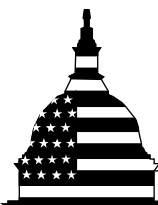


February 2012

LAW ENFORCEMENT BODY ARMOR

DOJ Could Enhance Grant Management Controls and Better Ensure Consistency in Grant Program Requirements



G A O

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Why GAO Did This Study

Since 1987, body armor—in the form of ballistic-resistant and stab-resistant vests—has reportedly saved the lives of over 3,000 law enforcement officers nationwide. Recognizing body armor's value, the Department of Justice (DOJ)—through its Bureau of Justice Assistance (BJA) and its National Institute of Justice (NIJ)—has implemented initiatives to support state and local law enforcement agencies' use of body armor. GAO was asked to examine (1) DOJ's efforts to support the use of body armor, (2) the extent to which DOJ has designed controls to manage and coordinate these efforts, and (3) the factors affecting body armor's use and effectiveness and steps DOJ has taken to address them. GAO reviewed information on DOJ's efforts, and interviewed officials from BJA, NIJ, 6 manufacturers, 2 laboratories, 3 law enforcement associations, 10 state and local jurisdictions, and 12 stakeholders in and outside of government. GAO selected these organizations nonrandomly based in part on their size, and location. GAO also examined body armor literature on key factors affecting body armor's use and effectiveness and reviewed DOJ's efforts to address these factors.

What GAO Recommends

GAO recommends that among other actions, DOJ deobligate undisbursed funds from grants in the BVP program that have closed, establish consistent requirements within its body armor grant programs, and track grantees' intended stab-resistant vest purchases. DOJ generally agreed with the recommendations.

View [GAO-12-353](#). For more information, contact David C. Maurer at (202) 512-9627 or maurerd@gao.gov.

LAW ENFORCEMENT BODY ARMOR

DOJ Could Enhance Grant Management Controls and Better Ensure Consistency in Grant Program Requirements

What GAO Found

The Department of Justice (DOJ) has a number of initiatives to support body armor use by state and local law enforcement, including funding, research, standards development, and testing programs. Two Bureau of Justice Assistance (BJA) grant programs provide funding to state and local law enforcement to facilitate their body armor purchases. The Bulletproof Vest Partnership (BVP) program offers 2-year grants on a reimbursable basis. The Edward Byrne Memorial Justice Assistance Grant (JAG) program provides 4-year grant money up front that can be used to fund body armor procurement along with other criminal justice activities. Since the BVP program's inception in 1999, it has reimbursed grantees about \$247 million for their purchases of nearly 1 million vests. The JAG program has provided nearly \$4 billion from fiscal years 2006 through 2011, but BJA does not know how much of this amount grantees have spent on body armor because it is not required to track expenditures for specific purposes. BJA reports that from fiscal years 2006 through 2011, 357 grantees intended to use JAG funds for ballistic-resistant vest procurement, but it does not track how many grantees intended to purchase stab-resistant vests. The National Institute of Justice (NIJ) sponsors body armor research, establishes body armor performance standards, and oversees body armor testing for compliance.

DOJ designed several internal controls to manage and coordinate BJA's and NIJ's body armor activities, but could take steps to strengthen them, consistent with standards for internal control. For example, the BVP program has not deobligated about \$27 million in undisbursed funds from grant awards whose terms have ended. To strengthen fund management, DOJ could deobligate these funds for grants that have closed and, for example, apply the amounts to new awards or reduce requests for future budgets. Also, unlike the BVP program, the JAG program does not require that the body armor purchased be NIJ compliant or that officers be mandated to wear the armor purchased. To promote officer safety and harmonize the BVP and JAG programs, DOJ could establish consistent body armor requirements.

Factors affecting body armor use and effectiveness include law enforcement agencies' policies mandating wear; the comfort, fit, and coverage of the vests; degradation caused by wear and tear; and exposure to environmental conditions. Among other efforts to address these factors, DOJ has revised its standards and compliance tests to incorporate the latest technology.

Examples of Body Armor



Source: NIJ.

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Abbreviations

BJA	Bureau of Justice Assistance
BVP	Bulletproof Vest Partnership
DHS	Department of Homeland Security
DOD	Department of Defense
DOJ	Department of Justice
FBI	Federal Bureau of Investigation
GMS	Grants Management System
IACP	International Association of Chiefs of Police
JAG	Edward Byrne Memorial Justice Assistance Grant
OAAM	Office of Audit, Assessment, and Management
OJP	Office of Justice Programs
NIJ	National Institute of Justice
NIST	National Institute of Standards and Technology
NLECTC	National Law Enforcement and Corrections Technology Center
NVLAP	National Voluntary Laboratory Accreditation Program
STC	Special Technical Committee
SAA	state administering agency
TSWG	Technical Support Working Group
UV	ultraviolet

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G A O

Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

February 15, 2012

Congressional Requesters

Firearms continue to be one of the most dangerous threats faced by federal, state, and local law enforcement officers, according to Federal Bureau of Investigation (FBI) data. In 2010, the most recent year for which complete data are available, the FBI reported that 56 law enforcement officers were killed nationwide in violent encounters and that all but one of these deaths was caused by a firearm.¹ Preliminary data collected by the National Law Enforcement Officers Memorial Fund show that in 2011, 68 officers were killed by firearms.² Body armor can help protect officers from firearm assaults.³ A study conducted by a RAND Corporation researcher found that officers who do not routinely wear body armor are 3.4 times more likely to sustain a fatal injury from a torso shot than officers who do.⁴ In addition, data collected in part by the International Association of Chiefs of Police (IACP) indicate that body armor has saved the lives of more than 3,000 law enforcement officers since 1987. Recognizing body armor as an effective tool in helping to protect law enforcement officers, the Department of Justice (DOJ)—through its Bureau of Justice Assistance (BJA) and its National Institute of

¹FBI, “Law Enforcement Officers Feloniously Killed: Type of Weapon, 2001-2010,” *Law Enforcement Officers Killed and Assaulted, 2010*, table 27 (Washington, D.C.: 2011), accessed December 29, 2011, <http://www.fbi.gov/about-us/cjis/ucr/leoka/leoka-2010/tables/table27-leok-feloniously-type-of-weapon-01-10.xls>.

²The National Law Enforcement Officers Memorial Fund is a nonprofit organization that maintains a database of officer deaths and conducts research into officer fatality trends to provide information that will help promote law enforcement safety. FBI and National Law Enforcement Officers Memorial Fund data are not directly comparable. FBI data include only incidents where officers were killed by a firearm during a felonious assault, while National Law Enforcement Officers Memorial Fund data do not specify whether the circumstances of the officers’ deaths were felonious.

³For the purposes of this report, body armor includes ballistic-resistant and stab-resistant vests. The former are designed to protect against bullet penetrations and the trauma associated with bullet impacts. The latter are designed to protect against stab weapon penetrations.

⁴The RAND Corporation is a nonprofit nonpartisan institution that conducts research and analysis on a range of policy issues. Tom LaTourrette, “The Life-Saving Effectiveness of Body Armor for Police Officers,” *Journal of Occupational and Environmental Hygiene*, vol. 7, no. 10 (2010).

Justice (NIJ)—has implemented initiatives to promote and support state and local law enforcement’s use of body armor. These initiatives have involved internal and external stakeholders, including law enforcement components within DOJ; components within the Department of Commerce and the Department of Defense (DOD)⁵ that conduct related body armor research; and private entities, such as those that manufacture and assist in testing body armor.

You requested that we review DOJ’s law enforcement body armor initiatives. In response, this report answers the following questions: (1) What efforts does DOJ have under way to support state and local law enforcement’s use of body armor? (2) To what extent has DOJ designed controls over these efforts and coordinated them with stakeholders within and outside of the department? (3) What factors affect body armor’s use and effectiveness and what steps has DOJ taken to address these factors?

To address all three questions we obtained and assessed body armor-related documents from BJA and NIJ, such as program requirements and budget information for fiscal years 1999 through 2011, and interviewed BJA and NIJ officials. In addition, we attended NIJ workshops in 2011 on its body armor standards and observed body armor testing firsthand. Further, for the first question, we examined program data on BJA’s Bulletproof Vest Partnership (BVP) program for fiscal years 1999 through 2011 as well as its Edward Byrne Memorial Justice Assistance Grant (JAG) program for fiscal years 2006 through 2011. These two grant programs support state and local law enforcement’s purchases of body armor. Based on discussions with BJA officials concerning the reliability of the BVP data, we determined that the data were sufficiently reliable for our purposes. We also examined preliminary information from a GAO survey of more than 3,900 JAG grantees to determine the extent to which they had procured ballistic and stab-resistant body armor in fiscal year

⁵For prior GAO work related to Army body armor test procedures, see GAO, *Warfighter Support: Independent Expert Assessment of Army Body Armor Test Results and Procedures Needed Before Fielding*, [GAO-10-119](#) (Washington D.C.: Oct. 16, 2009).

2010.⁶ The survey data included in this report reflect a 42 percent response rate and are not generalizable to all JAG grantees.

For the second question, we assessed DOJ's body armor policies and efforts using standards for internal control in the federal government and leading practices for grant management and stakeholder coordination.⁷ We also discussed body armor efforts and coordination issues with officials from DOJ's law enforcement components, including the Bureau of Alcohol, Tobacco, Firearms and Explosives; the Bureau of Prisons; the Drug Enforcement Administration; the FBI; and the U.S. Marshals Service. Additionally, we interviewed officials from 3 law enforcement associations, 6 body armor manufacturers, 2 body armor testing laboratories, and 10 jurisdictions that receive DOJ body armor funding. In particular, with officials from state and local jurisdictions, we discussed body armor funding, policy, selection, procurement, and use. When possible, we discussed body armor use with male and female law enforcement officers who wear body armor. We selected these types of organizations because of their involvement in body armor manufacturing, testing, and use. We selected the nonprobability samples of these organizations based primarily on size and location.⁸ Thus, although the views of the individuals in our samples provide valuable insight into body armor issues, they are not generalizable. We also interviewed officials from DOD and the Department of Commerce involved in body armor research, standards, and testing to discuss their efforts and the extent to which they coordinate with DOJ.

⁶Survey of Indigent Defense Funding from Byrne Memorial Justice Assistance Grants, GAO (2012). This survey will be completed in February 2012 and the results will be published in a forthcoming GAO report on indigent defense. Indigent defense refers to activities that help ensure indigent defendants are afforded their right to counsel in criminal cases, such as hiring additional public defenders, investigators, or other support staff; providing training for public defenders; or making technological improvements in defenders' offices or systems.

⁷GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999); Grant Accountability Project, *Guide to Opportunities for Improving Grant Accountability* (Washington, D.C.: 2005); GAO, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, [GAO-06-15](#) (Washington, D.C.: Oct. 21, 2005); and American National Standards Institute, *United States Standards Strategy* (New York: Dec. 2, 2010).

⁸Unlike a random sample, a nonprobability sample is more deliberately chosen, meaning that some elements of the population being studied have either no chance or an unknown chance of being selected as part of the sample. App. I contains more information on the rationale we used to choose our sample.

For the third question, we reviewed literature on the factors that affect body armor use and effectiveness and discussed these factors with the officials that we interviewed for the second question. More details on our scope and methodology appear in appendix I.

