

Program Executive Office Soldier



Product Manager Soldier Protective Equipment Soldier Protection System (SPS) Industry Day

16 Oct 2012

LTC Frank J. Lozano
Product Manager
Soldier Protective Equipment

Barry T. Hauck
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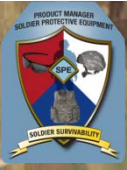


Agenda

- 0900-0910 PM SPE Welcome
- 0910-0915 SPIE DPM
- 0915-0945 SPS Overview
- 0945-1100 APMs SPS Components Overview
- 1100-1115 Contracting Overview
- 1115-1130 Logistics/Sustainment
- 1130-1200 Questions & Answer
- 1200-1300 Lunch Break
- 1300-1500 Breakout Workshops
- 1500 Adjourn



WELCOME



- Thank You for Attending
- Maximum Participation is Important
- Team Introductions
- Ask Questions, Ask for Clarification!
- 1 Program – Multiple Swim Lanes
 - Head Protection
 - Hard Armor
 - Soft Armor
 - Military Combat Eye Protection
 - Helmet Sensors



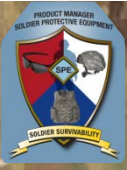
These Are Not SPS



Expectation Management is Key



SPS Principles



- 3 Main Overarching Principles
 - 5-15% Weight Reduction
 - Lighten the Soldier Load
 - Leveraging Mature Technologies based on Current PM SPE Investments
 - Efficiency of Design
 - Form, Fit and Function
 - Soldiers will Evaluate your Designs
 - HFE will Support Best Value Contract Awards
 - Backward Compatible with current systems
 - Modular and Mission Tailorable
 - Must Support Numerous Missions
 - Tailor Coverage and Protection to the Threat
 - Take Today's Multiple and Redundant Systems and Create One Modular Capability



SPS Integration



- Interface Control Document (ICD)
 - Internal integration from Head to Extremities
 - Head and Torso
 - Torso and Vital Torso (Plate and Vest)
 - Quick Release with Torso
 - Head with Eye Protection
 - ISSS with Head and Torso
 - External Integration
 - Head and NVD
 - Torso and Load Carriage (MOLLE)



SPS Overarching Themes & Layers



- **Protective Under Garment (PUG)**
- **Concealable Body Armor**
- **Enhanced Army Combat Pants**
- **Ballistic Knee pads**





SPS Overarching Themes & Layers



- Protective Under Garment (PUG)
- Concealable Body Armor
- Enhanced Army Combat Pants
- Ballistic Knee pads/**Elbow Pads**
- **Enhanced Army Combat Shirt (limited ballistics)**
- **Enhanced Ballistic Gloves**
- **Protective Outer Garment (POG)**



SPS Overarching Themes & Layers



- Protective Under Garment (PUG)
- Enhanced Army Combat Pants
- Ballistic Knee pads/Elbow Pads
- Enhanced Army Combat Shirt (limited ballistics)
- Enhanced Ballistic Gloves
- Protective Outer Garment (POG)
- **SPS Plate Carrier (Using CBA Soft Armor)**
- **Ballistic Plates**



SPS Overarching Themes & Layers



- Protective Under Garment (PUG)
- Enhanced Army Combat Pants
- Ballistic Knee pads/Elbow Pads
- Enhanced Army Combat Shirt (limited ballistics)
- Enhanced Ballistic Gloves
- Protective Outer Garment (POG)
- SPS Plate Carrier (CBA)
- Ballistic Plates
- **SPS Enhanced Combat Helmet with Nape protection**
- **Transition Combat Eye Protection**
- **Integrated Soldier Sensor Suite**
 - **Generation III Helmet Sensor**
- **Hearing Protection**



SPS Overarching Themes & Layers



- Pelvic Protection System (PPS)
- Enhanced Army Combat Pants with Ballistic Inserts
- Ballistic Knee/Elbow pads
- Enhanced Army Combat Shirt (limited ballistics)
- Enhanced Ballistic Gloves
- SPS Full Vest (IOTV-PC-CBA)
- Ballistic Plates
- Enhanced Combat Helmet with Nape protection
- Transition Combat Eye Protection
- Hearing Protection
- **Deltoid Protection**
- **Neck Protection - collar**
- **Load Redistribution System**
- **Maxillofacial (visor & Mandible)**
- **Integrated Soldier Sensor Suite:**
 - **Advanced Helmet Sensor**
 - **Blast Gauge**
 - **Status Monitor**

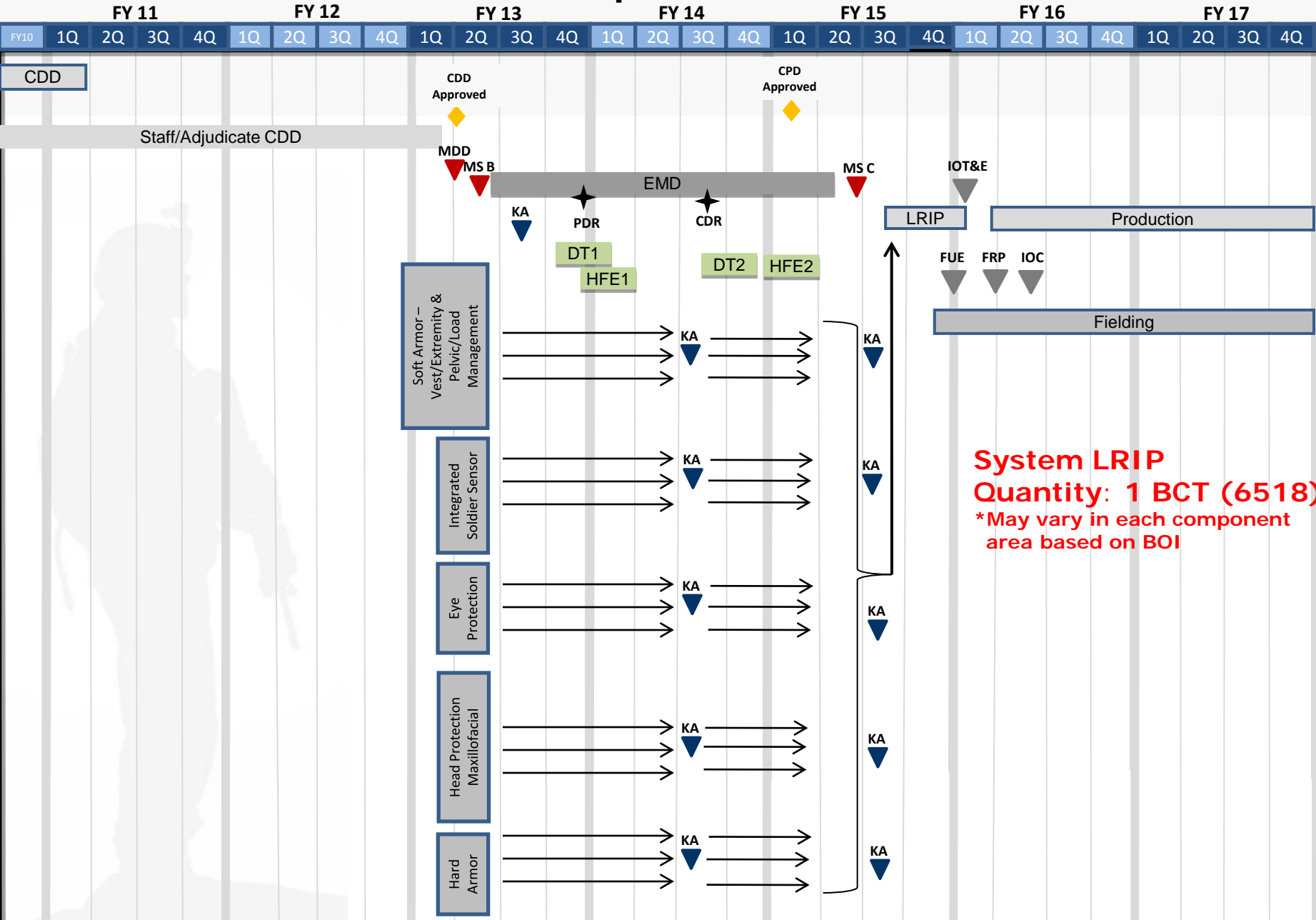


SPS Overarching Themes & Layers



Leveraging and Adapting Mature Technologies to Provide our Soldiers and Joint Warfighters Modular, Mission Tailorable and Lighter Weight Protection with Enhanced Form, Fit and Function

SPS Proposed Master Schedule



**System LRIP
Quantity: 1 BCT (6518)**
*May vary in each component area based on BOI



Head Protection

Mr. Ian Rozansky





Integrated Head Protection System (IHPS) Requirements



- Increase the level of ballistic protection over the current baseline helmet and achieve weight reduction
 - Decrease helmet weight to the greatest extent possible
 - Meet or exceed the performance requirements outlined within the current IHPS Purchase Description/Technical Statement of Need
 - Integrate accessories to provide a modular and interoperable head protection system
 - Easy donning and doffing, assembly and adjustment, comfort, fit, and performance



Current vs. SPS IHPS

Current Head Protection

- **Size range from S – XXL**
 - 2.94 – 4.00 lbs
- **Ballistic protection:**
 - Against 9mm and Threat M
 - Fragmentation: 2, 4, 16, 64 grain RCC and 17 grain FSP
- **Blunt force protection:**
 - 150G at 10 fps



Enhanced Combat Helmet



Maxillofacial Systems

SPS Head Protection

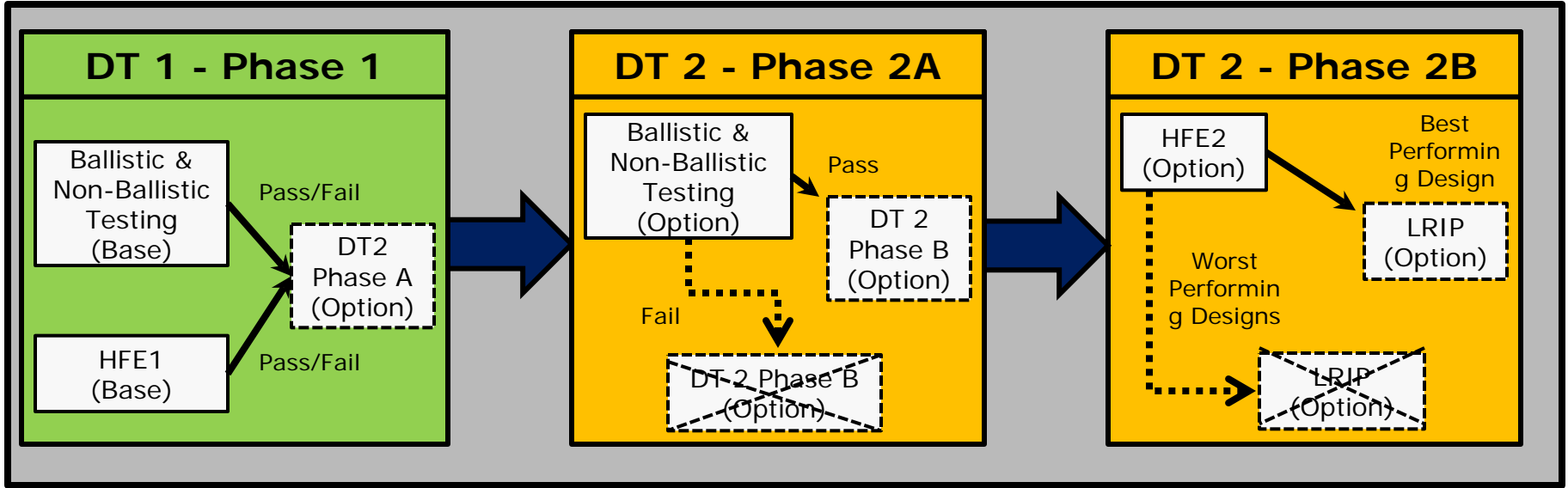
- **Size range from S – XXL**
 - 2.79 – 3.80 lbs (T) – 5% Reduction
 - 2.50 – 3.40 lbs (O) – 15% Reduction
- **Ballistic protection:**
 - Against 9mm, Threat M and Threat P
 - Fragmentation: 2, 4, 16, 64 grain RCC and 17 grain FSP
- **Blunt force protection:**
 - 150G at 10 fps (T)
 - 150G at 17.1 fps (O)
- **Maxillofacial:**
 - Weight 1.5 lbs (T) / 0.85 lbs (O)
 - Ballistic protection:
 - Visor – 550fps against 17gr FSP (T)
 - Mandible – 1850fps against 17gr FSP (T)



Potential SPS concept for Head Protection



IHPS Acquisition Approach



A maximum of three (3) IHPS designs will be awarded initial contracts for DT1

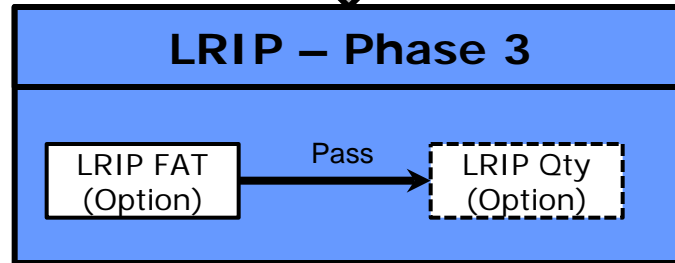
- Best Value evaluation approach
- Awardees must meet all stated minimum requirements
- Potential best value trade-off between weight and price

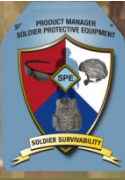
Criteria to be considered for the LRIP Option:

1. Pass the DT2 Ballistic & Non-Ballistic Requirements (Phase 2A)
2. Obtain the highest rating during DT2 HFE2 (Phase 2B)

Legend

DT – Developmental Testing
 FAT – First Article Test
 HFE – Human Factors Evaluation
 LRIP – Low Rate Initial Production





Initial Contract Award Criteria

- **Factors:**

- **Technical**

- Sub-Factor 1: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Non-Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Weight
 - Sub-Factor 3: Integration and Interoperability [PASS/FAIL]
 - Sub-Factor 4: Design and Workmanship [PASS/FAIL]

- **Past Performance [PASS/FAIL]**

- **Quality Management System [PASS/FAIL]**

- **Small Business (SB) Sub-K Approach [PASS/FAIL]**

- Sub-Factor 1: Small Business Subcontracting Plan
 - Sub-Factor 2: Small Business Participation Plan

- **Price**

- The Technical Factor is the most important factor and is significantly more important than the other four (4) factors

- All of the evaluation factors other than Price (Technical, Past Performance, Quality Management System and Small Business), when combined, are significantly more important than the Price factor

Integrated, Modular, Lighter, Mission Tailorable



IHPS Phases

Phase 1 – Developmental Test (DT1)

- A maximum of three (3) IHPS designs will be initially awarded contracts.
 - Best Value evaluation approach
 - Awardees must meet all stated minimum requirements (pass/fail criteria).
 - Potential best value trade-off between weight and price.

- Testing
 - Will consist of ballistic and non-ballistic testing and a Human Factors Evaluation (HFE).
 - Government will provide each Awardee with feedback gathered during the DT1 phase (related to testing results and feedback from the HFE event).



IHPS Phases (con't)

Phase 2A – Developmental Test (DT2)

- Government intends to execute Phase 2A quantities for all IHPS Awardees.
- Testing
 - Will consist of ballistic and non-ballistic testing.
 - The Government will provide each Awardee with feedback gathered during DT2 Phase 2A.

Phase 2B – Developmental Test (DT2)

- Government intends to execute Phase 2B quantities to IHPS designs that meet the ballistic and non-ballistic requirements in Phase 2A.
- Testing
 - Will consist of a Human Factors Evaluation
 - The Government will provide each Awardee with feedback gathered during DT2 Phase 2B.

Phase 3 – Low Rate Initial Production (LRIP) [~6,000 helmet systems]

- Government intends to execute the LRIP option for the single Awardee that accomplishes the following:
 - Meets the ballistic and non-ballistic requirements in DT2 Phase 2A.
 - Obtains the highest rating during Human Factors Evaluation in DT2 Phase 2B.



