

Bush Administration Seeks \$4.2 Billion for Homeland Security R&D in FY 2005

- Cutting across traditional government mission areas, **federal homeland security R&D would total \$4.2 billion in FY 2005**, a substantial boost of 15.9 percent or \$575 million over this year's funding level across a dozen federal agencies (see Table). In the aftermath of the fall 2001 terrorist attacks, the federal investment will have nearly tripled since 2002.

- The majority of the portfolio would remain outside the Department of Homeland Security (DHS), with **the largest part of funding coming from the National Institutes of Health (NIH) for its biodefense research** portfolio. NIH's portfolio, mostly in the National Institute of Allergy and Infectious Diseases (NIAID), would total \$1.8 billion in FY 2005, up 4.6 percent.

- **Total homeland security funding would rise \$6 billion or 14.4 percent to \$47 billion** next year despite fiscal austerity for other federal government missions

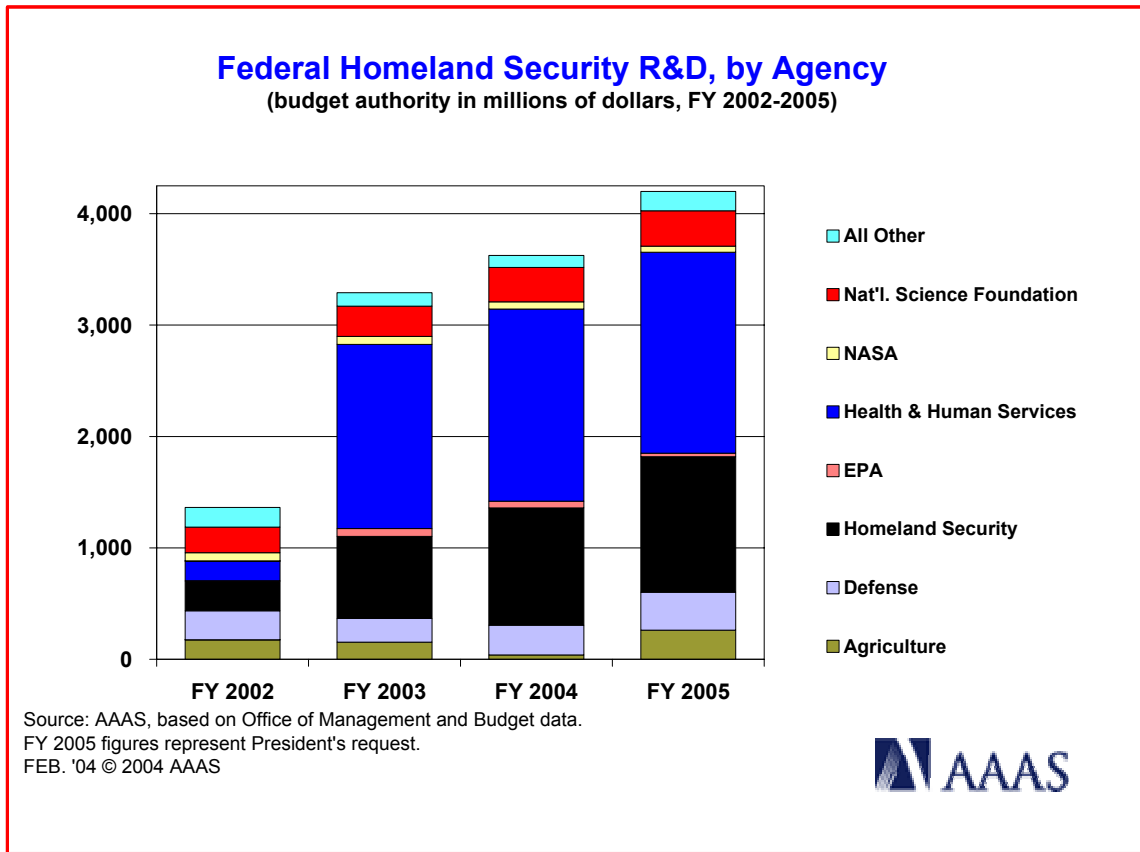


Figure 1. (click on image to view or download a full-size color PDF version of this chart)

The Bush Administration has requested \$4.2 billion for homeland security R&D in the FY 2005 budget, a substantial boost of 15.9 percent or \$575 million from the FY 2004 funding level (see Table). As shown in Figure 2, homeland security R&D is funded by nearly a dozen different federal departments, but the majority of funds would remain outside the new Department of Homeland Security (DHS). In fact, nearly half of all federal R&D funding for homeland security would come from the Department of Health and Human Services (HHS; \$1.8 billion in FY 2005; see Figure 2).

