



Joint Light Tactical Vehicle (JLTV): Background and Issues for Congress

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Summary

The Joint Light Tactical Vehicle (JLTV) is being developed by the Army and the Marine Corps as a successor to the 11 different versions of the High Mobility, Multi-Wheeled Vehicle (HMMWV) that have been in service since 1985. On October 28, 2008, three awards were made for the JLTV Technology Development (TD) Phase, which is scheduled to conclude in the June 2011 timeframe to three industry teams: (1) BAE Systems, (2) the team of Lockheed Martin and General Tactical Vehicle, and (3) AM General and General Dynamics Land Systems. Once testing is completed and technology requirements established, a full and open competition was expected to be conducted in the late summer, 2011 for the Engineering and Manufacturing Development (EMD) Phase and the Department of Defense (DOD) planned to award two contracts for the EMD phase, which was scheduled to last 24 months.

In February 2011, it was announced that the award of the EMD contract would be delayed until January 2012 because the Army changed requirements for the JLTV. DOD had planned to award two contracts for the EMD phase, which was scheduled to last 24 months, but now plans for a 48-month-long EMD. In addition, the Category B variant was eliminated because it proved to be too heavy to meet the required transportability weight. Now there will be two variants—a Combat Tactical Vehicle (CTV) that can transport four passengers and carry 3,500 pounds and a Combat Support Vehicle (CSV) that can transport two passengers and carry 5,100 pounds.

The Marines have expressed reservations with the JLTV because, at its current estimated weight, it does not lend itself to Marine Corps expeditionary operations. The Marines do not rule out removing themselves from the program and modifying HMMWVs if developers cannot address their specific requirements. The Army is said to be “moving ahead” with the JLTV program, appearing less concerned than the Marines about transportability requirements. Some describe the Army and Marines as “striking out on a separate path” with the Army more concerned with survivability and the Marines concerned that heavier JLTVs could cause weight problems on the Navy’s amphibious ships.

DOD has not publically assigned a definitive cost to the JLTV program, suggesting that it is too early in the development process. Some analysts suggest that the JLTV program will cost well over \$10 billion and possibly as much as \$30 billion to \$70 billion, depending on the final cost of the vehicles and the number procured. Currently, the per unit cost is estimated at about \$320,000 per vehicle—a figure that the Marines believe is too high.

The FY2012 Budget Request for JLTVs is \$172.1 million for Army Research, Development, Test and Evaluation (RDT&E) and \$71.8 million for Marine Corps RDT&E, for a program total of \$243.9 million. The House Armed Services Committee has recommended decreased funding levels—\$147.1 million for the Army and \$46.8 million for the Marine Corps. The House Appropriations also recommended cutting Army and Marine Corps JLTV funding by \$25 million for each service and using these funds for HMMWV survivability initiatives.

Concerns have been expressed that DOD’s Mine-Resistant, Ambush-Protected (MRAP) All - Terrain Vehicle (M-ATV) effort will clash with the JLTV. There are also concerns about overall JLTV program affordability and the Marine’s concerns with its weight and transportability. The Army’s decision to change JLTV survivability requirements has resulted in the delay of awarding EMD contracts and the doubling of the EMD phase to 48 months which could increase the program’s overall cost.

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Background¹

The JLTV is an Army-led, multi-service initiative to develop a family of future light tactical vehicles to replace many of the 160,000 HMMWVs used by the armed services today. HMMWVs, which first entered service in 1985, were developed during the Cold War when improvised explosive devices (IEDs) and other anti-vehicle explosive devices were not a major factor in military planning. The HMMWV's demonstrated vulnerability to IEDs and the difficulties and costs experienced in "up-arming" HMMWVs already in the inventory have led to renewed emphasis on vehicle survivability. With more than 50% of the Army's total tactical wheeled vehicle fleet nearing the end of its useful life, and with the need of the services to repair equipment, the JLTV, with its scalable armor protection, is intended to replace a large portion of the HMMWV fleet. DOD officials have emphasized that JLTVs are not intended to replace HMMWVs "one for one."² The Army plans to divest its older HMMWVs and through means of recapitalization, intends to have approximately 85,000 HMMWVs still in service as of 2025 and to fill other light tactical vehicle requirements with a not-yet-final number of JLTVs.³

JLTV Program⁴

What Is the JLTV?

