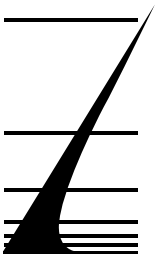
The Market for Light Wheeled Vehicles

Product Code #F652

A Special Focused Market Segment Analysis by:



FORECAST INTERNATIONAL

Analysis 3
The Market for Light Wheeled Vehicles

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PROGRAMS

The following reports are included in this section: (**Note:** a single report may cover several programs.)

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V-150 and M1117 Armored Security Vehicle
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Introduction

The concept of the light wheeled combat vehicle is hardly new, tracing its lineage back over 2,000 years to the armored chariot. However, the light wheeled vehicle has now matured into a significant modern combat asset. In addition to dedicated wheeled armored combat vehicle designs, armored variants of light utility vehicles are currently expanding the role of the light wheeled vehicle on the asymmetric battlefield.

In From the Cold

The modern light wheeled combat vehicle is a creature of the Cold War. In the 1950s, the BTR series in the Soviet Union blazed the trail for all others to follow. While the BTR series has amassed a somewhat checkered operational history, European light wheeled vehicle designs (notably the Piranha series, the Pandur, and the XA series) have amassed proven operational records. The General Dynamics LAV and Stryker (both derivatives of the 8x8 Piranha) can both boast of proven combat performance in Afghanistan and Iraq.

Impact on Force Transformation

In the United States and the United Kingdom, ground combat doctrine remains in a state of flux. The U.S. Force Transformation concept and the U.K. Future Rapid Effects System (FRES) program each envision fielding a medium force of rapidly deployable and highly mobile ground combat platforms, based on common chassis designs.

The U.K. Ministry of Defence has selected a wheeled design – the Piranha V – for the FRES utility variant, clearly demonstrating that the light wheeled vehicle concept remains in play as a viable option. Indeed, the combat-proven Stryker remains well placed, possibly to supplant the U.S. Army's canceled FCS Family of Manned Ground Vehicles and even the developmental Ground Combat Vehicles (GCV) program.

Future force structures will likely feature a mix of wheeled and tracked light armored vehicles. While light wheeled vehicles lack the armor protection of their tracked cousins, such vehicles offer levels of mobility and flexibility far beyond the capabilities of the heavier tracked vehicles.

The Evolving HMMWV

Prior to 2005, the Forecast International Weapons Group had not included the AM General HMMWV in its analysis of the international light wheeled vehicle market. The basic M998 series HMMWV is essentially an unarmored utility vehicle, not a dedicated combat vehicle. However, circumstances in Afghanistan and Iraq forced the HMMWV to evolve into a light armored vehicle.

The HMMWV remains in serial production to meet U.S. Department of Defense demand resulting from the intense operational tempo of Operation Enduring Freedom and Operation Iraqi Freedom/Operation New Dawn.

Between 2005 and 2009, the HMMWV utterly dominated the market. In the 2009 issue of this analysis, we expected the HMMWV would account for 71.54 percent of all light wheeled vehicle production worldwide, worth a commanding 42.98 percent of the market value, through 2020.

However, with the publication of the FY11 budget request documentation (February 2010), the U.S. Army severely curtailed HMMWV procurement. Indeed, we now expect the HMMWV will account for only 6.91 percent of all light wheeled vehicle production worldwide, worth 2.18 percent of the market value, through 2020.

MRAP: Short-Term Star

The Mine Resistant Ambush Protected (MRAP) vehicle program grew out of an immediate combat requirement in Iraq to counter the alarming level of casualties inflicted by improvised explosive devices (IEDs) on U.S. personnel traveling in up-armored HMMWVs.

Through December 2010, the U.S. Department of Defense placed orders for 25,685 MRAP vehicles, as follows:

- 10,969 Cat I vehicles
- 400 Cat I SOCOM vehicles
- 5,671 Cat II vehicles
- 179 Cat II ambulances
- 91 Cat III Buffalo vehicles
- 8,375 M-ATVs

The total value of all MRAP-related contract awards through December 2010 is nearly $23.1 billion.

Combined production for the five active MRAP vehicle programs will account for 25.15 percent of all light wheeled vehicle production worldwide, worth 18.15 percent of the market value, through 2020.

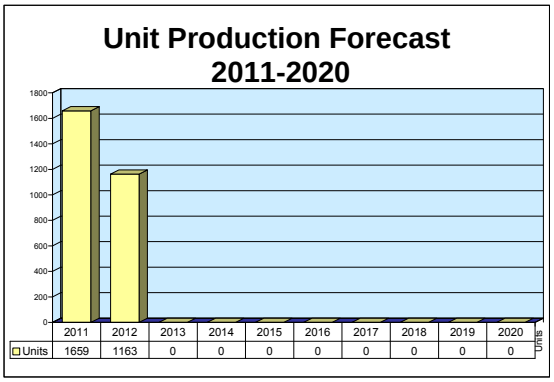
The newest member of the MRAP family, the second-generation M-ATV, may well become the most prolific vehicle line of the entire MRAP program. Through

Continued…

MRAP Vehicles

Outlook

- Center of gravity has shifted to production of M-ATV, for immediate combat requirements in Afghanistan
- Through December 2010, U.S. DoD has placed orders worth nearly $23.1 billion for 25,685 MRAP vehicles (including 8,375 M-ATVs) and support services
- Forecast reflects remaining M-ATV production for U.S. DoD procurement



Orientation

Description. Mine Resistant Ambush Protected vehicles, available in three weight classes.

Sponsor. The U.S. Marine Corps Systems Command (Quantico, Virginia) sponsors the MRAP program.

Status. Development through serial production.

Total Produced. Through 2010, we estimate the various contractors produced at least 22,499 MRAP vehicles for U.S. Department of Defense procurement.

Application. Wheeled armored vehicles optimized for protection against improvised explosive device attacks.

Price Range. MRAP vehicles carry the following estimated FY11 unit prices for U.S. DoD procurement:

Category I MRAP Vehicles

- Cougar: $475,000
- RG-31 Mk 5 MPV: $300,000
- RG-33: $300,000
- RG-33 SOCOM: $498,000
- MaxxPro: $520,000
- M-ATV: $544,500

Category II MRAP Vehicles

- Cougar JERRV: $625,000
- RG-33L: $630,000
- MaxxPro XL MPV: $531,000

Category III MRAP Vehicles

- Buffalo MPCV: $856,000

Contractors

Prime

BAE Systems Land & Armaments, U.S. Combat Systems, Ground Systems	http://www.baesystems.com, 1100 Bairs Rd, PO Box 15512, York, PA 17405-1512 United States, Tel: + 1 (717) 225 8000, Fax: + 1 (717) 225 8003, Prime
Force Protection Industries Inc	http://www.forceprotection.net/, 9801 Hwy 78, Ladson, SC 29456 United States, Tel: + 1 (843) 574 7000, Fax: + 1 (843) 329 0380, Email: info@forceprotection.net, Prime
General Dynamics Land Systems-Canada	http://www.gdlscanada.com, 1991 Oxford St E, Bldg 15, London, N5V 2Z7 Ontario, Canada, Tel: + 1 (519) 964 5900, Email: gdlscanada@gdls.com, Prime
Navistar International Corporation (International Military and Government LLC)	http://www.navistar.com, 4201 Winfield Rd, PO Box 1488, Warrenville, IL 60555 United States, Tel: + 1 (630) 753 5000, Email: elissa.koc@navistar.com, Prime

MRAP Vehicles

Oshkosh Corp	http://www.oshkoshcorporation.com, 2307 Oregon St, PO Box 2566, Oshkosh, WI 54903-2566 United States, Tel: + 1 (920) 235 9150, Fax: + 1 (920) 233 9607, Email: jsalas@oshtruck.com, Prime
General Dynamics Land Systems	http://www.gdls.com, Sterling Heights Complex, 38500 Mound Rd, Sterling Heights, MI 48310-3200 United States, Tel: + 1 (586) 825 4000, Fax: + 1 (586) 825 4013, Email: info@gdls.com, Second Prime

Subcontractor

Alcoa North American Rolled Products, Davenport Works	http://www.alcoa.com/locations/usa_davenport/en/home.asp, 4879 State St, Riverdale, IA 52722 United States, Tel: + 1 (563) 459 2001 (Aluminum Armor Plate)
Allison Transmission Division, General Motors Corp	http://www.allisontransmission.com, PO Box 894, Indianapolis, IN 46206 United States, Tel: + 1 (317) 242 5000 (Automatic Gearboxes)
ArmorWorks LLC	http://www.armorworks.com, 305 N 54th St, Chandler, AZ 85226 United States, Tel + 1 (480) 598 5700, Fax: + 1 (480) 598 5739, Email: info@armorworks.com (Blast-Attenuating Seats)
ArvinMeritor	http://www.arvinmeritor.com, 2135 W Maple Rd, Troy, MI 48084 United States, Tel: + 1 (248) 435 1000, Fax: + 1 (248) 435 1393, Email: contact.us@arvinmeritor.com (T-600 Transfer Case)
AxleTech International	http://www.axletech.com, 1005 High Ave, Oshkosh, WI 54901 United States, Tel: + 1 (920) 424 5001, Fax: + 1 (920) 424 5189 (Series 4000 Axles)
Caterpillar Inc	http://www.cat.com, 100 NE Adams St, Peoria, IL 61629 United States, Tel: + 1 (309) 675 1000, Email: dugan_jim@cat.com (C7 ACERT Diesel Engine)
Cummins Inc	http://www.cummins.com, 500 Jackson St, Columbus, IN 47201 United States, Tel: + 1 (812) 377 5000, Fax: + 1 (812) 377 3334, Email: carol.lavengood@cummins.com (QSB Series Diesel Engine)
Hutchinson Industries Inc	http://www.hutchinsoninc.com, 460 Southard St, Trenton, NJ 08638 United States, Tel: + 1 (609) 394 1010, Fax: + 1 (609) 394 2031, Email: sales@hutchinsoninc.com (Aluminum 2-Piece Wheels)
Kongsberg Defense Systems	http://www.kongsberg.com/en/KDS, Kirkegårdsveien 45, PO Box 1003, Kongsberg, 3601 Norway, Tel: + 47 32 28 82 00, Fax: + 47 32 28 86 20 (Remote Weapons Station)
Mack Trucks Inc	http://www.macktrucks.com, 2100 Mack Blvd, Allentown, PA 18103-5622 United States, Tel: + 1 (800) 866 1177, Email: mktg.comm@macktrucks.com (ASET AI-400 Diesel Engine)
Marmon-Herrington	http://www.marmon-herrington.com, 13001 Magisterial Dr, Louisville, KY 40223 United States, Tel: + 1 (800) 227 0727, Email: sales@marmon-herrington.com (Vehicle Axles)
Michelin North America Inc	http://www.michelinman.com, 1 Parkway S, Greenville, SC 29615 United States, Tel: + 1 (866) 866 6605 (XZL Series Run-Flat Tires)
Spartan Chassis Inc	http://www.spartanchassis.com, 1000 Reynolds Rd, Charlotte, MI 48813-0440 United States, Tel: + 1 (517) 543 6400, Email: info@spartanchassis.com (Chassis Integration)

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to www.forecastinternational.com (see Products & Samples/Governments & Industries) or call + 1 (203) 426-0800.

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

Note: As the following descriptions clearly illustrate, the availability of open-source technical data regarding the various Mine Resistant Ambush Protected (MRAP) vehicles remains inconsistent. While some contractors are quite open about most technical details of their vehicles, other contractors appear reluctant to publish even the most basic technical data. The Forecast International Weapons Group will continue to fill in these information gaps as the data become available.

Cougar Category I MRAP Vehicle

Source: Force Protection Industries Inc

Cougar Category I MRAP Vehicle

Crew. Two (driver and commander), plus four fully equipped soldiers.

Configuration. 4x4

Armor. V-shaped monocoque hull, featuring a blast-isolated crew/passenger compartment and a spall liner. Force Protection Industries has not released detailed data concerning the vehicle's protection against mines, improvised explosive devices (IEDs) or explosively formed penetrators (EFPs).

Dimensions. The following data reflect the contractor's published data for the baseline 4x4 Cougar Category I MRAP vehicle.

	SI Units	U.S. Units
Length	5.92 m	19.42 ft
Width	2.74 m	9 ft
Height	2.64 m	8.66 ft
Gross vehicle weight	17.24 tonnes	19 tons
Fuel capacity	Not available	Not available

Performance. The following data reflect use on a paved road.

	SI Units	U.S. Units
	SI Units	U.S. Units
Maximum speed	88.51 kmph	55 mph
Maximum range	675.91 km	420 stat mi
Approach angle	40 deg	40 deg
Departure angle	50 deg	50 deg
Slope	Not available	Not available
Gradient	Not available	Not available
Fording	0.99 m	3.25 ft

MRAP Vehicles

Engine. Caterpillar C7 ACERT six-cylinder diesel engine. This powerplant generates 246.18 kilowatts (330 hp), with a power-to-weight ratio of 14.28 kilowatts/tonne (17.37 hp/ton).

Gearbox. Allison 3500 SP series automatic gearbox, with one reverse and five forward gear ratios.

Suspension and Running Gear. The Category I Cougar mounts a Marmon-Herrington MT 17 front axle and a Marmon-Herrington R-17 rear axle. The vehicle mounts Hutchinson VFI aluminum two-piece wheels with Michelin XZL 365/85R20 run-flat tires.

Armament. The Cougar mounts the Kongsberg Advanced Multirole Weapon System/Remote Weapons Station as an option. The RWS can mount a 12.7x99mm (.50-cal) M2HB machine gun or a 40mm Mk 19 automatic grenade launcher. The Category I Cougar can also mount a 360 degree ring-mount, a swing-arm mount, or a spigot mount as options.

RG-31 Mk 5 MPV Category I MRAP Vehicle

Source: General Dynamics Land Systems-Canada

RG-31 Mk 5 MPV Category I MRAP Vehicle

Crew. Two (driver and commander), plus six fully equipped soldiers.

