

Department of Homeland Security **Office of Inspector General**

FEMA's Progress in Clarifying its "50 Percent Rule" for the Public Assistance Grant Program






OFFICE OF INSPECTOR GENERAL
Department of Homeland Security

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August 7, 2014

MEMORANDUM FOR: Brad Kieserman
Acting Assistant Administrator, Recovery
Federal Emergency Management Agency



FROM: John V. Kelly
Assistant Inspector General
Office of Emergency Management Oversight

SUBJECT: *FEMA's Progress in Clarifying its "50 Percent Rule" for the Public Assistance Grant Program*
FEMA Disaster Numbers 4085-DR-NY and 4086-DR-NJ
Audit Report Number OIG-14-123-D

Attached for your information is our final letter report, *FEMA's Progress in Clarifying its "50 Percent Rule" for the Public Assistance Grant Program*. We audited the Federal Emergency Management Agency's (FEMA) progress in clarifying its "50 Percent Rule" used to make repair-versus-replacement decisions in the Public Assistance grant program. Our objective also included determining any potential impact on Hurricane Sandy repair-versus-replacement decisions if FEMA does not clarify its "50 Percent Rule." We discussed the results of this audit with FEMA officials during the course of the audit and provided a draft report to them on January 6, 2014. The report contains four recommendations.

Within 90 days of the date of this memorandum, please provide our office with a written response that includes your (1) agreement or disagreement, (2) corrective action plan, and (3) target completion date for each recommendation. Also, please include contact information for responsible parties and any other supporting documentation necessary to inform us about the status of the recommendations. Until we receive and evaluate your response, we will consider the recommendations open and unresolved.

Consistent with our responsibility under the *Inspector General Act*, we will provide copies of our report to appropriate congressional committees with oversight and appropriation responsibility over the Department of Homeland Security. We will post the report on our website for public dissemination.



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Major contributors to this report are Christopher Dodd, Acting Director; John Polledo, Auditor-In-Charge; and Patti Smith, Senior Auditor.

Please call me with any questions at (202) 254-4100, or your staff may contact Tonda L. Hadley, Deputy Assistant Inspector General for Audit Services, Office of Emergency Management Oversight, at (214) 436-5200.



Background

FEMA's Public Assistance program provides financial assistance to recover from a wide variety of events, including hurricanes, earthquakes, tornadoes, floods, tsunamis, and terrorist attacks. FEMA obligates an average of \$10 billion in Disaster Relief Funds annually, with the majority being for Public Assistance grants. Much of these funds are for the repair or replacement of damaged facilities. One of the most important recovery eligibility decisions FEMA makes following a declared disaster can be whether to fund the repair or replacement of damaged buildings. Generally, FEMA will replace a facility if the estimated cost to repair it exceeds 50 percent of the estimated cost to replace it. For this calculation, repair estimate is the numerator and replacement estimate is the denominator. FEMA uses its "50 Percent Rule" to calculate this percentage.

In FEMA's August 1, 2012, response to our report, *FEMA's Decisions to Replace Rather than Repair Buildings at the University of Iowa* (Report Number DD-12-17), FEMA's Administrator said, "we agree with the OIG that FEMA's current policy and methods for implementing the 50 Percent Rule are in need of significant review and revision" and "FEMA strongly agrees with the Report's recommendation to review and revise the policies and tools supporting decisions to repair or replace disaster-damaged facilities." The Administrator also said FEMA would reprioritize and accelerate a thorough review of the 50 percent repair-or-replace rule and that the review would include highlighting tools, job aids, and training to implement the policy changes. Appendix A provides additional background information on FEMA's 50 percent repair-or-replace rule policy and an overview of the criteria applicable to this audit.

Results of Audit

Applying FEMA's 50 percent repair-or-replace rule correctly can be very difficult and susceptible to error, misinterpretation, and manipulation. Our audit results have demonstrated that millions of dollars are at risk from incorrect 50 percent repair-or-replace rule decisions. In fiscal years 2012 and 2013, we recommended FEMA disallow over \$100 million of costs that resulted from questionable 50 percent repair-or-replace decisions in five audits. In those audits, FEMA made the replace decisions based on collective 50 Percent Rule estimates of \$31 million for repairs and \$50 million for replacements (based on FEMA's application of its policy). Due to various problems we identified, we ultimately recommended that FEMA should have paid \$226 million to repair facilities, instead of \$327 million to replace them. In our discussions with FEMA officials, they acknowledged the difficulties involved in reversing replacement decisions after they had communicated those decisions to grant recipients.



