



The Army's Ground Combat Vehicle (GCV) Program: Background and Issues for Congress

Andrew Feickert
Specialist in Military Ground Forces

December 27, 2011

Congressional Research Service

7-5700

www.crs.gov

R41597

Summary

In April 2009, then Secretary of Defense Gates announced he intended to significantly restructure the Army's Future Combat System (FCS) program. The FCS was a multiyear, multibillion dollar program that had been underway since 2000 and was at the heart of the Army's transformation efforts. In lieu of the cancelled FCS Manned Ground Vehicle (MGV), the Army was directed to develop a Ground Combat Vehicle (GCV) that would be relevant across the entire spectrum of Army operations and would incorporate combat lessons learned from Iraq and Afghanistan.

The Army reissued a request for proposal (RFP) for the GCV on November 30, 2010 and planned to begin fielding the GCV by 2015-2017. On August 17, 2011, the GCV program was approved to enter the Technology Development Phase of the acquisition process and a day later, the Army awarded two technology development contracts: \$439.7 million to the General Dynamics-led team and a second contract for \$449.9 million to the BAE Systems-Northrop Grumman team. The technology development phase is expected to last 24 months.

On August 23, 2011, the third team vying for the GCV technology development (TD) contract, SAIC-Boeing, filed a protest with the Government Accountability Office (GAO) contending that there were errors in the evaluation process. On December 5, 2011, GAO denied the SAIC-Boeing GCV protest stating that the Army's award of only two TD contracts was reasonable and consistent with the stated evaluation. On December 6, 2011, the Army lifted the stop-work order that had been placed on the General Dynamics and BAE Systems-Northrop Grumman teams so that work could resume on the GCV.

The FY2012 budget request for the GCV was \$884.387 million for Research, Development, Test and Evaluation (RDT&E), reflecting a seven-month delay in the program. The National Defense Authorization Act for FY2012 (H.R. 1540) authorized \$449 million and stipulated that not more than 80 percent may be obligated or expended until the date when the Secretary of the Army submits a report to the congressional defense committees containing the plans of the Secretary of the Army for carrying out a dynamic analysis of alternatives update. The Consolidated Appropriations Act for FY2012 (H.R. 2055) recommended \$449 million for the GCV due to the change in acquisition strategy (selecting two technology development vendors instead of three).

Potential issues for Congress include the role and need for the GCV in a potentially downsized Army that will likely have fewer Heavy Brigade Combat Teams (HBCTs). The Administration's announcement of a strategic shift to the Asia-Pacific region and an ongoing, budget-driven, strategy review also presents questions as to the necessity for HBCTs and, by association, the GCV. GCV affordability also remains a key consideration for Congress. The Army contends that the average unit production cost for the GCV will be between \$9 - \$10.5 million and the average unit production cost (including spare parts) will be between \$11 - \$13 million. The Pentagon's Office of Cost Assessment and Program Evaluation (CAPE) estimates that the average unit production cost will be in the \$16 to \$17 million dollar range. If the CAPE's cost estimate proves to be accurate, the Army would need an additional \$7.2 billion to acquire 1,800 GCVs. This report will be updated.

Contents

Introduction.....	1
Background.....	1
Secretary of Defense Gates' April 2009 FCS Restructuring Decision	1
GCV Program	2
The GCV Concept	2
The Initial GCV Request for Proposal (RFP).....	3
Army Ground Combat Vehicle Request for Proposal Released	3
Preliminary GCV Criticisms	4
Programmatic	4
Vehicle Weight	4
Reliance on Immature Technologies	5
The GCV—An FCS Redux?	5
Potential GCV Vendors.....	5
Army Cancels the RFP	6
Why the RFP Was Cancelled.....	6
Revised GCV RFP Issued.....	7
Defense Industry Concerns with the Revised RFP.....	7
Current Status of the GCV Program	8
Defense Acquisition Board Approves GCV Entrance into Technology Development Phase.....	8
Army Awards Technology Development (TD) Contracts	8
SAIC-Boeing Team Files Protest Over GCV TD Contract Award.....	9
GAO Denies SAIC-Boeing Team Protest	9
FY2012 Legislative Activity.....	9
GCV Budget Request	9
National Defense Authorization Act for FY2012 (H.R. 1540) Conference Report (H.Rept. 112-329).....	9
Conference Report on H.R. 2055, Consolidated Appropriations Act FY2012.....	10
Potential Issues for Congress.....	10
Congressional Questions Regarding the Requirement for the GCV	10
Secretary of Defense Gates' West Point Speech and the Need for Armor Forces.....	11
The GCV and a Downsized Army	12
GCV Affordability.....	13

Contacts

Author Contact Information.....	14
---------------------------------	----

Introduction

In April 2009, then Secretary of Defense Robert Gates announced he intended to significantly restructure the Army's Future Combat System (FCS) program. The Future Combat System (FCS) was a multiyear, multibillion dollar program that had been underway since 2000 and was at the heart of the Army's transformation efforts. It was to be the Army's major research, development, and acquisition program, consisting of 18 manned and unmanned systems tied together by an extensive communications and information network.

