety and security of communities. Regional councils have over forty years of expertise in pre-disaster regional coordination, management and mitigation with federal, state and local governments, as well as the private sector, and represent 35,000 of the 39,000 local, general purpose governments in the United States (counties, cities, townships, towns, villages, and boroughs). Regional councils are proven effective in overcoming multi-jurisdictional barriers and preparing necessary response plans and assisting our nation's heroic first responders. Many regional councils provide data, planning, technical assistance,

management, and other information and services for the purpose of finding effective means of mitigating the detrimental effects of nature on the population, infrastructure and cultural fabric.

Manmade and natural disasters do not stop at city, county or state boundaries and, therefore, regional cooperation to plan, prepare, respond and mitigate accordingly is necessary to ensure and protect the safety and security of our nation's citizens, resources, communities and future. The work and resources of regional councils should be more readily utilized and supported by federal, state and local governments nationwide to strengthen the homeland security, pre- and post-disaster, promote innovation through regional government approaches, and save lives and money through regional strategies.

Documented Support

The unfortunate events of 9/11 and Hurricanes Katrina and Rita underscore the importance of timely pre-disaster homeland security planning and mitigation to protect the safety and security of our families, communities and country. In order to bolster our nation, both pre- and post-disaster, it is necessary to recognize and support the critical roles regional councils play in coordination, planning and sustained response on a multi-city, county, state and regional basis. Mitigation programs provide the opportunity not only to develop plans to reduce risks, but more importantly, to implement those plans before disaster strikes.

There are numerous recommendations, catalogued successes and supportive research for integrating the regional approach in pre-disaster mitigation, emergency preparedness and response activities. In fact, March and May 2007 Government Accountability Office (GAO) reports respectively stated, that all Department of Homeland Security planning, training, and exercises efforts should "...fully support preparedness, response, and recovery responsibilities at a jurisdictional and regional basis... and expand regional collaboration." The reports also urged Congress, to "examine regional and multi-state planning and preparation" as a high priority.

A 2004 U.S. Government Accountability Office report also stated,

> Particularly since the events of September 11, 2001, regional approaches have been recognized as a key way to address the threat of terrorism. In many urban areas, the threat of terror is regionwide, and resources for responding to that threat are distributed among many jurisdictions. Therefore, the most effective responses are coordinated and planned across the region, rather than being jurisdiction-specific.... Regional organization structures, flexibility to account for local conditions, and strategic planning are key characteristics of regional coordination. Given

> the important role that regional planning and governance can play in improving national preparedness, these developments warrant continued congressional oversight.

Not only are federal agencies receiving recommendations and taking note, but leadership in states like Texas is promoting the regional role in pre-disaster mitigation. According to a 2008 report Governor Perry's Task Force on Evacuation, Transportation and Logistics:

> The Governor's 24 Councils of Governments (COGs) are well-organized regions that provide a useful framework for regional planning. COGs should coordinate the development of regional evacuation plans by bringing together hurricane evacuation areas, state agencies, local governments and private stakeholders... Regional response and evacuation plans must be exercised regularly.

Regional Council Examples

A well pre-planned, coordinated response to any emergency – manmade or natural – can reduce the loss of lives, property, commerce and communities. A regional response to disasters is best developed through existing councils of governments, planning commissions, development districts and MPOs. These organizations can:

- Bring together the necessary organizations and people to develop a comprehensive strategy for regional response based on local planning efforts;
- Identify strengths and weaknesses in any response system;
- Identify equipment needed to plan and respond effectively while avoiding unnecessary and expensive duplication;
- Establish understandings among local responders on equipment needs and use;
- Map escape routes, shelters, hospitals and supply areas;
- Map all terrain – both natural and manmade;
- Coordinate communications among various responders through interoperable systems; and,
- Hold periodic regional training sessions on pre-disaster mitigation and response.

Kansas City, MO – Mid-America Regional Council of Governments (MARC)

The greater Kansas City area includes 1.7 million people in eight counties, three on the Kansas side and five in Missouri, and covers about 3,800 square miles, an area roughly the size of Connecticut. The eight counties include 116 city governments and are served by more than 75 fire and EMS agencies. These counties, cities, and agencies are all coordinated through the Mid-America

Regional Council, the region's association of local governments and metropolitan planning organization. MARC is also home to the Metropolitan Medical Response System Committee, a Local Emergency Planning Committee, a Metropolitan Emergency Managers Committee and the Regional Homeland Security Coordinating Committee (RHSCC).