We analyzed the results of previous audits and identified 11 issues/weaknesses with FEMA's implementation of its 50 percent repair-or-replace rule. We believe that addressing these issues will make FEMA's decisions to repair or replace facilities less costly and more fair and consistent. Overshadowing these issues is the 50 percent threshold itself. The replacement threshold, by definition, appears much lower than cost effectiveness dictates. However, the formula used to arrive at the 50 percent threshold includes some costs and excludes other costs. Consequently, the 50 percent threshold represents a ratio that has little to do with whether it will cost the taxpayer more or less to replace rather than repair the facility.

While FEMA is making progress in clarifying the rule, it has not yet published a draft revised policy. As a result of our audits, some FEMA regions have established regional policies to tighten controls over 50 percent repair-or-replace rule decisions until FEMA headquarters issues revised policies. However, FEMA needs to review and revise its agency-wide policy for all regions and establish a formal training program for staff and contractors responsible for developing and reviewing the rule's underlying cost estimates.

Finally, we intended this audit to assess the potential impact on FEMA's Hurricane Sandy repair-versus-replacement decisions if it did not clarify its 50 percent repair-or-replace rule. As of April 2014, FEMA officials in New York and New Jersey made 15 repair-or-replace decisions that resulted in 7 repair decisions with estimated costs totaling \$2.4 million and 8 replacement decisions with estimated costs totaling \$3.5 million.¹

Although FEMA is developing new policies, FEMA approved these eight Hurricane Sandy replacement projects with a 50 percent repair-or-replace policy that FEMA has admitted is "in need of significant review and revision."

Findings and Observations Based on Previous Audits

Based on our past audits of disasters declared in Louisiana, Iowa, California, Alaska, and Illinois, FEMA's 50 percent repair-or-replace rule policy needs clarification. On October 24, 2012, Department of Homeland Security's (DHS) Under Secretary for Management, supported FEMA's decision to allow costs we questioned in our report on the *University of Iowa* (DD-12-17).² However, in arriving at that decision, the Under Secretary stated that he could not determine whether FEMA's decisions were "an aberration or a customary, poorly documented practice of exercising latitude" in making these types of decisions. Repair-or-replace decisions can exceed \$100 million; and the Under Secretary

¹ "Estimated costs" as presented in this report include only the amounts included in the actual 50 Percent Rule calculation as prescribed in the current FEMA policy (see appendix A).

² The DHS' Under Secretary for Management is the DHS Resolution Official for recommendations where a component disagrees with the OIG.



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ruled in favor of FEMA, not because the evidence presented showed FEMA made the correct decision, but rather because he could not determine whether FEMA had just poorly documented its decision. These facts highlight why FEMA should expedite revisions to its policy, because if FEMA makes the wrong decision either the applicant or the taxpayer is harmed.

FEMA also needs to develop a formal training program, and improve oversight to prevent further inappropriate replacement decisions. Our audits have identified significant problems with what should be included and excluded from the calculation and the manner in which FEMA develops cost estimates. FEMA's goal to "get money on the streets" quickly after a disaster strikes contributes to these problems. Further, senior FEMA officials have told us that it is difficult to reverse the decision to fund the replacement of a facility after FEMA has communicated that commitment to grant recipients. We understand FEMA's need to honor its commitments; however, that noble desire only increases the reason why FEMA needs to make not only a quick decision but also the correct decision.

Implementing the 50 percent repair-or-replace rule involves complicated estimates that attempt to apply sometimes ambiguous rules, often with incomplete damage descriptions and limited information on the building's pre-disaster design. In complicated and high dollar-value calculations, the most qualified and experienced FEMA staff and contractors, all well versed in cost estimating principles and FEMA policy, should perform and review cost estimates. Therefore, in conjunction with developing clear policies, FEMA should formally train and pre-qualify all staff and contractors involved in developing and reviewing 50 percent repair-or-replace rule calculations.

In 2011, we began encountering problems with FEMA's implementation of the 50 percent repair-or-replace rule. Appendix A provides an overview of the criteria we used in this audit and in our previous audits. Table 1 summarizes the major issues from our previous audit reports:



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Table 1: Summary of Audit Findings on 50 Percent Repair-or-Replace Rule

