



## AAAS R&D Funding Update on FY 2005 DHS Final Appropriations

### **DHS Wins 20 Percent Boost for its R&D Portfolio**

#### **Highlights**

- Earlier this week, **Congress finalized an FY 2005 budget for the Department of Homeland Security (DHS) that would give the new department an R&D portfolio of \$1.2 billion, up \$206 million or 19.9 percent** after an even larger increase the year before (see Table).

- Congress added funds to the DHS request for university programs, interoperable communications, shipping container security, and air cargo security technologies. Compared to FY 2004, the largest DHS R&D increase goes to biological countermeasures, including funds for construction of a new biodefense laboratory.

- In addition to the R&D portfolio, DHS has already received \$885 million in FY 2004 and \$2.5 billion in FY 2005 for Project BioShield, a procurement program to purchase biodefense countermeasures that is designed to encourage private-sector biodefense R&D investments. An authorization law establishing program guidelines was signed into law in July.

On October 11, shortly before leaving Washington to hit the campaign trail, the Senate gave final approval to the conference report (final version) of a \$32 billion Homeland Security (HS) appropriations bill (HR 4567) that will provide a substantial increase for R&D in the Department of Homeland Security (DHS). The House had given final approval a few days earlier, and President Bush is expected to sign the bill into law this week. While Congress left most of the FY 2005 budget unfinished, DHS joins the Department of Defense (DOD) as the only two R&D funding agencies to receive their final FY 2005 budgets.

#### **The DHS R&D Portfolio in FY 2005**

**The final HS bill provides \$1.2 billion for DHS R&D in FY 2005**, a dramatic increase of \$206 million or 19.9 percent over FY 2004 following an even larger \$300 million increase the previous year. DHS itself requested \$1.1 billion, but Congress added \$102 million to the request at a time when other agencies would count themselves lucky to see their R&D budgets keep pace with inflation (see Table). The nearly 20 percent increase for DHS is certain to be the largest percentage increase of an agency's R&D portfolio in FY 2005. The final bill closely follows earlier House and Senate versions of the bill, both of which also provided \$1.2 billion for DHS R&D. (For more on House and Senate appropriations for DHS R&D, see the June 22 AAAS R&D Funding Update. For more on the DHS R&D request for FY 2005, see the AAAS R&D Funding Update on DHS in the President's request).

#### **R&D in the Directorate of Science and Technology**

Most DHS R&D programs have their home in the Directorate of Science and Technology (S&T), one of five broad directorates in the new department. This Directorate has responsibility for setting homeland-security R&D goals and priorities, coordinating homeland security R&D throughout the federal government, funding homeland security R&D, facilitating the transfer and deployment of technologies for homeland security, and advising the DHS Secretary on all scientific and technical matters.

In FY 2005, the S&T Directorate will fund more than 80 percent of all DHS R&D (see Table and Figure 1). Nearly all of the \$1.1 billion total S&T Directorate budget will go toward R&D activities, except for \$69 million in administrative and other overhead costs.

