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Understanding the 406 Mitigation Process

September 18, 2019
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- How many have knowledge of FEMA Public Assistance or 406?
- Has anyone worked with FEMA Public Assistance after a presidentially declared disaster?
- Did you incorporate any 406 Mitigation or a Hazard Mitigation Proposal (HMP)?
- What are the funding limitations on 406 Mitigation?
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- Derek Fellows, P.E., CFM
- Senior Civil Engineer
- FEMA RIV, Risk Analysis Branch
- Regional Lead - RiskMAP Program CTP Grants
- BCA and technical review - HMA grants
- Previous Experience
  - Worked with RIV Building Science Team
  - Public Assistance
Incorporating 406 Mitigation/HMP is difficult?

**Scope of Mitigation Work:**

The following mitigating measures are proposed:
1. Adhere to FEMA 499, Technical Fact Sheets number 19 and 20. After conversations with applicant and contractor a 15% increase in costs is anticipated.

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<th>Item Code</th>
<th>Material and/or Description</th>
<th>Quantity/Unit</th>
<th>Unit Price</th>
<th>Cost</th>
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<td><strong>Items Not Needed if HMP Approved</strong></td>
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Total for Line Item Only $216.00
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- Mitigation Assessment Teams (MAT)
- Disaster-resistant model building codes and standards
- Publications, guidance and tools
- Training, workshops, & technical presentations
- Technical support

www.fema.gov/building-science/
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- Repair, Restoration, and Replacement of Damaged Facilities. The core of Public Assistance Permanent work.
- The component where mitigation can be applied
- Section 428

LAW
Stafford Act §406(e)

REGULATIONS
44 CFR 206.226(e)

POLICY
PAPPG p.97 - 99

GUIDANCE
PAAP
Disaster Specific
Major disaster declaration

States, tribes and territories request Federal assistance, PDA.

President declares the disaster

Establishing cost share, type of incident, dates, locations, type of federal assistance (IA, PA, HM) and FCO.

When PA is authorized, the type of eligible work will be identified

- Emergency work (Cat A, B)
- Permanent work (Cat C-G)
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- FEMA PA Grants
  - debris removal, emergency protective measures, and the restoration of disaster-damaged, publicly owned facilities and the facilities of certain PNP organizations.
  - For permanent work: restore to pre-disaster condition (function, capacity, etc.)
- PAPPG
  - https://www.fema.gov/media-library/assets/documents/111781
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- FEMA PA determines eligibility
  - Eligible applicants
  - Eligible facility
  - Eligible work
  - Reasonable costs

- Subject to Federal, State and Local laws and regulations (EHP, NFIP, Building Codes, etc.)
What is 406 Mitigation?
- Mitigation changes the pre-disaster condition to reduce risk of future damages, this can be achieved 2 ways
  - Local Codes and Standards (Building, Roads, Utilities, Etc.)
    - FEMA Required Minimum Codes and Standards
  - HMPs

What can be mitigated?
- Only eligible Scope of Work
- Proposal should be reviewed and approved by FEMA prior to implementation.
• Building Codes and Standards

• Facility repairs and new construction may “trigger” upgrade requirements established by codes or standards.

• Federal, State, Territorial, Tribal, or local repair or replacement codes or standards are eligible only if the code or standard:
  • Applies to the type of restoration required;
  • Is appropriate to the pre-disaster use of the facility;
  • Is reasonable, in writing, formally adopted by the State, Territorial, Tribal, or local government, and implemented by the Applicant on or before the declaration date, OR is a legal Federal requirement;
  • Applies uniformly; and
  • Was enforced during the time it was in effect.