Configuration. 4x4

Armor. V-shaped monocoque hull. According to General Dynamics Land Systems-Canada, the armor can defeat up to 7.62x51mm NATO (.308 Winchester) rounds. The contractor has not released detailed data concerning the vehicle's protection against mines, IEDs, or EFPs.

Open-source reporting suggests the RG-31 has proven "somewhat less survivable" than the Cougar.

Dimensions. The following data reflect the contractor's published data for the baseline RG-31 mine protected vehicle (Category I MRAP).

	SI Units	U.S. Units
Length	6.6 m	21.66 ft
Width	2.47 m	8.12 ft
Height	2.72 m	8.92 ft
Gross vehicle weight	14.19 tonnes	15.64 tons
Fuel capacity	196.83 liters	52 gal

Performance. The following data reflect use on a paved road.

	SI Units	U.S. Units
Maximum speed	112.65 kmph	70 mph
Maximum range	804.65 km	500 stat mi
Approach angle	35 deg	35 deg
Departure angle	47 deg	47 deg
Slope	30%	30%
Gradient	60%	60%
Fording	0.91 m	3 ft

Engine. Cummins QSB series six-cylinder in-line diesel engine. This powerplant generates 205.15 kilowatts (275 hp), with a power-to-weight ratio of 14.46 kilowatts/tonne (17.58 hp/ton).

Gearbox. Allison 2500 SP series automatic gearbox, with one reverse and five forward gear ratios. The RG 31 also features a Meritor T-600 two-speed transfer case with front and rear locking differentials. The vehicle operates in a full-time four-wheel-drive configuration.

Suspension and Running Gear. The RG-31 mounts AxleTech Series 4000 front and rear axles, supported by semi-elliptical leaf springs and dual double-acting hydraulic shocks. The front axle has a load capacity of 6,500 kilograms (14,330 lb); the rear axle has a load capacity of 9,503 kilograms (20,950 lb). Each axle features hub reduction and locking differentials, as well as pneumatically operated disc brakes. The vehicle mounts Michelin XZL 365/80R20 run-flat tires, with an option for a central tire inflation system (CTIS).

Armament. The RG-31 can mount the Platt MR555 flex-mount with ballistic shield. This mount is compatible with various light weapons, including the 12.7x99mm (.50-caliber) M2HB heavy machine gun and the 40mm Mk 19 automatic grenade launcher.

RG-33 Category I MRAP Vehicle

Source: BAE Systems Land & Armaments

RG-33 Category I MRAP Vehicle

Crew. Two (driver and commander), plus six fully equipped soldiers.

Configuration. 4x4

Armor. V-shaped monocoque hull. While BAE Systems has not released detailed data concerning the vehicle's protective suite, the contractor claims the armor protects against anti-tank mines, improvised IEDs, overhead blast, and "hemispherical ballistic threats."

Open-source reporting suggests the lightly armored engine compartment (the V-shaped monocoque hull protects only the crew/passenger compartment) of the RG-33 design makes the vehicle especially vulnerable to a "mobility kill," leaving the passengers and crew stranded during a hostile attack.

Dimensions. The following data reflect the contractor's published data for the baseline RG-33 Category I MRAP vehicle.

	SI Units	U.S. Units
Length	6.73 m	22.08 ft
Width	2.44 m	8 ft
Height	3.45 m	11.33 ft
Gross vehicle weight	17.24 tonnes	19 tons
Fuel capacity	Not available	Not available

MRAP Vehicles

Performance. The following data reflect use on a paved road.

	SI Units	U.S. Units
Maximum speed	109.43 kmph	68 mph
Maximum range	Not available	Not available
Approach angle	Not available	Not available
Departure angle	Not available	Not available
Slope	Not available	Not available
Gradient	Not available	Not available
Fording	Not available	Not available

Engine. Cummins 400 I6 six-cylinder in-line diesel engine. This powerplant generates 298.4 kilowatts (400 hp), with a power-to-weight ratio of 17.31 kilowatts/tonne (21.05 hp/ton).

Gearbox. Allison 3200 automatic gearbox, with one reverse and five forward gear ratios.

Suspension and Running Gear. Data not available.

Armament. The RG-33 features a common weapon ring mount on the roof, which can accept a variety of weapons systems, including the Remote Weapons Station (RWS).

MaxxPro Category I MRAP Vehicle

Source: International Military & Government LLC

MaxxPro Category I MRAP Vehicle

Crew. Two (driver and commander), plus four fully equipped soldiers.

Configuration. 4x4

Armor. V-shaped monocoque hull, bolted to an International WorkStar 7000-series truck chassis. Unlike other MRAP contractors, International Military & Government LLC does not weld the vehicle body; the MaxxPro MRAP vehicles feature a bolted-together design to facilitate rapid assembly and repairs.

While IMG has not released detailed data concerning the vehicle's protective suite, the contractor claims the design has survived a 7-kilogram (15.4-lb) land mine blast with no injuries to the crew or passengers

Dimensions. The following data reflect the contractor's published data for the baseline MaxxPro Category I MRAP vehicle.

	SI Units	U.S. Units
	SI Units	U.S. Units
Length	6.45 m	21.17 ft
Width	2.51 m	8.25 ft
Height	3.05 m	10 ft
Gross vehicle weight	14.29 tonnes	15.75 tons
Fuel capacity	Not available	Not available

Performance. The following data reflect use on a paved road.

	SI Units	U.S. Units
	SI Units	U.S. Units
Maximum speed	Not available	Not available
Maximum range	Not available	Not available
Approach angle	58 deg	58 deg
Departure angle	46 deg	46 deg
Slope	30%	30%
Gradient	70%	70%
Fording	0.91 m	3 ft

Engine. International MaxxForce I6 turbocharged diesel engine line. This engine generates 246.18 kilowatts (330 hp), with a power-to-weight ratio of 17.28 kilowatts/tonne (20.95 hp/ton).

Gearbox. Allison 3000 automatic gearbox, with one reverse and five forward gear ratios. The MaxxPro Cat I vehicle also features an unspecified two-speed transfer case.

Suspension and Running Gear. The MaxxPro Cat I vehicle mounts a 7,273-kilogram (16,000-lb) capacity front axle and a 9,545-kilogram (21,000-lb) capacity rear axle, supported by semi-eliptical leaf springs and double-acting telescopic hydraulic shocks.

Each wheel features air-operated disc brakes with ABS and traction control. The vehicle mounts 395/85R20 run-flat tires, with an option for a central tire inflation system (CTIS).

Armament. Data not available.

MRAP All Terrain Vehicle (M-ATV)

Source: Oshkosh Defense

MRAP All Terrain Vehicle (M-ATV)

Crew. Two (driver and commander), plus three fully equipped soldiers (one acting as gunner).

Configuration. 4x4

Armor. V-shaped monocoque hull, featuring what the contractor refers to only as a "mature, battle-tested armor configuration" from Plasan North America.

Open-source reporting suggests the M-ATV employs a composite armor suite of undisclosed composition.

Dimensions. The following data reflect the contractor's published data for the baseline M-ATV vehicle. To date, the contractor has not released any dimensional data regarding the M-ATV.

	SI Units	U.S. Units
Length	Not available	Not available
Width	Not available	Not available
Height	Not available	Not available
Gross vehicle weight	14.72 tonnes	16.23 tons
Fuel capacity	Not available	Not available

MRAP Vehicles

Performance. The following data reflect use on a paved road. To date, the contractor has not released any performance data regarding the M-ATV

	SI Units	U.S. Units
Maximum speed	Not available	Not available
Maximum range	515 km	320 stat mi
Approach angle	Not available	Not available
Departure angle	Not available	Not available
Slope	Not available	Not available
Gradient	Not available	Not available
Fording	Not available	Not available

Engine. Caterpillar C7 diesel engine. This engine generates 276.02 kilowatts (370 hp), with a power-to-weight ratio of 18.75 kilowatts/tonne (22.8 hp/ton).

Gearbox. Allison 3500 SP automatic gearbox, with one reverse and six forward gear ratios. The M-ATV also features a Marmon-Herrington transfer case.

Suspension and Running Gear. Oshkosh TAK-4 independent suspension. The M-ATV also mounts Oshkosh MTVR axles.

The M-ATV features a two-channel Central Tire Inflation System (CTIS), with four terrain settings and an integrated driveline lock control system.

Armament. Data not available.

Cougar JERRV Category II MRAP Vehicle

Source: Force Protection Industries Inc

Cougar JERRV Category II MRAP Vehicle

Crew. Two (driver and commander), plus eight fully equipped soldiers.

Configuration. 6x6

Armor. V-shaped monocoque hull, featuring a blast-isolated crew/passenger compartment and a spall liner. Force Protection Industries (FPI) has not released detailed data concerning the vehicle's protection against mines, IEDs, or explosively formed penetrators (EFPs).

Dimensions. The following data reflect the contractor's published data for the baseline Cougar Joint Explosive Ordnance Disposal Rapid Response Vehicle (Category II MRAP).

	SI Units	U.S. Units
Length	7.09 m	23.25 ft
Width	2.74 m	9 ft
Height	2.64 m	8.66 ft
Gross vehicle weight	23.59 tonnes	26 tons
Fuel capacity	Not available	Not available

Performance. The following data reflect use on a paved road.

	SI Units	U.S. Units
Maximum speed	88.51 kmph	55 mph
Maximum range	675.91 km	420 stat mi
Approach angle	40 deg	40 deg
Departure angle	50 deg	50 deg
Slope	Not available	Not available
Gradient	Not available	Not available
Fording	0.99 m	3.25 ft

Engine. Caterpillar C7 ACERT six-cylinder diesel engine. This powerplant generates 246.18 kilowatts (330 hp), with a power-to-weight ratio of 10.44 kilowatts/tonne (12.69 hp/ton).

Gearbox. Allison 3500 SP series automatic gearbox, with one reverse and five forward gear ratios.

Suspension and Running Gear. The Category II Cougar mounts a Marmon-Herrington MT-17 front axle, as well as Marmon-Herrington RH-17 center and rear axles. The vehicle mounts Hutchinson VFI aluminum two-piece wheels with Michelin XZL 395/85R20 run-flat tires.

Armament. Same as the Cougar Category I MRAP vehicle.

RG-33L Category II MRAP Vehicle

Source: BAE Systems Land & Armaments

RG-33L Category II MRAP Vehicle

Crew. Two (driver and commander), plus 12 fully equipped soldiers.

Configuration. 6x6

Armor. V-shaped monocoque hull. While BAE Systems has not released detailed data concerning the vehicle's protective suite, the contractor claims the armor protects against anti-tank mines, IEDs, overhead blasts, and "hemispherical ballistic threats."

Open-source reporting suggests the lightly armored engine compartment (the V-shaped monocoque hull protects only the crew/passenger compartment) of the RG-33 design makes the vehicle especially vulnerable to a "mobility kill," leaving the passengers and crew stranded during a hostile attack.

Dimensions. The following data reflect the contractor's published data for the baseline RG-33L Category II MRAP vehicle.

	SI Units	U.S. Units
Length	8.59 m	28.17 ft
Width	2.44 m	8 ft
Height	3.45 m	11.33 ft
Gross vehicle weight	26.31 tonnes	29 tons
Fuel capacity	302.8 liters	80 gal

MRAP Vehicles

Performance. The following data reflect use on a paved road.

	SI Units	U.S. Units
Maximum speed	107.82 kmph	67 mph
Maximum range	Not available	Not available
Approach angle	Not available	Not available
Departure angle	Not available	Not available
Slope	Not available	Not available
Gradient	Not available	Not available
Fording	Not available	Not available

Engine. Cummins 400 I6 six-cylinder in-line diesel engine. This powerplant generates 298.4 kilowatts (400 hp), with a power-to-weight ratio of 11.34 kilowatts/tonne (13.79 hp/ton).

Gearbox. Allison 3200 automatic gearbox, with one reverse and five forward gear ratios.

Suspension and Running Gear. Data not available.

Armament. Same as the RG-33 Category II MRAP vehicle.

MaxxPro XL MPV Category II MRAP Vehicle

Source: International Military & Government LLC

MaxxPro XL MPV Category II MRAP Vehicle

Crew. Two (driver and commander), plus 10 fully equipped soldiers.

Configuration. 4x4

Armor. V-shaped monocoque hull, bolted to an International WorkStar 7000-series truck chassis. Unlike other MRAP contractors, International Military & Government LLC does not weld the vehicle body; the MaxxPro MRAP vehicles feature a bolted-together design to facilitate rapid assembly and repair.

While IMG has not released detailed data concerning the vehicle's protective suite, the contractor claims the design has survived a 7-kilogram (15.4-lb) land mine blast with no injuries to the crew or passengers.

Dimensions. The following data reflect the contractor's published data for the baseline MaxxPro XL mine protected vehicle (Category II MRAP).

	SI Units	U.S. Units
Length	7.16 m	23.5 ft
Width	2.51 m	8.25 ft
Height	3.05 m	10 ft
Gross vehicle weight	18.6 tonnes	20.5 tons
Fuel capacity	Not available	Not available

Performance. The following data reflect use on a paved road.

	SI Units	U.S. Units
Maximum speed	Not available	Not available
Maximum range	Not available	Not available
Approach angle	58 deg	58 deg
Departure angle	48 deg	48 deg
Slope	30%	30%
Gradient	70%	70%
Fording	0.91 m	3 ft

Engine. International MaxxForce I6 turbocharged diesel engine line. This engine generates 246.18 kilowatts (330 hp), with a power-to-weight ratio of 13.24 kilowatts/tonne (16.1 hp/ton).

Gearbox. Allison 3000 automatic gearbox, with one reverse and five forward gear ratios. The MaxxPro Cat I vehicle also features an unspecified two-speed transfer case.

Suspension and Running Gear. The MaxxPro Cat I vehicle mounts a 9,091-kilogram (20,000-lb) capacity front axle and a 10,455-kilogram (23,000-lb) capacity rear axle, supported by semi-eliptical leaf springs and double-acting telescopic hydraulic shocks.