MARC's RHSCC is comprised of 30 local leaders, including elected officials, fire chiefs, police chiefs, city and county administrators, and others from the existing committees. It provides leadership and coordination of the many homeland security and domestic terrorism preparedness efforts in the greater Kansas City metropolitan area with a regional, all-hazards approach. The committee strives to maximize public and private resources to protect the citizens of the greater Kansas City metropolitan area.

The overall strategy addresses the entire emergency management cycle (mitigation, preparedness, response and recovery); the RHSCC decided to give priority, at least initially, to developing the region's response capabilities, focusing on four key areas: training personnel, providing material resources, developing plans and policies, and building relationships.

Last July, the U.S. Department of Homeland Security awarded a grant award of $8,350,000 to the Greater Kansas City area as part of the department's Urban Area Security Initiative (UASI), which distributed nearly $750 million to 46 metropolitan areas in Fiscal Year 2007. Since 2003, the Kansas City region has received about $40 million through the UASI program. The RHSCC allocates the funds to promote regional preparedness, using an all-hazards approach to investments that will help local agencies not only prepare for and respond to potential terrorist threats, but also to natural disasters and accidents. This funding will be utilized for projects such as regional interoperable communications, training and exercise programs, disease surveillance, medical surge and mass care capabilities, the Terrorism Early Warning center, and citizen preparedness efforts.

Washington, DC – Metropolitan Washington Council of Governments (COG)

The National Capital Region (NCR) faces unique homeland security preparedness challenges because the Nation's capital and the center of our Federal government reside within its boundaries. In addition to serving as the home of over 4.5 million residents and the workplace of over 340,000 Federal workers, an average of 20 million tourists visit the NCR each year. The NCR is the center of all three branches of Federal government, 231 Federal departments and agencies, and over 2,100 political, social, and humanitarian non-profit organizations. It is the home to monuments and icons of American life, history, and politics – including some of the most important symbols of national political power and democratic heritage.

The NCR is the fourth largest U.S. metropolitan area in terms of population and

gross regional product, as well as the home to more than 40 colleges and universities and a large number of companies. A direct terrorist attack or natural or man-made disaster within the NCR could produce catastrophic losses in terms of human casualties and political and economic damage, in addition to profound damage to public morale and confidence.

Only a few days following the terrorist attacks on the World Trade Center and Pentagon, the Metropolitan Washington Council of Governments (COG) moved quickly to lend its full support to the task of strengthening preparedness, coordination, communication and response in the National Capital Region. The region as a whole – local, state and federal government, and the critical private sector – all stepped forward in ways that could scarcely be imagined prior to September 11.

The Metropolitan Washington Council of Governments (COG) is a regional organization of local government elected officials, and area members of the Maryland and Virginia legislatures and the United States Congress representing districts in the metropolitan Washington area, totaling 19 participating local jurisdictions. Since 1957, COG has served as a venue for regional collaboration on a wide range of public policy issues, such as transportation, environment, public safety, human services, planning and development. COG is an independent, non-profit association, supported by financial contributions from local governments, federal and state grants and contracts, and donations from foundations and the private sector.

This *National Capital Region Homeland Security Strategic Plan 2007-09* developed by the National Capital Region (NCR) Homeland Security Partners emphasizes preparedness through regional collaboration. It draws all jurisdictions and their constituents into a long-term, unified effort to improve "all–hazards" preparedness across the NCR. This *Plan* lays out our Region-wide strategy for strengthening our capabilities across all phases of preparedness (prevention, protection, response, and recovery) to manage homeland security risks. It sets our course and provides a strategic approach for planning and decision-making. The jurisdictions that comprise the NCR have a long established tradition of collaboration and mutual aid to deal with such large scale, region-wide threats and events.

As representatives of the jurisdictions and other organizations, and as stewards of the Region's safety and security, it is the responsibility of NCR to "Build and sustain an integrated effort to prepare for, prevent, protect against, respond to, and recover from 'all-hazards' threats or events."