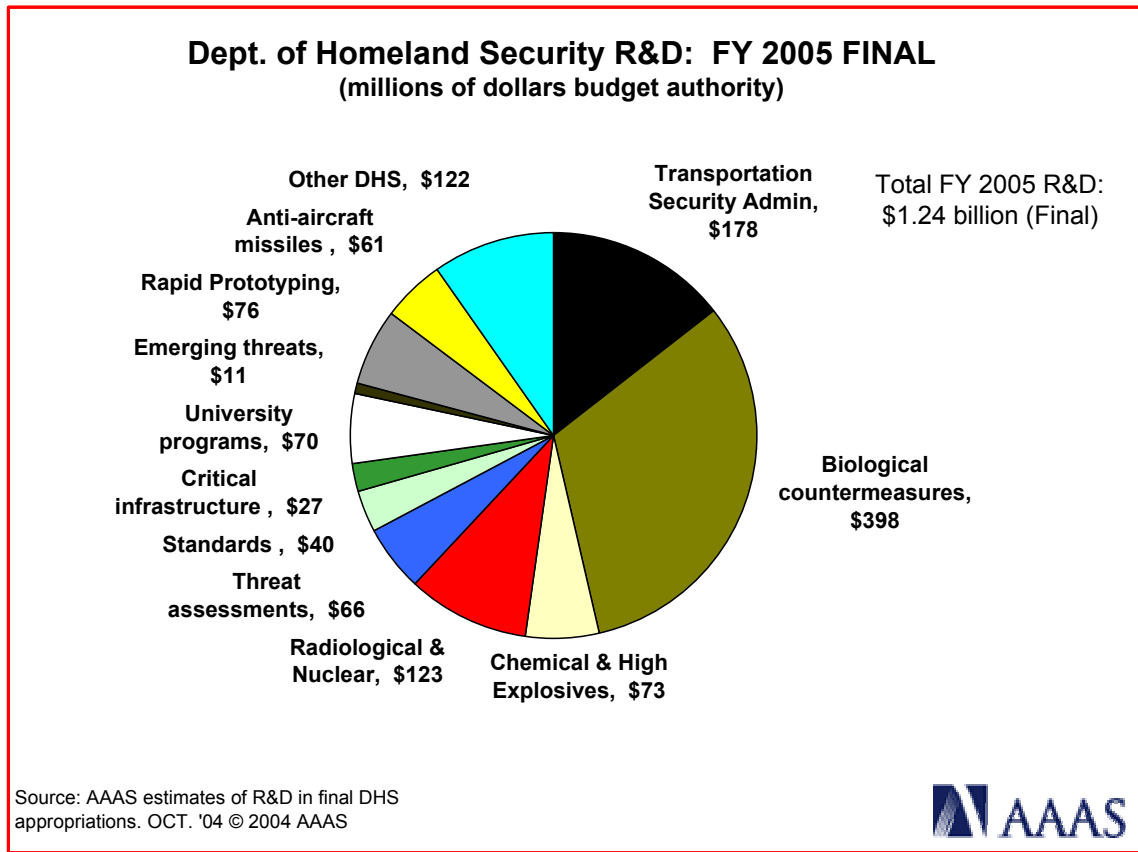


Figure 1. (click on the image to view or download a color full-size PDF version of the chart)

Congress added \$60 million to the DHS request for S&T's R&D programs. Congress added to the request for four specific program areas. Congress **provided \$70 million for University Programs and Fellowship Programs**, a boost of \$40 million over the request and the same amount as last year. This program funds several university-based centers of excellence and is a funding source dedicated exclusively to funding university-based research. The Department expects to designate several university-based centers for homeland security in FY 2005, adding to the three centers that have already been announced (one on threat assessments and two on agro-terrorism). Universities will not be limited to just \$70 million; they will also be able to compete for R&D funds in the other program areas. This program also funds fellowships that will bring scientists and engineers from academia and private industry to work within the DHS for a year or two, and funds graduate fellowships for students seeking careers in technical areas related to homeland security. Congress also added \$10 million in new funds for the Safety Act (included in "Other" in the Table), funds that would be used to certify products as "qualified homeland security technologies" and thus protected from potential liability, in the hopes of encouraging their rapid deployment. Congress added \$21 million in new funds for Interoperability in Communications (see "Other" in the Table) to fund R&D in next-generation communications technologies for public safety wireless communications interoperability. Finally, there are \$10 million in new funds for a container security initiative (included in "Conventional Missions" in the Table) to develop new technologies for detecting biological, chemical, radiological, explosive, or nuclear materials in shipping containers.

**The largest R&D increase goes to biological countermeasures** with an appropriation of \$363 million, nearly double last year's funding. In addition, there was a separate \$87 million last year and \$35 million in

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FY 2005 for construction of a new laboratory named the National Biodefense Analysis and Countermeasures Center in Fort Detrick, Maryland. Adding in this biodefense laboratory, it becomes clear that biological threats are the top priority in the DHS R&D portfolio (see Figure 1), accounting for nearly a third of all DHS R&D. Within biological countermeasures, Congress agreed to the request of \$65 million in new funds for a total of \$118 million for a BioSurveillance initiative to develop an integrated, real-time, human-animal-plant surveillance system. The new funds go to the BioWatch program, which has been developing and testing biological detection technologies in major U.S. cities through a network of automated sample collectors.

In other areas, Congress stuck closely to the request but moved some funds to new accounts. **DHS will spend \$61 million for R&D on antimissile devices for commercial aircraft**, in the hopes of developing and prototyping antimissile devices that can be fitted on airplanes (up from \$60 million last year, funded through the Critical Infrastructure program). These devices would counter the potential threat from MANPADS (man-portable air defense systems), shoulder-fired missiles that have been used (unsuccessfully so far) against passenger aircraft. Congress also agreed to the request to provide \$76 million for rapid prototyping activities to assist private industry in rapidly developing and prototyping new homeland security technologies, and \$40 million for standards R&D.