Vital Torso Protection

MAJ Scott Madore



VTP Requirements



- Reduce Soldier load while maintaining current baseline ballistic plate performance.
 - Decrease ballistic plate weight to the greatest extend possible.
 - Meet or exceed the performance requirements outlined within the current VTP Purchase Description.
 - Incorporate a sensor capability to enable plate serviceability determination at the user level.



SPS Vital Torso Requirement (10%-15% Weight Reduction)



Front and Back Protection*

▪ ESAPI



- XS: 3.42 lb (T) → 3.23 lb (O)
- SM: 4.28 lb (T) → 4.04 lb (O)
- MD: 4.91 lb (T) → 4.63 lb (O)
- LG: 5.63 lb (T) → 5.31 lb (O)
- XL: 6.39 lb (T) → 6.04 lb (O)
- 22/32: 4.35 lb (T) → 4.11 lb (O)

▪ XSAPI



- XS: 3.76 lb (T) → 3.55 lb (O)
- SM: 4.71 lb (T) → 4.45 lb (O)
- MD: 5.40 lb (T) → 5.10 lb (O)
- LG: 6.19 lb (T) → 5.85 lb (O)
- XL: 6.64 lb (T) → 6.32 lb (O)
- 22/32: 4.78 lb (T) → 4.52 lb (O)

Side Protection*

▪ ESBI



- LG: 2.30 lb (T) → 2.17 lb (O)
- MD: 1.98 lb (T) → 1.86 lb (O)
- SM: 1.48 lb (T) → 1.40 lb (O)

▪ XSBI

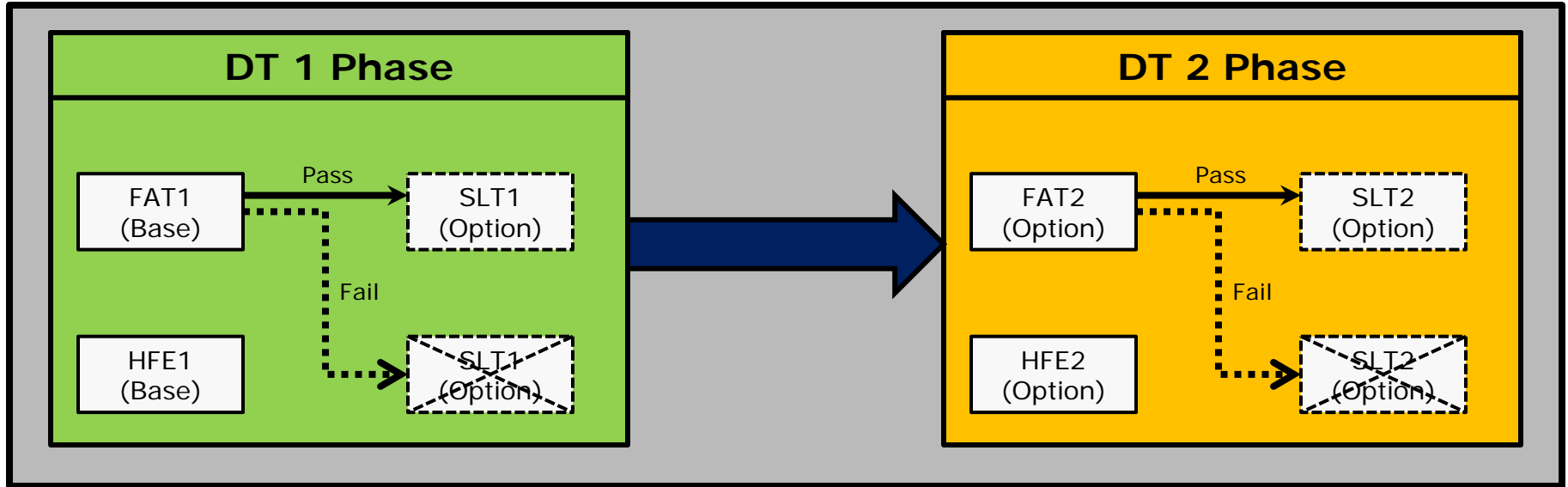


- LG: 2.70 lbs (T) → 2.55 lb (O)
- MD: 2.31 lbs (T) → 2.19 lb (O)
- SM: 1.74 lbs (T) → 1.64 lb (O)

*Integration of Smart Sensor technology with similar design as the current plates



VTP Acquisition Approach

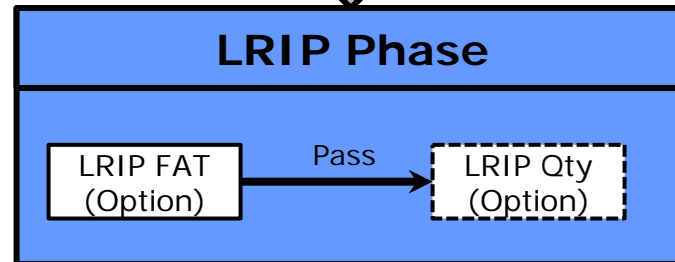


Criteria to be considered for LRIP Options (must occur in same phase):

1. Pass the DT1 or DT2 FAT protocol
2. Achieve 10% weight reduction or greater.

Legend

DT – Developmental Testing
FAT – First Article Test
HFE – Human Factors Evaluation
SLT – SPS System Level Test
LRIP – Low Rate Initial Production





VTP Phases

Phase 1 – Developmental Test (DT1)

- Maximum of 3 VTP designs awarded for each of the plate variants (ESAPI, XSAPI, ESBI and XSBI).
 - Best Value approach; trade-off between weight and price.
 - Awardees must meet all stated minimum requirements (pass/fail criteria).

- Testing
 - Will consist of ballistic testing (FAT1), a Human Factors Evaluation (HFE1), and a SPS system-level ballistic testing of each plate variant (dependant on results of FAT1).
 - Government will provide each Awardee with feedback gathered during the DT1 phase.
 - Each Awardee will be required to submit a White Paper addressing:
 - Proposed DT2 design.
 - DT2 process improvements.
 - Approach to achieve additional weight reduction during DT2.
 - Means to achieve ballistic performance improvements in DT2.



VTP Phases (con't)



Phase 2 – Developmental Test (DT2)

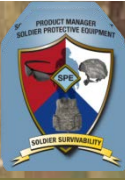
- Government intends to execute FAT2 and HFE2 quantities for all VTP Awardees.
- Testing
 - Will consist of ballistic testing (FAT2), a Human Factors Evaluation (HFE2), and a SPS system-level ballistic testing of each plate variant (dependant on results of FAT2).
 - Government will provide each Awardee with feedback gathered during the DT2 phase.
- The Government intends to provide each Awardee with feedback gathered during the DT2 phase.

Phase 3 – Low Rate Initial Production (LRIP) [~12,000 plates per variant]

- Government intends to execute the LRIP options for the single Awardee that accomplishes the following in either DT1 or DT2 phases:
 - Achieves the greatest plate weight reduction at $\geq 10\%$ reduction from baseline weights.
 - Meets the FAT performance requirements.



Initial Contract Award Criteria



- Technical
 - Sub-Factor 1: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Weight
 - Sub-Factor 3: Size, Fit, and Area of Coverage [PASS/FAIL]
 - Sub-Factor 4: Design and Workmanship [PASS/FAIL]

- Past Performance [PASS/FAIL]

- Quality Management System [PASS/FAIL]

- Small Business (SB) Sub-K Approach [PASS/FAIL]
 - Sub-Factor 1: Small Business Subcontracting Plan
 - Sub-Factor 2: Small Business Participation Plan

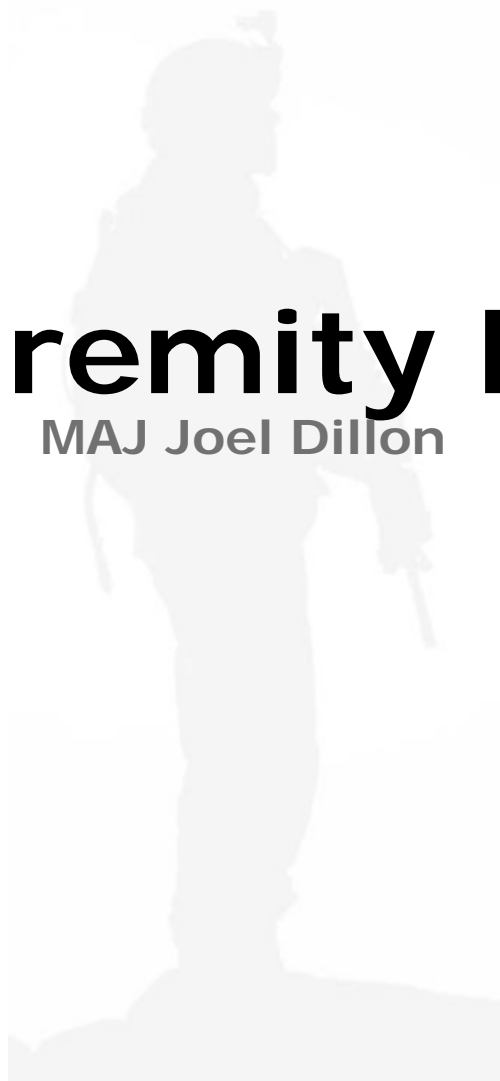
- Price

Integrated, Modular, Lighter, Mission Tailorable



Torso/Extremity Protection

MAJ Joel Dillon





Current Capability vs. SPS

Current Torso Protection (IOTV Gen III / Plate Carrier/CBA)

IOTV - 13.59-20.83 lbs (XS – 4XLG)
 SPCS (XS- 2XL)
 CBA (XS – 2XL)

SPS Torso Protection (T-10%, O-15%)

Size range from XS – 4XLG

- 12.23 - 18.75 lbs (T)
- 11.55 – 17.71 lbs (O)



CBA



SPCS



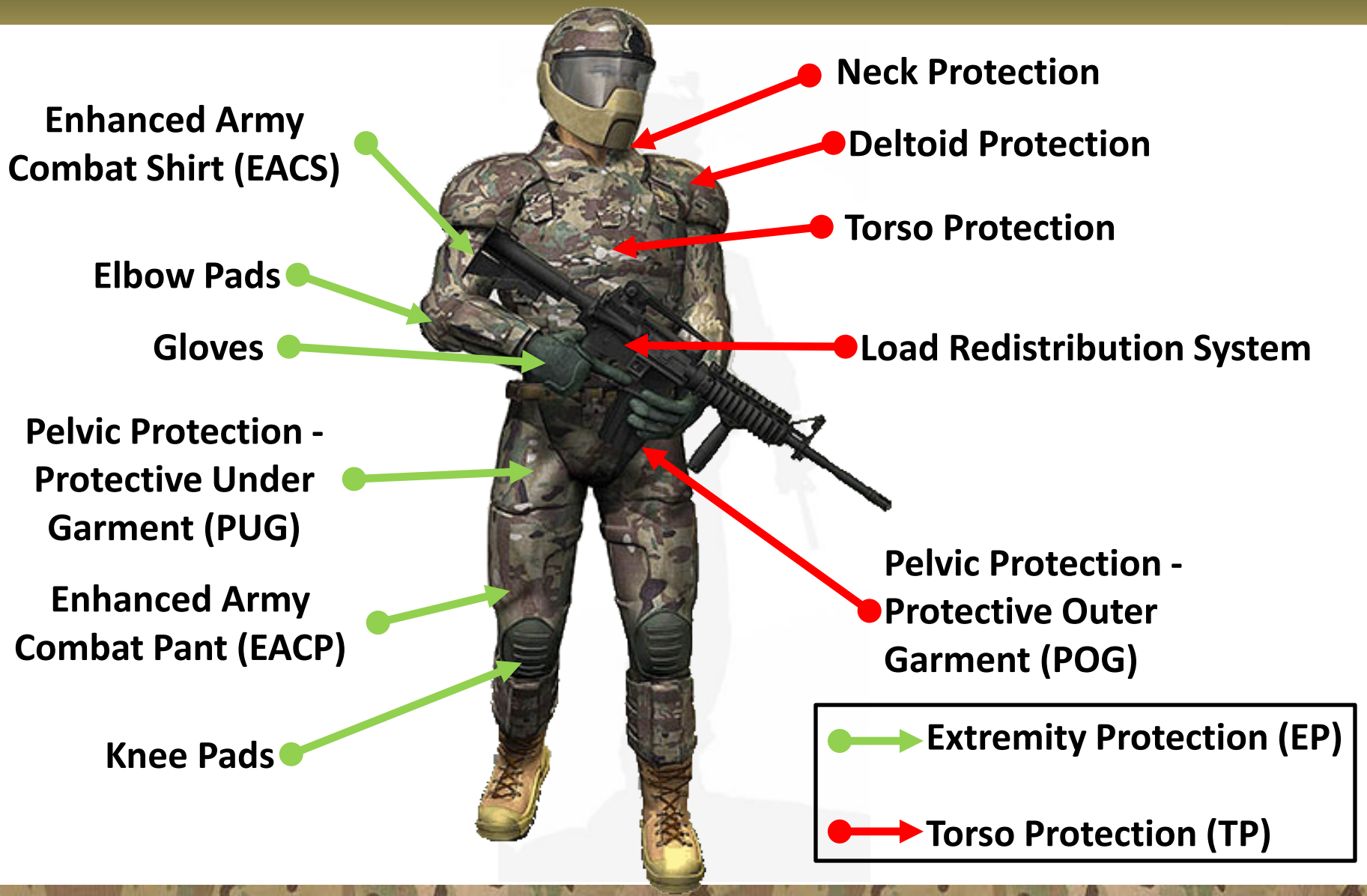
IOTV GEN III



Optimized area of coverage, incorporation of design cues to enhance Soldier fit, mobility, and acceptability while accounting for multiple mission profiles

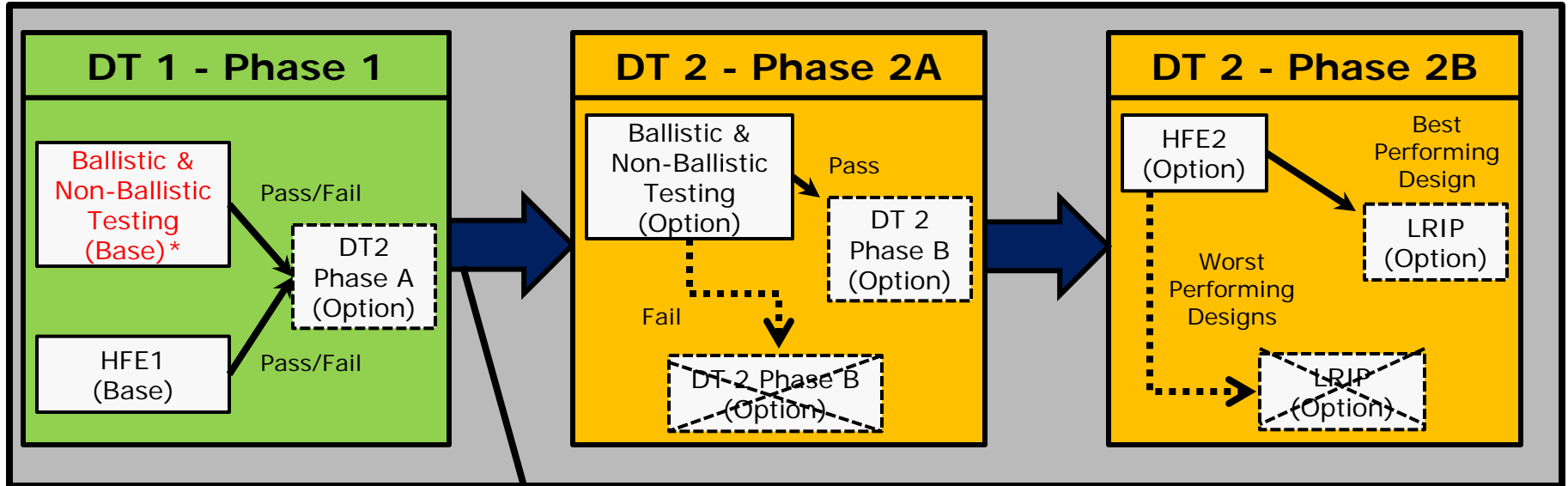


Torso/Extremity Protection





Soft Armor Acquisition Approach



*If more than 3 candidates pass initial technical evaluation of proposals, an initial HFE for TP/EP will be done to determine top 3 prior to DT1 award

