



September 2018

HOMELAND SECURITY GRANT PROGRAM

Additional Actions Could Further Enhance FEMA's Risk-Based Grant Assessment Model

GAO Highlights

Highlights of [GAO-18-354](#), a report to congressional requesters

Why GAO Did This Study

FEMA, a component of DHS, provides preparedness grants to state, local, tribal, and territorial governments to help prepare for, prevent, protect against, respond to, recover from and mitigate terrorist attacks or other disasters. SHSP grants fund the nation's 56 states and territories, while UASI grants fund eligible urban areas. Grant allocations have been based, in part, on FEMA's risk-based grant assessment model, with states and urban areas deemed to be at higher risk receiving more grant dollars than those deemed at lower risk. Since 2008, GAO and others have assessed the model and made recommendations to strengthen it.

This report 1) describes SHSP and UASI grant awards during fiscal years 2008 through 2018, and factors affecting grant distributions; and 2) examines the steps that FEMA has taken to strengthen its risk assessment model for allocating preparedness grants, and any additional opportunities to improve the model. GAO analyzed the information in FEMA's model, and data on SHSP and UASI grant awards for fiscal years 2008 through 2018. GAO also interviewed FEMA and DHS officials and collected documents.

What GAO Recommends

GAO is making three recommendations to FEMA to further strengthen its risk-based grant assessment model by (1) fully documenting the model's assumptions and justifications, (2) performing additional in-depth analyses, and (3) coordinating an external peer review. FEMA concurred with our recommendations.

View [GAO-18-354](#). For more information, contact Chris P. Currie at (202) 512-8777 or CurrieC@gao.gov.

September 2018

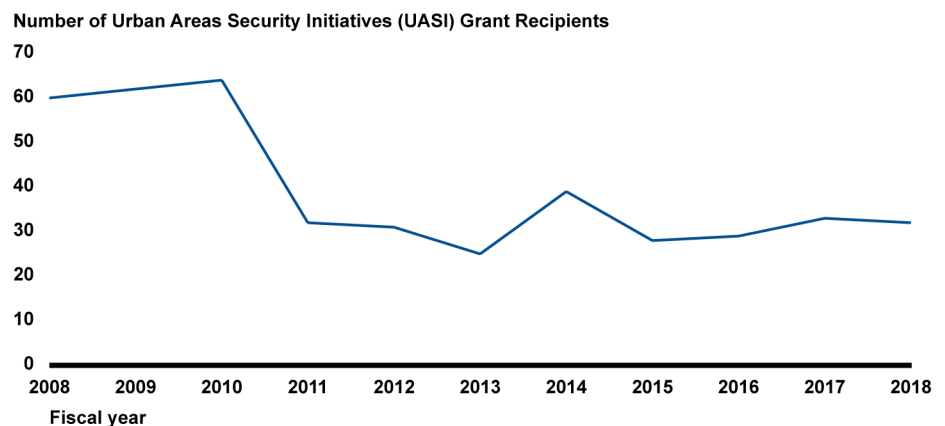
HOMELAND SECURITY GRANT PROGRAM

Additional Actions Could Further Enhance FEMA's Risk-Based Grant Assessment Model

What GAO Found

GAO found that various factors affected Federal Emergency Management Agency (FEMA) State Homeland Security Program (SHSP) and Urban Area Security Initiative (UASI) grant awards from fiscal year 2008 through 2018. SHSP grant awards to states were based on two factors—(1) minimum amounts set in law each year, and (2) FEMA's risk model. For example, in fiscal year 2012, each state was to receive a minimum of approximately \$2.74 million, with each state receiving additional funds based on its relative risk score. Conversely, UASI grant awards are made based on its FEMA's risk-based grant assessment model, which ranks each urban area relative to others in that year, and Department of Homeland Security (DHS) leadership decisions on how funding should be allocated. From fiscal year 2008 through 2018, the number of UASI grantees varied from year to year (see figure below).

Annual Number of Urban Area Security Initiative (UASI) Grantees for Fiscal Years 2008 through 2018



Source: GAO analysis of DHS and FEMA documents and information provided in interviews. | GAO-18-354

Since 2008, FEMA has taken steps to strengthen its risk-based grant assessment model, but has not incorporated additional scientific practices into its model. For example, in 2011 FEMA included more information in its model on potential targets and their vulnerability in each state and urban area, addressing a prior GAO recommendation. More recently in 2018, FEMA added additional factors to better assess vulnerability in each state and urban area, such as the number of special events where large crowds gather and soft targets susceptible to lone wolf attacks, among other things. However, GAO found that FEMA does not fully utilize scientific practices recognized by the National Research Council and the Office of Management and Budget as best practices. Specifically, FEMA did not fully document its model's underlying assumptions, such as the weights in its model or the justification for changes to these weights. FEMA also did not perform the level of analysis needed to determine how changes to its model could affect the resulting risk scores. Finally, FEMA has not coordinated an independent external peer review of its model. Applying such scientific practices could assist FEMA in further strengthening its model.

Contents

Letter		1
	Background	3
	Various Factors Affected SHSP and UASI Grant Allocations to States and Urban Areas From Fiscal Years 2008 Through 2018	8
	FEMA Has Improved Its Risk-based Grant Assessment Model, but Additional Steps Could Further Strengthen Its Model	14
	Conclusions	25
	Recommendations for Executive Action	26
	Agency Comments and Our Evaluation	26
Appendix I	Grant Funding and Awards for State Homeland Security Grant Program (SHSP), and the Urban Area Security Initiative (UASI) Grant Program for Fiscal Years 2008 Through 2018	29
Appendix II	Comments from the Department of Homeland Security	40
Appendix III	GAO Contact and Staff Acknowledgments	43
Tables		
	Table 1: State Homeland Security Grant Program (SHSP): Risk-Based Awards, Number of Top Funded States and States Funded at Legal Minimum Amount, Fiscal Years 2008 through 2018	9
	Table 2: Urban Area Security Initiative (UASI) Grantees, Urban Areas With Highest Awards, Ranked By Award Amount: Fiscal Years 2014 through 2018	12
	Table 3: Urban Area Security Initiative (UASI) Grantees, Urban Areas with Lowest Awards that Received UASI Funding, Ranked By Award Amount: Fiscal Years 2014 through 2018	13
	Table 4: Department of Homeland Security (DHS), State Homeland Security Grant Program (SHSP) Grant Awards by State and Territory: Total Award, Amount Above Legal Minimum, Legal Minimum Amount; Fiscal Years 2008 through 2018	29

Table 5: Department of Homeland Security (DHS), Urban Area Security Initiative (UASI) Grant Awards by Eligible Urban Area, Fiscal Years 2008 through 2018 (dollars in thousands)	37
--	----

Figures

Figure 1: State Homeland Security Grant Program (SHSP) and Urban Area Security Initiative (UASI): Annual Funding to SHSP and UASI for Fiscal Years 2008 through 2018	5
Figure 2: Annual Number of Urban Area Security Initiative (UASI) Grantees for Fiscal Years 2008 through 2018	11
Figure 3: Relative Risk-based Grant Distribution Curve: Urban Area Security Initiative	12
Figure 4: Federal Emergency Management Agency's (FEMA) Risk-based Grant Assessment Model: Modifications To and Other Significant Studies, 2008 through 2018	15
Figure 5: Homeland Security Grant Program, Risk-based Grant Assessment Model, Fiscal Year 2018	16
Figure 6: Federal Emergency Management Agency's (FEMA) Risk-based Grant Assessment Models: Fiscal Year 2008 versus Fiscal Year 2018	17

Abbreviations

DHS	Department of Homeland Security
FEMA	Federal Emergency Management Agency
FY	Fiscal Year
HSGP	Homeland Security Grant Program
NRC	National Research Council
SHSP	State Homeland Security Program
UASI	Urban Areas Security Initiative

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.



September 6, 2018

Congressional Requesters

The Department of Homeland Security (DHS) through the Federal Emergency Management Agency (FEMA) awarded over \$50 billion in preparedness grants from fiscal years 2002 through 2018. These grants are designed to enhance the capabilities of state and local governments to, prevent, prepare for, protect against, respond to, recover from, and mitigate terrorist attacks and other disasters. The largest preparedness grant programs are the State Homeland Security Program (SHSP), which provides grants to the nation's 56 states and territories, and the Urban Area Security Initiative (UASI), which awards grants to high-risk urban areas.¹ In order to make grant award decisions for SHSP and UASI grants, FEMA has developed and maintains a risk-based grant assessment model with the assistance of other DHS components such as the Office of Intelligence and Analysis. FEMA uses this model to represent potential threats, vulnerabilities, and consequences of a terrorist attack, among other factors. Specifically, this risk model is used to determine the relative risk order of (a) 56 states and territories, and (b) the nation's 100 most populous urban areas for purposes of designating high-risk urban areas that are eligible for funding, which serves to inform DHS leadership in their final determinations of grant award amounts, according to FEMA officials.² According to FEMA officials, DHS leadership considers multiple pieces of information when making grant award decisions including historical funding, risk scores and ranking, funding separation between jurisdictions, and any special circumstances.

In June 2008, we reported that DHS's risk-based grant assessment model for allocating grants was reasonable, but the way that this risk model measured vulnerability across states and urban areas was limited. We recommended that DHS and FEMA formulate a methodology to

¹See 6 U.S.C. §§ 604-605. Since 2011, about 95 percent of annual Homeland Security Grant Program funding has been through the SHSP and UASI programs. Operation Stonegarden grant program is also funded under the Homeland Security Grant Program, which has been appropriated between \$46.6 million to \$85 million annually.

²The risk assessment is initially conducted regarding the 100 most populous metropolitan statistical areas. Based on that assessment, FEMA designates entities as "high-risk urban areas" and those are then eligible to apply for and receive Urban Area Security Initiative funding. See 6 U.S.C. §§ 601(5), (8), 604(b).

measure variations in vulnerability across states and urban areas.³ DHS concurred with our recommendation and we will discuss how they implemented this recommendation later in this report.

You asked us to report on the grant awards to states and urban areas and any changes to FEMA's risk-based grant assessment model since 2008. Specifically, this report (1) describes SHSP and UASI total amounts funded from fiscal years 2008 through 2018, and the factors that affect the calculation of grant awards to states and territories, and urban areas; and (2) examines the steps FEMA has taken to strengthen its risk model for allocating SHSP and UASI grants, and what additional opportunities, if any, exist to improve the model.

To address our first objective, we reviewed applicable laws governing the establishment and distribution of these grants programs, as well as FEMA's annual grant announcements and guidance. We reviewed and identified laws and regulations including the Homeland Security Act of 2002, the Implementing Recommendations of the 9/11 Commission Act of 2007, Department of Homeland Security appropriations acts and accompanying congressional reports. We analyzed SHSP and UASI annual grant awards to states, territories and urban areas, based on publically-reported information contained in DHS and FEMA's grant funding notifications for fiscal years 2008 through 2018. We compared data in these public documents to annual program funding and grant award data provided by FEMA, and determined the data were reliable for our purposes.

To address our second objective, we collected and reviewed policy, guidance and annual grant funding notification documents from FEMA's Grant Programs Directorate. We reviewed the risk-based grant assessment models for fiscal years 2008 through 2018, and we interviewed officials from FEMA's Grant Programs Directorate and DHS's Office of Intelligence & Analysis. We reviewed the elements used in FEMA's risk model, prior assessments of FEMA's model, and FEMA's grant process to assess the status and continuing applicability of prior recommendations. These included our prior reports⁴ and studies by

³GAO Homeland Security: DHS Risk-based Grant Methodology Is Reasonable, But Current Version's Measure of Vulnerability is Limited [GAO-08-852](#) (Washington, D.C.: Jun 27, 2008).

⁴GAO, *Assessment Methodology for Economic Analysis*, [GAO-18-151SP](#) (Washington, D.C.: Apr 10, 2018).

organizations such as the National Research Council (NRC) and DHS's Homeland Security Advisory Council.⁵ We also interviewed FEMA and DHS officials to determine the extent to which prior recommendations were implemented. Finally, we reviewed guidance and key practices from OMB and our past work to compare them against FEMA's processes and updates to its risk model over fiscal years 2008 through 2018 to examine what steps, if any FEMA undertook to improve its model.

