



## Federal Insurance and Mitigation

### Job Aid for Disaster Recovery Reform Act, Section 1205 Additional Activities for Wildfire and Wind Implementation under Hazard Mitigation Assistance Programs

December 3, 2019

**Background:** On October 5, 2018, the Disaster Recovery Reform Act (DRRA) was signed into law as part of the Federal Aviation Administration Reauthorization Act of 2018. DRRA Section 1205 addresses the use of assistance under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), which provides funding for the Hazard Mitigation Grant Program (HMGP), and Section 203, which provides funding for the Pre-Disaster Mitigation Program (PDM). HMGP and PDM are two of the four Hazard Mitigation Assistance (HMA) programs FEMA implements.<sup>1</sup>

DRRA Section 1205 stated recipients of hazard mitigation assistance provided under Stafford Act Sections 404 and 203 may use the assistance to conduct activities to help reduce the risk of future damage, hardship, loss, or suffering in any area affected by a wildfire or windstorm. Section 1205 also lists 14 eligible activities (see text box) that are currently eligible under HMGP and PDM.<sup>2</sup>

#### DRRA Section 1205 Additional Activities:

1) Reseeding ground cover with quick-growing or native species	8) Planting grass to prevent the spread of noxious weeds
2) Mulching with straw or chipped wood	9) Installing warning signs
3) Constructing straw, rock, or log dams in small tributaries to prevent flooding	10) Establishing defensible space measures
4) Placing logs and other erosion barriers to catch sediment on hill slopes	11) Reducing hazardous fuels
5) Installing debris traps to modify road and trail drainage mechanisms	12) Mitigating windstorm damage, including replacing or installing electrical transmission or distribution utility pole structures with poles that are resilient to extreme wind and combined ice and wind loadings for the basic wind speeds and ice conditions associated with the relevant location
6) Modifying or removing culverts to allow drainage to flow freely	13) Removing standing burned trees
7) Adding drainage dips and constructing emergency spillways to keep roads and bridges from washing out during floods	14) Replacing water systems that have been burned and have caused contamination

This Job Aid discusses each of the 14 noted activities and how they fit under currently eligible activities. This document focuses only on DRRA Section 1205 listed activities. This fact sheet applies to PDM, HMGP, HMGP Post Fire and, when applicable, Flood Mitigation Assistance (FMA). Grant programs that are applicable to each activity are denoted in parentheses after the activity name and denoted as HMGP for the Hazard Mitigation Grant Program, HMGP-PF for the Hazard Mitigation Grant Program-Post Fire, PDM for Pre-Disaster Mitigation, and FMA for Flood Mitigation Assistance. This fact sheet does not supersede any previous policy or guidance for the HMA programs. All activities noted as eligible in the HMA Unified Guidance, dated February 27, 2015, remain eligible.

<sup>1</sup> The other two programs are the HMGP Post Fire (HMGP-PF) program authorized under Section 404 and 420 of the Stafford Act and the Flood Mitigation Assistance (FMA) program authorized under Section 1366 of the National Flood Insurance Act. The 14 activities examined here are eligible under HMGP, HMGP Post Fire, and PDM. Some of these activities (i.e., those that pertain to flooding) are also eligible under the FMA program.

<sup>2</sup> See Appendix for the DRRA Section 1205 crosswalk with existing HMA program guidance and resources.

All projects funded through the HMA programs must meet certain cost effectiveness requirements. FEMA has created a Benefit Cost Analysis (BCA) wildfire module within their Benefit-Cost Analysis tool specifically to assist in creating applications for wildfire mitigation projects with a default project effectiveness value of 10 percent for each project type. To establish recurrence intervals for benefit-cost analysis of wildfire, data may be available from LANDFIRE from the U.S. Department of Interior and U.S. Department of Agriculture (see Resources). Where applicable in this Job Aid, additional language is included in individual project type descriptions to address BCA needs unique to that section.