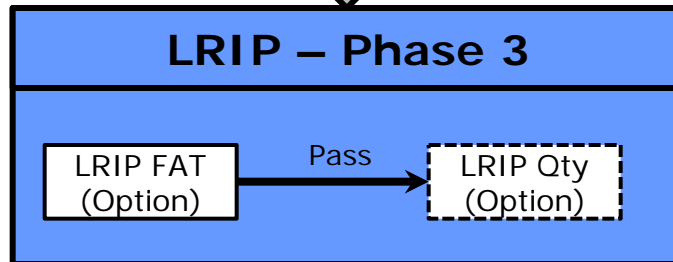
Vendors modify/improve designs based on DT1 feedback

Criteria to be considered for the LRIP Option:

1. Pass the DT2 Ballistic & Non-Ballistic Requirements (Phase 2A)
2. Obtain the highest rating during DT2 HFE2 (Phase 2B) and have fair and reasonable pricing

Legend

DT – Developmental Testing
 FAT – First Article Test
 HFE – Human Factors Evaluation
 LRIP – Low Rate Initial Production



Note: Candidates will price their Technical Data Packages (TDPs) for each five (5) sub-components in their initial proposals



Military Combat Eye Protection

MAJ Nikea Brame





Transition Combat Eye Protection (TCEP)



System Picture



Description

- Protective eyewear provides ballistic fragmentation protection, UV protection and laser protection for both prescription and non-prescription users. Goggles also offer sand/wind/dust protection.
- Increased ballistic fragmentation protection
- Variable transition lenses
- Tunable laser protection desired
- Universal Prescription Lens Carrier (UPLC) compatible

Objective

- Spectacles : (T) 10% increase in ballistic fragmentation protection V0 (O) 15% increase in ballistic fragmentation protection V0
- Goggles: (T) 5% increase in ballistic fragmentation protection V0 (O) 10%
- Transition swing 18-68%
- Eyewear solutions shall be UPLC compatible

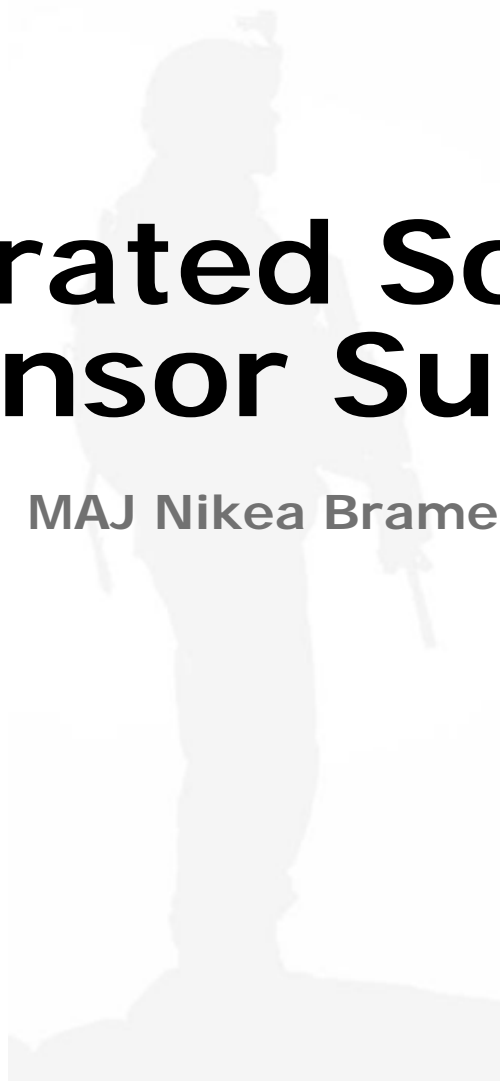
Timeline

- Two (2) years of initial development; mid FY13 to mid FY15
- Low Rate Initial Production planned for FY15
- Projected Indefinite Quantity Indefinite Delivery award FY16



Integrated Soldier Sensor Suite

MAJ Nikea Brame





Integrated Soldier Sensor Suite (ISSS)

System Picture



Description

- An integrated suite of body-worn sensors that monitors and records head accelerations and blast overpressures during an energetic event, as well as monitors and displays real-time physiological status such as heart rate, core body temperature and heat stress
- A common data retrieval system (DRS)
- Field Service Representative (FSR) support

Objective

- Monitor and record
 - head accelerations
 - blast overpressures
 - physiological status
- Collect data using unified software
- Effortlessly collect data wirelessly in a way that minimizes FSR support
- Reduce weight and thickness of current systems
- Accurately model COG head velocities
- Provide exposure "dose" to chain-of-command, medics and JTAPIC

Timeline

- Two (2) years of initial development; mid FY13 to mid FY15
- Low Rate Initial Production planned for FY15
- Projected Indefinite Quantity Indefinite Delivery award FY16



Contracting Overview

Tyrone Knight





Contracting Overview



Tyrone Knight
Chief Branch F
Aberdeen Division D
Army Contracting Command
Aberdeen Proving Ground



Contracting Overview



- The Army intends to use a Best Value approach to source selection. Award will be made to the proposal that presents the most advantageous alternative to the government.
- Draft RFP
 - Posted to FedBizOpps.gov on 10 October 2012
- Final RFP – TBD



Contracting Overview



Defense Contract Management Agency (DCMA) representatives will perform surveillance at the contractor's facility.

The Army will perform evaluation of contractor-generated data for the purpose of monitoring contractor progress and performance.

In addition to the above, the Government shall conduct a Post Award Conference and subsequent Quarterly Program Reviews.

The Government shall maintain an open line of communication with the contractor, using e-mail, telephone, and hard copy correspondence.



Contracting Overview



- Phase One – DT1
- Phase Two – DT 2
- Phase Three – LRIP
- Developmental Testing (DT) will be conducted in two parts (DT1 / DT2) in order to provide constructive feedback to the vendors on their initial designs and to evaluate the results of the redesign efforts. The final result will be an evaluation process that serves the purpose of ultimately providing source selection data for LRIP.
- The Government intends to award up to 3 Firm Fixed Price contracts for Phase One with an option for Phase Two and an option for Phase Three



Logistics/Sustainment

Ms. Paula Renshaw





Logistics/Sustainment

- **Sustainment:** Supportability of fielded systems and their subsequent life cycle product support - from initial procurement to supply chain management (including maintenance) to reutilization and disposal. Sustainment begins when any portion of the production quantity has been fielded for operational use.
- **Maintainability:** Ease with which a product can be maintained in order to:
 - ✓ isolate defects or their cause
 - ✓ correct defects or their cause
 - ✓ meet new requirements
 - ✓ make future maintenance easier,
 - ✓ cope with a changed environment

In some cases, maintainability involves a system of continuous improvement - learning from the past in order to improve the ability to maintain systems, or improve reliability of systems based on maintenance experience.

Reparability: Ability of a damaged or failed equipment, machine or system to be restored to acceptable operating condition within a specified period (repair time)

Reliability, Availability and Maintainability (RAM) : Engineering design characteristics that provide "more bang" (for missions) while requiring "less bucks" (for support). Higher levels of RAM multiply force effectiveness and increase performance measures such as operational availability/readiness, dependability (probability of mission success), and safety for users; while decreasing the demand for (and cost of) logistics support (smaller footprint).



Sustainment Requirement



Reliability

Compatible components.

Ease of Maintainability / Reparability

Ease of Wear and Soldier Maintenance



Questions?





Break Out Sessions

Program Executive Office Soldier



Vital Torso Protection (VTP) Break Out Session

16 Oct 2012

MAJ Scott J. Madore
Assistant Product Manager
Vital Torso Protection



VTP Purchase Description Overview



- Purchase Description (PD) contains ballistic performance requirements and most technical requirements
- All hard armor PDs have been combined into one PD
 - Reduces redundancy
 - Improves consistency between items



PD Updates



- Introduction of new plate sizes
 - Torso plate: 22/32
 - Designed with female in mind
 - Similar complex curvature with plate dimensions of 13"x8"
 - Side Plates:
 - 6"x8" (same curvature) will be named Medium
 - 6"x6" (same curvature) will be named Small
 - Current 7"x8" plate will be named Large
 - Production Data
 - Grain size analysis of ceramic
 - More Stringent requirements on spall covers
 - Refer to Section 4.8.8



PD Updates Continued



- UID label will include an additional field for contract number.
- An additional requirement for service life
 - Section 3.7.8, 4.8.8
 - 10 year service life
- 3.8.1 and 4.9.1 were updated to speak in reference to “areal density” vice “area of coverage”
 - Area of coverage still established during NB dimensional inspection
 - Additional language that speaks of foreign materials in plates has been included



Smart Sensor (Section 3.9)



- Small lightweight (<0.48oz) device designed to instantly identify cracks in the ceramic of armor insert (Pass/Fail result)
- Will not add power to plate
- Disposition determined by use of key fob



First Article Testing (FAT) and Lot Acceptance Testing (LAT)



- For all items FAT largely remains the same
 - Threat C1 will replace threat C
 - Threat D added to XSBI
- All Torso Plate LATs will be conducted according to DoD LAT protocols.
 - XSAPI has the sampling size broken down between threats E and X (no switching rules)
 - ESAPI testing will be conducted with threat E and switching rules will be contractual



Weight Requirements (lbs)



	X - SMALL		SMALL		MEDIUM		LARGE		XL		22/32	
	OBJECTIVE	THRESHOLD	OBJECTIVE	THRESHOLD	OBJECTIVE	THRESHOLD	OBJECTIVE	THRESHOLD	OBJECTIVE	THRESHOLD	OBJECTIVE	THRESHOLD
XSAPI	3.55	3.76	4.45	4.71	5.10	5.40	5.85	6.19	6.64	7.03	4.52	4.78
ESAPI	3.23	3.42	4.04	4.28	4.64	4.91	5.32	5.63	6.04	6.39	4.11	4.35
XSBI			1.64	1.74	2.19	2.31	2.55	2.70				
ESBI			1.40	1.48	1.86	1.98	2.17	2.30				



QUESTIONS

Program Executive Office Soldier



Product Manager Soldier Protective Equipment Transition Combat Eye Protection (TCEP) Industry Day Breakout

16 Oct 2012

LTC Frank J. Lozano
Product Manager
Soldier Protective Equipment

Barry T. Hauck
Deputy Product Manager
Soldier Protective Equipment



AGENDA

- TEAM INTRODUCTION
- PURPOSE
- PROGRAM OVERVIEW
- TECHNICAL REQUIREMENTS
- SCHEDULE
- CONTRACTING
- ACQUISITION APPROACH
- QUESTIONS



Team Introduction

APM

MAJ Nikea Brame

Product Engineering

Ms. Michelle Markey
Mr. David Phelps

Quality Assurance

Mr. Richard Ostermann

Defense Support Office

Mr. Myron Pross

Logistics

Ms. Lynn Lewis

Acquisition Support

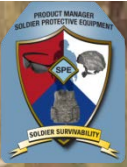
Mr. Lamar Hall

Contracting Specialist

Mr. Andrew Mitchell



Purpose



To provide industry with information on the Soldier Protection System (SPS) Transition Combat Eye Protection (TCEP) effort



Program Overview

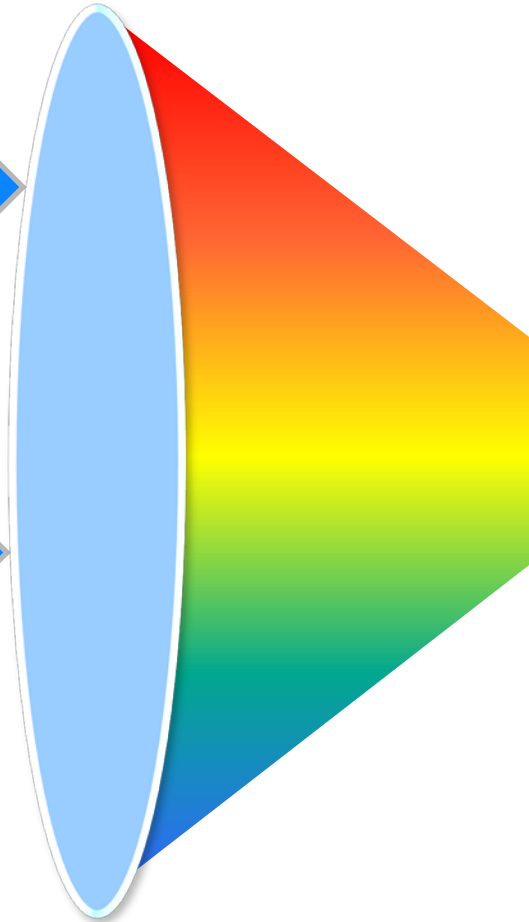
The Transition Combat Eye Protection (TCEP) program is geared towards:

Protecting eyes from external threats/hazards in all light environments

- Fragmentation Protection
- Electromagnetic Radiation (UV/Laser)
- Wind/Sand/Dust

Providing vision correction

- Accommodate corrective lenses
- Key role played by MEDCOM





TCEP Goal



- Add transition capability and improve ballistic fragmentation protection while continuing to meet eyewear requirements.
 - Spectacles : (T) 10% increase in ballistic fragmentation protection V0 (O) 15% increase in ballistic fragmentation protection V0
 - Goggles: (T) 5% increase in ballistic fragmentation protection V0 (O) 10%
 - (T) Transition swing 18%-68% (O) 18%-89%
 - Meet or exceed the performance requirements outlined within the current TCEP Purchase Description.



TCEP Technical Requirements

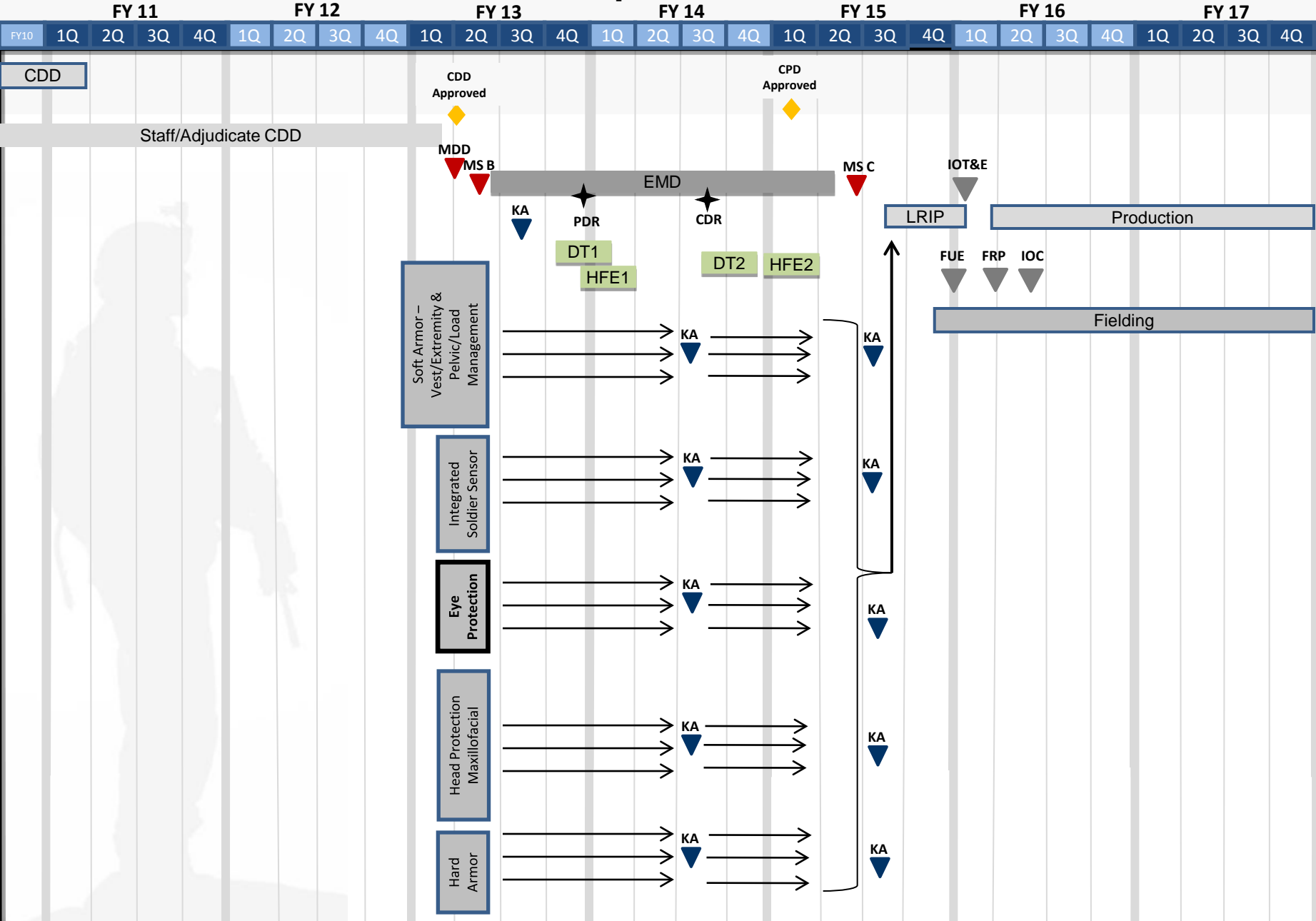


Transition Combat Eye Protection (TCEP) Technical Requirements		
Requirement	Threshold	Objective
Ballistics Fragmentation Protection (Spectacle)	10% increase 700-725 ft/s (T) 5.85grain FSP	15% increase
Ballistics Fragmentation Protection (Goggle)	5% increase 580-590 ft/s (T) 17grain FSP	10% increase
Lens Transition	18%-68% Transmittance	18%-89% Transmittance
Sun/Wind/Dust Protection		T=O
Laser Protection	Current 2 Line and 3 Line Laser Protection	Tunable
Vision Correction	UPLC	T=O
Interface with face shield		T=O
Easily Donned/Doffed		T=O
Scratch Resistance	<6% haze gain	T=O
Resistant to Fogging		T=O
Fail to Clear		T=O
Functional in all Environments		T=O
If Power Driven		
- Rechargeable (Battery lasts 72 hours prior to requiring recharge)		T=O
- Battery Lasts for the life of the item (6 months)		T=O
Transition Time	Less than 1 second	T=O

Note: Must meet the full requirements of the transition combat eye protection (TCEP) purchase description.

