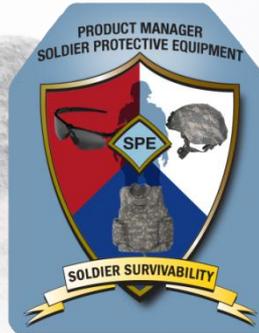




CENTER OF OUR STRENGTH

Program Executive Office Soldier



PERSONAL PROTECTIVE EQUIPMENT

Advanced Planning Brief to Industry

12 May 2011

PM Soldier Protective Equipment
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Outline



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



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Soft Armor Team



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

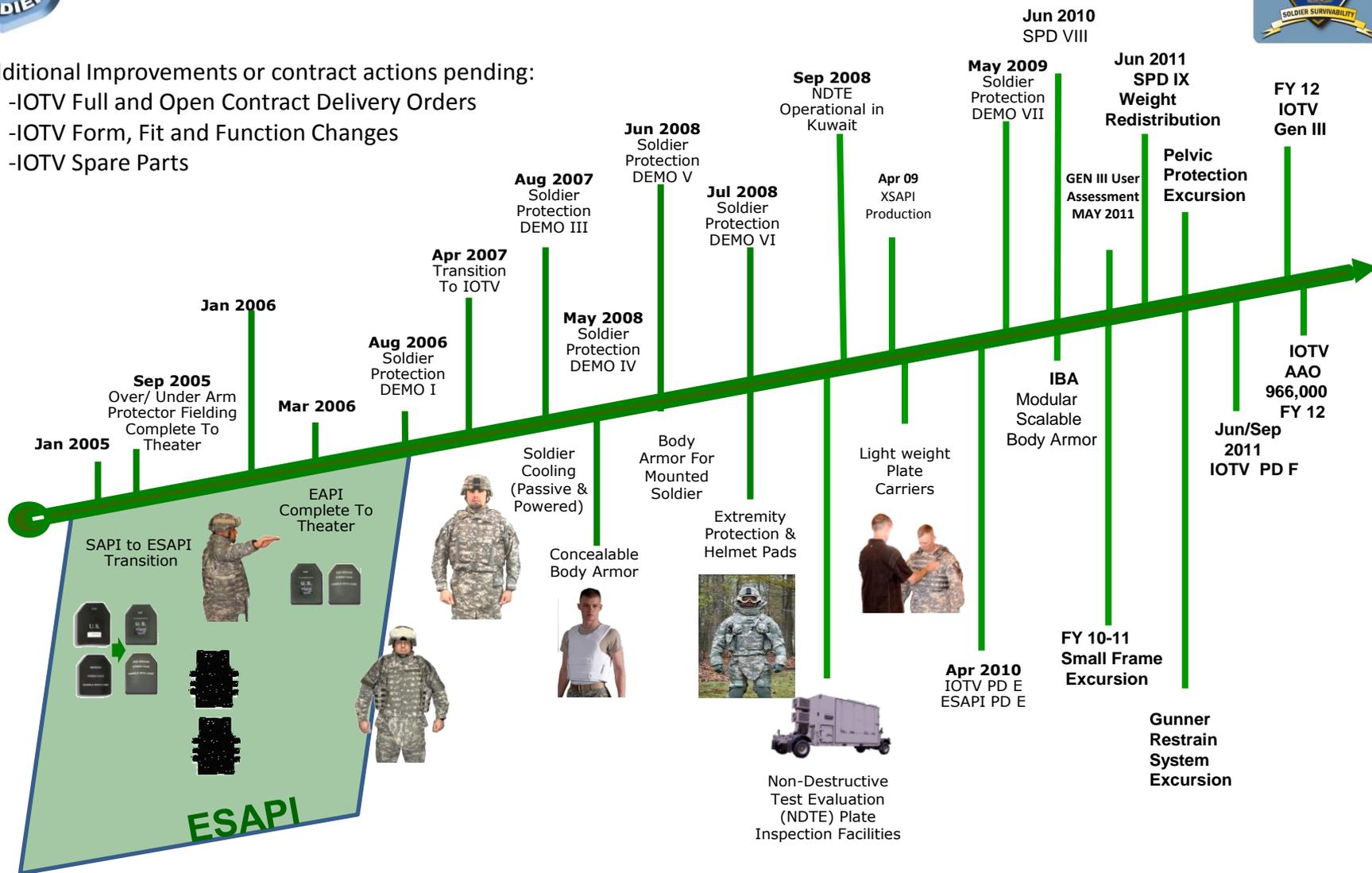


Body Armor Evolution (Capability Enhancements)



