



June 2004

CLUSTER MUNITIONS TOO COSTLY: DEPARTMENT OF DEFENSE FY 2005 BUDGET REQUESTS RELATED TO CLUSTER MUNITIONS

A Human Rights Watch Briefing Paper

The United States Department of Defense Fiscal Year 2005 budget, which covers October 2004 to September 2005, includes several requests for procuring cluster munitions or their subparts. The Army, Marines, Air Force, and Navy all seek funding for variations of these weapons.

In Iraq, the United States used more than 10,782 cluster munitions, containing at least 1.8 million submunitions. These weapons killed or injured more than 1,000 civilians. No other weapon used by the Coalition caused more civilian casualties.¹ In light of this humanitarian harm, the budget requests related to these weapons must be closely scrutinized.² Cluster munitions pose an immediate danger to civilians during attacks, especially in populated areas, because they are inaccurate and have a wide dispersal pattern. They also endanger civilians long after the conflict due to the high number of submunition duds that do not explode on impact and become *de facto* landmines.

Human Rights Watch recommends that Congress deny funding for several cluster weapons and place conditions on procurement of others. The Department of Defense should provide additional information for other requests so that Congress can make informed decisions. Congress should not fund the requests for procurement in FY 2005 of:

¹ For information on the use of cluster munitions in Iraq, see Human Rights Watch, *Off Target: The Conduct of the War and Civilian Casualties in Iraq* (New York: Human Rights Watch, 2003).

² See Links to Detailed Budget Materials at <http://www.dod.mil/comptroller/defbudget/fy2005/index.html>.

- ground-launched Guided Multiple Launch Rocket System (GMLRS) rockets with old Dual Purpose Improved Conventional Munition (DPICM) submunitions;
- helicopter-launched Hydra rockets with old M73 submunitions;
- air-launched Joint Standoff Weapons (JSOWs) with old BLU-97 submunitions;
- Wind Corrected Munitions Dispensers (WCMDs) for air-launched CBU-103 cluster bombs with old BLU-97 submunitions.

Procurement of the GMLRS rockets, Hydra rockets, and JSOWs would appear to violate the January 2001 DoD policy that all submunitions produced in FY 2005 and beyond should have a dud rate, i.e. the percentage of submunitions that does not explode on impact as designed, of less than one percent (see below). Congress should, in addition, require the U.S. military to release more specific information regarding use of cluster munitions in Iraq.

Human Rights Watch also recommends that the United States should:

- either destroy or retrofit with self-destruct devices all submunitions for artillery- and rocket-launched DPICMs;
- continue to develop and employ better guidance systems to increase the accuracy of cluster munitions;
- prohibit the use in or near populated areas of all non-precision-guided submunitions, including those with self-destruct devices.

Most of the Pentagon's requests in the FY 2005 budget call for retrofitting of old technology or procurement of newer technology, such as guidance systems or unitary warhead alternatives. While designed to increase their military effectiveness, the modernization of the U.S. cluster munition arsenal has the potential to reduce the negative humanitarian impact of these weapons. The changes are far from a panacea, however. A large stockpile of unreliable and inaccurate cluster munitions remains, new technology must be tested and evaluated, and targeting changes must accompany technological improvements.

Army Procurement Requests

Rocket and Missile Systems

The Army requests \$112.3 million for 1,026 rockets for the Guided Multiple Launch Rocket System (GMLRS).³ FY 2005 is the third year of a gradually increasing, ten-year program to procure 140,004 of such rockets, which are designed to replace the “aging M26 [MLRS rocket] inventory.” These rockets, often used for counter-battery fire, are launched from MLRS or High Mobility Artillery Rocket System (HIMARS) launchers. GMLRS technology has the potential to reduce the humanitarian harm of cluster munitions in two ways. First, the new rockets are precision-guided, with inertial and global positioning system (GPS) guidance systems. As a result, they are more likely to hit their target, and troops will need to use fewer of them. Second, they provide a unitary alternative for the MLRS, which reduces Army reliance on cluster munitions. According to the budget documents, some, although not all, of the rockets will carry a unitary warhead instead of submunitions. Earlier models only delivered submunitions. The new submunition version is a cooperative program undertaken with France, Germany, Italy, and the United Kingdom.