Report Short Title	Report #	State	Date Issued	Costs Questioned	Problems Identified
Paso Robles Joint Unified School District	DS-12-03	CA	02/09/12	\$ 12,958,864	1. Codes and standards not considered in replacement estimate.
University of Iowa	DD-12-17	IA	06/19/12	83,745,594	1. Inappropriate use of “conceptual” cost estimating. 2. No consideration of unique and specialized aspects of facility. 3. No assessment of estimate for reasonableness. 4. Insufficient supporting documentation. 5. Inclusion of code-triggered upgrades in the repair.
Ochsner Clinic	DD-12-15	LA	06/20/12	2,197,550	1. Inappropriate use of “conceptual” cost estimating. 2. Inaccurate cost estimating methodology for repair. 3. Insufficient supporting documentation.
Martinsville High School	DD-13-04	IL	01/14/13	1,136,581	1. Inclusion of code-triggered upgrades in repair. 2. Inclusion of “soft” costs.
Alaska Dept. of Natural Resources	DS-13-06	AK	04/05/13	398,186	1. Inclusion of “soft” costs.
Total Questioned Costs				\$100,436,775	

In our fiscal year 2012 audit of Ochsner Clinic, FEMA officials estimated a lump-sum replacement cost by entering basic square-foot data, along with other general factors, into a “conceptual” cost-estimating program.³ This methodology did not comply with FEMA’s Cost Estimating Format that requires FEMA to develop a detailed scope of work and itemize specific costs. To compound this error, FEMA officials took this lump-sum replacement cost and applied the replacement values to estimated damage percentages for various building elements to develop an overall repair cost estimate. In essence, FEMA used a significantly flawed estimating method as the basis of another inaccurate method.

This approach to estimating costs is not consistent with FEMA policies. Further, we are concerned that some FEMA officials may continue to use this approach unless FEMA finalizes its national 50 percent repair-or-replace rule and prohibits this methodology. Additionally, FEMA should clarify the specific circumstances when use of “conceptual” cost-estimating programs is acceptable. This type of approach can lead to dramatically

³ For the projects we reviewed, FEMA officials used the RSMMeans© Square Foot Estimator.



inaccurate estimates. For example, when FEMA used a similar method to support replacing Ochsner Clinic (Report DD-12-15), FEMA estimated that it would cost \$278,997 to repair the clinic and \$512,250 to replace it. However, it actually cost FEMA \$2,476,547 to replace the clinic, which is over four times the estimated cost to replace the clinic and over eight times the estimated cost to repair the clinic.

In our five prior audits, FEMA made the replacement decisions based on collective 50 Percent Rule estimates of \$31 million for repairs and \$50 million for replacements (based on FEMA's application of its policy). Due to various problems we identified, we ultimately recommended that FEMA should have paid \$226 million to repair facilities, instead of \$327 million to replace them

Issues/Weaknesses Related to FEMA's 50 Percent Rule

The weaknesses in FEMA's existing policy illustrate how susceptible 50 percent repair-or-replace rule calculations are to error or manipulation. They also point to the inadequate training and experience of those who perform and review the calculations. In analyzing the results of previous audits, we identified 11 specific issues/weaknesses with FEMA's implementation of its 50 percent repair-or-replace rule. We believe that addressing these issues will make FEMA's decisions to repair or replace facilities less costly and more fair and consistent. Those issues include:

1. inclusion of "soft" costs;
2. omission of building elevation in replacement;
3. inclusion of building elevation in repair;
4. use of "conceptual" cost estimates;
5. inaccurate/incomplete cost estimates;
6. inclusion of code-triggered, whole-building upgrades in the repair;
7. inclusion of Emergency Protective Measures in the repair;
8. absence of formal training/standard qualifications;
9. insufficient independent review;
10. insufficient supporting documentation; and
11. decisions made without thorough assessments.

Issue 1: Inclusion of "Soft" Costs

FEMA policy does not allow soft costs in the calculation. The formula allows only direct construction costs, or "hard" costs, in the numerator (repair) or denominator (replacement) costs. "Soft" costs include the costs for project management, architectural fees, cost escalation, and profit. However, we continue to find soft costs of all types in the calculation. Because this is an elementary mistake, it likely results from the absence of formal 50 percent repair-or-replace rule training. Some FEMA officials said this error is not very significant because they typically added soft costs to both the



repair and replacement sides of the equation. However, that response ignores the rules of math—adding the same number to both the numerator and the denominator of any fraction that is less than one will result in a larger fraction. In addition, soft cost can be higher in building replacements than in repair. Further, 50 percent repair-or-replace rule determinations can hinge on minor costs, even a 1 percent error can result in funding a new building rather than repairing the existing building. FEMA officials have told us the revised policy will clarify and specifically address the handling of these types of costs.

