

Homeland Security Grant Program

Preparedness Directorate
Office of Grants and Training
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Risk Analysis

DHS Risk Methodology Strengthens National Preparedness

The Interim National Preparedness Goal (the Goal) requires the Nation to work together to build and sustain *risk-based target levels of capability* to minimize the impact of terrorist attacks and catastrophic events on lives, property, and the economy.

As part of this risk-based approach to preparedness, DHS' Fiscal Year 2006 (FY06) risk methodology represents a major step forward in the analysis of the risk of terrorism, resulting in the most accurate estimation to-date of the relative risk faced by our Nation's communities. In response to State and local partner feedback, the FY06 methodology incorporates a number of significant enhancements over previous years' analyses, including:

*In Fiscal Year 2006, DHS' Homeland Security Grant Program (HSGP) will award approximately **\$1.7 billion** to States, Territories, and Urban Areas to enhance their ability to prevent, protect against, respond to, and recover from terrorist attacks, major disasters, and other emergencies.*

- Incorporation of strategic threat analysis from the Intelligence Community
- Improved attribution of threat and law enforcement activity data
- Greater depth and breadth in critical infrastructure and key asset data
- Inclusion of populated areas outside official city limits to encourage regionalization
- Incorporation of transient populations, such as tourists and commuters

This common, scalable risk analysis model is applicable to a number of DHS grant programs, which enables DHS to achieve consistency across national risk management efforts.

FY06 HSGP Allocations Incorporate Risk

For FY06, HSGP funding allocations are based primarily on two factors:

1. analysis of relative **risk** to assets as well as risk to populations and geographic areas
2. the anticipated **effectiveness** of State and Urban Area grant proposals in addressing their identified homeland security needs.

These factors are used to determine allocation amounts for the following programs under HSGP: the State Homeland Security Program (SHSP), the Urban Areas Security Initiative (UASI), and the Law Enforcement Terrorism Prevention Program (LETPP). In addition to risk and effectiveness, a base award will be allocated under SHSP and LETPP according to the USA PATRIOT Act formula. All UASI funding will be allocated based on risk and effectiveness.

DHS' new funding criteria (based on risk and effectiveness of proposed solutions to identified needs) align federal resources with the National Priorities established by the Goal.

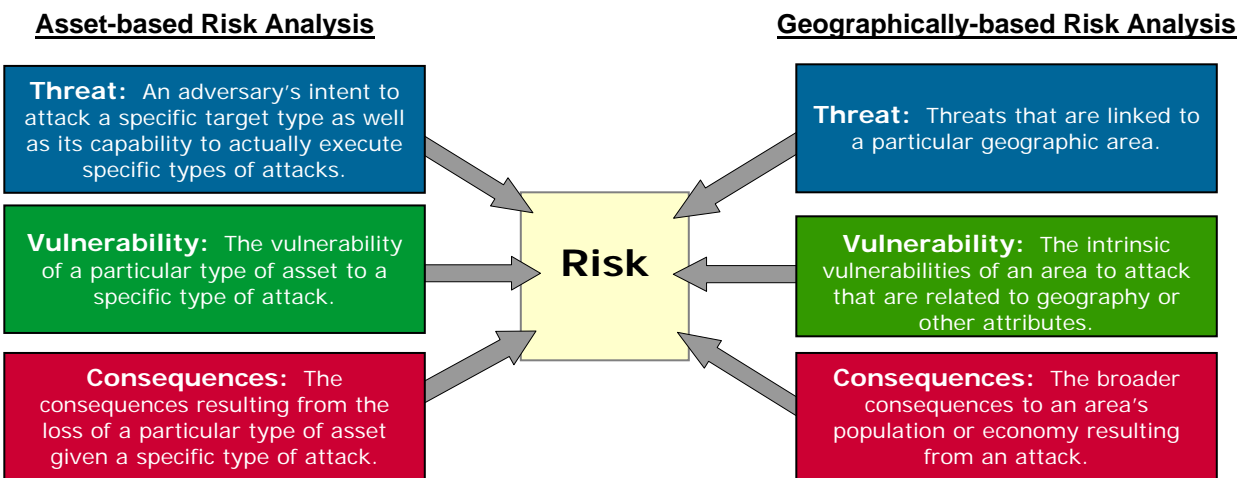
Details of DHS' Risk-Based Approach

DHS defines risk by three principal variables: **threat**, or the likelihood of a type of attack that might be attempted, **vulnerability**, or the likelihood that an attacker would succeed with a particular attack type, and **consequence**, or the potential impact of a particular attack.

The risk model used to allocate HSGP funds includes both asset-based and geographically-based terrorist risk calculations. DHS combines these complementary risk calculations to produce an estimate of the relative risk of terrorism faced by a given area.

Asset-based risk – The asset-based approach uses strategic threat estimates from the Intelligence Community of an adversary's intent and capability to attack different types of assets (such as chemical plants, stadiums, and commercial airports) using different attack methods. DHS analyzes the vulnerability of each asset type relative to each attack method to determine the form of attack most likely to be successful.

Additionally, DHS estimates the consequences that successful attacks would have on each asset type, including human health, economic, strategic mission, and psychological impacts. This analysis yields a relative risk estimate for each asset type, which DHS applies to a given geographic area, based on the number of each asset type present within that area.