Such technological developments are especially significant because the hundreds of older MLRS rockets used in Iraq were major killers of civilians. The Army relied heavily on the MLRS because Iraqi artillery had a longer range than the regular U.S. artillery. The only available warhead for the MLRS, however, contained submunitions. In order to take out a single artillery piece in a civilian neighborhood, U.S. ground troops would launch a standard volley of six rockets containing about 4,000 DPICMs with a sixteen percent dud rate that spread over an area with a .6-mile radius. The humanitarian impact was devastating, and duds endangered both soldiers and civilians. Military officers ranging from field commanders to senior CENTCOM officials called for a unitary alternative.

The GMLRS, especially in its 200-pound unitary form, addresses some of those concerns. The version with 414 DPICM submunitions, however, will still excessively endanger civilians if used in populated areas and if the DPICMs are not replaced or retrofitted to reduce the dud rate. Plans for a submunition with “significantly reduced hazardous duds” will not reach “full rate production,” or production for use in combat,

³ Department of the Army, Committee Staff Procurement Backup Book, Fiscal Year 2005 Budget Estimates: Missile Procurement, Army, February 2004, Item No. 12, Guided MLRS Rocket, p. 74, <http://www.asafm.army.mil/budget/fybm/FY05/pforms/missiles.pdf> (retrieved April 7, 2004).

until FY 2006.⁴ The Budget Justification Sheet does not specify how many of each type of warhead (unitary or submunition) will be procured, important information that should be made public.

In 2001, then-Secretary of Defense William Cohen issued a policy memorandum stating that all submunitions reaching a Milestone 3 production decision in FY 2005 and beyond would have a dud rate of less than one percent (hereinafter the Cohen policy).⁵ In other words, submunitions that reach full rate production during the first quarter of FY 2005 must meet the new standard.⁶ Under this policy, GMLRS carrying old DPICMs should not be procured.⁷

In another budget line, the Army has asked for \$61.5 million for fifty-six Army Tactical Missile Systems (ATACMS) missiles.⁸ These missiles are launched from an MLRS or HIMARS and usually carry 300 or 950 spherical submunitions. U.S. ground forces used at least 330 of these in Iraq in 2003, and they caused a number of civilian casualties. This request, however, is for the Block 1A Quick Reaction Unitary (QRU) model, a unitary alternative to the submunition model. It also includes a GPS guidance system to increase accuracy. The Army plans to procure a total of 2,741 ATACMSs by FY 2008, 278 of which are QRUs.

In addition to the GMLRS rockets and ATACMS missiles, the Army seeks money for their different launcher systems. It requests \$47.6 million for production support, testing, and fielding of the relatively new M270A1 MLRS launcher and \$24 million for modification to the same.⁹ Its improvements include allowing for “faster engagement on time-sensitive” targets, which could have humanitarian benefits by increasing chances that the intended target is hit. The Army wants \$173.3 million to procure thirty-seven HIMARS and \$.5 million to make modifications to existing units.¹⁰ It has also requested

⁴ Army RDT&E Budget Item Justification, Item No. 177, MLRS Product Improvement Program, pp. 410, 431, <http://www.dtic.mil/descriptivesum/Y2005/Army/0603778A.pdf> (retrieved June 3, 2004).

⁵ Secretary of Defense William Cohen, Memorandum for the Secretaries of the Military Departments, Subject: DoD Policy on Submunition Reliability (U), January 10, 2001.

⁶ *Ibid.* See also Anthony J. Melita, “A Viewpoint from OSD,” briefing at National Defense Industrial Association, 45th Annual Fuze Conference, April 2001, p. 9.

⁷ Anthony J. Melita, “A Viewpoint from OSD.” This presentation lists the GMLRS with M77 submunitions as one of the weapons affected by the Cohen policy, subject to a waiver or modification.

