



## CRS Report for Congress

# Mine-Resistant, Ambush-Protected (MRAP) Vehicles: Background and Issues for Congress

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### Summary

In late 2007, the Department of Defense (DOD) launched a major procurement initiative to replace most uparmored High Mobility, Multi-Wheeled Vehicles (HMMWVs) in Iraq with Mine-Resistant, Ambush-Protected (MRAP) vehicles by FY2009. MRAPs have been described as providing significantly more protection against Improvised Explosive Devices (IEDs) than uparmored HMMWVs. The DOD's accelerated MRAP program, decisions on the number of MRAPs procured, and MRAP's performance in urban and counterinsurgency operations raise a number of potential policy issues for congressional consideration. This report will be updated.

### Background

MRAPs are a family of vehicles produced by a variety of domestic and international companies that generally incorporate a "V"-shaped hull and armor plating designed to provide protection against mines and IEDs. DOD is procuring three types of MRAPs. These include Category I vehicles, weighing about 7 tons and capable of carrying 6 passengers; Category II vehicles, weighing about 19 tons and capable of carrying 10 passengers; and Category III vehicles, intended to be used primarily to clear mines and IEDs, weighing about 22.5 tons and capable of carrying up to 12 passengers. The Army and Marines first employed MRAPs in limited numbers in Iraq and Afghanistan in 2003, primarily for route clearance and explosive ordnance disposal (EOD) operations. These route clearance MRAPs quickly gained a reputation for providing superior protection for their crews, and some suggested that MRAPs might be a better alternative for transporting troops in combat than uparmored HMMWVs.

**DOD Accelerates the MRAP Program.** Secretary of Defense Robert Gates directed that "the MRAP program should be considered the highest priority Department

of Defense acquisition program.”<sup>1</sup> The Secretary of Defense established the MRAP Task Force to speed production and fielding of MRAPs and has assigned the Marines to manage all MRAP procurement for DOD. The MRAP program was designated a “DX” program, giving it priority for resources.<sup>2</sup>

**The Evolving Requirement.** The Buffalo MRAP was originally intended to be fielded only to Army engineer units. Marine Corps leadership reportedly decided in February 2007 to replace all uparmored HMMWVs in Iraq with MRAPs, whereas Army leadership would continue to rely on its uparmored HMMWVs.<sup>3</sup> In March 2007, the MRAP requirement for all services reportedly grew by 15% as the Navy, Air Force, and the U.S. Special Operations Command (USSOCOM) added requirements for MRAPs that stood at 7,774 DOD-wide as of March 26, 2007.<sup>4</sup> In May 2007, because of the requests from Army commanders in Iraq, Army leadership reportedly began considering the possibility of replacing all uparmored HMMWVs in Iraq with MRAPs, thereby increasing the Army’s total requirement to approximately 17,700 MRAP vehicles.<sup>5</sup> On June 28, 2007, the Joint Requirements Oversight Council (JROC)<sup>6</sup> endorsed a requirement to replace every HMMWV in with MRAPs, potentially pushing the MRAP requirement to more than 23,000 vehicles.<sup>7</sup> The JROC capped overall MRAP procurement at 15,374 vehicles in September 2007 but suggested that these numbers could change, based on the assessment of commanders.<sup>8</sup>

**Marines — Fewer MRAPs Required.** On November 30, 2007, the Marines reduced its MRAP requirement from 3,700 to approximately 2,300 vehicles.<sup>9</sup> The Marines cited six factors in its decision:

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<sup>1</sup> Memorandum from Secretary of Defense Robert Gates, “MRAP Acquisition,” May 2, 2007.

<sup>2</sup> Jason Sherman, “Gates Establishes MRAP Task Force to Speed Up Production, Fielding,” *InsideDefense.com*, June 4, 2007, and Emelie Rutherford, “Gates Approves DX Rating for MRAP,” *InsideDefense.com*, June 4, 2007.

<sup>3</sup> David Wood, “Marines to Replace Humvees in Iraq,” *Baltimore Sun*, February 15, 2007.