We conducted this performance audit from September 2017 to September 2018 in accordance with 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 finding and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

DHS's Homeland Security Grant Program

The federal government has provided financial assistance to public and private stakeholders for preparedness activities through various grant programs administered by DHS through its component agency, FEMA. Through these grant programs, DHS has sought to enhance the capacity of states, localities, and other entities, such as ports or transit agencies, to prevent, prepare for, protect against, respond to, and recover from, and mitigate a natural or manmade disaster, including terrorist incidents. Two of the largest preparedness grant programs are the SHSP and UASI grant programs.

- SHSP grants provide federal assistance to support states' implementation of homeland security strategies to address the identified planning, organization, equipment, training, and exercise needs at the state and local levels to prevent, prepare for, protect against, and respond to acts of terrorism. SHSP grants are annually awarded to all the nation's 56 states and territories. SHSP grant awards are calculated in two parts. All states and territories are to receive a minimum grant amount required by law, based on a

⁵Review of the Department of Homeland Security's Approach to Risk Analysis, National Research Council of the National Academies, 2010; Grant Review Task Force Final Report, Homeland Security Advisory Council Spring 2016.

percentage of the total amount of SHSP and UASI appropriations in a given fiscal year.⁶ The remaining award amounts are based on FEMA's risk-based grant assessment model.

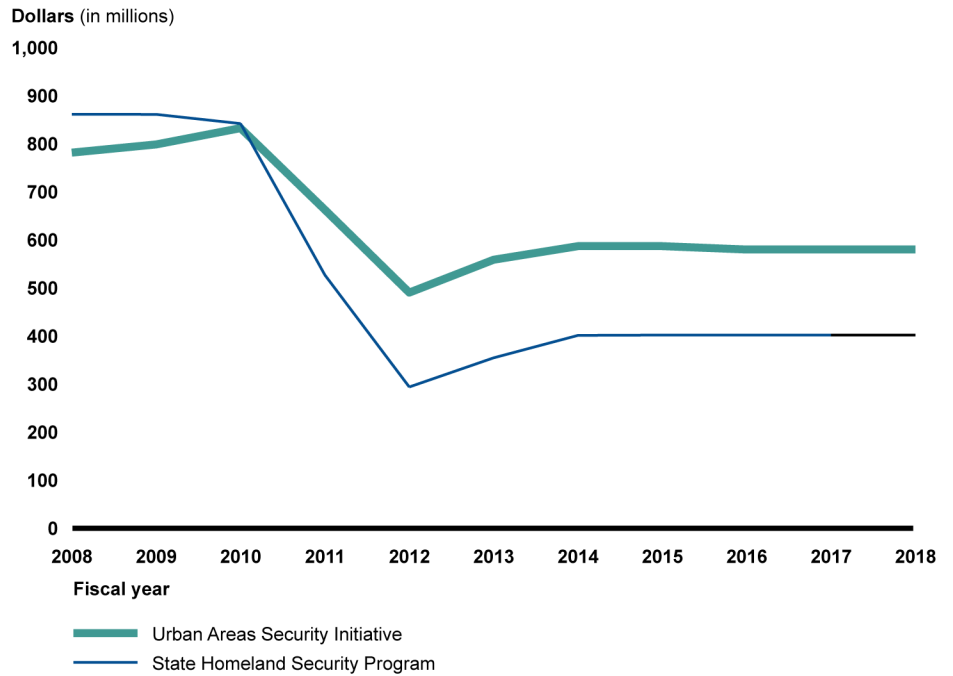
- UASI grants provide federal assistance to address the unique needs of high-threat, high-density urban areas, and assists the areas in building an enhanced and sustainable capacity to prevent, prepare for, protect against, respond to acts of terrorism. Since 2015, Congress has instructed through the Explanatory Statements accompanying the annual DHS Appropriations Acts that the UASI grants should be awarded to urban areas that reflect up to 85 percent of nationwide risk.⁷ For the UASI program, FEMA uses the risk-based grant assessment model each year to identify those urban areas that will be eligible to receive funding.

Annual funding for the SHSP and UASI programs have generally declined over the period of fiscal years 2008 through 2018, but have remained consistent since fiscal year 2016. Figure 1 shows the changes to SHSP and UASI programs' annual funding during this period. For example, annual funding for SHSP decreased from about \$861 million in fiscal year 2008, to \$402 million in fiscal year 2018. During this same period, annual funding for UASI also declined, from about \$782 million in fiscal year 2008 to \$580 million in fiscal year 2018. However, annual funding for the UASI program has been higher than the SHSP program since fiscal year 2010.

⁶The Homeland Security Act of 2002, as amended, establishes minimum thresholds for the SHSP program, and each state and territory is to receive a minimum grant allocation based on a percentage of the total funds appropriated for SHSP and UASI. See 6 U.S.C. § 605(e). Since fiscal year 2012, the minimum grant allocations have been 0.35 percent for states, the District of Columbia, and Puerto Rico, and 0.08 for American Samoa, the Northern Mariana Islands, Guam, and the Virgin Islands. In allocating funds under these programs, the Administrator is also to consider, for each State or high-risk urban area, the anticipated effectiveness of the proposed use of the grant. See 6 U.S.C. § 608(a)(2).

⁷Consistent with the Homeland Security Act of 2002, DHS annually assesses the risk for the 100 most populous metropolitan statistical areas (MSAs)—a geographical region with a relatively high population density at its core and close economic ties throughout the area—as defined by the Office of Management and Budget in determining its UASI grant allocations. See Pub. L. No. 107-296, §§ 2001(5), (8), 2003(b), 116 Stat. 2135 (codified as amended at 6 U.S.C. §§ 601(5), (8), 604(b)). The requirement that FEMA conduct risk assessments for the 100 most populous MSAs and the expectation that UASI funding be limited to urban areas representing up to 85 percent of the cumulative national terrorism risk has been included in the explanatory statements accompanying Department of Homeland Security appropriations since at least fiscal year 2015. See, e.g. 161 Cong. Rec. H10174 (daily ed. Dec. 17, 2015); 163 Cong. Rec. H3819 (daily ed. May 3, 2017); 164 Cong. Rec. H2561 (daily ed. Mar. 22, 2018).

Figure 1: State Homeland Security Grant Program (SHSP) and Urban Area Security Initiative (UASI): Annual Funding to SHSP and UASI for Fiscal Years 2008 through 2018



Source: GAO analysis of DHS documents. | GAO-18-354

Note: Amounts presented are actual funding amounts, not adjusted for inflation, and are rounded.

FEMA's Risk-based Grant Assessment Model for Distributing Funding Awards

Risk=Threat x Vulnerability x Consequence

Threat—A natural or man-made occurrence, individual, entity, or action that has or indicates the potential to harm life, information, operations, and/ or property

Vulnerability—Physical feature operational attribute that renders an entity, asset, system, network, or geographic area open to exploitation or susceptible to a given hazard.

Consequence—Effect of an event, incident, or occurrence, commonly measured in four ways: human, economic, mission, and psychological, but may also include other factors such as impact on the environment.

Source: Department of Homeland Security Risk Lexicon. | GAO-18-354

FEMA's risk-based grant assessment model uses three variables: Threat, Vulnerability, and Consequence.⁸ The purpose of this model is to apply a risk management process to provide a structured means of making informed trade-offs and choices about how to use finite resources effectively, and monitoring the effect of those choices. Specifically, inherent "uncertainty" is associated with any effort to develop a risk model such as assessing the risk of terrorist attacks, and thus, requires the application of policy judgments and analytic assumptions. The effect that uncertainty has on the results of the risk model can be especially important if the model produces materially different results in response to even small changes in assumptions, often referred to as the "sensitivity" or "robustness" of a model's assumptions and results.

As we reported in June 2008, FEMA's risk-based grant methodology and its continuous improvement efforts in estimating risk were part of a reasonable process to assist in determining SHSP and UASI grant allocations.⁹ For example, the risk-based grant assessment model used from fiscal year 2001 through 2003 largely relied on measures of population to determine the relative risk of potential grantees, and evolved to measuring risk as the sum of threat, critical infrastructure and population density calculations in fiscal years 2004 and 2005. Further, the fiscal year 2006 process introduced a risk assessment model that included measures of Threat, Vulnerability and Consequences.

In June 2008, we reported that the way the risk-based grant assessment model measured vulnerability across states and urban areas was limited.¹⁰ We found that the model considered all states and urban areas equally vulnerable to a successful attack, and as a result, the final risk scores were determined exclusively by the Threat and Consequence scores. Specifically, the risk model did not measure vulnerability for each state and urban area; rather it assigned a vulnerability score of 1.0 to every state and urban area. We recommended that DHS and FEMA formulate a methodology to measure variations in vulnerability across states and urban areas. DHS components concurred with our

⁸See GAO, *Homeland Security Grants: Observations on Process DHS Used to Allocate Funds to Selected Urban Areas*, [GAO-07-381R](#): (Washington, D.C.: Feb 7, 2007); and [GAO-08-852](#).

⁹[GAO-08-852](#).

¹⁰[GAO-08-852](#).

recommendation to measure vulnerability in a way that captures variations across states and urban areas and apply this measure in future iterations of FEMA's model. In August 2011, FEMA reported that the agency, in coordination with other DHS components, established a Vulnerability Index for the fiscal year 2011 risk-based grant assessment model to better capture the risk to states and urban areas, thereby addressing our recommendation.

Other Reviews of FEMA's Risk Methodology

DHS and the National Research Council (NRC) have also performed reviews of FEMA's risk assessment methodologies, providing their own conclusions and recommendations, since our 2008 review. For example, in 2010, the NRC reported that FEMA should strengthen its scientific practices, such as documentation, analyses to determine how changes to a model could affect its results, and peer review by technical experts external to DHS, in order to further develop an understanding of the uncertainties in its terrorism-related risk analyses.¹¹

Additionally, in 2016, the Homeland Security Advisory Council reported that processes by which FEMA uses to assess risk should be made more inclusive, comprehensive and effective.¹² The Homeland Security Advisory Council recommended the following actions to strengthen this process:

- FEMA should continue to send risk profiles to states and urban areas to promote timely and meaningful feedback, and enable FEMA to evaluate recommended adjustments.
- Before each year's budget submission, FEMA should discuss with congressional appropriators the current grant allocation mechanism.

We discuss FEMA's progress in implementing these recommendations later in this report.

¹¹Review of the Department of Homeland Security's Approach to Risk Analysis; National Research Council of the National Academies, (Washington, D.C.: 2010).

¹²Homeland Security Advisory Council, Grant Review Task Force Final Report, (Washington, D.C.: Spring 2016).

Various Factors Affected SHSP and UASI Grant Allocations to States and Urban Areas From Fiscal Years 2008 Through 2018

SHSP Allocations Reflect Both a State's Relative Risk Score and the Minimum Allocation by Law

While all states and territories receive minimum SHSP program grant allocations by law,¹³ the risk-based grant assessment model also informs the grant allocation of the remaining funds to each state. However, for a majority of states each year, their SHSP grant awards are primarily based on a legal minimum amount.¹⁴ For example, in fiscal year 2012, 34 states, like New Mexico, were awarded \$2,801,000, which included \$2,745,000 based on the minimum amount by law, and \$56,000 was based on its risk level. By contrast, New York was one of the high-risk states based on the risk model. For that same fiscal year (2012) New York received a total of \$55,610,000, which included \$2,745,000 based on the minimum amount by law, plus \$52,865,000 based on its risk level.

Over the period from fiscal years 2008 through 2018, the number of low-risk states whose SHSP grant awards were primarily based on the legal minimum amount had varied from year to year, from 19 states in fiscal year 2008, to 37 states in fiscal year 2018, as shown in table 1.

¹³See 6 U.S.C. § 605(e).

¹⁴The minimum grant amount required by law varied from fiscal years 2008 through 2012, ranging from 0.375 percent to 0.35 percent annually, and has remained at 0.35 percent from 2012 through 2018.