⁸ Department of the Army, Committee Staff Procurement Backup Book, Fiscal Year 2005 Budget Estimates: Missile Procurement, Army, February 2004, Item No. 16, Army Tactical Missile System, p. 104, <http://www.asafm.army.mil/budget/fybm/FY05/pforms/missiles.pdf> (retrieved April 7, 2004).

⁹ *Ibid.*, Item No. 14, MLRS Launcher Systems, p. 89; *ibid.*, Item No. 20, MLRS Modifications, p. 148.

¹⁰ *Ibid.*, Item No. 15, High Mobility Artillery Rocket System, p. 95; *ibid.*, Item No. 21, HIMARS Modifications, p. 161.

\$97.4 million for related RDT&E.¹¹ The HIMARS is a lightweight version of the MLRS that launches six instead of twelve rockets or one instead of two missiles. These line items, all part of multiyear programs, do not require procurement of cluster munitions but are worth noting because they are often used to launch them.

- Congress should reject procurement requests for GMLRS rockets with old submunitions.
- The Department of Defense should specify how many of each type of GMLRS rockets it wants to procure and what kind of submunitions they will contain.
- Congress should condition approval for rocket and missile launchers on their being used only with unitary warheads.

Helicopter-Launched Hydra

The Army has requested \$3.8 million to procure 2,000 Hydra 70 MPSM HE M261 rockets.¹² These helicopter-launched rockets carry nine M73 submunitions each. The one-year request was added as part of the Department of the Army's Budget Amendment for Army Aviation Transformation. The Army procured 6,000 of these weapons in FY 2003 but none in FY 2004. No future procurement requests are planned. Unlike most of the other budget items discussed, this version of the Hydra does not include any new technology. Its submunitions, which do not have self-destruct mechanisms, have a four percent dud rate, according to Department of Defense figures.¹³ Hydra submunitions caused a number of civilian casualties in Iraq. Under the Cohen policy mentioned above, they should no longer be procured.¹⁴

- Congress should reject procurement requests for all Hydras with submunitions.

¹¹ Department of Defense Budget for Fiscal Year 2005, Program Acquisition Costs by Weapon System, February 2004, p. 25, www.dod.mil/comptroller/defbudget/fy2005/fy2005_weabook.pdf (retrieved April 7, 2004).

¹² Department of the Army, Committee Staff Backup Book, Fiscal Year 2005 Budget Amendment for Army Aviation Transformation: Procurement Ammunition, Army, March 2004, Rocket Hydra 70 MPSM HE M261, p. 7, <http://www.asafm.army.mil/budget/fybm/fy05/amended/pform-ammo.pdf> (retrieved April 7, 2004).

¹³ Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, "Unexploded Ordnance Report," n.d., table 2-3, p. 5, transmitted to Congress on February 29, 2000.

¹⁴ Anthony J. Melita, "A Viewpoint from OSD." This presentation lists the Hydra as one of the weapons affected by the Cohen policy, subject to a waiver or modification.

Submunition Retrofitting

The Army has requested \$42.2 million to retrofit 820,800 submunitions in 11,400 155mm artillery projectiles with self-destruct devices.¹⁵ The 155mm “Recap” program is designed to reduce the dud rate. It applies to M864 Basebled Extended Range-DPICM (ER-DPICM) artillery projectiles, each of which contains a combination of seventy-two M42 and M46 submunitions. According to Army figures, these submunitions have a dud rate of fourteen percent before retrofitting.¹⁶ The Army’s Budget Justification Sheet does not specify a new expected dud rate, information that should be made public. The FY 2005 budget request, part of a five-year program, is a significant increase over previous years (\$18.2 million in FY 2004 and \$9.1 million in FY 2003). For the next two years requests are estimated to be \$44 and \$44.5 million, respectively.

During the major hostilities in Iraq in 2003, submunitions killed or injured hundreds of civilians, and DPICMs were by far the worst offenders. The Budget Justification Sheet states that the 155mm Recap program will “greatly reduce hazardous duds on the battlefield as evidenced with the use of DPICM during Operation Desert Storm and Operation Iraqi Freedom.”