Additional Improvements or contract actions pending:

- IOTV Full and Open Contract Delivery Orders
- IOTV Form, Fit and Function Changes
- IOTV Spare Parts



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





Achievements since last APBI



- FY 11 - IOTV 150K:
 - FO #4 - 44,400 IOTVs: Production commenced in Jan 11; complete in May 11
 - FO #5 - 57,900 IOTVs: Production commenced in Apr 11
 - FO #6 - 60,000 IOTVs (DLA): awarded late Apr
 - FO #7 - 108,343 IOTVs: Combined PM SPE 48,000 and DLA 60,343 purchase
- GEN III IOTV in development; conducting Human Factor Evaluations
- IOTV PD in draft; scheduled to complete NLT JUL 11
- ABS (Advanced Bomb Suit):
 - MOA between PM SPE and TACOM Integrated Logistics Support Center (ILSC) established Soldier Product Support Integration Directorate (S-PSID) as the Item Manager for ABS Ensemble
 - Award spare parts contract in May 11 through TACOM (Warren) Contracting Office
 - Ordered total of 431 required to complete the AAO. Production of these items completed end of 2nd QTR, FY 11.



Path Forward



- Conduct Soldier Protection Demonstration (SPD) IX to inform future requirements: evaluate COTS systems to meet desired capabilities for weight redistribution on the IOTV and Soldier Plate Carrying System to inform the Soldier Protection System Capabilities Development Document (CDD) currently in development by the Maneuver Center of Excellence Soldier Requirements Division, Soldier Systems Branch.
- Generation III IOTV – in development
- Small Framed Soldier IOTV sizing excursion
- Modular, scalable body armor based on mission and threat level

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



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Hard Armor Team



Product Manager Soldier Protective Equipment
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Achievements since last APBI



- XSBI:
 - Full and Open Contract Award: 5 vendors FFP.
 - 320k total award
- ESAPI (Fair Opportunity Delivery Orders):
 - 120k Delivery Order (complete)
 - 12.9k Delivery Order (complete)
 - 120k Delivery Order (ongoing)
 - 8.1k Delivery Order (ongoing)
- XSAPI (Fair Opportunity):
 - 240k Delivery Order (complete)
 - 80k Delivery Order (ongoing)
- ESAPI Purchase Description Revision (current Rev F)
 - Interim memo: DOT&E Protocol contractual requirement
 - Threat D to Threat E change (LAT only)
- Soldier Plate Carrier System
 - Draft RFP for 17k remaining from AAO of 85k
 - Purchase Description Revision: cummerbund, side plate carrier redesign
- Family of Concealable Body Armor: MDD/MS B complete



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 / cummerbund
 - Medium weighs 5.85 lbs without plates
- **Capabilities**
 - System level testing requirement with ESAPI
 - Reduced area of coverage from IOTV resulting in reduction in weight
 - With Enhanced Small Arms Protective Insert (ESAPI), X-Small Arms Protective Insert (XSAPI), Enhanced Side Ballistic Insert (ESBI), the system provides AP rifle protection
- **Completed OCP conversion kit procurement in FY11**
- **Solicitation for remaining 17,000 SPCS in development**