Table 1: State Homeland Security Grant Program (SHSP): Risk-Based Awards,^a Number of Top Funded States^a and States Funded at Legal Minimum Amount,^b Fiscal Years 2008 through 2018

Fiscal Year	Total SHSP Funding	Top-Funded, Number of states	Legal Minimum Amount, Number of states
2008	\$861,280,000	3	19
2009	\$861,137,000	3	20
2010	\$842,000,000	3	22
2011	\$526,874,100	2	28
2012	\$294,000,000	2	34
2013	\$354,644,123	2	35
2014	\$401,346,000	2	27
2015	\$402,000,000	2	25
2016	\$402,000,000	2	26
2017	\$402,000,000	2	25
2018	\$402,000,000	2	37

Source: GAO analysis of SHSP grants | GAO-18-354

Notes:

^aRepresents the risk-based grant awards of the top funded states receiving 5 percent or more of the total SHSP awards in that year.

^bRepresents the risk-based grant awards of the lowest ranked states (including the District of Columbia and Puerto Rico) receiving less than 0.9 percent or the lowest amount of SHSP awards in that year. Territories were not included in this analysis as their grant allocations were based on the minimum percentage for territories for that given grant year.

GAO calculated risk-based grant allocations by subtracting the minimum required grant allocation under law from the total SHSP and UASI grant funds in that year. The minimum grant allocation by law varied for fiscal years 2008 to 2012 ranged from 0.375 percent to 0.35 percent for each of the 50 States, the District of Columbia, and Puerto Rico, and has remained at 0.35 percent from 2012 through 2018. See 6 U.S.C. § 608(e).

In addition, from fiscal year 2008 through fiscal year 2018, there was a decrease in the percent of total SHSP funds awarded to states and territories based on FEMA's risk model. The percent of total SHSP funding awarded to states and territories based on FEMA's model ranged from a high of 63 percent in fiscal year 2009 (about \$536 million of the \$851 million of total SHSP funds), to 51 percent (about \$149 million of \$294 million of total SHSP funds) for fiscal year 2012. For fiscal year 2018, the total SHSP funds awarded to states and territories based on the

risk-based grant assessment model was 55 percent—about \$220 million of \$402 million.¹⁵

For specific details on SHSP grant allocations for fiscal years 2008 through 2018 by states and territories, see appendix I, table 4.

UASI Grantee Eligibility and Allocations Reflect Results from FEMA's Risk-Based Grant Assessment Model

The UASI program uses FEMA's risk-based grant assessment model to identify which of the 100 of the nation's largest urban areas are eligible for grant awards in a particular fiscal year. Then, FEMA's risk model also helps inform DHS leadership's decisions on the final funding amounts for each grantee, according to FEMA officials. Specifically, FEMA annually assesses the risk of the 100 most populous metropolitan statistical areas—a geographical region with a relatively high population density at its core and close economic ties throughout the area—as defined by the Office of Management and Budget, in determining the eligible urban areas. From these 100 eligible urban areas, the risk-based grant assessment model identifies those urban areas that reflect recent congressional intent that up to eighty-five percent (85%) of nationwide risk is funded each year.¹⁶ Those urban areas below this 85 percent threshold are ineligible for UASI grant awards in that fiscal year, according to FEMA officials.

From fiscal years 2008 through 2018, the number of UASI grantees has remained relatively stable since fiscal year 2011.¹⁷ As figure 2 shows, the annual number of grantees has fluctuated from fiscal years 2008 through 2018, ranging from 60 to 64 grantees during fiscal years 2008, 2009 and 2010. However, since fiscal year 2011 the number of UASI grantees has averaged 31 urban areas, with a high of 39 urban areas in fiscal year

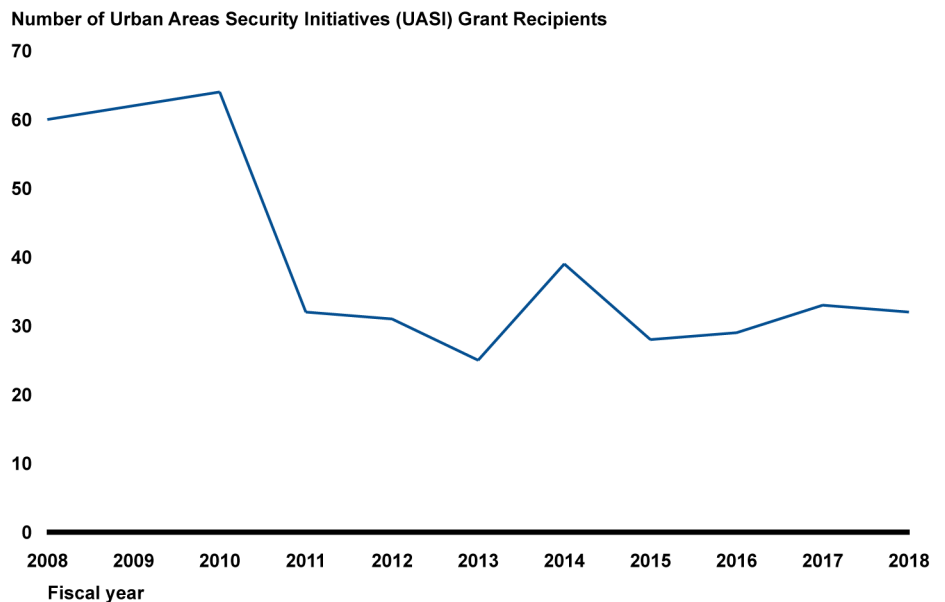
¹⁵In addition to changes to the risk model, other factors such as policy decisions over the years also affect how the remaining funding is allocated.

¹⁶See 6 U.S.C. §§ 601(5), (8), 604(b). The requirement that FEMA conduct risk assessments for the 100 most populous MSAs and the expectation that UASI funding be limited to urban areas representing up to 85 percent of the cumulative national terrorism risk has been included in the explanatory statements accompanying Department of Homeland Security appropriations since at least fiscal year 2015. See, e.g. 161 Cong. Rec. H10174 (daily ed. Dec. 17, 2015); 163 Cong. Rec. H3819 (daily ed. May 3, 2017); 164 Cong. Rec. H2561 (daily ed. Mar. 22, 2018).

¹⁷Although entities receiving UASI funds receive them through their applicable State Administrative Agency and are not direct grantees, for purposes of this report, we use the term "grantee" to refer to these entities.

2014 and a low of 25 urban areas in fiscal year 2013. For fiscal year 2018, 32 urban areas were UASI grantees.

Figure 2: Annual Number of Urban Area Security Initiative (UASI) Grantees for Fiscal Years 2008 through 2018



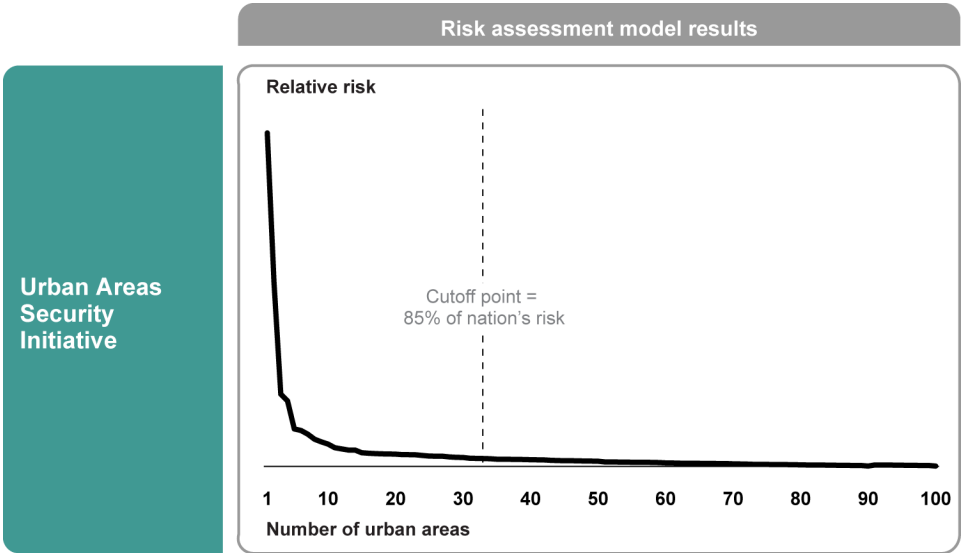
Source: GAO analysis of DHS and FEMA documents and information provided in interviews. | GAO-18-354

For additional details on UASI grant awards for fiscal years 2008 through 2018 by urban areas, see appendix I, table 5.

Because the UASI grant program is required by annual congressional guidance to fund only those urban areas that comprise up to 85 percent of risk nationally, this eligibility cut off can result in different urban areas being eligible from one year to the next. Specifically, as we demonstrated in June 2008, the variation of risk across urban areas takes on the distribution curve illustrated in figure 3.¹⁸

¹⁸A similar risk-based distribution curve occurs for states and territories under the SHSP program.

Figure 3: Relative Risk-based Grant Distribution Curve: Urban Area Security Initiative



Source: GAO analysis of DHS and FEMA documents and information provided in interviews. | GAO-18-354

The few urban areas with the highest relative risk score are represented along the steep part of the relative risk curve. For example, those urban areas receiving the highest awards, informed by their risk scores and ranks, are generally the same each fiscal year: New York City, Los Angeles, and Chicago, as seen in table 2.

Table 2: Urban Area Security Initiative (UASI) Grantees, Urban Areas With Highest Awards, Ranked By Award Amount: Fiscal Years 2014 through 2018

Fiscal Year	2014	2015	2016	2017	2018
Urban Areas with Highest Awards					
	New York, NY	New York, NY	New York, NY	New York, NY	New York, NY
	Chicago, IL	Los Angeles/Long Beach, CA	Los Angeles/Long Beach, CA	Los Angeles/Long Beach, CA	Los Angeles/Long Beach, CA
	Los Angeles/Long Beach, CA	Chicago, IL	Chicago, IL	Chicago, IL	Chicago, IL
	National Capital Region ^a	National Capital Region	National Capital Region	National Capital Region	National Capital Region
	San Francisco-Oakland-San Jose	San Francisco-Oakland-San Jose	San Francisco-Oakland-San Jose	San Francisco-Oakland-San Jose	San Francisco-Oakland-San Jose

Source: GAO analysis of UASI grants | GAO-18-354

Note: ^aThe National Capital Region represents Washington, D.C. and its surrounding jurisdictions.

Those urban areas that have less relative risk are represented along the flat section of the curve. There are urban areas with less risk that may not fall within the 85 percent of risk nationally during a specific year and thus would be ineligible to receive UASI funding during that year. Table 3 lists the lowest-funded urban areas for the last 5 fiscal years, based on our analysis of the funding amounts each received within each fiscal year. For example, during the period of fiscal year 2008 through fiscal year 2018 San Antonio, Texas, and Hampton Roads, Virginia only received awards in fiscal years 2008, 2009, 2014, 2017, and 2018.

Table 3: Urban Area Security Initiative (UASI) Grantees, Urban Areas with Lowest Awards that Received UASI Funding, Ranked By Award Amount: Fiscal Years 2014 through 2018

Fiscal Year	2014	2015	2016	2017	2018
Urban Areas with Lowest Awards					
	Columbus, OH	St. Louis, MO	Las Vegas, NV	Pittsburgh, PA	Pittsburgh, PA
	Portland, OR	Las Vegas, NV	Charlotte, NC	Indianapolis, IN	Orlando, FL
	San Antonio, TX	Charlotte, NC	Cleveland, OH	San Antonio, TX	Honolulu, HI
	Salt Lake City, UT	Portland, OR	Portland, OR	Salt Lake City, UT	San Antonio, TX
	Hampton Roads, VA	Pittsburg, PA	Pittsburg, PA	Hampton Roads, VA	Hampton Roads, VA

Source: GAO analysis of UASI grants | GAO-18-354

In addition to changes to urban areas’ risk ranking from one year to the next, the amount that an urban area received of the total amount of UASI funds in a given year can change. FEMA has established a process for developing grant award funding options based on the results of the risk-based grant assessment model. These funding options are provided to the Secretary of Homeland Security for consideration and final approval. According to FEMA officials, the options may vary each year based on DHS leadership’s priorities and concerns at the time; however, all options represent only those eligible grantees that represent up to 85 percent of the nation’s risk, as determined by the risk-based grant assessment model.¹⁹ In fiscal year 2013, FEMA shifted its UASI grant funding to a

¹⁹Congress sometimes sets a specific number of urban areas that can be funded under UASI. For example, the Explanatory Statement accompanying the 2013 Consolidated and Further Continuing Appropriations Act states that the “committees believe that the UASI program should be further focused on the areas under the greatest threat and at the greatest risk, providing funding to a maximum of 25 regions” and further directed FEMA to clearly identify specific criteria to determine the risk to urban areas in a briefing to the committees prior to grant guidance being issued and to justify the reasons for final determinations in a clear and transparent manner prior to the announcement of the awards for Fiscal Year 2013. 159 Cong Rec. S1559 (daily ed. Mar. 11, 2013).

process referred to as “funding bands.” In fiscal year 2018, for example, UASI grantees such as Orlando, Florida; Hampton Roads, Virginia; and San Antonio, Texas each received a \$1.5 million UASI grant, whereas a grouping of UASI grantees that included Sacramento, California; Pittsburgh, Pennsylvania; and Portland, Oregon each received \$2.5 million.