Issue 2: Omission of Building Elevation in Replacement Estimates

FEMA policy mandates that the replacement estimate must include all the (hard) costs of replacing the building at the existing location. Specifically, the 50 percent repair-or-replace rule states that the replacement estimate includes all work necessary to provide a new facility of the same size, design capacity, and function as the damaged facility in accordance with current codes and standards. Constructing a new building often requires elevation, or some other type of flood-proofing, to mitigate against future floods and to meet building codes. However, FEMA often excludes these costs from its estimate of replacement costs. This type of error includes not only omission of elevation, but also the omission of other required codes and standards in the replacement including compliance with the *Americans with Disabilities Act* and state and local building requirements. Excluding those amounts from the denominator increases the ratio, thus increasing the likelihood that the ratio will exceed 50 percent.

Two conditions likely cause these problems: (1) limited familiarity with, and an absence of formal training in, the proper application of the 50 percent repair-or-replace rule, or (2) insufficient professional experience and qualifications of those who prepare and review the calculations. In addition, FEMA's normal project review procedures did not detect these mistakes. FEMA officials said the revised policy will clarify this issue and address flooding mitigation issues.

Issue 3: Inclusion of Building Elevation in Repair Estimates

FEMA policy does not allow the inclusion of code-triggered, whole-building upgrades, such as building elevations, in the repair side of the calculation. However, FEMA often includes these costs in its repair estimates. This type of error can also include the inclusion of other whole-building enhancements such as seismic upgrades or enhanced fire protection systems. The inclusion of those amounts in the numerator increases the ratio, thus increasing the likelihood that the ratio will exceed 50 percent.

While we believe that FEMA's policy clearly and specifically excludes these costs, some senior FEMA officials continue to assert that these costs are allowable in the calculation. The 50 percent repair-or-replace rule explicitly states that the repair estimate includes



only those repairs, including non-emergency mold remediation, associated with the damaged components and the codes and standards that apply to the repair of the damaged components. In some cases, FEMA officials have argued that legally repairing the damaged element requires the repair estimate to include the cost of elevating the whole building. These disagreements point to the need to clarify the existing policy. FEMA officials said the revised policy would clarify this issue and specifically address the handling of code-triggered, whole building upgrades.

Issue 4: Use of “Conceptual” Estimates

Some of the mistakes we identified resulted from FEMA’s inappropriate use of “conceptual” computer-generated models. These computer models quickly generate overall cost estimates by applying building dimensions, along with other general factors, to generic construction models. With some basic information, FEMA can perform these calculations in just a few minutes. We have identified instances of FEMA using this method in 50 percent repair-or-replace rule calculations in Louisiana and Iowa.

The problems with using this estimating method are that it: (1) is based on generic building models that do not capture the unique characteristics of the damaged facility; (2) does not comply with FEMA’s *Cost Estimating Format Instructional Guide*, which requires a detailed scope of work and itemized cost elements; and (3) was inappropriate—for some facilities we reviewed, the computer-generated model itself indicated the building size exceeded program parameters. Further, this estimation method cannot consider all required building codes and standards or the costs of the sometimes iconic architectural features common in government and university buildings. These problems manifest themselves in distorting the ratio because understating the denominator thus increases the likelihood that the ratio will exceed 50 percent.

The use of conceptual estimates is serious because some FEMA offices believe that FEMA policy allows the use of this method. The use of this cost estimating method may be appropriate for some small or very simple buildings. However, for large or complex buildings, its use defies common sense as well as FEMA policy. Because some FEMA officials do not understand the limitations to using this method, FEMA should consider clarifying its policy on the use of “conceptual” estimating methods.

FEMA officials agreed that the current policy does not specifically restrict the use of conceptual models. However, they acknowledged that this methodology: (1) can be inaccurate if applied incorrectly; and (2) may not be appropriate for all facilities, though it may be useful for smaller, less complex facilities. FEMA officials said they would address the use of conceptual models in the revised policy.



Issue 5: Inaccurate/Incomplete Cost Estimates

Some of the errors we identified resulted from a variety of inaccurate and incomplete cost estimates in both the repair and replacement sides of the calculation. FEMA's errors included (1) repair estimates that include damaged elements that were not the result of the disaster, (2) use of cost estimates for damaged elements that the applicant had already repaired and for which actual costs were available, and (3) replacement estimates based on inaccurate square footage of the replacement facility. As mentioned earlier, developing cost estimates for new buildings, sometimes with incomplete or missing design information, can be extremely complex and time consuming. In addition, incomplete replacement cost estimates result in an understated denominator that increases the likelihood that the ratio will exceed 50 percent.

We are not always sure why these errors occurred. However, FEMA likely would have avoided these errors if they used trained, qualified staff to independently review 50 percent repair-or-replace rule decisions.

FEMA officials agreed with our observation and told us the revised policy will include a formal review process to mitigate the possibility that these errors could occur and go undetected.