Note: TCEP draft specification released with the RFI.

SPS Proposed Master Schedule





TCEP Schedule

AUG 2012

Release of RFI

OCT 2012

Release of draft RFP

DEC 2012

Release of RFP

APR 2013

Contract Award

JUL-AUG 2013

Physical Property Test

AUG/SEP 2013

Human Factors Evaluation

Note: Dates are subject to change



Initial Contract Award

- Initial contract award
 - Awards will be made for a maximum of three (3) spectacles and three (3) goggles for a total of six (6) awards.
 - Best Value approach; trade-off between transition requirements, eyewear attributes and price.
 - Offerors must meet all stated minimum requirements (pass/fail criteria).
 - Offerors may submit more than one spectacle or goggle for initial evaluation however offerors will only be awarded up to one (1) contract for spectacles and one (1) contract for goggles.

- Contract Options
 - Initial award Developmental Test (DT) 1
 - Developmental Test (DT) 2
 - Low Rate Initial Production (LRIP)
 - Technical Data Package (TDP)

- Contract Quantities

Phase	Quantity	Delivery Days
DT1	200	60
DT2	200	60
LRIP	6000	90



Initial Contract Award Criteria



- Technical
 - Sub-Factor 1: Minimum Technical Requirements (Ballistic Protection, ANSI Z87.1-2010 compliance, Distortion) [PASS/FAIL]
 - Sub-Factor 2: Design and Workmanship [PASS/FAIL]
 - Sub-Factor 3: Transition Requirements (Weight, Luminous Transmittance, Transition Time, Battery Life, Recharability)
 - Sub-Factor 4: Eyewear Attributes (UV, Neutrality, Chromaticity, Abrasion, Adhesion)

- Past Performance [PASS/FAIL]

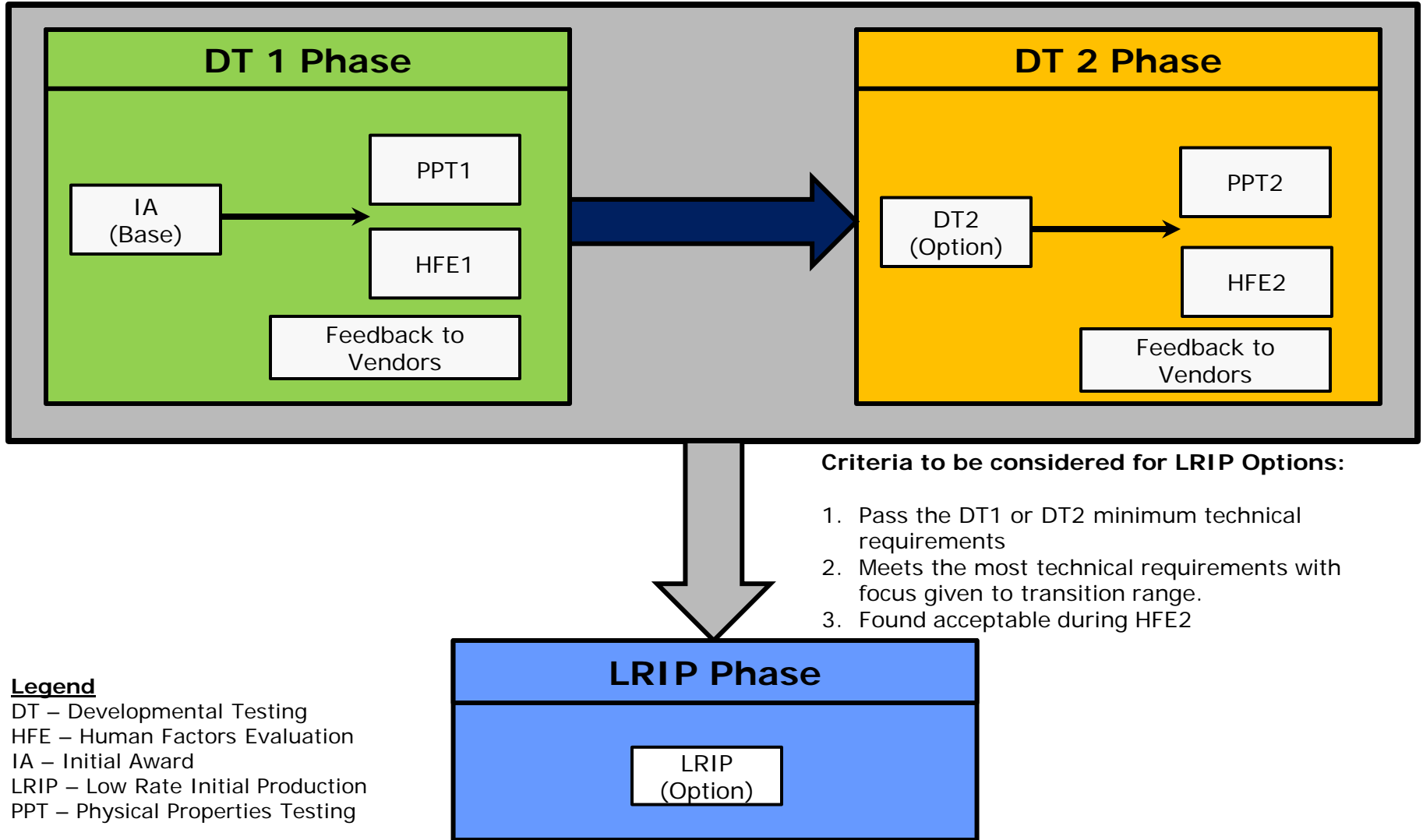
- Quality Management System [PASS/FAIL]

- Small Business (SB) Sub-Contracting Approach [PASS/FAIL]
 - Sub-Factor 1: Small Business Subcontracting Plan
 - Sub-Factor 2: Small Business Participation Plan

- Price



TCEP Acquisition Approach





TCEP Phases

Phase 1 – Developmental Test (DT1)

- Government Testing
 - Will consist of physical property testing and a Human Factors Evaluation (HFE1).
 - Government will provide each Awardee with feedback gathered during the DT1 phase for product improvement.
 - Each Awardee will be required to submit a White Paper addressing:
 - How they plan on modifying their eyewear to be universal prescription lens carrier (UPLC) compatible.
 - White paper shall include work required, schedule for modification, testing to be performed to show compatibility.

Phase 2 – Developmental Test (DT2)

- Government intends to execute DT2 option quantities for all TCEP Awardees who:
 - Demonstrate (through the submission of third party test data/white paper) that improvements have been made upon their original design submitted in DT1.
- Government Testing
 - Will consist of physical property testing and a Human Factors Evaluation (HFE2).
 - Government will provide each Awardee with feedback gathered during the DT2 phase for product improvement.



TCEP Phases (con't)



Phase 3 – Low Rate Initial Production (LRIP)

- Government intends to execute LRIP options for a single vendor for spectacles and a single vendor for goggles
- LRIP award will be based upon:
 - Eyewear ability to meet the minimum technical requirements as tested under DT2.
 - Eyewear that meets the most technical requirements with focus given to transition range (transition requirements/eyewear attributes) and is rated as acceptable under human factors testing as tested under DT2.

Technical Data Package (TDP)

- If it is deemed in the best interest of the Government the technical data rights may be purchased.



Documentation Releases



- **Request for Information (RFI) released August 20, 2012**

https://www.fbo.gov/index?s=opportunity&mode=form&id=3513d872a6ef5c8457c87558b37d6697&tab=core&_cview=0

- **Draft RFP released on October 9, 2012**

[https://acquisition.army.mil/asfi/synopsis_attach_viewer.cfm?psolicitation_nbr=W91CRBSPSINDUSTRYDAY2012&pseqnbr=353198&pnot_type=SNO
TE](https://acquisition.army.mil/asfi/synopsis_attach_viewer.cfm?psolicitation_nbr=W91CRBSPSINDUSTRYDAY2012&pseqnbr=353198&pnot_type=SNO
TE)



Questions?



Program Executive Office Soldier



Integrated Soldier Sensor Suite (ISSS) Soldier Protective System (SPS)

16 Oct 2012

LTC Frank J. Lozano
Product Manager
Soldier Protective Equipment

Barry T. Hauck
Deputy Product Manager
Soldier Protective Equipment



AGENDA



- Team Introduction
- System Overview
- Schedule
- Scope of Work
- Proposal Submission
- Evaluation Criteria



ISSS Team



APM

MAJ Nikea Brame

System Engineering

Mr. Chad Haering

Quality Assurance

Mr. Rey Bonjoc

Logistics

Mr. Phil Manuel

Acquisition Support

Mrs. Loie Randall

Contracting Specialist

Mr. Shawn Jamerson



ISSS Components



- Gen III Helmet Sensor
 - True dosimeter
- Blast Overpressure Gauge
 - Overpressure from blast
 - May be multiple sensors
- Physiological Status Monitor (PSM)
 - Includes a sensor worn on chest and display on wrist
 - Electrocardiogram (ECG) to measure heart rhythm
 - Skin temp
 - Calculates Heat Stress from 0-10
- Data Retrieval System (DRS)
 - Hardware: Laptops and/or handheld computers
 - Software: Fielding, data-collection, data management
 - Collect by USB and wireless
- Field Service Representatives (FSR)
 - Integral part of the system



Integrated Soldier Sensor Suite (ISSS)

System Picture



Description

- An integrated suite of body-worn sensors that monitors and records head accelerations and blast overpressures during an energetic event, as well as monitors and displays real-time physiological status such as heart rate, core body temperature and heat stress
- A common data retrieval system (DRS)
- Field Service Representative (FSR) support

Objective

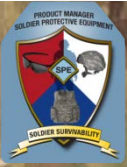
- Monitor and record
 - head accelerations
 - blast overpressures
 - physiological status
- Collect data using unified software
- Effortlessly collect data wirelessly in a way that minimizes FSR support
- Reduce weight and thickness of current systems
- Accurately model COG head velocities
- Provide exposure "dose" to chain-of-command, medics and JTAPIC

Timeline

- Two (2) years of initial development; mid FY13 to mid FY15
- Low Rate Initial Production planned for FY15
- Projected Indefinite Quantity Indefinite Delivery award FY16



ISSS Concept



Blast Overpressure Gauge

GEN III Helmet Sensor



--- = USB Connection



Hard Armor Integrity Sensor



Basic Health Status Monitoring



Helmet Sensor



- Function

- Sense, measure, record and store helmet motion data for determining probability of mTBI

- Key Requirements

- Incremental approach from GEN II
- Smaller, lighter
- Quicker sensor wake/response on trigger
- Full wireless event data transmission
- On-board dosimetry
- Enhanced software and data output requirements
- Enhanced verification based on GEN II lessons learned
- Drift correction for Real-Time-Clock
- Optional force measurement capability



New Gen III HS Requirements



- Dosimetry
 - Onboard transfer function
 - One per Helmet/Pad/Sensor system
 - Working with JTAPIC's velocity injury model
 - Rotation and 6DoF key to resultant velocity
 - Onboard error correction (offsets, etc)
 - Onboard empty helmet screener or other method of determining a head in helmet to eliminate unwanted data
- Additional Sensor connections for future
- Environmental: Ingress Protection 67 Standard
- Force gauge desired
- Removable sensor is desired



New GEN III HS Validation



- Normalized Root Mean Square Deviation (NRMDS) between device traces and reference traces
 - Acceleration, pressure, velocity
- Tap test spelled out
- Shock Tube for response
 - Currently 300 ± 21 kPa·ms, 450 ± 32 kPa·ms, and 600 ± 42 kPa·ms
 - Look for this shift downward to exercise less violent shocks
 - Look for additional guidance for peak pressure
- Revised test purposes
- Real-time clock testing
 - Looking for suggestions for other testing to conduct
- 4.6.5 – That’s an oversight, but it’s true. Any suggestions?
- Software Regression Testing
 - Each feature tested systematically
- Multi-hit Response Test
- Event Screening – empty helmet test



Blast Gauge

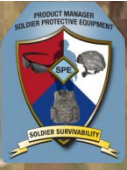


■ Key Requirements

- Measure overpressure from 4–100 PSI
- Accuracy: Peak within 20% of reference
- Adjustable trigger level from 2%-10% full scale
- Record 20 msec of data upon trigger
- Non-volatile memory holds 10 events
- External LED indicators
- Volume $\leq 15 \text{ cm}^3$, Weight $\leq 25 \text{ g}$
- Battery: rechargeable 3 month life
- Environmental compliance
 - Temp, humidity, water immersion, EMI, dust & sand
- Wireless data transfer on query
- USB connection for configuration and data transfer
- Software for setup, configuration and data collection



Physiological Status Monitor



- **Function**
 - Personal Status Monitor
 - Show user a 1-10 "Heat Stress" scale
 - Shows user their heart rate
 - USB Download
- **Key Requirements**
 - ECG heart rate sensor
 - Skin temp sensor
 - Tri-axial accelerometer to determine body position
 - Algorithms for 'core' body temp and heat stress
 - Stores 24 hours of data
 - Wireless link to display device
 - Comfortable and reliable mounting for long-term use and accurate data
- **Future capability**
 - Algorithms for blood loss, live/dead
 - Wireless link to WPAN and SRW
 - Respiration
 - Hydration