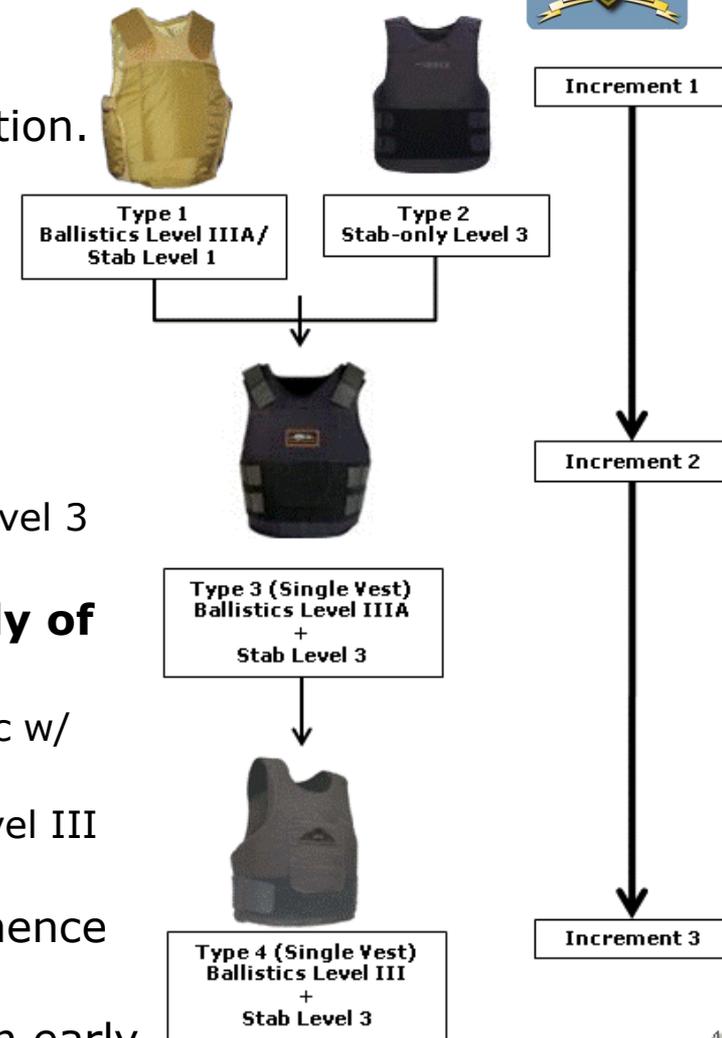




Family of Concealable Body Armor



- **Objective:** To increase Military Police and correctional officer survivability for missions requiring concealable ballistic and stab protection.
- **Description:**
 - Will provide multiple threat protection
 - Ballistic
 - Edge Blade / Spike
 - Concealable
- **Capabilities of FoCBA**
 - Provide NIJ Level IIIA ballistic protection and Level 3 spike/edged blade protection
- **Capabilities Production Document - Family of Concealable Body Armor (FoCBA)**
 - Threshold requirement for NIJ Level IIIA ballistic w/ Level 1 stab vest and Level 3 stab vest.
 - Objective requirement for single vest w/ NIJ Level III ballistic and Level 3 stab.
- Key Performance Parameter Testing will commence in FY11.
- Vest Characterization Testing will commence in early FY12.





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 & XSBI is a single size (7" x 8")
 - When inserted into the OTV/IOTV, ESAPI/XSAPI/ESBI/XSBI provide ballistic protection from specific small arms threats and fragmentation.
- **Capabilities**
 - Provide NIJ Level IV+ ballistic protection
- ESAPI sustainment procurement of 120k plates (completed in FY11)
- ESAPI sustainment procurement of additional 120k plates (ongoing)
- XSAPI Procurement of 240k plates (completed in FY11)
- XSAPI Procurement of 80k plates (ongoing)
- XSBI Procurement of 320k plates (ongoing)
- LSAPI/LSBI Purchase Description development (ongoing)



XSAPI



ESAPI



XSBI / ESBI



Technology Needs



XSAPI Weight Reduction & LSAPI Development

- XSAPI
 - Near Term (<1 year): 10% weight reduction (objective weight)
- LSAPI / LSBI
 - Threat “e” focus with design
 - Sensor integration into plate with repeatable manufacturing process
 - Full threat characterization
- RDTE Efforts
 - 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



Technology Needs



Smart Sensor

- Non destructive method of inspecting a hard armor insert on demand with "key-fob"
- Good sensitivity
 - Evaluated against other methods (x-ray, dye penetrant testing)
 - Further evaluating plates under environmental conditions
- Work with current industry to help facilitate implementation into current manufacturing processes
- Integration into LSAPI
 - Optimal sensor placement w/o interference with current NDTE processes
- Comparison studies with current NDTE capability
 - Sensitivity
 - Accuracy



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
- **Anthropometric Study**
 - Armor design for female design
 - A challenge: Testing protocol



Technology Needs



Obtain LSAPI/LSBI requirement through MCoE for lighter plate and smart sensor to increase reliability beyond NDTE scanning

R&D Focus

- Establish new weight standard
- Determine thickness standard

Test Focus

- Threat "E" Plate FAT/LAT
- Robustly test other threats & characterize holistic performance (A,B,C,D,X,Y)
- Conduct Durability (Shake n' Bake)

Tech Focus

- Introduce smart sensor
- Introduce advanced coatings to reduce cracking, increased durability of ceramic

Update System Evaluation Report based on new 'System Level' performance