Critical Asset Prioritization – Coast Guard

The National Infrastructure Simulation and Analysis Center (NISAC), a program under the Department of Homeland Security's Information Analysis and Infrastructure Protection (IAIP) Directorate, provides advanced modeling and simulation capabilities for the analysis of critical infrastructures, their interdependencies, vulnerabilities, and complexities. These capabilities help improve the robustness of our nation's critical infrastructures by aiding decision makers in the areas of policy analysis, investment and mitigation planning, education and training, and near real-time assistance to crisis response organizations.

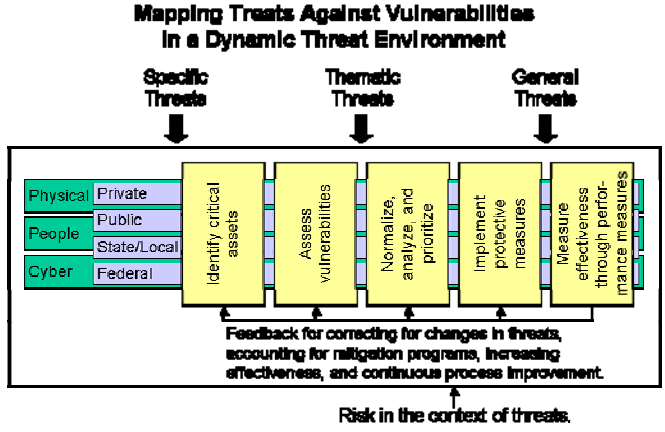
NISAC is a partnership between Sandia National Laboratories (SNL) and Los Alamos National Laboratory (LANL), integrating the two laboratories' expertise in infrastructure disruption/vulnerability modeling and simulation.

Critical Asset Prioritization

Our nation's critical infrastructures and key resources are comprised of a multitude of physical, people, and cyber assets both privately and publicly owned. These assets include the buildings, bridges, power lines, river vessels, port facilities, pipelines, cables, power plants, stadiums, schools, and many others that define and maintain our way of life.

IAIP is responsible for identifying which assets are critical under specific and non-specific threats, assessing the vulnerabilities of those assets, prioritizing the assets based on risk, supporting the creation and implementation of mitigation strategies, and determining the changes in asset risk due to planned and implemented mitigation strategies, changes in threat, and changes in policy.

The Critical Asset Prioritization (CAP) project's goal is to assist IAIP in these efforts by providing them with processes, methodologies, and tools that will help them better accomplish the tasks illustrated above.