### **WILDFIRE MITIGATION (FUELS MANAGEMENT) (Eligible Programs: PDM, HMGP, HMGP-PF)**

Fuels management wildfire mitigation projects are eligible under PDM, HMGP, and HMGP Post Fire. The presence of excess fuel loads help wildfire to increase in intensity and spread quickly. Wildfire mitigation actions help to reduce fuel loads near homes and communities, which can decrease the risk of damage to property or loss of life from wildfires. Wildfire mitigation through fuels management may also help promote ecosystem health by lessening the risk of high intensity wildfire. This project type includes:

#### **Establishing Defensible Space Measures**

Defensible space projects include the creation of an area around a home, structure, or facility, including a critical facility, in which vegetation, debris, and other types of combustible materials have been treated, cleared, or reduced to slow the spread of fire to and from the building.

#### **Reducing Hazardous Fuels**

Projects that remove vegetative fuels proximate to at-risk structures, that, if ignited, pose a significant threat to human life and property, especially critical facilities, are eligible as hazardous fuels reduction projects. Hazardous fuels reduction includes thinning vegetation, removing ladder fuels<sup>3</sup>, reducing flammable vegetative materials, and replacing flammable vegetation with fire-resistant vegetation for the protection of life and property. Hazardous fuels projects are intended to provide risk reduction benefits in an area beyond the defensible space perimeter that protect a broader area that may span a group of structures, larger infrastructure, a neighborhood, or provide a community level of protection. Hazardous fuels reduction projects must be no farther than 2 miles from the homes, structures, infrastructure, or area protected by the mitigation action.

#### **Removing Standing Burned Trees**

Burned trees can pose a residual risk by serving as fuel for future wildfires, which makes the removal of hazardous burned trees for wildfire fuels management an eligible activity for wildfire mitigation, typically as part of either a defensible space or hazardous fuels reduction project. As with other eligible hazardous fuels management projects, the Benefit Cost Analysis (BCA) Wildfire module can be used for burned tree removal hazardous fuels management project applications. Additionally, the BCA for removing burned trees may use a default project effectiveness of 10 percent, and may consider the number and value of buildings, infrastructure, and other properties within a default 2-mile radius of the trees to be removed as potentially impacted by the project.

### **5 PERCENT INITIATIVE (Eligible Programs: HMGP, HMGP-PF)**

Some mitigation activities are difficult to evaluate using FEMA-approved cost-effectiveness methodologies. Up to 5 percent of the total funds available under HMGP may be set aside by the recipient to pay for such activities

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<sup>3</sup> “Ladder fuels carry fire from the forest floor to the [tree] canopy and thereby may turn low-intensity fires into severe canopy fires.” from “Fire Climbing in the Forest: A Semiquantitative, Semiquantitative Approach to Assessing Ladder Fuel Hazards.” By K.M. Menning, and S.L. Stephens, *Western Journal of Applied Forestry*, Vol. 22, No. 2, April 2007, pp. 88-93, <https://academic.oup.com/wjaf/article/22/2/88/4718038>.

such as equipment or systems for warning people of impending natural hazards such as sirens, warnings, alerts, or notices. This project type includes:

### **Installing Warning Signs**

Installing warning equipment and systems, including electronic signs and signals, for warning citizens about wildfire hazards and hazard identification-related equipment is an eligible activity under the 5 Percent Initiative in the HMGP. The general intent of these signs is to provide warning of fire risk and/or evacuation orders for people in the area.

### **INFRASTRUCTURE RETROFIT (Eligible Programs: HMGP, HMGP-PF, PDM)**

Infrastructure retrofit projects are eligible under all HMA programs for any natural hazards including wildfire, wind, and ice. In addition to impacts on buildings and structures, wildfire can disrupt existing utility and communication systems, roads, and bridges. These projects include measures to reduce risk to these sectors and lifelines, which are critical for emergency response personnel and to reduce hardship, loss, and suffering for community residents. In cases where a federal disaster declaration is in effect, HMGP funding may be used in conjunction with Stafford Act Section 406 Repair, Restoration, and Replacement of Damaged Facilities mitigation funds to bring an entire facility to a higher level of disaster resilience, if applicable. The project types include:

#### **Mitigating windstorm damage, including replacing or installing electrical transmission or distribution utility pole structures with poles that are resilient to extreme wind and combined ice and wind loadings for the basic wind speeds and ice conditions associated with the relevant location**

Infrastructure retrofits that reduce the risk to utility systems from natural hazards, including wind, ice, wildfire, or earthquake, are eligible for HMA funding. To establish recurrence intervals for benefit-cost analysis of ice storms, data may be available from the National Snow and Ice Data Center or the U.S. Army's Cold Regions Research and Engineering Laboratory (CRREL) (see Resources). In addition, the HMA BCA Helpline (see Resources) has developed resources for ice storms and will be able to provide information upon request.