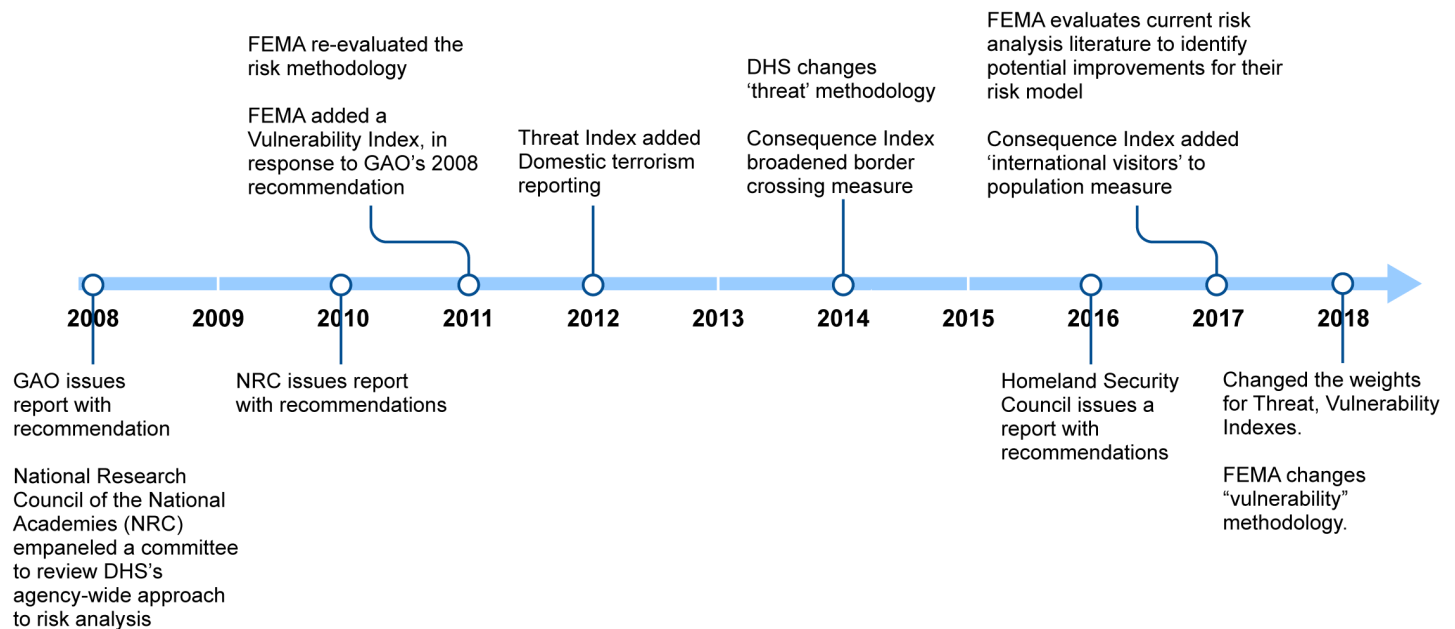
According to FEMA officials, grouping jurisdictions with similar risk scores into funding bands is an effort to stabilize and retain grantees’ funding levels over multiple years, as annual UASI grants will fund projects that are multiyear investments and carried out over a 24 to 36-month performance period. For example, if one jurisdiction increased by four ranks and another jurisdiction in the same group dropped six ranks, the two jurisdictions would stay in the same funding band if the overall risk scores remained close together. The purpose of the funding bands is to ensure that some consistency in funding exists for jurisdictions, given minor changes in the relative risk ranking. FEMA looks at the natural risk breaks and historical grant allocation data for each year. For example, each year FEMA presents for consideration by DHS leadership the historical funding and the number of urban areas that have been placed in specific funding bands in prior grant years, if any, and the differences between the relative risk scores in the current fiscal year. According to FEMA officials, the last few grant years had produced similar funding bands, which are subject to change depending on DHS leadership’s final decisions.

**FEMA Has Improved
Its Risk-based Grant
Assessment Model,
but Additional Steps
Could Further
Strengthen Its Model**

FEMA Has Taken a Number of Steps to Improve the Risk-based Grant Assessment Model for Allocating SHSP and UASI Grants

Since 2008, FEMA has taken a number of steps to assess and improve its risk-based grant assessment model for allocating grants based on past reviews, our prior recommendations, and various changes related to evolving terrorist threats and real-world scenarios. For example, FEMA added a Vulnerability Index to its risk model in 2011 in response to our 2008 recommendation. Most recently, for fiscal year 2018, FEMA has included a “soft target index.” According to FEMA officials, this index was added to account for the current threat for areas where crowds congregate. Figure 4 illustrates the timeline of FEMA changes to the risk-based assessment model and prior assessments.

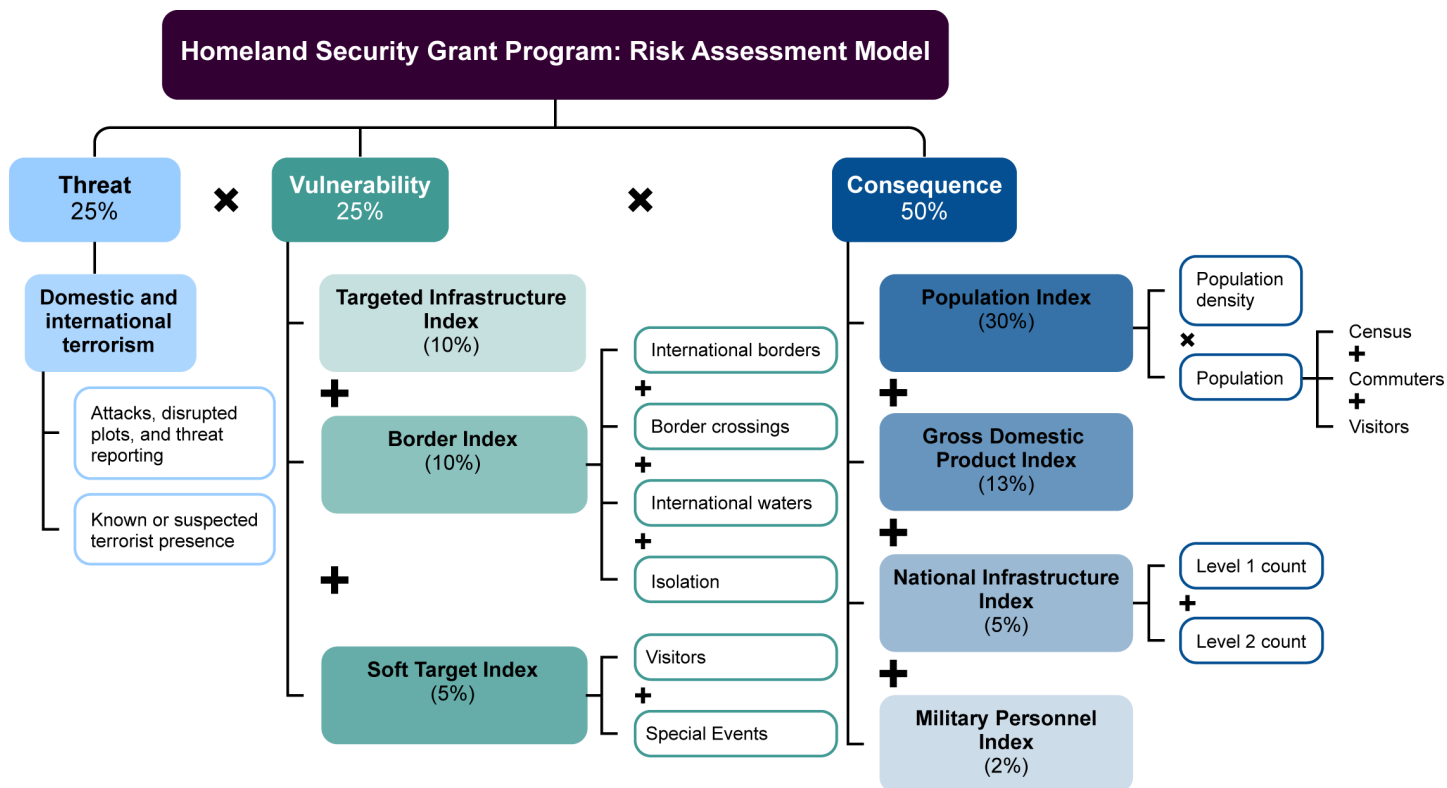
Figure 4: Federal Emergency Management Agency’s (FEMA) Risk-based Grant Assessment Model: Modifications To and Other Significant Studies, 2008 through 2018



Source: GAO analysis of FEMA documents and information provided in interviews. | GAO-18-354

Figure 5 depicts the risk-based grant assessment model used for fiscal year 2018 SHSP and UASI grant awards.

Figure 5: Homeland Security Grant Program, Risk-based Grant Assessment Model, Fiscal Year 2018