The JLTV program is a joint Army/Marine Corps effort to develop and produce three categories of vehicles and associated trailers. Category A JLTVs are intended for general purpose mobility and would carry a 3,500 pound payload. Category Bs are intended to serve as infantry carriers, command and control and reconnaissance vehicles, and weapons carriers and would accommodate a 4,000 to 4,500 pound payload. Category Cs are intended to serve as shelter carriers, prime movers, and ambulances and would carry a 5,100 pound payload. JLTVs are to be designed with scalable armor, enhanced suspension, and drive train capability to accommodate future load carrying capacity. In February 2011, the Category B variant was eliminated because it proved to be too heavy to meet required transportability weights. There are now two planned JLTV variants, a four-passenger Combat Tactical Vehicle (CTV) and a two-passenger Combat Support Vehicle (CSV). As planned, JLTVs would be more mechanically reliable, maintainable (with on-board diagnostics), all-terrain mobile, and equipped to link into current and future tactical data nets. Survivability and strategic and operational transportability by ship and aircraft are also key JLTV design requirements.

¹ Alan L. Gropman, "Combat Vehicle Sector Could be Headed for Turbulent Times," *National Defense*, April 25, 2008, and James P. Miller, "Race is On to Replace Humvee," *Chicago Tribune*, June 21, 2008.

² Kris Osborn, "DOD's JLTV Becoming an International Effort," *Defense News*, August 4, 2008.

³ Headquarters, Department of the Army, "Army Truck Program (Tactical Wheeled Vehicle Acquisition Strategy) Report to the Congress," June 2010, p. 5.

⁴ Information in this section is taken from the Army Product Manager, Joint Light Tactical Vehicle website, <http://peocscs.tacom.army.mil/pmJLTV.html>, last visited March 2, 2011, and Marine Corps PEO Land Systems Joint Light Tactical Vehicle website, <http://www.marcorsyscom.usmc.mil/peolandssystemsjltv.aspx>, last visited March 2, 2011 and Tony Bertuca, "PMs: JLTV Still Too Heavy, Changing Schedule and Losing Six-Man Variant," *InsideDefense.com*, February 11, 2011.

Program Structure⁵

The JLTV is an Acquisition Category (ACAT) 1D program.⁶ The Army bears the overall responsibility for developing the JLTV through its Joint Program Office within the Army's Tank, Automotive, and Armament Command (TACOM) in Warren, MI. Marine participation is centered on a program office under the supervision of the Program Executive Officer Land Systems (PEO LS) Marine Corps at Quantico, VA.

Program History

In November 2006, the Joint Chief of Staff's Joint Requirement Oversight Council (JROC) approved the JLTV program. On December 22, 2007, the Under Secretary of Defense for Acquisition, Technology, and Logistics USD (AT&L) signed an Acquisition Decision Memorandum (ADM) directing the JLTV Program to move from the Concept Refinement Phase into the Technology Development (TD) Phase of the DOD System Acquisition Process. The Army and Marines had intended to issue a Request for Proposal (RFP) for Technology Development Phase as early as October 2007. Concerned with funding adequacy, technical maturity, and shifting requirements, the Pentagon's acquisition executive, John Young, disapproved the issuance of the RFP and directed the Army and Marines to "go back to the drawing board and develop a robust technology development phase."⁷ On February 5, 2008, an RFP for Technology Development Phase was issued to industry.⁸ The RFP stated that the government desired to award three contracts for the JLTV Technology Development Phase. The RFP stipulated that proposals would be due April 7, 2008, and the TDP would last 27 months. Contractors would build four test sub-configurations during the first 15 months, followed by 12 months of testing.

Technology Development Contracts Awarded⁹

On October 28, 2008, three awards were made for the JLTV TD Phase for a total of \$166 million. The three industry teams were (1) BAE Systems Land and Armaments, Ground Systems Division, Santa Clara, CA, and NAVISTAR Defense, Warrenville, IL; (2) General Tactical Vehicles, Sterling Heights, MI—a joint venture between General Dynamics Land Systems and AM General; and (3) Lockheed Martin Systems Integration, Oswego, NY, BAE Systems, Alcoa Defense, Pittsburgh, PA, and JWF Defense Systems, Johnstown, PA.