#### **Replacing water systems that have been burned and have caused contamination**

Wildfires generate intense heat that can adversely impact water system components both on the surface and underground. If intense heat modifies the chemical properties of water system components, chemicals might leach into the water, causing contamination. Infrastructure retrofits that reduce future risk to existing utility systems, including water systems, are eligible for HMA funding. The mitigation measures that are applied to the utility system can be multi-hazard to address more than just the hazard that caused the damage. Because HMA grants can be used to address undamaged portions of a utility system, they can be used to mitigate system components that have not been damaged but have properties like other systems that have sustained damage as well as undamaged portions of systems that have been partially damaged.

### **SOIL STABILIZATION (FLOOD AFTER FIRE) (Eligible Programs: HMGP, HMGP-PF, PDM)**

Soil stabilization projects are eligible under HMGP, HMGP Post Fire, and PDM. Wildfires can destroy vegetation, root systems, and degrade soil quality, which can increase soil and slope erosion and increase the risk for flooding and landslides. Stabilization and erosion-control practices can help enable soil infiltration, stabilize slopes, and reduce potential risks to structures and infrastructure from erosion, sedimentation, floods, and landslides.

Several of the activities listed in DRRA Section 1205 include use of nature-based design methods which may be used alone or in combination with more traditional engineered mitigation approaches to design and implement effective soil stabilization for post-fire risk reduction. Nature-based design techniques can provide ecosystem services and restoration benefits. Ecosystem services are benefits provided to people by nature such as aesthetic

value, air quality, recreation space, and water filtration. The FEMA Bioengineered Wildfire Mitigation Job Aid (see Resources) provides guidance on these techniques. In some cases, two or more of these activities may need to be implemented in concert with other mitigation measures to demonstrate an effective mitigation project.

FEMA has developed pre-calculated benefits for post-wildfire soil stabilization and flood risk reduction projects. Soil stabilization and reforestation projects under the cost of \$5,250 per acre are determined cost effective and no further benefit-cost ratio (BCR) is required. The BCA Toolkit can be used to perform the benefit cost analysis for projects where the pre-calculated benefits are not enough to cover the mitigation activity.

#### **Reseeding ground cover with quick-growing or native species**

Reseeding ground cover using quick-growing or native species works to prevent soil erosion and encourage soil stabilization after a wildfire.

#### **Planting grass to prevent the spread of noxious weeds**

Planting grass helps to control the regrowth of invasive species that serve as fuels. Hydroseeding (a slurry of seed and mulch mixed with water and fertilizer) can promote the growth of native grasses that have extensive root systems to hold soil in place.

#### **Mulching with straw or chipped wood**

Mulching covers the area with a protective layer of straw or chipped wood. This layer helps to prevent soil erosion, protects the mineral soils that have been exposed, absorbs humidity, and breaks down swiftly in many landscapes, adding nutrients back into the soil to promote new plant growth (or potentially grass after reseeding).

#### **Placing logs and other erosion barriers to catch sediment on hill slopes**

Placing logs and other erosion barriers work to trap sediment on hill slopes, reducing the erosion of soil. These erosion barriers can include erosion control mats or blankets (made of fibers, straw, or other plant material), fiber rolls, and silt fences.

#### **Installing debris traps to modify road and trail drainage mechanisms**

Installing debris traps to modify road and trail drainage mechanisms reduces the risks of soil erosion, landslides, and flash floods. In addition to helping stabilize soils, debris traps can also be used to provide flood risk reduction benefits and can be used in local flood risk reduction projects.