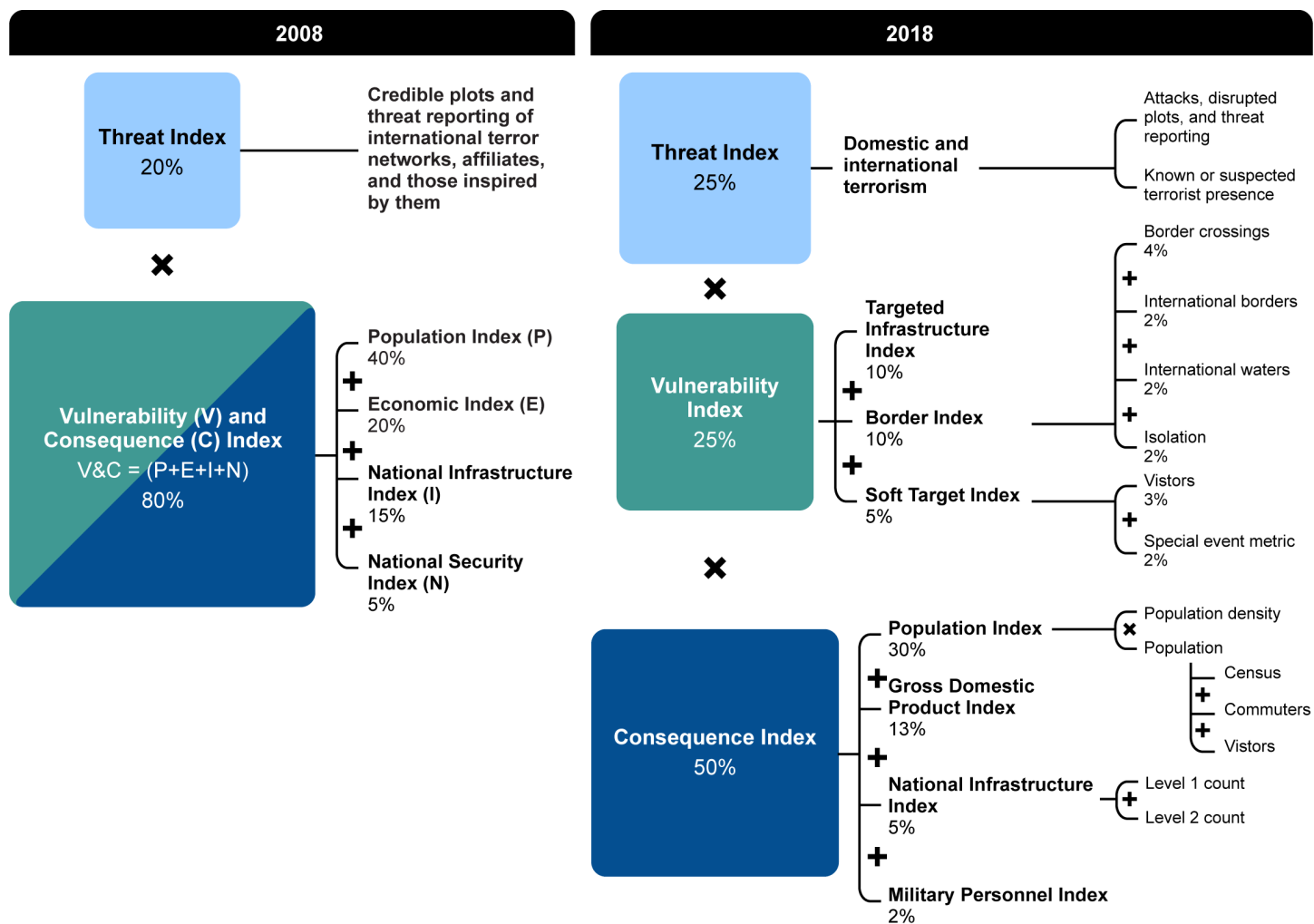


Source: GAO analysis of FEMA's risk assessment model. | GAO-18-354

Figure 6 depicts the changes in the Threat, Vulnerability, and Consequence indexes used in the risk-based grant assessments model for fiscal year 2008, compared to 2018. As we noted above, the 2008 risk model did not measure Vulnerability for each state and urban area, and risk scores were essentially determined by Threat and Consequences indexes.²⁰

²⁰ GAO-08-852.

Figure 6: Federal Emergency Management Agency's (FEMA) Risk-based Grant Assessment Models: Fiscal Year 2008 versus Fiscal Year 2018

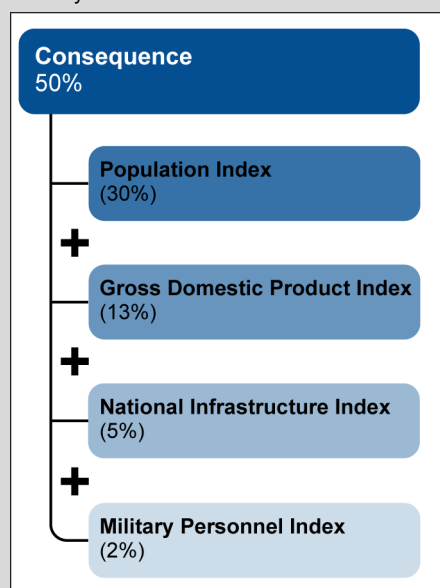


Source: GAO analysis of FEMA's risk assessment model. | GAO-18-354

Consequence Index

Consequence Index

Designed to measure the potential impact of a particular attack on the nation's economy, critical infrastructure, population, and national security.



Source: GAO analysis of FEMA's fiscal year 2018 risk-based grant assessment model | GAO-18-354

Changes to the Consequence Index can have the most impact on the relative risk scores because of the weight of this index (50 percent), relative to the weights for the Threat and Vulnerability indexes. Further, the weight for population within the Consequence Index represented 30 percent of the total fiscal year 2018 risk model value. As a result, the weight for the population index was greater than the weights of either the Threat Index or Vulnerability Index, each 25 percent. FEMA has decreased the weight for the population index over time, from 40 percent in 2008 to 30 in 2011, where it has remained consistent through 2018.

For fiscal year 2018, FEMA modified how the population index was calculated within the Consequence Index to better account for attacks staged by individuals, so-called lone wolves. FEMA did so, in part, by reducing the importance of population density within the population index. In past risk models, the population index had favored high-density, high-rise urban areas, commensurate with building destruction scenarios — the 9/11-style attack scenarios that focused on large building destruction events, according to FEMA officials. The 2018 change to cap population density in the population index reduces the impact those extremely-dense population areas have in the methodology, according to FEMA officials.

The other measures used to make up the Consequence Index remain relatively unchanged since our review in 2008, although FEMA has renamed the indexes.²¹

Vulnerability Index

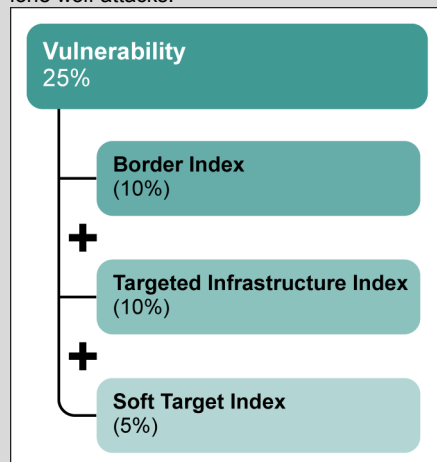
As explained earlier, FEMA added a Vulnerability Index to its risk-based grant assessment model in 2011, in response to our 2008 recommendation. According to FEMA officials, the Vulnerability Index helps support what DHS is trying to protect, primarily the protection of citizens and critical infrastructure. For example, the Vulnerability Index includes a measure designed to assess the extent that certain types of national critical infrastructure assets may be considered for possible attack. This Targeted Infrastructure Index measure uses actionable intelligence on types of critical infrastructure targets, such as aviation, mass transit and commuter rail. FEMA works with DHS's National Protection and Programs Directorate to match its critical infrastructure

²¹For 2018, FEMA renamed the Gross Domestic Product Index from "Economic Index", and the Military Personnel Index from "National Security Index."

dataset to actionable intelligence from DHS's Office of Intelligence & Analysis to compile this measure.²²

Vulnerability Index

Designed to measure the likelihood of a successful attack in a state or urban area, based on a) intelligence information of those critical infrastructure assets identified by foreign or domestic terrorists; b) the extent of international borders entries (land, sea and air) located in a state or urban area, and c) special events where crowds congregate and are susceptible to homegrown extremism and lone wolf attacks.



Source: GAO analysis of FEMA's fiscal year 2018 risk-based grant assessment model | GAO-18-354

For the fiscal year 2018 grant, FEMA has included a “soft target index.” According to FEMA officials, this index was added to account for the current threat for areas where crowds congregate. Based on previous feedback received through this process, FEMA updated the fiscal year 2018 risk methodology to better account for the nation's current threat environment. The soft target index is composed of two new data elements:

- Visitors—domestic and international—using the same data used in the calculation of the Population Index;²³ and
- Special events measure—uses Special Event Assessment Rating data from DHS Office of Operations Coordination to identify large events that are state and local events that may require federal assistance. Examples of such events include the Super Bowl, the Boston Marathon and New Year's Eve in Times Square.²⁴

In fiscal year 2018, FEMA added a new “isolation” measure to account for the challenges of response for those states, territories, and urban areas outside the contiguous United States, who rely on prompt mutual aid from neighboring jurisdictions. According to FEMA officials, the isolation data element was included as a response to challenges the agency witnessed as a result of the 2017 Hurricane season, specifically the unique challenges of distant U.S. territories receiving timely mutual aid from other states. For example, if Hawaii, Guam or American Samoa were attacked, there would be little to no outside help for a number of days. As a result, FEMA modified the fiscal year 2018 Border Crossings data element

²²DHS's National Protection and Programs Directorate (NPPD), as part of its efforts to support the National Infrastructure Protection Plan, is responsible for the National Critical Infrastructure Prioritization Program list, a single prioritized list of systems and assets that reflect the National Preparedness Goal's definition of critical infrastructure: assets that would, if destroyed or disrupted, cause national or regional catastrophic effects.

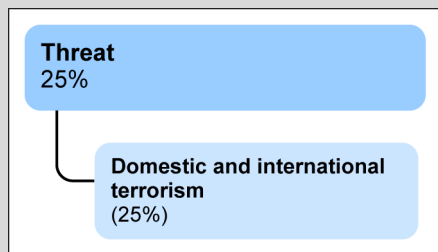
²³FEMA's methodology used private and public data to estimate the number of domestic and international visitors, equivalent to the block level of U.S. Census Bureau's population data. FEMA calculated final visitor estimates for each census block by adding estimates for domestic visitors, international air visitors, Canadian air and land visitors, and same-day Mexican land visitors.

²⁴According to FEMA officials, such Special Event Assessment Rating (SEAR) events are preplanned special events not designated as National Special Security Events (NSSE).

Threat Index

Threat Index

Designed to measure the likelihood that a type of attack might be attempted, and considers specific, implied and potential physical terrorist threats based on Intelligence Community reporting and FBI information of known and credible violent extremist plots, casings, threats, or aspirations, either foreign or domestic.



Source: GAO analysis of FEMA's fiscal year 2018 risk-based grant assessment model | GAO-18-354

Stakeholder Feedback

weight, which was dropped from 6 percent to 4 percent, in order to establish a 2 percent weight for the isolation measure.

The weight of the Threat Index was raised from 20 percent to 30 percent in fiscal year 2011, and has been modified again for fiscal year 2018. Specifically, according to FEMA and DHS officials, DHS leadership made a policy decision to reduce the Threat Index's weight from 30 percent in 2017, to 25 percent in 2018, due to the change in current threat environment, since Congress directed FEMA in the Explanatory Statement accompanying the FY 2017 DHS Appropriations Act to review the risk model to account for this changing threat environment.²⁵ FEMA officials further stated that they assumed, as domestic terrorism and soft targets are considered to be prevalent nationwide and pose more of a challenge in identifying the source of actionable threats. FEMA officials stated that this modification to the Threat Index better reflects real-world scenarios.

Since fiscal year 2012, FEMA has included information on domestic terrorism as well as international terrorism in its Threat Index. According to DHS officials, home grown extremism is also a likely threat, often through lone wolf attacks. DHS officials decided to assign all urban areas a minimum threat score to reflect the fact that all areas have some level of threat. According to DHS officials, the addition of a domestic terror threat measure resulted in a decrease in the variation of threat scores across states and urban areas. According to DHS officials, lone wolf attacks are difficult to determine who the actors may be, or when and where they will attack.

FEMA annually transmits risk profile information to states and urban areas to promote timely and meaningful feedback. According to FEMA officials, draft risk profiles are sent to all 56 states and territories and 100 eligible urban areas closely after the enactment of DHS's annual appropriations. States and urban areas are given a 2-week period prior to the release of the Notices of Funding Opportunity to review their draft risk profiles and provide FEMA any comments or data corrections that should be considered. According to FEMA officials, it encourages and welcomes stakeholders to make suggestions for new or different data sets for the subsequent fiscal year's risk assessment at any time during the year

²⁵In the Explanatory Statement accompanying the FY 2017 DHS Appropriations Act, 2017, FEMA was directed to reconsider the structure of the risk model given the changing threat environment. See 163 Cong. Rec. H3819 (daily ed. May 3, 2017).

convenient to the stakeholder. FEMA also conducts webinars during this period to can explain the risk profiles in detail, as well as discuss any updates to data sets and/or any enhancements to the risk assessment. This will often result in feedback on data elements and the methodology of the risk-based grant assessment model, according to FEMA officials. According to FEMA officials, this feedback process has been used to help guide FEMA's consideration of enhancements to the risk-based grant assessment model. For example, FEMA officials noted that this process helped them in their efforts to develop the soft targets index into the 2018 risk model.