⁵ CRS Report RL34026, *Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process*, by Moshe Schwartz, provides an extensive discussion of the defense acquisition process.

⁶ The 12th Edition of the *Defense Acquisition University Glossary*, July 2005, defines an ACAT 1D program as "a Major Defense Acquisition Program (MDAP) which is estimated by the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD (AT&L)) to require the eventual expenditure for Research, Development, Test, and Evaluation (RDT&E) of more than \$365 million (FY2000 constant dollars) or the procurement of more than \$2.19 billion (FY2000 constant dollars)."

⁷ Jason Sherman, "Pentagon Halts JLTV Competition, Directs Revised Strategy," *InsideDefense.com*, September 24, 2007.

⁸ JLTV Request for Proposal, W56HZV-08-R-0210, February 5, 2008, and Marjorie Censer, "JLTV Solicitation Calls for Three Contractors: Officials Say More are Possible," *InsideDefense.com*, February 5, 2008.

⁹ Unless otherwise noted, information in this section is taken from TACOM's JLTV Program website, <http://contracting.tacom.army.mil/MAJORSYS/JLTV/jltv.htm>, accessed March 2, 2011, and the Marine Corps PEO Land Systems JLTV website, <https://www.marcorsyscom.usmc.mil/peolandsystems/jltv.aspx>, accessed March 2, 2011.

JLTV Contracts Protested

On November 7 and November 12, 2008, protests were filed with the Government Accountability Office (GAO) against the TD contract awards by the Northrop Grumman-Oshkosh team and the Textron-Boeing-SAIC team alleging that there were “unintended discrepancies” in how the government rated bids in terms of the criteria of systems maturity, logistics, and costs.¹⁰ As a result of this protest, work on the JLTV program by the three winning teams was suspended. On February 17, 2009, GAO rejected the JLTV protests and the stop work orders were lifted.

JLTV Phase of Development

The JLTV Program is currently in the Technology Development (TD) Phase¹¹ of acquisition which was scheduled to conclude in the June 2011 timeframe.¹² Prototypes from BAE Systems, and the teams of Lockheed Martin and General Tactical Vehicle, and AM General and General Dynamics Land Systems for each of the three JLTV categories are being tested at Aberdeen Test Center in Maryland and the Yuma Proving Ground in Arizona. Once testing was completed and technology requirements established, a full and open competition was expected to be conducted in the late summer of 2011 for the Engineering and Manufacturing Development (EMD) Phase.¹³

Recent Program Activities

Change in Requirements, Program Schedule, and Variants¹⁴

In February 2011, the JLTV Program Office announced that the award of the EMD contract would be delayed until January 2012 because the Army changed requirements for the JLTV to have the same level of under body protection as the Mine-Resistant, Ambush-Protected All-Terrain Vehicle (M-ATV). DOD had planned to award two contracts for the EMD phase, which was scheduled to last 24 months¹⁵ but now plans for a 48 month-long EMD phase before awarding Production and Deployment contracts in the second quarter of FY2016. In addition, the Category B variant was eliminated because it proved to be too heavy to meet the required weight

¹⁰ Marjorie Censer, “Following Northrop’s Lead, Boeing-Textron Team Files JLTV Protest,” *InsideDefense.com*, November 12, 2008 and Ann Roosevelt, “Textron-Team Protests Army JLTV Awards,” *Defense Daily*, November 13, 2008; and Daniel Wasserbly, “U.S. GAO Rejects JLTV Protests,” *Jane’s Defence Weekly*, February 25, 2009, p. 12 .

¹¹ From the November 2009 Defense Acquisition University Glossary of Defense Acquisition Acronyms & Terms, the Technology Development (TD) Phase is the second phase of the Defense Acquisition Management System and the purpose of this phase is to reduce technology risk and to determine the appropriate set of technologies to be integrated into the full system.

¹² Matthew Cox, “Prototypes for JLTV to Undergo Testing Over Next 12 Months,” *Marine Corps Times*, June 21, 2010, p. 32 and Ann Roosevelt, “JLTV TD Phase Deliveries Continue, Army Fleshing Out JLTV EMD,” *Defense Daily*, July 23, 2010.

¹³ The EMD phase for the JLTV program will focus on reducing program risk, ensuring operational supportability, designing for producibility, maximizing affordability, ensuring critical program information protection, and demonstrating system integration, interoperability, transportability, fuel efficiency, reliability, and utility.