### **LOCALIZED FLOOD RISK REDUCTION PROJECTS (FLOOD DIVERSION / STORAGE) (Eligible Programs: HMGP, HMGP-PF, PDM, FMA<sup>4</sup>)**

Localized flood risk reduction projects are eligible under all HMA programs including FMA. In addition to increasing soil erosion, wildfires can reduce the permeability of soils, which can result in increased potential for flooding. Various mitigation strategies can help to reduce the frequency or severity of flooding by diverting floodwaters away from streams, rivers, or other bodies of water, or storing excess water. These strategies can protect homes and infrastructure and may also work to re-establish the structure and function of ecosystems and floodplains.

#### **Modifying or removing culverts to allow drainage to flow freely**

Increased runoff after a wildfire due to reduced soil permeability and lack of vegetation can overwhelm culverts, and debris carried in the runoff can block the passage of water through culverts. After a wildfire it is not uncommon to modify or temporarily remove a culvert to allow runoff to flow more freely, either through an enlarged culvert or natural channel, to protect buildings, roads, or other infrastructure.

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<sup>4</sup> Under FMA, localized flood reduction projects must benefit NFIP-insured properties.

### **Adding drainage dips and constructing emergency spillways to keep roads and bridges from washing out during floods**

Drainage dips are created by re-grading a road or trail to direct water to drain off the road or trail surface at a desired location. In some cases when hydrologic analysis indicates an existing culvert is too small to handle the short-term runoff after a wildfire, armored rolling dips may be installed to direct the increased flows back to the existing channel, preventing the washout of a culvert, road or bridge. Drainage dips can contribute to flood diversion and storage projects by directing water toward a retention pond.

### **Constructing straw, rock, or log dams in small tributaries to prevent flooding**

Constructing straw, rock, or log dams in small tributaries can help to trap sediment and debris, reducing the risk of flooding following a wildfire.

### **RESOURCES**

<b>Resource Name</b>	<b>Resource Location</b>
FEMA HMA Guidance	<a href="https://www.fema.gov/hazard-mitigation-assistance-program-guidance">https://www.fema.gov/hazard-mitigation-assistance-program-guidance</a>
FEMA Benefit Cost Analysis (BCA)	<a href="https://www.fema.gov/benefit-cost-analysis">https://www.fema.gov/benefit-cost-analysis</a>
FEMA BCA Helpline	<a href="mailto:bchelpine@fema.dhs.gov">bchelpine@fema.dhs.gov</a> or 1-855-540-6744
FEMA BCA Toolkit User Guide	Version 6.0 (May 2019): <a href="https://www.fema.gov/media-library-data/1571164308638-adf025324225d699f7d9ee53bc618fa8/Version_6.0_User_Guide.pdf">https://www.fema.gov/media-library-data/1571164308638- adf025324225d699f7d9ee53bc618fa8/Version_6.0_User_Guide.pdf</a>
FEMA Bioengineered Wildfire Mitigation Job Aid	<a href="https://www.fema.gov/media-library-data/1543347790158-&lt;br/&gt;ced293462a58da1afb194eea4874500b/FEMABioengineeredWildfireMitigationJobAidRev_Nov_2018.pdf">https://www.fema.gov/media-library- data/1543347790158- ced293462a58da1afb194eea4874500b/FEMABioenginee redWildfireMitigationJobAidRev_Nov_2018.pdf</a>
FEMA Home Builder's Guide to Construction in Wildfire Zones	<a href="https://www.fema.gov/media-library-data/20130726-1652-20490-9209/fema_p_737_fs_4.pdf">https://www.fema.gov/media-library-data/20130726- 1652-20490-9209/fema_p_737_fs_4.pdf</a>
Electrical Transmission and Distribution Mitigation: Loss Avoidance Study Nebraska and Kansas FEMA-1674-DR-KS and FEMA-1675-DR-NE	<a href="https://www.fema.gov/media-library-data/20130726-1728-25045-3899/electrical_transmission_loss_avoidance_study.pdf">https://www.fema.gov/media-library-data/20130726- 1728-25045- 3899/electrical_transmission_loss_avoidance_study.pdf</a>
National Snow and Ice Data Center	<a href="http://nsidc.org/data/search">http://nsidc.org/data/search</a>
U.S. Army's Cold Regions Research and Engineering Laboratory	<a href="https://www.erd.usace.army.mil/Locations/CRREL/">https://www.erd.usace.army.mil/Locations/CRREL/</a>
LANDFIRE, Landscape Fire and Resource Management Planning Tools	<a href="http://www.landfire.gov">www.landfire.gov</a>
Mitigating Flood and Drought Conditions Under Hazard Mitigation Assistance: Suite of Tools	<a href="https://www.fema.gov/media-library/assets/documents/110202">https://www.fema.gov/media- library/assets/documents/110202</a>
FEMA Public Assistance Program and Policy Guide (PAPPG)	<a href="https://www.fema.gov/media-library/assets/documents/111781">https://www.fema.gov/media- library/assets/documents/111781</a>
Hazard Mitigation Grant Program - Post Fire	<a href="https://www.fema.gov/hazard-mitigation-grant-program-post-fire">https://www.fema.gov/hazard-mitigation-grant-program- post-fire</a>
Clarifying the Additional 5 Percent Initiative	<a href="https://www.fema.gov/media-library/assets/documents/122217">https://www.fema.gov/media- library/assets/documents/122217</a>