Among other things, Secretary Gates recommended cancelling the manned ground vehicle (MGV) component of the FCS program, which was intended to field eight separate tracked combat vehicle variants built on a common chassis that would eventually replace combat vehicles such as the M-1 Abrams tank, the M-2 Bradley infantry fighting vehicle, and the M-109 Paladin self-propelled artillery system. As part of this restructuring, the Army was directed to develop a Ground Combat Vehicle (GCV) that would be relevant across the entire spectrum of Army operations and would incorporate combat lessons learned in Iraq and Afghanistan.

Congressional interest in this programs has been significant as the GCV is intended to equip the Army's 24 Heavy Brigade Combat Teams (HBCT). The GCV also represents the only "new start" for a ground weapon systems program and, because of the Army's history of failed weapon systems programs, the program will likely be subject to a great deal of scrutiny.

Background

Secretary of Defense Gates' April 2009 FCS Restructuring Decision

On April 6, 2009, then Secretary of Defense Gates announced he intended to significantly restructure the FCS program.¹ The Department of Defense (DOD) planned to accelerate the spin out of selected FCS technologies to BCTs, but recommended cancelling the MGV component of the program. Secretary Gates was concerned that there were significant unanswered questions in the FCS vehicle design strategy and, despite some adjustments to the MGVs, it did not adequately reflect the lessons of counterinsurgency and close quarters combat in Iraq and Afghanistan. After reevaluating requirements, technology, and approach, DOD would then re-launch the Army's vehicle modernization program, including a competitive bidding process. In addition, the acquisition decision memorandum reaffirmed the establishment of a new ground combat vehicle acquisition program in 2010.

¹ Information in this section is taken from a transcript of Secretary of Defense Robert M. Gates Budget Press Briefing, Arlington, VA, April 6, 2009.

GCV Program

The GCV Concept²

The Army's 2009 Modernization Strategy focused on quickly developing a new GCV in a technologically versatile approach. This approach, termed the Incremental Development Approach, features a modular design intended to accommodate vehicle growth in size, weight, power, and cooling requirements so that as technologies matured, they could be incorporated into new versions of the GCV with little or no modification to the basic vehicle.

The GCV concept, in short, is to

- field the GCV by 2015-2017;
- design the platform with sufficient margin for future capabilities;
- incorporate only mature technologies for vehicle integration;
- maintain a continuous armor development; and
- design the vehicle to accept current and future network capabilities (for example, radios, sensors, and jammers).³

Army leadership has indicated that the GCV could be either a tracked or wheeled vehicle. The Army has also suggested that it saw “a lot of value in common chassis in terms of logistics support,” and that it might pursue a common chassis for GCV variants.⁴ Other possible GCV features discussed by the Army included a V-shaped hull and side armor to protect against improvised explosive devices (IEDs).⁵ The Army has also suggested that the new GCV would be fuel efficient.⁶ The air transportability of the GCV has been discussed as a key design consideration, and the Army had said that the GCV must be able to fit on C-17 transports.⁷ In order for the GCV to be a “full spectrum” combat vehicle, the Army reportedly had required that non-lethal weapon systems be incorporated into vehicle design. While the GCV is to have some military equipment directed by the Army, such as radios and chemical protection systems, Army officials are leaving most of the specific solutions to industry recommendations.⁸

² Information in this section is from the Army Capabilities Integration Center, *The Ground Combat Vehicle Strategy: Optimizing for the Future*, October 2009, available at <http://www.g8.army.mil>.

³ Department of the Army, *2009 Army Modernization White Paper*, p. 5.

⁴ Emelie Rutherford, “Army Casting Wide Net for Post-FCS Vehicles Coming in Five to Seven Years,” *Defense Daily*, May 13, 2009.

⁵ *Ibid.*

⁶ John T. Bennett, “Carter: FCS Successor Effort Could Have Many Primes,” *Defense News*, May 18, 2009.

⁷ Marjorie Censer and Kate Brannen, “Army Assessing Brigade Combat Modernization in Plan Due to OSD,” *InsideDefense.com*, May 18, 2009.

⁸ Daniel Wasserbly, “Testing Pushed Back to Next Summer: Army to Reprogram Funding in FY 08, FY 09 for FCS Spin Out 1 Changes,” *InsideDefense.com*, June 30, 2008.

The Initial GCV Request for Proposal (RFP)⁹

On February 25, 2010, the Army released the RFP for the GCV as described in the following DOD press release:

Army Ground Combat Vehicle Request for Proposal Released¹⁰

The Army released last Thursday a RFP for the technology development phase¹¹ of the Infantry Fighting Vehicle being developed under the GCV effort. The Army has worked extensively with the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics to develop this program. The GCV acquisition program will follow DOD best acquisition practices and be a competitive program with up to three contract awards. The GCV development effort will consist of three phases: technology development, engineering and manufacturing design and low rate initial production. The Army anticipates awarding the first contracts for the technology development phase in the fourth-quarter of fiscal 2010.

The technology development phase involves risk reduction, identification of technology demonstrations, competitive prototyping activities, and planned technical reviews. Industry will have 60 days to submit proposals to the Army for this development effort.