Congress went along with the DHS plan to make significant R&D investments in other areas: \$123 million for the development of radiological and nuclear countermeasures (down slightly from \$126 million in FY 2004); \$73 million for chemical and high explosives countermeasures to protect U.S. civilians against chemical or explosives attacks, including a \$10 million addition for R&D on detecting potential explosive threats against passenger rail and disseminating the latest technology to rail systems around the country; \$66 million for threat and vulnerability assessments to develop technologies to analyze and evaluate threats, with a separate \$18 million for cybersecurity R&D broken out from last year's integrated program; and \$11 million for R&D on emerging threats.

Most of the above S&T directorate funds will be spent in federal laboratories or federally funded R&D centers (FFRDCs; government-owned, contractor-operated laboratories). DHS has an Office for National Laboratories that coordinates DHS interactions with DOE national laboratories possessing expertise in homeland security. So far, DHS has relied the most on five DOE laboratories (Los Alamos, Lawrence Livermore, Sandia, Pacific Northwest, and Oak Ridge National Laboratories), which have set up lab-within-a-lab structures to allow a core of laboratory employees to work primarily for DHS with DHS funds while still drawing on the resources of their DOE-funded colleagues. Recently, DHS set up its own FFRDC, a new Homeland Security Institute (HSI). Most extramural R&D will be handled by the Homeland Security Advanced Research Projects Agency (HSARPA), which will manage competitive solicitations for R&D grants to external performers, cutting across all the homeland security technology areas.

#### **R&D in Other DHS Directorates and Programs**

- **Directorate of Border and Transportation Security:** Most DHS R&D outside the S&T Directorate is funded by the Transportation Security Administration (TSA), located within this directorate (see Table). TSA's R&D on aviation security rises \$24 million to \$178 million, of which an additional \$21 million (for a total of \$75 million) would go to air cargo security R&D, \$49 million would go to various R&D program areas at TSA's Technology Center, and \$54 million would go for 'next-generation' R&D on promising explosive detection technologies for commercial aviation.

- **Directorate of Emergency Preparedness and Response:** This directorate coordinates all federal assistance in response to disasters (including natural disasters) and domestic attacks, and folds in the former Federal Emergency Management Agency (FEMA). There are no R&D programs within this directorate.

**Within this directorate, there is \$5.6 billion over the next 10 years to procure biodefense countermeasures from the private sector, which could provide strong incentives for private-sector**

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**investments in biodefense R&D. The FY 2004 DHS appropriation provided \$885 million in FY 2004 and an additional \$4.7 billion between 2005 and 2013 for the program named Project BioShield** in the President's State of the Union address. \$2.5 billion of this money became available at the October 1 start of FY 2005 without any further action by Congress, but spending authority and management for the program transferred to the Department of Health and Human Services (HHS) with the enactment of the Project Bioshield authorization law in July. Although not an R&D program, the program is designed to encourage private-sector R&D investments in biodefense vaccines, therapeutics, and other countermeasures by providing a guaranteed government market for future products. HHS will use Bioshield funds to purchase countermeasures for the Strategic National Stockpile (SNS), which also transferred to HHS from DHS over the summer. HHS expects to award the first Bioshield contracts in late 2004.

- **Directorate of Information Analysis and Infrastructure Protection (IAIP):** There is no R&D funding in the \$864 million budget for this directorate, but IAIP collaborates with the S&T directorate in the Bio-Surveillance initiative (see above). The S&T Directorate will assist this directorate's activities with R&D funded through its Cybersecurity and Critical Infrastructure programs.

- **Coast Guard:** The Coast Guard, formerly in the Department of Transportation, is now housed in DHS. Its R&D portfolio totaled \$14 million in FY 2004, and increases to \$19 million in FY 2005. DHS proposed to transfer this R&D to the S&T Directorate under the line item "Conventional Missions of DHS" (see Table), but Congress decided to keep these R&D programs in the Coast Guard.

### Next Steps

President Bush is expected to sign the Homeland Security appropriations bill into law shortly. DHS is fortunate to not only receive a large budget increase but also to receive its budget in October. Most other R&D funding agencies, with the exception of DOD, may have to wait months before they know what their FY 2005 budgets will be.