Appendix – DRRRA Section 1205 Crosswalk with existing HMA Program Guidance<sup>5</sup> and Resources

Sec. 1205 Item No.	Section 1205 Language	Eligible Activity	Sources	Additional Notes
<b>Wildfire Mitigation (Fuels Management)</b>				
f(10)	establishing defensible space measures	Creation of Defensible Space	HMA Guidance p. 37; HMA Guidance Addendum p. 31	Creation of defensible space around the perimeters of residential and non-residential buildings and structures through removal or reduction of flammable vegetation is an eligible activity for PDM, HMGP and HMGP Post Fire funding. Defensible space activities are included in FEMA’s BCA software wildfire module.
f(11)	reducing hazardous fuels	Hazardous Fuels Reduction	HMA Guidance p. 37; HMA Guidance Addendum p. 32	Hazardous fuels reduction to protect life and property beyond defensible space perimeters but proximate to at-risk structures is eligible for PDM, HMGP and HMGP Post Fire funding. Hazardous fuels reduction activities are included in FEMA’s BCA software wildfire module.
f(13)	removing standing burned trees	Hazardous Fuels Reduction, Soil Stabilization	HMA Guidance p. 37; HMA Addendum p. 32;	Hazardous fuels reduction to protect life and property beyond defensible space perimeters but proximate to at-risk structures is eligible for PDM, HMGP and HMGP Post Fire funding. Hazardous fuels reduction activities are included in FEMA’s BCA software wildfire module.
<b>5 Percent Initiative</b>				
f(9)	installing warning signs	N/A	HMA Guidance p. 38; Clarifying the Additional 5 Percent Initiative Fact Sheet (8/22/16)	FEMA’s 5 Percent Initiative allows HMGP Recipients to set aside up to 5 percent of total HMGP funds for projects that are difficult to evaluate using FEMA-approved BCA methodologies but otherwise meet HMGP eligibility criteria. Applicants need to provide a narrative description of the project’s effectiveness. Equipment and systems for warning citizens about hazards and hazard identification-related equipment are activities that could be funded under the 5 Percent Initiative.

<sup>5</sup> The HMA Guidance page numbers listed in the crosswalk reflect the version dated February 27, 2015.