The Ground Combat Vehicle effort is part of a holistic Army plan to modernize its combat vehicle fleet. This includes incorporating Mine-Resistant Ambush Protected (MRAP) vehicles into the fleet while modernizing current vehicle fleets including Stryker. The first GCV will be an Infantry Fighting Vehicle offering a highly-survivable platform for delivering a nine-man infantry squad to the battlefield. The GCV is the first vehicle that will be designed from the ground up to operate in an IED environment. It is envisioned to have greater lethality and ballistic protection than a Bradley, greater IED and mine protection than an MRAP, and the cross country mobility of an Abrams tank. The GCV will be highly survivable, mobile and versatile, but the Army has not set specific requirements such as weight, instead allowing industry to propose the best solution to meet the requirements.

Prior to the release of the RFP, the Army engaged with industry through a series of industry days to inform them of the government's intent for GCV development and gain their feedback from potential contractors about GCV requirements and emerging performance specifications. In response to these initiatives the Army received significant feedback and insights on requirements, growth, training, test and the program at large thereby informing the requirements process and indicating the potential for a competitive contracting environment.

⁹DOD defines Request for Proposal (RFP) as a solicitation used in negotiated acquisition to communicate government requirements to prospective contractor and to solicit proposals.

¹⁰ DOD News Release, "Army Ground Combat Vehicle Request for Proposal Released," No. 161-10, March, 2, 2010.

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.

Preliminary GCV Criticisms

After the release of the RFP and subsequent program-related briefings and discussions, a number of criticisms emerged as analysts began to examine the GCV RFP and program in greater detail. These criticisms are categorized as follows:

Programmatic

In order to avoid past criticisms of events outpacing relevancy and decades-long acquisition programs, Army leadership stipulated the first GCVs would be delivered seven years after the program was initiated. While this decision was relatively well-received, in order to achieve this ambitious timeline, modifications to the traditional acquisition process were required. One criticism was the Army chose to issue the RFP prior to the completion of the Analysis of Alternatives¹² phase of the defense acquisition process.¹³ In response to this criticism, DOD and Army officials maintained that running the Analysis of Alternatives phase during the RFP phase would give the Army more time to consider industry's proposals and evaluate alternatives to a new vehicle. Traditionally, the Analysis of Alternatives occurs before an RFP is initiated. Another concern was the Army chose to use a cost-plus and not a fixed price contract during the Technology Development phase of the program. The Administration is said to favor fixed price contracts, as critics of cost-plus contracts say that they "invite abuse because they allow companies to charge the government costs plus a fixed profit, no matter how poor their performance."¹⁴ The Army, on the other hand, defended its use of cost-plus contracts during the technology phase, as it allowed for more innovation and risk-taking.¹⁵ The use of cost-plus contracts as well as constantly changing requirements were both points of contention in the FCS program.

Vehicle Weight

The Army has made soldier survivability the most important performance requirement for the GCV. Because the Army has also left it up to industry to determine the GCV design, there are no specific vehicle weight constraints. In May 2010, senior Army leaders reportedly stated that estimates at that time projected that the GCV could weigh up to 70 tons, making it the world's heaviest infantry fighting vehicle.¹⁶ The then Chief of Staff of the Army, General George Casey,

¹² From the November 2009 Defense Acquisition University Glossary of Defense Acquisition Acronyms & Terms, The Analysis of Alternatives (AoA) is defined as follows: "The AoA assesses potential materiel solutions to satisfy the capability need documented in the approved Initial Capabilities Document (ICD). It focuses on identification and analysis of alternatives, measures of effectiveness (MOEs), cost, schedule, concepts of operations, and overall risk, including the sensitivity of each alternative to possible changes in key assumptions or variables. The AoA is normally conducted during the Materiel Solution Analysis (MSA) phase of the Defense Acquisition Management System (DAMS), is a key input to the Capability Development Document (CDD), and supports the materiel solution decision at Milestone A."

¹³ Unless otherwise noted, information in this section is taken from Kate Brannen, "Army Launches Ground Combat Vehicle Contest," *Army Times*, February 26, 2010. For additional information on the defense acquisition process see CRS Report RL34026, *Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process*, by Moshe Schwartz.

¹⁴ Ross Colvin, "Obama Takes Aim at Costly U.S. Defense Contracts," *Reuters*, March 4, 2009.

¹⁵ Kate Brannen, "Army Launches Ground Combat Vehicle Contest," *Army Times*, February 26, 2010.

¹⁶ Matthew Cox, "U.S. Army Chief Casey: Make GCV Lighter," *DefenseNews*, June 14, 2010, p. 16.

remarked that he believed that the GCV must be much lighter, noting that “soldiers who have served in Iraq and Afghanistan have told him that big, heavy vehicles just aren’t practical in urban combat” and that the Army “stopped using tanks and Bradleys on the streets of Baghdad just because of the size.”¹⁷ One expert suggests that “given what transports, supply lines, and bridges in developing countries can bear, an optimal weight for a vehicle in an irregular warfare environment is 40 to 45 tons.”¹⁸ A counterargument contends that the irregular warfare environment has become so lethal that only 70 ton vehicles can survive.¹⁹ In addition to operational considerations, a 70 ton GCV weight would also have an impact on how the vehicle is transported by air and by sea and, therefore, how quickly it could be deployed in the event of a conflict.