Issue 6: Inclusion of Code-triggered, Whole-building Upgrades in Repair Estimates

FEMA's policy does not allow inclusion of code-triggered, whole-building upgrades in the repair estimate. However, our audits have shown that some FEMA officials have included these upgrades because they interpreted the policy as allowing them. By including these costs in the numerator, it increases the likelihood that the ratio will exceed 50 percent.

Thus, FEMA should clarify its policy so these mistakes do not continue to occur. The 50 percent repair-or-replace rule explicitly states that the repair estimate includes only those repairs, including non-emergency mold remediation, associated with the damaged components and the codes and standards that apply to the repair of the damaged components. FEMA officials told us that the revised policy would include language to further clarify this issue.



Issue 7: Inclusion of Emergency Protective Measures in Repair Estimates

FEMA’s policy does not allow the inclusion of Emergency Protective Measures in repair estimates.⁴ Yet, some FEMA officials have included them. The 50 percent repair-or-replace rule policy states that the repair estimate includes only those repairs, including non-emergency mold remediation, associated with the damaged components and the codes and standards that apply to the repair of the damaged components. Despite this prohibition, some FEMA officials told us that the inclusion of these types of cost is appropriate as “precursors to repairs.” Some FEMA officials also reasoned that, because its policy says that “demolition essential to the repair only of the damaged elements may be included in the numerator [repair side of calculation],” FEMA should also include the costs of emergency protective measures—removing water, muck out and drying the building—in the numerator. However, including these costs in the numerator increases the likelihood that the ratio will exceed 50 percent.

We see where reasonable people could disagree on what the policy means. However, other FEMA guidance clearly prohibits the inclusions of such costs. For example, on July 17, 2008, FEMA’s Assistant Administrator, Disaster Assistance Directorate, ruled that “emergency work ... is not considered in the 50 percent repair or replace rule analysis.” Further, including these costs is fundamentally wrong—the applicants have already expended the costs (and FEMA will reimburse them), and therefore FEMA should not include these costs in any future cost-benefit analysis. These costs are “sunk” and therefore no longer relevant to FEMA’s repair versus replacement decision.

Because the high risk of continued misinterpretation of this policy, FEMA should consider clarifying its policy. FEMA officials acknowledged the need to clarify this issue in its revised policy and told us that FEMA plans to clearly exclude emergency protective measures from the 50 percent repair-or-replace rule calculation.

Issue 8: Absence of Formal Training/Standardized Qualifications

At the time we conducted these audits, neither FEMA headquarters nor the FEMA Regions had established mandatory training specific to the “50 Percent Rule” for the FEMA officials responsible for making these decisions. Thus, we were not surprised that some of the errors we identified resulted from cost estimating staff not understanding the 50 percent repair-or-replace rule and cost estimating standards. FEMA may have avoided these errors if it had developed a formal training program and established

⁴ Category B – Emergency Protective Measures are often necessary to eliminate or reduce an immediate threat to life, public health, or safety or eliminate or reduce an immediate threat of significant damage to improved public or private property through cost-effective measures. “Muck out” work includes the removal of mud and water and stabilization of a facility following a flood to protect the facility from further damage.



standardized qualifications (training/education/experience) for those who prepare and review 50 percent repair-or-replace rule decisions. FEMA officials said that, while FEMA's Cost Estimating Format training briefly addresses how to apply the 50 percent repair-or-replace rule, FEMA does not have comprehensive training on how to apply the rule or minimum qualifications for those responsible for preparing or reviewing the calculations.

FEMA should establish standardized training and qualifications to help FEMA Joint Field Offices and regional leadership properly assign staff and contractors, especially when faced with large and complex projects. FEMA officials pointed out that they do have a qualifications system, but that it does not include specific qualifications for those preparing and reviewing the 50 percent repair-or-replace rule calculations. They told us that the new policy would specifically identify qualifications needed to formulate a project and levels of review required depending on the size and complexity of the project.

Issue 9: Insufficient Independent Review

FEMA has not established an independent review process to confirm the validity of 50 percent repair-or-replace rule calculations and decisions. FEMA officials may have been able to identify some of these errors if they required qualified staff at the regional offices to review the calculations. While FEMA officials review projects for a variety of factors, FEMA does not require a specific review of 50 percent repair-or-replace rule decisions. In addition, Joint Field Office management may not always be familiar with the qualifications of the FEMA staff and contractors assigned to estimate costs and make these decisions. A final independent review of Joint Field Office decisions by an independent, experienced, and trained cost estimator at the regional or national level would likely reduce errors.

Following our audits, two FEMA regional offices began requiring its staff to review 50 percent repair-or-replace rule decisions that FEMA field office officials made. FEMA headquarters officials told us the revised policy would include a formal review process with value and complexity thresholds for triggering independent reviews.