<sup>4</sup> Jason Sherman, “MRAP Requirement Rises 15 Percent as Navy, Air Force, SOCOM Weigh In,” *InsideDefense.com*, March 26, 2007.

<sup>5</sup> Jason Sherman, “Army Eying the Replacement of all Humvees in Iraq with MRAP Vehicles,” *Inside the Pentagon*, May 3, 2007, and Letter from Acting Secretary of the Army Pete Geren to the Secretary of Defense, MRAP Acquisition, May 13, 2007.

<sup>6</sup> Chartered in 1984 ( 10 U.S.C. Sec 181), the JROC is tasked with examining potential joint military requirements; identifying, evaluating, and selecting candidates for joint developmental and acquisition programs; providing oversight of cross-service requirements and management issues; and resolving service concerns that arise after the initiation of a joint program.

<sup>7</sup> Jason Sherman, “Do the Marines Really Want 246,000 MRAPs? Not Exactly,” *Inside Defense.com*, August 2, 2007.

<sup>8</sup> JenDiMascio, “JROC Boosts MRAP Requirements; Congress Struggles to Arrange Funding,” *Defense Daily*, Volume 235, Issue 56, September 20, 2007.

<sup>9</sup> Information in this section is taken from a U.S. Marine Corps Information Paper, “Reduction in the USMC MRAP Requirement” November 30, 2007.

- IED attacks were dramatically down over the preceding six months;
- the relatively heavy MRAP cannot operate or pursue the enemy off-road, in confined areas, or across most bridges;
- reduced need to put Marines on high-threat roads through the use of persistent surveillance and airlift of supplies;
- counterinsurgency focus requires Marines dismount and interact closely with the local populace;
- MRAPs associated with surge forces were no longer needed; and
- MRAP sustainment numbers were lower because of fewer than expected combat losses.

The Marines' reduction in its MRAP requirement from 3,700 to 2,300 was anticipated to result in a potential cost savings of approximately \$1.7 billion in FY2008 and FY2009.

**Army — Additional MRAPs Required.**<sup>10</sup> Counter to expectations, the Army increased its MRAP requirement from approximately 10,000 in September 2007 to 11,953. This increase was within a JROC-agreed range of between 10,433 to 15,884 MRAPs for the Army. The JROC also approved a reduction in Air Force MRAPs from 697 to 558 vehicles, and the Navy's MRAP requirement for 554 MRAPs and USSOCOM's requirement for 333 of the vehicles remained unchanged.

**MRAP Survivability.**<sup>11</sup> DOD officials have stated that the casualty rate for MRAPs is 6%, making it "the most survivable vehicle we have in our arsenal by a multitude." By comparison, the M-1 Abrams main battle tank was said to have a casualty rate of 15%, and the uparmored HMMWV, a 22% casualty rate. DOD noted that in more than 150 attacks on MRAPs, seven MRAP occupants had been killed and an undisclosed number had been wounded.

**MRAPs Deployed and MRAPs for Training.** According to one report as of early May 2008, approximately 4,200 MRAPs had been deployed to Iraq, with an additional 1,200 in Kuwait awaiting delivery to Iraq, and 320 MRAPs had been delivered to Afghanistan.<sup>12</sup> While DOD is making a significant effort to deploy as many MRAPs into theater as possible, some in Congress have noted the importance of also having MRAPs available at bases in the United States so that troops can train with these vehicles

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<sup>10</sup> Information in this section is taken from Emelie Rutherford, "JROC Increases Army's MRAP Requirement Range, Drops Marine, Air Force Totals," *InsideDefense.com*, February 26, 2008; Jeff Schogol, "Army Now Asking for More MRAPs, Not Less," *Mideast Stars and Stripes*, March 11, 2008; and DOD News Transcript, "DOD News Briefing with Press Secretary Morrell from the Pentagon," March 10, 2008.

<sup>11</sup> Information in this section is taken from DOD Press Transcripts, "DOD News Briefing with Geoff Morrell," May 15, 2008.