Each wheel features air-operated disc brakes with ABS and traction control. The vehicle mounts 395/85R20 run-flat tires, with an option for a central tire inflation system (CTIS).

Armament. Data not available.

Buffalo MPCV Category III MRAP Vehicle

Source: Force Protection Industries Inc

Buffalo MPCV Category III MRAP Vehicle

Crew. Two (driver and commander), plus four fully equipped soldiers.

Configuration. 6x6

Armor. V-shaped monocoque hull, featuring a blast isolated crew/passenger compartment and a spall liner. Force Protection Industries (FPI) has not released detailed data concerning the vehicle's protection against mines, IEDs, or explosively formed penetrators EFPs.

Dimensions. The following data reflect the contractor's published data for the baseline Buffalo Mine Protected Clearance Vehicle (Category III MRAP).

	SI Units	U.S. Units
Length	8.2 m	26.92 ft
Width	2.59 m	8.5 ft
Height	3.96 m	13 ft
Gross vehicle weight	36.29 tonnes	40 tons
Fuel capacity	321.75 liters	85 gal

MRAP Vehicles

Performance. The following data reflect use on a paved road.

	SI Units	U.S. Units
Maximum speed	88.51 kmph	55 mph
Maximum range	482.79 km	300 stat mi
Approach angle	20 deg	20 deg
Departure angle	25 deg	25 deg
Slope	Not available	Not available
Gradient	Not available	Not available
Fording	0.91 m	3 ft

Engine. Mack ASET AI-400 six-cylinder in-line diesel engine. This powerplant generates 298.4 kilowatts (400 hp), with a power-to-weight ratio of 8.22 kilowatts/ tonne (10 hp/ton).

Gearbox. Allison 4560 SP series automatic gearbox, with one reverse and five forward gear ratios.

Suspension and Running Gear. The Buffalo MPCV features an AxleTech 30,000-pound drive steer axle in front, as well as Mack tandem 50,000-pound axles (25,000 lb on each side) in the center and rear. The vehicle mounts Hutchinson VFI aluminum two-piece wheels with Michelin XZL 1600R20 run-flat tires.

Armament. Data not available. It is likely the Buffalo MPCV can mount the same armament options as the Category I and Category II Cougar vehicles.

Variants/Upgrades

Variants. The following table summarizes the variety of basic MRAP vehicles currently available, as described in the Technical Data section above.

Designation	Category	Configuration	Remarks
Cougar	Cat I	4x4	
RG-31 Mk 5 MPV	Cat I	4x4	
RG-33	Cat I	4x4	
RG-33 SOCOM	Cat I	4x4	U.S. Special Operations Command variant
MaxxPro	Cat I	4x4	
M-ATV	Cat I	4x4	
Cougar JERRV	Cat II	6x6	
RG-33L	Cat II	6x6	
RG-33L Ambulance	Cat II	6x6	Casualty evacuation variant
MaxxPro XL MPV	Cat II	4x4	
Buffalo MPCV	Cat III	6x6	

Modernization and Retrofit Overview. There are currently no specific modernization and retrofit programs for the MRAP vehicles. The contractors intend to integrate improvements to MRAP vehicles as production cut ins and retrofit kits.

LROD Kits. In July 2007, BAE Systems began installing its LROD rocket-propelled grenade protection kits on U.S. Army RG-31 series Category I MRAP vehicles.

Similar in concept to the slat armor cages of the Stryker armored vehicles, the LROD kit is a lightweight, modular bar-armor system composed of aluminum alloy that bolts onto a vehicle in order to provide protection against RPG strikes.

MRAP II. On July 31, 2007, the U.S. Marine Corps Systems Command announced a competitive solicitation for a second generation of the MRAP program, known as MRAP II.

Correcting Program Deficiencies

Under the auspices of the MRAP II program, MARCORSYSCOM sought to correct identified deficiencies in the original MRAP vehicles. Specifically, MRAP II is supposed to provide the following improvements:

- Improved mobility (speed and maneuverability).
- Improved protection against EFPs.

- Capability to carry more armor.
- A speed-up in the production cycle.

An explosively formed penetrator is essentially an explosive warhead capped with a metal disk. The detonation of the warhead forms the disk into a high-velocity molten metal slug that can penetrate vehicle armor. The V-shaped hull design of MRAP vehicles is designed primarily to protect against mine and IED blasts underneath the vehicle. In an effort to reduce weight, the initial generation of MRAP vehicles mounted side armor that proved inadequate to meet the EFP threat. This emerging EFP threat quickly became the prime impetus for the MRAP II program.

No New MRAP II Production?

On October 1, 2007, six contractors delivered vehicles to the Aberdeen Proving Ground for the MRAP II competition. However, MARCORSYSCOM only awarded two relatively minor contracts for an unspecified number of MRAP II test vehicles in December 2007. Deliveries of these vehicles were to have occurred in July 2008.

The lack of any news concerning these MRAP II test vehicles – or the MRAP II program in general – leads the Forecast International Weapons Group to conclude MRAP II has become a modernization and retrofit program for existing MRAP vehicles. Consequently, the initial 20,500-vehicle MRAP II requirement no longer has any relevance, as the requirement will involve original MRAP vehicles retrofit to the MRAP II configuration.

The MRAP All Terrain Vehicle (M-ATV) has clearly supplanted MRAP II as the effort to produce a next-generation MRAP vehicle.

Program Review

Background. The Mine Resistant Ambush Protected (MRAP) vehicle program grew out of an immediate combat requirement in Iraq to counter the alarming level of casualties inflicted by improvised explosive devices (IEDs) on U.S. personnel traveling in up-armored HMMWVs. To date, IED attacks on HMMWVs account for about 70 percent of the U.S. casualties suffered during Operation Iraqi Freedom (now called Operation New Dawn).

Urgent Operational Requirement

In May 2006, Multinational Forces-West issued an urgent operational requirement (UOR) for 185 mine-protected vehicles to help counter the IED threat. In July 2006, MNF-West issued a UOR for an additional 1,200 mine protected vehicles.

In response to the UORs, the U.S. Marine Corps Systems Command (Quantico, Virginia) issued a Request for Proposals challenging defense contractors to provide mine-protected vehicles, complete with in-theater contractor-provided support, for immediate deployment to Iraq. As there was no established budget line for such a vehicle program, MARCORSYSCOM intended to treat the program similarly to a commercial off-the-shelf (COTS) procurement, funded through the Supplemental spending bills. Further, this was to be a short-term program, not extending beyond 2008.

As the mine protected vehicle program quickly evolved into MRAP, the U.S. DoD performance specifications for the MRAP program divided the vehicles into three broad categories, as follows:

<u>Category I MRAP Vehicles</u>

- Weigh about 6.35-13.61 tonnes (7-15 tons)
- 2-man crew, plus at least 4 passengers
- For personnel transport in built-up areas

<u>Category II MRAP Vehicles</u>

- Weigh about 13.61-22.68 tonnes (15-25 tons)
- 2-man crew, plus up to 8 passengers
- For road escort, casualty evacuation, and bomb disposal missions

<u>Category III MRAP Vehicles</u>

- Weigh about 22.68 tonnes (25 tons)
- 2-man crew, plus 4 passengers
- Exclusively for bomb disposal missions

For two years before the initiation of the MRAP program, the U.S. Army and U.S. Marine Corps had been employing two large mine protected vehicles in Iraq for mine clearance and explosive ordnance disposal work. In October 2004, Force Protection Industries Inc (Ladson, South Carolina) delivered the first Cougar Joint Explosive Ordnance Disposal Rapid Response Vehicle (JERRV) to the 31st Marine Expeditionary Unit (MEU) in Iraq.

The Cougar JERRV, along with FPI's Buffalo Mine Protected Clearance Vehicle, became the conceptual basis for the MRAP program. Indeed, the original MRAP requirements document described the MRAP

Category II vehicle as the "operational equivalent" of the Cougar JERRV. The same document said that the Buffalo MPCV "will be" the MRAP Category III vehicle.

Casting a Wide Net

On January 26, 2007, MARCORSYSCOM awarded firm-fixed-price, indefinite delivery/indefinite quantity multiple award contracts to nine contractors for the MRAP program. The participating contractors were:

- BAE Systems, Ground Systems Division (Santa Clara, CA)
- Oshkosh Truck Corporation (Oshkosh, WI)
- Protected Vehicles Inc (North Charleston, SC)
- General Dynamics Land Systems-Canada Corporation (Ontario, Canada)
- Force Protection Industries Inc (Ladson, SC)
- Armor Holdings Inc/Stewart & Stevenson Tactical Vehicle Systems (Sealy, TX)
- Textron Marine & Land Systems (New Orleans, LA)
- General Purpose Vehicles LLC (New Haven, MI)
- International Military & Government LLC (Warrenville, IL)

These initial contracts, with a combined value of nearly $34.6 million, covered orders for 36 test vehicles (two MRAP Category I and two MRAP Category II vehicles from each contractor) plus associated vehicle support. Under the contracts, the contractors were to have delivered the initial test vehicles no later than 60 days after contract award. The initial field-test evolution (including blast and ballistic testing) of the MRAP prototypes began in April 2007 at the U.S. Army's Aberdeen Proving Grounds (Aberdeen, Maryland).

Shifting Requirements

In February 2007, the U.S. Marine Corps announced its intention to replace all of its up-armored HMMWVs in Iraq with MRAP vehicles.

By March 26, 2007, U.S. DoD documents indicated the MRAP program would initially involve a requirement for 7,774 vehicles, at a total cost of $8.4 billion. At that point, plans called for the initial MRAP vehicle run to be distributed as follows (this breakout does not account for three prototypes):

- U.S. Marine Corps: 3,700 vehicles
- U.S. Army: 2,500 vehicles
- U.S. Navy: 544 vehicles
- U.S. Air Force: 697 vehicles
- U.S. Special Operations Command: 333 vehicles

This original 7,774-vehicle requirement broke-out as follows:

- 4,809 Category I vehicles
- 2,893 Category II vehicles
- 72 Category III vehicles

In May 2007, the U.S. Army reportedly began considering replacing all of its up-armored HMMWVs in Iraq with MRAP vehicles, potentially increasing the Army's total MRAP requirement to approximately 17,700 vehicles. However, from the start, the Forecast International Weapons Group considered this more of a bargaining position to secure congressional funding than a serious procurement objective. Indeed, we heard little, if anything, about this 17,700-vehicle figure after Army officials originally floated the trial balloon during congressional testimony.

In June 2007, the U.S. Department of Defense Joint Allocation Decision Board approved plans to reallocate 1,200 MRAP vehicles originally destined for the U.S. Marine Corps to the U.S. Army. On June 28, 2007, reports indicated the Joint Requirements Oversight Council (JROC) had endorsed a requirement to replace every up-armored HMMWV in Iraq with an MRAP vehicle.

Past 'Official' Procurement Objective

In September 2007, the JROC validated a revised MRAP procurement objective of 15,374 vehicles. Despite earlier maneuvering and numbers crunching, that figure became the "official" procurement objective for the first generation of MRAP vehicles.

By April 2008, the U.S. Department of Defense had settled upon a revised distribution model for MRAP vehicles:

- U.S. Army: 10,433-15.884 vehicles
- U.S. Marine Corps: 2,225 vehicles (down from 3,700 vehicles)
- U.S. Air Force: 558 vehicles (down from 697 vehicles)
- U.S. Navy: 544 vehicles
- USSOCOM: 344 vehicles
- Ballistic testing: 100 vehicles

This distribution scheme provided for a U.S. DoD procurement of between 14,204 and 19,655 MRAP vehicles.

Description. In the Technical Data section of this report, we note the vehicle specifications available through open sources. All MRAP vehicles in the U.S. inventory share the signature characteristics of the V shaped hull and heavy belly armor to protect the occupants from IED blasts under the vehicles. All MRAP vehicles also feature air conditioning, ballistic glass, and four-point harness systems for the occupants.

Although none of the MRAP contractors have released technical data on the vehicles' armor suites, we can glean some idea of the MRAP armor protection standards from earlier FPI promotional literature about the Cougar JERRV and the Buffalo MCPV. Prior to the MRAP program, FPI stated the Cougar and Buffalo feature body armor and ballistic glass that provide protection against 7.62mm small arms fire. The vehicle chassis provides mine protection against the equivalent of 20.45 kilograms (45 lb) of TNT under each wheel; it protects against a 13.64-kilogram (30-lb) TNT detonation under the rest of the vehicle.

MRAP Players. Through December 2010, the U.S. Department of Defense has placed orders for 25,685 MRAP vehicles, as follows:

- 10,969 Cat I vehicles
- 400 Cat I SOCOM vehicles
- 5,671 Cat II vehicles
- 179 Cat II ambulances
- 61 Cat III Buffalo vehicles
- 8,375 M-ATVs

Deliveries of all first-generation MRAP vehicles were to have been completed by November 2009. However, follow-on orders have extended this completion point to November 2012. At present, M-ATV deliveries under existing contracts are to be completed in May 2012. The total value of all MRAP-related contracts through December 2010 is nearly $23.1 billion.

BAE Systems Land & Armaments LP. BAE Systems, along with its Armor Holdings/Stewart & Stevenson Tactical Vehicle Systems subsidiaries, produce MRAP Category I and Category II vehicles for the U.S. Department of Defense. Since January 2007, BAE Systems (including Armor Holdings and Stewart & Stevenson TVS) has received contracts worth over $5.48 billion for production and support of 1,559 Category I and 3,597 Category II vehicles.

These contracts account for 20.07 percent of all MRAP vehicles ordered, worth 23.76 percent of the total value of the MRAP program through December 2010.

Force Protection Industries Inc. Force Protection Industries produces all three categories of MRAP vehicles for the U.S. Department of Defense. Since January 2007, FPI has received contracts worth over $3 billion for production of 1,686 Category I, 1,555 Category II, and 91 Category III vehicles.

