UNCLASSIFIED

Individual Protection Advanced Planning Briefing for Industry

Joint Program Executive Office for Chemical and Biological Defense
Joint Project Manager Individual Protection

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William D. Hartzell
Joint Project Manager
for Individual Protection
703-617 2444
william.hartzell@usmc.mil

Charles A. Bass, Jr., Ph.D., P.E.
CAPO PROTECTION
Joint Science and Technology Office
for Chemical and Biological Defense
charles.bass@dtra.mil

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Outline

- Science and Technology Overview
- JPM-IP Overview
- Science and Technology Challenges
- Warfighter Needs
- Funding/ Schedule
- Business Opportunities
- Contacts

Science & Technology (S&T) Overview

- **Objective: Develop Science and Technology that Protects the Warfighter from the Full Range of Chemical and Biological Agents by Supporting Acquisition Programs of Record and Providing the Material Developer with Innovative and Revolutionary Alternatives that Meet the User's Needs**

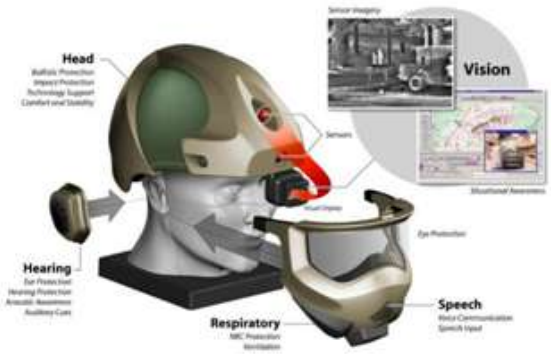
S&T Overview: Low-Burden Imperative

Like Improvised Explosive Devices (IEDs), Future Threat Use of CB Weapons will likely be Immediate, Intense, and Local. Thus, to have its Greatest Impact, Protective Measures must be Constantly Available. This Necessitates Low-burden Equipment.

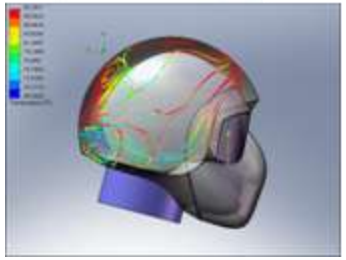
Sources of Burden:

- **Physiological**
- **Cognitive**
- **Logistical**
- **Operational**

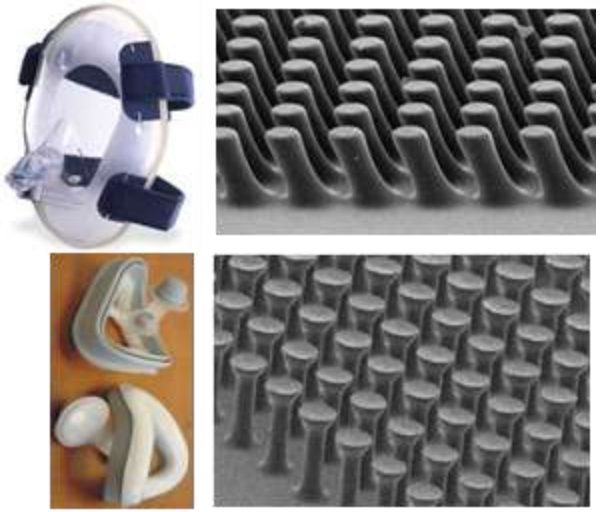
S&T Overview: Uniform Integration (2)



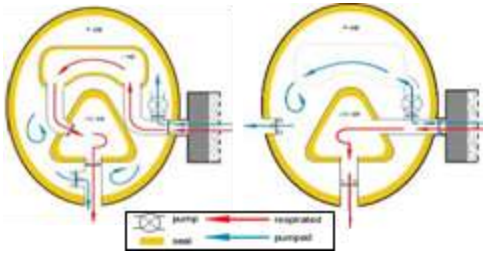
Helmet Electronics and Display System - Upgradable Protection (HEADS-UP)



Design analysis



Enhanced seal technologies



Dual-cavity technology

- ***Demonstrate Alternate Helmet Integrated Concepts in FY2010***
- ***Refine Helmet Integrated Designs in HEADS-UP ATO***
- ***Improve and Transition Novel Filtration Media***
- ***Explore Integrated (Ballistic, Laser, etc.) Protection Concepts***

JPM-IP Overview

Mission:

Provide Research, Development, Acquisition Fielding, and Life-cycle Management of Chemical, Biological, Radiological, and Toxic Hazard Defense Equipment for Percutaneous, Inhalation and Ocular Protection to Support the National Strategies.

Vision:

Delivering Revolutionary, Flexible, Adaptable, Integrated and Multi-purpose Individual Protective Equipment Capabilities to Meet the Threat Context to the Warfighter and the Nation.