Hard Armor Integrity Sensor

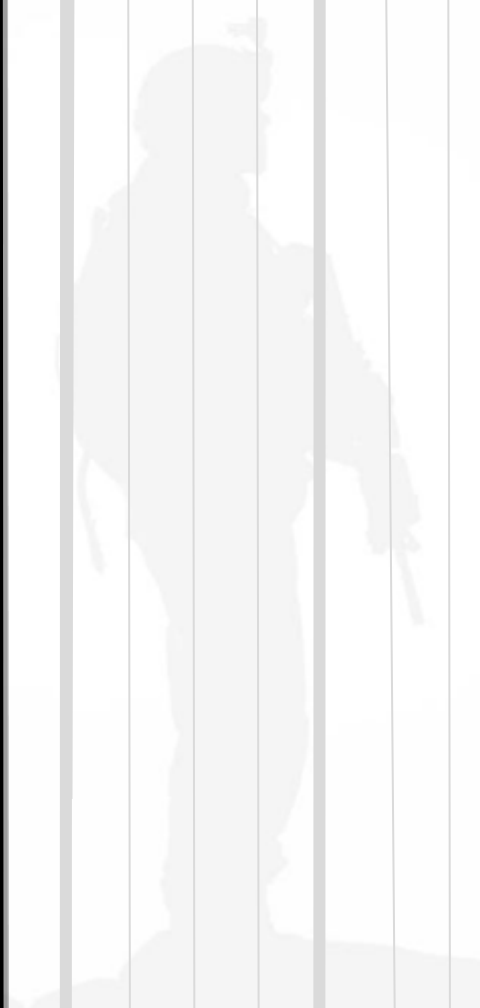
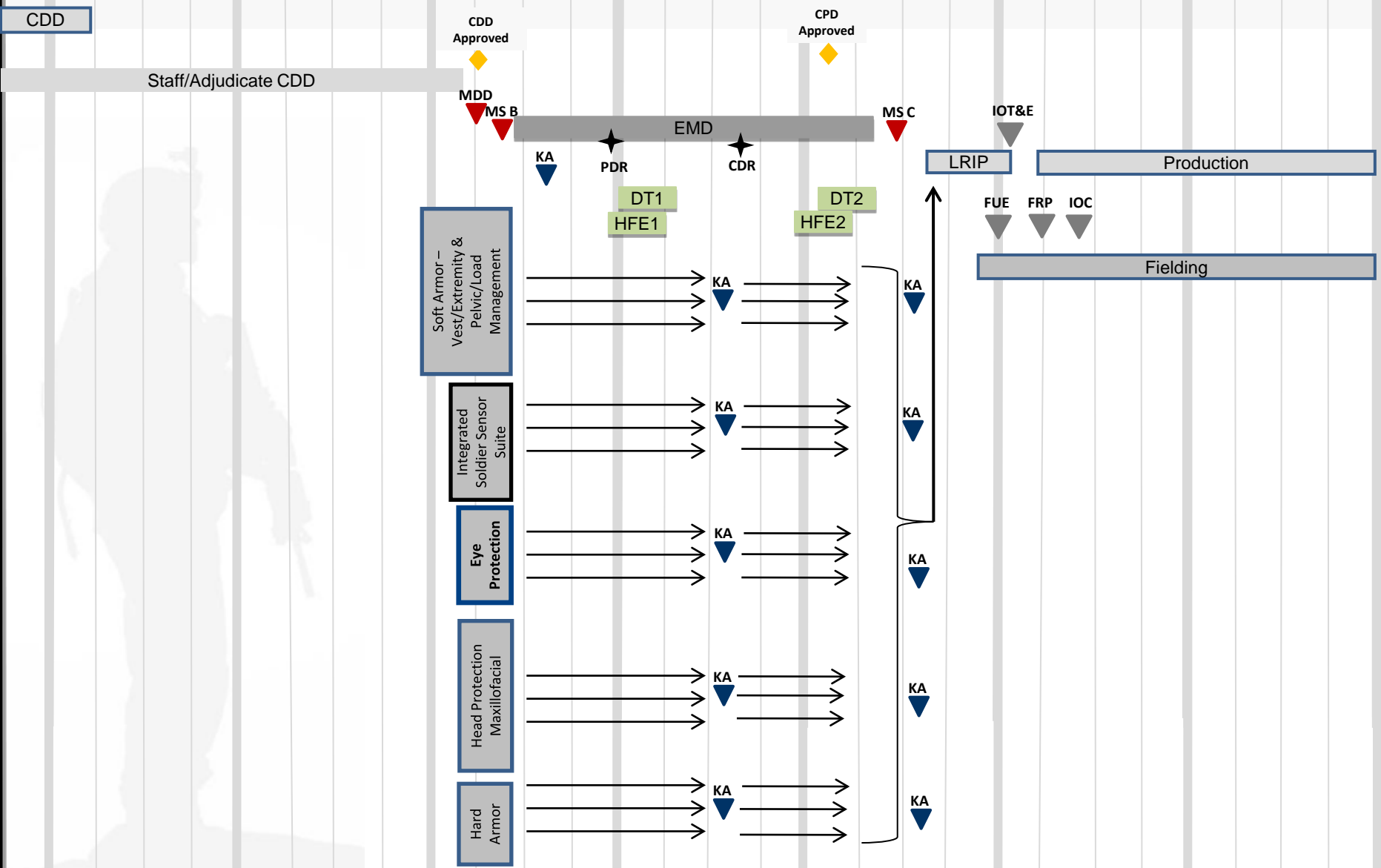


- Addressed in Hard Armor PD
- Read-on-query via dongle
- Not part of ISSS at this time

SPS Proposed Master Schedule

FY 10 FY 11 FY 12 FY 13 FY 14 FY 15 FY 16 FY 17

FY10 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q





Schedule: Yr1 (DT1)



- NOV 2012: RFP Posted
- MAR 2012: Proposals Due with bid samples
- APR 2013: Contracts Awarded
 - Up to 3
- AUG 2013: Prototypes Due
- AUG 2013: Commence HFE1
- SEP 2013: Commence DT1 (~3 mo)
- JAN 2014: Results from DT & HFE
- MAY 2014: Grant options for year 2 (DT2)
 - Up to 3



Schedule: Yr2 (DT2) & Yr3 (LRIP)



- MAY 2014: Grant options for year 2
- AUG 2014: Prototypes Due
- AUG 2014: Commence HFE2
- SEP 2014: Commence DT2 (~3 mo)
- JAN 2015: Results from DT & HFE
- MAY 2015: Grant options for year 3 (LRIP)
 - Only one
- SEP 2015: Deliver FAT samples
- NOV 2015: Deliver LAT samples



Statement of Work



- Build, test and deliver ISSS systems
 - Provide as much data as you have time to generate
 - Includes everything to make the HS a dosimeter
 - Maxwell transformation from helmet velocity to CG Head
 - Detecting and flagging empty helmet events, false events
 - Correcting errors and offsets
- FSR Support
 - Especially during HFE
 - Exercise the complete system
- Ability to purchase limited number of additional systems
 - For government use, mostly show-and-tell
- Engineering Support
 - Ability to change, modify or experiment with software or firmware changes throughout the contract



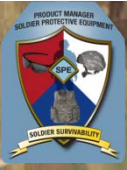
Quality and Configuration Management



- CM system that tracks design process
- Kicks in with PPP and QVP – 10 days after LRIP option
- Should be tracking design all along
- ECPs & FACARs not necessary during DT1 and DT2
 - Results from the tests will be provided, discussed and path forward determined
 - R&D mindset for flexibility and experimentation up through year 2



Proposal Submission



- Bid samples
 - Will be used to verify the written proposed design narrative
 - Does not have to be fully functioning, but we do not want paperweights either
- Technical Proposal
 - 20 page maximum – BE CONCISE
 - Address overall goals, system functionality, wireless schemes, all TSN specs, critical parts, critical interfaces, accuracy, software approach etc
 - Test data not considered part of the 20 pages - Annex
 - Make good references to the test data – organize for maximum comprehension



Proposal Submission



- Subcontracting Approach
 - Small Business Requirement
 - Roles: subcontractor and prime
 - What will integrator do?
- Past Performance (pass/fail)
- Cost/Price Proposal



Proposal Evaluation



- Technical Proposal
 - SubFactor 1: System Design
 - Level of integration
 - Evaluation of wireless scheme and feasibility of operation
 - SubFactor 2: Sub-System Accuracy
 - Demonstrate accuracy as per requirements with test data
 - SubFactor 3: Performance Capability
 - Do the sub-systems meet or exceed the performance requirement?
 - Sensor range
 - Battery life
 - Environmental resistance
 - Submit component specs and performance data to support claims
 - SubFactor 4: Weight & Height
 - Draft RFP says volume – but we REALLY want to reduce height



BACKUP SLIDES

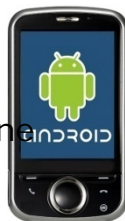


Future Vision for ISSS



ISSS

GEN III Helmet SensoBlast Overpressure Gauge



Soldier Smartphone



JTRS / Rifleman Radio



Basic Health Status Monitoring



Ballistic Protection with Integrated Sensor



Platoon Leader



Command and Control



Future ISSS Vision



- Implement and wirelessly integrate small lightweight sensors on the Soldier's body and within the PPE
- Monitor, in real-time, the physiological status of individual soldiers. Manage and mitigate overexertion, overheating and blood loss. Detect injury or death.
- Leverage the Joint Tactical Radio System (JTRS) and the Soldier Radio Waveform (SRW) to transmit this data to a command and control center and/or to leaders on the battlefield.



Future Needs



- PM SPE and the ISSS need a WPAN

- Data files are small, many are event-driven
 - HS Files \leq 32kb, once per day
 - BG Files \leq 32kb, after blast events
 - PSM Files
 - 100-200 bytes every 15s – radio
 - $<$ 100 bytes every 15s – display

- Data rates less than 2.1 Mbit/s* are needed

- Sensors are tiny, and require tiny radios
 - Integrate into current architecture
 - Dongle on sensor is a no-go

*Current Bluetooth 2.0 Standard



ISSS Wireless Strategy



- Will not leverage or set up a Wireless Personal LAN or communicate over SRW
- Will use previously demonstrated mature technologies:
 - Gen 2 HS: RFID or Zigbee, USB
 - Blast Gauge: Zigbee, USB
 - PSM: Bluetooth, Zigbee, cord to display, USB
- Hard Armor Plate Check
 - Read-on-query dongle

Program Executive Office Soldier



Product Manager Soldier Protective Equipment Soldier Protection System (SPS) Industry Day Head Protection

16 Oct 2012

LTC Frank J. Lozano
Product Manager
Soldier Protective Equipment

Barry T. Hauck
Deputy Product Manager
Soldier Protective Equipment



AGENDA



- Team Introduction
- System Overview
- Schedule
- Scope of Work
- Proposal Submission
- Evaluation Criteria



Head Protection Team



APM

MAJ Brian Adkins

Engineering

Mr. Ian Rozansky

Mr. Aaron Wolff

Quality Assurance

Mr. Rey Bonjoc

Mr. Brian Gesford

Logistics

Mr. Phil Manuel

Acquisition Support

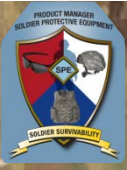
Mrs. Loie Randall

Contracting Specialist

Mr. Keith Magaw



Integrated Head Protection System (IHPS) Requirements



- Increase the level of ballistic protection over the current baseline helmet and achieve weight reduction
 - Decrease helmet weight to the greatest extent possible
 - Meet or exceed the performance requirements outlined within the current IHPS Purchase Description/Technical Statement of Need
 - Integrate accessories to provide a modular and interoperable head protection system
 - Easy donning and doffing, assembly and adjustment, comfort, fit, and performance



Current vs. SPS IHPS

Current Head Protection

- **Size range from S – XXL**
 - 2.94 – 4.00 lbs
- **Ballistic protection:**
 - Against 9mm and Threat M
 - Fragmentation: 2, 4, 16, 64 grain RCC and 17 grain FSP
- **Blunt force protection:**
 - 150G at 10 fps



Enhanced Combat Helmet



Maxillofacial Systems

SPS Head Protection

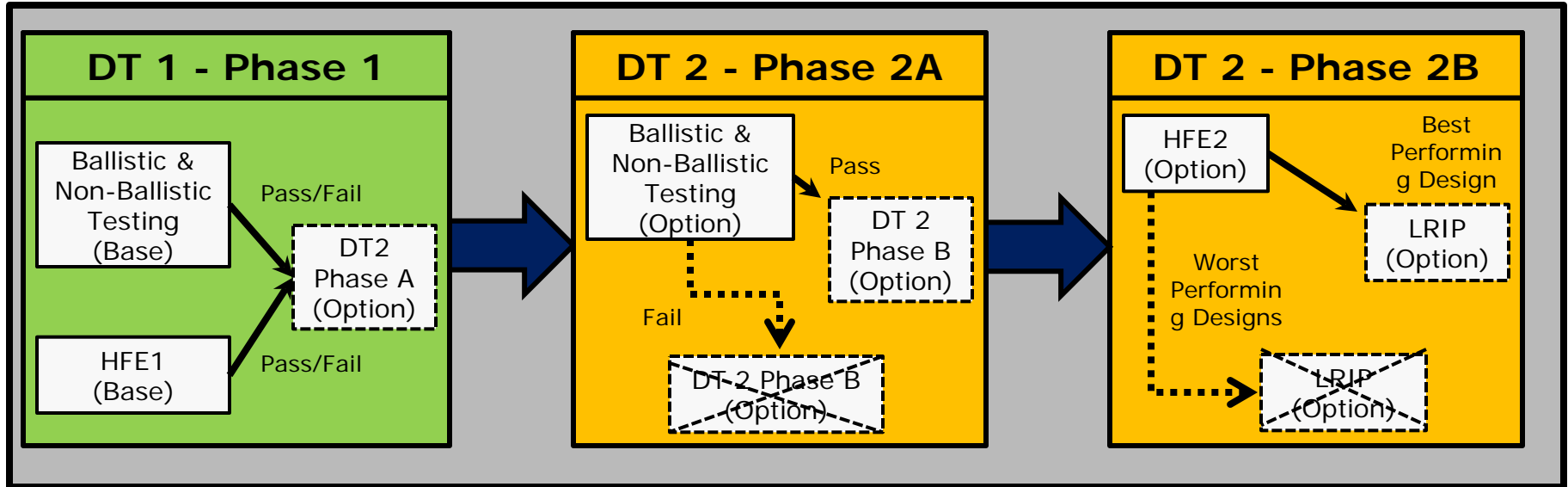
- **Size range from S – XXL**
 - 2.79 – 3.80 lbs (T) – 5% Reduction
 - 2.50 – 3.40 lbs (O) – 15% Reduction
- **Ballistic protection:**
 - Against 9mm, Threat M and Threat P
 - Fragmentation: 2, 4, 16, 64 grain RCC and 17 grain FSP
- **Blunt force protection:**
 - 150G at 10 fps (T)
 - 150G at 17.1 fps (O)
- **Maxillofacial:**
 - Weight 1.5 lbs (T) / 0.85 lbs (O)
 - Ballistic protection:
 - Visor – 550fps against 17gr FSP (T)
 - Mandible – 1850fps against 17gr FSP (T)



Potential SPS concept for Head Protection



IHPS Acquisition Approach



A maximum of three (3) IHPS designs will be awarded initial contracts for DT1

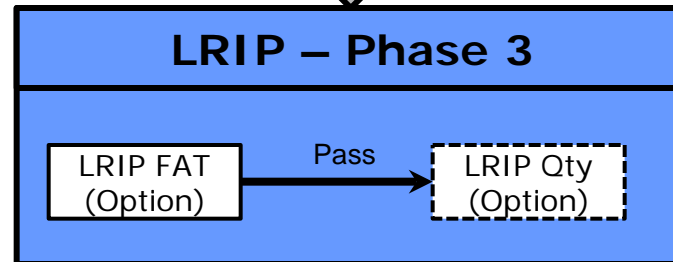
- Best Value evaluation approach
- Awardees must meet all stated minimum requirements
- Potential best value trade-off between weight and price

Criteria to be considered for the LRIP Option:

1. Pass the DT2 Ballistic & Non-Ballistic Requirements (Phase 2A)
2. Obtain the highest rating during DT2 HFE2 (Phase 2B)

Legend

DT – Developmental Testing
FAT – First Article Test
HFE – Human Factors Evaluation
LRIP – Low Rate Initial Production





Initial Contract Award Criteria



- **Factors:**

- **Technical**

- Sub-Factor 1: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Non-Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Weight
 - Sub-Factor 3: Integration and Interoperability [PASS/FAIL]
 - Sub-Factor 4: Design and Workmanship [PASS/FAIL]

- **Past Performance [PASS/FAIL]**

- **Quality Management System [PASS/FAIL]**

- **Small Business (SB) Sub-K Approach [PASS/FAIL]**

- Sub-Factor 1: Small Business Subcontracting Plan
 - Sub-Factor 2: Small Business Participation Plan

- **Price**

- The Technical Factor is the most important factor and is significantly more important than the other four (4) factors

- All of the evaluation factors other than Price (Technical, Past Performance, Quality Management System and Small Business), when combined, are significantly more important than the Price factor

Integrated, Modular, Lighter, Mission Tailorable



Base Award Evaluation Criteria – Technical

Technical (Sub-Factor 1): Ballistic Protection [PASS/FAIL]