Reliance on Immature Technologies

Some critics noted that the initial GCV RFP contained provisions that the GCV would have requirements for a hit-avoidance system²⁰ as well as an active protection system²¹ that were problematic developmental sub-systems of the cancelled FCS MGCV program.²² Critics of these programs maintained that by employing these systems on armored fighting vehicles, the Army was sacrificing armored crew protection for an over-reliance on technologically questionable systems. The Army noted if these systems could be developed, it would result in lighter, more fuel-efficient vehicles. Another criticism of these systems was they would drive up the per-vehicle cost—an important factor when the Army is considering buying at least 1,800 or more GCVs in its initial procurement.

The GCV—An FCS Redux?

Given these criticisms, some observers questioned if the Army’s “new” GCV program was merely a continuation of the cancelled MGCV program and also suggested the Army had learned little from the FCS program cancellation.²³ The Army’s position on these assertions was, whenever practical, they would incorporate proven FCS technologies in the GCV program as a means of saving money and to facilitate the rapid development of the GCV.

Potential GCV Vendors²⁴

In response to the Army’s February 2010 RFP, three industry teams submitted technology development proposals to the Army. The first team included BAE Systems and Northrop

¹⁷ Sydney J. Freedberg, Jr., “Army Tries Again for a New Tank,” *National Journal*, August 7, 2010.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ A hit avoidance system is intended to use a variety of sensors and information technology to detect the presence of mines, IEDs, and enemy forces so that these threats can be avoided.

²¹ An active protection system is a vehicle-mounted system which is intended to first detect incoming enemy anti-tank or anti-vehicle missiles and/or grenades and then engage and destroy these threats by means of a kinetic device.

²² Sebastian Sprenger and Tony Bertuca, “Some Officials See FCS’s Long Shadow in Army’s Move to Revisit GCV,” *InsideDefense.com*, August 31, 2010.

²³ Ibid.

²⁴ Information in this section is taken from Defense Professionals, “Three Competing Teams to Submit Proposal for Technology Development Phase,” *Defpro.com*, May 26, 2010.

Grumman; the second consisted of General Dynamics, Lockheed Martin, Raytheon, and MTU Detroit Diesel; and the third team, SAIC, Boeing, and the German firms of Krauss-Maffei Wegmann (KMW), and Rheinmetall Defence. All three teams also had a number of other firms as part of their teams. The BAE Systems-led team design was an original design, with the team claiming that its design would exceed the survivability of the MRAP and would have enhanced mobility capabilities to allow it to operate in both urban and cross country environments. The General Dynamics team provided no details on its technical approach but stated that its chosen design focused on soldier survivability and operational effectiveness and would incorporate mature technologies. The SAIC-led team stated that its design would be based on the German tracked Puma IFV that was developed based on lessons learned from Iraq and Afghanistan. SAIC also emphasized that all work, including production, would take place in the United States.

Army Cancels the RFP

When the Army released the RFP for the GCV Technology Development (TD) phase in February 2010, it anticipated awarding the first TD phase contracts in the fourth quarter of FY2010.²⁵ On August 25, 2010, while the Army was reportedly in the process of selecting the winners of the TD RFP, the Army's new Assistant Secretary of the Army for Acquisition, Logistics and Technology [ASA(ALT)], Malcolm O'Neil, cancelled the RFP in order to provide more time for technology integration as well to insure that the Army would use mature technologies in order to develop the GCV within the established seven year time frame.²⁶ The Army reportedly planned to reissue the RFP within 60 days of the cancellation.²⁷ It was expected that the original industry teams will submit new proposals and it is possible that other companies might also submit proposals.

Why the RFP Was Cancelled

The Army, in conjunction with the Pentagon's acquisition office, conducted a Red Team²⁸ review of the GCV program in order "review GCV core elements including acquisition strategy, vehicle capabilities, operational needs, program schedule, cost performance, and technological specifications."²⁹ This review found that the GCV had too many performance requirements and too many capabilities to make it affordable³⁰ and relied on too many immature technologies. In response, the Army pledged the new GCV RFP would "dial back the number of capabilities the new system must have—as well as significantly reworking the acquisition strategy by focusing on

²⁵ Department of Defense (DOD) Press Release, "Army Ground Combat Vehicle Request for Proposal Released," March 2, 2010.

²⁶ Kate Brannen, "Interview: Malcolm O'Neil, Acquisition Executive, U.S. Army," *Defense News*, September 6, 2010, p. 22; and Daniel Wasserbly, "U.S. Army Amends Approach to GCV Programme," *Jane's Defence Weekly*, September 1, 2010, p. 9.

²⁷ Daniel Wasserbly, "U.S. Army Amends Approach to GCV Programme," *Jane's Defence Weekly*, September 1, 2010, p. 9.

²⁸The Army defines Red Teaming as a "structured, iterative process executed by trained, educated and practiced team members that provides commanders an independent capability to continuously challenge plans, operations, concepts, organizations and capabilities in the context of the operational environment and from our partners' and adversaries' perspectives." Taken from Office of the Chief of Public Affairs, U.S. Army Training and Doctrine Command, "Army Approves Plan to Create School for Red Teaming," July 13, 2005.