These contracts account for 12.97 percent of all MRAP vehicles ordered, worth 13.04 percent of the total value of the MRAP program through December 2010.

In December 2006, Force Protection Industries and General Dynamics Land Systems formed a new joint venture called Force Dynamics to produce FPI vehicle designs for the MRAP program.

General Dynamics Land Systems-Canada Corp. GDLS-Canada produces MRAP Category I and MRAP Category II vehicles for the U.S. Department of Defense. Since January 2007, GDLS Canada has received contract awards worth over $1.04 billion for production of 294 MRAP Category I vehicles and 612 MRAP Category II vehicles.

These contracts account for 3.53 percent of all MRAP vehicles currently ordered, worth 4.53 percent of the total value of the MRAP program through December 2010.

In December 2006, Force Protection Industries and General Dynamics Land Systems formed a new joint venture called Force Dynamics to produce FPI vehicle designs for the MRAP program. In addition, GDLS Canada is the North American licensee for the BAE Systems Land Systems OMC (Benoni, South Africa) RG-31 mine protected vehicle. GDLS-Canada produced the RG-31 as an MRAP Category I vehicle for the U.S. Department of Defense.

General Purpose Vehicles LLC. Following the initial contract award for two MRAP Category I and two MRAP Category II test vehicles, General Purpose Vehicles LLC dropped out of the MRAP program.

Navistar Defense LLC. Through its International Military & Government subsidiary, Navistar produces MRAP Category I and Category II vehicles for the U.S. Department of Defense. Since January 2007, Navistar/IMG has received contracts worth over $7.61 billion for production of 7,722 Category I and 18 Category II vehicles.

These contracts account for 30.13 percent of all MRAP vehicles ordered, worth 33 percent of the total value of the MRAP program through December 2010.

MRAP Vehicles

Oshkosh Truck Corp. Following the initial contracts for test vehicles, Oshkosh received one order for production of 100 MRAP Category I vehicles. However, technical deficiencies with the delivered vehicles prevented their deployment, seemingly knocking Oshkosh out of the MRAP program.

In June 2009, Oshkosh returned to the MRAP program with a vengeance, however, winning the lucrative procurement contract for the M-ATV.

Since January 2007, Oshkosh has received contracts worth over $5.35 billion for production of 102 MRAP Category I vehicles, 2 MRAP Category II test vehicles and 8,375 M-ATVs.

These contracts account for 33.01 percent of all MRAP vehicles ordered, worth 23.22 percent of the total value of the MRAP program through December 2010.

Protected Vehicles Inc. Following the initial contracts for test vehicles, PVI received one order for production of 60 MRAP Category II vehicles.

Since January 2007, PVI has received only two contract awards, worth about $41.28 million, for production of 2 MRAP Category I test vehicles and 62 MRAP Category II vehicles.

These contracts account for 0.25 percent of all MRAP vehicles ordered, worth 0.18 percent of the total value of the MRAP program through December 2010.

Textron Marine & Land Systems. Following the initial contract award for two Category I and two Category II test vehicles, Textron Marine & Land Systems dropped out of the MRAP program.

DX Rating

In a June 1, 2007 memo, U.S. Secretary of Defense Robert Gates approved assigning MRAP a DX rating, giving the program priority for critical resources such as steel and tires.

The U.S. Department of Defense mandates that defense industries give DX-rated programs preference for material and production over programs with more conventional DO ratings and over commercial orders. The Secretary of Defense awards acquisition programs DX ratings if they are of the highest national defense urgency, have compressed schedules, and are grappling with production resource problems.

Operational Evaluation. The ultimate test of any combat vehicle is, of course, its performance in actual combat. The MRAP vehicle is certainly no exception to this rule.

An Expedient Solution

A member of the U.S. Marine Corps Combat Development Command made comments that stand as perhaps the most cogent assessment of the MRAP program thus far. Kevin McConnell (deputy director of the Fires and Maneuver Integration Division of the Marine Corps Combat Development Command's Capabilities Development Directorate) described the MRAP program as follows:

The MRAP will show in the coming years it was an expedient solution, it's not a good solution. It's too heavy, it's too big. You can't move. It breaks. You can't go off-road, all those kind of things. It's no surprise. We had to do something and that was the easiest thing to do immediately.

Indeed, the very size of the first-generation MRAP vehicles may be their greatest vulnerability. A June 13, 2008, report by the U.S. Marine Corps Center for Lessons Learned indicated that over 50 percent of all MRAP mishaps have involved vehicle rollovers due to the high center of gravity of these vehicle designs.

Reports have also cited the following additional safety issues involving first-generation MRAP vehicles:

- The vehicles present an electrocution hazard in urban terrain, as the tall vehicles (with antennae projecting even higher) are prone to contact with low-slung power lines.
- The safety glass used in MRAP vehicles can dissolve into a harmful powder when exposed to the extreme heat generated by EFPs.
- Troops have complained about the inward-facing seats in MRAP vehicles, which do not allow use of the vehicle firing ports. Some MRAP vehicles do not even feature firing ports.
- Troops have also complained about the steepness of the drop-down stairs at the rear of some MRAP vehicles.
- Due to the physics of the MRAP vehicles, passengers are often propelled out of their seats and into the vehicle roof in rough terrain.

Whatever the relative strengths and weaknesses of the MRAP vehicles in combat, the fact remains that they are victims of their own publicity. As a direct result of all the early promotional hyperbole from the U.S. Department of Defense and the various contractors, combined with an unhealthy dose of bluster and political posturing by members of Congress, the entire MRAP program finds itself mired in an impossible

position. In short, no program could live up to the expectations that the MRAP faces.

Still a Short-Term Solution

At the end of the day, once we strip away all of the controversy, we find that the MRAP program – including the second-generation M-ATV – is still bound by the original intent of the U.S. Marine Corps requirement in response to the 2006 UORs. MRAP remains a relatively short-term program to address a specific immediate combat requirement. No more, no less.

Related News

M-ATV, JLTV Shine in GAO Report – The Department of Defense is acquiring two new tactical wheeled vehicles (TWV): the Mine Resistant Ambush Protected (MRAP) All Terrain Vehicle (M-ATV) and the Joint Light Tactical Vehicle (JLTV). The $12.5 billion M-ATV is for use in Afghanistan; the JLTV is the future replacement for vehicles like the HMMWV.

The Government Accountability Office (GAO) was asked to assess 1) the DoD's progress in rapidly acquiring and fielding M-ATVs, 2) the JLTV's expected features and cost compared to other TWVs, and 3) the extent to which the current plans for M-ATV and JLTV are consistent with the armed services' TWV investment strategies.

The M-ATV program has been successful, reports the DoD, delivering well-performing vehicles ahead of schedule at an estimated cost of $12.5 billion. No major issues have been identified in testing and early fielding. In developing the M-ATV acquisition strategy, lessons learned from the acquisition of MRAPs in Iraq were applied. Like the earlier MRAPs, the M-ATVs did not require technology development, a key factor in the program's success.

As of late August 2010, 7,488 vehicles had been delivered to the government and 4,379 had been fielded to units in Afghanistan. Fielding is expected to be completed in December 2010. The urgent need for these vehicles resulted in their fielding and testing at the same time; however, source selection testing was conducted, and no vehicles were fielded until their safety was verified.

Jointly managed by the Army and Marine Corps, JLTV is expected to provide protection levels that are comparable to those of the M-ATV but without loss of payload or automotive performance. JLTV's acquisition costs are yet to be determined but are expected to be substantial. Unit costs could be over $800,000 – somewhat less than the M-ATV's, with mission equipment making up more than half of the costs. Unlike the M-ATV and earlier MRAPs, the JLTV has demanding projected requirements that necessitate technological and engineering advances. Key challenges are whether the vehicle can provide the performance and reliability required yet stay within the weight limits for helicopter transport. Difficult tradeoffs in requirements may be necessary.

At this point, it is a well-structured program with desirable features like a competitive technology development phase. This phase is scheduled to be completed by late FY11, when the DoD will decide if the program should enter the engineering and manufacturing development phase. That is the point where JLTV should clearly demonstrate that its projected requirements can be met with available resources. Evidence of that match would include a completed Preliminary Design Review and a technology readiness assessment that shows all technologies to be fully mature.

Current plans for M-ATV and JLTV dovetail with the objectives of the most recent Army and Marine Corps investment strategies. The implementation of those strategies, however, will be influenced by 1) the decision either to continue producing new HMMWVs or to recapitalize the existing HMMWV fleet, or both, 2) long-term funding for MRAP and M-ATV sustainment, and 3) the specific costs and capabilities of JLTV.

The department-wide strategy for TWVs that the DoD plans to prepare would benefit greatly from the resolution of these issues. To the extent this strategy captures the knowledge gained by the services, the strategy can reconcile the aggregate affordability and other implications of the various tactical wheeled vehicle programs with the competing demands of the department.

For example, at this point, the service strategies consider MRAP vehicles to be additive to the force structure, not offsetting quantities of HMMWVs or JLTVs. Any potential offsets between the MRAP vehicles and JLTVs, to the extent they are supported by cost-benefit analyses, could save both acquisition and support costs.

The GAO recommends that the DoD 1) ensure that the JLTV program clearly demonstrates a match between requirements and resources, 2) stage the timing of the DoD-wide TWV strategy so that it captures key knowledge, and 3) include in the strategy a cost-benefit analysis that could minimize the collective acquisition and support costs of the various TWV programs, and reduce the risk of unplanned overlap or duplication. (GAO, 11/10)

Army Releases Tactical Wheeled Vehicle Strategy – The Army has released its new Tactical Wheeled Vehicle Strategy, a document that outlines the service's overarching goals for its light, medium, and heavy tactical wheeled vehicles from now until FY25. The planning document begins by painting a somewhat troubling budget picture. Since FY03, the Army has spent close to an average of $6 billion per year on tactical wheeled vehicles (TWV) – not including MRAPs – compared to less than $1 billion per year the six preceding years. Not including war funding, the Army's TWV budget will now average just over $1 billion per year, but will slowly increase to about $2.5 billion in the near term.

"This level of funding will not support the continuation of the current pace of TWV modernization and replacement or recapitalization of the existing vehicles once they reach the end of their Economic Useful Life (EUL)," the report warns. The Army estimates that replacing its current vehicles every 40 years, with a midlife recapitalization, would cost over $2 billion per year, and over $2.5 billion when factoring in MRAPs. Furthermore, replacing all HMMWVs with new Joint Light Tactical Vehicles (JLTVs) would add more than $2 billion to $5 billion per year, depending on procurement rates.

The Army also notes that funding requirements for the TWV fleet will only increase beyond FY25 as a larger portion of the fleet ages out and must be recapitalized or replaced. With this in mind, the Army aims to develop an appropriate mix of vehicles that meets the service's requirements while remaining affordable. One of the goals of the TWV strategy, therefore, is to "reduce the TWV fleet size as a means to achieve long-term affordability."

The TWV fleet is broken up into four basic categories: light, medium, heavy, and Mine Resistant Ambush Protected (MRAP) – the strategy does not encompass the wheeled Armored Security Vehicle or Stryker, which are combat vehicles.

Light tactical vehicles consist of the HMMWV and associated trailers, as well as the JLTV, which is being developed to replace a portion of the HMMWV fleet. According to the strategy document, the Army does not currently have the right mix of HMMWVs to meet its requirements. For example, there are more armament carrier variants than the service needs, but not enough ambulances. The Army therefore plans to balance its HMMWV fleet and then get rid of excess vehicles. HMMWV modernization efforts are also out of balance. The National Guard has more armored HMMWVs than the active force, despite fewer requirements, and yet the modernization of the guard vehicles is lagging behind. The vehicles that the Army does keep must be sustained for 20-30 years, according to the strategy, with the primary concern being the recapitalization or repair of HMMWVs returning from theater.

The JLTV is a critical component of the Army's TWV strategy, though the high costs of the program remain a concern. An up-armored HMMWV costs about $160,000 (upward of $220,000 with fragmentation kits), whereas the JLTV is expected to carry a base price of more than $300,000, not including combat systems. Some sources have suggested that the price could double when weapons and electronics are included. The Army originally considered replacing nearly all of its HMMWVs with new JLTVs; however, the emerging cost disparity will limit JLTV procurement to about one-third of the HMWWV fleet, or about 50,000 vehicles. The rate of procurement will depend on available funding but is expected to continue beyond FY25. A Milestone B decision on development and production is expected in early FY12, and the Army plans to begin production in FY15 and field the first vehicles in FY17.

The medium tactical vehicle fleet comprises legacy 2.5-ton and 5-ton trucks, and the newer Family of Medium Tactical Vehicles (FMTV). The current size of the MTV fleet matches the Army's force structure requirements, so the current priority is to replace aging trucks with new FMTVs. The M35 2.5-ton truck will be divested by the end of FY11, and the M809-series, 5-ton vehicles by the end of FY12. All M939-series trucks will be replaced with FMTVs no later than FY22, if not earlier. Additionally, the Army is considering a recapitalization effort for A0, A1, and A1R FMTVs to extend their service life or fill any capability gaps with a particular variant.

The Army also plans to extend the service life of older heavy tactical vehicles, brining them up to par with current armored variants. The service will continue procurement of Heavy Expanded Mobility Tactical Truck (HEMTT) A4 variants through FY11, and bring older vehicles returning from theater up to the A4 standard, which can accept add-on armor kits. Older Generation 1 and 2 armor will be disposed of, while Generation 3 armor will be repaired and

stored for future use. As a whole, the Army is transitioning to a fleet of tactical wheeled vehicles capable of being equipped with scalable armor protection. The service's objective is to have at least 50 percent of the fleet armor-capable. The current percentages are 35 percent of the LTV fleet, 25 percent for MTVs, and 45 percent for HTVs. The strategy document also notes that the Army wants to ensure the industrial base is prepared to surge production to meet potential armor requirements down the road.