FEMA Does Not Fully Make Use of Recognized Scientific Practices in Maintaining Its Risk Assessment Model

In 2010, the National Research Council (NRC) recommended that incorporating scientific practices can provide decision makers a further understanding of the effects of its policy judgments and assumptions—i.e. addressing uncertainties—in its terrorism-related risk analyses. The NRC identified “good scientific practice” for model-based work. Specifically, the NRC recommended that detailed documentation for all risk models, including rigorous mathematical formulations, be implemented department-wide. Additionally, the NRC recommended that all risk models undergo verification and validation—or a sensitivity analysis at the least—of its risk-based grant assessment model. Finally, the NRC recommended that FEMA should undertake an external peer review by technical experts outside of DHS, and review its risk-informed formulas in order to identify issues such as logic flaws, evaluate the ramifications of the choices of weightings and parameters, and improve the risk model's transparency.²⁶ However, FEMA has not fully adopted these scientific practices for its risk-based grant assessment model.

Documentation: FEMA documentation on the sources of data used for the model's calculations does not include information that would enable a reviewer to understand the underlying assumptions that form the basis for its risk-based grant assessment model—such as the size of the weights assigned to Threat, Vulnerability, and Consequence, or the justification for changes to these weights from one year to the next. FEMA officials stated that they focus their limited time and resources on developing the executive summary-level materials that DHS leadership will use to determine final grant eligibility and grant allocation amounts. Also, to a lesser extent, FEMA officials said they rely on the expertise of the subject

²⁶National Research Council of the National Academies, (Washington, D.C.: 2010).

matter experts from DHS's Office of Intelligence and Analysis, and DHS's National Protection and Preparedness Division's Office of Cyber and Infrastructure Analysis, parts of DHS that contribute to the annual risk assessment process.

In April 2018, we identified documentation as one of the key methodological elements to the baseline structure of an economic analysis.²⁷ Specifically, the elements include that the analysis is clearly written with a plain language summary, has clearly labeled tables that describe the data used and results, and has a conclusion that is consistent with these results. The analysis cites all sources used and documents that it is based on the best available economic information. The analysis documents that it complies with a robust quality assurance process and, where applicable, the Information Quality Act, and should disclose the use and contributions of contractors and outside consultants. FEMA officials agreed with our analysis of FEMA's supporting documentation, and officials stated that maintaining additional documentation could further assist reviewers. Documenting how subject matter expert assumptions are made would help FEMA increase the transparency of the model for key internal and external stakeholders.

In-Depth Analyses: Similarly, we could not determine whether FEMA sufficiently performed all the analyses of the model's sensitivity needed to determine how changes to its risk-based grant assessment model could affect the resulting risk scores. FEMA officials stated that they have only analyzed the effect of a data element when it has been added to the model (e.g.: the Soft Target Index in 2018). Further, FEMA officials were unable to provide us with documentation on their sensitivity analyses processes or their results.

DHS's Risk Lexicon states that sensitivity analysis can be used to examine how individual variables can affect the outputs of risk assessment methodologies. In addition, OMB Circular A-94 recommends that the outcomes from a risk model should be analyzed to determine how sensitive such outcomes are to changes in the model's assumptions.²⁸ The assumptions that deserve the most attention will depend on the dominant elements and the areas of greatest uncertainty

²⁷[GAO-18-151SP](#).

²⁸U.S. Office of Management and Budget, OMB Circular 94 Revised, Transmittal Memo No. 64 (Washington, D.C.: Oct 29, 1992), as amended.

of the program being analyzed. In addition, research in the actuarial sciences also states that sensitivity analysis “is of fundamental importance to risk analysts, especially in the presence of complex computational models with uncertain inputs.”²⁹

As we stated earlier, understanding the extent that uncertainty has on the results of the model can be especially important if the model produces materially different results in response to even small changes in assumptions—often referred to as the “sensitivity” or “robustness” of a model’s assumptions and results. We have reported on FEMA’s risk-based grant assessment model in June 2008 and March 2013, where we found grant years when the risk model was sensitive to even small changes.³⁰ For example, we noted that a potential increase or decrease in a measure would have resulted in one urban area displacing the eligibility of another, thereby potentially shifting funding as well. FEMA officials stated that they focus their limited time and resources on developing the executive summary-level materials that DHS leadership will use to determine final grant eligibility and grant allocation amounts. FEMA officials agreed that they could better document the steps used in their analyses across all the model’s measures and weights so that a complete understanding of potential impacts are documented and can be made available to leadership when making decisions about changes.

FEMA’s implementation of sensitivity analyses could help the agency to assess changes to the risk-based grant assessment model including the introduction of new data elements into Threat, Vulnerability, and Consequence indexes, the modifications to how existing data elements are calculated, and the changing of the weights assigned to the Threat, Vulnerability, and Consequence indexes. Further, FEMA’s implementation of sensitivity analyses has the ability to show decision makers the impact or predicted impact of adjustments to FEMA’s risk-based grant assessment model, including with potential shifts in funding towards or away from certain grantees.

²⁹Tsanakas, Andreas and Pietro Millosovich, *Sensitivity Analysis Using Risk Measures*, Risk Analysis vol.36, no.1, 2016; <http://onlinelibrary.wiley.com/doi/10.1111/risa.12434/full>

³⁰See [GAO-08-852](#); GAO, *Critical Infrastructure Protection: DHS List of Priority Assets Needs to Be Validated and Reported to Congress*, [GAO-13-296](#) (Washington, D.C.: Mar 25, 2013); and GAO *Homeland Security Grant Program Risk-Based Distribution Methods: Presentation to Congressional Committees* - November 14, 2008 and December 15, 2008, [GAO-09-168R](#) (Washington, D.C.: Dec 23, 2008).

Use of External Peer Review: FEMA has not subjected its risk-based grant assessment model to a peer review by independent, external technical experts, as previously recommended in 2010 by the NRC. According to FEMA officials, its risk assessment methodology has undergone comprehensive internal reconsideration over time to better reflect real-world scenarios, but such reviews have not included external peer reviews. FEMA officials stated that its risk-based grant assessment model has gone through past reviews including a review as part of DHS's quadrennial review in 2014, and the model is reviewed by internal subject matter experts from DHS's Office of Intelligence and Analysis, and DHS's National Protection and Preparedness Division's Office of Cyber and Infrastructure Analysis as part of the annual risk assessment process. FEMA officials stated that the agency is exploring the possibility of participating in a DHS collaborative group to internally review and provide feedback on the model's underlying assumptions and methods. Such a group could review the underlying components of the current risk-based grant assessment model and suggest improvements, as well as present and evaluate other risk assessment theories and approaches. FEMA officials told us they have encountered time and resources constraints on establishing an external peer review process.

As we have previously reported, independent external peer reviews can increase the probability of success by improving the technical quality of projects and the credibility of the decision-making process, and provide reasonable assurance that the agency's approach is reproducible and defensible.³¹ In addition, in December 2004, OMB issued the memorandum "Final Information Quality Bulletin for Peer Review" which established government-wide guidance aimed at enhancing the practice of peer review of government science documents.³² OMB noted that peer review can increase the quality and credibility of the scientific information generated across the federal government, which was an effort to improve the quality of the scientific information upon which policy decisions are based. OMB also noted that, while peer review may take a variety of forms, agencies will need to consider at least the following issues when

³¹See [GAO-13-296](#); GAO, *Coast Guard: Security Risk Model Meets DHS Criteria, but More Training Could Enhance Its Use for Managing Programs and Operations*, [GAO-12-14](#) (Washington, D.C.: Dec 19, 2011); and GAO, *Homeland Security: Summary of Challenges Faced in Targeting Ongoing Cargo Containers for Inspection*, [GAO-04-557T](#) (Washington D.C.: Mar. 31, 2004).

³²OMB, Issuance of OMB's "Final Information Quality Bulletin for Peer Review" M-05-03, (Dec 16, 2004).

coordinating an external peer review: individual versus panel review; timing; scope of the review; selection of reviewers; disclosure and attribution; public participation; disposition of reviewer comments; and adequacy of prior peer review.

These scientific processes are designed to help decision makers better understand the impact or predicted impact of risk management alternatives, and provide greater confidence in the reliability of the risk assessment model's results. Full implementation of these processes better position FEMA to provide further assurances that their risk-based grant assessment model and grant allocation approaches are reasonable, of high-quality, and credible.

Conclusions

Given that risk management has been endorsed by the federal government as a way to direct finite resources to states and those urban areas that are most at risk of terrorist attack, it is important that FEMA's risk-based grant assessment model supports the application of policy judgments and analytic assumptions in the model's role of allocating those limited resources. Decreased funding levels for SHSP and UASI grant programs have increased the importance of using risk management techniques to more effectively target finite federal dollars. DHS and FEMA have strengthened its risk-based grant assessment model for allocating grants, taking into account analysis and recommendations from a variety of reviews. These improvements include the addition of a Vulnerability Index and modifications to the Threat Index. We have identified opportunities where FEMA could strengthen its scientific practices. First, documenting the model's underlying assumptions and the results of sensitivity analysis can assist decision makers in better understanding the predicted impact of risk management alternatives. Second, expanding the use of sensitivity analysis could further enhance the model. Developing a greater understanding of the how uncertainty affects its risk-based grant assessment model's results helps achieve the objectives of risk management. Third, coordinating an independent external peer review of the methodology of its risk-based grant assessment model would better position the agency to provide reasonable assurance that FEMA's risk model and grant allocation approach that FEMA uses for its SHSP and UASI programs are reasonable, of high-quality, and credible. Applying such scientific practices could assist FEMA in further strengthening its risk-based grant assessment model.

Recommendations for Executive Action

We are making the following three recommendations to FEMA.

- The FEMA Administrator should fully document the underlying assumptions and justifications that form the basis of the risk-based grant assessment model, such as the size of the weights assigned to Threat, Vulnerability, and Consequence, or the justification for changes to these weights from one year to the next.
- The FEMA Administrator should perform sensitivity analyses to verify how changes to the risk-based grant assessment model could affect the resulting risk scores, and document the results.
- The FEMA Administrator should take steps to coordinate an independent, external peer review of its risk-based grant assessment model.

Agency Comments and Our Evaluation

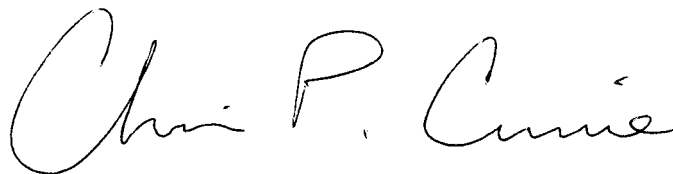
We provided a draft of this product to the FEMA and DHS for comment. In its comments, reproduced in appendix II, FEMA generally concurred with our findings and three recommendations.

In FEMA's concurrence to our first recommendation that the agency fully document the underlying assumptions and justifications that form the basis of the risk-based grant assessment model, FEMA requested that GAO consider this recommendation resolved and closed as implemented. As part of FEMA's response, they reiterate their process of providing draft Risk Profiles to all 100 urban areas and 56 states and territories and their annual communications to Congress on how FEMA calculated risk and computed grant awards. We recognized FEMA's stakeholder feedback efforts in this report. However, as we noted, FEMA's documentation on the sources of data used for the model's calculations does not include information that would enable a reviewer to understand the underlying assumptions that form the basis for its risk-based grant assessment model. Further, as stated earlier, documentation is one of the key methodological elements to the baseline structure of this type of analysis, documenting that it complies with a robust quality assurance process and, where applicable, the Information Quality Act, and should disclose the use and contributions of contractors and outside consultants. In order to fully implement this recommendation, documenting how subject matter expert assumptions are made would help FEMA increase the transparency of the model for key internal and external stakeholders, and will further support the efforts of an independent external peer review of FEMA's risk-based assessment model.

Regarding the second recommendation, FEMA concurred, stating that the agency will expand the use of sensitivity analysis to review the entire risk methodology, and will also document these results for leadership review, as appropriate. Finally, regarding the third recommendation, FEMA concurred, stating that they will coordinate an independent external peer review and develop a detailed written response to leadership for further appropriate action.

FEMA and DHS also provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Homeland Security, and other interested parties. This report will also be available at no charge on our Web site at <http://www.gao.gov>. Should you or your staff have any questions concerning this report, please contact me at (202) 512-8777 or CurrieC@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report.