While this retrofitting program should help reduce the danger of duds in future conflicts, it will not address the other major concerns regarding cluster munitions: the wide footprint and the lack of accuracy. Thus, it will not reduce the immediate danger of these weapons during strikes, especially in populated areas. Moreover, the retrofitting program does not account for all of the DPICMs in the U.S. arsenal.¹⁷ The Army, for example, did not request FY 2005 money to retrofit 105mm M915 artillery shells with DPICMs¹⁸ although it awarded a contract in February 2003 to manufacture 500,000 self-destruct fuzes for these projectiles.¹⁹

¹⁵ Department of the Army, Committee Staff Procurement Backup Book, FY 2005 Budget Estimates: Procurement of Ammunition, Army, February 2004, Item No. 16, Projectile 155mm DP Basebled M864, p. 336, <http://www.asafm.army.mil/budget/fybm/FY05/pforms/ammo.pdf> (retrieved April 7, 2004).

¹⁶ U.S. Army Defense Ammunition Center, Technical Center for Explosives Safety, “Study of Ammunition Dud and Low Order Detonation Rates,” July 2000, p. 9.

¹⁷ The DPICM is used in several models of cluster munitions. The Army has not released what percentage of the DPICMs it used in Iraq came in M864 projectiles.

¹⁸ Department of the Army, Committee Staff Procurement Backup Book, FY 2005 Budget Estimates: Procurement of Ammunition, Army, February 2004, Item No. 15, CTG, Artillery, 105mm: All Types, p. 304.

¹⁹ U.S. Army Armaments Research and Development Engineering Center, Contract Award Notice DAAE30-03-R-0800, “M234 Self-Destruct Fuze Low Rate Initial Production—Sole Source,” February 6, 2003.

- The Department of Defense should destroy or retrofit all DPICMs that are not modified under this program.
- These retrofits and other non-precision-guided submunitions should never be used in populated areas.
- The Department of Defense should make public the estimated dud rate for the retrofitted submunitions.

Marine Corps Procurement Requests

Missile and Rocket Systems

The Marine Corps seeks funds for GMLRS rockets, but the details of this request are somewhat unclear. The Marine Corps Budget Justification Sheet calls for \$1.3 million for GMLRS rockets and MLRS practice rockets, but it does not specify how the money will be divided.²⁰ According to Army budget justification documents, the Marines want forty-eight GMLRS rockets as part of a program that would obtain 3,144 by FY 2009.²¹ The Marines procured sixty such rockets in FY 2004 and are scheduled to request 606 and 1,164 over the next two years. For FY 2005, they also requested \$16.3 million for one HIMARS.²² The analysis of these requests is the same as that for the Army's GMLRS and HIMARS.

- The Marine Corps should clarify its procurement request, breaking it down by type of rocket and specifying what type of submunitions the GLMRS would carry.
- Congress should reject procurement requests for GMLRS with earlier model, or "legacy," submunitions.
- Congress should condition approval for the HIMARS launcher on its being used only with unitary warheads.

²⁰ Department of the Navy, FY 2005 President's Budget: Procurement, Marine Corps, February 2004, Item No. 17, HIMARS Rockets, <https://notes3.secnav.navy.mil/fy05.nsf/PMC?OpenForm&ExpandView> (retrieved April 7, 2004).

²¹ Department of the Army, Committee Staff Procurement Backup Book, Fiscal Year 2005 Budget Estimates: Missile Procurement, Army, February 2004, Item No. 12, Guided MLRS Rocket, p. 79, <http://www.asafm.army.mil/budget/fybm/FY05/pforms/missiles.pdf> (retrieved April 7, 2004).

²² Department of the Navy, FY 2005 President's Budget: Procurement, Marine Corps, February 2004, Item No. 7, High Mobility Artillery Rocket System, <https://notes3.secnav.navy.mil/fy05.nsf/PMC?OpenForm&ExpandView> (retrieved April 7, 2004).