¹⁴ Information in this section, unless otherwise noted is taken from a briefing from the Project Manager Joint Combat Support Systems on the Joint Light Tactical Vehicle given on February 7 and 8, 2011 and Tony Bertuca, “PMs: JLTV Still Too Heavy, Changing Schedule and Losing Six-Man Variant,” *InsideDefense.com*, February 11, 2011.

¹⁵ DOD Briefing: “JLTV EMD Industry Day,” April 26, 2010.

of approximately 15,639 pounds to make it transportable by Army CH-47F and Marine Corps CH-53K helicopters. Now there will be two variants—a Combat Tactical Vehicle (CTV) that can transport four passengers and carry 3,500 pounds and a Combat Support Vehicle (CSV) that can transport two passengers and carry 5,100 pounds.

Performance Issues During the Technology Development Phase¹⁶

According to the JLTV Program Office, the testing of the three manufacturers technology demonstrators is described as “generally meeting requirements with exceptions” and that “current force protection requirements appear achievable.” The Program Office further noted that the technology demonstrator vehicles were “several hundred to a thousand pounds overweight, that even though the technology demonstrator vehicles had not been tested; they appeared to be very close to the maximum envelopes for aircraft transportability; and that there were problems meeting both the reliability and mobility requirements. The technology demonstrator vehicles also exhibited limited space to accommodate both mission essential equipment and payloads.

Possible Acquisition Targets and Costs¹⁷

Army

The Army will have the greatest requirement for JLTVs but, despite having issued a congressionally mandated Tactical Wheeled Vehicle Strategy, they have been unwilling to provide a definitive procurement quantity, although the Program Office indicates that Army requirements could be between 26,300 to 26,400 vehicles. This lack of a definitive procurement quantity calls into question the Army’s understanding of its vehicle requirements and makes it difficult to forecast future program costs and could make program oversight challenging.

Marines

The Marine’s procurement quantity is planned for 5,500 vehicle with 4,650 being CTVs and 850 CSVs. This procurement quantity is likely dependent upon reducing vehicle cost and weight.

Navy

The Navy has recently expressed a desire to participate in the JLTV program. If the Navy does participate, it would require from 400 to 500 CTVs and from 150 to 200 CSVs.

¹⁶ Information in this section is from a briefing from the Project Manager Joint Combat Support Systems on the Joint Light Tactical Vehicle given on February 7 and 8, 2011.

¹⁷ Information in this section is from a briefing from the Project Manager Joint Combat Support Systems on the Joint Light Tactical Vehicle given on February 7 and 8, 2011 and the Army Tactical Wheeled Vehicle Strategy, undated but obtained from the Army in September 2010.

Air Force and Special Operations Command (USSOCOM)

The Air Force and USSOCOM might also participate in the JLTV program but USSOCOM's participation might be limited as it has its own Family of Special Operations Vehicles Program to develop a wide range of special operations-unique vehicles, including light tactical vehicles.

Estimated Cost

The TD phase estimated base vehicle cost is between \$305,000 to \$340,000 and program officials suggest the cost could be closer to \$320,000. While some consider this cost high, an uparmored HMMWV with a fragmentation kit costs around \$200,000, a MRAP costs between \$430,000 to \$900,000 and the M-ATV, about \$1.4 million with special equipment and vehicle transportation costs are factored in.¹⁸

Marines' Concerns with the JLTV Program¹⁹

The Marines continue to express reservations with the JLTV program because, at its current estimated weight, it does not lend itself to Marine Corps expeditionary operations. Marine leadership is concerned that industry prototypes are too heavy to be transported by helicopters and faults industry for failing to stay "apace of the vision" for the JLTV. The Marines do not rule out removing themselves from the program and modifying HMMWVs if developers cannot address their specific requirements. The Army is said to be "moving ahead" with the JLTV program, appearing less concerned than the Marines that final JLTV versions might not be CH-47 and CH-53 helicopter and C-130 cargo aircraft transportable. Some describe the Army and Marines as "striking out on a separate path" with the Army more concerned with survivability and the Marines concerned that heavier JLTVs could cause weight problems on the Navy's amphibious ships.²⁰ Concerned about weight, the Marines are reportedly testing Textron's Small Combat Tactical Vehicle Capsule (SCTVC), a bolt-on capsule that fits onto the chassis of existing HMMWVs, as an alternative to the JLTV.²¹

After the release of the FY2012 Budget Request, Marine leadership reportedly suggested that the future of the JLTV was "up in the air" largely due to continuing concerns about cost and weight, as well as the delay in the EMD contract.²² Marine leadership has maintained that unless the price of the JLTV comes down from around \$300,000 that the Marines will focus instead on upgrading their existing 22,000 HMMWVs. Another possibility to bring down the JLTV price could be to eliminate some of the vehicle's requirements such as the number of vehicles needing classified communications systems or those that can generate external power.

