



PERSONAL PROTECTIVE EQUIPMENT INTERCEPTOR BODY ARMOR (IBA)

Advanced Planning Brief to Industry

19 May 2010

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Outline



- Program Status
- Timeline
- Future / Purchases
- Future Focus Areas



Soft Armor Team



Product Manager Soldier Protective Equipment The Soldier: Center of our Strength





Body Armor Evolution (Capability Enhancements)



The Army Continually Improves Soldier Protection



Improved Outer Tactical Vest

Objective: To improve the Soldier's survivability.

Description:

The IOTV is a side opening tactical vest

- Area of coverage = 1,085 Square Inches
- Quick-release for emergency situations
- Available in 11 sizes
- IOTV Weight (medium) = 15.09 pounds
 - IBA (IOTV, ESAPI, and ESBI plates) = 31.09 pounds
- Accepts the ESAPI, ESBI, and XSAPI plates
- Gen II (Rev D) Variant in production
 - Incorporates 17 design/material enhancements

Capabilities:

- Soft Armor provides fragmentation and 9mm protection
- ESAPI & ESBI 7.62mm (M-80 Ball), 7.62 LPS,
 5.56 (M855) and 7.62 APM2 protection
- XSAPI Classified

Proponent: Soldier Requirements Division, Maneuver Center of Excellence/TRADOC









- Full and Open Contract Award: 8 vendors IDIQ 5 year contract. Per FAR 16.505(b)(1), each order is competed using the Fair Opportunity process
- IOTV Purchase Description (Rev E) enhancements
 - Major enhancements from IOTV (Rev D) configuration
 - Refined test verification protocol
 - Multi Camouflage Pattern (option)



Path Forward



- Desired capabilities & Technology Needs
 - Planned Soldier Protection Demonstration (SPD) VIII to inform future requirements
 - Modular/Scalable system
 - Improved Heat dispersion
 - Quick Release improvements
 - Soft Ballistic capability improvements
 - Reduced Areal Density
 - Equal/better protection reduced system weight
 - Improved Ergonomics
 - Improved load redistribution
 - Improved sizing for female and small statured male Soldiers



Technology Needs Ballistic Fiber Evaluations



- Reduce system weight while maintaining or improving performance
 - Extend ballistic fiber characterization to better understand ballistic defeat mechanism
- Army lead on OSD program to evaluate Russian fiber which shows great potential to reduce the weight by 25%.
- Exploring the dynamic response for ballistic fibers, weaving process effect, and fiber finish effect as it relates to ballistic performance



Hard Armor Team



Product Manager Soldier Protective Equipment The Soldier: Center of our Strength





Soldier Plate Carrier System

- Objective
 - To decrease Soldier load and increase Soldier mobility in various terrain and theater conditions.
- Authorization: ONS/Directed Buy HQDA G3/5/7
- Description:
 - Quick Release Capability
 - Available in 6 sizes (XS XL and 2XL/4XL)
 - Removable ESBI Plate carriers
 - Medium weighs 5.85 lbs without plates
- Capabilities
 - Same as Improved Outer Tactical Vest
 - With Enhanced Small Arms Protective Insert (SAPI),
 X-Small Arms Protective Insert (XSAPI), Enhanced Side Ballistic Insert (ESBI), the system provides AP rifle protection
- Purchased 58,000 in FY10.
- Full & Open Contract for at least 20,000 SPCS anticipated in FY 11







Concealable Body Armor

- **Objective:** To increase Military Police survivability for missions requiring concealable body armor.
- Description:
 - Vest is adjustable at shoulders and waistline
 - Provides protection yet maintains concealability
 - Potentially can be worn as "baseline" with the capability to throw a Plate Carrier over top to meet rifle protection
- Capabilities of CBA
 - Provide NIJ Level IIIA ballistic protection
- Purchased 10,000 in FY10.
- Capabilities Production Document in Staffing for Family of Concealable Body Armor (FoCBA)
 - Near future provide Level IIIA ballistic plus Level 1 Edged Blade
 - Near future provide Level 3 edge blade/spike protection
 - Objective requirement for Level IIIA ballistics and Level
 3 blade and spike protection.







Small Arms Protective Inserts



- Objective: To increase Soldier survivability by providing rifle protection
- Description:
 - ESAPI and XSAPI ballistic inserts are available in 5 standard sizes (XS to XL)
 - ESBI is a single size (7" x 8").
 - When inserted into the OTV/IOTV, ESAPI/XSAPI/ESBI provide ballistic protection from specific small arms threats and fragmentation.
- Capabilities
 - Provide NIJ Level IV+ ballistic protection
- XSAPI Procurement of 240,000 plates
- Future sustainment buys by DSCP (120K) initially from Army contract
- XSBI Purchase TBD





Technology Needs



ESAPI/XSAPI Weight Reduction

- Near Term (1-2 years): 10% weight reduction
- Need to understand physics of ballistic impact

 Highly dynamic event
 - Shock wave propagation
- How the ceramic properties effect ballistic performance
 - Grain size, hardness, density manufacturing techniques
 - How integration techniques can be improved
- New fiber backing composites



Technology Needs



Flexible Armor Rifle Protection

- Study new materials that provide hardness and flexibility to defeat rifle threats
- New designs to provide high mass efficiency as monolithic plates
- Dynamic Smart Materials that may react differently (mechanical/physical) when impacted at high velocities
- Develop definitions to evaluate flexibility as well as testing methodologies





Smart Sensor

- Non destructive method of inspecting a hard armor insert on demand with "key"
- Good sensitivity
 - Evaluated against other methods (x-ray, dye penetrant testing)
 - Further evaluating plates in environmentals
- Large sample size to ensure repeatability
- Work with current industry to help facilitate implementation into current manufacturing procedures



Technology Needs



Other Technology Initiatives

- Foreign hard armor testing
 - OSD funded to test new technologies of foreign countries
 - Helps to ensure we have best body armor available
 - Investigate new and innovative designs, materials, and technology

Behind Armor Blunt Trauma

- Not a medical study
- Study the physics associated with the dynamic event
- Correlate maximum force to clay BFD