²⁹ Roxana Trion, "Army to Re-Start Bidding Process for New \$40B Ground Combat Vehicle Program," *The Hill*, August 25, 2010.

³⁰ Kate Brannen, "Ground Combat Vehicle Delayed; Effort Called Too Ambitious," *Army Times*, September 6, 2010.

early technology maturity and setting firm cost targets.”³¹ In particular the Army reportedly planned to set a \$10 million per vehicle cost limit in response to reports that initial estimates projected that the GCV would cost more than \$20 million per vehicle. The Army reportedly planned to issue a new RFP in late October 2010, suggesting even though the program has been delayed about six months, that the seven year GCV development goal is still achievable.

Revised GCV RFP Issued

On November 30, 2010, the Army issued a revised GCV RFP.³² Under this proposal, industry had until January 21, 2011, to submit proposals and the proposed vehicle can be tracked or wheeled. The Army included affordability targets of per unit cost for the vehicle between \$9 million and \$10.5 million and an operational sustainment cost of \$200 per operational mile, with both affordability targets being in FY2010 dollars. In addition, the Army will require that the GCV fit on a C-17 transport but not on a C-130. The Army was expected to award technology development contracts to three contractors by April 2011, and the Technology Development (TD) Phase is planned to last 24 months. An early prototype vehicle is expected by the middle of FY2014 and the first full-up prototype is expected by the beginning of FY2016. The Army reportedly plans for 1,874 GCVs initially, with the first production vehicle rolling off the assembly line in early April 2018 and the first unit should be equipped with GCVs in 2019.

The new RFP is a fixed price incentive fee contract versus the cost-plus fixed fee contract of the previous RFP.³³ The new contract has a ceiling of \$450 million per contractor for the TD Phase. An incentive fee would split 80% to the government if the cost comes in under the negotiated \$450 million ceiling cap, with 20% going to the contractor. If the cost comes in over the cap, the contractor assumes 100% of the additional cost.

Defense Industry Concerns with the Revised RFP³⁴

Reports suggest defense industry has a number of concerns with the revised RFP. According to one report “industry still doesn’t get what the Army is looking for,”³⁵ suggesting many of the technical specifications that the contractors expected the Army to spell out were left open-ended and that industry would have to propose many of the vehicle’s technologies and features. Another concern was industry was not clear on how many vehicles the Army intended to build and questioned whether the Army could afford the production in the long run. According to the Army, the GCV is intended to replace infantry fighting vehicles in heavy brigade combat teams (HBCTs), which would be 50% of the Bradleys in the HBCT. Some analysts suggest that the GCV’s price tag per vehicle could make it vulnerable to future budget cuts, with one analyst

³¹ Jason Sherman, “Army to Mandate Technology Maturity Levels, \$10 Million Price Target for GCV,” *InsideDefense.com*, September 16, 2010.

³² Unless otherwise noted, information in this section is taken from C. Todd Lopez, “Army Issues RFP for Ground Combat Vehicle,” *Army News Service*, December 2, 2010.

³³ Information in this section is taken from Ann Roosevelt, “New Ground Combat Vehicle RFP Offers Affordability Targets,” *Defense Daily*, December 1, 2010.

³⁴ Information in this section is taken from Kate Brannen, “U.S. Army: Budgets Allow \$9 – 10.5 Million GCV,” *Defense News*, December 13, 2010; and Grace V. Jean, “Army’s Ground Combat Vehicle Stirs Confusion in Industry,” *National Defense*, January 2011 edition.

³⁵ Kate Brannen, “U.S. Army: Budgets Allow \$9 – 10.5 Million GCV.” *Ibid.*

noting that the cost was so high that “the program is sure to be politically controversial and therefore suffer much the same fate the Marine Corps Expeditionary Fighting Vehicle has.”³⁶

Because of concerns the GCV program would not make it to production, issues regarding sustaining the industrial base have been raised. Analysts contend that there are very few new combat vehicles currently in production, noting that Bradley A3 production ends in 2012; the last Stryker armored personnel carrier in 2013; and the M-1 Abrams tank remanufacturing program was slated to an end after 2014, leaving the improved Paladin self-propelled howitzer in production until the GCV starts production in 2017. Even though recent congressional action will keep the Abrams production line open, some defense industry analysts are concerned that with so few opportunities to develop and manufacture armored fighting vehicles, some long-standing U.S. defense firms might drop out of the business, thereby limiting bidding on any future armored fighting vehicle programs to foreign manufacturers.

Current Status of the GCV Program

Defense Acquisition Board Approves GCV Entrance into Technology Development Phase³⁷

On August 17, 2011, then Pentagon acquisition chief Ashton Carter signed an acquisition decision memorandum authorizing the Army to award technology demonstration contracts for the GCV program. Secretary Carter also directed the Army to conduct a “dynamic update” of the GCV’s Analysis of Alternatives (AoA) which had been criticized by some as being inadequate. Secretary Carter also stipulated:

- The GCV average procurement unit cost (APUC) would be less than or equal to \$13 million (expressed in FY2011 constant dollars);
- Combined cost of replenishment spares and repair parts less than or equal to \$200 per mile (expressed in FY2011 constant dollars); and
- Seven years from technology development contract award to first production vehicle.

