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Student CIP Project Drives Legislation

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Tucked into a resolution that is winding its way through Congress is a requirement for NORAD to work with the National Guard in evaluating the best use of the nation's air defense to protect people and infrastructure.

That language in HR 5136 stems in part from concerns raised in a report by four students in the Critical Infrastructure Protection course at the Naval Postgraduate School Center for Homeland Defense and Security.

As part of a course project, the team examined how the Department of Defense assesses risk and decides which assets to protect in the realm of homeland air defense, said Lt. Col. Duke Pirak of the Oregon Air National Guard.

"We uncovered what we think are some severe flaws in their logic and strategy," Pirak said.

The study goes to the underlying purpose of the course – because not everything can be protected all the time, how do agencies determine which assets are most critical and protection-worthy?

The course teaches how to apply modeling to assess vulnerabilities and build protection strategy.

Pirak was joined by Lt. Tracy Frazzano of the Montclair (N.J.) Police Department; Jeffrey Jones, Supervisory Special Agent with the Federal Bureau of Investigation; and, Cmdr. Cheryl Wade of the Ventura County (Calif.) Sheriff's Department.

In this case, the study found shortcomings in current decision-making on which population centers to protect and which nodes of infrastructure, such as energy or water.

"As we uncovered how that was done, it was largely an ad-hoc effort," Pirak said. "Because we have limited resources, it wasn't the most efficient way to cover the most important things."

The four students applied a CIP modeling method to analyze the nation's air defense scheme.

Among the study's recommendations:

Develop comprehensive modeling to determine the most critical cross sector and interdependent nodes in order to develop an optimal allocation strategy.

Improve communications between the Department of Defense and the Department of Homeland Security to foster collaboration between the two entities.

Drive strategic planning on this issue through a linked Quadrennial Defense Review and Quadrennial Homeland



Security Review.

"The ultimate goal is to remove emotion and politics out of this and come up with something that is informed by science," Pirak said.

The study found that when deciding on equally sized population centers, one may have critical infrastructure nodes that were not being factored in to the decision.

Additionally, the study called for more emphasis on threat assessment to consider events that would be devastating, yet unlikely, compared with more realistic concerns.

"We suggest re-examining the nature of threat; where is it we are really vulnerable?" Pirak noted.

To reach its conclusion, each team member worked on a portion of the analysis.

For example, Frazzano researched petroleum reserves and distribution and their effects on transportation, defense and the economy. She concluded that oil should be viewed in a broader context with other nodes, she said.

"As a group, the research presented that we have reduced our level of air protections since 9/11 and haven't taken steps to update our analytics to support what we are protecting and how we are doing it," she said. "The overall conclusion that we reached is that our resources are far from optimized."

Wade learned about the vulnerability of the nation's power supply as she obtained information on the top 10 power plants in the United States.

"I was surprised to learn that defense air support was out of range for the larger plants and how easy it might be to defeat the operations of a plant by simply taking out a bridge," Wade said. "I also learned how unstable the electric power grid is overall."

Jones studied how critical assets are defined and what value judgments determine what constitutes a key asset.

"This Critical Infrastructure Class Project for me was eye-opening because it highlighted just how vulnerable our critical infrastructure is to both man-made and natural disasters," he said.

Applying strictly empirical decision-making may sound logical, but policies can be driven by politics and sentiment. And, decision makers have to be able to defend their plan should the event an attack occur.

"What you are trying to do is the most responsible thing without politics or emotion," Pirak noted.

H.R. 5136 has been approved by the House of Representatives and now is now before the Senate.

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