Issue 10: Insufficient Supporting Documentation

In some instances, we could not find proper documentation supporting the assumptions, rationales, and facts FEMA used to arrive at its 50 percent repair-or-replace rule decision. FEMA officials said that while FEMA has a variety of documentation requirements, none specifically addresses the documents FEMA needs to support 50 percent repair-or-replace rule decisions. Insufficient documentation not only makes it difficult to review decisions, but it can also compromise FEMA's ability to



effectively support decisions if the grant applicant appeals FEMA's decision. Federal cost principles require grantees and subgrantees to maintain proper documentation to support disaster assistance claims for reimbursement.

Given the amount of money FEMA spends on these decisions and complexities of applying the rule, FEMA officials should include in its revised policy requirements for retaining sufficient supporting documentation. FEMA officials acknowledged our observation and told us the revised policy will outline the documentation requirements to fully support FEMA's decisions.

Issue 11: Decisions Made Without Thorough Assessments

In the wake of a disaster, FEMA officials need to make funding decisions as quickly as possible because recovery work cannot move forward until FEMA decides whether it will fund the repair or replacement of damaged facilities. However, FEMA officials are sometimes in a difficult position regarding large and complex facilities. Although FEMA needs to make quick decisions, it is more important for FEMA to authorize the spending of disaster resources correctly. Thus, when making 50 percent repair-or-replace rule decisions FEMA needs to obtain design and construction details and perform detailed damage assessments before it commits the spending of precious tax dollars. For large and complex facilities, this can take months and may require the help of outside experts. Because of the significant amount of funding associated with these decisions, FEMA officials should not rush this decision.

Federal regulation sets relatively short disaster recovery deadlines. Federal regulation 44 Code of Federal Regulations (CFR) 206.204 established 18 months to complete permanent recovery work and the grantee (usually the state) may extend the deadline another 30 months based on extenuating circumstances. Although these deadlines are short, FEMA should not rush these decisions because disaster recovery for major disasters routinely lasts longer than 18 months and often continues for many years. Although these regulations call for FEMA to complete permanent recovery work in 4 years, FEMA rarely meets that completion deadline. Therefore, FEMA should consider addressing this issue in its revised policy. FEMA officials stated that the planned formal review process would help mitigate this issue.



FEMA Should Reconsider the “50 Percent Rule” Threshold and Formula

Overshadowing these issues is the 50 percent threshold itself.⁵ The replacement threshold is, by definition, much lower than cost effectiveness dictates. Also, such a low threshold can motivate applicants who incur relatively minor disaster damage to exaggerate the repair costs of structurally sound buildings, while minimizing the replacement costs, in an effort to reach the 50 percent threshold. Also, with such a low threshold, relatively minor mistakes can lead to erroneous decisions. In addition, the current “50 Percent Rule” calculation does not include all costs associated with the repair or replacement of a damaged facility. This results in a ratio that does not accurately compare the complete costs for either option.

To reduce recovery costs and minimize the risk of errors, FEMA should consider amending Federal regulation to raise the replacement threshold to a percentage that more closely reflects cost effectiveness and private sector standards. For example, if FEMA raised the threshold to 80 or 90 percent, only the most seriously damaged buildings would reach the replacement threshold. Changing the threshold would also make it more difficult for applicants to successfully influence or manipulate cost estimates. FEMA officials have commented that the issue of raising the 50 percent threshold has come up during their internal discussions about this policy.

In comparison, an insurance company typically would not pay to replace a facility if repair costs are only 50 percent of the replacement costs. It is FEMA’s mission to assist applicants in recovering from disasters, but it is not FEMA’s mission to fund expensive new facilities when repairs would restore the facility to its pre-disaster design, function, and capacity. Therefore, we recommend FEMA consider revising Federal regulation to reflect a more cost-effective threshold. In conjunction with raising the threshold, FEMA could consider developing a new, easier to apply, decision-making formula. As noted previously, the failure to consider all costs for repair and replacement results in a ratio that does not accurately compare the complete costs for either option. FEMA could avoid many of the ambiguities in existing policy by comparing *all* repair costs to *all* replacement costs.