Chris P. Currie
Director, Homeland Security and Justice

List of Congressional Requesters

The Honorable Ron Johnson
Chairman
The Honorable Claire McCaskill
Ranking Member
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Marco Rubio
United States Senate

The Honorable Michael McCaul
Chairman
Committee on Homeland Security
House of Representatives

The Honorable Val Demings
House of Representatives

Appendix I: Grant Funding and Awards for State Homeland Security Grant Program (SHSP), and the Urban Area Security Initiative (UASI) Grant Program for Fiscal Years 2008 Through 2018

Table 4: Department of Homeland Security (DHS), State Homeland Security Grant Program (SHSP) Grant Awards by State and Territory: Total Award, Amount Above Legal Minimum,^a Legal Minimum Amount; Fiscal Years 2008 through 2018

(Dollars in thousands)^b

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total SHSP Funding	861,280	861,137	842,000	526,874	294,000	354,644	401,346	402,000	402,000	402,000	402,000
State /Territory											
Alabama											
Total Award	11,170	10,536	9,817	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	5,009	4,478	3,789	915	56	263	272	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Alaska											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
American Samoa											
Total Award	1,850	1,430	1,470	1,158	640	791	854	854	854	858	1,000
Amount above legal minimum	536	102	130	206	13	60	63	63	65	72	214
Legal minimum amount	1,314	1,328	1,340	952	628	731	791	791	786	786	786
Arizona											
Total Award	13,400	13,087	13,217	6,609	3,310	3,972	4,568	4,568	4,568	4,551	3,980
Amount above legal minimum	7,239	7,028	7,189	2,387	565	776	1,109	1,107	1,131	1,114	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Arkansas											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	274	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
California											
Total Award	110,090	106,434	107,498	72,983	43,504	52,205	60,035	60,179	60,179	60,160	59,235
Amount above legal minimum	103,929	100,376	101,470	68,760	40,759	49,008	56,576	58,717	56,742	56,723	55,798

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Colorado											
Total Award	11,880	10,925	10,980	5,490	2,801	3,459	3,979	3,979	3,979	3,963	3,980
Amount above legal minimum	5,719	4,867	4,952	1,267	56	263	520	518	542	526	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Connecticut											
Total Award	10,380	9,546	8,894	5,137	2,801	3,459	3,978	3,978	3,978	3,962	3,980
Amount above legal minimum	4,219	3,487	2,866	915	56	263	519	517	541	525	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Delaware											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9,200	486	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
District of Columbia											
Total Award	11,320	10,410	10,074	5,285	2,984	3,581	4,119	4,142	4,142	4,125	3,980
Amount above legal minimum	5,159	4,352	4,046	1,063	239	384	660	680	705	688	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Florida											
Total Award	37,090	34,110	33,012	16,506	8,839	9,574	11,010	11,041	11,041	11,024	10,566
Amount above legal minimum	30,929	28,051	26,983	12,283	6,094	6,377	7,551	7,579	7,064	7,587	7,129
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Georgia											
Total Award	28,880	20,638	19,230	9,615	4,932	5,919	6,807	6,807	6,807	6,790	6,508
Amount above legal minimum	15,719	14,579	13,202	5,392	2,187	2,722	3,348	3,346	3,370	3,353	3,071
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Guam											
Total Award	1,850	1,430	1,470	1,158	640	791	854	854	854	858	1,000

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Amount above legal minimum	536	102	130	206	13	60	63	63	68	72	214
Legal minimum amount	1,314	1,328	1,340	952	628	731	791	791	786	786	786
Hawaii											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Idaho											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Illinois											
Total Award	34,960	33,799	32,556	20,213	11,853	14,223	16,357	16,409	16,409	16,392	15,712
Amount above legal minimum	28,799	27,741	26,528	15,990	9,107	11,026	12,898	12,947	12,972	12,955	12,275
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Indiana											
Total Award	12,650	11,634	11,326	5,663	2,801	3,459	3,978	3,978	3,978	3,962	3,980
Amount above legal minimum	6,489	5,575	5,298	1,441	56	263	519	517	541	525	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Iowa											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9,200	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Kansas											
Total Award	7,350	7,280	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	1,369	1,222	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Kentucky											

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Award	9,590	8,594	8,007	5,137	2,801	3,459	3,978	3,978	3,978	3,962	3,980
Amount above legal minimum	3,429	2,535	1,979	915	56	263	519	517	541	525	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Louisiana											
Total Award	16,110	14,816	13,805	6,903	2,801	3,459	3,978	3,978	3,978	3,962	3,980
Amount above legal minimum	9,949	8,757	7,777	2,680	56	263	519	517	541	525	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Maine											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Maryland											
Total Award	18,000	16,978	15,820	7,910	4,438	5,326	6,125	6,154	6,154	6,137	5,882
Amount above legal minimum	11,839	10,919	9,791	3,687	1,693	2,129	2,666	2,692	2,717	2,700	2,445
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Massachusetts											
Total Award	17,210	15,422	15,576	7,788	4,074	4,889	5,622	5,645	5,645	5,628	5,395
Amount above legal minimum	11,049	9,363	9,547	3,565	1,329	1,692	2,163	2,184	2,208	2,191	1,958
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Michigan											
Total Award	21,430	20,719	19,305	9,653	4,899	5,789	6,658	6,658	6,658	6,641	6,368
Amount above legal minimum	15,269	14,660	13,277	5,430	2,153	2,592	3,199	3,197	3,221	3,204	2,931
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Minnesota											
Total Award	12,260	10,986	10,789	5,395	2,801	3,459	3,978	3,978	3,978	3,962	3,980
Amount above legal minimum	6,099	4,927	4,761	1,172	56	263	519	517	541	525	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mississippi											
Total Award	6,180	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	19	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Missouri											
Total Award	11,950	11,272	11,058	5,529	2,801	3,459	3,978	3,978	3,978	3,962	3,980
Amount above legal minimum	5,789	5,214	5,030	1,306	56	263	519	517	541	525	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Montana											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Nebraska											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Nevada											
Total Award	9,390	8,415	7,868	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	3,229	2,356	1,840	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
New Hampshire											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
New Jersey											
Total Award	27,780	25,547	23,805	11,902	6,230	7,264	8,354	8,354	8,354	8,337	7,993
Amount above legal minimum	21,619	19,489	17,776	7,680	3,485	4,067	4,895	4,893	4,917	4,900	4,556

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
New Mexico											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
New York											
Total Award	76,500	112,413	113,537	91,193	55,610	66,733	76,742	76,949	76,949	76,930	76,930
Amount above legal minimum	70,339	106,354	107,508	66,970	52,685	63,536	73,283	73,488	73,512	73,493	73,493
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
North Carolina											
Total Award	16,280	15,739	15,420	7,710	3,978	4,773	5,489	5,489	5,489	5,472	5,246
Amount above legal minimum	10,119	9,681	9,391	3,487	1,233	1,577	2,030	2,028	2,052	2,035	1,809
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
North Dakota											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Northern Mariana Islands											
Total Award	1,850	1,430	1,470	1,158	640	791	854	854	854	858	1,000
Amount above legal minimum	536	102	130	206	13	60	63	63	68	72	214
Legal minimum amount	1,314	1,328	1,340	952	628	731	791	791	786	786	786
Ohio											
Total Award	24,520	23,128	21,550	10,7756	5,578	6,694	7,698	7,698	7,698	7,681	7,364
Amount above legal minimum	18,359	17,069	15,522	6,552	2,833	3,497	4,239	4,237	4,261	4,244	3,927
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Oklahoma											
Total Award	7,690	7,254	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Amount above legal minimum	1,529	1,195	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Oregon											
Total Award	8,940	7,644	7,720	5,137	2,801	3,459	3,837	3,837	3,837	3,822	3,980
Amount above legal minimum	2,779	1,585	1,692	915	56	263	378	376	400	385	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Pennsylvania											
Total Award	30,310	28,589	27,091	13,545	7,266	8,719	10,026	10,055	10,055	10,038	9,622
Amount above legal minimum	24,149	22,531	21,062	9,323	4,520	5,522	6,567	6,593	6,618	6,601	6,185
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Puerto Rico											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Rhode Island											
Total Award	6,170	6,524	6,163	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	274	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
South Carolina											
Total Award	8,980	8,470	7,892	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	2,819	466	1,864	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
South Dakota											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	274	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Tennessee											

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Award	12,880	11,845	11,037	5,518	2,801	3,459	3,978	3,978	3,978	3,962	3,980
Amount above legal minimum	6,719	5,786	5,008	1,296	56	263	519	517	541	545	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Texas											
Total Award	65,440	60,181	57,124	28,562	15,821	18,651	21,448	21,498	21,498	21,481	20,591
Amount above legal minimum	59,279	54,122	51,096	24,339	13,075	15,454	17,989	18,037	18,061	18,044	17,154
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
U.S. Virgin Islands											
Total Award	1,850	1,430	1,470	1,158	640	791	854	854	854	858	1,000
Amount above legal minimum	536	102	130	206	13	60	63	63	68	72	214
Legal minimum amount	1,314	1,328	1,340	952	628	731	791	791	786	786	786
Utah											
Total Award	6,810	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	649	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Vermont											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Virginia											
Total Award	21,800	20,048	18,681	9,340	5,372	6,447	7,414	7,446	7,446	7,429	7,120
Amount above legal minimum	15,369	13,990	12,652	5,118	2,627	3,250	3,955	3,984	4,009	3,992	3,683
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Washington											
Total Award	19,780	18,190	18,357	9,179	4,705	5,646	6,493	6,493	6,493	6,476	6,028
Amount above legal minimum	13,619	12,132	12,329	4,956	1,960	2,449	3,034	3,032	3,056	3,039	2,771
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
West Virginia											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Wisconsin											
Total Award	10,640	10,287	9,585	5,137	2,801	3,459	3,978	3,978	3,978	3,962	3,980
Amount above legal minimum	4,479	4,228	3,557	915	56	263	519	517	541	525	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437
Wyoming											
Total Award	6,170	6,525	6,613	5,137	2,801	3,459	3,733	3,735	3,735	3,752	3,980
Amount above legal minimum	9	466	585	915	56	263	274	273	298	315	543
Legal minimum amount	6,161	6,058	6,028	4,223	2,745	3,197	3,459	3,462	3,437	3,437	3,437

Source: GAO analysis of SHSP grants | GAO-18-354

^a According to FEMA officials, awards above the legal minimum reflected FEMA's model as well as budget limitations, program priorities, and policy decisions at the Secretary's discretion.

^b Total allocations are rounded to the nearest thousands.