We conducted this performance audit from March 2011 through February 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

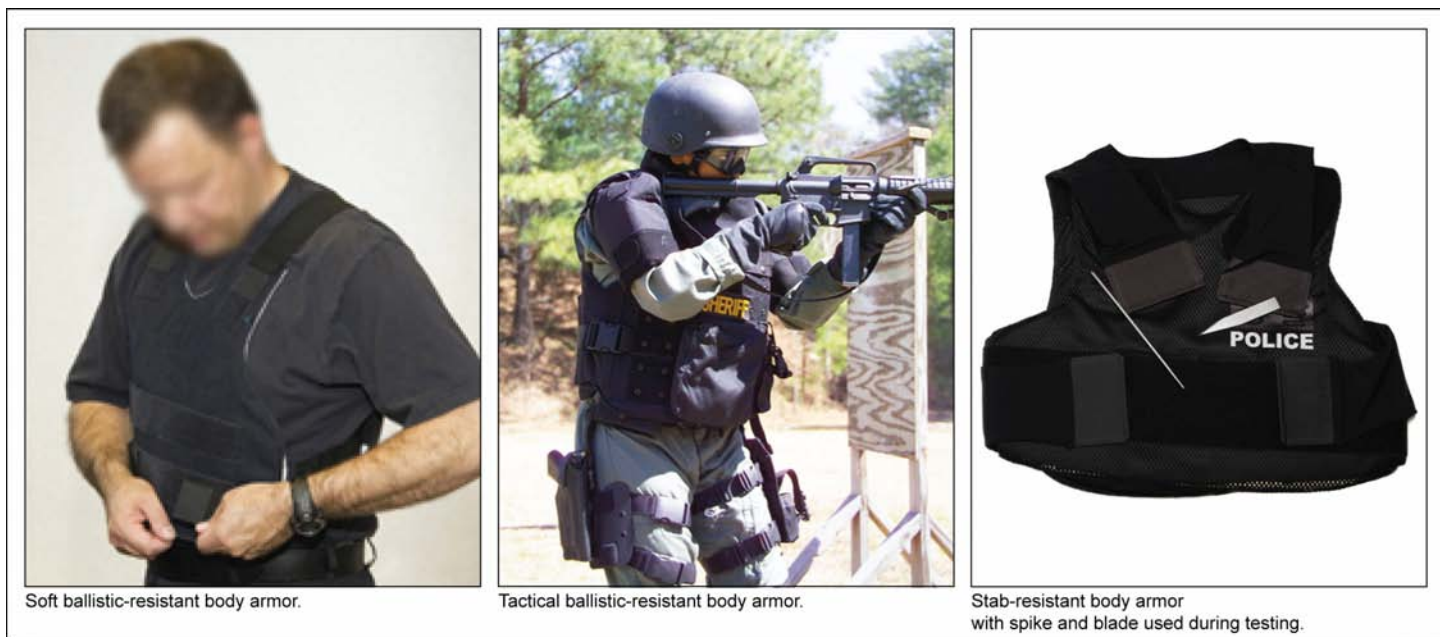
Background

Body armor for law enforcement applications includes ballistic-resistant and stab-resistant body armor—usually worn in the form of a vest—that provides coverage and protection primarily for the torso. Ballistic-resistant body armor protects against bullet penetrations and the blunt trauma associated with bullet impacts.⁹ This body armor includes soft body armor that protects against handgun bullets and less flexible tactical body armor composed of soft and hard components that protects against rifle bullets.¹⁰ Stab-resistant body armor protects against knives or spikes. Figure 1 depicts examples of ballistic-resistant and stab-resistant body armor.

⁹See video (www.gao.gov/multimedia/video#video_id=588451) showing how ballistic-resistant body armor protects against bullet penetrations and blunt trauma.

¹⁰See video (www.gao.gov/multimedia/video#video_id=588454) depicting the difference between soft and tactical body armor.

Figure 1: Examples of Ballistic- and Stab-Resistant Body Armor



Source: NIJ.

DOJ's Office of Justice Programs (OJP) has two units responsible for the department's body armor efforts—BJA and NIJ—whose initiatives will be discussed in greater detail later in this report. BJA, in turn, has two separate grant programs that support, either directly or indirectly, state and local law enforcement's body armor purchases: (1) the BVP program and (2) the JAG program.

DOJ created the BVP program following enactment of the Bulletproof Vest Partnership Grant Act of 1998.¹¹ The legislation authorized BJA to provide grants on a competitive basis to state and local law enforcement agencies to assist in their purchasing of ballistic-resistant and stab-resistant body armor that complies with NIJ body armor standards. Currently, funds available for the BVP program are awarded to each qualifying unit of local government with fewer than 100,000 residents and any remaining funds available are awarded to other qualifying

¹¹Bulletproof Vest Partnership Grant Act of 1998, Pub. L. No. 105-181, 112 Stat. 512.

No-year authority is budget authority that remains available for obligation for an indefinite period of time. A no-year appropriation is usually identified by language such as "to remain available until expended."

Source: GAO.

applicants.¹² Appropriations for BVP funding are provided under "no-year authority," but the BVP program currently gives state and local jurisdictions 2 years to use their awards.¹³ The program has generally funded, on a reimbursable basis, up to 50 percent of the cost of the body armor a jurisdiction procures with its available BVP funds.¹⁴

DOJ established the JAG program following enactment of the Violence Against Women and Department of Justice Reauthorization Act of 2005, which merged the Edward Byrne Memorial State and Local Law Enforcement Assistance Program with the Local Government Law Enforcement Block Grants program.¹⁵ The JAG program is the leading source of federal justice funding to state and local jurisdictions. Appropriations for JAG funding also are provided under no-year authority and the JAG program gives state and local jurisdictions 4 years to use their awards.¹⁶ JAG provides state, tribal, and local governments with funding to support a range of program areas, including law enforcement; prosecution and courts; prevention and education; corrections and community corrections; drug treatment and enforcement; planning, evaluation, and technology improvement; and crime victim and witness initiatives. In the law enforcement program area, among other things, grantees can use JAG funding to procure body armor. The program provides 60 percent of the JAG awards directly to the state agencies that administer JAG funds—known as state administering agencies (SAA)—

¹²42 U.S.C. § 3796(g). Under Pub. L. No. 105-181, § 3, 112 Stat. 512, 513-14, the original legislation required at least half of the funds available to be awarded to units of local government with fewer than 100,000 residents. The original requirement was subsequently amended in the Bulletproof Vest Partnership Grant Act of 2000, Pub. L. No. 106-517, § 3(b), 114 Stat. 2407, 2407-08 (Nov. 13, 2000), to the current requirement of awarding funds available to each qualifying unit of local government with fewer than 100,000 residents and any remaining funds available to other qualifying applicants.

¹³Prior to 2008, the BVP program gave grantees up to 4 years to spend their awards.

¹⁴Jurisdictions having 2009 and 2010 BVP award funds available may request a financial hardship waiver when requesting payment if they meet criteria of financial or natural hardship and receive up to 100 percent of the cost of each vest submitted for reimbursement if this cost is not greater than \$1,200, excluding taxes, shipping and handling fees (if any).

¹⁵Violence Against Women and Department of Justice Reauthorization Act of 2005, Pub. L. No. 109-162, § 1111, 119 Stat. 2960, 3094-3102.

¹⁶42 U.S.C. § 3751(f). The period of a grant shall be 4 years, except that renewals and extensions beyond that period may be granted at the discretion of the Attorney General.

and 40 percent of the awards directly to local units of government. Local recipients of JAG funding can receive money either as a direct payment from the JAG program, as a pass-through from the SAA, or, in some cases, from both the program and the SAA.¹⁷

DOJ, through NIJ, establishes and updates voluntary minimum performance standards for ballistic-and stab-resistant body armor, conducts testing against these standards to ensure that body armor complies with them, and sponsors research that includes how well body armor protects officers in the line of duty and where improvements may be needed.¹⁸ NIJ works on these efforts with experts in academia and other federal agencies, such as the Department of Commerce and DOD. In particular, the Department of Commerce's National Institute of Standards and Technology (NIST) has supported NIJ's body armor research, performance standards, and compliance testing efforts. DOD's Technical Support Working Group (TSWG), which leverages the knowledge and research capacity of body armor experts from DOD and other federal agencies, has also supported NIJ's body armor efforts.

DOJ Provides Funding, Sponsors Research, Sets Standards, and Conducts Compliance Testing to Support Law Enforcement's Use of Body Armor

¹⁷GAO, *Recovery Act: Department of Justice Could Better Assess Justice Assistance Grant Program Impact*, [GAO-11-87](#) (Washington, D.C.: Oct. 15, 2010).

¹⁸A fuller discussion of the NIJ standards appears in a later section of this report.

BJA's Two Funding Initiatives Help Jurisdictions Procure Body Armor

The BVP Program

From the inception of the BVP program in fiscal year 1999 through fiscal year 2011, the program awarded about \$340 million to help state and local jurisdictions procure nearly 1 million vests to protect their law enforcement officers.¹⁹ Specifically, the program awarded large jurisdictions about \$131 million and small jurisdictions nearly \$208 million, which is consistent with the statutory provision of the program favoring jurisdictions with fewer than 100,000 people.

In fiscal year 2011, the BVP program implemented a policy that requires that jurisdictions have mandatory wear policies in place to secure awards, which means that law enforcement agencies must establish rules about when and under what circumstances body armor must be worn.²⁰ In addition, the program requires that the jurisdictions use this funding to purchase only ballistic-resistant and stab-resistant body armor that complies with current NIJ standards. Jurisdictions can only use BVP funds to purchase one vest per officer over the course of their vest replacement cycles at a maximum cost of \$2,250 per vest.²¹ Finally, the BVP program requires that when procuring body armor with BVP awards recipients do not combine BVP and JAG funding.²² Jurisdictions apply for BVP awards and reimbursable payments through the online BVP system.

¹⁹The BVP program awarded fiscal year 2011 funds at the beginning of the next fiscal year. It plans to follow the same pattern and award fiscal year 2012 funds at the beginning of the next fiscal year.

²⁰Two of the law enforcement agencies whose officials we met with in the 10 jurisdictions implemented a mandatory wear policy in response to the BVP requirement. Seven of the other law enforcement agencies whose officials we met with already had mandatory wear policies in place. One law enforcement agency did not provide information on its body armor policy.

²¹Jurisdictions' body armor replacement cycles can vary in length from 3 to 5 years, according to BJA officials.

²²BVP grantees may not use JAG funding as matching funds to pay the portion of the body armor costs not covered by the BVP program.

The JAG Program

From fiscal years 2006 through 2011, the JAG program awarded about \$4 billion,²³ including about \$2 billion in funding from the American Recovery and Reinvestment Act of 2009,²⁴ to help state and local jurisdictions fund a wide variety of criminal justice activities, including corrections, prosecution and courts, and law enforcement, among others.²⁵

Within the “law enforcement” area, the JAG program permits grantees to purchase equipment, such as ballistic-resistant and stab-resistant vests. However, BJA does not know how much grantees have spent on body armor because it is not required to track expenditures for specific purposes.²⁶ According to preliminary information from our survey of more than 3,900 grantees that had received JAG awards from fiscal years 2005 through 2010, 222 of 1,639 respondents—or about 14 percent—noted that their jurisdictions had used JAG funds to procure ballistic-resistant body armor in fiscal year 2010. Another 37 grantees—or about 2 percent—noted that they had used JAG funding for stab-resistant vest purchases during the same fiscal year. According to BJA, more than 1,000 JAG awards are made each year, and from fiscal years 2006 through 2011, 357 grantees indicated to BJA that they planned to use JAG awards they received during this period to procure ballistic-resistant vests.²⁷

²³The JAG program awarded fiscal year 2011 funds on or after August, 2011. JAG officials told us that the program likely will award fiscal year 2012 funds by the end of the fiscal year.

²⁴Pub. L. No. 111-5, 123 Stat. 115.

²⁵For prior GAO work related to the JAG program, see [GAO-11-87](#).

²⁶[GAO-11-87](#).

²⁷According to JAG officials, if a grantee’s planned use of funds differs from its actual use once it has received its award, the grantee is required to notify DOJ of this change and DOJ stores the information in its records. However, JAG officials explained that the Grants Management System (GMS) was designed to collect a snapshot of data and does not permit updates to the identifiers so JAG staff cannot amend the original project identifiers entered into GMS. As a result, the project identifiers may not necessarily reflect actual purchases through grant funds.

NIJ's Body Armor Efforts Focus on Research, Setting Standards, and Testing for Compliance

Research

NIJ's research has led to the development of its body armor standards and also informs periodic revisions to these standards. In particular, NIJ's research has supported studies to

- enhance compliance test methods;
- augment ballistic materials;
- improve the design, comfort, and coverage of body armor;
- explore the effect of increased body armor coverage on the ability of officers to comfortably carry out their duties; and
- examine the effects of physical and environmental factors, such as extreme temperatures, on the performance and wear and tear of body armor.