¹⁸ Lance M. Bacon, "Buys of Tactical Vehicles Cut by 15%," *Army Times*, February 7, 2011.

¹⁹ Marjorie Censer, "Citing Weight, Commandant Says Marines May Have to Depart JLTV Program," *InsideDefense.com*, April 29, 2009 and Dan Lamothe, "Weight Issues Aside, Army Sticks With JLTV," *Army Times*, May 18, 2009.

²⁰ Unless otherwise noted, information in this section is taken from Kate Brannen, "Mobility Vs. Survivability: JLTV Could Suffer as U.S. Army, Marines Diverge," *Defense News*, June 7, 2010.

²¹ *Ibid.*

²² Cid Standifer, "Marines: JLTV Faces Uncertain Future," *InsideDefense.com*, February 16, 2011 and "JLTV Requirements Could Be Trimmed to Bring Down Price Tag," *InsideDefense.com*, November 29, 2010.

Northrop Grumman Added to BAE/NAVISTAR JLTV Team²³

Northrop Grumman has reportedly been added to the BAE/NAVISTAR JLTV team competing for one of two EMD contracts expected to be awarded in January 2012. Northrop Grumman has been designated as the team's command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) lead, responsible for integrating command and control systems and software, computers, and sensors to gather intelligence and protect the vehicle occupants.

Army Releases Request for Information (RFI) for JLTV "Off the Shelf" Alternatives²⁴

On May 4, 2011, the Army issued a request for information (RFI) for "off the shelf" commercially available vehicles that could compete with JLTV prototypes already being developed by three industry teams. The Army characterized this as a part of market research that will support a potential Milestone B decision and will permit the Army to "see if there are any other 'off-the-shelf' vehicle solution(s) that we may not have already explored to ensure that we understand the 'art of the possible' that industry has to offer."²⁵

Foreign Participants

United States and Australia Agree on Joint JLTV Development²⁶

In February 2009, the Pentagon and the Australian Department of Defense signed an agreement to coordinate the technology development for the JLTV. Under this agreement, 30 JLTV prototypes will be developed, with the United States funding the development of 21 prototypes and Australia funding nine. Australia reportedly has a need for about 1,300 to 1,400 vehicles with requirements similar to the JLTV, although Australian defense officials note that Australia's participation in JLTV technology development does not automatically mean that they will eventually procure JLTVs. At February 2011 conference, Australian defense officials noted that their current planned procurement quantity for right-hand drive JLTVs was 1,300 with about 900 for general purposes and 400 for utility missions.²⁷

²³ Tony Bertuca, "BAE, Navistar Add Northrop Grumman to Joint Light Tactical Vehicle Team," *InsideDefense.com*, April 29, 2011.

²⁴ Tony Bertuca, "Army Releases RFI for Joint Light Tactical Vehicle "Off The-Shelf" Solutions," *InsideDefense.com*, May 6, 2011.

²⁵ Ibid.

²⁶ Daniel Wasserbly, "U.S. and Australia to Join Forces on JLTV Programme," *Jane's Defence Weekly*, March 4, 2009, p. 12 and Marjorie Censer, "DOD Inks Formal JLTV Agreement with Australia; More Partnerships Planned," *InsideDefense.com*, February 26, 2009.

²⁷ Information is from a briefing from the Project Manager Joint Combat Support Systems on the Joint Light Tactical Vehicle given on February 7 and 8, 2011.

Additional Foreign Participants²⁸

According to the JLTV Program Office, in addition to Australia, Israel, Great Britain, and Canada are participating in various extents in the TD phase. The Program Office has established working groups with Israel, Great Britain, and Canada, although the extent of the participation as well as the number of JLTVs that they might consider procuring was not made public.