Navy Procurement Requests

Joint Standoff Weapons

The Navy has requested \$139.457 million for 389 Joint Standoff Weapons (JSOWs), including 216 that would carry more than 31,000 submunitions.²³ The JSOW is a precision-guided, air-to-ground munition that comes in three varieties. The AGM-154A model contains 145 BLU-97 submunitions, the AGM-154B contains six BLU-108/B submunitions (like those in the Sensor Fuzed Weapon discussed below), and the AGM-154C has a unitary warhead. The Navy is currently requesting money for the first and third types, as part of a multiyear program to procure 11,800 JSOWs, 8,800 of which will carry submunitions. It is also requesting \$9.5 million for related RDT&E. The Air Force has procured JSOWs in past years, including 307 in FY 2004, but ended its production in FY 2005.²⁴

U.S. forces used 253 JSOWs in Iraq, but the military did not specify how many of those carried submunitions, information that should be made public. The JSOW's GPS guidance system is the most accurate of the cluster munitions discussed in this briefing paper. Like other models, however, it still has a broad footprint that makes it unsafe for use in populated areas, and its submunitions have neither guidance nor self-destruct systems. If they continue to carry the earlier, or legacy BLU-97, the Cohen policy should bar their procurement.²⁵ Furthermore, the nature of its submunitions is unclear. The Naval Air Systems Command has put out a call for a newly designed BLU-97B/B that would have a self-neutralization or other mechanism to reduce the dud rate beginning FY 2005 or 2006.²⁶

- The Department of Defense should report how many of each type of JSOW it used in Iraq.
- Congress should reject procurement requests for JSOWs with old BLU-97s.

²³ Department of the Navy, FY 2005 President's Budget: Weapons Procurement, Navy, February 2004, Item No. 08, Joint Standoff Weapon (JSOW), <https://notes3.secnaw.navy.mil/fy05.nsf/WPN?OpenForm&ExpandView> (retrieved April 7, 2004).

²⁴ U.S. Air Force, Committee Staff Procurement Backup Book, FY 2005 Budget Estimates: Missile Procurement, Air Force, February 2004, Item No. 4, Joint Stand-Off Weapon, p. 2-9, <http://www.saffm.hq.af.mil/FMB/pb/2005/proc.html> (retrieved April 7, 2004).

²⁵ Anthony J. Melita, "A Viewpoint from OSD." This presentation lists the JSOW with BLU-97 as one of the weapons affected by the Cohen policy, subject to a waiver or modification.

²⁶ Assembly/Manufacture of BLU-97B/B Submunition, July 24, 2003, <http://www1.eps.gov/spg/DON/NAVAIR/NAVAIRHQ/Reference-Number-N00019-04-P1-AZ...> (retrieved June 3, 2004).

Air Force Procurement Requests

Wind Corrected Munitions Dispenser

The Air Force budget includes two major cluster munition-related requests—Wind Corrected Munition Dispensers and Sensor Fuzed Weapons. It has asked for \$58.67 million to procure 2,507 Wind Corrected Munition Dispensers.²⁷ The WCMD is a guidance system that attaches at the rear of four munitions—the CBU-103 (Combined Effects Munition), CBU-104 (GATOR antipersonnel and antivehicle mines), CBU-105 (Sensor Fuzed Weapon), and CBU-107 (Passive Attack Weapon). It does not make these cluster bombs precision-guided munitions but increases their accuracy by compensating for wind encountered during the canisters' fall. The request includes, for the first time, production of some units of the extended range WCMD (WCMD-ER) variety, which adds a wing kit that increases the cluster munitions' standoff range—the distance at which they are fired. The Air Force has gradually decreased the size of its requests for WCMDs. It procured 4,881 in FY 2003 and 3,715 in FY 2004 and plans to ask for 500 in FY 2006. The Air Force plans to procure 7,500 WCMD-ERs by FY 2012. This year, it has also requested \$28 million for RDT&E, which includes funds for development of the WCMD-ER.²⁸