- Required Data:
 - Helmet Data
 - V50 Shell
 - Fragmentation (2-gr, 4-gr, 16-gr, 64-gr RCCs and 17-gr FSP)
 - Small Arms (Threat M and Threat P)
 - V0 & BTD Shell (124-gr 9mm FMJRN)
 - V0 Shell (Threat M)
 - Maxillofacial Data
 - V50 System
 - Mandible (17-gr FSP)
 - Visor (17-gr FSP)
 - V0 Mandible (124-gr 9mm FMJRN)



Technical (Sub-Factor 2): Non-Ballistic Protection [PASS/FAIL]

- Required Data:
 - Helmet Data
 - Shell Compression (Side to Side and Top to Bottom)
 - Blunt Impact (shell) – 10 FPS
 - Blunt impact (shell) – 14.1 FPS
 - Helmet Positioning Index shall be provided by the vendor
 - Hearing Protection (data for reference only)
 - Data shall outline the device(s) performance capabilities along with supporting test data from an approved independent/third party test facility



Base Award Evaluation Criteria – Technical

Technical (Sub-Factor 3): Weight (Helmet System)

Helmet System Weight (including helmet shell, suspension system, retention system, and all mounting devices)

	Size S (lbs)		Size M (lbs)		Size L (lbs)		Size XL (lbs)		Size XXL (lbs)		
	Reduction	New Weight	Reduction	New Weight	Reduction	New Weight	Reduction	New Weight	Reduction	New Weight	
	2.94		3.06		3.31		3.88		4.00		
15%	0.44	2.50	0.46	2.60	0.50	2.81	0.58	3.30	0.60	3.40	≤ 15%
14%	0.41	2.53	0.43	2.63	0.46	2.85	0.54	3.34	0.56	3.44	
13%	0.38	2.56	0.40	2.66	0.43	2.88	0.50	3.38	0.52	3.48	
12%	0.35	2.59	0.37	2.69	0.40	2.91	0.47	3.41	0.48	3.52	≥ 11%
11%	0.32	2.62	0.34	2.72	0.36	2.95	0.43	3.45	0.44	3.56	
10%	0.29	2.65	0.31	2.75	0.33	2.98	0.39	3.49	0.40	3.60	≤ 10%
9%	0.26	2.68	0.28	2.78	0.30	3.01	0.35	3.53	0.36	3.64	
8%	0.24	2.70	0.24	2.82	0.26	3.05	0.31	3.57	0.32	3.68	
7%	0.21	2.73	0.21	2.85	0.23	3.08	0.27	3.61	0.28	3.72	≥ 7%
6%	0.18	2.76	0.18	2.88	0.20	3.11	0.23	3.65	0.24	3.76	≤ 6%
5%	0.15	2.79	0.15	2.91	0.17	3.14	0.19	3.69	0.20	3.80	≥ 5%
4%	0.12	2.82	0.12	2.94	0.13	3.18	0.16	3.72	0.16	3.84	≤ 4%
3%	0.09	2.85	0.09	2.97	0.10	3.21	0.12	3.76	0.12	3.88	
2%	0.06	2.88	0.06	3.00	0.07	3.24	0.08	3.80	0.08	3.92	≥ 2%
1%	0.03	2.91	0.03	3.03	0.03	3.28	0.04	3.84	0.04	3.96	≤ 1%
0%	0.00	2.94	0.00	3.06	0.00	3.31	0.00	3.88	0.00	4.00	≥ 0%

Outstanding	Helmet system achieves a weight reduction of 11% to 15%
Good	Helmet system achieves a weight reduction of 7% to 10%
Acceptable	Helmet system achieves a weight reduction of 5% to 6%
Marginal	Helmet system achieves a weight reduction of 2% to 4%
Unacceptable	Helmet system achieves a weight reduction of 0% to 1%



Base Award Evaluation Criteria – Technical

Technical (Sub-Factor 4): Integration & Interoperability [PASS/FAIL]

Maxillofacial System Integration:	<p>The maxillofacial system shall consist of three components that are integrated into a system that mounts on the IHPS. The three components are:</p> <ul style="list-style-type: none">- Mounting Interface- Ballistic Visor- Ballistic Mandible <p>These three components will form an integrated maxillofacial protection system for the head, face, and neck region providing protection against fragmentation, blast, and blunt impact threats. The system shall be modular in that it can be used as a system but also allow for the individual components to be utilized separately.</p>
Mounting Interface:	<p>The mounting interface shall consist of a means for attaching both the ballistic visor and mandible to the IHPS. The mounting interface shall not interfere with the ability to attach the NVD and ENVG using the common NVD attachment point. If it is not compatible with the ENVG, a description explaining the necessary requirements and changes that would make the Maxillofacial System compatible with the ENVG should be included.</p>
Ballistic Visor:	<p>The ballistic visor shall allow the user to wear any of the eyewear items listed on the Approved Protective Eyewear List (APEL) (https://peosoldier.army.mil/pmseq/eyewear.asp) without interference. The visor mechanism shall have a minimum of two positions and shall lock in place. The visor shall have the capability to be either in the fully open or full closed position. The design shall fasten firmly to the headgear system but have the capability for quick removal (one hand preferred). The visor assembly shall have guides on the left and right side edges so that it is centered for maximum optical correctness.</p>
Ballistic Mandible:	<p>The ballistic mandible shall allow the user to wear any of the eyewear items listed on the Approved Protective Eyewear List (APEL) (https://peosoldier.army.mil/pmseq/eyewear.asp) without interference. The ballistic mandible shall attach to the mounting interface on the left and right sides to ensure that it is centered. The design shall fasten firmly to the headgear system but have the capability for quick removal (one hand preferred). The mandible shall lock in place via a locking mechanism that still allows for quick removal.</p>



Base Award Evaluation Criteria – Technical

Technical (Sub-Factor 5): Design and Workmanship [PASS/FAIL]

- As part of the proposal four (4) representative IHPS Bid Samples (1ea size; S, M, L, XL) shall be submitted
 - Each Bid Sample shall consist of the following:
 - Helmet Shell
 - Retention System
 - Suspension System
 - Maxillofacial System (Mandible and Visor)
 - Hearing Protection



Phase 1 - Developmental Test (DT1)

Phase 1 – Developmental Test (DT1)

- A maximum of three (3) IHPS designs will be initially awarded contracts
 - Best Value evaluation approach
 - Awardees must meet all stated minimum requirements (pass/fail criteria)
 - Potential best value trade-off between weight and price

- Testing
 - Will consist of ballistic/non-ballistic testing and a Human Factors Evaluation (HFE)
 - Government will provide each Awardee with feedback gathered during the DT1 phase (related to testing results and feedback from the HFE event)

- Quantities
 - 400ea Integrated Head Protection Systems to undergo testing
 - Delivered NLT 60 days after contract award

Integrated, Modular, Lighter, Mission Tailorable



Phase 2A - Developmental Test (DT2)

Phase 2A – Developmental Test (DT2)

- A maximum of three (3) IHPS designs will obtain the option CLIN for Phase 2A
 - Government intends to execute Phase 2A quantities for all IHPS Awardees
- Testing
 - Will consist of ballistic/non-ballistic testing
 - Government will provide each Awardee with the test results obtained during Phase 2A
- Quantities
 - 300ea Integrated Head Protection Systems to undergo testing
 - Delivered NLT 60 days after option CLIN exercised

Integrated, Modular, Lighter, Mission Tailorable



Phase 2B - Developmental Test (DT2)



Phase 2B – Developmental Test (DT2)

- A maximum of three (3) IHPS designs will obtain the option CLIN for Phase 2B
 - Government intends to execute the option CLIN for Phase 2B quantities to IHPS designs that met the ballistic and non-ballistic test requirements
- Testing
 - Will consist of a Human Factors Evaluation
 - Government will provide each Awardee with feedback gathered during Phase 2B
- Quantities
 - 100ea Integrated Head Protection Systems to undergo testing
 - Delivered NLT 45 days after option CLIN exercised



Phase 3 – Low Rate Initial Production (LRIP)

Phase 3 – Low Rate Initial Production (LRIP)

- Only one (1) IHPS design will obtain the option CLIN for Phase 3
 - Government intends to execute the option CLIN for Phase 3 quantities to the IHPS design that:
 - Met the ballistic and non-ballistic test requirements in Phase 2A
 - Obtained the highest rating during Human Factors Evaluation in Phase 2B

- Testing
 - Design will be required to undergo a First Article Test (FAT) in accordance with the IHPS specification/Technical Statement of Need
 - Lots will be subjected to Lot Acceptance Testing in accordance with the IHPS specification/Technical Statement of Need

- Quantities
 - 500ea Integrated Head Protection Systems to undergo testing for FAT
 - Delivered NLT 45 days after option CLIN exercised
 - 6000ea Integrated Head Protection Systems for procurement (LRIP)
 - Delivery is TBD

Integrated, Modular, Lighter, Mission Tailorable



QUESTIONS?

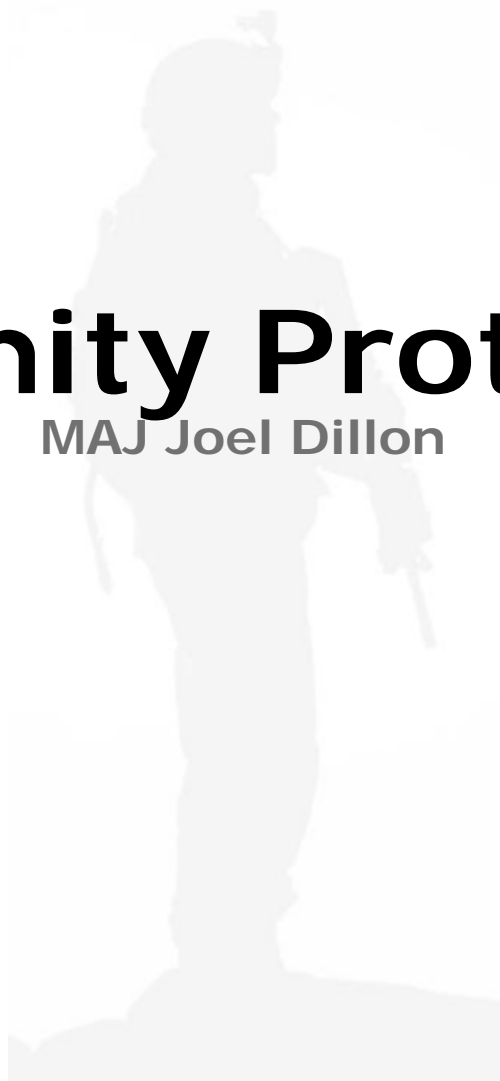


BACKUP SLIDES



Extremity Protection

MAJ Joel Dillon





Torso/Extremity Protection

Enhanced Army
Combat Shirt (EACS)

Elbow Pads

Gloves

Pelvic Protection -
Protective Under
Garment (PUG)

Enhanced Army
Combat Pant (EACP)

Knee Pads

Neck Protection

Deltoid Protection

Torso Protection

Load Redistribution System

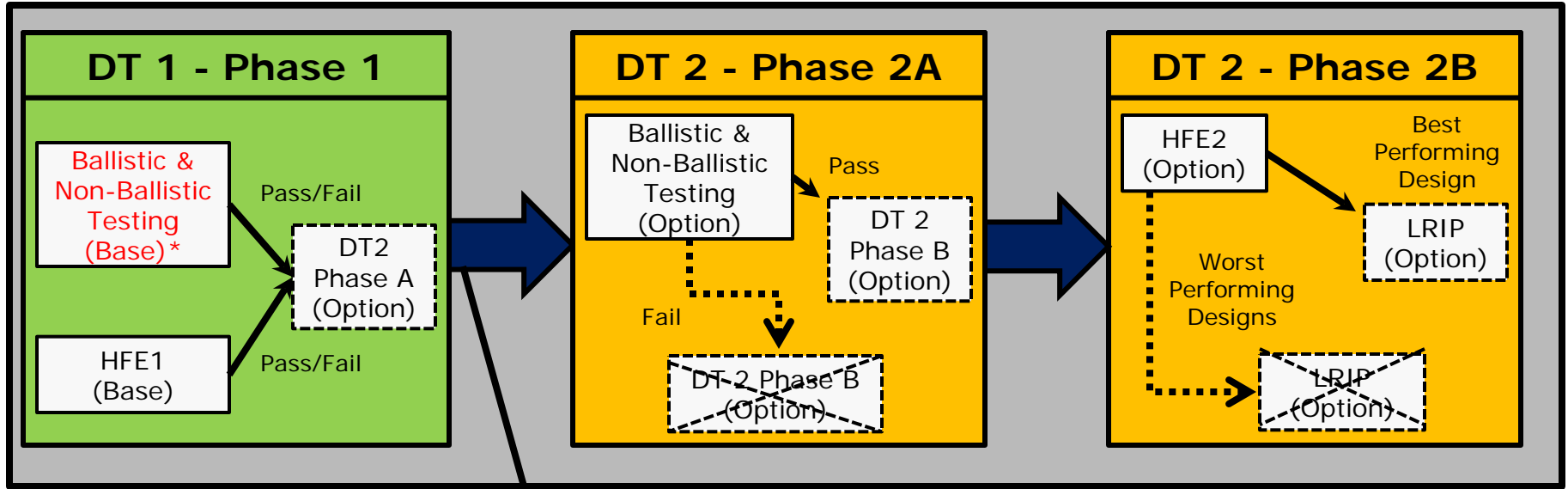
Pelvic Protection -
Protective Outer
Garment (POG)

	Extremity Protection (EP)
	Torso Protection (TP)





EP Acquisition Approach



*If more than 3 candidates pass initial technical evaluation of proposals, an initial HFE for TP/EP will be done to determine top 3 prior to DT1 award

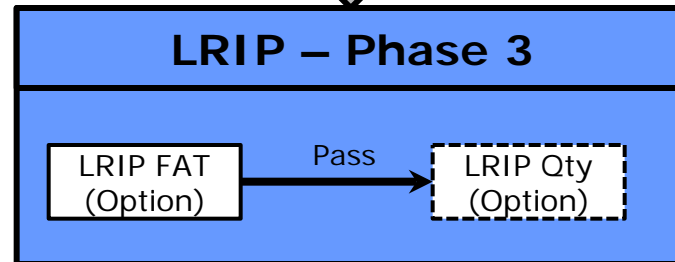
Vendors modify/improve designs based on DT1 feedback

Criteria to be considered for the LRIP Option:

1. Pass the DT2 Ballistic & Non-Ballistic Requirements (Phase 2A)
2. Obtain the highest rating during DT2 HFE2 (Phase 2B) and have fair and reasonable pricing

Legend

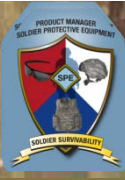
DT – Developmental Testing
 FAT – First Article Test
 HFE – Human Factors Evaluation
 LRIP – Low Rate Initial Production



Note: Candidates will price their Technical Data Packages (TDPs) for each five (5) sub-components in their initial proposals



Initial Contract Award Criteria



- **Factors:**

- **Technical**

- Enhanced Army Combat Shirt (EACS):
 - Sub-Factor 1: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Removable Ballistic Inserts [PASS/FAIL]
 - Sub-Factor 3: Design/Compatibility [PASS/FAIL]
 - Sub-Factor 4: Sizing [PASS/FAIL]
 - Sub-Factor 5: Materials [PASS/FAIL]
 - Sub-Factor 6: Construction [PASS/FAIL]
 - Sub-Factor 7: Flame Resistance [PASS/FAIL]
 - Sub-Factor 8: Areal Density/Thickness [PASS/FAIL]
 - Enhanced Army Combat Pants (EACP):
 - Sub-Factor 1: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Removable Ballistic Inserts [PASS/FAIL]
 - Sub-Factor 3: Design/Compatibility [PASS/FAIL]
 - Sub-Factor 4: Sizing [PASS/FAIL]
 - Sub-Factor 5: Materials [PASS/FAIL]
 - Sub-Factor 6: Construction [PASS/FAIL]
 - Sub-Factor 7: Flame Resistance [PASS/FAIL]
 - Sub-Factor 8: Areal Density/Thickness [PASS/FAIL]



Initial Contract Award Criteria (Cont)