Budgetary Issues

Program Cost and Funding²⁹

DOD has not publically assigned a definitive cost to the JLTV program, suggesting that it is too early in the development process to determine an accurate cost estimate. Some defense and trade analysts suggest that the JLTV program will cost well over \$10 billion and possibly as much as \$30 billion to \$70 billion, depending on the final cost of the vehicles chosen and the number of vehicles procured.³⁰ The Army originally estimated that each fully equipped JLTV will cost \$418,000, almost 70% higher than the target cost of \$250,000 per vehicle that would have enabled the Army to replace all of its HMMWV's with JLTVs. One estimate by the Center for Army Analysis suggests that it would require about \$6.7 billion per year to outfit all Army brigades over 15 years with JLTVs.

FY2012 JLTV Budget Request³¹

The FY2012 Budget Request for JLTVs is \$172.1 million for Army Research, Development, Test and Evaluation (RDT&E) and \$71.8 million for Marine Corps RDT&E, for a program total of \$243.9 million. The significant increase from the FY2011 Budget Request of \$84.7 million reflects the anticipated award of the EMD contracts in January 2012.

National Defense Authorization Act for FY2012 (H.R. 1540) Report of the Committee on Armed Services, House of Representatives³²

The House Armed Services Committee (HASC) expressed a number of concerns with the JLTV program. The first concern was that initial test results suggest that the JLTV may face a number of operational and technical challenges. The HASC also noted with concern that JLTV cost estimates are not yet available but base vehicle costs have been projected to be at least \$350,000 per vehicle. The committee also noted the delays in the JLTV program. The HASC concluded that

²⁸Ibid.

²⁹ Jason Sherman and Daniel G. Dupont, "JLTV Price Tag Drives New Three Step Tactical Vehicle Plan for the Army," *InsideDefense.com*, August 8, 2008.

³⁰ Andrea Shalal-Esa, "Companies Jockey for Huge U.S. Military Truck Program," *Reuters*, November 12, 2007.

³¹ United States Department of Defense Fiscal Year 2012 Budget Request Program Acquisition Costs by Weapon System, February 2011, p. 3-2.

³²National Defense Authorization Act for FY2012 (H.R. 1540) Report of the Committee on Armed Services, House of Representatives, H.Rept. 112-78, May 17, 2011, pp 50-51.

there must be discernable match between JLTV requirements and resources and believes that the program will be challenged by fiscally constrained budget requirements. In light of these concerns, the HASC recommends reducing Army JLTV funding to \$147.1 million—a \$25 million or 15% reduction—and Marine Corps JLTV funding to \$46.8 million—a \$25 million or 35% reduction.

National Defense Authorization Act for FY2012 (S. 1253) Report of the Committee on Armed Services, United States Senate³³

The Senate Armed Services Committee made no recommendations regarding JLTV funding.

Department of Defense Appropriations Bill, 2012, House Committee on Appropriations³⁴

The House Appropriations Committee had a number of JLTV provisions, including funding cuts:

Light Tactical Wheeled Vehicle (pp. 205-207)

“The Army began fielding High Mobility Multi-Purpose Wheeled Vehicles (HMMWV) in the mid 1980s. The vehicle was a significant improvement over the Quarter Ton Truck. The HMMWV featured increased ground clearance, greater maneuverability, and more load carrying capacity. The Committee is aware that the HMMWV fleet was used for base operations support and for rear area support in combat zones. HMMWVs were not armored until the beginning of Operation Iraqi Freedom. As the tactics in Iraq evolved to include extensive combat patrolling, often in congested urban areas, HMMWVs were employed as patrol vehicles or scout vehicles, and a series of progressively better, heavier armor kits were installed on HMMWVs. Generally, the kits were shipped to the combat theater and installed there. Eventually, the assembly line began to produce armored HMMWVs. These armored patrol vehicles provided greatly improved force protection as compared to unarmored HMMWVs. However, the increase in protection afforded by the additional armor was limited and the additional weight reduced vehicle performance and displaced critical payloads. The Committee notes that the Army operates a fleet of approximately 150,000 HMMWVs. The Marine Corps has 24,000 HMMWVs. The Navy and Air Force have smaller numbers. Based on the expected service life of the vehicles, the Services will continue to operate significant numbers of HMMWVs for at least another 20 years. The Army and Marine Corps perform a maintenance reset on their HMMWVs when the vehicles return from deployment, restoring the HMMWVs to a fully operational capability. In addition to post-deployment reset, 46,000 of the Army’s older, unarmored HMMWVs have been recapitalized through a program of rebuilds, repairs, and upgrades that restored those vehicles to a zero hours, zero miles status. The Army continues the recapitalization program with attention focused on the armored HMMWVs. Additionally, the Army is researching the feasibility and affordability of modernizing armored HMMWVs to achieve an increased level of crew protection, through an effort known as the Competitive Recapitalization program. As combat