(This analysis is one of a series of AAAS R&D Funding Updates on the FY 2005 congressional appropriations process. This analysis includes information on R&D in final appropriations for the Department of Homeland Security. The complete series of AAAS R&D Funding Updates, including continually updated analyses of R&D by agency in FY 2005 appropriations, is available on the AAAS R&D Web Site (<http://www.aaas.org/spp/rd>) in the "FY 2005 R&D" or the "What's New" sections.)

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Table. DHS R&amp;D in FY 2004 House-Senate Conference Appropriations

**Table. Department of Homeland Security  
House-Senate Conference on R&D in the FY 2005 Budget  
(budget authority in millions of dollars)**

	FY 2004 Estimate	FY 2005 Request	House-Senate Conference				
			<b>FY 2005 CONF.</b>	Chg. from Request Amount	Chg. from Request Percent	Chg. from FY 2004 Amount	Chg. from FY 2004 Percent
DHS R&D:							
Border & Transportation Security (TSA)*	154	154	<b>178</b>	24	15.6%	24	15.4%
Emergency Preparedness	0	0	<b>0</b>	0	--	0	--
Information Analysis and Infra.	0	0	<b>0</b>	0	--	0	--
Science and Technology	869	987	<b>1,047</b>	60	6.1%	178	20.5%
<i>Biological countermeasures</i>	197	407	<b>363</b>	-44	-10.9%	165	83.8%
<i>Chemical &amp; High Explosives</i>	61	63	<b>73</b>	10	15.9%	12	18.9%
<i>Radiological &amp; Nuclear</i>	126	129	<b>123</b>	-7	-5.2%	-4	-2.9%
<i>Threat &amp; vulnerability assessments</i> ^^	93	102	<b>66</b>	-36	-35.4%	-27	-29.2%
<i>Standards / state and local</i>	39	40	<b>40</b>	0	0.0%	1	2.4%
<i>Critical infrastructure</i> ^	66	61	<b>27</b>	-34	-55.7%	-39	-59.2%
<i>University programs / HS fellowships</i>	70	30	<b>70</b>	40	133.3%	0	0.6%
<i>Emerging threats</i>	21	21	<b>11</b>	-10	-48.8%	-10	-48.5%
<i>Rapid Prototyping</i>	75	76	<b>76</b>	0	0.0%	1	1.9%
<i>Anti-aircraft missiles</i> ^	0	0	<b>61</b>	61	--	61	--
<i>Conventional Missions of DHS</i> **	34	58	<b>55</b>	-4	-6.0%	21	61.7%
NBACC ***	87	0	<b>35</b>	35	--	-52	-60.0%
<i>Cyber security</i> ^^	0	0	<b>18</b>	18	--	18	--
<i>Other</i>	0	0	<b>31</b>	31	--	31	--
Coast Guard **	14	0	<b>19</b>	19	--	5	32.1%
<b>Total DHS R&amp;D</b>	<b>1,037</b>	<b>1,141</b>	<b>1,243</b>	<b>102</b>	<b>9.0%</b>	<b>206</b>	<b>19.9%</b>
<i>Selected non-R&amp;D items:</i>							
<i>Biodefense countermeasures (BioShield)</i>	885	2,528	<b>2,528</b>	0	0.0%	1,643	185.6%
Total DHS Discretionary Budget	29,242	31,104	<b>32,000</b>	895	2.9%	2,758	9.4%

AAAS estimates based on FY 2005 appropriations bills. Includes conduct of R&D and R&D facilities.

FY 2004 and FY 2005 request figures based on OMB R&D data and supplemental agency budget data.

Figures are rounded to the nearest million. Changes calculated from unrounded figures.

BioShield funding has already been provided in FY 2005 advance appropriations.

\* - TSA R&D figures for FY 2004 and FY 2005 request have been revised since the February release of the budget.

\*\* - Coast Guard R&D transfers to S&T Directorate (Conventional Missions) in FY 2005 request.

\*\*\* - National Biodefense Analysis and Countermeasures Center construction. FY 2005 request includes these costs in Biological Countermeasures.

^ - The final DHS budget creates a new account for Counter MANPADS. In Critical Infrastructure in FY 2004 and FY 2005 request.

^^ - The final DHS budget creates a new account for cybersecurity.

In Threat & Vulnerability Assessments in FY 2004 and FY 2005 request.

**October 13, 2004 - House-Senate Conference funding levels for the final FY 2005 Homeland Security bill.**

**These funding levels are final unless the conference report is vetoed.**