<sup>12</sup> Tom Vanden Brook, "Defense Chief Praises Armored Vehicles as Lifesavers," *USA Today*, May 12, 2008.

before deploying into combat with the MRAPs.<sup>13</sup> To begin to address this issue, the Army recently purchased 60 MRAPs from the Navy and Marine Corps and is currently developing a plan to use these vehicles to train units in the United States before they deploy overseas.<sup>14</sup>

## MRAP Contract Activity

**Final MRAP Order?**<sup>15</sup> As of early June 2008, the Navy, Marine Corps, Air Force, and U.S. Special Operations Command (USSOCOM) had received their required MRAPs and the DOD was said to be preparing to issue what could be its final order of MRAP vehicles in July 2008. This order of 1,600 MRAPs will bring the Army up to the current requirement of 12,000 vehicles within the requirement range established by the JROC. Officials have stated that if additional MRAPs are required by the Army or theater commanders, more can be ordered.

**MRAP II Contract.**<sup>16</sup> On July 31, 2007, the Marines issued a request for proposal for the MRAP II Enhanced Vehicle Competition. The MRAP II is intended to better address the threat of Explosively-Formed Penetrators (EFPs), a type of stand-off improvised explosive device that employs a shaped charge against the sides of vehicles.<sup>17</sup> In December 2007, MRAP program officials announced that only two companies — BAE Systems and a team led by Ideal Innovations,<sup>18</sup> a consultant based in Alexandria, Virginia — were selected to provide six test vehicles each to be evaluated by DOD.<sup>19</sup> In June 2008, MRAP program officials were said to be unsure whether MRAP II testing would be completed in time so that MRAP IIs could be included in the July 2008 MRAP order.<sup>20</sup> Despite the possibility of not being included in the 1,600-vehicle order for the Army,

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<sup>13</sup> Marjorie Censer, "Rep. Taylor Says Army Must Provide MRAPs for Stateside Training," *InsideDefense.com*, March 10, 2008.

<sup>14</sup> Marina Malenic, "Army Procures 60 MRAPs from Navy for Potential Domestic Training," *InsideDefense.com*, May 12, 2008.

<sup>15</sup> Information in this section is from Daniel Wasserbly, "MRAP II Could Miss Upcoming July Contract Award, Young Says," *InsideDefense.com*, June 3, 2008, and Emelie Rutherford, "DOD Eyes Stretching Out Coming MRAP Order, Unclear if MRAP II Will Be Part," *Defense Daily*, June 4, 2008.

<sup>16</sup> Emelie Rutherford and Jason Sherman, "Solicitation Expected to be Released this Week for MRAP II Competition," *InsideDefense.com*, July 30, 2007, and Jason Sherman, "Pentagon Eyes More than a Dozen New Potential Vendors for MRAP II," *InsideDefense.com*, August 1, 2007.

<sup>17</sup> Tom Vanden Brook, "MRAPs May Need Extra Armor Face EFPs," *USA Today*, May 31, 2007 and "Add-On Armor Too Heavy for MRAPs," *USA Today*, July 17, 2007.

<sup>18</sup> The Ideal Innovations Team consists of Oskosh Truck from Oskosh, WI and Ceradyne from Costa Mesa, CA.

<sup>19</sup> Emelie Rutherford, "Two Companies Pass Muster in Testing for Next-Gen MRAP Vehicles," *Inside the Navy*, December 24, 2007.

<sup>20</sup> Daniel Wasserbly, "MRAP II Could Miss Upcoming July Contract Award, Young Says," *InsideDefense.com*, June 3, 2008 and Emelie Rutherford, "DOD Eyes Stretching Out Coming MRAP Order, Unclear if MRAP II Will Be Part," *Defense Daily*, June 4, 2008.

MRAP program officials stated that the MRAP II program would continue as currently planned.<sup>21</sup>

## MRAP Concerns<sup>22</sup>

In addition to the aforementioned Marine Corps observation that the MRAP cannot operate or pursue the enemy off-road, in confined areas, or across most bridges, there are other concerns that have arisen from MRAP use in Iraq. According to reports, DOD's MRAP Acquisition Executive, John Young, stated that in certain terrain types, MRAPs were not proving to be as effective and some units wanted to keep their uparmored HMMWVs in lieu of MRAPs because of their superior speed and mobility. Service chiefs have also continued to express their concerns that MRAPs are too large and too heavy for expeditionary operations and can not be deployed by helicopter or by amphibious ships.