Geographically-based risk – The geographic-based approach allows DHS to consider general characteristics of a geographic area mostly independent of the assets that exist within that area. First, DHS evaluates reported threats, law enforcement activity (using Federal Bureau of Investigation and Immigration and Customs Enforcement terrorism case data), and suspicious incidents reported during the evaluation period. Next, DHS considers vulnerability factors for each geographic area, such as the area's proximity to international borders.

Lastly, DHS estimates the potential consequences of an attack on that area, including human health (e.g., population, population density, transient populations), economy (e.g., percentage of Gross Domestic Product, total agriculture sales, international cargo value), strategic mission (e.g., defense industrial base), and psychological impacts.

This enhanced approach to risk analysis, combined with the effectiveness of States' and Urban Areas' proposed solutions to address needs, will target homeland security funding to those areas where it can most directly impact State and local preparedness.

ASSET TYPES USED IN ASSET-BASED RISK CALCULATIONS

State Asset Types

- Chemical Manufacturing Facilities
- City Road Bridges
- Colleges and Universities
- Commercial Airports
- Commercial Overnight Shipping Facilities
- Convention Centers
- Dams
- Electricity Generation Facilities
- Electricity Substations
- Enclosed Shopping Malls
- Ferry Terminals - Buildings
- Financial Facilities
- Hospitals
- Hotel Casinos
- Levees
- Liquefied Natural Gas (LNG) Terminals
- Maritime Port Facilities
- Mass Transit Commuter Rail & Subway Stations
- National Health Stockpile Sites
- National Monuments and Icons
- Natural Gas Compressor Stations
- Non-Power Nuclear Reactors
- Nuclear Power Plants
- Nuclear Research Labs
- Petroleum Pumping Stations
- Petroleum Refineries
- Petroleum Storage Tanks
- Potable Water Treatment Facilities
- Primary And Secondary Schools
- Railroad Bridges
- Railroad Passenger Stations
- Railroad Tunnels
- Road Commuter Tunnels
- Road Interstate Bridges
- Road Interstate Tunnels
- Stadiums
- Tall Commercial Buildings
- Telcomm-Telephone Hotels
- Theme Parks
- Trans-Oceanic Cable Landings

Urban Area Asset Types

- Chemical Manufacturing Facilities
- City Road Bridges
- Colleges and Universities
- Commercial Airports
- Commercial Overnight Shipping Facilities
- Convention Centers
- Dams
- Electricity Generation Facilities
- Electricity Substations
- Enclosed Shopping Malls
- Ferry Terminals - Buildings
- Financial Facilities
- Hospitals
- Hotel Casinos
- Levees
- Liquefied Natural Gas (LNG) Terminals
- Maritime Port Facilities
- Mass Transit Commuter Rail & Subway Stations
- National Health Stockpile Sites
- National Monuments and Icons
- Natural Gas Compressor Stations
- Non-Power Nuclear Reactors
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- Petroleum Pumping Stations
- Petroleum Refineries
- Petroleum Storage Tanks
- Potable Water Treatment Facilities
- Primary And Secondary Schools
- Railroad Bridges
- Railroad Passenger Stations
- Railroad Tunnels
- Road Commuter Tunnels
- Stadiums
- Tall Commercial Buildings
- Telcomm-Telephone Hotels
- Theme Parks
- Trans-Oceanic Cable Landings

Many asset types outlined above have specific thresholds that trigger the inclusion of related data in the risk analysis model. Information on these thresholds is available in the *Risk Analysis for Fiscal Year 2006 Homeland Security Grants* technical paper. Please reference Appendix B in that document for additional information.

GEOGRAPHIC ATTRIBUTES USED IN GEOGRAPHICALLY-BASED RISK CALCULATIONS

State Geographic Attributes

- Defense Industrial Base Facilities
- Federal Bureau of Investigation (FBI) Basic and Special Cases
- Gross Domestic Product (GDP)
- I-94 Visitors from Countries of Interest
- Intelligence Community Credible and Less Credible Threat Reports
- Immigration and Customs Enforcement (ICE) Basic and Special Cases
- Miles of International Border
- Military Bases
- Nuclear Waste Isolation Pilot Plan (WIPP) Transportation Routes
- Population
- Population Density
- Port of Entry/Border Crossings (People From Countries of Interest and Annual Throughput)
- Ratio of Law Enforcement to Population
- Special Events
- State International Export Trade
- State Total Agriculture Sales
- Sum of Population Density of Urban Areas in State
- Sum of Population of Urban Areas in State
- Suspicious Incidents (Credible and Less Credible)

Urban Area Geographic Attributes

- Defense Industrial Base Facilities
- FBI Basic and Special Cases
- I-94 Visitors from Countries of Interest
- Intelligence Community Credible and Less Credible Threat Reports
- ICE Basic and Special Cases
- Nuclear Waste Isolation Pilot Plan (WIPP) Transportation Routes
- Military Bases
- Population
- Population Density
- Transient Population (Commuters and Visitors)
- Port Population
- Port Population Density
- Port of Entry/Border Crossings (People From Countries of Interest and Annual Throughput)
- Special Events
- Suspicious Incidents (Credible and Less Credible)
- Vessels of Special Interest

Many geographic attributes outlined above have specific thresholds that trigger the inclusion of related data in the risk analysis model. Information on these thresholds is available in the *Risk Analysis for Fiscal Year 2006 Homeland Security Grants* technical paper. Please reference Appendix C in that document for additional information.