The need for heavily armored vehicles skyrocketed when fighting in Iraq was at its heaviest, which led to surge production of MRAP vehicles. The move left the Army with more than 19,000 MRAPs in four categories and 19 variants. Because of the rapid fielding effort, the majority of these vehicles are not actually documented as part of the Army force structure. The Army's goal for the MRAP fleet is to integrate the vehicles into the force structure, fill any theater requirements for armored vehicles, and maintain surplus vehicles as sustainment stocks or war reserves. There are currently no MRAP modernization plans in the works, though the vehicles will be repaired as needed until they reach the end of their service lives.

One of the primary risks associated with the Army's new TWV strategy is the availability, or lack thereof, of procurement funding. After years of expansion, the Army's TWV funding is diminishing. This means that over the next 15 years or so, the Army must adapt its TWV fleet to operate in today's security environment and be prepared to adapt to future threats, with reduced funding as compared to the past seven years. The strategy warns that "if procurement funding for TWVs is less than forecasted, the Army will be required to make difficult tradeoffs among cost, schedule, and performance to optimize our TWV investment at that point in time." (FI, 10/10)

U.S. Seeking Rollover Protection for MRAP Vehicles – Mine Resistant Ambush Protected (MRAP) vehicles in service with the U.S. Army and Marine Corps may soon receive new rollover protection. This new system would alert the driver of an MRAP vehicle that rollover was imminent, and help soldiers avoid potentially fatal accidents. Even if a rollover cannot be prevented, the system can alert a driver and allow passengers time to brace themselves. The U.S. could field this new system by the spring of 2011, at the latest.

The U.S. military has experienced 230 MRAP rollovers between November 2007 and January 2010. These rollovers have resulted in 13 fatalities. (Marine Corps Times, 10/10)

UAE Considering M-ATV Purchase – The United Arab Emirates (UAE) is considering a purchase of Mine Resistant Ambush Protected All-Terrain Vehicles (M-ATVs). There are several foreign customers examining similar purchases of this Oshkosh vehicle. The M-ATV is a lightweight MRAP-type vehicle for use in Afghanistan. Previous MRAP vehicles were better suited for operations in Iraq. The U.S. Army is planning to acquire more than 8,000 such vehicles. (Defense News, 9/10)

U.S. to Loan Armored Vehicles to Latvian Armed Forces – The U.S. Army is loaning armored vehicles to Latvia for use by Latvian troops serving in Afghanistan. Latvian soldiers serve with the International Security Assistance Force (ISAF). The Latvian defense minister specifically requested U.S. help providing these armored vehicles for Latvian armed forces in Afghanistan since Latvia's planned procurement of armored vehicles for its troops in Afghanistan was suspended due to a decreasing defense budget. The U.S. has agreed to Latvia's request to loan its military eight Mine Resistant Ambush Protected (MRAP) vehicles and 40 HMMWVs. Latvia has participated in ISAF operations in Afghanistan since 2003. Currently, more than 175 soldiers are in service in Latvia's Afghanistan contingent. (Latvian Ministry of Defense, 9/10)

More Mastiffs Ordered for British Army – The British Ministry of Defence has signed a contract with U.S. firm Force Protection for an additional lot of 37 Mastiff 6x6 Mine Resistant Ambush Protected (MRAP) armored vehicles, according to a report in Defense News. The Mastiff is the British version of the Force Protection Cougar, with modifications to the original vehicle undertaken by British firm NP Aerospace upon arrival in the U.K. The order, which has yet to be announced by the MoD, will buffet the current 277 Mastiff vehicles already in British service – the majority having been shipped to Afghanistan where they are being used to protect British soldiers undertaking operations in the south of the country. (Defense News, 6/10)

Denmark May Seek MRAP Vehicles for Afghan Deployment – Denmark is considering swapping the aging M113 personnel carriers its troops are using in Afghanistan for more robust models such as the U.S.-produced Mine Resistant Ambush Protected (MRAP) vehicles. Roadside bombs continue to inflict casualties among the Danish contingent stationed in the Afghan theater, forcing the Defense Ministry to consider dipping into the DKK100 million allocated for troop safety purposes under the latest five-year Defense Plan 2010-14. Critics

contend that Danish politicians have been tardy in addressing what has long been a pressing issue, and the loss of another Danish soldier to a roadside bomb on June 13 underscores their point.

The Defense Ministry maintains that it is up to military commanders to determine their needs and then approach the ministry with their requests. Currently, the Danish Defense Acquisition and Logistics Organization (DALO) is examining the possibility of buying or borrowing MRAP vehicles from the U.S. Borrowing might be a better option for the Danish armed forces, which are operating under an increasingly tighter level of funding after pressure from the Danish government to cut the budget even further. The government plans to chop DKK4 billion ($661,000) from the defense budget over the next four years and has asked the armed forces for suggestions on where to make efficiencies. (Politiken, 6/10)

British Troops in Afghanistan to Receive More Bomb-Resistant Vehicles – British troops serving in Afghanistan will receive 200 new armored patrol vehicles. These vehicles will be more resistant to roadside bombs than vehicles currently in use, according to British Prime Minister Gordon Brown. British troops are involved in operations to secure southern Afghanistan from Taliban militants; some 4,000 British troops are in Helmand Province in southern Afghanistan. Brown has been criticized in the British press and by some opposition politicians for failing to provide the right kind of equipment for British soldiers serving in Afghanistan. The new vehicles, provided under a $151 million contract, will replace Snatch Land Rovers currently in service with the British Army in Afghanistan. The new vehicles will arrive in Afghanistan by late 2011. (AP, 3/10)

SecDef Pledges MRAPs to Allies – Speaking at a NATO Conference in Istanbul, Turkey, Secretary of Defense Robert Gates pledged to provide U.S. allies with surplus Mine Resistant Ambush Protected (MRAP) vehicles, along with expanded access to classified information, to help in combating the threat of improvised explosive devices (IEDs) in Afghanistan. "The United States will now do whatever we can within the limits of U.S. law, and as soon as we can, to provide as many surplus MRAPs as possible to allies, especially to those operating in high-risk areas," Gates said at a news conference after meeting with the defense ministers of 44 International Security Assistance Force partner nations.

Gates promised to sell, loan, or donate surplus U.S. bomb-detecting equipment, including the MRAPs, along with route-clearing robots and ground-penetrating radars. The MRAPs that are likely to make their way to allied forces are those that are coming from Iraq. Gates said the drawdown there has given U.S. forces a surplus of the vehicles. Law dictates that the needs of U.S. troops must be met first before any such equipment can be sold or loaned to other countries. The MRAPs in Iraq are the older versions more suited for on-road and desert terrain travel. A newer all-terrain vehicle known as the M-ATV is being fielded in Afghanistan. Although these vehicles are not the latest design, Gates said that these MRAPs "are better protection against the killer bombs than what the allies are using now."

Some countries have expressed interest in buying the newer M-ATVs, and sales of those vehicles will be expedited when possible, according to defense officials. The United States currently has loaned about 50 MRAPs to Polish forces fighting in Afghanistan. Poland is the only other country whose forces are using the vehicle.

NATO Secretary General Anders Fogh Rasmussen said at the conference that Gates' promise of more counter-IED support will help to bolster that commitment from ISAF partners. In fact, Rasmussen said, "NATO has outlined its priorities, with fighting the IED threat at the top of the list." (FI, 2/10)

Funding

In the FY10 budget request documentation (May 2009), the U.S. Department of Defense finally established a funding line for the procurement of MRAP vehicles. However, in the FY11 budget request documentation (February 2010), the MRAP funding line once again disappeared. The MRAP program continues to depend upon supplemental budget appropriations.

U.S. FUNDING

	FY07 QTY	FY07 AMT	FY08 QTY	FY08 AMT	FY09 QTY	FY09 AMT
U.S. Army Procurement Family of MRAP Vehicles	-	-	9,611	12,912.0	-	-

	FY10 QTY	FY10 AMT	FY11 QTY	FY11 AMT	FY12 QTY	FY12 AMT
U.S. Army Procurement Family of MRAP Vehicles	-	-	-	-	-	-

	FY13 QTY	FY13 AMT	FY14 QTY	FY14 AMT	FY15 QTY	FY15 AMT
U.S. Army Procurement Family of MRAP Vehicles	-	-	-	-	-	-

All amounts are in millions of U.S. dollars.

Contracts/Orders & Options

Since January 1, 2007, the U.S. Department of Defense has posted the following contract award announcements related to the MRAP program. All amounts are in U.S. dollars.

On January 26, 2007, MARCORSYSCOM ordered two MRAP Category I and two MRAP Category II test vehicles each from nine contractors. According to the U.S. DoD contract announcement, the total value of the initial delivery orders for the 36 test vehicles was $34,574,582. The announcement did not specify the value of each individual award. For the purposes of this table, we have broken out the estimated value of each contract award for these nine MRAP test vehicle contracts.

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2007/01/11	M67854-07-D-5015	Force Protection Industries Inc	$9,379,370	15 Cougar JERRV
2007/01/26	M67854-07-D-5025	BAE Systems, Ground Systems Div	$3,841,620	2 Cat I & 2 Cat II test vehicles
2007/01/26	M67854-07-D-5026	Oshkosh Truck Corp	$3,841,620	2 Cat I & 2 Cat II test vehicles
2007/01/26	M67854-07-D-5027	Protected Vehicles Inc.	$3,841,620	2 Cat I & 2 Cat II test vehicles
2007/01/26	M67854-07-D-5028	GDLS-Canada Corp	$3,841,620	2 Cat I & 2 Cat II test vehicles
2007/01/26	M67854-07-D-5031	Force Protection Industries Inc.	$3,841,620	2 Cat I & 2 Cat II test vehicles
2007/01/26	M67854-07-D-5030	Armor Holdings Inc	$3,841,620	2 Cat I & 2 Cat II test vehicles
2007/01/26	M67854-07-D-5033	Textron Marine & Land Systems	$3,841,620	2 Cat I & 2 Cat II test vehicles
2007/01/26	M67854-07-D-5029	General Purpose Vehicles LLC	$3,841,620	2 Cat I & 2 Cat II test vehicles
2007/01/26	M67854-07-D-5032	International Military & Government LLC	$3,841,620	2 Cat I & 2 Cat II test vehicles
2007/02/14	M67854-07-D-5025	BAE Systems, Ground Systems Div	$55,366,500	15 Cat I & 75 Cat II advance LRIP vehicles
2007/02/14	M67854-07-D-5031	Force Protection Industries Inc	$67,406,940	65 Cat I & 60 Cat II advance LRIP vehicles
2007/02/23	M67854-07-D-5028	GDLS-Canada Corp	$11,014,290	10 Cat I & 10 Cat II advance LRIP vehicles
2007/02/23	M67854-07-D-5026	Oshkosh Truck Corp	$30,619,900	100 Cat I advance LRIP vehicles

MRAP Vehicles

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2007/02/23	M67854-07-D-5027	Protected Vehicles Inc	$37,444,440	60 Cat II advance LRIP vehicles
2007/03/06	M67854-07-D-5006	Force Protection Industries Inc	$16,260,713	19 Buffalo MPCV & 19 90-day onboard consumables blocks
2007/04/03	M67854-07-D-5025	BAE Systems Land & Armaments LP	$8,159,325	Integrated logistics support
2007/04/03	M67854-07-D-5031	Force Protection Industries Inc	$6,896,896	Integrated logistics support
2007/04/23	M67854-07-D-5031	Force Protection Industries Inc	$481,414,500	300 Cat I & 700 Cat II LRIP vehicles
2007/05/03	M67854-07-D-5039	Force Protection Industries Inc	$8,687,449	5 Cougar JERRV & 5 Buffalo MPCV w/ILS package for Canadian procurement under FMS
2007/05/30	M67854-07-D-5006	Force Protection Industries Inc	$11,991,406	14 Cat III vehicles (Buffalo MPCV)
2007/05/31	M67854-07-D-5032	International Military & Government LLC	$623,073,400	1,200 Cat I LRIP vehicles
2007/06/18	M67854-07-D-5032	International Military & Government LLC	$8,492,976	16 Cat II vehicles
2007/06/19	M67854-07-D-5031	Force Protection Industries Inc	$221,688,050	395 Cat I & 60 Cat II LRIP vehicles
2007/06/28	M67854-07-D-5025	BAE Systems Land & Armaments LP	$213,887,918	255 Cat I, 170 Cat I (SOCOM) & 16 Cat II ambulances w/ILS package
2007/07/11	M67854-02-A-9008	MKI Systems Inc	$7,140,425	MRAP vehicle Joint PMO supplemental support
2007/07/13	M67854-07-D-5030	Stewart & Stevenson TVS, LP	$518,543,584	1,154 Cat I & 16 Cat II vehicles
2007/07/16	M67854-07-D-5025	BAE Systems Land & Armaments LP	$21,868,500	Modification to Delivery Order 0003 (2007/06/28), changing 239 Cat I vehicles to Cat II vehicles
2007/07/20	M67854-07-D-5032	International Military & Government LLC	$413,869,860	755 Cat I LRIP vehicles
2007/07/26	N65236-07-D-6339	SCI Technology Inc	$165,105,000	TOCNET modules for USMC MRAP program
2007/08/02	N62473-07-F-4086	Harris Corp	$26,166,809	Communications subsystems for MRAP program
2007/08/07	M67854-07-D-5028	GDLS-Canada Corp	$335,881,940	600 Cat II vehicles
2007/08/10	M67854-07-D-5031	Force Protection Industries Inc	$69,799,900	25 Cat I & 100 Cat II vehicles
2007/09/13	M67854-07-D-5032	International Military & Government LLC	$71,547,293	Sustainment items & data requirements for in-theater vehicles
2007/09/21	M67854-07-D-5032	International Military & Government LLC	$7,165,120	In-theater field service representative (FSR) support
2007/10/18	M67854-07-D-5032	International Military & Government LLC	$509,241,000	1,000 Cat I LRIP vehicles
2007/10/18	M67854-07-D-5031	Force Protection Industries Inc	$376,644,117	553 Cat I & 247 Cat II vehicles w/ILS package
2007/10/18	M67854-07-D-5025	BAE Systems Land & Armaments LP	$278,441,800	399 Cat II vehicles & 112 Cat II ambulances
2007/10/18	M67854-07-D-5025	BAE Systems Land & Armaments LP	$44,339,800	89 Cat I (SOCOM) w/ILS package
2007/10/30	M67854-07-D-5032	International Military & Government LLC	$68,836,786	MRAP sustainment items
2007/10/30	M67854-07-D-5025	BAE Systems Land & Armaments LP	$36,317,571	Integrated logistics support
2007/11/01	M67854-07-D-5031	Force Protection Industries Inc	$91,795,295	MRAP University; new equipment training; ILS; OCONUS FSR support