Arlington, TX – North Central Texas Council of Governments (NCTCOG)
"Enhancing lasting partnerships and proactive Emergency Preparedness initiatives through advocacy, communication, and collaboration. "

The purpose of North Central Texas Council of Governments (NCTCOG) is to strengthen both the individual and collective power of local governments and to help them recognize regional opportunities, resolve regional problems, eliminate unnecessary duplication of efforts, make joint regional decisions, and develop the means to implement those decisions.

In response to a nationally identified need to reduce our vulnerability to disasters, the North Central Texas Council of Governments (NCTCOG) Department of Environmental Resources, in cooperation with the Emergency Preparedness, Transportation, and Research & Information Services Departments, is coordinating multi-jurisdictional Hazard Mitigation Action Planning (HazMAP) for the 16-county region, about 5.3 million people (and growing faster). The area of the region at 12,800 square miles is actually 400 square miles larger than Maryland and it has 236 member governments. Thus, it is expected that the level of detail possible in the HazMAP will be similar to many state plans. This includes, but is not limited to, detailed mapping for dams, earthquakes, expansive soils, floods, hail, icy roads, landslides, levees, steambank erosion, tornadoes, wind, wildfires, etc.

Hazard mitigation is the cornerstone of the Federal Emergency Management Agency's (FEMA) approach to reducing our nation's vulnerability to disasters. Hazard mitigation is defined as the actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. This definition distinguishes actions that have a long-term impact from those that are more closely associated with immediate preparedness, response, and recovery activities. Hazard mitigation is the only phase of emergency management specifically dedicated to breaking the cycle of damage, reconstruction, and repeated damage. HazMAP is a multi-jurisdictional planning process consistent with the Disaster Mitigation Act of 2000 (DMA 2000) and the requirements of the State of Texas Division of Emergency Management (TxDEM) that is putting into place a framework for coordinated and focused hazard mitigation actions both at the local and regional levels. Important elements include:

- Guiding the effort is a HazMAP Review Team from among NCTCOG's many advisory committees, supported by an extensive outreach effort called HazMAP Partners, with government, private sector, and public representatives;
- Identifying and prioritizing the risks of a range of natural and technological hazards;
- Considering where improved mitigation measures could help reduce hazard risks and vulnerability; and,
- Working with our members to craft an initial five-year implementation plan that will ensure continued local eligibility for federal funding.

NCTCOG received funding from FEMA, through TxDEM, to support this initial two-year effort. A $420,000 federal grant is being matched with $140,000 of in-kind support from NCTCOG's iCommunities initiative; thus, no cash match was

requested from the region's cities and counties.

The Stafford Act (amended by DMA 2000) requires FEMA-approved mitigation action plans by November 1, 2004, in order for local governments to participate in certain federal grant programs for disaster planning and relief. Based on anticipated federal rules, the process will include a five-year cycle for plan amendments with ongoing implementation; therefore, NCTCOG will be involved for the long haul.

NCTCOG values its partnerships among the various levels of government, and between the public and private sectors, is critical to the success of any planning process. For HazMAP, NCTCOG has long-standing positive relationships with all of the key Federal and State agencies, as well as important private sector organizations such as homebuilders, contractors and Chambers of Commerce.

San Antonio, TX – Alamo Area Council of Governments (AACOG)

The Alamo Area Council of Governments Hazard Mitigation Plan is designed to protect people and property from the effects of natural and man-made hazards. By taking action today, we can reduce the likelihood of injuries, loss of life and damage to our communities. In addition to developing a framework for action, the Regional Mitigation Plan enables participating counties and municipalities to apply for pre- and post-disaster mitigation funding that would not otherwise be available. This funding can help local jurisdictions implement desired goals and objectives outlined in the plan.

Participants in the AACOG regional planning process formulated the following guiding principles, which categorize the types of mitigation strategies ultimately adopted at the local level.

- Communication and Coordination
- Financial Resources
- Technical Assistance
- Training
- Planning
- Education and Public Participation
- Critical Facilities
- Infrastructure and Utilities
- Weather Warning Systems and Hazard identification Technologies
- Environmental Concerns

For each principle, regional-level goals were established along with more refined objectives. Each county and municipality was responsible for developing their own Mitigation Action Plan, which identified jurisdictionally-specific actions, written in the form of policies and projects. Each Mitigation Action Plan includes assigned responsibilities, potential funding sources and a timeline for implementation. Action plans link the broad ideas established in the AACOG

Regional Mitigation Plan with strategic, action-oriented tasks.