NIJ also is exploring ways to enhance its body armor testing methods. For example NIJ is

- working through DOD's TSWG to simulate aging on the ballistic resistant panels contained in hard body armor and then conducting age-regression studies to assess their degradation,
- looking for ways to simulate extreme temperature and other environmental and physical conditions and improve related testing mechanisms for wear and tear, and
- partnering with the Royal Canadian Mounted Police and Canada's Defense Research Establishment Valcartier to develop a protocol and specifications for testing the capacity of a vest to withstand multiple gunshots within a very small target area.

NIJ also serves as an information resource on body armor by posting the results of its research and other relevant information to its website and managing listserves of body armor news for law enforcement. Based on its research and other information, NIJ also develops videos on body armor procurement and usage and hosts workshops on its standards to generate feedback and explore body armor issues with users, researchers, and developers.

Performance Standards

NIJ has been setting voluntary body armor performance standards since 1972.²⁸ It is the only federal government entity that sets body armor standards and administers a program to test commercially available body armor for compliance with the standards so that the armor will perform as expected. NIJ is currently working to update its ballistic-resistant body armor standard, last revised in 2008, and its stab-resistant body armor standard, established in 2000.

The current NIJ standard for ballistic-resistant body armor establishes minimum performance requirements and test methods intended to protect against gunfire.²⁹ The NIJ standard classifies body armor by levels of ballistic performance, as shown in appendix II.³⁰ For any of these performance levels, NIJ's test protocol requires that the body armor protects against blunt trauma by specifying that a bullet does not cause an indentation on the back of the body armor that is greater than 44 millimeters. NIJ measures the depth of this indentation on the clay material on which the body armor is mounted, as illustrated in figure 2.

²⁸Meeting these performance standards is not a requirement for manufacturers; however, if manufacturers voluntarily produce body armor that complies with the standards—and through testing, NIJ confirms its compliance—NIJ will add the manufacturers' products to its list of NIJ-compliant vests. BVP grantees then can choose vests from among those on this list when making their purchases using BVP funds.

²⁹NIJ, *Ballistic Resistance of Body Armor*, NIJ Standard-0101.06 (Washington, D.C.: July 2008).

³⁰See video (www.gao.gov/multimedia/video#video_id=588455) depicting types of ballistic-resistant body armor by levels of ballistic performance.

Figure 2: Ballistic-Resistant Body Armor Mounted on Clay for Testing Purposes



Source: NIJ.

NIJ's current stab-resistant body armor standard specifies the minimum performance requirements for body armor to protect the torso against slash and stab threats caused by knives and spikes, and describes the methodology that NIJ uses for testing this body armor.³¹ The standard classifies stab-resistant body armor into three performance levels, based on the body armor's ability to prevent the stab threat from penetrating deep enough to injure an officer's internal organs at different strike force speeds, or energy levels, as shown in appendix III. Also, the standard defines two protection classes—the Edge Blade class, which deals with threats that might be expected “on the street” from high-quality, commercially machined edged-knife blades—and the Spike class, which addresses threats that might be expected in a corrections environment from lower-quality knife blades and spike-style weapons improvised from other materials.

³¹NIJ, *Stab Resistance of Personal Body Armor*, NIJ Standard-0115.00 (Washington, D.C.: September 2000).

To update both the ballistic- and stab-resistant body armor standards, NIJ is using a new process that relies on several groups, each with a distinct charge, as illustrated in table 1.³²

Table 1: Groups and Committees Currently Involved in NIJ’s Process to Update Body Armor Standards

Group	Composition	Charge
Body Armor Technology Working Group	Made up of experienced practitioners from local, state, tribal and federal agencies and laboratories involved in testing body armor.	<ul style="list-style-type: none"> Identify the need for a new or updated standard. Develop a list of practitioners’ operational needs and requirements.
Special Technical Committee (STC)	Has 15 to 20 stakeholders. They include law enforcement and corrections practitioners with relevant experience. They also include technical experts such as engineers, scientists, researchers, test laboratory representatives, and standard development experts. ^a	Produce three documents ^b <ul style="list-style-type: none"> the standard itself, a conformity assessment requirements document, and a selection and application guide.
Advisory Working Group	Includes senior-level representatives from major stakeholder organizations, such as NIST, the Department of Homeland Security (DHS), Fraternal Order of Police, National Tactical Officers Association, IACP, National Sheriffs’ Association, and American Correctional Association.	Provide input to and review the work of the STC.
Steering Committee	Consists of the following senior advisors: NIJ Deputy Director for Science and Technology; Director, Bureau of Justice Assistance; Director, Office of Community Oriented Policing Services; Standards Executive, DHS Science and Technology; Director, First Responders Group, DHS Science and Technology; Director, Federal Emergency Management Agency, DHS; and Director, NIST, Office of Law Enforcement Standards.	Generally direct the updating effort and help to ensure coordination among relevant federal programs.

Source: GAO analysis of NIJ information.

^aNIJ does not permit body armor industry representatives to be members of the STC. According to NIJ, this provision was put in place to avoid conflicts of interest and to facilitate the participation of law enforcement practitioners. NIJ holds workshops to inform manufactures and expects that they will participate in the public review of the draft standard and related documents that the STC produces.

^bThe standard contains the minimum design and performance requirements that the body armor must meet, as well as the test methods to be used to assess the performance. The conformity assessment requirements document includes all requirements for a third party independent conformity assessment organization to demonstrate that body armor meets the standard and typically includes periodic factory surveillance and follow-up testing of production items. The selection and application guide provides a nontechnical description of the standard and conformity assessment requirements; performance levels, if applicable; and guidance on procurement, selection, care, maintenance, training, and administrative issues.

³²NIJ expects to document the new process in detail in a Standard Development Process document in April 2012.

Regarding NIJ's update of its stab-resistant body armor standard from 2000, the Special Technical Committee (STC) expects to finish its draft documents—the standards and related requirements and guide—by June 2012. At that point, NIJ plans to post them for public review so that body armor manufacturers, and any other interested parties, may submit comments. The STC then plans to address the comments and refine its draft documents and NIJ plans to have any necessary validation testing performed. Once NIJ reviews and publishes the updated standard and related documents, compliance testing of body armor against the new standard will begin. NIJ hopes to complete this entire process by December 2012. In terms of updating its ballistic-resistant body armor standard from 2008, NIJ's Body Armor Technology Working Group held a meeting to identify needs and requirements in December 2011. NIJ expects to establish the STC by May 2012 and finalize the standard in November 2013.

Compliance Testing

To test body armor for compliance with its standards, NIJ uses its National Law Enforcement and Corrections Technology Center (NLECTC) to administer its compliance testing program.

During compliance testing, manufacturers

- register with the compliance testing program,
- submit body armor model application documents to the program, and
- send body armor model samples to an NIJ-approved laboratory.³³

NIJ-approved laboratories tested 159 body armor models under the NIJ compliance testing program in 2010—137 models of ballistic-resistant body armor and 22 stab-resistant models. Of the 159 models, 81 of them, or about half, passed compliance testing and NIJ added them to the appropriate compliant product list. We include additional details on the controls that NIJ has designed to manage its compliance testing process in the next section of this report.

³³The requirements for laboratories to obtain NIJ approval are discussed in a later section of this report.

DOJ Has Controls and Coordination Mechanisms for Its Body Armor Efforts but Could Take Actions to Further Reduce Management Risks

BVP Has Designed Several Controls to Manage Its Program

Within its BVP program, BJA has designed several controls to check the eligibility of grantee payment requests, help prevent improper payments to grantees, and ensure grantee compliance with program requirements.

Controls to Ensure Eligibility of Payment Requests

BJA has designed several controls within the online BVP system to ensure the eligibility of payment requests. Specifically, the online BVP system is designed to

- allow only jurisdictions approved through the award process to submit payment requests to ensure the eligibility of the jurisdictions;
- require that the highest elected official in the jurisdiction, or his or her designee, electronically verify payment requests to ensure accountability;
- allow BVP funding recipients to request payments for purchased vest models approved by NIJ, which appear on the drop-down list within the online system, to ensure that funds are only used for NIJ-compliant body armor;
- require BVP funding recipients to manually enter details from the purchase invoice, including the quantity, date ordered, and unit price to ensure that the body armor was purchased within the 2-year period specified in the terms of the BVP award and enhance accountability by allowing the request to be traced back to a specific purchase; and
- not allow BVP funding recipients to enter costs exceeding the authorized limit of \$2,250 per vest.

Review Procedures to Help Prevent Improper Payments

To help prevent improper payments, BJA procedures call for BJA to review monthly batches of all payment requests submitted during the previous 1-month period to (1) detect anomalies between the total number of vests purchased by each jurisdiction and the number of officers in the jurisdiction and (2) identify potential duplicate requests. To detect anomalies in the number of vests purchased by a jurisdiction, BJA

is to compare the number of vests the jurisdiction purchased using BVP funding over the previous 3-year period to the number of officers in the jurisdiction. If the number of vests the jurisdiction purchased during the 3-year period exceeds the number of officers in the jurisdiction by more than 10 percent, then BJA is to ask the jurisdiction to provide a response to support the large number of vests purchased.³⁴

To identify potential duplicate requests, BJA is to review all payment requests submitted during the 1-month period under review. If BJA identifies two or more payment requests from one jurisdiction with similar total costs, numbers of vests, purchase dates, vest manufacturers, vest model numbers, or threat levels, then BJA is to require the jurisdiction to provide a response indicating whether the payment requests are accurate. BJA officials stated that if the responses that jurisdictions provide are not satisfactory, then they may request copies of the invoices to support the jurisdictions' payment requests; however, BJA has not documented the circumstances under which it will request the invoices. During the course of our review, BJA officials told us they intended to update the written procedures to include a description of the methods for reviewing invoices and the additional steps they would like their staff to take to identify duplicate payment requests. They said they were doing this in response to a November 2011 review by OJP's Office of Audit, Assessment, and Management (OAAM).³⁵ BJA officials told us they expect to update the BVP system in March 2012 to automatically check for potential duplicate payment requests submitted during the previous 2 years and that they will revise their procedures shortly thereafter. Fully documenting a program's procedures would be consistent with standards for internal control in the federal government and could help ensure that BJA's review process is consistently implemented.³⁶ In January 2012, OJP officials told us that to further enhance financial controls, they intended to include a review of BVP payments in the financial monitoring

³⁴BJA allows for a 10 percent variance in the number of vests purchased over a 3-year period as compared to the number of officers in the jurisdiction to account for officer turnover.

³⁵The Office of Audit, Assessment, and Management (OAAM) supports DOJ's grant efforts by coordinating and developing grant policies across the agency and overseeing and monitoring grantees and grant programs. OAAM, *Review of the Bureau of Justice Assistance Verification Process for Payment Programs* (Washington, D.C.: November 2011).

³⁶[GAO/AIMD-00-21.3.1](#).

Efforts to Ensure Compliance with Mandatory Wear Requirements

site visits that OJP's Office of the Chief Financial Officer plans to conduct this year. This type of ongoing monitoring is consistent with standards for internal control and could be integral to helping BJA with the effective stewardship of government resources.³⁷

To help ensure compliance with its new fiscal year 2011 requirement that jurisdictions have mandatory body armor wear policies in place, the BVP program asked a random sample of 110 of the 4,960 jurisdictions to which it awarded fiscal year 2011 funds to submit copies of their mandatory wear policies for BJA's review.³⁸ In addition, BJA officials told us they are randomly selecting 5 percent of the jurisdictions requesting payments from fiscal year 2011 awards to obtain a copy of their mandatory wear policy as part of BJA's monthly payment request reviews. Seeking supporting documentation from a random selection of all grantees has been identified as a grant management best practice by DOJ's Office of the Inspector General.³⁹

BJA Could Enhance Controls over the BVP Program to Better Manage Risk

BJA Could Improve the Management of Undisbursed Funds from Grants in the BVP Program That Have Closed

BJA has designed several controls, but it could take two key actions to strengthen them. These are better management of undisbursed funds from grants in the BVP program that have closed and improved efforts to reduce the risk of grantee noncompliance with program requirements.