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2007/11/01	W91GDW-08-M-0003	Sprung Inc	$8,571,569	MRAP sprung structures
2007/11/02	M67854-07-D-5030	Stewart & Stevenson TVS, LP	$14,250,000	38 OCONUS FSR
2007/11/05	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$60,204,705	MRAP University; new equipment training; ILS; OCONUS FSR support; PLL/ASL sustainment parts
2007/11/08	M67854-07-D-5030	Stewart & Stevenson TVS, LP	$50,218,798	MRAP University; new equipment training; ILS; PLL/ASL sustainment parts
2007/11/28	M67854-07-D-5032	International Military & Government LLC	$24,000,000	In-theater MRAP FSR
2007/12/07	M67854-07-D-5032	International Military & Government LLC	$151,989,035	MRAP sustainment items
2007/12/18	M67854-07-D-5032	International Military & Government LLC	$1,183,141,218	1,500 Cat I LRIP vehicles; in-theater sustainment items; ECPs
2007/12/18	M67854-07-D-5025	BAE Systems Land & Armaments LP	$645,445,800	600 Cat II LRIP vehicles; ILS; ECPs
2007/12/18	M67854-07-D-5030	Stewart & Stevenson TVS, LP	$458,128,283	668 Cat II vehicles w/Cat I seating; sustainment parts; ECPs
2007/12/18	M67854-07-D-5031	Force Protection Industries Inc	$377,775,613	178 Cat I, 180 Cat II vehicles; ILS; ECPs
2007/12/18	M67854-08-D-5000	Ideal Innovations Inc	$18,100,000	MRAP II test vehicles
2007/12/18	M67854-08-D-5001	BAE Systems Land & Armaments LP	$5,800,000	MRAP II test vehicles
2007/12/19	M67854-07-D-5025	BAE Systems Land & Armaments LP	$10,308,253	Integrated logistics support
2007/12/28	M67854-07-D-5025	BAE Systems Land & Armaments LP	$10,985,200	MRAP vehicle sustainment
2008/01/10	M67854-02-A-9011	EG&G Technical Services Inc	$9,901,787	Professional technical support to MRAP JPMO
2008/01/15	M67854-07-D-5031	Force Protection Industries Inc	$74,130,482	Integrated logistics support
2008/01/28	M67854-07-D-5030	Stewart & Stevenson TVS, LP	$64,199,068	MRAP expedient armor Program test support; MEAP kits for testing, DT-C3 test support; initial operational test & evaluation; battle damage repair parts
2008/02/11	M67854-07-D-5030	Stewart & Stevenson TVS, LP	$12,750,000	20 OCONUS new equipment training instructors
2008/02/15	M67854-02-A-9016	EG&G Technical Services Inc	$11,267,986	Ongoing acquisition & technical support to Joint MRAP Vehicle Program (JMVP)
2008/02/21	M67854-06-C-5162	Force Protection Industries Inc	$115,167,467	174 Cat II vehicles w/associated test sets, spares & support. FMS order for U.K. MoD
2008/02/21	M67854-07-C-5039	Force Protection Industries Inc	$8,353,715	6 Cat II, 4 Cat III vehicles w/associated spares & support. FMS order for Italian MoD
2008/03/11	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$7,166,492	OCONUS FSR
2008/03/14	M67854-07-D-5032	International Military & Government LLC	$405,963,830	743 Cat I LRIP vehicles
2008/03/14	M67854-07-D-5030	Stewart & Stevenson TVS, LP	$481,835,008	1,024 Cat II vehicles w/Cat I seating
2008/03/14	M67854-07-D-5025	BAE Systems Land & Armaments LP	$234,043,500	3 Cat I USSOCOM, 393 Cat II, 51 Cat II Ambulances

MRAP Vehicles

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2008/03/14	M67854-07-D-5031	Force Protection Industries Inc	$9,849,420	12 Cat I, 6 Cat II vehicles
2008/03/14	M67854-07-D-5006	Force Protection Industries Inc	$7,690,529	11 Cat III vehicles
2008/04/16	M67854-07-D-5032	International Military & Government LLC	$261,373,172	ECPs to upgrade MRAP LRIP vehicles
2008/04/22	M67854-07-D-5031	Force Protection Industries Inc	$12,635,801	Integrated logistics support
2008/04/28	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$28,585,655	MRAP vehicle transportation to Durbin, South Africa; battle damage assessment repair list; removal of gun ports in the ballistic windows; revised statement of work; related contract data requirements list
2008/04/28	M67854-07-D-5031	Force Protection Industries Inc	$15,279,151	ILS sustainment parts
2008/05/01	M67854-06-C-5162	Force Protection Industries Inc	$91,549,216	151 Cat I vehicles & associated spares. FMS order for U.K. MoD
2008/05/02	M67854-07-D-5025	BAE Systems Land & Armaments LP	$53,190,513	40 Cat I USSOCOM vehicles
2008/05/05	M67854-07-D-5031	Force Protection Industries Inc	$17,113,045	ILS sustainment parts; OCONUS FSR
2008/05/20	M67854-07-D-5025	BAE Systems Land & Armaments LP	$35,211,759	Integrated logistics support
2008/05/20	M67854-07-D-5025	BAE Systems Land & Armaments LP	$23,960,073	Integrated logistics support
2008/05/23	M67854-07-D-5031	Force Protection Industries Inc	$6,397,494	MRAP OCONUS instructors
2008/05/29	M67854-07-D-5031	Force Protection Industries Inc	$28,456,471	ILS; OCONUS welders
2008/05/29	M67854-07-D-5031	Force Protection Industries Inc	$15,220,882	ILS; OCONUS FSR
2008/05/30	M67854-07-D-5025	BAE Systems Land & Armaments LP	$162,059,556	MRAP ECPs
2008/06/10	M67854-07-D-5032	International Military & Government LLC	$28,000,000	Accelerated production of 1,000 LRIP vehicles (not a new order)
2008/06/20	M67854-07-D-5032	International Military & Government LLC	$234,281,872	Sustainment items for ECPs to Cat I LRIP vehicles in theater
2008/06/20	M67854-07-D-5032	International Military & Government LLC	$211,624,202	Sustainment items for ECPs to Cat I LRIP vehicles in theater
2008/06/20	M67854-07-D-5032	International Military & Government LLC	$146,770,400	Sustainment items for ECPs to Cat I LRIP vehicles in theater
2008/06/20	M67854-07-D-5032	International Military & Government LLC	$84,832,901	Sustainment items for ECPs to Cat I LRIP vehicles in theater
2008/06/20	M67854-07-D-5032	International Military & Government LLC	$29,508,041	Sustainment items for ECPs to Cat I LRIP vehicles in theater
2008/06/25	W56HZV-08-C-0483	Navistar Defense LLC	$15,124,743	3 MRAP air conditioner sustainment spare parts packages (1,426 compressors, 1,500 condensers & blowers)
2008/07/01	M67854-07-D-5031	Force Protection Industries Inc	$43,028,803	ILS sustainment parts; training equipment & material; tool sets; OCONUS FSR
2008/07/03	W56HZV-08-C-0522	Navistar Defense LLC	$27,705,422	MRAP sustainment spare parts
2008/07/15	M67854-02-A-9008	MKI Systems Inc	$6,068,278	Professional support to the JMVP
2008/07/23	W56HZV-08-C-0514	Canadian Commercial Corp/GDLS-Canada	$15,778,311	MRAP sustainment spare parts

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2008/08/01	M67854-07-D-5032	Navistar Defense LLC	$29,355,367	Sustainment items for Cat I LRIP vehicles in theater
2008/08/01	M67854-07-D-5032	Navistar Defense LLC	$27,394,820	Sustainment items for Cat I LRIP vehicles in theater
2008/08/07	W56HZV-08-C-0611	Harris Corp.	$77,919,400	MRAP vehicular installation kits
2008/08/07	W15P7T-04-C-J202	DRS Sensors & Targeting Systems	$17,512,077	7,991 Driver's Vision Enhancer B-kits
2008/08/08	M67854-07-D-5030	BAE Systems TVS	$317,967,619	ECPs and ILS
2008/08/20	M67854-07-D-5031	Force Protection Industries Inc	$17,949,701	ILS sustainment parts; training equipment & material; tool sets; OCONUS FSR
2008/08/21	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$17,538,140	ECP upgrades & non-recurring engineering costs
2008/09/04	M67854-07-D-5032	Navistar Defense LLC	$752,042,549	822 Cat I vehicles
2008/09/04	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$7,723,145	5 test vehicles w/ECP upgrades
2008/09/04	M67854-07-D-5031	Force Protection Industries Inc	$7,230,897	5 test vehicles w/ECP upgrades
2008/09/05	M67854-07-D-5030	BAE Systems TVS	$27,871,299	ECPs; "Overarching Parts Allocation Board" parts list; MRAP University & new equipment training for 688 vehicles
2008/09/09	SPM750-05-D-7426	BAE Systems Survivability Systems	$9,849,246	Sole-source, undefinitized bilateral contract modification for MRAP spare parts
2008/09/19	M67854-07-D-5031	Force Protection Industries Inc	$6,824,720	OCONUS FSR site lead; OCONUS welders; battle damage assessment repair kits & deprocessing kits
2008/09/22	M67854-07-D-5025	BAE Systems Land & Armaments LP	$43,919,494	Sustainment items to support Cat II & heavy armored ground ambulance MRAP vehicles
2008/09/22	M67854-07-D-5025	BAE Systems Land & Armaments LP	$11,032,302	Sustainment items to support Cat II MRAP vehicles
2008/09/24	M67854-07-D-5031	Force Protection Industries Inc	$41,790,575	90-day consumables; Prescribed load list; labor support and authorized stockage list
2008/09/24	W56HZV-08-C-0552	BAE Systems Land & Armaments LP	$45,280,484	MRAP sustainment spare parts
2008/10/01	W56HZV-09-C-0010	BAE Systems TVS	$19,000,000	MRAP sustainment parts
2008/10/07	M67854-07-D-5032	Navistar Defense LLC	$35,852,606	Sustainment items to support Cat I MRAP vehicles in theater
2008/10/10	M67854-07-D-5025	BAE Systems Land & Armaments LP	$8,014,050	Integrated Logistic Support
2008/10/23	M67854-07-D-5025	BAE Systems Land & Armaments LP	$22,932,814	FSR & instructors
2008/10/29	M67854-07-D-5032	Navistar Defense LLC	$56,440,112	Engineering changes & sustainment items for Cat I MRAP vehicles in theater
2008/10/29	M67854-07-D-5031	Force Protection Industries Inc	$11,820,775	MRAP vehicle EOD cages; increased quantities of prescribed load lists, authorized stockage list, BDA repair and deprocessing kits
2008/10/29	M67854-07-D-5032	Navistar Defense LLC	$8,289,394	Additional maintenance workshop blocks for Cat I MRAP vehicles in theater
2008/11/04	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$9,832,001	Prescribed load list parts to support 673 vehicles

MRAP Vehicles

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2008/11/05	M67854-07-D-5025	BAE Systems Land & Armaments LP	$31,682,880	FSR & instructors
2008/11/05	M67854-07-D-5025	BAE Systems Land & Armaments LP	$8,738,992	FSR
2008/11/07	M67854-07-D-5032	Navistar Defense LLC	$24,843,500	Gunner restraints; accelerated MRAP Cat I production
2008/11/07	M67854-02-A-9011	EG&G Technical Services Inc	$9,550,908	Professional technical support to JMVP
2008/11/10	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$22,250,250	Authorized stockage list (ASL) parts to support 673 vehicles
2008/11/19	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$49,504,000	Technical service reps & trainers for OCONUS MRAP deployment
2008/12/04	M67854-07-D-5032	Navistar Defense LLC	$53,578,907	Sustainment items (and renewal of FSR support) for Cat I MRAP vehicles in theater
2008/12/04	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$8,420,174	Battle damage sustainment kits & non-recurring engineering costs
2008/12/10	M67854-07-D-5032	Navistar Defense LLC	$362,283,452	400 Cat I (MaxxPro DASH) vehicles
2008/12/17	M67854-07-D-5032	Navistar Defense LLC	$8,902,982	ECP upgrades for enhanced maneuverability, and non-recurring engineering costs in support of Cat I vehicles for OEF
2008/12/18	M67854-07-D-5031	Force Protection Industries Inc	$10,429,958	Armor B-kits for Cat I Cougar vehicles
2009/01/14	M67854-07-D-5031	Force Protection Industries Inc	$5,935,232	Preservation & packaging, validation report & OCONUS FSR for OEF Ca I Cougar vehicles
2009/01/16	M67854-09-D-5000	Force Protection Industries Inc	$6,948,832	8 Cat III Buffalo vehicles
2009/01/26	W15P7T-04-C-J202	DRS Sensors & Targeting Systems	$10,520,387	761 Driver's Vision Enhancer TWV B-kits; 224 DVE CV B-kits
2009/02/03	M67854-07-D-5031	Force Protection Industries Inc	$17,282,920	41 JPO-Southwest Asia ITC instructors for 6 months; 55 Mobile Red River Depot training instructors for 6 months
2009/02/05	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$26,791,877	ASL & prescribed load list parts to support 673 MRAP vehicles
2009/02/12	M67854-02-A-9008	MKI Systems Inc	$9,268,615	Professional technical support to MRAP JPMO
2009/02/12	M67854-02-A-9011	EG&G Technical Services Inc	$8,900,613	Ongoing acquisition and technical support to JMVP
2009/02/27	M67854-07-D-5025	BAE Systems Land & Armaments LP	$5,583,600	Spare vehicle effector boxes
2009/03/11	M67854-07-D-5030	BAE Systems TVS	$33,233,718	Modification to update unit costs for various CLIN
2009/03/13	M67854-07-D-5025	BAE Systems Land & Armaments LP	$8,370,688	MRAP FSR & instructors
2009/04/07	M67854-07-D-5031	Force Protection Industries Inc	$21,869,956	Augmentation parts for ECPs for CAT I/II prescribed load lists; CAT I/II ASLs; CAT I/II Battle damage repair lists; CAT I/II deprocessing kits
2009/04/08	M67854-07-D-5031	Force Protection Industries Inc	$158,113,017	Independent suspension kits
2009/04/09	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$15,368,759	Technical manuals for RG-31 MRAP family of vehicles