Despite the creation of DHS, homeland security R&D is an interagency effort. The concept of homeland security itself is still new, and is an outgrowth of longstanding multi-agency federal investments in counter-terrorism programs given new urgency and new direction after the fall 2001 terrorist attacks. Until FY 2001, counter-terrorism R&D was an effort of about \$500 million a year with the majority of support coming from the Department of Defense (DOD), because it was assumed that U.S. military forces abroad were the most at risk from terrorist attacks. After the September 11 and anthrax attacks, this thinking changed dramatically and, as a consequence, homeland security as an effort to prevent, minimize, and recover from terrorist attacks within the United States became a new concept and mission for the federal government. Ultimately, this newly-articulated mission found expression in a new cabinet-level federal department to consolidate many but not all federal counter-terrorism programs, and a dramatic expansion of federal homeland security spending both inside and outside the new DHS.

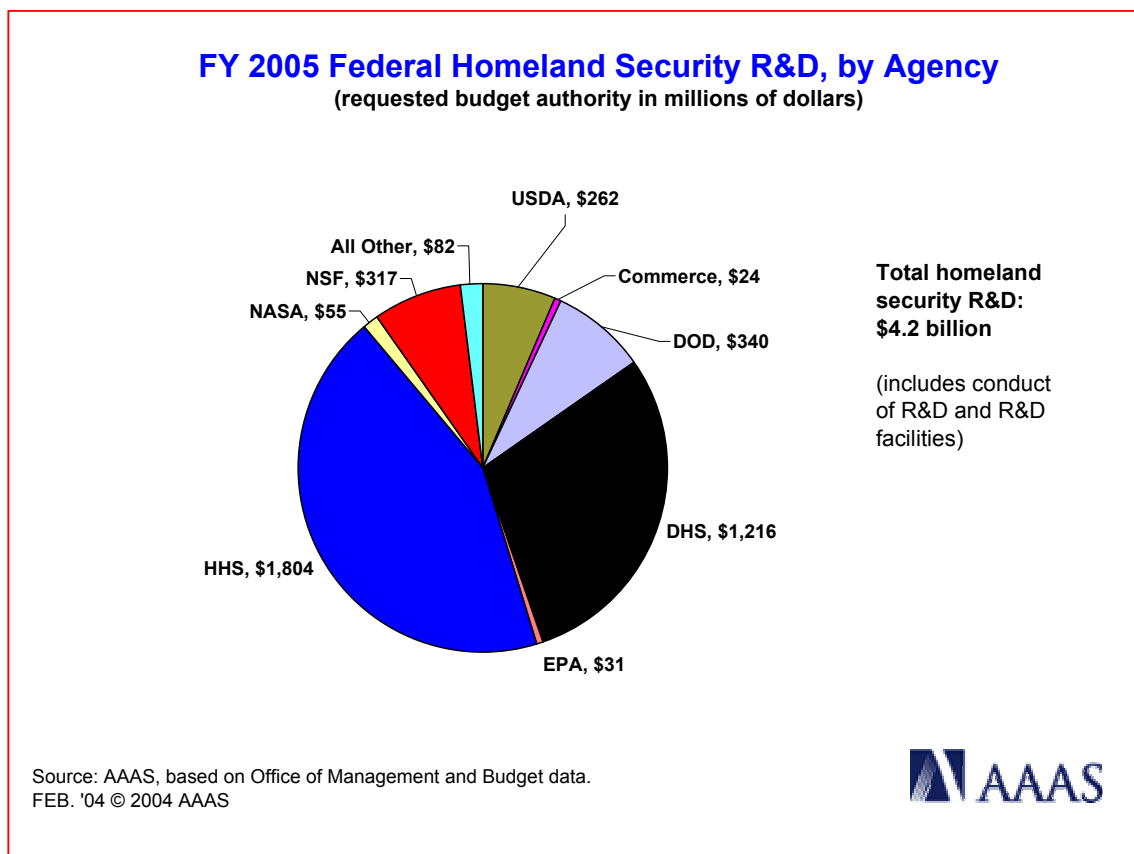


Figure 2. (click on image to view or download a full-size color PDF version of this chart)