• BE PREPARED TO DOCUMENT ALL THESE CONDITIONS
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- Achieved Mitigation via codes and standards
  - Code Plus, best practices
  - Many best practices can be found in FEMA Building Science Branch
    - Publications
    - MAT Reports, Recovery Advisories
- Can't achieve mitigation via codes and standards
  - Develop an HMP
  - Document the cost bring to code
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- HMP for a PA project must
  - Be cost effective
  - Be technically feasible
  - Comply with EHP laws, regulations, and EOs
  - Reduce risk of future damage and does not negatively impact the facility’s operation or surrounding areas, or create susceptibility to damage from another hazard.
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- **Cost Effectiveness tests**
  1. If the mitigation costs are < 15% of damaged elements, the project is deemed cost effective
  2. If the mitigation action is included on Appendix J, PAPPG, and mitigation costs are < 100% of damaged elements, the project is deemed cost effective
  3. Complete a BCA, if BCR >1, the project is cost effective.

- For the first 2 cost effective measures, limited to actual damages sustained during disaster.
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- NEW Benefit-Cost Analysis 6.0
- What are the Benefits to be included?
  - Damages included in the PA project
  - Previous damages, don’t have to be covered by declared event.
  - Emergency protective measures, Temporary facilities, casualties
  - Loss of function
    - Roads and Bridges
    - Utilities
    - Buildings
- What are the Costs to be included?
  - The cost of the proposed mitigation
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- PA Delivery Model and HMP implementation
  - Applicant Briefings
  - Request for Public Assistance
  - Exploratory Call
    - Express interest in incorporating 406 Mitigation
  - Recovery Scoping Meeting
    - Have a preliminary Scope of Work and cost estimate for a HMP ready
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- PA Delivery Model and HMP implementation
  - Site Inspections (SI) on uncompleted repairs
    - Have a detailed Scope of Work and cost estimate for a HMP ready.
    - Show Site Inspection how HMP will be reduce future damages and is technically feasible.
  - Write an HMP with detailed SOW, Cost Estimate demonstrating cost effectiveness.
- Grants Manager permits applicants to attach electronic document to projects for FEMA review.
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• Key Success Factors
  • Time is important. Express interest to incorporate mitigation into repairs at the Exploratory Call.
  • Develop your ideas prior to the recovery scoping meeting
  • Request assistance of 406 Mitigation Specialist.
  • Be able to separate the pre-disaster condition and mitigated condition. The difference between is the HMP.
  • Typically FEMA will not apply mitigation when work is complete. In limited circumstances, if mitigation can be added on (without undoing completed work), mitigation might be possible. Proposal should be reviewed and approved by FEMA prior to implementation.
Example of Wind Example

• Damaged gable end roofs can be mitigated by adding lateral bracing at end gables.
  • Bracing provides lateral support and prevents failure by high wind pressures

• Substantially damaged or destroyed gable end roofs can be mitigated by replacing them with hips roofs.
  • Hip roofs provide additional lateral support
Example of Flood Mitigation

Elevation and Relocation - Best Practices

If buildings elevated higher than required flood protection level, then elevate or relocate equipment just as high in order to:

- Protect equipment from the same level of flood risk as the building, and
- Become eligible for lower NFIP insurance premium rates.
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406 mitigation for Category C

Roads and Bridges

- Armoring
- Culverts
- Drainage Structure
- Energy Dissipation
- Bio-engineering
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406 mitigation for Category C

Roads and Bridges

- Geo-textile fabric
- Slope was protected from washout
- Vegetation will eventually grow to increase protection
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406 mitigation for Category D

Water Control Facilities

• Energy dissipation
• Armoring
• Increasing Capacity
• Green Infrastructure
406 mitigation for Category E Buildings and Equipment

• Elevate Structure and Equipment
• Dry Floodproof
• Wet Floodproof
• Wind Retrofitting Roof, Openings and Equipment
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406 mitigation for Category E
Back Flow Preventer/Check Valve is Installed

- This 4” diameter PVC fitting with a 6” cleanout costs less than $100.00
- Professional installation labor and permits will add to the overall cost
406 mitigation for Category E

Back Flow Preventer/Check Valve is Installed

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406 mitigation for Category F

Utilities

- Elevation
- Dry Floodproof
- Wet Floodproof
- Wind Retrofit
- Surge Protection
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406 mitigation for Category G Parks, Recreational, Other

- Anchoring
- Bioengineering
- Sheet piling
- Erosion control
- Wind Retrofitting
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Questions?

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