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2009/04/10	M67854-07-D-5025	BAE Systems Land & Armaments LP	$47,209,920	MRAP FSR & instructors
2009/04/21	W56HZV-09-C-0311	BAE Systems Information & Electronic Systems Integration	$15,984,010	2 bar armor kit prototypes (1 ea) for RG-31 and Cougar CAT I MRAP vehicles; 325 production bar armor kits for Cougar CAT I MRAP vehicles
2009/04/24	M67854-07-D-5030	BAE Systems TVS	$19,036,693	Capability Insertion ECPs
2009/04/27	M67854-07-D-5032	Navistar Defense LLC	$16,514,885	In-theater MRAP FSR, contract data requirement lists & ECPs
2009/05/15	M67854-07-D-5025	BAE Systems Land & Armaments LP	$7,063,712	8 USSOCOM CAT I MRAP vehicles, including technical insertion ECPs
2009/05/18	M67854-07-D-5025	BAE Systems Land & Armaments LP	$14,302,280	MRAP FSR & instructors
2009/06/01	M67854-07-D-5032	Navistar Defense LLC	$44,679,769	Renewal of OCONUS FSR in support of OIF and OEF sustainment in theater
2009/06/16	M67854-07-D-5031	Force Protection Industries Inc	$21,440,496	FSR support for installation of independent suspension kits on MRAP Cougar vehicles
2009/06/18	SPRDL1-09-C-0088	Navistar Defense LLC	$42,872,326	MRAP sustainment spare parts
2009/06/19	M67854-07-D-5032	Navistar Defense LLC	$6,413,718	OCONUS FSR mechanics; back ramp retrofit kits; and several contract data requirement lists
2009/06/30	W56HZV-09-D-0111	Oshkosh Corp	$1,055,910,053	2,244 M-ATV, basic issue items, FSR support, equipment, engineering; ASL parts packages and PLL packages
2009/07/02	M67854-07-D-5031	Force Protection Industries Inc	$58,009,282	FSR support, equipment, consumables, bench stock & training for installation of independent suspension kits on MRAP Cougar vehicles
2009/07/07	M67854-07-D-5032	Navistar Defense LLC	$39,220,048	OCONUS FSR, new equipment training instructors, OCONUS FSR instructors & senior FSR
2009/07/07	M67854-07-D-5032	Navistar Defense LLC	$9,902,450	Initial sustainment items for MRAP MaxxPro Dash vehicles
2009/07/10	M67854-07-D-5032	Navistar Defense LLC	$71,081,162	Battle damage assessment and repair kits for MaxxPro Base & MaxxPro Plus vehicles
2009/07/16	M67854-07-D-5031	Force Protection Industries Inc	$56,356,726	Support for installation of independent suspension kits
2009/07/16	M67854-07-D-5032	Navistar Defense LLC	$21,025,465	Additional initial sustainment items for MRAP MaxxPro Dash vehicles
2009/07/16	SPRDL1-09-C-0121	BAE Systems TVS	$34,097,605	MRAP axle assembly parts
2009/07/28	M67854-07-D-5025	BAE Systems Land & Armaments LP	$52,454,810	Upgrade of 170 Cat I SOCOM vehicles w/independent suspension kits
2009/07/28	M67854-07-D-5025	BAE Systems Land & Armaments LP	$28,647,406	Upgrade of 89 Cat I SOCOM vehicles w/independent suspension kits
2009/07/28	M67854-07-D-5025	BAE Systems Land & Armaments LP	$15,608,500	Upgrade of 35 Cat I SOCOM vehicles w/ independent suspension kits
2009/07/31	W56HZV-09-D-0111	Oshkosh Corp	$1,063,713,518	1,700 M-ATV, FSR support, ASL and PLL packages, reprocessing spares, battle damage repair parts and basic issue items

MRAP Vehicles

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2009/08/06	M67854-07-D-5030	BAE Systems TVS	$11,032,728	FSR instructors
2009/08/06	M67854-07-D-5025	BAE Systems Land & Armaments LP	$8,899,274	OCONUS instructors
2009/08/06	M67854-07-D-5032	Navistar Defense LLC	$8,620,629	OCONUS FSR, new equipment training instructors, CONUS FSR instructors & senior FSR
2009/08/07	M67854-07-D-5032	Navistar Defense LLC	$7,757,743	ECPs, ambulance sustainment parts & ambulance head- clearance retrofit kits for CAT I MRAP vehicles
2009/08/10	M67854-07-D-5032	Navistar Defense LLC	$7,074,494	ECPs & tire chains for MRAP MaxxPro Dash vehicles
2009/08/24	M67854-07-D-5031	Force Protection Industries Inc	$8,098,360	OEF in-theater FSR support for USMC MRAP Cougar vehicles
2009/08/24	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$6,403,087	Battle damage repair parts for RG-31 MRAP vehicles
2009/09/04	M67854-07-D-5030	BAE Systems TVS	$31,159,415	FSR to support training in use of upgraded troop seats on 1,800 Caiman vehicles
2009/09/08	M67854-07-D-5032	Navistar Defense LLC	$47,950,155	OCONUS FSR and senior instructors
2009/09/11	W56HZV-09-D-0111	Oshkosh Corp	$189,059,738	352 additional M-ATVs, including BII, ASL, PLL and battle damage & repairs
2009/09/28	W900KK-09-C-0071	Oshkosh Corp	$5,600,000	26 MRAP M-ATV rollover trainers
2009/09/30	W56HZV-09-C-0311	BAE Systems Information & Electronic Systems Integration	$27,074,390	325 bar armor kits for RG-31; 158 bar armor kits for Cougar Cat I vehicles; FSR support
2009/10/09	W56HZV-09-D-0111	Oshkosh Corp	$408,406,271	923 additional M-ATV, w/BII
2009/10/19	W56HZV-09-C-0454	BAE Systems TVS	$6,653,743	MRAP system technical support/system sustainment technical support
2009/10/29	SPM7L2-10-M-0056	BAE Systems TVS	$7,821,543	Heater comp housing for MRAP vehicles
2009/11/10	M67854-10-F-5023	EG&G Technical Services Inc	$39,421,851	MRAP vehicle contract support services
2009/11/10	W56HZV-09-D-0111	Oshkosh Corp	$438,440,000	1,000 additional M-ATVs, w/BII
2009/11/18	HR0011-10-C-0026	Mustang Technology Group	$8,189,000	25 CROSSHAIRS systems, for integration into MRAP vehicles
2009/12/09	W56HZV-09-D-0111	Oshkosh Corp	$175,376,000	400 additional M-ATVs, w/BII
2010/01/20	W56HZV-09-D-0111	Oshkosh Corp	$258,201,196	90 lots ASL kits, 90 lots of PLL kits, 23 deprocessing spare kits, and 132 lots battle damage repair kits for M-ATV
2010/01/20	W56HZV-09-D-0111	Oshkosh Corp	$67,448,554	2 lots ASL kits, 2 lots of PLL kits, and 65 lots battle damage repair kits for M-ATV
2010/02/01	W56HZV-09-D-0111	Oshkosh Corp	$84,739,677	627 explosively formed penetrator kits on MRAP M-ATV
2010/02/05	W56HZV-09-D-0111	Oshkosh Corp	$52,090,900	1,451 retrofit kits for M-ATV C4ISR suite and battery upgrade / silent watch
2010/02/12	M67854-07-D-5032	Navistar Defense LLC	$751,514,198	1,050 Cat I MRAP vehicles
2010/02/12	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$227,380,750	250 MRAP RG-31A2 vehicles
2010/02/12	M67854-07-D-5025	BAE Systems Land & Armaments LP	$90,561,200	58 SOCOM Cat I MRAP vehicles

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2010/02/18	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$29,196,463	127 independent suspension system kits and associated support
2010/02/26	W56HZV-09-D-0111	Oshkosh Corp	$640,122,400	1,460 M-ATV, w/ BII
2010/03/03	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$41,481,000	ASL, PLL & battle damage repair kits for 250 MRAP RG-31A2 vehicles
2010/03/04	W56HZV-09-D-0111	Oshkosh Corp	$10,365,999	1,401 M-ATV Remote Weapons Systems kits
2010/03/08	M67854-07-D-5031	Force Protection Industries Inc	$26,192,014	Extending 216 FSRs, life support, and vehicle & equipment rental in support of the TAK-4 independent suspension system (ISS) installation on MRAP Cougar vehicles
2010/03/12	M67854-07-D-5025	BAE Systems Land & Armaments LP	$44,116,706	FSRs & instructors to support MRAP vehicles
2010/03/15	M67854-07-D-5032	Navistar Defense LLC	$178,262,162	1,222 ISS kits and aluminum catcher plates for MRAP vehicles
2010/03/17	M67854-07-D-5026	BAE Systems Land & Armaments LP	$74,090,258	Marine Corps transparent armor gun system kits, battery powered motorized traversing unit - manual traversing unit kits, and turret assemblies
2010/03/22	W56HZV-09-D-0111	Oshkosh Corp	$41,941,800	1,080 RPG protection kits
2010/03/29	W56HZV-09-D-0111	Oshkosh Corp	$10,036,560	31 FSRs (372 months) for MRAP M-ATV in support of OEF
2010/03/31	M67854-07-D-5025	BAE Systems Land & Armaments LP	$20,654,852	ILS and sustainment (spare parts) for USSOCOM variant vehicles
2010/04/02	M67854-07-D-5031	Force Protection Industries Inc	$82,331,976	755 ISS kits
2010/04/02	M67854-07-D-5025	BAE Systems Land & Armaments LP	$82,146,792	FSR support for installation of ISS kits and ECP kits on MRAP RG-33 vehicles
2010/04/06	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$28,578,333	ECP upgrades and non-recurring engineering costs for 250 MRAP RG-31A2 vehicles
2010/04/07	W56HZV-09-D-0111	Oshkosh Corp	$9,389,040	29 FSRs (348 months) for MRAP M-ATV in support of OEF
2010/04/12	W56HZV-09-D-0111	Oshkosh Corp	$68,737,950	1,770 RPG protection kits
2010/04/19	M67854-04-D-5016	Oshkosh Corp	$89,863,113	965 weapons mount kits, 2,000 armored door retrofit kits, and 1,001 troop carrier upgrades
2010/04/19	M67854-07-D-5031	Force Protection Industries Inc	$8,625,156	FSRs to install TAK-4 ISS kits on Cougar MRAP vehicles supporting OEF (DO #0016)
2010/04/19	M67854-07-D-5031	Force Protection Industries Inc	$8,625,156	FSRs to install TAK-4 ISS kits on Cougar MRAP vehicles supporting OEF (DO #0017)
2010/04/19	W56HZV-09-D-0111	Oshkosh Corp	$11,051,827	1,037 RWS/CREWS final production configuration for the MRAP M-ATV
2010/05/03	M67854-07-D-5032	Navistar Defense LLC	$102,324,363	MRAP kits & parts: 937 gunner restraints; 3,251 120V wiring harnesses; 5,716 air conditioning circulation switches; 5,722 rear ramp hydraulics; 3,251 rear ramp storage; 2,630 fire support systems kits; and 822 heating, ventilation, and air conditioning kits
2010/05/04	M67854-07-D-5030	BAE Systems TVS	$14,097,655	MRAP University FSRs & instructors to service MRAP Caiman vehicles