Federal Insurance and Mitigation Administration

Sec. 1205 Item No.	Section 1205 Language	Eligible Activity	Sources	Additional Notes
<i>Infrastructure Retrofits</i>				
f(12)	mitigating windstorm damage, including replacing or installing electrical transmission or distribution utility pole structures with poles that are resilient to extreme wind and combined ice and wind loadings for the basic wind speeds and ice conditions associated with the relevant location	Infrastructure Retrofits	HMA Guidance p. 37; Report "Electrical Transmission and Distribution Mitigation: Loss Avoidance Study" for Nebraska and Kansas (2008); Public Assistance Program and Policy Guide, Appendix J; 404/406 Mitigation Fact Sheet	The FEMA Public Assistance Program and Policy Guide Appendix J indicates that replacing damaged poles with higher-rated poles of the same or different material is considered to be a cost-effective mitigation measure if it does not exceed 100 percent of the repair cost (prior to any insurance reductions). FEMA Region VI has a Public Assistance Section 406 Mitigation fact sheet that states "Use of disaster-resistant materials for power poles" is an example of a "reasonable mitigation measure." Further, the Region VI Section 404 Mitigation fact sheet indicates wind retrofits are eligible for HMGP and PDM. From FEMA report, "Electrical Transmission and Distribution Mitigation: Loss Avoidance Study" for Nebraska and Kansas - HMGP projects to mitigate the impacts of snow, ice, and wind included replacing single poles with steel structures that met Rural Utilities Service (RUS) standards; replacing conductors with Twisted Pair (T-2) conductors; replacing existing transmission line towers with "dead-end" structures; replacing copper and aluminum conductor steel-reinforced (ACSR) open conductors with insulated spacer cable; installing lightning arrestors at connection points on the conductors; reinforcing and strengthening distribution poles; installing three-phase transformers with polyethylene insulators; and undergrounding lines.

Federal Insurance and Mitigation Administration

Sec. 1205 Item No.	Section 1205 Language	Eligible Activity	Sources	Additional Notes
f(14)	replacing water systems that have been burned and have caused contamination	Infrastructure Retrofits	HMA Guidance p. 37	The HMA Guidance allows for infrastructure retrofits that reduce risk to existing utility systems. Water and wastewater system retrofit projects may include modifications to buried and above-ground pipelines, pumping stations, and storage tanks. FEMA's BCA software includes ways to account for the value of water utility services and the loss of potable water service. The help content in the BCA software provides guidance on the project useful life to use for BCA of water utility mitigation projects.
<b>Soil Stabilization (Flood After Fire)</b>				
f(1)	reseeding ground cover with quick-growing or native species	Soil Stabilization	HMA Guidance p. 37; Benefit-Cost Analysis Tools for Drought, Ecosystem Services, and Post-Wildfire Mitigation for Hazard Mitigation Assistance (May 27, 2016 Policy Memo); Mitigating Flood and Drought Conditions, suite of HMA resources; Green Infrastructure Methods Fact Sheet (2/15/17)	HMA Guidance indicates soil stabilization projects to reduce risk to structures or infrastructures from erosion and landslides are eligible activities for HMA funding. Applying a sustainable approach to natural landscape preservation using "green infrastructure" is supported by HMA activities. In 2015, FEMA developed pre-calculated benefits for the effectiveness evaluation of soil stabilization projects to support expedient implementation of post-wildfire mitigation actions. Soil stabilization projects under the cost of \$5,250/acre are considered cost effective and no further BCA is required.



Federal Insurance and Mitigation Administration

Sec. 1205 Item No.	Section 1205 Language	Eligible Activity	Sources	Additional Notes
f(8)	planting grass to prevent the spread of noxious weeds	Soil Stabilization	HMA Guidance p. 37; Benefit-Cost Analysis Tools for Drought, Ecosystem Services, and Post-Wildfire Mitigation for Hazard Mitigation Assistance (May 27, 2016 Policy Memo); Mitigating Flood and Drought Conditions, suite of HMA resources; Green Infrastructure Methods Fact Sheet (2/15/17)	HMA Guidance indicates soil stabilization projects to reduce risk to structures or infrastructures from erosion and landslides are eligible activities for HMA funding. Applying a sustainable approach to natural landscape preservation using "green infrastructure" is supported by HMA activities. In 2015, FEMA developed pre-calculated benefits for the effectiveness evaluation of soil stabilization projects to support expedient implementation of post-wildfire mitigation actions. Soil stabilization projects under the cost of \$5,250/acre are considered cost effective and no further BCA is required.
f(2)	mulching with straw or chipped wood	Soil Stabilization	HMA Guidance p. 37; Benefit-Cost Analysis Tools for Drought, Ecosystem Services, and Post-Wildfire Mitigation for Hazard Mitigation Assistance (May 27, 2016 Policy Memo); Mitigating Flood and Drought Conditions, suite of HMA resources; Green Infrastructure Methods Fact Sheet (2/15/17)	HMA Guidance indicates soil stabilization projects to reduce risk to structures or infrastructures from erosion and landslides are eligible activities for HMA funding. Applying a sustainable approach to natural landscape preservation using "green infrastructure" is supported by HMA activities. In 2015, FEMA developed pre-calculated benefits for the effectiveness evaluation of soil stabilization projects to support expedient implementation of post-wildfire mitigation actions. Soil stabilization projects under the cost of \$5,250/acre are considered cost effective and no further BCA is required.