The BVP program has not deobligated undisbursed funds for future use from grant awards whose terms have ended. BJA could improve its financial controls by better managing its obligations and disbursements for grants that have closed.

Figure 3 shows the trends in BVP program awards (obligations) and disbursements, or reimbursements, from fiscal years 1999 through 2011.

An **obligation** is a definite commitment that creates a legal liability of the government for the payment of goods and services ordered or received. BJA incurs an obligation when it awards BVP funds for use by the grantee for the specified 2-year term. Because BJA does not actually award the money up front, a **disbursement** occurs when BJA approves the grantee's request for reimbursement. Upon disbursement of the funds, BJA then liquidates the obligation. When a grantee does not use the BVP funds within the specified term of the grant, BJA can extend the period for using the funds or deobligate the funds. A **deobligation** is the cancellation or downward adjustment of previously incurred obligations.

Source: GAO.

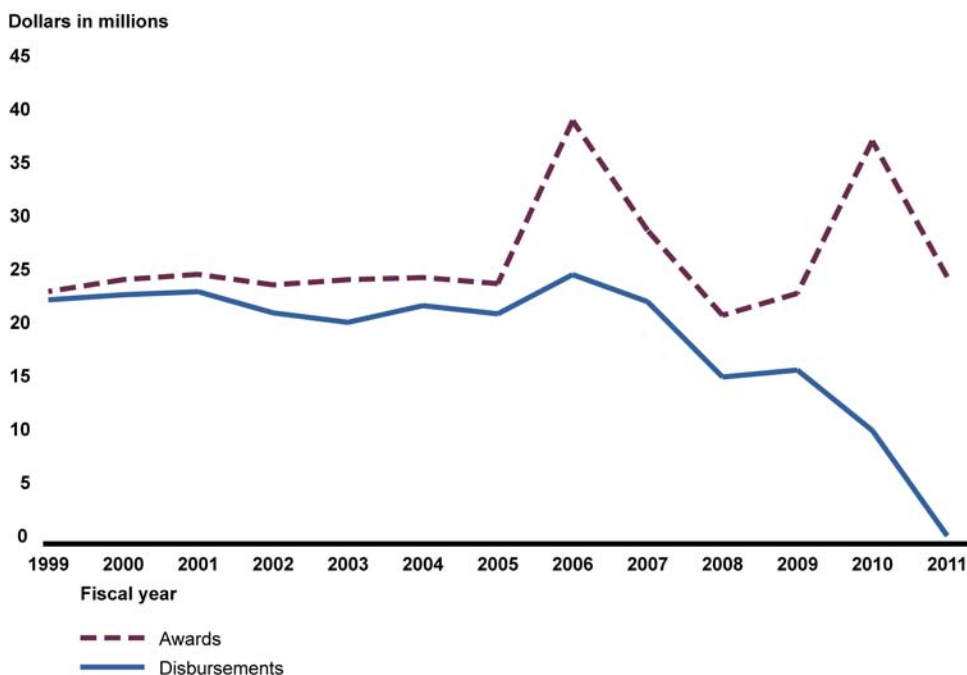
³⁷GAO/AIMD-00-21.3.1.

³⁸According to BVP program officials, 108 of the 110 jurisdictions have provided mandatory wear policies. The BVP program will not make BVP funds available to the remaining 2 jurisdictions until the jurisdictions provide copies of their mandatory wear policies.

³⁹DOJ, Office of the Inspector General, *Improving the Grant Management Process* (Washington, D.C.: February 2009).

In most years, disbursements generally track with obligations; however, they show greater differences in some years.⁴⁰

Figure 3: BVP Program Awards and Disbursements from Fiscal Years 1999 through 2011



Source: GAO analysis of BVP program data.

Note: In current dollars, not adjusted for inflation.

From the start of fiscal year 1999 through November 2011, the BVP program had awarded—or obligated—approximately \$340 million to grantees. Of this amount, the program disbursed about \$247 million to grantees through reimbursements. The \$93 million difference reflects funds that BJA has awarded but for which grantees have not sought reimbursement. According to BJA officials, several reasons explain why grantees might not seek reimbursements from BJA:

⁴⁰Because the BVP program awards funds for one fiscal year at the beginning of the next fiscal year, recipients had not used the bulk of their 2010 and 2011 fiscal year awards by November 2011, which is reflected in the drop-off in reimbursements—or disbursements—in the figure.

-
- their grant term has not yet ended or they have been awarded an extension,⁴¹
 - they decided not to purchase some or all of the intended vests, or
 - they purchased vests using funds from other sources.

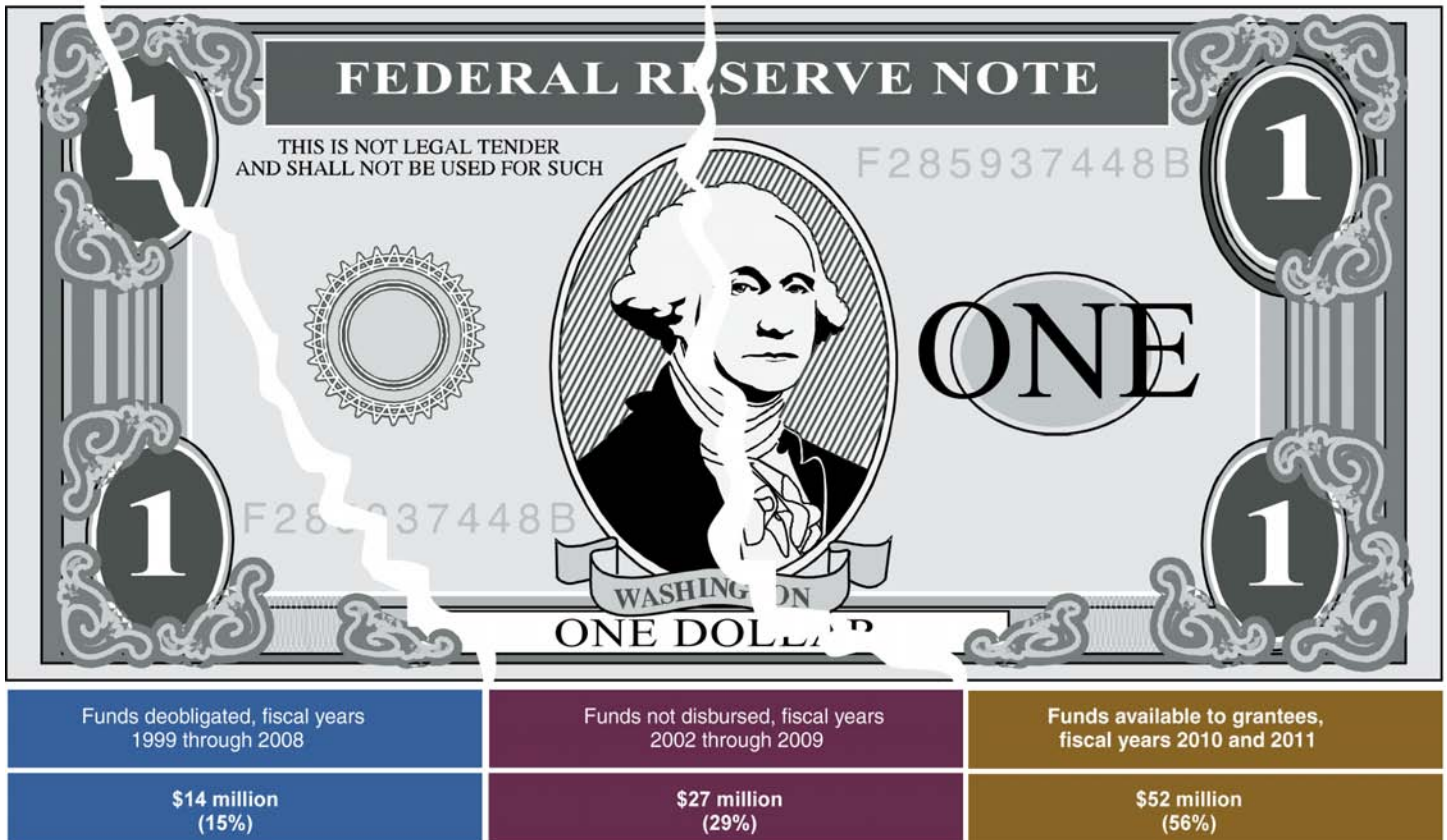
BJA reports that the \$93 million in undisbursed funds can be broken down in the following manner (see also fig. 4):

- About \$14 million in funds that BJA deobligated. BJA first awarded this money from fiscal years 1999 through 2008, but because grantees never claimed it, BJA was able to deobligate the money. According to BJA officials, once they deobligated the \$14 million, they used it in two ways: (1) \$8 million was used to offset a 2009 rescission in DOJ's budget⁴² and (2) the balance helped fund additional BVP program awards.
- About \$27 million in funds that BJA could deobligate. BJA first awarded this money from fiscal years 2002 through 2009. The grant terms for each of these grantees have ended and as a result, grantees are no longer eligible for reimbursement. Thus, BJA could deobligate funds from these grants that have closed.
- About \$52 million in funds from awards whose terms have not yet ended. BJA awarded the bulk of this money in either fiscal year 2010 or fiscal year 2011 so grantees can still submit payment requests and the funds remain available for grantee reimbursement.

⁴¹Beginning with awards made in fiscal year 2008, BVP has automatically extended the 2-year grant term for those grantees that still had undisbursed BVP award balance amounts from prior fiscal years. In practice, this means that if a grantee with an expiring BVP award applies for additional funding in a subsequent fiscal year, the program automatically extends the term of the award that is expiring for another 2 years and subtracts the amount of extended funds from the new award.

⁴²Omnibus Appropriations Act, 2009, Pub. L. No. 111-8, § 529(b), 123 Stat. 524, 600-01. A rescission is legislation passed by Congress that cancels the availability of budgetary authority previously enacted before the authority would otherwise expire. According to DOJ officials, the 2009 rescission affected the entire department and DOJ looked to all of its programs for deobligated funds that could offset the impact.

Figure 4: Status of \$93 Million in Undisbursed BVP Funding, Fiscal Years 1999 through 2011



Source: GAO analysis of BVP program data.

Note: In current dollars, not adjusted for inflation.

In response to our audit work, BVP program officials told us that, as of February 2012, they and their colleagues in the Office of the Chief Financial Officer were in the process of examining the \$27 million available for possible deobligation and considering how to use it. However, DOJ had not yet made a final decision on this matter before we finalized this report, and officials stated that a decision likely would not be made until September 2012. Once a grant's term has ended, a granting agency typically closes out the grant and deobligates the funds. We have

BJA Could Reduce the Risk of Grantee Noncompliance by Better Publicizing BVP Program Requirements

previously reported that grant closeout is an important final point of accountability for grantees, ensuring that they have met all program requirements.⁴³ Closing out grants also allows agencies to identify and redirect funds to other projects and priorities or return the funding to the Treasury. In the case of the BVP program, since Congress appropriates its funds through no-year appropriations, DOJ does not have to return deobligated BVP funds to the Treasury. Instead, it could enhance its management of BVP funding through its grants closeout process by, for example, redirecting any funds from closed grants to grantees in future award cycles or reducing the amount it requests in new appropriations.⁴⁴ Given that the BVP program requested \$30 million—and received about \$23 million—in fiscal year 2012, deobligating this \$27 million could have significant benefits.⁴⁵

The BVP program lists its requirements, such as those related to document retention and the prohibition on combining BVP and JAG funds, in limited areas, thus increasing the risk that grantees will not be aware of them. By expanding publicity of the program requirements, BJA could reduce the risk of noncompliance and increase the efficiency of its operations. Specifically, the BVP program requires that jurisdictions retain documentation on all BVP transactions for at least 3 years and prohibits the use of JAG funding to help pay for the portion of the grantees' costs that the BVP program does not cover. Currently, these requirements are only specifically cited in the "Frequently Asked Questions" section of the BVP program's website. They are not included in other grant documents, such as the solicitation, or online BVP system where grantees could more

⁴³See GAO, *Grants Management: Attention Needed to Address Undisbursed Balances in Expired Grant Accounts*, [GAO-08-432](#) (Washington, D.C.: Aug 29, 2008). In addition, the DOJ Inspector General has reported on the importance of timely grant closeout. See DOJ, Office of the Inspector General, *The Department of Justice's Grant Closeout Process*, Audit Report 07-05, (Washington, D.C.: December 2006).