FEMA’s Progress in Clarifying the Rule

FEMA is making progress toward revising its 50 percent repair-or-replace rule. We worked closely with FEMA officials during this audit, and they provided us with valuable input. In discussions about our preliminary findings, FEMA officials acknowledged many of our observations, and said certain issues resulted from vagueness in the current

⁵ The “50 Percent Rule” calculation does not include all costs associated with either repair or replacement of a facility. The cost estimates include only direct construction costs, or “hard” costs, and do not include “soft” cost estimates for project management, architectural/engineering fees, cost escalation, or profit.



policy. They told us that they have continued to interview stakeholders from throughout the FEMA regions to obtain input for developing a revised policy. They said the revised policy will clarify the 50 percent repair-or-replace rule and the issues that are causing confusion. FEMA officials have indicated that, in conjunction with revising the policy, they intend to develop training and job aids to assist in applying this policy. They also said the revised policy will include a formal review process with specific thresholds that will trigger independent reviews.

In addition, as a result of our audits, some FEMA regions established regional policies to tighten controls over 50 percent repair-or-replace rule decisions until FEMA headquarters issues its revised policies. For example, in response to our audit of Martinsville High School (DD-13-04), FEMA Region V developed a regional operating procedure that includes region-level reviews of all major repair-versus-replacement determinations. Also, in response to our audit of the University of Iowa (DD-12-17), FEMA Region VII implemented its own regional guidance for the application of the 50 percent repair-or-replace rule. However, until FEMA headquarters develops and implements revisions to the 50 percent repair-or-replace rule policy, FEMA continues to be at risk of making improper 50 percent repair-or-replace rule decisions and improperly spending taxpayer dollars.

Effect on Hurricane Sandy Recovery

As of April 2014, FEMA had made 15 repair-or-replace decisions as a result of Hurricane Sandy in New Jersey and New York. FEMA officials made nine 50 percent repair-or-replace rule decisions in New Jersey that resulted in three repair decisions with estimated costs totaling \$1 million and six replacement decisions with estimated costs totaling \$3.1 million. In New York, FEMA officials completed six 50 percent repair-or-replace rule decisions that resulted in four repair decisions with estimated costs totaling \$1.4 million and two replacement decisions with estimated costs totaling \$423,077.

FEMA officials at both Joint Field Offices emphasized the importance of leadership, supervision, and selecting qualified people to perform and review the calculations. FEMA officials at one field office said they did not believe there were problems with FEMA's 50 percent repair-or-replace rule itself, only in its implementation. At another field office, officials said some of the rules in the current policy needed clarification.

Although we agree that strong leadership is essential to reduce the risk of errors, an agency as large and complex as FEMA cannot rely solely on strong leadership. FEMA must also have clear, easy-to-apply policies and formal training to ensure its field office management, staff, and contractors make proper and consistent decisions that promote rapid recovery while protecting the taxpayer. FEMA should also develop a formal



50 percent repair-or-replace rule review process to reduce the likelihood that errors could occur and go undetected.

Conclusion

Mistakes in calculating the 50 percent repair-or-replace rule can cost the taxpayer tens of millions of dollars on individual projects and hundreds of millions of dollars in total. This especially occurs when FEMA decides to replace a structurally sound facility that the applicant can repair to its pre-disaster design, capacity, and function. Our previous audits have disclosed significant problems with FEMA's 50 percent repair-or-replace rule policy. FEMA recognizes these challenges and plans to revise its policy. However, it has been more than 2 years since we issued our University of Iowa report. In response to that report, FEMA (1) disagreed with our recommendation to fund only \$213 million to repair the buildings, rather than the \$297 million to replace them; but (2) agreed with our recommendations to improve its 50 percent repair-or-replace rule policy. However, while FEMA is working on improving the policy, FEMA has not completed developing these new policies. We continue to support FEMA's plans to develop improved policies, review standards, training programs, and staff minimum qualifications to help prevent misapplication of the 50 "Percent Rule."

Recommendations

We recommend that the Assistant Administrator, FEMA Recovery Directorate:

Recommendation #1: Complete the revision to FEMA's 50 percent repair-or-replace rule policy to clarify the rule and address the concerns we identify in this report.

Recommendation #2: Develop a formal 50 percent repair-or-replace rule training program and establish minimum training, education, and experience levels for all FEMA staff and contractors preparing or reviewing 50 percent repair-or-replace rule calculations.

Recommendation #3: Consider amending Federal regulation to increase the 50 percent replacement threshold and include all relevant costs to make the decision more closely aligned with the decision's cost effectiveness.

Recommendation #4: Until FEMA finalizes its 50 percent repair-or-replace rule policy revisions, request the OIG's assistance to perform a preliminary audit of 50 percent repair-or-replace rule decisions for projects that exceed \$5 million.



Management Comments and OIG Analysis

We discussed the results of our audit with FEMA officials during our audit and included their comments in this report, as appropriate. We also provided a draft of our preliminary findings in advance to FEMA officials and discussed it with them on January 6, and February 7, 2014. FEMA officials generally agreed with our findings and recommendations.