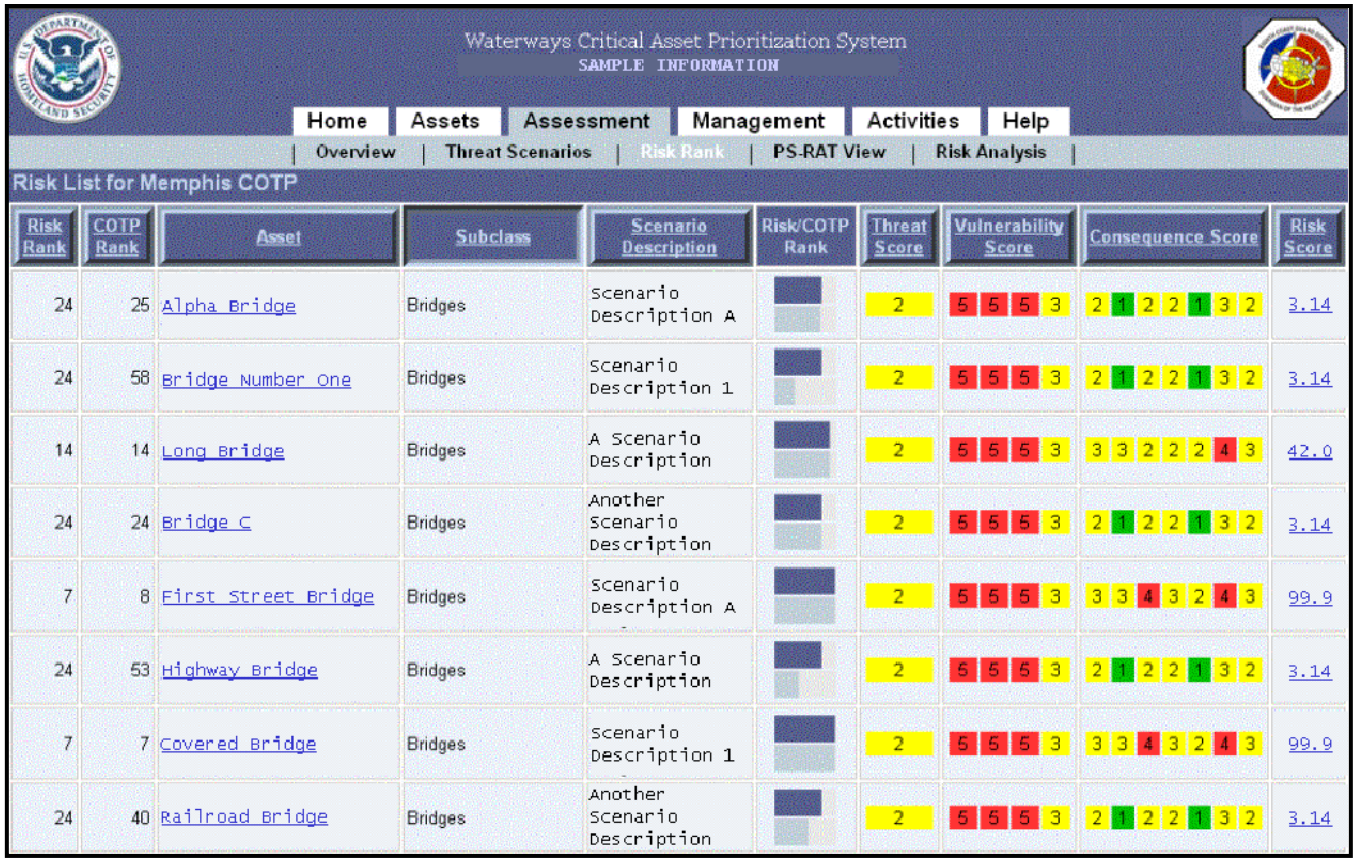


The USCG Waterways Task

In order to develop the necessary processes, methodologies, and tools for such a large and complex problem we are first developing them to solve the same problems for the United States Coast Guard (USCG), an agency under DHS responsible for the security of our nation's ports and waterways. In particular our first efforts have been to provide the USCG inland waterways of the lower Mississippi River with tools to enable them to better understand the asset threat, vulnerability, consequence, and risk data that they have already collected. A screen shot of that tool is shown on the next page. As shown in the example screen shot one of the features of the tool allows the user to see all of the assets of a particular type, in this case bridges, along with the constituent data that goes into calculating the assets' risk scores. The vulnerability scores are comprised up of values for asset availability, accessibility, security, and hardness. The consequence scores are comprised of values for death and injury, economic impact, environmental impact, national defense, symbolic effect, recoverability, and redundancy. Quickly a user is able to determine the differences between bridge risks, why the difference exists, and the captain of the port's ranking of the asset.

Further work this year will be to continue our efforts with the USCG to support their risk planning and mitigation processes as defined in Navigation and Vessel Inspection Circular 9-02. This circular issued by the Commandant of the USCG describes how the Coast Guard will satisfy the law and regulations promulgated by the Maritime Transportation Security Act and Title 33 of the Code of Federal Regulations Subchapter H. These process are very similar to the DHS processes illustrated on the previous page and we will also be able to apply them to the assets in the National Asset Data Base (NADB).

In addition we will also be developing a risk assessment methodology designed to provide both DHS and the USCG with a data driven methodology that does not depend on the elicitation of experts but on descriptive attributes of the assets themselves. This is an important and necessary step in being able to do dynamic asset prioritization that is able to change the risk-based priority of assets based on changes in threat, mitigation and policy.



Risk Rank	COTP Rank	Asset	Subclass	Scenario Description	Risk/COTP Rank	Threat Score	Vulnerability Score	Consequence Score	Risk Score
24	25	Alpha Bridge	Bridges	Scenario Description A		2	5 5 5 3	2 1 2 2 1 3 2	3.14
24	58	Bridge Number One	Bridges	Scenario Description 1		2	5 5 5 3	2 1 2 2 1 3 2	3.14
14	14	Long Bridge	Bridges	A Scenario Description		2	5 5 5 3	3 3 2 2 2 4 3	42.0
24	24	Bridge C	Bridges	Another Scenario Description		2	5 5 5 3	2 1 2 2 1 3 2	3.14
7	8	First Street Bridge	Bridges	Scenario Description A		2	5 5 5 3	3 3 4 3 2 4 3	99.9
24	53	Highway Bridge	Bridges	A Scenario Description		2	5 5 5 3	2 1 2 2 1 3 2	3.14
7	7	Covered Bridge	Bridges	Scenario Description 1		2	5 5 5 3	3 3 4 3 2 4 3	99.9
24	40	Railroad Bridge	Bridges	Another Scenario Description		2	5 5 5 3	2 1 2 2 1 3 2	3.14

An example view of bridges in the area of responsibility showing threat, vulnerability, and consequence score detail; as well as risk score and captain of the port ranking values.Please note that generic asset names, scenario descriptions, and risk scores have been used to prevent the release of any sensitive information

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