Army Awards Technology Development (TD) Contracts³⁸

On August 18, 2011—a day after Secretary Carter issued his acquisition decision memorandum—the Army reportedly awarded two technology development contracts. The first contract for \$439.7 million went to the General Dynamics-led team and the second contract for \$449.9 million went to the BAE Systems-Northrop Grumman team. The technology development phase is expected to last 24 months.

³⁶ Ibid. For additional information on the Expeditionary Fighting Vehicle see CRS Report RS22947, *The Marines’ Expeditionary Fighting Vehicle (EFV): Background and Issues for Congress*, by Andrew Feickert.

³⁷ Memorandum, Ground Combat Vehicle (GGCV) Infantry Fighting Vehicle (IFV) Milestone (MS) A Acquisition Decision Memorandum, August 17, 2011.

³⁸ Ann Roosevelt, “Army GCV Program Kicks Off – Emphasizes Affordability, Capability,” *Defense Daily*, August 22, 2011.

SAIC-Boeing Team Files Protest Over GCV TD Contract Award³⁹

On August 23, 2011, the third team vying for the GCV TD contract, SAIC-Boeing, reportedly filed a protest with the Government Accountability Office (GAO) contending there were errors in the evaluation process, claiming the government relied on evaluation criteria outside the published request for proposal and aspects of the team's bid were discounted because of a lack of familiarity with the German Puma Infantry Fighting Vehicle that forms the basis of the SAIC-Boeing vehicle. Because of the protest, the General Dynamics and BAE Systems-Northrop Grumman teams were required to stop work until the protest was adjudicated.

GAO Denies SAIC-Boeing Team Protest⁴⁰

On December 5, 2011, GAO reportedly denied the SAIC-Boeing GCV protest stating the Army's award of only two TD contracts was reasonable and consistent with the stated evaluation criteria and did not improperly favor the other two teams in the competition. On December 6, 2011, the Army reportedly lifted the stop-work order that had been placed on the General Dynamics and BAE Systems-Northrop Grumman teams so that work could resume on the GCV.

FY2012 Legislative Activity

GCV Budget Request

The FY2012 Budget Request for the GCV was \$884.387 million for Research, Development, Test and Evaluation (RDT&E).⁴¹ These funds are almost \$1 billion less than previously estimated due to the seven-month delay in the program and subsequent delay in awarding Technology Development contracts.

National Defense Authorization Act for FY2012 (H.R. 1540) Conference Report (H.Rept. 112-329)⁴²

Of the \$449 million authorized by the Conference for the GCV program, not more than 80 percent may be obligated or expended until the date when the Secretary of the Army submits a report to the congressional defense committees containing the plans of the Secretary of the Army for carrying out:

³⁹ Sebastian Sprenger, "SAIC-Boeing Team Files Protest Over Ground Combat Vehicle Award," *InsideDefense.com*, August 26, 2011 and Tony Bertuca, "Army Stops Work on GCV Due to Protest," *InsideDefense.com*, August 30, 2011.

⁴⁰ Brendan McGarry and Danielle Ivory, "SAIC Loses Bid Protest for U.S. Army Ground Combat Vehicle," *Bloomberg.com*, December 5, 2011 and

⁴¹ The Army Budget Request - Fiscal Year 2012, Justification Book Volume 5B, Research, Development, Test and Evaluation, Army, February 2011, p. 483.

⁴² National Defense Authorization Act for FY2012 (H.R. 1540) Conference Report (H.Rept. 112-329), December 12, 2011 and House Armed Services Committee, The National Defense Authorization Act for Fiscal Year 2012 Highlights of the Conference Report, December 12, 2011.

- A dynamic analysis of alternatives update described in the August 17, 2011, acquisition decision memorandum issued by the Under Secretary of Defense for Acquisition, Technology, and Logistics;
- A separate assessment of selected non-developmental vehicles described in such memorandums; and
- A description of the resources the Secretary considers necessary to carry out the two aforementioned requirements including the amount of funding needed for FY2012 and FY2013.

Conference Report on H.R. 2055, Consolidated Appropriations Act FY2012⁴³

The Conference Report on H.R. 2055 recommends \$449 million for the GCV due to the change in acquisition strategy (selecting two technology development vendors instead of three).

Potential Issues for Congress

Congressional Questions Regarding the Requirement for the GCV

According to the House Armed Service Committee's (HASC's) 112th Congress Oversight Plan:

Based on long-standing committee concerns stemming from the Future Combat Systems program's requirements, cost increases, and schedule delays, the committee will continue aggressive efforts to oversee and shape the evolving Ground Combat Vehicle (GCV) program. In the 112th Congress, these oversight efforts will focus on understanding the basis of GCV requirements as they pertain to the Analysis of Alternatives, containing program costs, and ensuring appropriate and thorough testing. The committee will also continue to work closely with the Government Accountability Office and the Congressional Budget Office to conduct continuous oversight and evaluation of the GCV program.⁴⁴

Based on the HASC oversight plan and reported comments by various Members, congressional oversight of the GCV program can be characterized as aggressive. During a March 3, 2011, Senate Armed Services Committee (SASC) hearing a Member reportedly questioned Army leadership if "the use of research and development funds being spent on the Ground Combat Vehicle was going to transform the battlefield capability.... and will the Ground Combat Vehicle be superior to the Bradley enough to justify the costs associated with developing and fielding it?"⁴⁵ Some Members have also expressed concern that the Army has yet to deliver a GCV Analysis of Alternatives report to Congress that was mandated under the FY2011 National Defense Authorization Act (H.R. 5136) and have put a hold on a portion of GCV Research,

⁴³ Conference Report on H.R. 2055, Consolidated Appropriations Act FY2012, December 15, 2011.