**Federal Insurance and Mitigation Administration**

Sec. 1205 Item No.	Section 1205 Language	Eligible Activity	Sources	Additional Notes
f(4)	placing logs and other erosion barriers to catch sediment on hill slopes	Soil Stabilization	HMA Guidance p. 37; Benefit-Cost Analysis Tools for Drought, Ecosystem Services, and Post-Wildfire Mitigation Assistance (May 27, 2016 Policy Memo); Mitigating Flood and Drought Conditions, suite of HMA resources; Green Infrastructure Methods Fact Sheet (2/15/17)	HMA Guidance indicates soil stabilization projects to reduce risk to structures or infrastructures from erosion and landslides are eligible activities for HMA funding. Applying a sustainable approach to natural landscape preservation using “green infrastructure” is supported by HMA activities. In 2015, FEMA developed pre-calculated benefits for the effectiveness evaluation of soil stabilization projects to support expedient implementation of post-wildfire mitigation actions. Soil stabilization projects under the cost of \$5,250/acre are considered cost effective and no further BCA is required.
f(5)	installing debris traps to modify road and trail drainage mechanisms	Localized Flood Risk Reduction Projects; Infrastructure Retrofit; Soil Stabilization	HMA Guidance pp. 36-37; HMA Addendum p. 81	Minor localized flood reduction projects are eligible for funding under HMA, as are infrastructure retrofits. These types of projects may also be analyzed in FEMA’s BCA software.
<b>Localized Flood Risk Reduction Projects (Flood Diversion/Storage)</b>				
f(6)	modifying or removing culverts to allow drainage to flow freely	Localized Flood Risk Reduction Projects; Floodplain and Stream Restoration	HMA Guidance p. 36; Floodplain and Stream Restoration Fact Sheet (2/15/17)	Per the HMA Guidance, projects that lessen the frequency or severity of flooding are eligible for funding. Floodplain and stream restoration mechanisms that return floodplains and ecosystems as closely as possible to natural conditions and functions prior to development are eligible for HMA funding if they are cost-effective and meet other federal requirements.

**Federal Insurance and Mitigation Administration**

Sec. 1205 Item No.	Section 1205 Language	Eligible Activity	Sources	Additional Notes
f(7)	adding drainage dips and constructing emergency spillways to keep roads and bridges from washing out during floods	Localized Flood Risk Reduction Projects; Flood Diversion and Storage	HMA Guidance p. 36; Benefit-Cost Analysis Tools for Drought, Ecosystem Services, and Post-Wildfire Mitigation for Hazard Mitigation Assistance (May 27, 2016); Flood Diversion and Storage Fact Sheet (2/15/17)	Per the HMA Guidance, projects that lessen the frequency or severity of flooding are eligible for funding. Flood diversion and storage projects are currently eligible for HMA funding as flood risk reduction activities. These projects can leverage traditional risk benefits as well as applicable ecosystem services benefits. FEMA also developed pre-calculated benefits for flood diversion. Projects costing less than \$5,250 per acre are considered cost effective and no further BCA is required.
f(3)	constructing straw, rock, or log dams in small tributaries to prevent flooding	Localized Flood Risk Reduction Projects; Flood Diversion and Storage	HMA Guidance p. 36; Benefit-Cost Analysis Tools for Drought, Ecosystem Services, and Post-Wildfire Mitigation for Hazard Mitigation Assistance (May 27, 2016); Flood Diversion and Storage Fact Sheet (2/15/17)	Per the HMA Guidance, projects that lessen the frequency or severity of flooding are eligible for funding. Flood diversion and storage projects are currently eligible for HMA funding as flood risk reduction activities. These projects can leverage traditional risk benefits as well as applicable ecosystem services benefits. FEMA also developed pre-calculated benefits for flood diversion. Projects costing less than \$5,250 per acre are considered cost effective and no further BCA is required.