

## **Ceramic Body and Vehicular Armor Forecast Through 2015**

By G. Jack Urso, April 11, 2011

One measure of an army's combat survivability can be found in the quality and quantity of its body and vehicular armor. The past decade of conflict for U.S. forces in the Middle East has been marked problems in the supply chain for ceramic armor products, with the military often playing catch-up to its forces' requirements. As the second decade of the 21<sup>st</sup> century gets underway, Periscope analyzes the current status of the U.S. military's ceramic body and vehicular armor needs, and the procurement posture of the government for the next few years.

Reports by the Defense Logistics Agency and the U.S. Army Materiel Command suggest a conservative ceramic armor spending posture through 2015. Budget cuts by the Defense Department combined with fewer deployments, among other factors, will reduce procurement of ceramic body and vehicular armor products

### **Slowed-Down Procurement**

A contraction in military and law enforcement body armor procurement in 2008 and 2009 was reported by Vector Strategy, a market research company specializing in the armor industry. A conservative procurement rate through 2015 based on FY11 budget documents and U.S. Army reports provided at the Tactical Wheeled Vehicle Conference in Monterey, California, February 2010. Nevertheless, \$6 billion dollars in body armor will be procured for the U.S. Army and Marines in the period from 2009 through 2015.

Programs to be funded include:

- Combat Vehicle crewmen body armor systems
- Enhanced Combat Helmet (ECH)
- Improved Modular Tactical Vest (IMTV) for the USMC
- Lighter weight Enhanced Small Arms Protective Inserts (ESAPI) and "X" Small Arms Protective Insert (XSAPI) armor that meet current performance requirements.
- Lighter weight plates with lower ballistic protection levels
- Upgrades to the Improved Outer Tactical Vest, (IOTV)
- US Army Plate Carriers
- USMC Plate Carriers

According to Marcia Price, President of Vector Strategy, in a 2009 press release, "That \$6 billion of body armor will not be procured evenly between 2009 and 2015. There will be surges required for specific theater needs; and the development and procurement of the Next Generation Vest and Plate will cause procurement volume fluctuations between now and 2015. The market will rely substantially on sustainment requirements in certain fiscal years."

### **Front/Back (FB) Plate Procurement**

Procurement of Front/Back (F/B) plate by the U.S. military over the past four fiscal years has generally been falling:

- 2007: \$414 million
- 2008: \$363 million
- 2009: \$248 million
- 2010: \$286 million

U.S. military acquisition of F/B plates bottoms out in 2012 at \$201 million, which translates into approximately 182,000 sets. F/B plate armor procurement in 2012 and 2013 focus primarily on sustainment, spending approximately \$200 million each year for 180,000 to 200,000 sets. A rebound in F/B plate acquisition is projected by Vector Strategy to pick up in 2014 and 2015, to approximately \$400 million each year.

The F/B plate market in this timeframe is driven by the assumption that, in 2013, the US Army and USMC will initiate procurement of a Next Generation SAPI (NGSAPI, i.e. post XSAPI) that is driven by technology and design improvements. This procurement initiates in late 2013 for both the US Army and the USMC. A peak monthly procurement rate of 15,000 sets for the Army and 6,500 sets for the Marines is projected, according to Vector Strategy.

### **Side Plate Procurement**

As with F/B plate and NGSAPI, Side Plate procurement in 2011 and 2012 will be driven mainly by sustainment needs with approximately \$80 million in sales annually. In 2013, however, sales pick up with Next Generation Side Ballistic Inserts and Side SAPIs (NGSBIs and NGSSAPIs) being acquired along with NGSAPI and the NGVest. Side Plate procurement is projected to grow to \$222 million annually by 2015.

### **Future Ceramic Armor Product Procurement**

The Enhanced Small Arms Protective Insert (ESAPI) and X Small Arms Protective Insert (XSAPI) are lighter-weight ceramic armor products that stop higher-velocity projectiles than current SAPI. Despite delays in XSAPI development, on March 31, 2011, Ceradyne reported it was awarded a \$36 million contract for XSAPI ceramic body armor plates. Delivery will begin in the second quarter of 2011 and be completed in the third quarter of 2011. Ceradyne's ESAPI and XSAPI designs weigh 10 - to 15-percent less than NGSAPI.

The new Enhanced Combat Helmet (ECH) is on track to start being fielded in the fall of 2011, with an initial procurement by the Army of 200,000 helmets. This will also contribute to ceramic armor requirements through 2015.

2013 is a pivotal year, with the anticipation of the Next Generation SAPI (NGSAPI) for both the U.S. Army and Marine Corp and possibly the NGVest as well. Approximately 6,500 sets per month of NGSAPI is projected to be acquired for the Marines, and approximately 15,000 sets of NGVests per month for the Army, and 5,000 sets per month for the Marines through 2015. As a

result, sustainment of the U.S. military's body and vehicular armor inventory will be key until new product enters the market in 2013.

### **Vehicular Armor**

The US military ground vehicle (MGV) armor material requirements is also projected to drop over the next several years. In 2008, the total material requirements for MGV armor totaled 248 million pounds. That number is slated to fall to 84 million pounds per year by 2013.

The 2008 MGV armor material procurement was driven by the acquisition of the Mine Resistant Ambush Protected (MRAP) vehicle, driven by the demands of combat in Afghanistan and Iraq. Procurement falls through 2013 due to funding cuts and the transition to lighter weight and lower areal density armor.

Vector Strategy projects a conservative acquisition rate of vehicular armor by the U.S. military through 2015. Contributing factors, in addition to budget cuts, include excess inventory of tactical wheeled vehicles, a draw-down of forces in Iraq and Afghanistan, the halt in armor B-kit procurement for tactical vehicles, and the wait for several new vehicles to enter production.

### **Armor Up**

One effect of the overall decline in ceramic armor procurement by the United States may be to push smaller U.S. body armor integrators and manufacturers to seek partnerships with, or be acquired by, larger corporations, including those owned by non-U.S. companies. This will provide an opportunity for manufacturers to position themselves for the anticipated growth in the ceramic armor market by mid-decade.

While current ceramic armor procurement by U.S. military and law enforcement agencies has contracted in recent years, the next few years will be marked by a general stabilization in some areas of the industry, though vehicle armor procurement will continue to fall. Based on available projections, a slow rebound is anticipated between 2013 and 2015.