⁴⁴The National Procurement Fraud Task Force's Grant Fraud Committee, which is chaired by DOJ's Inspector General, also has reported on the importance of closing grants in a timely manner. See the committee's report *A Guide to Grant Oversight and Best Practices for Combating Grant Fraud* (Washington, D.C.: February 2009).

⁴⁵The Consolidated and Further Continuing Appropriations Act, 2012, Pub. L. No. 112-55, 125 Stat. 552, 616, provided \$24 million to BVP program for law enforcement armor vests, including \$1.5 million transferred directly to NIST's Office of Law Enforcement Standards for research, testing, and evaluation programs.

easily notice them and be aware.⁴⁶ Emphasizing the need to comply with grant award requirements and including clear terms and conditions in funding award documents are leading practices in improving grant accountability and are fundamental to internal control standards.⁴⁷ BJA could improve its emphasis by, for example, including these requirements in its solicitation announcing the availability of BVP funds and in its online system for tracking fund use.

None of the officials we met with from the 10 jurisdictions was aware of any specific BVP documentation retention requirements. Further, officials from 4 of these jurisdictions were not aware of the prohibition on using JAG funds as matching funds for the BVP program. All of the officials told us that as a matter of practice, however, they retain their documents and had not been combining JAG and BVP funds. It was not within our scope to independently verify their compliance or assess the extent to which all BVP program grantees were aware of the documentation retention and matching fund requirements. Nevertheless, the fact that all 10 of the jurisdictions within our sample were unaware of the documentation retention requirement and 4 jurisdictions were unaware of the prohibition on combining BVP and JAG funds raises questions about the risks associated with noncompliance, such as financial mismanagement. Further, since the Office of the Chief Financial Officer has not yet begun any on-site financial monitoring of BVP grantees, it will be difficult for BJA to assess and mitigate these risks until the site visits are under way. BJA officials told us that the Help Desk had commonly referred BVP recipients to the “Frequently Asked Questions” section of the website, but acknowledged that better disseminating and publicizing information would

⁴⁶OJP’s *Financial Guide*, which is a general reference manual for all DOJ awards, also includes information on the requirement that award recipients retain records for “equipment” for a 3-year period and the prohibition against commingling different sources of federal funding, but the guide is not specific to the BVP program and does not explicitly state how these provisions apply to BVP funding recipients.

⁴⁷See [GAO/AIMD-00-21.3.1](#). See also Grant Accountability Project, *Guide to Opportunities for Improving Grant Accountability*.

help ensure that BVP recipients comply with the documentation and matching fund requirements.⁴⁸

BJA officials stated that BJA was planning to include information on the prohibition on using JAG funds as matching funds for the BVP program in the fiscal year 2012 BVP announcement and application that they plan to release in April 2012, partly in response to our review. The officials did not have plans to further publicize the documentation retention requirement. Emphasizing the need to comply with these program requirements could help BJA improve grant accountability.

BJA also has developed an instructional manual to assist jurisdictions in using the online BVP system to complete applications and funding requests.⁴⁹ However, none of the officials we met with from the 10 jurisdictions was aware of this resource and they all indicated that they rely on the Help Desk when they have questions concerning the online system. BJA officials told us they wanted to make the manual easily accessible to jurisdictions by making it available through the program's website, but acknowledged that including links to the manual in the grant solicitation and the online system could help further raise grantees' awareness of this resource and the information it provides. BJA officials stated that they plan to include information on the manual in the fiscal year 2012 BVP announcement and application that they expect to release in April 2012, partly in response to our review. Further disseminating information about this resource would be consistent with standards for internal control and could help improve the efficiency of the program by providing jurisdictions with relevant information up front and potentially reducing the number of calls and emails to the Help Desk.

⁴⁸To address jurisdictions' questions about the BVP program, BJA has established a Help Desk that can be reached through a toll-free telephone number or by email. From January to December 2011, the Help Desk received 22,663 telephone calls and 9,650 emails. According to the BVP program's records, call and email volume to the Help Desk was generally consistent from fiscal year 2008 through 2010; however, we found that from 2010 through 2011, call volume increased nearly 30 percent and email volume doubled. BVP officials did not provide an explanation for these spikes.

⁴⁹The instructional manual provides definitions of the required elements that jurisdictions need to input into the online system and step-by-step instructions for how to review applications and payment requests from the law enforcement agencies in the jurisdiction's purview.

BJA Could Improve Controls over the JAG Program Related to Body Armor

BJA could improve consistency across its body armor grant programs by harmonizing JAG and BVP purchase and wear requirements. It also could strengthen its monitoring practices for grantees' compliance with existing program requirements. Further, BJA could enhance its tracking of which grantees use JAG awards to purchase body armor to facilitate compliance with all existing and any new requirements it might add.

Harmonizing Program Requirements to Ensure Consistency

Unlike the BVP program, the JAG program does not require that grantees using JAG funding for body armor purchases have mandatory wear policies in place or purchase armor that is NIJ compliant. BJA could enhance its grant management controls by harmonizing requirements across the BVP and JAG programs so that both are holding grantees accountable to the same standards designed to ensure officer safety. We have previously identified establishing mutually reinforcing strategies and compatible policies and procedures as key coordination practices.⁵⁰ BJA officials told us that the mandatory wear and NIJ compliance requirements were implemented for the BVP program because jurisdictions use BVP funding more often than JAG funding to purchase body armor. They told us in January 2012 that as a result of our audit work, they planned to begin a review to consider inclusion of these requirements in the JAG program. BJA officials did not provide an estimate for how long such a review would take and did not state whether such a requirement would be included. However, the officials acknowledged that they had not considered addressing the inconsistencies before. Establishing body armor requirements within JAG that are consistent with the BVP program could help BJA better promote officer safety. This could help reduce the risk that officers do not wear the body armor that was purchased with federal funds or that they are wearing body armor that does not meet NIJ standards, given that both our survey and BJA's data show that JAG grantees are using funds to purchase body armor.

Strengthening Monitoring and Guidance to Prevent Misuse of Funds

BJA could strengthen its monitoring practices to better ensure compliance with the prohibition on combining JAG and BVP program awards by documenting pertinent monitoring procedures. Currently, BJA grant managers perform desk reviews, in which officials review grant documentation off-site, to assess compliance with general programmatic requirements. During these desk reviews, BJA officials told us that JAG

⁵⁰[GAO-06-15](#).

grant managers use a checklist to guide their monitoring and acknowledged that this checklist did not contain specifics for monitoring instances where BVP and JAG funding were combined. Officials said that grant managers are trained to check for inappropriate accounting practices no matter what program they are reviewing, but they did not provide evidence of this guidance in the training curriculum and acknowledged that a documented procedure to specifically check for the combining of BVP and JAG funding was needed. They also acknowledged that the cost of documenting this monitoring step would not be prohibitive. Documenting grant managers' desk review procedures for monitoring compliance with this requirement would be consistent with standards for internal control in the federal government. In addition, such documentation could help ensure consistency in grant managers' monitoring practices, which in turn could help BJA better ensure grantees' compliance with JAG program requirements.

BJA also could strengthen its guidance to JAG grantees on the prohibition against combining BVP and JAG funds to purchase body armor. BJA officials acknowledged that, as with the BVP program, the current "Frequently Asked Questions" section of the JAG program's website is the only place that grantees can learn of the program requirement that JAG funds not be used as matching funds for the BVP program. Currently, the prohibition is not contained in the JAG program grant solicitation or within the Grants Management System (GMS). BJA officials recognized the importance of grantees' compliance with the prohibition on combining JAG and BVP funds and explained two additional controls they are planning to implement to enhance the information they provide to grantees on this topic, partly in response to our audit work. First, they have drafted a new section of the "Frequently Asked Questions" document that they plan to post on their website, pending final review, to better inform grantees of the prohibition on using JAG funds as matching funds for the BVP program. Second, they drafted a "special condition" that describes the prohibition on combining BVP and JAG funding that they plan to include in the JAG grant agreement, once this condition has been approved.⁵¹ The special condition will require prospective grantees to certify that they will not use JAG funds to match their BVP funds or combine JAG and BVP funds to purchase the same vests. The officials

⁵¹Special conditions set forth specific terms that grantees must meet, in addition to the general conditions associated with the grant, in order to receive funds.

Enhance Tracking of Funds to
Ensure Compliance

told us they expected to include these documents in the fiscal year 2012 grant cycle, which they thought would be announced in March 2012. Improved dissemination of this requirement could help ensure conformity with internal control standards and leading grant management practices.

BJA has limited visibility over which JAG grantees are using their awards for body armor purchases. BJA could enhance its tracking to know which grantees used the JAG funds for this purpose and, as a result, be better informed and better positioned to target its monitoring for compliance with existing body armor requirements and any new ones the JAG program might add, consistent with standards for internal control. Currently, BJA uses the online Grants Management System (GMS) to track JAG spending across more than 150 specific categories—each associated with a “project identifier.” BJA officials explained that since fiscal year 2011, they have required potential grantees to select up to five identifiers that reflect the significant ways in which they planned to use their JAG funds. If the applicants do not select any identifiers, or if JAG grant managers believe different identifiers are more appropriate, the grant managers can select as many identifiers as they deem appropriate and enter them directly into GMS.⁵² Although “bulletproof vest” is among the project identifiers, no project identifier exists that could be used for stab-resistant vests.

Officials told us that in response to our audit work, they would consider adding an identifier for “stab-resistant” vests in the future. However, BJA had not made a decision on this matter before we finalized our report. Although BJA officials acknowledge that project identifiers have limitations when used to track spending, they noted that enhancing GMS with mechanisms more precise than the identifiers would take a significant financial investment. Thus, they agree that maximizing the utility of the existing project identifier system—by adding another vest category—would be a low-cost way of better understanding JAG spending on body armor in the meantime.

⁵²Prior to this time, JAG program staff selected the identifiers for the grantees based upon the planned activities the grantee described in its application.

NIJ Has Designed Mechanisms to Coordinate and Control Its Body Armor Efforts

NIJ's Coordination of Body Armor Research and Standards Development

In addition to body armor research that NIJ funds through cooperative agreements with universities and research institutions, NIJ also has a collaborative body armor research effort with NIST. Under an interagency agreement, NIJ and NIST negotiate an annual fiscal year program plan and statement of work for NIST to provide technical and research services to support NIJ's standards and compliance testing programs, including test laboratory accreditation. We have previously reported that establishing agency plans, such as the NIST program plan, is a key collaboration practice that can reinforce agency accountability and ensure that goals are consistent and mutually reinforcing.⁵³ For example, selected fiscal year 2011 NIST projects to support NIJ body armor efforts included

- research of the links between mechanical damage (e.g., stitching, bending, folding, or stretching) of common body armor materials and ballistic performance to determine how well the test protocol in the current ballistic-resistant body armor standard simulates real-life mechanical wear and
- proficiency testing to understand how different body armor test laboratories compare with each other and support enhancements to the laboratory accreditation program.

NIJ has also designed mechanisms to leverage and share information on body armor with DOD and federal, state, and local law enforcement practitioners. For example, NIJ participates in DOD's interagency Combating Terrorism Technical Support Office's TSWG, which conducts research and development to identify and address the needs of federal, state, and local organizations that have responsibilities to prevent and respond to terrorism. TSWG has a personnel protection subgroup that focuses on developing techniques that improve the performance of body armor by reducing weight and optimizing material performance, among other things. NIJ participates in this subgroup joining NIST, the U.S. Secret Service, and the Department of Energy, among others. Currently,

⁵³[GAO-06-15](#).