MRAP Vehicles

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2010/05/04	W56HZV-08-C-0028	Force Protection Industries Inc	$32,934,778	Unspecified number of Buffalo MPCV, w/ data items, FSRs & technical manuals
2010/05/17	W56HZV-09-D-0111	Oshkosh Corp	$72,686,593	1,460 RPG kits, 45 PLLs and 8 deprocessing spares for M-ATVs
2010/05/17	W56HZV-09-D-0111	Oshkosh Corp	$68,914,367	509 EFP protection kits and 12 months of CONUS FSR for M-ATV
2010/05/18	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$29,682,828	79 FSRs for maintenance & repair services on RG-31 MRAP vehicles in Afghanistan and Iraq AOs
2010/05/24	W56HZV-09-D-0111	Oshkosh Corp	$66,915,870	22 ECPs to incorporate into 421 MRAP M-ATVs
2010/05/24	W911N2-10-C-0036	Foster-Miller Inc	$21,814,805	651 spall liner kits for RG-31 vehicles platform to support ongoing route clearance vehicle missions in OIF & OEF
2010/05/27	W56HZV-09-D-0111	Oshkosh Corp	$20,829,704	1,400 Check-6 rear view sensor systems on MRAP M-ATVs
2010/05/27	W56HZV-09-D-0111	Oshkosh Corp	$10,385,095	698 Check-6 rear view sensor systems on MRAP M-ATVs
2010/05/27	W56HZV-09-D-0111	Oshkosh Corp	$15,458,616	1,039 Check-6 rear view sensor systems on MRAP M-ATVs
2010/06/04	M67854-07-D-5031	Force Protection Industries Inc	$46,102,093	2,451 automatic fire extinguisher system kits for Cougar MRAP vehicles
2010/06/10	M67854-07-D-5025	BAE Systems Land & Armaments LP	$17,224,065	OCONUS FSR support; 69 automatic fire suppression kits; and 98 RWS kits
2010/06/11	M67854-07-D-5031	Force Protection Industries Inc	$10,813,611	2,654 570 amp alternator modernization kits for Cougar MRAP vehicle fleet
2010/06/14	M67854-07-D-5032	Navistar Defense LLC	$60,072,325	Sustainment parts to maintain ISS to retrofit the entire 1,222 MaxxPro DASH vehicle fleet
2010/06/14	M67854-07-D-5032	Navistar Defense LLC	$17,247,894	Sustainment support to maintain Cat I MRAP LRIP vehicles in theater
2010/06/22	M67854-07-D-5031	Force Protection Industries Inc	$15,431,971	43 FSRs to install spall-liner blanket kits & modernization safety kits; and conduct general maintenance to Cougar MRAP fleet supporting OIF & OEF
2010/06/24	M67854-07-D-5031	Force Protection Industries Inc	$19,644,010	3-month extension of 216 FSRs to complete ISS kit installation on Cougar MRAP fleet at Kuwait MRAP sustainment facility; associated life support required for FSRs
2010/06/28	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$5,694,384	Modernization safety kits for RG-31 MRAP vehicle fleet. Kits include fire-resistant self-sealing fuel tank; upgraded 570 amp alternator; back-up alarm system; improved interior lighting system; and increased crew ventilation kit
2010/06/29	M67854-07-D-5032	Navistar Defense LLC	$13,407,071	Spare parts - ASL, PLL, BDA repair & deprocessing - for MaxxPro ISS; DASH ECP Phase III upgrade; RWS upgrade; collateral material/BII (unique)

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2010/06/30	W56HZV-09-D-0111	Oshkosh Corp	$8,750,000	1,750 C3ISR kits; battery upgrade/silent watch for MRAP M-ATV OEF upgrades
2010/07/02	W56HZV-09-D-0111	Oshkosh Corp	$23,634,480	792 months of 66 FSRs for MRAP M-ATV in support of OEF
2010/07/28	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$33,224,046	27 RG-31 MRAP vehicles & associated ECP upgrades to include ISS
2010/07/28	M67854-07-D-5031	Force Protection Industries Inc	$5,592,594	5-month extension of 36 FSRs to complete ISS kit installation on Cougar MRAP vehicles at Bagram
2010/07/28	M67854-07-D-5031	Force Protection Industries Inc	$5,592,594	5-month extension of 36 FSRs to complete ISS kit installation on Cougar MRAP vehicles at Kandahar
2010/07/28	W56HZV-09-C-0486	T.J. Fig Inc	$21,458,488	MTTs for MRAP operator new equipment & field maintenance training courses (280,338 hrs)
2010/07/29	M67854-07-D-5025	BAE Systems Land & Armaments LP	$64,839,600	32 USSOCOM MRAP armored utility vehicles w/associated ILS sustainment
2010/08/11	W56HZV-09-D-0111	Oshkosh Corp	$40,766,120	292 EFP protection kits for MRAP M-ATVs
2010/08/11	W56HZV-09-D-0111	Oshkosh Corp	$17,992,344	59 FSRs (708 months) for MRAP M-ATVs
2010/08/17	M67854-07-D-5031	Force Protection Industries Inc	$14,587,314	43 FSRs and standard consumable kits to support operations at Vehicle Support Facility-Afghanistan
2010/08/19	M67854-07-D-5031	Force Protection Industries Inc	$64,097,528	1,946 seat survivability upgrade kits and the associated non-recurring engineering efforts, CAT I A1 Cougar MRAP vehicles
2010/08/27	M67854-07-D-5030	BAE Systems TVS	$628,999,998	MRAP vehicle ECP for enhanced sustainability and safety of 1700 Caiman Multi-Theater vehicles (CMTV)
2010/08/31	SPRDL1-10-C-0173	Oshkosh Corp	$14,233,468	Sustainment spares for MRAP M-ATVs
2010/09/09	W56HZV-10-C-0365	BAE Systems Survivability Systems	$11,575,200	1,113 improved turret drive system/internal drive gears for the MRAP M-ATV
2010/09/16	M67854-07-D-5032	Navistar Defense LLC	$25,189,623	CONUS instructors & FSR support; OCONUS FSR/instructor/mechanic; other direct cost; increase quantity of FSRs/instructors attending MRAP University and CONUS Replacement Center Training
2010/09/20	M67854-07-D-5031	Force Protection Industries Inc	$5,532,028	3-month extension of 70 FSRs to complete ISS kit installation on Cougar MRAP vehicle fleet
2010/09/23	M67854-07-D-5032	Navistar Defense LLC	$13,018,471	Payment of federal retail excise tax on 148 MaxxPro Dash MRAP vehicles being used in CONUS for training
2010/09/23	M67854-07-D-5032	Navistar Defense LLC	$9,896,400	OCONUS FSRs, instructors & mechanics; CONUS FSRs & instructors for replacement center training
2010/09/24	W56HZV-09-A-0003	SAIC, Technology Services Co	$18,538,524	241,804 hours of logistics services for PM MRAP vehicles

MRAP Vehicles

DATE	CONTRACT	CONTRACTOR	AMOUNT	DESCRIPTION
2010/09/29	W56HZV-10-C-0263	BAE Systems, Information and Electronic Systems Integration, Inc	$34,359,000	5,286 rear view sensor systems for legacy MRAP vehicles
2010/09/30	M67854-07-D-5031	Force Protection Industries Inc	$6,544,499	3-month extension of 55 FSRs to complete ISS kit installation on Cougar MRAP vehicle fleet
2010/09/30	W56HZV-07-C-0664	BAE Systems, Information and Electronic Systems Integration, Inc	6,961,104	121 EFP bar armor kits for Buffalo MPCVs
2010/11/01	M67854-07-D-5030	BAE Systems TVS	$25,634,704	Caiman Multi-Theater Vehicles deprocessing kit; ASL; PLL; & BDA repair, supporting 1,700 CMTV chassis upgrades
2010/11/15	M67854-10-F-5023	EG&G Technical Services Inc	$22,090,818	Exercise option year one for procurement of MRAP vehicle contract support services
2010/11/19	M67854-07-D-5032	Navistar Defense LLC	$252,779,055	250 MRAP recovery vehicles (MRV) and contractor logistics support (CLS)
2010/11/29	M67854-07-D-5028	Canadian Commercial Corp/GDLS-Canada	$21,196,033	485 block upgrade kits (fire resistant self sealing fuel tank & relocation kit; driver controlled rear door kit; increased crew ventilation kit; and exterior door handhold kit); 691 block upgrade kits for Skydex flooring
2010/11/30	W56HZV-09-D-0111	Oshkosh Corp	$27,971,404	46 MRAP M-ATV SOCOM variants
2010/12/01	W56HZV-09-D-0111	Oshkosh Corp	$255,000,000	250 MRAP M-ATV ambulances (4 test vehicles; 246 production vehicles)
2010/12/03	M67854-07-D-5031	Force Protection Industries Inc	$17,430,254	12-month renewal of 54 FSRs for support, modernization & upgrade work on Cougar MRAP vehicle fleet

Timetable

Month	Year	Major Development
May	2006	MNF-West submits UOR for 185 mine-protected vehicles
July	2006	MNF-West submits UOR for 1,200 additional MPVs
Jan	2007	MARCORSYSCOM orders MRAP test vehicles from nine contractors
Feb	2007	USMC ROC approves increase in total MRAP requirement to 3,700 vehicles
Feb	2007	MARCORSYSCOM begins awarding MRAP production contracts
May	2007	Secretary of Defense calls MRAP the highest acquisition priority for the U.S. DoD
Jun	2007	Secretary of Defense designates MRAP a DX program
Jul	2007	MARCORSYSCOM announces MRAP II competitive solicitation for five-year, 20,500-vehicle requirement
Aug	2007	MARCORSYSCOM allows existing MRAP contractors to submit their MRAP II bids as ECP to earlier MRAP proposals
Sep	2007	JROC raises MRAP procurement objective to 15,374 vehicles
Jul	2008	U.S. DoD accepts 10,000th MRAP vehicle
Dec	2008	TACOM issues RFP for M-ATV
Jun	2009	TACOM awards Oshkosh Defense the initial M-ATV procurement contract
	2011	Production ongoing for U.S. Department of Defense procurement and export

Worldwide Distribution/Inventories

Export Potential. While we expect to see an expanding international market for mine protected vehicles, two factors may ultimately limit the potential for significant export sales of MRAP vehicles. First, these vehicles carry what is for many countries a prohibitively high unit cost for a relatively limited utility. Having said that, however, we note significant opportunities exist for MRAP Category I vehicles, which generally carry unit prices that are quite competitive in comparison to designs such as the Bushmaster (by Thales Australia) and the Dingo All-Protected Carrier Vehicle (by Krauss-Maffei Wegmann).

Second, with the expectation that the U.S. intends to retain a relatively small MRAP inventory after the end of Operation Enduring Freedom and Operation Iraqi Freedom/Operation New Dawn, many potential MRAP customers are no doubt biding their time in anticipation of the U.S. selling or giving away used MRAP vehicles in the near term.

Countries. Canada (Cougar JERRV, Buffalo MPCV); France (Buffalo MPCV); Hungary (Cougar JERRV); Italy (Cougar JERRV); Poland (Cougar JERRV); Spain (RG-31); United Kingdom (Ridgback, Cougar Mastiff); United States (MRAP Category I, II and III; M-ATV).

Forecast Rationale

The Mine Resistant Ambush Protected (MRAP) vehicle program grew out of an immediate combat requirement in Iraq to counter the alarming level of casualties inflicted by improvised explosive devices (IEDs) on U.S. personnel traveling in up-armored HMMWVs.

Evolving Requirements

By March 26, 2007, U.S. Department of Defense documents indicated the MRAP program initially involved a requirement for 7,774 vehicles, at a total cost of $8.4 billion. In September 2007, the Joint Requirements Oversight Council (JROC) validated a revised MRAP procurement objective of 15,374 vehicles. Despite earlier maneuvering and numbers crunching, this figure remains the “official” first-generation MRAP procurement objective.

Through December 2010, the U.S. DoD placed orders for 25,685 MRAP vehicles, as follows:

- 10,969 Cat I vehicles
- 400 Cat I SOCOM vehicles
- 5,671 Cat II vehicles
- 179 Cat II ambulances
- 91 Cat III Buffalo vehicles
- 8,375 M-ATVs

The total value of all MRAP-related contracts through December 2010 is nearly $23.1 billion.

The Return of Oshkosh

Following the initial contracts for test vehicles, Oshkosh received one order for 100 MRAP Category I vehicles. However, technical deficiencies with the delivered vehicles prevented their deployment, seemingly knocking Oshkosh out of the MRAP program.

In June 2009, Oshkosh returned to the MRAP program with a vengeance, however, winning the lucrative procurement contract for the M-ATV. Since January 2007, Oshkosh has received contracts worth over $5.35 billion for production of 102 MRAP Category I vehicles, 2 MRAP Category II test vehicles, and 8,375 M-ATVs. These contracts account for 33.01 percent of all MRAP vehicles ordered, worth 23.22 percent of the total value of the MRAP program through December 2010.

Focus on M-ATV

Our forecast reflects the focus on the M-ATV serial production run for U.S. DoD procurement.

The newest member of the MRAP family, the second-generation M-ATV may well become the most prolific vehicle line of the entire MRAP program. Through December 2010, the U.S. DoD ordered 8,375 M-ATVs. This level of procurement represents 32.6 percent of all MRAP vehicle procurement thus far, accounting for nearly 23.07 percent of the total value of the U.S. MRAP program.

A Little Perspective, Please

At the end of the day, once we strip away all of the hype, all of the political bluster, and all of the controversy, we find the MRAP program – including the second-generation M-ATV – is still bound by the original intent of the U.S. Marine Corps requirement in response to the 2006 Urgent Operational Requirements (UORs). MRAP remains a relatively short-term program to address a specific immediate combat requirement – no more, no less.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program		**High Confidence**				**Good Confidence**			**Speculative**			
	Thru 2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**
Oshkosh Corp												
M-ATV												
	5,657	1659	1163	0	0	0	0	0	0	0	0	2,822
Total	5,657	1659	1163	0	0	0	0	0	0	0	0	2,822

FORECAST INTERNATIONAL

ORDER FORM

FOR PROPER SHIPPING, PLEASE PROVIDE ALL OF THE FOLLOWING INFORMATION.

Name _____ Title _____

Company _____

Street Address _____

City _____ State/Prov. _____ Country _____ Zip _____

Phone _____ Fax _____

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Cardholder Name _____

Card# _____ Exp. _____ csc# _____

Billing Address (if different from above) _____

_____

☐ Check Enclosed
☐ Bill Company
(Purchase Order # and Signature Required)
☐ Quotation Requested
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☐ American Express

Name of Product/Service	Code	E-Mail Address	Qty.	Price

Please include your e-mail address to receive twice-weekly E-Market Alert Newsletters.

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Subtotal _____
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In Connecticut add 6% sales tax _____
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Hard Copy	$25	$45

	U.S.	World
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DVD	$50	$95
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Binder	$1,440	$2,720
DVD	$50	$95
Civil/Commercial Library		
Binder	$360	$680
DVD	$50	$95
Market Intelligence Group Libraries		
Aerospace		
Binder	$360	$680
DVD	$50	$95
Electronics		
Binder	$360	$680
DVD	$50	$95

	U.S.	World
Governments & Industries		
Binder	$540	$1,020
DVD	$50	$95
International Military Markets (A Subset of G&I above)		
Binder	$270	$510
DVD	$50	$95
Naval		
Binder	$90	$170
DVD	$50	$95
Power		
Binder	$90	$170
DVD	$50	$95
Weapons		
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