- **Factors:**

- **Technical (Continue)**

- Protective Under Garment (PUG):
 - Sub-Factor 1: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Removable Ballistic Inserts [PASS/FAIL]
 - Sub-Factor 3: Design/Compatibility [PASS/FAIL]
 - Sub-Factor 4: Sizing [PASS/FAIL]
 - Sub-Factor 5: Construction [PASS/FAIL]
 - Sub-Factor 6: Flame Resistance [PASS/FAIL]
 - Sub-Factor 7: Area of Coverage – Ballistic Protection [PASS/FAIL]
 - Sub-Factor 8: Weight [PASS/FAIL]
 - Sub-Factor 9: Antimicrobial [PASS/FAIL]
 - Sub-Factor 10: Drying Time [PASS/FAIL]
 - Sub-Factor 11: Dimensional Stability [PASS/FAIL]
 - Sub-Factor 12: Toxicity [PASS/FAIL]
 - Enhanced Knee/Elbow Pads:
 - Sub-Factor 1: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Design/Compatibility [PASS/FAIL]
 - Sub-Factor 3: Sizing [PASS/FAIL]
 - Sub-Factor 4: Construction [PASS/FAIL]
 - Sub-Factor 5: Flame Resistance [PASS/FAIL]



Initial Contract Award Criteria (Cont)



- **Factors:**

- **Technical (Continue)**

- Enhanced Army Combat Glove :
 - Sub-Factor 1: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 2: Design/Compatibility [PASS/FAIL]
 - Sub-Factor 3: Sizing [PASS/FAIL]
 - Sub-Factor 4: Construction [PASS/FAIL]
 - Sub-Factor 5: Flame Resistance [PASS/FAIL]

- **Workmanship**

- Sub-Factor 1: Stitching [PASS/FAIL]
 - Sub-Factor 2: Seams [PASS/FAIL]
 - Sub-Factor 3: Thread [PASS/FAIL]
 - Sub-Factor 4: Seam Allowance [PASS/FAIL]
 - Sub-Factor 5: Ballistic Pocket/Panel [PASS/FAIL]
 - Sub-Factor 6: EACS Defects [PASS/FAIL]
 - Sub-Factor 7: EACP Grain Line [PASS/FAIL]

- **Past Performance [PASS/FAIL]**

- **Small Business (SB) Sub-K Approach [PASS/FAIL]**

- Sub-Factor 1: Small Business Subcontracting Plan
 - Sub-Factor 2: Small Business Participation Plan

- **Delivery [PASS/FAIL]**

- **Human Factors Evaluation [Rank Ordered]**

- **Price**

Program Executive Office Soldier



Extremity Protection (EP) Industry Day

16 Oct 2012

MAJ Joel Dillon
Assistant Product Manager
Soft Armor



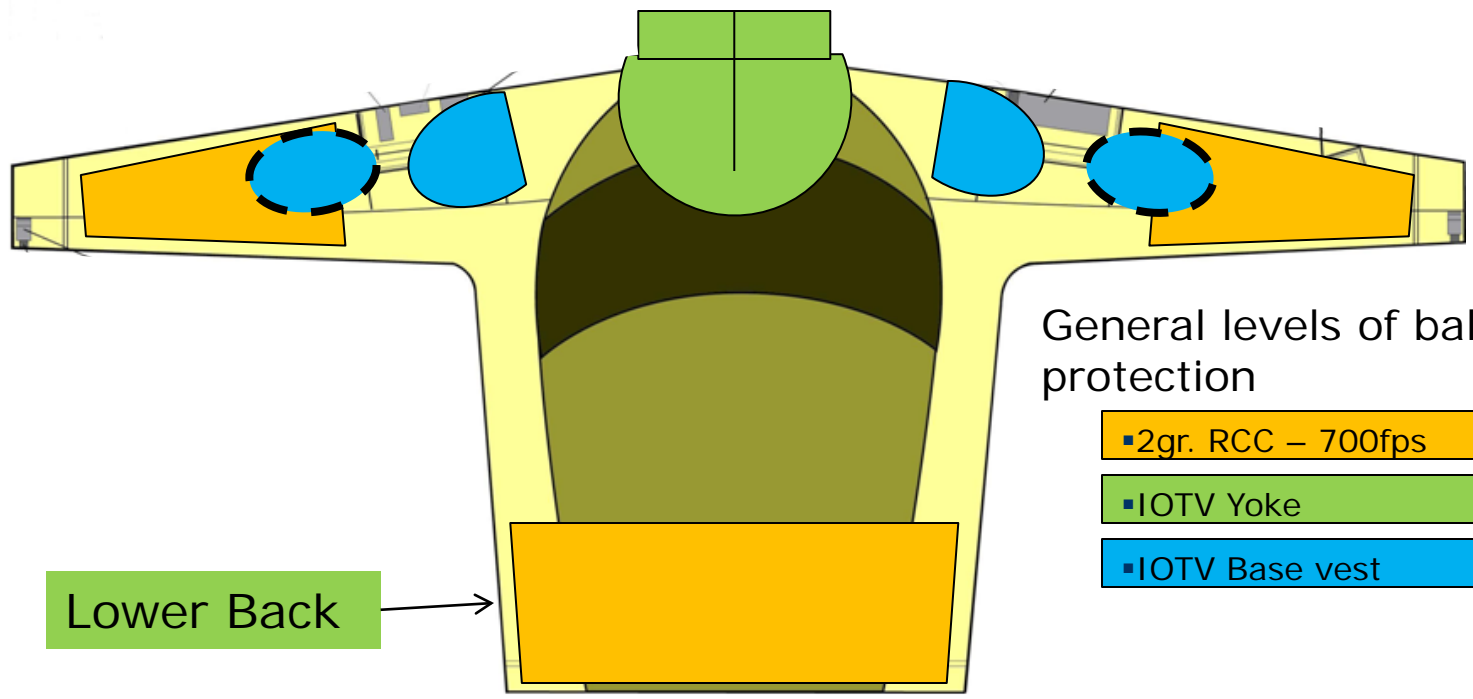
Extremity Protection (EP) Scope



- EP Component consists of an integrated system of five (5) sub-components:
 - Enhanced Army Combat Shirt (EACS)
 - Enhanced Army Combat Pant (EACP)
 - Protective Under Garment (PUG)
 - Enhanced Knee/Elbow Pads
 - Enhanced Army Combat Glove (EACG)
- Candidates' proposals must include all 5 sub-components, so teaming is encouraged
- No detailed specification / purchase description – rather a Technical Statement of Need (TSN)



Enhanced Army Combat Shirt (EACS)*



General levels of ballistic protection

- 2gr. RCC – 700fps
- IOTV Yoke
- IOTV Base vest

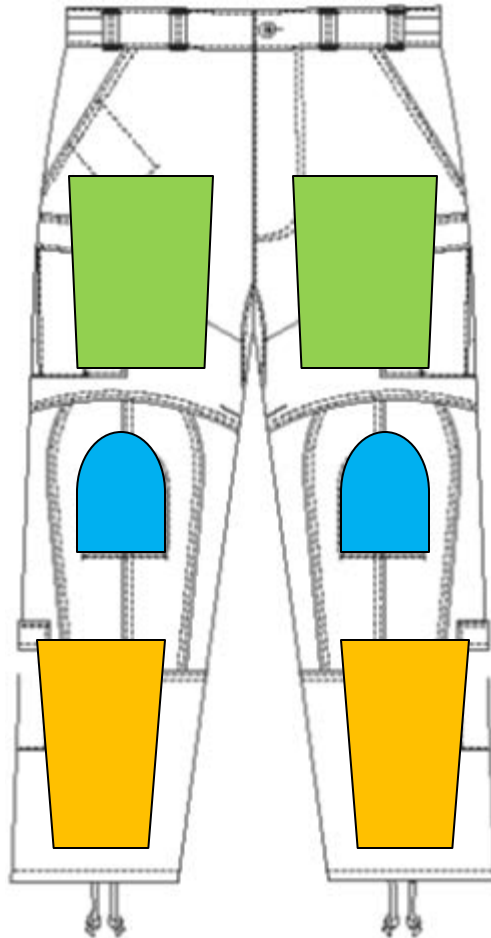
Lower Back

General Areas of Ballistic Protection (front view)

* Including Elbow Pads



Enhanced Army Combat Pant (EACP) *



General levels of ballistic protection

▪ 2gr. RCC – 700fps

▪ IOTV Yoke

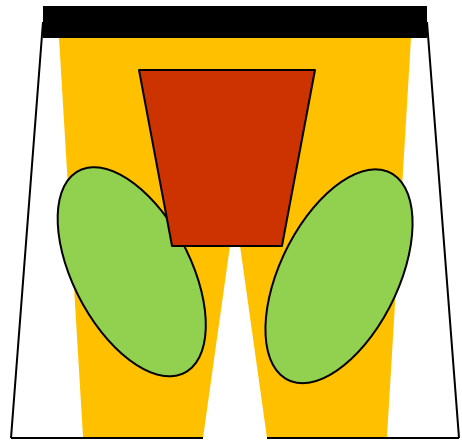
▪ IOTV Base vest

General Areas of Ballistic Protection (front view)

* Including Knee Pads



Protective Under-Garment (PUG)



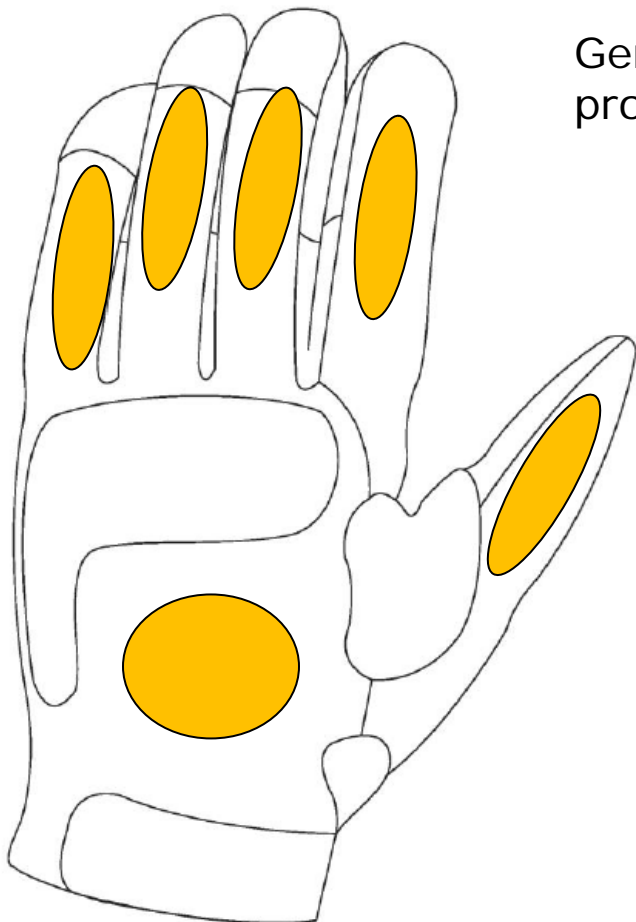
General levels of ballistic protection

- 2gr. RCC – 700fps
- 2gr. RCC – 1000fps
- IOTV Yoke (removable)

General Areas of Ballistic Protection (front view)



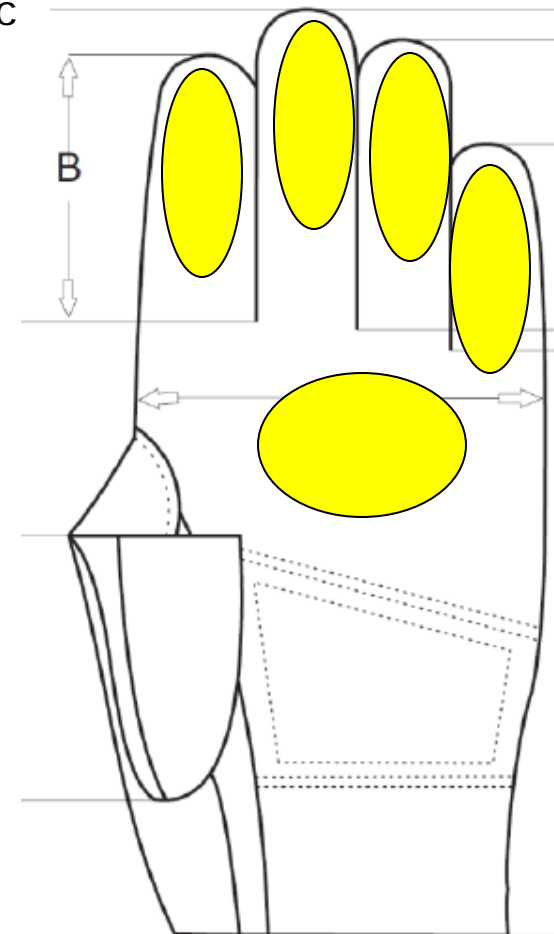
Enhanced Army Combat Gloves (EACG)



General areas/levels of ballistic protection

▪ 2gr. RCC – 700fps

▪ 2gr. RCC – 600fps



Base level of back side

Base level of front/palm side



Torso Protection

MAJ Joel Dillon





Torso/Extremity Protection

Enhanced Army
Combat Shirt (EACS)

Elbow Pads

Gloves

Pelvic Protection -
Protective Under
Garment (PUG)

Enhanced Army
Combat Pant (EACP)

Knee Pads

Neck Protection

Deltoid Protection

Torso Protection

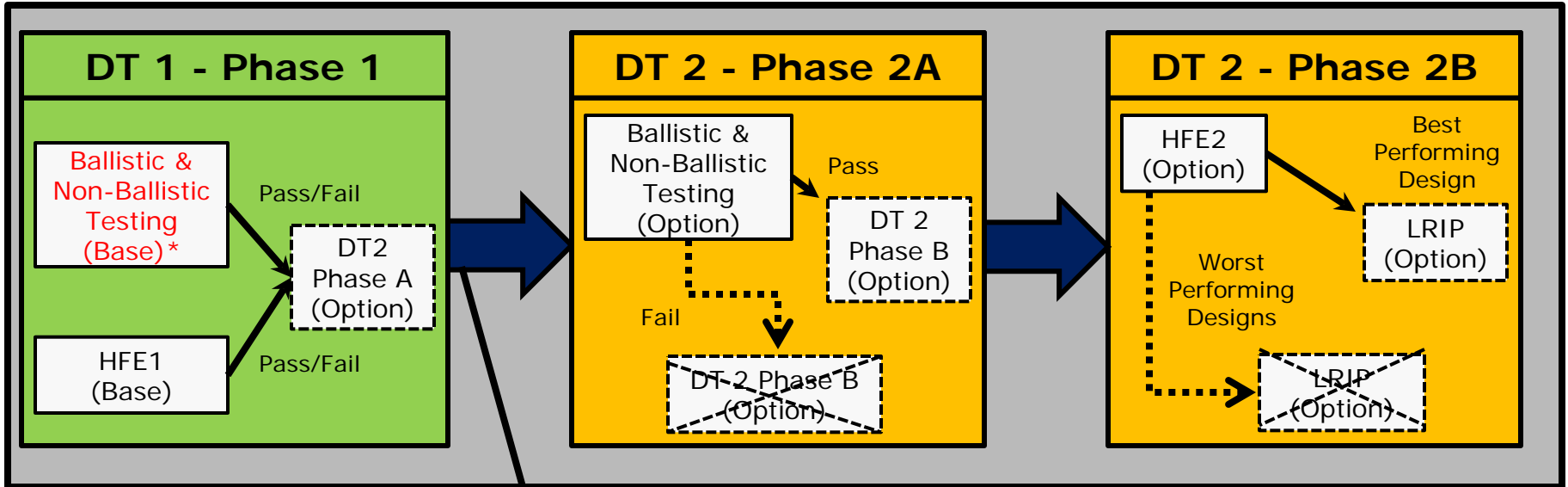
Load Redistribution System

Pelvic Protection -
Protective Outer
Garment (POG)





TP Acquisition Approach



*If more than 3 candidates pass initial technical evaluation of proposals, an initial HFE for TP/EP will be done to determine top 3 prior to DT1 award