First used in Afghanistan in 2001, the WCMD seems to have increased the accuracy of air-launched cluster bombs. The Air Force used it extensively in Iraq. The 1,206 cluster bombs it reported using in Iraq included 818 CBU-103s and eighty-eight CBU-105s.²⁹ The WCMD can reduce humanitarian harm by making it less likely civilians will be hit by a cluster bomb that goes astray (a significant problem in Afghanistan where the older CBU-87 was used widely). It does not make cluster bombs precision munitions that are safe to use in populated areas, nor does it eliminate the duds that endanger civilians after strikes. Estimates vary for the dud rate of the BLU-97 submunition, 202 of which are carried in the CBU-87 and CBU-103, but the U.N. Mine Action Coordination Center found the bomblets had a seven percent failure rate in Kosovo.³⁰ Although the Cohen policy technically allows the use of legacy submunitions, the policy's intent to reduce the dangers of submunition duds is inconsistent with use of the WCMD with the CBU-103 because the BLU-97 submunition has a high failure rate. The WCMD should also not be procured for use as part of the CBU-104 (GATOR mine) because it contains

²⁷ Department of the Air Force, Fiscal Year 2005 Budget Estimates: Procurement of Ammunition, February 2004, Item No. 7, Wind Corrected Munitions Dispenser, p. 98, <http://www.saffm.hq.af.mil/FMB/pb/2005/proc.html> (retrieved April 7, 2004).

²⁸ Department of Defense Budget for Fiscal Year 2005, Program Acquisition Costs by Weapon System, February 2004, p. 33, www.dod.mil/comptroller/defbudget/fy2005/fy2005_weabook.pdf (April 7, 2004).

²⁹ This does not include two CBU-107s, which contain steel rods rather than explosive submunitions.

³⁰ International Campaign to Ban Landmines, *Landmine Monitor Report 2001* (New York: Human Rights Watch, 2001), p. 952.

antipersonnel mines, use of which is prohibited by the 1997 Mine Ban Treaty and by customary international law.

- Congress should reject procurement of WCMDs that would be used with the CBU-103 or CBU-104 because of the submunitions those weapons carry.

Sensor Fuzed Weapons

The Air Force has also requested \$117.023 million for 315 CBU-97 Sensor Fuzed Weapons (SFWs), which incorporate cutting-edge cluster munition technology.³¹ The SFW has the same canister as the more common CBU-87 or -103, but it contains ten BLU-108 submunitions instead of 202 BLU-97s. The SFW's submunitions each contain four hockey puck-sized, explosive "skeets" with infrared sensors that guide them to armored targets and self-destruct mechanisms to reduce the number of duds. The Air Force plans to add WCMDs to these CBU-97s to create the guided version of the SFW, the CBU-105. The procurement request is slightly smaller than the past two years, but from FY 2004 to FY 2009 the quantity will remain between 302 and 320 per year. The Air Force will continue to procure the SFW through FY 2012.

The United States used the SFW for the first time in Iraq. The Air Force dropped eighty-eight of them. They have the potential to reduce the civilian cost of cluster munitions because both their canisters and skeets are guided and because their dud rate should be lower. They also target vehicles and do not create an indiscriminate antipersonnel effect. Their performance in combat conditions in Iraq, however, has yet to be fully evaluated. The Army introduced a similar artillery-launched weapon in Iraq called the Sense and Destroy Armor Munitions (SADARM), but it has not requested additional money to procure SADARMS this year.

Conclusion

In sum, as the United States is continuing to procure cluster munitions, it is important to focus on procuring those that demonstrate improved accuracy and have either an acceptable dud rate or a self-destruct mechanism. The technology DoD has requested, however, does not address all of the humanitarian costs of these deadly weapons. In some cases, it increases accuracy without lowering the dud rate. The United States still stockpiles about one billion more submunitions that have unacceptably high dud rates.

³¹ Department of the Air Force, Fiscal Year 2005 Budget Estimates: Procurement of Ammunition, February 2004, Item No. 5, Sensor Fuzed Weapon, p. 90, <http://www.saffm.hq.af.mil/FMB/pb/2005/proc.html> (retrieved April 7, 2004).

In other cases, the technology improves the reliability of submunitions but continues to use inaccurate means of delivery. Furthermore, careful targeting must accompany technological changes. Only by destroying or retrofitting older weapons, refusing to procure munitions that have either accuracy or reliability problems, and avoiding use in populated areas can the civilian cost of cluster munitions be brought under control.