JPM-IP Approach

Our Protection Approach

Analyze Requirements

- Masks, Suits, Boots, Gloves, or Layered Protection

To Protect From

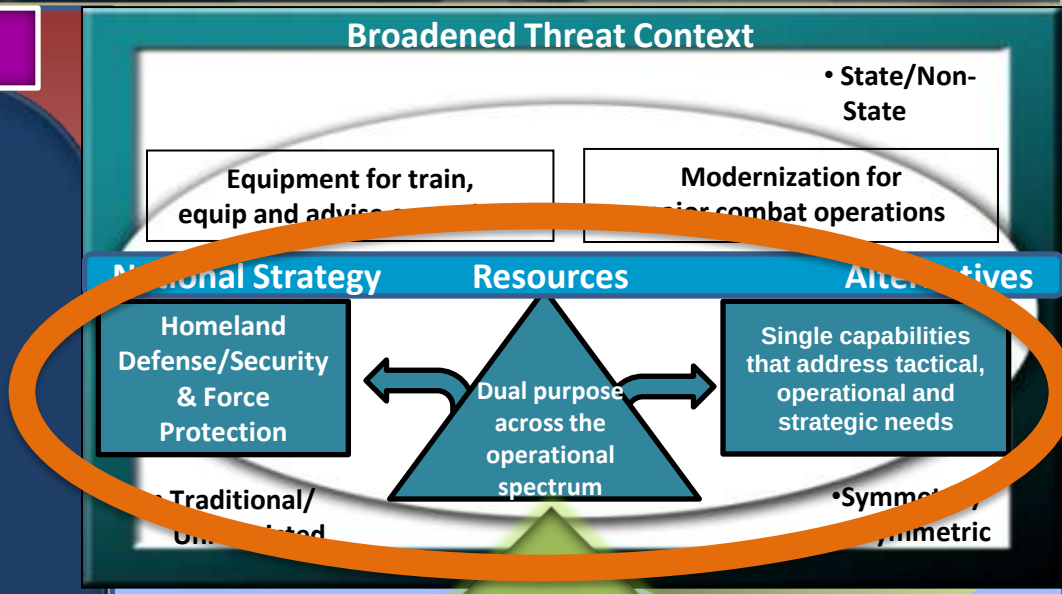
- NTAs/Bio/Advanced Threats/ Aerosols/Radioactive particles/TIC/TIM

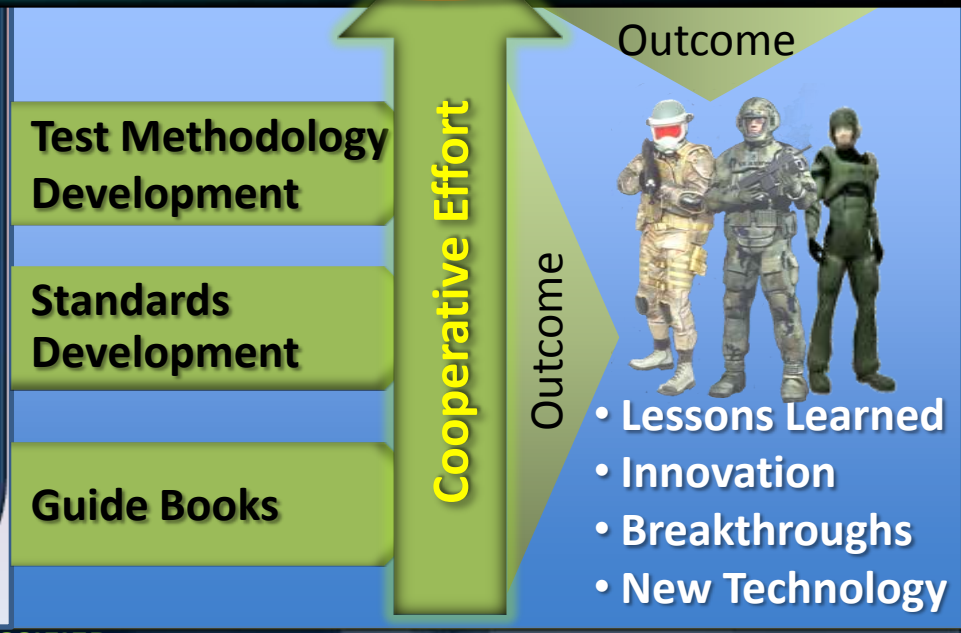
Using

- Intra- /Interagency Collaboration
  - Services, USSOCOM, TSWG, IAB, JPM Guardian, etc

To Pursue

- Systems Design and Development





Strategic Integrated Approach

Initially, we work in concert with:

- DTRA/JSTO
- USMC PM ICE
- Natick Soldier Center
- US Army PM CIE
- Service Combat and Material Developers
- PEOs and PMs
- ECBC
- Academia
- Industry
- Other Stakeholders

Ensure we

Get All Involved Early in the Planning and Programming Process

Consider

Cost *

Schedule

Performance

TAKE

Incremental Approach Focused on End-State

Communicate Potential Material Solutions

Develop

Test and Evaluate

Deliver

Begin Again

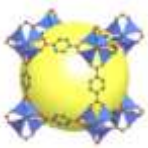
*Cost, Schedule and Performance are considered throughout this Process