⁴⁴ United States House of Representatives Committee on Armed Services 112th Congress Oversight Plan, p. 19; http://armedservices.house.gov/index.cfm/files/serve?File_id=468b7b96-c2ba-4c10-aad6-b5798b5ae77a.

⁴⁵ Ann Roosevelt, "GCV A Prototype for Process Change, Dempsey Tells SASC," *Defense Daily*, March 4, 2011.

Technology, Development and Evaluation (RDT&E) funding until the report is provided to Congress.⁴⁶

In testimony to House Subcommittee on Tactical Air and Land Forces on March 9, 2011, GAO noted that:

Questions remain about the urgency of the need for the GCV. In its August 2010 report, the Red Team that was convened by the Army questioned the urgency of the need for the GCV within 7 years. The report concluded that the funds that have migrated from the FCS program were driving the events and activities of the program, versus a true capabilities gap. Further, the team reported that the Army had not provided the analysis supporting the need to rapidly replace the Bradley vehicle. The Army is currently conducting portfolio reviews across many of its missions. The results of the combat vehicle portfolio review should be available soon and should be able to answer questions about urgent need, related questions about the capability needs the GCV is intended to fulfill, and establish the vehicle's priority relative to other weapons systems being reviewed. Decision makers will have to decide if the Army has made a convincing case for the GCV before allowing it to proceed into the technology development phase.⁴⁷

Given these concerns, it might be a reasonable conclusion that the Army has yet to build a compelling case for the requirement to develop and acquire the GCV. While Congress has provided funding for the GCV for FY2012 and has indicated its support for the program, some believe there might still be considerable skepticism that the program is both warranted, affordable, and achievable within the Army's self-imposed seven-year timeframe. If this skepticism persists, the Army might find it increasingly difficult to maintain the congressional support needed to see the program through to production.

Secretary of Defense Gates' West Point Speech and the Need for Armor Forces

On February 25, 2011, then Secretary of Defense Robert Gates addressed the Corps of Cadets and, among other observations, noted the following:

The need for heavy armor and firepower to survive, close with, and destroy the enemy will always be there, as veterans of Sadr City and Fallujah can no doubt attest. And one of the benefits of the drawdown in Iraq is the opportunity to conduct the kind of full-spectrum training – including mechanized combined arms exercises – that was neglected to meet the demands of the current wars. Looking ahead, though, in the competition for tight defense dollars within and between the services, the Army also must confront the reality that the most plausible, high-end scenarios for the U.S. military are primarily naval and air engagements – whether in Asia, the Persian Gulf, or elsewhere. The strategic rationale for swift-moving expeditionary forces, be they Army or Marines, airborne infantry or special operations, is self-evident given the likelihood of counterterrorism, rapid reaction, disaster response, or stability or security force assistance missions. But in my opinion, any future defense secretary who advises the president to again send a big American land army into

⁴⁶ Lance M. Bacon, "Some GCV Funds on Hold Until Congress Sees Report," *Army Times*, January 24, 2011, p. 17.

⁴⁷ GAO Report, Testimony Before the Subcommittee on Tactical Air and Land Forces, Committee on Armed Services, House of Representatives, "Defense Acquisitions: Key Questions Confront the Army's Ground Forces Modernization Initiatives," GAO-11-425T, March 9, 2011, p. 6.

Asia or into the Middle East or Africa should “have his head examined,” as General MacArthur so delicately put it.

By no means am I suggesting that the U.S. Army will – or should – turn into a Victorian nation-building constabulary – designed to chase guerrillas, build schools, or sip tea. But as the prospects for another head-on clash of large mechanized land armies seem less likely, the Army will be increasingly challenged to justify the number, size, and cost of its heavy formations to those in the leadership of the Pentagon, and on both ends of Pennsylvania Avenue, who ultimately make policy and set budgets.⁴⁸

Secretary Gates’ speech was perceived by some as directly questioning the need for a large number of tanks and armored fighting vehicles and, by association, the GCV. Some Members share Secretary Gates’ view. One Member during a March 2, 2011, HASC hearing reportedly asked then Army Chief of Staff General George Casey “what Secretary Gates’ speech would mean for the \$40 billion GCV, which is meant to replace vehicles in the Army’s heavy units?”⁴⁹ General Casey responded that the GCV was being developed for a full range of scenarios, “not just tank warfare.”⁵⁰

While Secretary Gates’ views on the need for mechanized units might not have an impact on Army force structure or operational focus, it seemingly raises the issue of future requirements for armored and mechanized forces, which could have an impact on the GCV program. If a decision is made for fewer heavy units, then it is likely that fewer GCVs would be needed, which might have an impact on the program as a whole. Also, a de-emphasis on heavy forces could result in further questioning the need for the GCV and make it that much more difficult to build and maintain support for the program.