³³National Defense Authorization Act for FY2012 (S. 1253) Report of the Committee on Armed Services, United States Senate, S.Rept. 112-26, June 22, 2011.

³⁴ Department of Defense Appropriations Bill, 2012, Report of the Committee on Appropriations, undated, pp. 205 - 207, http://appropriations.house.gov/UploadedFiles/FY_2012_DEFENSE_FULL_COMMITTEE_REPORT.pdf.

continued in Iraq, the numbers of Soldiers and Marines wounded and maimed by Improvised Explosive Devices (IEDs) increased. Based on urgent needs statements from Marine Corps and Army commanders in Iraq, a joint program office was established to qualify and field armored transports that were larger and more survivable than the armored HMMWVs. Designated as Mine Resistant Ambush Protected (MRAP) vehicles, nearly 27,000 have been produced, including over 8,000 MRAP All Terrain Vehicles (MATV). The all terrain variants are designed to provide better off-road performance in Afghanistan, while providing excellent survivability and significant ground clearance. The MATVs provide a level of armor protection that is approximately equivalent to the protection found in the smaller of the original MRAPs, which is a significant increase in protection above that of an armored HMMWV. The Committee commends the Department for continuing to improve, test, and field survivability enhancements for all of the HMMWVs, MRAPs, and MATVs. The Committee is aware that in a separate effort, the Army, Marine Corps, and Special Operations Command began a program to produce a Joint Light Tactical Vehicle (JLTV) to eventually replace the HMMWV. The JLTV has been designed and developed as an armored vehicle from the inception of the program. The JLTV is expected to provide MRAP-like armor protection, good off-road maneuverability, and substantial payload capability.

The Committee notes that the JLTV program is intended to begin fielding in 2016. The Committee is aware that while the JLTV program continues development, the Services operate thousands of HMMWVs and MRAPs. Any calculation regarding how many, when, and at what price the Services would purchase JLTVs should consider the worth of the battle-tested vehicles that have been bought and paid for and on which the Soldiers and Marines have trained and fought. Additionally, the military Services and manufacturers continue to improve the survivability of the MRAPs, MATVs, and HMMWVs. The Committee understands that HMMWVs have been made more survivable, but have grown in weight, and efforts continue to make MATVs lighter and more maneuverable while sustaining survivability. The Committee notes that the operational niche to be filled by the JLTV appears to be shrinking. The Committee believes that the Department of Defense should continue to develop, test, and field survivability upgrades to the HMMWV, MRAP, and MATV fleets to counter the challenges presented by small arms, improvised explosive devices, and other weapons. The Committee recommends that the Department of Defense continue to evaluate the roles and requirements of the JLTV in the tactical wheeled vehicle fleet, seeking advances in technology for armor, propulsion, off-road maneuverability, and other areas, until such time as it becomes clear that there is a threat to be countered for which the JLTV is better suited than HMMWVs, MRAPs, or MATVs, or the current fleets of HMMWVs and MRAPs are judged to be not economically repairable. The fiscal year 2012 budget request for Research, Development, Test and Evaluation, Army includes \$172,093,000 for development of the JLTV. The Committee recommendation is \$147,093,000, a reduction of \$25,000,000. For the Marine Corps, the budget request in Research, Development, Test and Evaluation, Navy includes \$39,954,000 for JLTV development. The Committee recommendation is \$14,954,000, a reduction of \$25,000,000. Additionally, the Committee recommendation includes an increase of \$50,000,000 in Research, Development, Test and Evaluation, Army, to support continued development and testing for HMMWV survivability enhancements. The Committee is aware that significant improvements in survivability appear to be feasible by the application of blast venting technology, such as the so-called blast chimney. These improvements could lead to a HMMWV with survivability equal to or better than the MRAP, weight considerably less than predicted for the JLTV, and at a cost significantly less than either. The Committee expects that future requests for funding for the HMMWV and JLTV programs, and the accompanying budget justification material, will describe the capabilities to be provided by the various light tactical vehicles.”