Appendix A

Additional Background Information and Overview of Criteria Applicable to this Audit

According to Federal regulation 44 CFR 206.226(f)(1), “A facility is considered repairable when disaster damages do not exceed 50 percent of the cost of replacing a facility” FEMA refers to this regulation as the “50 Percent Rule” and implements it according to its *Disaster Assistance Policy 9524.4*. This policy is FEMA’s decision-making tool to determine whether it should fund the repair or replacement of a disaster-damaged facility.⁶ The application of this policy compares certain repair costs to certain replacement costs and results in a fraction that expresses repair costs as a percentage of replacement costs. The calculation specifically excludes many otherwise allowable repair and replacement costs that FEMA will ultimately pay under the Public Assistance program.

FEMA policy excludes these costs because including them in the repair-or-replacement decision calculation could distort the results. For example, according to FEMA, if the repair side of the calculation included seismic upgrade costs to undamaged elements of the building, then the repair costs of older buildings with even minor damage could exceed the 50 percent cost threshold because of the comparatively high cost of code-triggered, whole-building upgrades, seismic upgrading, and so on.

FEMA bases its exclusion of certain costs on the premise that, when a facility is so severely damaged (not including code-triggered whole-building upgrades) that the cost to repair the damage exceeds 50 percent of the cost of a new building, it is often justifiable and reasonable to replace the building. However, including certain code-triggered whole-building upgrade costs with the costs of the repairs to the damaged elements would likely cause erroneous decisions to fund new facilities rather than repair structurally sound and lightly damaged facilities.

⁶ Various FEMA policies and publications clarify Federal regulation 44 CFR 206.226(f)(1). These include *Public Assistance Guide* (FEMA 322, p. 36, June 2007); *Public Assistance Policy Digest*, (FEMA 321, p. 113, January 2008); and *Disaster Assistance Policy*, (DAP9524.4, September 24, 1998). FEMA updated DAP9524.4 on March 25, 2009.



Appendix A (continued)

Specifically, the numerator of the fraction includes only the direct costs of repairing the disaster damage, referred to as "hard" costs, and may include costs associated with the current codes and standards that apply to the repair of *damaged elements only*.⁷ The numerator does *not* include costs associated with the following:

- a. upgrades and other elements triggered by codes and standards;
- b. design associated with upgrades;
- c. demolition of entire facility;
- d. site work;
- e. applicable project management costs;
- f. contents; and
- g. hazard mitigation measures.

The denominator of the fraction is the cost of replacing the facility based on its pre-disaster design, design capacity, and according to applicable codes and standards currently in effect. These codes and standards may relate to structural elements such as mechanical or electrical systems, or the size of a structure. The denominator does *not* include costs associated with the following:

- a. demolition;
- b. site work;
- c. applicable project management costs;
- d. contents; and
- e. hazard mitigation measures.

FEMA's decision to repair a facility may not necessarily result in cost savings to taxpayers after FEMA includes all allowable costs under the Public Assistance program. However, FEMA caps the total repair costs at the estimated cost to replace the facility.

⁷ Only direct construction costs, or "hard" costs, can be included in the numerator or denominator of either the repair or the replacement costs. "Soft" costs include the costs for project management, architectural fees, cost escalation, and profit.



Appendix B

Objective, Scope, and Methodology

The Department of Homeland Security Office of Inspector General was established by the *Homeland Security Act of 2002* (Public Law 107-296) by amendment to the *Inspector General Act of 1978*. This is one of a series of audit, inspection, and special reports prepared as part of our oversight responsibilities to promote economy, efficiency, and effectiveness within the Department.

The objectives of this audit were to assess FEMA’s progress in clarifying its policies for applying the 50 percent repair-or-replace rule and to determine the potential effect on Hurricane Sandy repair-versus-replacement decisions if FEMA does not clarify these policies.

We conducted this performance audit between July 2013 and April 2014, pursuant to the *Inspector General Act of 1978*, as amended, and according to generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based upon our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based upon our audit objectives.

We performed the following procedures as part of our review:

- deployed staff to the FEMA’s Hurricane Sandy Joint Field Offices in New York and New Jersey,
- interviewed officials at FEMA Region II and the New York and New Jersey Joint Field Offices,
- reviewed disaster-specific initiatives, plans, and reports,
- reviewed Hurricane Sandy-specific legislation, and
- reviewed DHS-OIG reports and preliminary findings in ongoing audits with “50 Percent Rule” findings.

We also performed other procedures considered necessary to accomplish our objective. We did not assess the adequacy of FEMA’s internal controls applicable to disaster response because it was not necessary to accomplish our audit objective.



Appendix C

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