TSWG is leveraging resources and expertise from across participating agencies to conduct research on body armor technology to reduce blunt trauma and optimize the design of multithreat body armor worn beneath an officer's uniform, as well as similarly worn lightweight armor, among other things.

In addition, NIJ has established the Law Enforcement and Corrections Technology Advisory Council and the Body Armor Technology Working Group, which consist of federal, state, and local law enforcement practitioners, to identify the body armor needs of and solicit opinions from the law enforcement community. NIJ and NIST take the practitioners' input into account when developing the annual body armor research program plan. For example, the fiscal year 2010 program plan called for NIST to convene a workshop to evaluate the test methods for hard body armor in response to concerns raised by the Body Armor Technology Working Group. Finally, NIJ holds public conferences and workshops where the results of body armor research conducted by NIJ, DOD, NIST, and others are presented. These coordination mechanisms help NIJ leverage resources to identify and address body armor needs, consistent with key practices to help enhance and sustain collaboration among federal agencies.⁵⁴

Another way that NIJ coordinates with stakeholders in the body armor arena is through its new process to update its standards, which we described in an earlier section of this report. All six of the body armor manufacturers and both of the ballistic-resistant and stab-resistant materials manufacturers we met with expressed concerns that the new standards revision process would not afford them sufficient opportunities to provide input. However, according to NIJ officials, any interested party, including manufacturers, may participate in the process to develop the standards by providing input at public workshops or providing comments on the draft document. Given that this new standards revision process was still under way during the production of our report, it was too soon to tell how effective the process will be in leveraging stakeholders' knowledge and meeting globally accepted principles for stakeholder

⁵⁴[GAO-06-15](#).

NIJ Controls Designed to
Manage Body Armor
Compliance Testing

involvement in standards development, such as openness, due process, and transparency.⁵⁵

NIJ requires that body armor models being tested for NIJ compliance be examined at a laboratory that NIJ has approved. To obtain such approval, a laboratory must

- be accredited by NIST's National Voluntary Laboratory Accreditation Program as meeting general international standards for laboratory technical competence and quality management, as well as meeting specific technical requirements to perform the body armor tests contained in the NIJ standards;⁵⁶
- be an independent, third-party laboratory and conduct all body armor compliance testing within the United States; and
- demonstrate its freedom from potential conflicts of interest and maintain an independent decisional relationship from its clients, affiliates, contractors, and other organizations.

In addition to undergoing laboratory ballistic or stab-resistance testing, the body armor models must meet workmanship and labeling requirements.⁵⁷

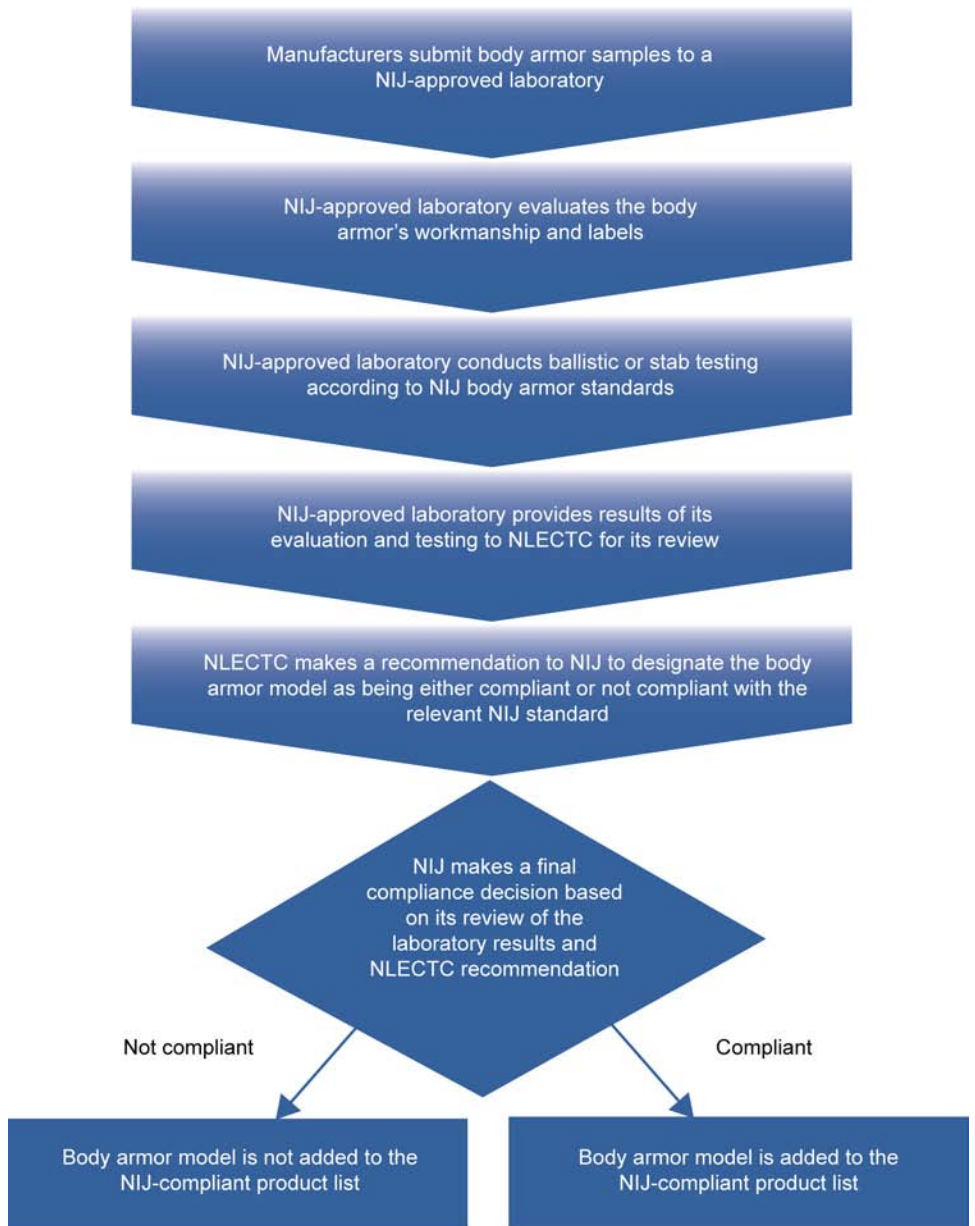
To ensure the integrity of the compliance testing results, laboratories send the test results directly to NLECTC, whose staff review the test results for compliance. NIJ then reviews the compliance test data and NLECTC's recommendation and makes the final compliance decision. Figure 5 illustrates this process.

⁵⁵For a discussion of globally accepted principles for developing standards, see American National Standards Institute, *United States Standards Strategy*.

⁵⁶As set forth in 15 C.F.R. pt. 285, the National Voluntary Laboratory Accreditation Program (NVLAP) accredits testing and calibration laboratories that are found competent to perform specific tests or calibrations or types of tests or calibrations. The procedures, requirements, and guidance for NVLAP accreditation of body armor testing and calibration laboratories are set forth in NIST Handbook 150, *NVLAP Procedures and General Requirements*, and in NIST Handbook 150-24, *NVLAP Personal Body Armor*.

⁵⁷The laboratories inspect the body armor samples and ensure that they are identical and free of inferior workmanship, such as wrinkles, blisters, fabric tears, or fraying. The laboratories also inspect the body armor labels to ensure that they contain all required information specified in the standard, such as the name of the manufacturer, the rated level of protection, the date of manufacture, and identification of the proper orientation of the armor relative to the wearer.

Figure 5: NIJ Compliance Testing Process



Source: GAO analysis of NIJ body armor standards.

To further enhance the compliance testing program and ensure that the body armor used by law enforcement and corrections officers is safe and

reliable, NIJ has implemented a follow-up inspection and testing requirement. Under this requirement, each body armor manufacturer with an NIJ-compliant ballistic-resistant body armor model is subject to six follow-up inspections and testing over a 60-month period, consisting of

- inspections of recently manufactured body armor samples to determine if the body armor in production continues to be constructed in the same way as the samples that were submitted for compliance testing and
- ballistic testing to ensure that unnoticed or unintentional variations have not occurred during the manufacturing process that could affect the performance of the armor.⁵⁸

Currently, only NIJ-compliant ballistic-resistant body armor is subject to follow-up inspection and testing, but NIJ plans to implement a follow-up inspection and testing requirement for NIJ-compliant stab-resistant body armor following the issuance of the new stab-resistant body armor standard in December of 2012.

NIJ is taking steps to increase the uniformity of compliance testing procedures to address factors that may affect the outcome of ballistic or stab compliance testing. Officials we met with from all six of the body armor manufacturers expressed concerns that the results of the compliance tests may be affected by factors not controlled for in the standards' testing protocols. For example, three manufacturers said that they believe that variations in the clay that body armor is mounted to during ballistic testing could affect test results. NIJ has provided funding to NIST to conduct research to develop guidelines to standardize the process for building the clay-filled backing material fixtures used in ballistic testing to improve the repeatability of tests. NIJ expects to incorporate the results of this research in the update of the ballistic-resistant body armor standard. In addition, five of the six manufacturers raised concerns about the treatment of female body armor, and cited the lack of a clear definition that describes what constitutes female body armor and the lack of specific detailed protocols for testing female body armor. NIJ has recognized this as a challenge for the compliance testing program and has provided funding to NIST to conduct research to

⁵⁸The ballistic testing conducted in the follow-up inspection and testing reflects only a portion of the ballistic testing that is conducted during the initial compliance testing, and it is therefore not a conclusive indication that the armor in production would satisfy the full requirements of the NIJ standard.

develop standard definitions of body armor types and standardized test methods for assessing the performance of contoured body armor designs. NIJ expects to incorporate the results of this research in the update of both the stab- and ballistic-resistant body armor standards. Additionally, NIST officials told us that they were working with NIJ to develop proficiency testing protocols to compare testing results across NIJ-approved laboratories as part of NIST's effort to meet international standards for this type of compliance testing within the next 3 years.⁵⁹

DOJ Has Taken Steps to Address Factors That Affect the Use and Effectiveness of Body Armor

Body armor's ability to protect an officer during a critical incident depends upon 1) whether the officer is wearing body armor and 2) the level of performance and the effectiveness of the armor he or she is wearing. A number of factors can affect the use and effectiveness of body armor. For example, agency policies as well as the comfort, fit, and coverage of the body armor can affect use. Body armor fit and coverage can also affect the effectiveness of the armor, along with factors including degradation because of wear and tear, care and maintenance, and exposure to environmental conditions. DOJ has taken steps to address these factors and has efforts under way to further advance the use and effectiveness of body armor. In particular, NIJ expects to complete an evaluation within the next 3 years on the impact of its body armor efforts on law enforcement practices and policies and on body armor design and quality.

Agency policies. Agency policies to purchase and mandate the wearing of body armor can promote body armor use. An NIJ-funded 2011 survey conducted by the Police Research Executive Forum found that agency policy was the second most cited reason, behind safety concerns, why officers wore body armor.⁶⁰ Further, DOJ's Bureau of Justice Statistics reports that in 2007—the most recently available data—an estimated 80 percent of local police officers were employed by a department with some type of body armor wear requirement, compared to 74 percent in 2003,

⁵⁹See ISO/IEC Guide 65: 1996, *General Requirements for Bodies Operating Product Certification Systems*.

⁶⁰Heath Grant, Bruce Kubu, Bruce Taylor, Jack Roberts, Megan Collins, and Daniel J. Woods, *Standing Up Under Fire- Body Armor Use, Care, and Performance in Real World Conditions: Findings from a National Survey*, (forthcoming).

and 30 percent in 1990.⁶¹ Several DOJ activities have addressed agency policy. For example:

- BVP funding for body armor has been instrumental in helping jurisdictions provide body armor for their officers' use, according to all 10 of the jurisdictions in our sample.
- BJA provided funding to support the development of IACP's model body armor wear policy. Once BJA required BVP applicants to have a written mandatory wear policy in place to receive funding, it made the IACP model policy available to jurisdictions upon request to assist them in fulfilling this requirement.
- NIJ has produced an informational video on body armor that highlights the benefits of the BVP program. See video (www.gao.gov/multimedia/video#video_id=588456) providing information on the BVP program.