The GCV and a Downsized Army

The GCV is intended to replace M-2 Bradley Infantry Fighting Vehicles (IFVs) in the Army’s 16 Active and 8 National Guard Heavy Brigade Combat Teams (HBCTs). The Army has committed to dropping its active end strength by 27,000 starting in 2015 but most defense analysts expect even deeper cuts in end strength, particularly if sequestration of the defense budget under the provisions of the Budget Control Act of 2011, P.L. 112-25, is enacted. If sequestration does occur, Secretary of Defense Panetta has told Congress that “all ground combat vehicle modernization programs would be terminated” meaning that the GCV program would be cancelled.⁵¹

While most believe sequestration will be averted, many experts believe the Army will cut anywhere from 10 to 15 BCTs and that a portion of these will be HBCTs.⁵² In addition, it was reported that former Chief of Staff of the Army, Chairman of the Joint Chiefs of Staff General Martin Dempsey, suggested a number of remaining active HBCTs could be moved into the Army

⁴⁸ DOD Transcript: Secretary of Defense Robert M. Gates’ Speech at the United States Military Academy, West Point, NY, Friday February 25, 2011.

⁴⁹ Kate Brannen, “Echoing Gates, Congress Questions U.S. Army GCV,” *Defense News*, March 7, 2011, p. 10.

⁵⁰ Ibid.

⁵¹ Letter to Senator Lindsey O. Graham from Secretary of Defense Leon Panetta, Subject: Additional Details about the Effects of Sequestration on the Department of Defense,” November 14, 2011.

⁵² Michael Hoffman, “U.S. Army May Cut 22 Percent of Brigades,” *Defense News*, October 24, 2011 and Michael Hoffman, “In U.S., Guard Battles Active Duty for Missions,” *Defense News*, December 12, 2011.

National Guard.⁵³ This suggests that there could be less emphasis placed on HBCTs in the future, which could serve to lessen the overall requirement for GCVs and the Army might not need all of the 1,874 GCVs it currently plans to acquire.

Aside from the potential for fewer BCTs, some are also questioning the role that ground forces, and by default, the GCV will play in the future.⁵⁴ Former Secretary Gates' February 2011 West Point speech set the stage for current debates about future U.S. military strategy. DOD is reportedly conducting a high-level, budget-driven, strategy review and the question of BCT composition as well as the need for the GCV is a topic of this debate. The recent announcement that the United States will shift strategic emphasis to the Indo-Pacific Rim has led some to suggest that under this strategy, it would be highly unlikely that the United States would ever deploy tens or hundreds of thousands of U.S. ground forces in this region. This change in emphasis has led to some analysts calling for fewer ground forces so that air and naval forces can be increased to deal with potential future threats in Asia and the Pacific.

In light of questions about the number of HBCTs the Army intends to field and the role of heavy ground forces in the future U.S. strategic construct, Congress might decide to require the Army to re-evaluate the GCV program in terms of numbers of vehicles required and the urgency of the requirement to field these vehicles within seven years.

GCV Affordability⁵⁵

Given current and possible future defense budget constraints, the ongoing debate over GCV affordability will likely become even more pronounced. The Army contends that the average unit production cost for the GCV will be between \$9 - \$10.5 million and the average unit production cost (including spare parts) will be between \$11 - \$13 million. The Pentagon's Office of Cost Assessment and Program Evaluation (CAPE) reportedly estimates the average unit production cost will be in the \$16 to \$17 million dollar range. Given this cost estimate, CAPE reportedly stated it would cost the Army an additional \$7.2 billion if the Army intends to procure 1,800 GCVs. The Army claims that this discrepancy in cost estimates is due to "different methodologies" used to estimate costs. While it is not unusual from a programmatic standpoint that Pentagon and Service cost estimates for major weapons program differ, under current and projected budgetary constraints, such differences could have a detrimental impact on programs already under a great deal of scrutiny. Given the differences in the Army's and CAPE's GCV cost estimates, Congress might choose to have the Army and CAPE reconcile these estimates before additional funds are appropriated for GCV development.

⁵³ Michael Hoffman, "In U.S., Guard Battles Active Duty for Missions," *Defense News*, December 12, 2011.

⁵⁴ Information in this section is taken from David W. Barno, Nora Bensahel, and Travis Sharp, "Hard Choices for Ground Forces," *Defense News*, October 17, 2011 and Sebastian Sprenger, "Army Faces Renewed Questions Over GCV Amid Strategy Review," *InsideDefense.com*, November 11, 2011.

⁵⁵ Information in this section is taken from Paul McLeary, "Ground Combat Vehicle Program Faces Questions," *Aviation Week*, August 22, 2011 and Michael Hoffman and Kate Brannen, "Higher Cost Estimate Threatens GCV: Colonel," *Defense News*, August 19, 2011.

Author Contact Information

Andrew Feickert
Specialist in Military Ground Forces
afeickert@crs.loc.gov, 7-7673