Table 5: Department of Homeland Security (DHS), Urban Area Security Initiative (UASI) Grant Awards by Eligible Urban Area, Fiscal Years 2008 through 2018 (dollars in thousands)^a

Fiscal Year		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total UASI Funding		781,600	798,631	832,520	662,622	490,376	558,746	587,000	587,000	580,000	580,000	580,000
Number of Grantees		60	62	64	31	31	25	39	28	29	33	32
Urban Area	State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Phoenix	AZ	11,563	10,984	10,833	7,755	4,018	5,500	5,500	5,500	5,430	5,180	4,000
Tucson	AZ	4,753	4,515	4,515	0	0	0	0	0	0	0	0
Anaheim, Santa Ana	CA	13,425	12,754	12,773	8,941	4,455	3,000	5,500	5,500	5,430	5,180	5,000
Bakersfield	CA	0	0	1,015	0	0	0	0	0	0	0	0
Los Angeles, Long Beach	CA	70,403	68,290	69,922	69,922	61,030	65,908	67,500	69,500	68,610	68,110	68,000
Oxnard	CA	0	2,503	2,508	0	0	0	0	0	0	0	0
Riverside	CA	3,252	5,277	5,286	3,700	1,522	00	1,000	3,000	2,962	2,837	3,000

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Year		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Sacramento	CA	4,045	3,938	3,947	0	0	3,000	1,000	0	2,962	2,837	2,500
San Diego	CA	15,511	14,735	16,209	16,209	9,157	16,873	16,874	16,874	16,658	16,158	16,700
San Francisco, Oakland, San Jose	CA	37,155	40,638	42,828	42,828	26,243	27,252	27,400	28,400	28,036	27,536	27,500
Denver	CO	7,615	7,234	7,064	4,969	2,528	3,000	3,000	3,000	2,962	2,837	3,000
Bridgeport	CT	1,967	2,807	2,812	0	0	0	0	0	0	0	0
Hartford	CT	1,967	2,747	2,752	0	0	0	0	0	0	0	0
Washington (National Capital Region)	DC	59,801	58,007	59,392	59,392	51,839	51,839	53,000	54,000	53,309	52,809	52,750
Fort Lauderdale	FL	6,383	6,063	6,067	0	0	0	0	0	0	0	0
Jacksonville	FL	5,723	5,437	5,355	0	0	0	0	0	0	0	0
Miami	FL	11,621	11,040	11,040	0	0	0	0	0	0	0	0
Miami / Ft. Lauderdale	FL	0	0	0	9,646	5,401	5,500	5,500	5,500	5,430	5,180	6,000
Orlando	FL	5,432	5,160	5,090	3,697	1,447	0	1,000	0	0	0	1,500
Tampa	FL	8,352	7,934	7,815	5,471	2,595	3,000	3,000	3,000	2,962	2,837	3,000
Atlanta	GA	14,220	13,509	13,523	9,751	5,284	5,500	5,500	5,500	5,430	8,430	6,000
Honolulu	HI	5,005	4,755	4,755	0	0	0	1,000	3,000	0	0	1,500
Chicago	IL	45,862	52,321	54,654	54,654	47,703	67,728	69,500	69,500	68,610	68,110	68,000
Indianapolis	IN	7,479	7,105	7,105	0	1,250	0	1,000	0	0	1,000	0
Louisville	KY	1,422	2,199	2,206	0	0	0	0	0	0	0	0
Baton Rouge	LA	1,787	3,049	2,979	0	0	0	0	0	0	0	0
New Orleans	LA	4,249	5,430	5,440	0	1,250	0	3,000	0	0	0	0
Boston	MA	13,784	14,564	18,934	18,934	10,861	17,565	18,000	18,000	17,770	17,270	17,500
Baltimore	MD	11,553	10,975	10,975	7,813	4,116	5,500	5,500	5,500	2,962	4,212	4,000
Detroit	MI	14,191	13,481	13,482	9,437	5,233	5,500	5,500	5,500	5,430	5,180	5,000
Minneapolis St. Paul	MN	8,206	8,248	8,263	6,117	3,271	5,500	5,500	5,500	5,430	5,180	5,000
Kansas City	MO	8,100	7,695	7,706	0	1,250	0	1,000	0	0	0	0
Saint Louis	MO	8,982	8,533	8,533	5,973	2,908	3,000	3,000	3,000	2,962	2,837	3,000
Charlotte	NC	4,821	4,580	4,584	3,244	1,495	3,000	3,000	3,000	2,962	2,837	2,500
Omaha	NE	0	0	1,013	0	0	0	0	0	0	0	0
Newark, Jersey City	NJ	34,988	35,298	37,292	37,292	21,663	21,663	21,800	20,800	20,534	20,034	22,750

**Appendix I: Grant Funding and Awards for
State Homeland Security Grant Program
(SHSP), and the Urban Area Security Initiative
(UASI) Grant Program for Fiscal Years 2008
Through 2018**

Fiscal Year		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Las Vegas	NV	9,031	8,579	8,150	5,705	1,827	0	1,000	3,000	2,962	2,837	5,000
Albany	NY	1,757	1,924	1,011	0	0	0	0	0	0	0	0
Buffalo	NY	5,306	5,041	5,545	0	0	0	0	0	0	0	0
New York	NY	144,189	145,138	151,579	151,579	151,579	174,291	178,926	180,926	178,623	178,123	178,750
Rochester	NY	1,466	2,343	2,315	0	0	0	0	0	0	0	0
Syracuse	NY	1,601	1,869	1,011	0	0	0	0	0	0	0	0
Cincinnati	OH	5,083	4,969	4,978	3,491	0	0	1,000	0	0	0	0
Cleveland	OH	5,355	5,087	5,094	3,590	0	0	1,000	0	2,962	2,837	0
Columbus	OH	4,579	4,350	4,247	0	0	0	1,000	0	0	0	0
Toledo	OH	1,265	2,288	2,292	0	0	0	0	0	0	0	0
Oklahoma City	OK	4,637	4,405	4,405	0	0	0	0	0	0	0	0
Tulsa	OK		2,160	2,164	0	0	0	0	0	0	0	0
Portland	OR	7,557	7,179	7,179	5,025	2,157	0	1,000	3,000	2,962	2,837	2,500
Philadelphia	PA	18,139	17,950	23,336	23,336	14,269	17,567	18,500	18,500	18,263	17,763	17,500
Pittsburgh	PA	6,732	6,395	6,399	4,479	0	3,000	3,000	3,000	2,962	2,837	2,500
San Juan	PR	2,033	3,183	3,108	0	0	0	0	0	0	0	0
Providence	RI	5,015	4,764	4,764	0	0	0	0	0	0	0	0
Memphis	TN	4,453	4,230	4,169	0	0	0	0	0	0	0	0
Nashville	TN	1,784	2,986	2,844	0	0	0	0	0	0	0	0
Austin	TX	1,823	2,923	2,932	0	0	0	0	0	0	0	0
Dallas, Fort Worth	TX	20,322	19,305	25,097	25,097	14,293	14,623	15,500	15,500	15,302	14,802	14,800
El Paso	TX	5,665	5,382	5,390	0	0	0	0	0	0	0	0
Houston	TX	37,500	39,555	41,453	41,453	23,937	23,937	24,000	24,000	23,693	23,193	22,750
San Antonio	TX	6,548	6,220	6,230	0	1,250	0	1,000	0	0	1,000	1,500
Salt Lake City	UT	1,845	2,938	2,900	0	0	0	1,000	0	0	1,000	0
Hampton Roads	VA	7,760	7,372	0	0	0	0	1,000	0	0	1,000	1,500
Norfolk	VA	0	0	7,372	5,160	0	0	0	0	0	0	0
Richmond	VA	1,722	2,711	2,676	0	0	0	0	0	0	0	0
Seattle	WA	10,340	11,314	11,054	7,959	4,365	5,500	5,500	5,500	5,430	5,180	5,000
Milwaukee	WI	4,491	4,266	4,160	0	0	0	0	0	0	0	0

Source: GAO analysis of UASI grants | GAO-18-354

^aSee 6 U.S.C. § 605(e). Total allocations are rounded to the nearest thousands.

Appendix II: Comments from the Department of Homeland Security

U.S. Department of Homeland Security
Washington, DC 20528



**Homeland
Security**

August 22, 2018

Chris Currie
Director, Homeland Security and Justice Issues
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Management's Response to Draft Report GAO-18-354, "HOMELAND SECURITY
GRANT PROGRAM: Additional Actions Could Further Enhance FEMA's Risk-Based
Grant Assessment Model"

Dear Mr. Currie:

Thank you for the opportunity to review and comment on this draft report. The U.S. Department of Homeland Security (DHS) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

The Department is pleased to note GAO's positive recognition of steps taken by the Federal Emergency Management Agency (FEMA) to strengthen its risk-based grant assessment model, which is used to inform State Homeland Security Program (SHSP) and Urban Area Security Initiative (UASI) grant allocations. For example, recent enhancements to the comprehensive risk methodology include various changes related to evolving terrorist threats and real-world scenarios. DHS and FEMA remain committed to continuing to further strengthen this model by applying additional scientific practices to better inform allocation decisions that help states, territories, urban areas, and other local and tribal governments to prevent, protect against, mitigate, respond to and recover from potential terrorist attacks and other hazards.

The draft report contained three recommendations with which the Department concurs. Attached find our detailed response to each recommendation. Technical comments were previously provided under separate cover.

Again, thank you for the opportunity to review and comment on this draft report. Please feel free to contact me if you have any questions. We look forward to working with you in the future.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim H. Crumacker".

JIM H. CRUMPACKER, CIA, CFE
Director
Departmental GAO-OIG Liaison Office

Attachment

**Attachment: Management Response to Recommendations
Contained in GAO-18-354**

GAO recommended that the FEMA Administrator:

Recommendation 1: Fully document the underlying assumptions and justifications that form the basis of the risk-based grant assessment model, such as the size of the weights assigned to Threat, Vulnerability, and Consequence, or the justification for changes to these weights from 1 year to the next.

Response: Concur. Each year, the FEMA Grant Programs Directorate (GPD) provides each of the top 100 most populous Metropolitan Statistical Areas (MSA) and all 56 states/territories with their draft Risk Profile, which contains specific data used to develop the risk score. When the draft Risk Profiles are distributed, GPD includes a letter documenting any changes which have been made to the weights, data elements, or data used in that fiscal year's (FY) risk methodology. GPD holds webinars explaining the Risk Profiles, changes to the risk methodology, and risk review process, and answers any questions that arise during the webinars. Through this letter and the webinars, GPD documents the changes to the risk methodology to all states, territories, and 100 most populous MSAs. GPD will continue to provide this level of information regarding the changes to the risk methodology to ensure stakeholders are provided justification for changes to weights and data elements used in the risk methodology.

Additionally, FEMA provides a yearly report to Congress detailing the methodologies used to calculate risk and compute the allocation of funds for grants administered by GPD. In this report, FEMA documents changes in the SHSP/UASI methodology. The most recent report was provided to Congress on August 7, 2018. A copy of this report was previously provided to GAO.

We request that GAO consider this recommendation resolved and closed as implemented.

Recommendation 2: Perform sensitivity analyses to verify how changes to the risk-based grant assessment model could affect the resulting risk scores, and document the results.

Response: Concur. GPD already performs analyses on the effects of adding a data element to the risk methodology. GPD will, however, expand the use of sensitivity analysis review to the entire risk methodology. GPD will also document the results of the sensitivity analysis for leadership review, as appropriate.

Estimated Completion Date (ECD): April 30, 2019

Recommendation 3: Take steps to coordinate an independent, external peer review of its risk based grant assessment model.

Response: Concur. Although GPD has already gone through a number of internal reviews by DHS subject matter experts, GPD will coordinate an independent external peer review in order to ensure the risk methodology of the grant assessment model is reasonable and credible. More specifically, GPD will utilize contract support to secure an independent subject matter expert to conduct the recommended peer review. To guide selection of the peer reviewer, FEMA will provide its contractor with specifications on the review, deliverables, and the qualifications of the subject matter expert needed to perform the review. The external review will be done on the overall risk model construct, model weights, and suitability of data elements for inclusion in the risk methodology. This will ensure the risk methodology complies with applicable policy and legislative guidance. At the conclusion of this review, a detailed written response will be provided to GPD leadership for further action(s), as appropriate.

ECD: April 30, 2019

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Chris P. Currie, at (202) 512-8777 or CurrieC@gao.gov.

Staff Acknowledgments

In addition, key contributors to this report were Aditi Archer, Chris Keisling, Assistant Director, John Vocino, Analyst-in-Charge, Chuck Bausell, Dominick Dale, Dorian Dunbar, Eric Hauswirth, Serena Lo, Heidi Nielson, and Hadley Nobles.

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's website (<https://www.gao.gov>). Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to <https://www.gao.gov> and select "E-mail Updates."

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, <https://www.gao.gov/ordering.htm>.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on [Facebook](#), [Flickr](#), [Twitter](#), and [YouTube](#).
Subscribe to our [RSS Feeds](#) or [E-mail Updates](#). Listen to our [Podcasts](#).
Visit GAO on the web at <https://www.gao.gov>.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Website: <https://www.gao.gov/fraudnet/fraudnet.htm>

Automated answering system: (800) 424-5454 or (202) 512-7700

Congressional Relations

Orice Williams Brown, Managing Director, WilliamsO@gao.gov, (202) 512-4400,
U.S. Government Accountability Office, 441 G Street NW, Room 7125,
Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, DC 20548

Strategic Planning and External Liaison

James-Christian Blockwood, Managing Director, spel@gao.gov, (202) 512-4707
U.S. Government Accountability Office, 441 G Street NW, Room 7814,
Washington, DC 20548



Please Print on Recycled Paper.