Comfort, fit, and coverage. Comfort, fit, and coverage affect both the use and effectiveness of body armor. For example, body armor can create discomfort for an officer through reduced mobility, increased weight, heat buildup under the armor, and chafing—thereby causing him or her to discontinue its use. Officials from one law enforcement association noted that complaints about body armor heat buildup are not restricted to officers in hot climates, such as Arizona, and that officers in temperate climates, such as Washington State also report experiencing discomfort from heat. In addition, if the body armor is poorly fitting, it can create both discomfort and affect total coverage area. Body armor that extends too low in the front can cause discomfort by hitting the officer's gun belt which can cause the vest to ride up toward the officer's throat or pinch the skin of the abdomen between the gun belt and the armor. Body armor that is not wide enough can leave portions of the officer's sides unprotected. One manufacturer explained that if body armor does not fit properly, it can develop set wrinkles that become weak spots in the armor and reduce its protection.

Designing comfortable, well-fitting body armor for female officers is particularly a challenge, according to the six body armor manufacturers in

⁶¹The Bureau of Justice Statistics is a component of OJP with a mission to collect, analyze, publish and disseminate information on crime, criminal offenders, victims of crime, and the operation of justice systems at all levels of government. Bureau of Justice Statistics, *Local Police Departments, 2007*, NCJ 231174 (Washington, D.C.: December 2010).

our sample. One manufacturer explained that constructing formfitting bust cups requires additional stitching that can weaken the ballistic materials, and as a result, more layers of ballistic materials may be needed to compensate, making the vests thicker and less comfortable. Many manufacturers, including all six in our sample, will custom fit body armor to the specific body contours of individual officers.

DOJ's activities to address comfort, fit, and coverage include NIJ taking the following actions:

- Issuing guidance that advises agencies to take comfort into account when selecting body armor and provides information on design elements that can affect comfort. NIJ's body armor guidance also provides information on elements of proper fit and advises agencies to inspect body armor routinely to ensure proper fit. In addition, the NIJ guidance advises agencies to select body armor that provides full front, side and back protection and includes information to help agencies select body armor that offers an appropriate balance of protection and comfort. This guidance is available on NIJ's website and the website NLECTC operates.
- Funding a study on the effect of body armor use on core body temperature to gain a better understanding of comfort issues. NIJ also plans to present the issue of including ergonomic or "wearability" test protocols to the STC as it consider revisions of the ballistic-resistant body armor standard.
- Providing funding to NIST to develop standard definitions of body armor types and standardized test methods for assessing the performance of contoured body armor designs for females. In addition, NIJ plans to bring the issue of female body armor testing methods to the STC developing the ballistic-resistant body armor standards for its consideration.
- Producing a video on body armor that provides information on body armor fit and coverage. See video (www.gao.gov/multimedia/video#video_id=588457).

Wear and tear. Age alone does not degrade the ballistic-resistant properties of body armor, but wear and tear from normal use can contribute to the deterioration of body armor's performance over time. There is little conclusive data on the extent to which normal wear and tear affects the useful lifespan of body armor. According to NIJ, many manufacturers offer 5-year warranties on their body armor, including the six we met with, but this is not necessarily a reflection of the service life of the armor. DOJ does have several activities under way, however, that address wear and tear factors. In particular:

-
- NIJ's ballistic-resistant body armor test protocols examine body armor's performance after undergoing mechanical wear in a tumbler for 10 days while being exposed to hot and humid conditions. Appendix IV depicts a tumbler used for conditioning ballistic-resistant body armor before testing.
 - NIJ's body armor guidance contains information on body armor life expectancy and replacement policies, and encourages agencies to visually inspect armor for signs of excessive wear and tear at least once a year.
 - NIJ and NIST are jointly researching
 - the properties of used body armor and how ballistic materials change over time,
 - the relationship between changes in the ballistic materials and ballistic performance that could inform test methods for used armor,
 - body armor designs that are less vulnerable to mechanical damage from wear and tear, and
 - artificial aging methods that could be used to predict the service life of armor.
 - NIJ has produced a video that provides information on inspecting body armor for signs of wear and tear. See video (www.gao.gov/multimedia/video#video_id=588458).

Care and maintenance. Dry cleaning solvents, harsh detergents, bleach, and accumulated soap residue can damage body armor and curtail its effectiveness. Further, improper storage can lead to the development of set wrinkles, stretching, and exposure to environmental conditions that can degrade performance. For example, hanging body armor on a hanger may stretch out the elastic shoulder straps and reduce the ballistic-resistant panels' proper coverage across the torso. DOJ has taken several actions to address these care and maintenance factors. Specifically, NIJ

- requires that all NIJ-compliant body armor contain labels that include care instructions and NIJ's body armor guidance also includes information on caring for body armor, and
- has produced an informational video on body armor that discusses body armor care. See video (www.gao.gov/multimedia/video#video_id=588459).

Exposure to environmental conditions. Exposure to environmental conditions of extreme temperature, moisture, humidity, and ultraviolet light can degrade ballistic-resistant materials.⁶² In particular, the amount of moisture associated with normal perspiration is not sufficient to affect ballistic performance and most commercially manufactured armor is treated with water-repellant materials or enclosed in water-resistant covers. NIJ has several activities that aim to address these environmental factors:

- NIJ has ballistic-resistant body armor test protocols that examine armors' performance after being submerged in water and being environmentally conditioned for 10 days in a tumbler that subjects the armor to heat and humidity and mechanical wear. Appendix IV shows a tumbler for conditioning ballistic-resistant body armor before testing.
- NIJ plans to present the issue of including environmental testing protocols to the STC as it considers revisions to the stab-resistant body armor standard.
- NIJ and NIST are jointly researching the effect of heat, humidity, and moisture on the strength of newer body armor materials and exploring how to verify or improve the environmental conditioning protocol in the ballistic-resistant body armor standard.

Conclusions

Body armor has demonstrated its ability to better protect law enforcement officers and DOJ has a number of efforts under way to promote its use and improve its effectiveness. Further, in managing its funding programs, BJA has designed several financial controls and has plans to further enhance grantee monitoring. Given the importance of the body armor initiatives under way to the safety of law enforcement officers—and the importance of sound financial management to program operations—opportunities exist for BJA to improve in several areas. In particular, deobligating undisbursed funds from BVP grant awards whose terms have ended and the grants have closed could help prevent improper accounting and enhance its management of program funds. Further, increasing grantees' awareness of the documentation retention requirement could help ensure grantees' accountability in the use of

⁶²NIJ's body armor standards do not address exposure to ultraviolet light (UV); however, NIJ does not believe a UV test is needed since the ballistic materials are enclosed in a cover that provides protection against UV light. Further, NIJ officials noted that when in use, the covered ballistic materials are inserted into a carrier vest that offers further protection against UV exposure.

federal funds. Additionally, harmonizing requirements across the BVP and JAG programs could improve consistency in the department's efforts to ensure law enforcement officers' protection. Finally by fully documenting its procedures for monitoring compliance with program requirements and improving its tracking of which JAG grantees are using funds for stab-resistant body armor purchases, BJA could better target its compliance efforts.

Recommendations for Executive Action

To enhance management of body armor funding, improve grantee accountability in the use of federal funds, reduce the risk of grantee noncompliance with program requirements, and ensure consistency in the department's efforts to promote law enforcement officer safety, we recommend that the BJA Director take the following five actions:

1. Deobligate undisbursed funds from grants in the BVP program that have closed.
2. Expand information available to BVP grantees on the current program requirement for jurisdictions to retain documentation on all transactions for at least 3 years.
3. Establish requirements within the JAG program that grantees using the money for body armor purchases have written mandatory wear policies in place and that they are permitted to purchase only NIJ-compliant body armor.
4. Document procedures for desk review checks on compliance with JAG program requirements.
5. Establish a project identifier within GMS to track stab-resistant body armor.

Agency Comments and Our Evaluation

We provided a draft of this report to DOJ for comment. We received written comments on the draft report, which are reprinted in appendix V. DOJ agreed or agreed in part with all five recommendations in the report, and we believe that DOJ's planned actions address the intent of each. Specifically:

- DOJ agreed with the recommendation that the department deobligate undisbursed funds from BVP grants that have closed and said that in the absence of statutory restrictions stating otherwise, BJA intends to use the deobligated, undisbursed BVP funds to supplement appropriations in fiscal years 2012 and 2013.
- DOJ agreed with the recommendation that it expand the information available to BVP grantees on the program requirement that jurisdictions retain documentation for at least 3 years and said

it will add language in the fiscal year 2012 BVP program requirements to address this issue.

- DOJ generally agreed with the recommendation that it establish requirements within the JAG program that grantees using the money for body armor purchases have written mandatory wear policies in place and that they are permitted to purchase only NIJ-compliant body armor. DOJ stated that it had sufficient legal authority to establish these requirements in the JAG program, but noted that it plans to implement such requirements carefully to avoid impeding the ability of local jurisdictions to purchase ballistic equipment that does not have standards, such as K-9 ballistic vests, and to accommodate other JAG program requirements.⁶³
- DOJ agreed, in part, with the recommendation that it document procedures for its checks on compliance with JAG program requirements, acknowledging the importance of closely monitoring this requirement. However, it stated that it did not believe that desk reviews are the best mechanism for ensuring that grantees are separately tracking and administering JAG and BVP funds and stated that it would develop and institute additional controls beyond desk reviews to ensure grantees' compliance.
- DOJ agreed with the recommendation that it establish a project identifier within the Grants Management System to track stab-resistant body armor and stated that it will add a project identifier for stab-resistant vests during the fiscal year 2012 JAG program application process.

DOJ also provided technical comments, which we incorporated into the report as appropriate.⁶⁴

We are sending copies of this report to the Attorney General, selected congressional committees, and other interested parties. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

⁶³K-9 ballistic vests are protective vests that dogs working with law enforcement officers wear while on duty. Vests modified for K-9 units have not been tested by NIJ.

⁶⁴For example, DOJ suggested that we use "closed" rather than "expired" when discussing those grants with undisbursed balances that could be deobligated. We agreed, and changed the language throughout the report, as well as within recommendation 1, accordingly.

If you or your staff have any questions about this report, please contact me at (202) 512-9627 or maurerd@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix VI.

A handwritten signature in black ink that reads "David C. Maurer". The signature is written in a cursive style with a prominent initial "D" and a long, sweeping tail on the "er".

David C. Maurer
Director, Homeland Security and Justice Issues

List of Requesters

The Honorable Charles E. Grassley
Ranking Member
Committee on the Judiciary
United States Senate

The Honorable Sheldon Whitehouse
Chairman
Subcommittee on Crime and Terrorism
Committee on the Judiciary
United States Senate

The Honorable Lindsey Graham
Ranking Member
Subcommittee on the Constitution, Civil Rights and Human Rights
Committee on the Judiciary
United States Senate

The Honorable Benjamin L. Cardin
United States Senate

Appendix I: Objectives, Scope, and Methodology

This report answers the following questions: (1) What efforts does the Department of Justice (DOJ) have under way to support state and local law enforcement's use of body armor? (2) To what extent has DOJ designed controls over these efforts and coordinated them with stakeholders within and outside of the department? (3) What factors affect body armor's use and effectiveness and how has DOJ addressed these factors?

To address all three questions we obtained and assessed body armor-related documents from the Bureau of Justice Assistance (BJA) and the National Institute of Justice (NIJ), such as program requirements, procedures, processes, and budget information for fiscal years 1999 through 2011, and interviewed BJA and NIJ officials. In addition, we attended NIJ workshops in 2011 on its body armor standards and observed body armor testing firsthand.