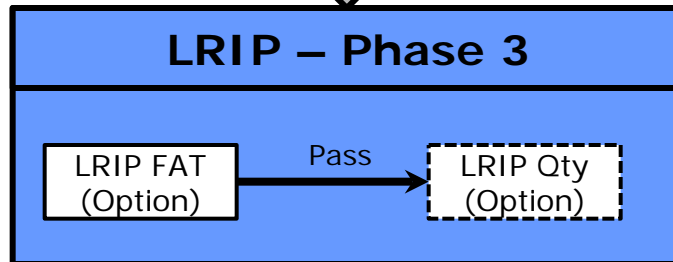
Vendors modify/improve designs based on DT1 feedback

Criteria to be considered for the LRIP Option:

1. Pass the DT2 Ballistic & Non-Ballistic Requirements (Phase 2A)
2. Obtain the highest rating during DT2 HFE2 (Phase 2B) and have fair and reasonable pricing

Legend

DT – Developmental Testing
 FAT – First Article Test
 HFE – Human Factors Evaluation
 LRIP – Low Rate Initial Production



Note: Candidates will price their Technical Data Packages (TDPs) for each five (5) sub-components in their initial proposals



Initial Contract Award Criteria



- **Factors:**

- **Technical**

- **Torso Protection:**

- Sub-Factor 1: Design [PASS/FAIL]
 - Sub-Factor 2: Sizing (PASS/FAIL)
 - Sub-Factor 3: Area of Coverage [PASS/FAIL]
 - Sub-Factor 4: Weight [Color per Table]
 - Sub-Factor 5: Load Distribution Weight [Color per Table]
 - Sub-Factor 6: Ballistic Areal Density/Thickness [Color per Tables]
 - Sub-Factor 7: Ballistic Insert Cover [PASS/FAIL]
 - Sub-Factor 8: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 9: Laundering [PASS/FAIL]
 - Sub-Factor 10: Donning/Doffing [PASS/FAIL]
 - Sub-Factor 11: Outer Facing Cloth [PASS/FAIL]
 - Sub-Factor 12: Flammability [PASS/FAIL]



Initial Contract Award Criteria (Cont)



- **Factors:**

- **Technical (Continue)**

- Pelvic Protection:

- Sub-Factor 1: Design / Area of Coverage [PASS/FAIL]
 - Sub-Factor 2: Sizing [PASS/FAIL]
 - Sub-Factor 3: Weight [Color per Table]
 - Sub-Factor 4: Ballistic Protection [PASS/FAIL]
 - Sub-Factor 5: Ballistic Area Density/Thickness [Color per Tables]
 - Sub-Factor 6: Ballistic Insert Cover [PASS/FAIL]
 - Sub-Factor 7: Laundering [PASS/FAIL]
 - Sub-Factor 8: Secure Fastening [PASS/FAIL]
 - Sub-Factor 9: Stand Alone Capability [PASS/FAIL]
 - Sub-Factor 10: Donning/Doffing [PASS/FAIL]
 - Sub-Factor 11: Pull Test Rear Panel to Center Section [PASS/FAIL]
 - Sub-Factor 12: Pull Test Front Section to Center Section [PASS/FAIL]
 - Sub-Factor 13: Outer Facing Cloth [PASS/FAIL]
 - Sub-Factor 14: Flammability [PASS/FAIL]

- **Workmanship**

- Sub-Factor 1: Stitching [PASS/FAIL]
 - Sub-Factor 2: Seams [PASS/FAIL]
 - Sub-Factor 3: Thread [PASS/FAIL]
 - Sub-Factor 4: Seam Allowance [PASS/FAIL]
 - Sub-Factor 5: Ballistic Pocket/Panel [PASS/FAIL]
 - Sub-Factor 6: Bartacks [PASS/FAIL]



Initial Contract Award Criteria (Cont)



- **Factors:**
 - **Past Performance [PASS/FAIL]**

 - **Small Business (SB) Sub-K Approach [PASS/FAIL]**
 - Sub-Factor 1: Small Business Subcontracting Plan
 - Sub-Factor 2: Small Business Participation Plan

 - **Delivery [PASS/FAIL]**

 - **Human Factors Evaluation [Rank Ordered]**

 - **Price**

Program Executive Office Soldier



Torso Protection (TP) Industry Day

16 Oct 2012

MAJ Joel L Dillon
Assistant Product Manager
Torso Protection

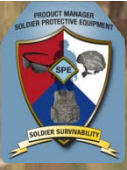


Torso Protection Scope

- Torso Protection Ensemble
 - Torso, Deltoid, Lower Back, Yoke/Collar, Pelvic Protection (Outer) Protection, and Load Distribution
 - Fully Scalable System and modular system
 - Concealable Vest → Plate Carrier → Full Tactical Vest w/ Load Distribution System
 - Provides same or better fragmentation performance as current Improved Outer Tactical Vest (IOTV)
 - Allows for future technologies
 - Defeats/Mitigates effects of ballistics, blast, fragmentation, blunt impact, and flame threats



Torso Protection Requirements



- Design

- Fully Scalable System and Modular System

- Concealable Vest → Plate Carrier → Full Tactical Vest w/ Load Distribution System

- No soft armor overlap at shoulders but must have at least 4 inches of overlap at the sides.

- Quick Release system able to doff the plates and load distribution component.

- Deltoid/Lower Back & Pelvic Protection don't need to attach directly to vest

- Capable of being stabilized to the body and shall have the same protection as the base vest (center panel = yoke)
 - Pelvic protection shall be constructed in 2 pieces

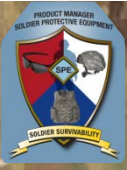
- Sizing

- Torso → 5th to 95th percentile male and female sizes

- Pelvic → 5th to 95th percentile male and female waist circumference



Torso Protection Requirements



- Area of Coverage

- Torso Protection - No exact area of coverage is defined but shall use the approx. landmarks to max area of coverage
 - The front ballistic insert shall cover the torso from the suprasternale to the omphalion and shall be cut inward at least 1 inch from the anterior scye on the torso.
 - The back ballistic insert shall cover the torso from the C7 vertebrate to the omphalion.
 - The cut of the side flap on both the front and back inserts shall extend as far up the axillary as possible.
 - The area of coverage must provide at least 1 inch overlap of a SAPI.
- Pelvic Protection - Shall consist of 3 distinct areas of ballistic protection to provide an optimum balance of protection and mobility.
 - Total system min area of coverage for size Medium → 170 in²
 - Front section shall provide at least 69 in² of ballistic protection
 - Center section shall fit between the legs and provide at least 50 in² of ballistic protection
 - Rear section shall provide at least 52 in² of ballistic protection



Torso Protection Area of Coverage



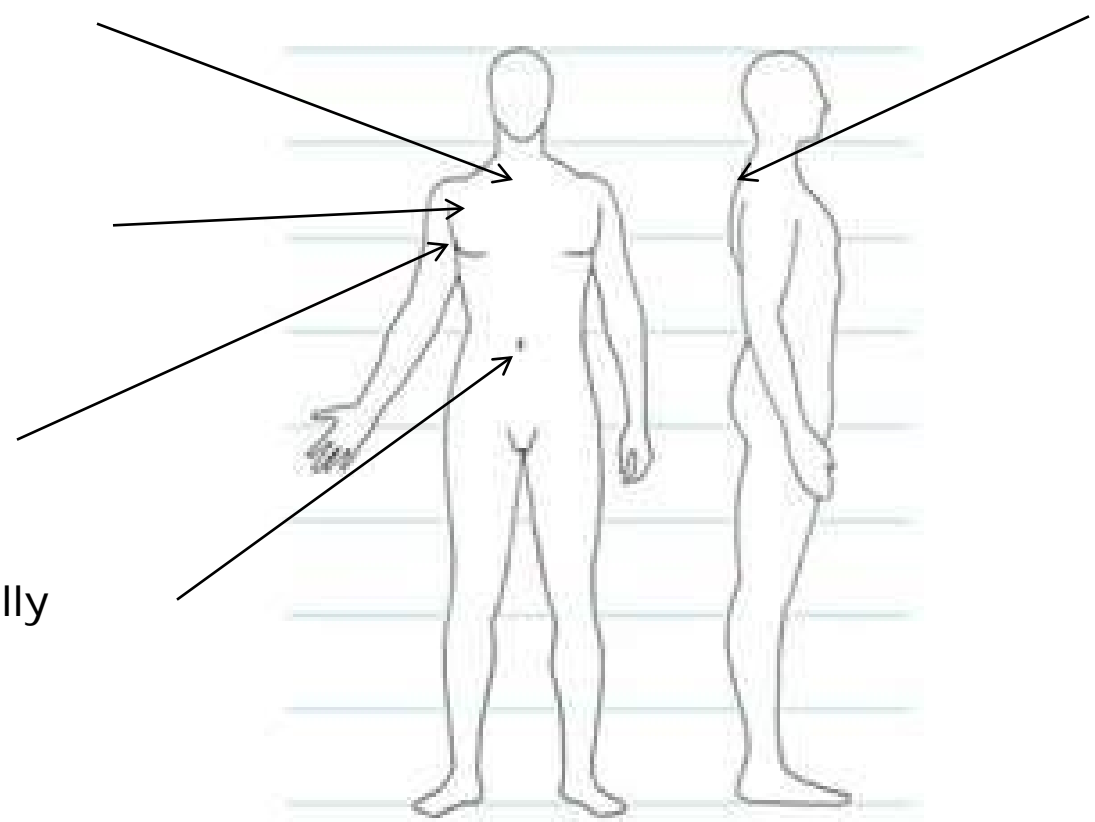
Suprasternal Notch

Anterior Scye (opening of armpit)

Axillary (armpit)

Omphalion (belly button)

C7 Vertebrate





Torso Protection Requirements



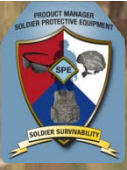
- Weight
 - Torso Protection
 - Shall meet the new areal density requirements and reduce the weight of the current Improved Outer Tactical Vest (IOTV) outer carrier by 10%.
 - Full-up tactical weight requirement

	<i>Current</i>	<i>Threshold 10%</i>	<i>Objective 15%</i>
<i>XS</i>	<i>13.59 lbs</i>	<i>12.23 lbs</i>	<i>11.55 lbs</i>
<i>SM</i>	<i>13.92 lbs</i>	<i>12.53 lbs</i>	<i>11.83 lbs</i>
<i>MED</i>	<i>14.47 lbs</i>	<i>13.02 lbs</i>	<i>12.30 lbs</i>
<i>MED-L</i>	<i>15.17 lbs</i>	<i>13.67 lbs</i>	<i>12.89 lbs</i>
<i>LG</i>	<i>15.70 lbs</i>	<i>14.13 lbs</i>	<i>13.35 lbs</i>
<i>LG-L</i>	<i>15.94 lbs</i>	<i>14.35 lbs</i>	<i>13.55 lbs</i>
<i>XLG</i>	<i>16.69 lbs</i>	<i>15.02 lbs</i>	<i>14.19 lbs</i>
<i>XLG-L</i>	<i>17.19 lbs</i>	<i>15.47 lbs</i>	<i>14.61 lbs</i>
<i>2XLG</i>	<i>18.19 lbs</i>	<i>16.37 lbs</i>	<i>15.46 lbs</i>
<i>3XLG</i>	<i>19.39 lbs</i>	<i>17.45 lbs</i>	<i>16.48 lbs</i>
<i>4XLG</i>	<i>20.83 lbs</i>	<i>18.75 lbs</i>	<i>17.71 lbs</i>

- Pelvic Protection → Maximum weight of 2.25 lbs
- Load Distribution → Maximum weight of 3.0 lbs



Torso Protection Requirements



- Torso Vest Requirements Only
 - Drag Strap - Located on back of vest → Peak Strength > 400 lbs
 - Emergency Quick Release → Similar to the IOTV Gen III
 - Must work with plates, load distribution component, tactical assault panel, rifleman pack, and the medium ruck sack.
 - Load Management System
 - Manage torso load from shoulders to hips w/o hindering range of motion and can't interfere with donning/doffing
 - No separation of hard armor plate and LPTV
 - Shall be able to withstand up to 170 lbs
 - Adjustability to change load placement stability to allow for different types of terrain
 - Drainage
 - Must allow water in vest to drain out
 - MOLLE Attachments
 - Must provide as much capability to attach MOLLE pockets to the front, back, and sides where possible



Torso Protection Requirements



- Pelvic Protection Only
 - Fastening Mechanism
 - Mechanism shall prevent flapping or shifting during use
 - Compatible with currently fielded personal protective equipment and combat uniform
 - Shall attach either to the body armor and/or the belt loops of the trousers.
 - Connection of the front panel section the center/rear section must withstand at least a 300 lbs peak load IAW ASTM D-5043.
 - Donning/Doffing
 - Capable of donning/doffing without removing the belt from the ACU trousers
 - Seams
 - Seams connecting rear panel to center section must be able to withstand a peak load of 600 lbs break strength IAW ASTM D-5034



Torso Protection Requirements



- Pelvic Protection Only

- Separation

- Front section shall be capable of being disconnected from the center/rear section and worn as a stand alone item, with the option of fastening to the belt or the Tactical Vest.

- Shockwave Mitigation

- Aerodynamic design in order to mitigate shock waves coming from below a user.
 - No flaps or exposed edges which shock waves could catch causing the pelvic protection system from being lifted away from the body.



Torso Protection Requirements



- Torso and Pelvic Protection
 - Carrier Material
 - Meets or exceeds GL/PD 10-07 Type III, Class 4 for weight, break strength, spectral reflectance, abrasion, flame, and water repellency
 - Fungus Resistance – Method 508.6, MIL-STD810
 - Infrared Reflectance
 - Colorfastness
 - Resistance to POL, insect repellent, sweat, and sea water after laundering
 - Visual Shade Matching
 - Laundering
 - Removable ballistic inserts
 - Flame Resistance
 - Outer cloth material - ASTM-D-6413
 - Ensemble Flame Resistance – ASTM-F-1930



Torso Protection Requirements



- Ballistic Material Requirements

- Ballistic Filler

- Torso Vest and Front/Back Pelvic Protection

- Areal Density → 0.88 lb/ft² max (without ballistic insert cover)
 - Thickness → 0.25 inches max (without ballistic insert cover)

- Yoke and Center Pelvic Protection

- Areal Density → 0.36 lb/ft² max (without ballistic insert cover)
 - Thickness → 0.08 inches max (without ballistic insert cover)

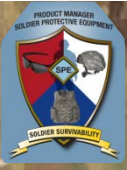
- Except for ancillary components such as thread, the ballistic filler shall be made entirely of ballistic material.

- Each ballistic filler layer shall be water repellent.

- Additionally, all components must use the same ballistic package with exception of the yoke/center pelvic.



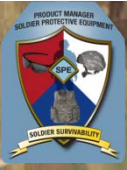
Torso Protection Requirements



- Ballistic Material Requirements
 - Ballistic Panel Cover
 - Lightweight water tight nylon ripstop that doesn't exceed 210 denier
 - Vacuumed heat sealed around the ballistic filler
 - The maximum weight shall be 4.0 oz/sq yard
 - The ballistic cover shall be water resistant
 - Flexibility
 - The ballistic insert shall not exceed 75 lbs at a 2-inch plunge when tested in accordance Natick Soldier Research Development and Engineering Center spherical bend armor flexibility procedure.
 - Durability
 - The ballistic insert shall maintain ballistic performance when tested in accordance Natick Soldier Research Development and Engineering Center soft armor durability procedure.



Torso Protection Requirements



- Ballistic Testing Requirements
 - Combination of shootpacks and end items
 - Ballistic Testing Conditions
 - Prior to conditioning, the vacuum heat sealed ballistic cover will be carefully cut along the bottom edge w/o cutting into the ballistics
 - For conditioning requiring submersion, all panels will be submerged vertically (cut side facing down) similar to NIJ.
 - Conditioning Types
 - Sea water
 - Temperature Extremes (Hot/Cold)
 - Accelerated Aging
 - POL (JP-8 and Motor Oil)
 - Durability
 - Ballistic Testing Types
 - Fragmentation V50 and Vs/Vr Testing
 - 2-, 4-, 16-, & 64-grain RCC and 17-grain FSP
 - Handgun V50 and V0 Testing
 - 9-mm, 124-grain FMJ, .357-SIG, 125-grain FNFMJ, & .44-MAG, 240-grain SJHP
 - Small Arms V0 System Level Testing (Torso and Side Plate)
 - Threat "E"