## MRAP Funding

According to DOD, there was no procurement or development funding requested for FY2009, as the MRAP acquisition objective would be achieved with FY2008 funds.<sup>23</sup> On May 22, 2008, the Senate approved an amended version of H.R. 2642, Supplemental Appropriation Act for 2008, appropriating \$1.7 billion for MRAPs.<sup>24</sup> In addition to MRAP procurement, these funds included funding for the ballistic testing, sustainment, and transport of MRAPs, and the committee also directed the Secretary of Defense to include future MRAP funding requests in the President's Budget Request starting in FY2010.<sup>25</sup>

## Potential Issues for Congress

**Status of the MRAP II?** If MRAP II's are still undergoing testing and are not included in the possible last MRAP order anticipated to be placed in July 2008, what is the status of the program? Will a requirement over and above DOD's current MRAP requirement be established, or will MRAP II's instead be procured to replace damaged, destroyed, or worn-out MRAP I's?

**What Are DOD's Long-Term Plans for MRAP?** Senior Army officials have stressed that MRAPs are only "an interim strategy" and that the Army was still "dedicated

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<sup>21</sup> Ibid.

<sup>22</sup> Jason Sherman, "At Wide-Ranging Hearing, Reports of MRAPs Hampering Mobility, Speed," *InsideDefense.com*, November 8, 2007 and Kimberly Johnson and Michael Hoffman, "Corps to Slash Number of MRAPs it Will Buy," *Army Times*, November 29, 2007.

<sup>23</sup> DOD FY2009 Budget Request Summary Justification, February 4, 2008, p. 183.

<sup>24</sup> CRS Report RL34451, *Second FY 2008 Supplemental Appropriations for Military Operations, International Affairs and Other Purposes*.

<sup>25</sup> John Liang, "Senate Appropriators Approve \$1.7 Billion in MRAP Funding, \$3.6 Billion for C-17s," *InsideDefense.com*, May 15, 2008.

to the future of the Joint Light Tactical Vehicle — the HMMWV's replacement."<sup>26</sup> Will MRAP production quotas be decreased in the event of large-scale troop reductions? Will MRAPs be permanently integrated into force structures, or will they be placed in a reduced readiness status after Iraq? One MRAP program official recently noted that it is difficult to budget for MRAPs for the FY2010-FY2015 Program Objective Memorandum (POM) because "the services have not settled on their long-term plans for the vehicles."<sup>27</sup> MRAPs will be included in DOD's Tactical Wheeled Vehicle Strategy, which was requested by the White House Office of Management and Budget (OMB) and is due at the end of June 2008.<sup>28</sup> Among other things, this study will determine what missions are envisioned for MRAPs, to what extent MRAP's capabilities will overlap with other vehicles, and how the Army and Marines plan to reduce redundancies within their tactical wheeled vehicle fleets. It is not known whether DOD will share this study with Congress.

**MRAP Survivability.** With a 6% casualty rate, MRAPs appear to be the most survivable combat vehicle in Iraq and Afghanistan. To further assist in understanding MRAP's relative survivability, Congress might also consider asking DOD to provide similar casualty statistics for the M-2/M-3 Bradley-series fighting vehicle, the M1117 Armored Security Vehicle (ASV), the Stryker fighting vehicle, and the Marine's Light Armored Vehicle (LAV) and the Assault Amphibious Vehicle (AAV). Statistics on these other combat vehicles would be helpful in putting MRAPs survivability in context.

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<sup>26</sup> Fawzia Sheikh, "Industry Unclear About Army's Plans for Joint-Service MRAP Program," *InsideDefense.com*, February 12, 2007.

<sup>27</sup> Marjorie Censer, "Beyond Manufacturing, MRAP Officials Consider Future of Vehicles," *InsideDefense.com*, January 28, 2008.

<sup>28</sup> Information in this section is from Jason Sherman, "OSD Extends Due Date for Tactical Wheeled Vehicle Strategy," *InsideDefense.com*, March 21, 2008.