To identify DOJ's body armor efforts to support state and local law enforcement, we examined program data on BJA's Bulletproof Vest Partnership (BVP) program for fiscal years 1999 through 2011 as well as its Edward Byrne Justice Assistance Grant (JAG) program for fiscal years 2006 through 2011. These are two grant programs supporting state and local law enforcement's purchases of body armor. To assess the reliability of the BVP data, we talked with BJA officials about data quality control procedures and reviewed relevant documentation. We determined that the data were sufficiently reliable for the purposes of this report. We also examined preliminary information from a GAO survey of the more than 3,900 JAG grantees that had received awards from fiscal years 2005 through 2010 to determine the extent to which they had procured ballistic and stab-resistant body armor in fiscal year 2010.¹ The survey data included in this report reflect a 42 percent response rate and are not generalizable to all JAG grantees.

To evaluate the extent to which DOJ designed controls over and coordinated its body armor efforts, we assessed DOJ's body armor program policies, procedures, processes, and coordination efforts using standards for internal control in the federal government and leading

¹Survey of Indigent Defense Funding from Byrne Memorial Justice Assistance Grants, GAO (2012). The survey will be completed in February 2012 and the results will be published in a forthcoming GAO report on indigent defense.

practices for grant management and stakeholder coordination.² We also discussed body armor efforts and coordination issues with federal officials inside and outside of DOJ. In particular, we interviewed officials from DOJ's law enforcement components, including the Bureau of Alcohol, Tobacco, Firearms and Explosives; the Bureau of Prisons; the Drug Enforcement Administration; the Federal Bureau of Investigation; and the U.S. Marshals Service. Furthermore, we interviewed officials from the Department of Defense's Technical Support Working Group subgroup for personnel protection and the Department of Commerce's National Institute of Standards and Technology who are involved in body armor research, standards, and testing to discuss their efforts and the extent to which they coordinate with DOJ.

Additionally, we obtained perspectives from the state and local law enforcement community on DOJ's body armor efforts. Specifically, we interviewed officials from the following three law enforcement associations: the International Association of Chiefs of Police, the Fraternal Order of Police, and the National Sheriffs' Association.³ We selected this nonprobability sample of associations based upon the size of the organizations and the types of law enforcement officers represented. We also selected a nonprobability sample of 10 state and local jurisdictions that received BVP awards in fiscal year 2010 and interviewed officials representing each jurisdiction. We selected these 10 based upon the type of jurisdiction (e.g., state, county, or city); population; and proximity to a GAO office for on-site visits. The jurisdictions we selected were Bristol, Virginia; the state of California; Dorchester County, Maryland; Gaithersburg, Maryland; Hanover County, Virginia; Los Angeles, California; the state of Maryland; Tulare County, California; the state of Virginia; and Washington, D.C. In particular, with officials from state and local jurisdictions, we discussed body armor funding, policy, selection, procurement, and use. When possible, we discussed body

²GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999); Grant Accountability Project, *Guide to Opportunities for Improving Grant Accountability* (Washington, D.C.: 2005); GAO, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, [GAO-06-15](#) (Washington, D.C.: Oct. 21, 2005); American National Standards Institute, *United States Standards Strategy* (New York: August 2000).

³Unlike a random sample, a nonprobability sample is more deliberately chosen, meaning that some elements of the population being studied have either no chance or an unknown chance of being selected as part of the sample.

armor use with male and female law enforcement officers who wear body armor and visited their offices to see the body armor that had been purchased using federal funds.⁴ Although the information from these nonprobability samples is not generalizable, it provides valuable insight into body armor issues.

We obtained perspectives on NIJ's coordination efforts and body armor standards and compliance testing programs from interviews with nonprobability samples of six body armor manufacturers, two NIJ-approved body armor testing laboratories, and two body armor materials manufacturers. We selected our sample of six body armor manufacturers, based upon the size of the company and the types of armor produced. The six manufacturers were Armor Express, Force One, Paraclete, Point Blank, Safariland, and US Armor.⁵ We selected the following two NIJ-approved laboratories to visit based upon their proximity to our office: Chesapeake Testing and H.P. White Laboratory. We also met with officials from DuPont and Honeywell, two body armor materials manufacturers, based upon their officials' availability to meet at a location near GAO. Although the information from these nonprobability samples is not generalizable, it provides valuable insight into body armor issues.

For our analysis of the factors affecting body armor's use and effectiveness, we reviewed body armor literature and discussed these factors with the officials we interviewed for the second question, described above. We also reviewed BJA and NIJ programmatic information, such as program requirements and research plans, to determine the extent to which DOJ had taken actions to address these factors. The documents reviewed cover the period from 1974 through 2012, which generally corresponds to the time period of DOJ's body armor efforts.

⁴Owing to scheduling issues and time constraints we did not interview law enforcement officers from the jurisdictions of Tulare County, California, or the state of Virginia, and were unable to interview female officers from the jurisdictions of Bristol, Virginia; Dorchester County, Maryland, and the State of California or male officers from the jurisdiction of Hanover County, Virginia.

⁵During the course of our review, the Point Blank and Paraclete body armor brands were acquired by another body armor manufacturer. Our selection of these manufacturers and the information we obtained from them preceded the acquisitions.

We conducted this performance audit from March 2011 through February 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Types of Law Enforcement Body Armor by Level of Ballistic Performance

Types by Performance level	Ammunition used in compliance testing	Degree of flexibility	How body armor is worn
IIA	Handgun bullets: <ul style="list-style-type: none"> • 9 mm and • .40 Smith and Wesson 	Soft	Either under or above an officer's uniform
II	Handgun bullets: <ul style="list-style-type: none"> • 9 mm and • .357 Magnum 	Soft	Either under or above an officer's uniform
IIIA	Handgun bullets: <ul style="list-style-type: none"> • .357 SIG and • .44 Magnum 	Soft	Either under or above an officer's uniform
III	Rifle bullets: <ul style="list-style-type: none"> • 7.62 mm 	Semi-rigid or rigid	Above an officer's uniform
IV	Rifle bullets: <ul style="list-style-type: none"> • .30 caliber armor-piercing bullets 	Semi-rigid or rigid	Above an officer's uniform

Source: GAO analysis of NIJ information.

Appendix III: Performance Levels of Law Enforcement Stab-Resistant Body Armor

The stab-resistant body armor standard defines three levels of performance for stab-resistant body armor. For each of the three protection levels, the test protocol requires that the knife blade or spike impact the armor test sample at two energy levels. NIJ established a maximum allowable penetration limit of 7 millimeters for the first energy level, based upon research indicating that internal injuries to organs would be extremely unlikely at this depth. The second energy level is an “overtest” to ensure that an adequate margin of safety exists. NIJ defined a maximum allowable penetration limit of 20 millimeters for this second energy level. Table 2 illustrates the performance standards at each level.

Table 2: Stab-Resistant Body Armor Performance Levels

Performance level	Energy level of stab strike (in joules ^a) at which a penetration of 7mm is allowed	Energy level of stab strike (in joules) at which a penetration of 20mm is allowed
1	24	36
2	33	50
3	43	65

Source: GAO analysis of NIJ information.

^aA joule is a unit of energy equal to the work done by a force of 1 newton acting through a distance of 1 meter. A newton is a unit of force that produces an acceleration of 1 meter per second per second on a mass of 1 kilogram.

Appendix IV: Tumbler Used to Condition Ballistic-Resistant Body Armor before Testing



Source: NIST.

Appendix V: Comments from the Department of Justice



U.S. Department of Justice

Office of Justice Programs

13 FEB 2012

Washington, D.C. 20531

Mr. David C. Maurer
Director
Homeland Security and Justice Issues
Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Maurer:

Thank you for the opportunity to review and comment on the draft Government Accountability Office (GAO) report entitled, "Law Enforcement Body Armor: DOJ Could Enhance Grant Management Controls and Better Ensure Consistency in Grant Program Requirements" (GAO-12-353). The U.S. Department of Justice (DOJ) appreciates the GAO's work in planning and conducting this review and issuing the report.

The draft GAO report contains five Recommendations for Executive Action to the DOJ, which are restated in bold text below and are followed by our response.

To enhance management of body armor funding, improve grantee accountability in the use of federal funds, reduce the risk of grantee noncompliance with program requirements, and ensure consistency in the department's efforts to promote law enforcement officer safety, we recommend that the BJA Director take the following five actions:

1. Deobligate undisbursed funds from grants in the BVP program that have closed.

The Office of Justice Programs (OJP) agrees with the Recommendation for Executive Action. In the absence of statutory restrictions stating otherwise, the Bureau of Justice Assistance (BJA) intends to use the deobligated, undisbursed Bulletproof Vest Partnership (BVP) funds to supplement the appropriation amounts in fiscal years (FYs) 2012 and 2013.

2. Expand information available to BVP grantees on the current program requirement for jurisdictions to retain documentation on all transactions for at least three years.

OJP agrees with the Recommendation for Executive Action. BJA will add language in the FY 2012 BVP program requirements on document retention standards. Specifically, BJA will update the BVP application announcement and certifications for FY 2012 to require that jurisdictions retain documentation on all BVP transactions for at least three years.

3. **Establish requirements within the JAG program that grantees using the money for body armor purchases have written mandatory wear policies in place and that they are permitted to purchase only NIJ compliant body armor.**

OJP generally agrees with the Recommendation for Executive Action. After a careful review of applicable law, it has been determined that there is sufficient legal authority to establish these requirements in the Edward R. Byrne Memorial, Justice Assistance Grant (JAG) program. OJP believes that such requirements must be implemented carefully, as flexibility to accommodate local and situational issues must be provided within the policy framework, and the ability of agencies to use JAG funds to purchase ballistic materials/equipment for which there is no corresponding standard (e.g., K-9 ballistic vests, ballistic shields) must not be impeded. Additionally, OJP must hold firmly to our existing commitment that no blanket policy or automatic disqualification shall be implemented regarding the mandatory wear requirement and its effects on federal death, disability, or educational benefits through BJA's Public Safety Officers Benefits Program.

4. **Document procedures for desk review checks on compliance with JAG program requirements.**

OJP agrees, in part, with the Recommendation for Executive Action. Due to scope limitations inherent with desk reviews, OJP does not believe that desk reviews are the best mechanism for ensuring that JAG and BVP funds are separately tracked and administered. However, we agree that this requirement should be closely monitored.

OJP's bureaus and program offices, and the Office of the Chief Financial Officer (OCFO) conduct in-depth monitoring of grants, including on-site visits and enhanced programmatic desk reviews, which allow grant managers and financial monitors to: follow up on issues identified during annual desk reviews; verify grantee activities; validate reported information; and assess the status of project implementation. Further, during these in-depth monitoring activities, grant managers and OCFO staff Accountants ensure that grantees have systems in place to adequately track Federal grant funds.

OJP agrees that BJA should institute additional controls to ensure that JAG grantees are in compliance with the program requirements, and will work with the Office of Audit, Assessment, and Management and the OCFO to further strengthen its monitoring activities.

5. **Establish a project identifier within GMS to track stab-resistant body armor.**

OJP agrees with the Recommendation for Executive Action. Project identifiers for the JAG program are revised annually, as necessary, by BJA. As a result, BJA will add a project identifier for "Body Armor – Stab-Resistant" in the Grants Management System, which will be available for selection during the FY 2012 application process.

If you have any questions regarding this response, you or your staff may contact Maureen Henneberg, Director, Office of Audit, Assessment, and Management, at (202) 616-3282.

Sincerely,



Laurie O. Robinson
Assistant Attorney General

cc: Mary Lou Leary
Principal Deputy Assistant Attorney General

James H. Burch, II
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Appendix VI: GAO Contact and Staff Acknowledgments

GAO Contact

David C. Maurer, (202) 512-9627 or maurerd@gao.gov

Staff Acknowledgments

In addition to the contact named above, Joy Booth, Assistant Director, and Juan Tapia-Videla, Analyst-in-Charge, managed this assignment. Heather May and Ana Ivelisse Aviles made significant contributions to the work. Stanley Kostyla assisted with design and methodology. Willie Commons III provided legal support. Katherine Davis provided assistance in report preparation and Lydia Araya made contributions to the figures and videos presented in the report.

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