Federal Involvement

While most view state and local jurisdictions' ability to detect, prevent and respond to a terrorist attack as a high priority, the function is inherently non-federal. Federal resources and expertise, however, are needed to manage the crisis, and provide support to state and local assets when an attack overwhelms their resources. Experience has shown that it will take the coordinated efforts of numerous jurisdictions and governments to successfully protect America's cities and counties in metropolitan and rural areas throughout the nation. Therefore, all disaster strategies need to be incorporated into a regional response. According to the Federal Emergency Management Agency (FEMA), pre-disaster mitigation is important in the following ways:

- It creates safer communities by reducing loss of life and property damage. For example, the rigorous building standards adopted by 20,000 communities across the country are saving the nation more than $1.1 billion a year in prevented flood damages.
- It allows individuals to minimize post-flood disaster disruptions and recover more rapidly. For example, homes built to NFIP standards incur less damage from floods. And when floods do cause damages, flood insurance protects the homeowner's investment, as it did for the more than 200,000 Gulf Coast residents who received more than $23 billion in payments following the 2005 hurricanes.
- It lessens the financial impact on individuals, communities, and society as a whole. For example, a recent study by the Multi-hazard Mitigation Council shows that each dollar spent on mitigation saves society an average of four dollars.

FEMA currently administers three main mitigation programs: the Hazard Mitigation Grant Program, the Flood Mitigation Assistance program, and the Pre-Disaster Mitigation program. The funding for these homeland security activities are directed to state and local governments, particularly for the development of hazard mitigation plans and for implementing cost-effective hazard mitigation planning and projects before disasters occur. The "success" of these programs depends directly upon the readiness of the recipient community to effectively utilize the grants and pursue the same partnered, comprehensive approach. However, the regional approach is not stressed as the unifying element in the pre-mitigation disaster strategy. This is partly due to the fact that regional councils or councils of governments cannot be a primary grantee under these FEMA programs. These types of planning grants are provided to state and local governments and the COG's may assist communities by developing grant applications, as well as serving as a point of contact for grant administration and hazard mitigation plan development. They cannot, however, be a designated agent for a planning grant. This should be amended.

In fact, the Robert T. Stafford Disaster Mitigation Act (PL 106-390), clearly states

that special measures (before or in the wake of a disaster) are necessary and designed to assist the efforts of the affected States and local governments in expediting the rendering of aid, assistance, and emergency services, and the reconstruction and rehabilitation of devastated areas. This omits the recognition and vital role of regional councils of governments in comprehensive disaster preparedness and assistance plans, programs, capabilities.

Local governments are frequently promised assistance from the federal government and other sources, but there is no unifying mechanism to implement approaches that can make a lasting impact on vulnerability reduction. The best known federal program that encourages a regional approach is the Urban Area Security Initiative (UASI) grant program. UASI is designed to set a strategic direction for the enhancement of regional response capability and capacity, and reduce area vulnerability by strengthening the cycle of response and by ensuring that potential targets are identified, assessed and protected. Grants are awarded based on a formula determined by a combination of factors including population density, critical infrastructure and threat/vulnerability assessment. More programs like this, bundled with a variety of other initiatives, need to be established at the federal level to trickle down to local government and regional councils of governments, maximizing the ability of the region to develop a strategy for a sustainable pre-disaster mitigation and post-disaster response.

Furthermore, federal funding needs to be apportioned to states based on identified potential terrorist targets and on tendency toward natural and man-made disasters. Adequate federal funding and increased regional authority are required for the regional development of interoperability, preparedness and response. This includes the establishment of a federal grant program that NARC has been advocating for since 2003 to provide funding to approved regional councils of government to develop and promulgate homeland security planning and response on a regional level with federal, state, regional, local and private sector partners.

Conclusion

Homeland security efforts have and will continue to play a pivotal role in shaping the activities and policies within public agencies at all levels of government. No single agency works in a vacuum, and man-made and natural disasters do not stop at city, county or state boundaries. Therefore, regional cooperation to plan, prepare, mitigate and respond accordingly is necessary to ensure and protect the safety and security of our nation's citizens, resources, communities and future. Regional coordination and cooperation don't always come easily, but the relationships built today will strengthen tomorrow's response.

The National Association of Regional Councils (NARC) and its member organizations offer its assistance moving forward. Thank you for allowing me to submit these comments.

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