From \$1.5 billion in FY 2002, mostly new funding enacted in the immediate aftermath of the fall 2001 terrorist attacks, the R&D portfolio more than doubled to \$3.3 billion in FY 2003, primarily because of a \$1.5 billion increase in the National Institutes of Health (NIH) bioterrorism R&D portfolio (see Figure 1). The portfolio grew again to \$3.6 billion in FY 2004, driven by substantial increases in the new DHS. In FY 2005, HS R&D would move past \$4 billion with a 15.9 percent increase to \$4.2 billion because of

continuing growth in DHS and substantial new investments in the U.S. Department of Agriculture (USDA).

The **National Institutes of Health (NIH)** has supported **bioterrorism-related research** for years, but its research portfolio became a high priority after the fall 2001 postal anthrax attacks. In the FY 2005 request, biodefense R&D continues to be a high priority. NIH identifies \$1.8 billion for biodefense R&D in FY 2005, up 4.5 percent from this year. As recently as two years ago (2002), the NIH investment was only \$162 million. Most NIH biodefense R&D is funded by the National Institute of Allergy and Infectious Diseases (NIAID), which became the second-largest NIH institute in the aftermath of the anthrax attacks. NIAID would continue to award biodefense research grants in FY 2005, complete the establishment of 10 extramural Regional Centers of Excellence in Biodefense and Emerging Infectious Disease Research (RCE) with the designation of the final 2 centers, provide \$150 million for the second phase of extramural construction grants for biosafety level (BSL) 3 and 4 laboratories around the nation, and conduct animal and clinical trials of various candidate vaccines. The remaining HHS R&D funds in the Table come from the Centers for Disease Control and Prevention (CDC), which funds bioterrorism R&D at its own laboratories. (For more on NIH R&D, see the NIH R&D Funding Update.)

The Department of Homeland Security (DHS) would continue its dramatic expansion of R&D capabilities with an R&D budget of \$1.2 billion, up \$163 million or 15.5 percent after an even larger increase last year (see Table). DHS plans to shift its efforts away from near-term technology development this year to a more balanced portfolio of basic research, applied research, and development in FY 2005. Still, development would dominate the FY 2005 DHS portfolio.

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 use by other DHS units, and advising the DHS Secretary on all scientific and technical matters. The S&T Directorate would fund 81 percent of the R&D in DHS (\$987 million out of \$1.2 billion).

Most of the 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).

The extramural R&D portfolio in the S&T directorate is managed by **the Homeland Security Advanced Research Projects Agency (HSARPA)**, modeled on the Defense Advanced Research Projects Agency (DARPA) in the Department of Defense (DOD). HSARPA awards extramural grants for basic and applied research to promote revolutionary changes in homeland security technologies; develops and tests potential homeland security technologies; and accelerates or prototypes the development of homeland security technologies to get them ready for deployment. Because HSARPA is not a budget line item, its funding will vary throughout the year but a recent estimate is that it will award \$210 million of external R&D funds in FY 2004 across most of the DHS' mission areas. These funds will go to industry contractors, research institutions, and universities; universities also have a separate \$69 million pool of funds in the University Programs account. Last fall, HSARPA conducted its first solicitation of proposals for detection technologies for biological and chemical countermeasures, followed by a solicitation for detection technologies for radiological and nuclear countermeasures earlier this spring, with a possible solicitation of proposals for low vapor pressure chemicals detection later this year. (For more information on the DHS R&D portfolio, see the FY 2005 DHS R&D Funding Update).