Potential Issues for Congress

JLTV Affordability

In testimony on DOD weapons programs, GAO asserted that total acquisition costs for the FY2007 portfolio of major defense acquisition programs still in the SDD phase increased 26% and development costs increased by 40% from first estimates.³⁵ As previously noted, early in the TD phase, the Army estimated that each JLTV would cost \$418,000—almost 70% higher than the target cost of \$250,000 per vehicle. The Program Office now estimates that the JLTV will cost around \$320,000 per vehicle, but these costs could change if additional requirements are added, the number of vehicles is reduced, or if the program slips further to the right. Another factor affecting affordability is what is expected to be increasingly tight defense budgets for the foreseeable future. Even if JLTV per vehicle costs can be decreased, the possibility of significantly smaller procurement budgets might render the JLTV unaffordable. With possible foreign involvement in JLTV development and acquisition, there might be potential cost savings that could drive down the per unit cost of JLTVs destined for the U.S. military which could have an impact on the overall program.

Marine Corps Concerns with JLTV Affordability, Weight, and Transportability

Based on reports, there appears to be concerns that JLTV prototypes under development may exceed air transportability requirements and that they might also pose a weight and size problem on amphibious ships. Given the Marines' stated concerns about industry losing sight of JLTV's expeditionary requirements, Congress might opt to review the current state of JLTV development with DOD and industry to insure that JLTVs remain both "light" and expeditionary. A further issue for review might also be the Army's and Marines' overall approach to the JLTV program, as some have described their approaches as divergent, which could cause programmatic difficulties in the future. In addition, the Marines affordability concerns might result in fewer JLTVs procured, thereby having an overall programmatic impact.

JLTV and M-ATV Redundancies

Concerns have been raised that the JLTV and M-ATV share many common characteristics and there might be significant program redundancies. In August 2009 briefings to the House Armed Services Committee Air and Land Forces, and Seapower and Expeditionary Forces Subcommittees, GAO noted that "the introduction of MRAP, M-ATV and eventually the JLTV creates a potential risk of unplanned overlap in capabilities; a risk that needs to be managed."³⁶

³⁵ United States Government Accountability Office (GAO) Testimony, *Defense Acquisitions: Results of Annual Assessment of DOD Weapon Programs*, GAO-08-674T, April 29, 2008, p. 2.

³⁶ GAO Briefing to the House Armed Services Committee Air and Land Forces, and Seapower and Expeditionary Forces Subcommittees, "Status of DOD Tactical Wheeled Vehicle Strategy," August 13, 2009, p. 3.

Defense officials have been asked if there is a need for the MRAP/M-ATV and JLTV programs as these programs share as many as 250 requirements.³⁷ While DOD leadership notes that there are 450 additional requirements that the MRAPs and M-ATVs can not meet, thereby justifying the JLTV program,³⁸ the Army's intent to develop a fourth type of vehicle—the Ultra-Lite MRAP—calls into question the need for all four programs. Despite calls from Congress for DOD and the Services to develop comprehensive tactical wheeled vehicle strategies it appears that there are a significant number of redundancies that will be examined in greater detail before the JLTV program enters production and procurement.

Changing Requirements

As previously discussed, the Army's decision to change requirements for the JLTV to have the same level of under body protection as the Mine-Resistant, Ambush-Protected All-Terrain Vehicle (M-ATV) resulted in delaying the award of the EMD contract until January 2012 and will undoubtedly add to the program's overall duration and cost. Changing requirements during a system's development cycle has often been cited as one of the major reasons why defense programs take many more years than planned as well as why they exceed their budgets. Given this tendency, Congress might choose to closely monitor the Army and Marines during the rest of the TD phase and EMD phase—if the program makes it to that phase—to insure that the Services do not make significant requirements changes/additions that could adversely affect the JLTV development timeline and program cost.

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³⁷ Cid Standifer, "Taylor: JLTV Absolutely Needed, Regardless of MRAP and M-ATV," *Inside the Navy*, November 9, 2009.

³⁸ *Ibid.*