**Appendix A: Department of Defense Fiscal Year (FY) 2005 Budget
Cluster Munition Procurement Requests**

WEAPON	QUANTITY	GROSS COST (IN DOLLARS)
Army Procurement		
M864 155mm Recap	11,400	42,200,000
GMLRS	1,026 (some with submunitions)	112,300,000
Hydra 70 MPSM HE M261	2,000	3,800,000
<i>Subtotal</i>	<i>14,426</i>	<i>158,300,000</i>
Marine Corps Procurement		
GMLRS	48	1,300,000 (only part for cluster munitions)
<i>Subtotal</i>	<i>48</i>	<i>1,300,000</i>
Navy Procurement		
JSOW	389 (216 with submunitions)	139,457,000
<i>Subtotal</i>	<i>389</i>	<i>139,457,000</i>
Air Force Procurement		
WCMD	2,507	58,670,000
SFW	315	117,023,000
<i>Subtotal</i>	<i>2,822</i>	<i>175,693,000</i>
<i>Total</i>	<i>17,685*</i>	<i>\$474,750,000**</i>

*NOTE: Not all of these weapons are cluster munitions. In some cases, noted in the chart, the budget justifications did not break down their requests in enough detail.

**NOTE: Not all of this money would go toward cluster munitions. In some cases, noted in the chart, the budget justifications did not break down their requests in enough detail.

Appendix B: Other Related Procurement Requests

WEAPON	QUANTITY	GROSS COST (IN DOLLARS)
Army Procurement		
ATACMS Block 1A/QRU (unitary model)	56	61,500,000
M270A1 MLRS launcher	unspecified	47,600,000
MLRS launcher modifications	unspecified	24,000,000
HIMARS	37	173,300,000
HIMARS modifications	unspecified	500,000
<i>Subtotal</i>		<i>306,900,000</i>
Marine Corps Procurement		
HIMARS	1	16,300,000
<i>Total</i>		<i>\$323,200,000</i>

Acronyms/Glossary

M864 155mm Recap	Retrofitting of M864 Basebled Extended Range-Dual Purpose Improved Conventional Munition (ER-DPICM) artillery projectiles
MPSM HE	Multi-Purpose Submunition High Explosive
GMLRS	Guided Multiple Launch Rocket System
WCMD	Wind Corrected Munitions Dispenser
SFW	Sensor Fuzed Weapon
JSOW	Joint Standoff Weapon
ATACMS	Army Tactical Missile System
QRU	Quick Reaction Unitary
HIMARS	High Mobility Artillery Rocket System

Sources: Department of the Army, Committee Staff Procurement Backup Book, FY 2005 Budget Estimates: Procurement of Ammunition, Army, February 2004, <http://www.asafm.army.mil/budget/fybm/fy05/pforms/ammo.pdf>; Department of the Army, Committee Staff Procurement Backup Book, Fiscal Year 2005 Budget Estimates: Missile Procurement, Army, February 2004, <http://www.asafm.army.mil/budget/fybm/fy05/pforms/missiles.pdf>; Department of the Army, Committee Staff Backup Book, Fiscal Year 2005 Budget Amendment for Army Aviation Transformation: Procurement Ammunition, Army, March 2004, <http://www.asafm.army.mil/budget/fybm/fy05/amended/pform-ammo.pdf>; Department of the Navy, FY 2005 President's Budget: Procurement, Marine Corps, February 2004, <https://notes3.secnnav.navy.mil/fy05.nsf/PMC?OpenForm&ExpandView>; Department of the Air Force, Fiscal Year 2005 Budget Estimates: Procurement of Ammunition, February 2004, <http://www.saffm.hq.af.mil/FMB/pb/2005/proc.html>; Department of the Navy, FY 2005 President's Budget: Weapons Procurement, Navy, February 2004, <https://notes3.secnnav.navy.mil/fy05.nsf/WPN?OpenForm&ExpandView> (all retrieved April 7, 2004).