The **Department of Defense (DOD)** would boost its homeland security R&D funding dramatically by 27

percent to \$340 million in FY 2005. While the three services (Army, Air Force, and Navy) would keep their investments flat at a combined \$99 million, the majority of the investment and the entire increase would come from the Defense Agencies, particularly the Defense Advanced Research Projects Agency (DARPA), which focuses primarily on military applications in areas such as biological warfare defense, and the Chemical and Biological Defense Program (CBDP). While these agencies focus primarily on protecting U.S. soldiers from biological and chemical attack on the battlefield, the R&D results could have important insights on better protecting civilian populations against attack.

The **U.S. Department of Agriculture (USDA)** has only a small dedicated homeland security research effort, but in recent years has made enormous investments in securing its laboratory facilities, which house pathogens such as anthrax, against terrorist attack. After a pause in FY 2004, USDA HS R&D funding would increase nearly six-fold to \$262 million in FY 2005. The bulk of this investment would be \$178 million to complete animal research and diagnostic facilities at the National Centers for Animal Health in Ames, Iowa, that would be the heart of a USDA-wide food and biosafety initiative aimed at securing the U.S. food supply against both natural and terrorist threats. There would also be \$37 million in new intramural research on food and agriculture defense, with the remainder of the USDA investment going toward ongoing homeland security and agriculture programs.

An agency with a sharp cut in homeland security R&D funding in FY 2005 would be the **Environmental Protection Agency (EPA)**. From \$95 million in FY 2002, the EPA investment has steadily declined and would drop to \$31 million in FY 2005. Much of the earlier investments were for building decontamination research provided as support to EPA's work in decontaminating congressional office buildings of anthrax, and for now-completed drinking water vulnerability research projects.

Among other agencies, the **National Institute of Standards and Technology (NIST)** in Commerce funds R&D on cryptography and computer security and will provide scientific and technical support to DHS in these areas. The **National Science Foundation (NSF)** funds research to combat bioterrorism in the areas of infectious diseases and microbial genome sequencing; these programs would increase to \$317 million in FY 2005. The **Department of Energy (DOE)** has longstanding expertise in countering radiological and nuclear threats, and would continue its R&D efforts in FY 2005.

As the Table shows, **total homeland security funding would rise \$6 billion or 14.4 percent to \$47 billion** next year despite fiscal austerity for other federal government missions. The majority of this \$47 billion effort would be in the DHS, which will have a budget of approximately \$40 billion in FY 2005.

This analysis will be updated as the FY 2005 appropriations process continues, to provide AAAS estimates of homeland security R&D in FY 2005 appropriations bills.

(This analysis is an issue brief highlighting budget data detailing the federal investment in homeland security R&D. 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. Federal Homeland Security R&D in the FY 2005 Budget

Table. Federal Homeland Security R&D by Agency

(budget authority in millions of dollars)

	FY 2002	FY 2003	FY 2004	FY 2005	Change FY 04-05	
	Actual	Actual	Estimate	Budget	Amount	Percent
Agriculture	175	155	39	262	223	566.7%
Commerce	20	16	24	24	1	2.1%
Department of Defense	259	212	267	340	73	27.4%
Department of Energy	50	48	47	68	21	43.9%
Department of Homeland Security	266	737	1,053	1,216	163	15.5%
Environmental Protection Agency	95	70	60	31	-29	-48.1%
Health and Human Services	177	1,653	1,725	1,804	79	4.6%
National Aeronautics and Space Adm.	73	73	65	55	-10	-15.4%
National Science Foundation	229	271	308	317	9	2.9%
Transportation	106	7	3	2	0	-7.7%
All Other	48	47	34	80	46	135.9%
Total Homeland Security R&D	1,499	3,290	3,625	4,200	575	15.9%
<i>(Total Homeland Security Spending)</i>	<i>32,881</i>	<i>42,447</i>	<i>41,413</i>	<i>47,386</i>	<i>5,972</i>	<i>14.4%</i>

AAAS, based on Office of Management and Budget data from OMB's *2004 Report to Congress on Combating Terrorism and Budget of the U.S. Government FY 2005*. Figures adjusted from OMB data by AAAS to include conduct of R&D and R&D facilities, and revised estimates of DHS R&D.

Figures do not include non-R&D homeland security activities, nor do they include DOD R&D investments in overseas combating terrorism.

Funding for all years includes regular appropriations and emergency supplemental appropriations.

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