S&T Challenges

- Novel Filtration Media
- Smart Textiles
- Tactile Barrier Materials
- Novel Closures

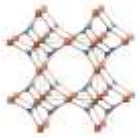
Novel Filtration Media

- **Technical Objectives**
  - Increased TIC Capacity
  - Low Profile
  - Lower Resistance
  - Hybrid Approaches
  - Residual Life Indication

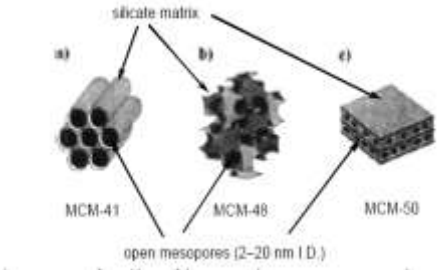


MOFs

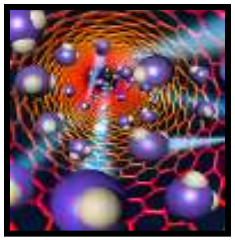
ZIFs



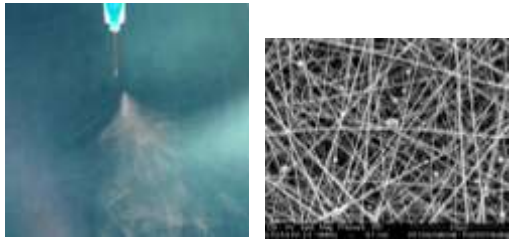
COFs



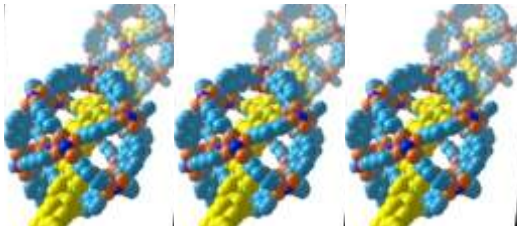
Meso-Porous Structures



Carbon Nanotubes



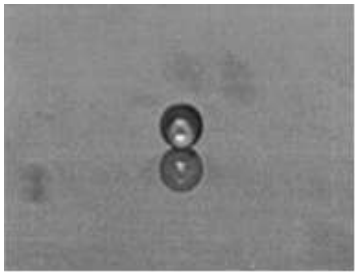
Nano-Fibers



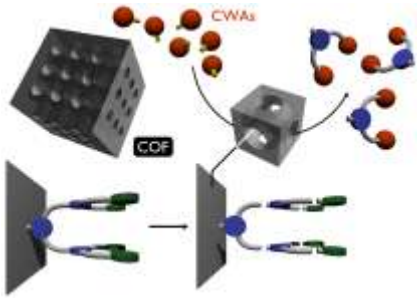
Sorbent Integrated Nano-Fibers

Smart Textiles

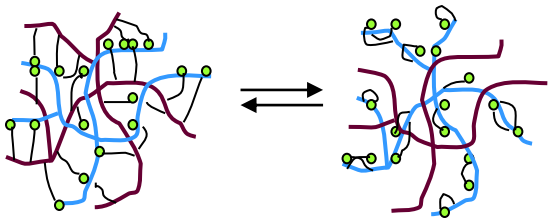
- **Technical Objectives**
  - Decreases Weight and Bulk
  - Self-detoxifying
  - Aerosol Barriers
  - Breathable/ Water Vapor Permeable
  - Agent Disclosing
  - Adaptive/ Switchable
  - Enhanced Cooling
  - Fire Resistant
  - Agent Shedding



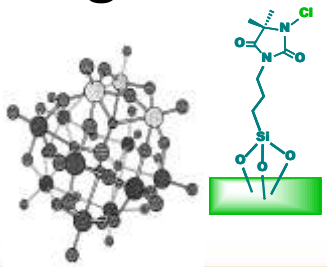
Enhanced Surface Morphology



Self-Amplifying Molecular Switches



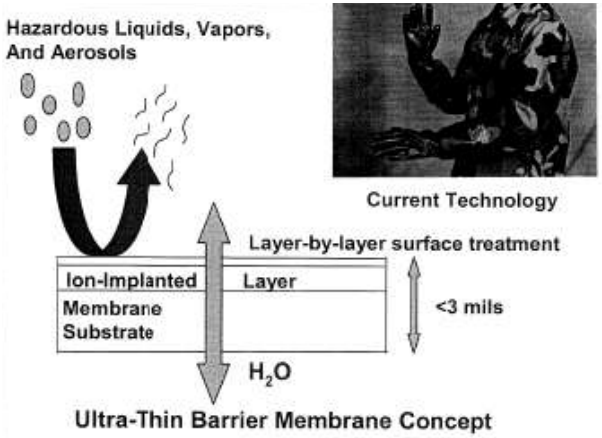
Adjustable Porosity



Self-detoxifying/ Anti-microbial Materials

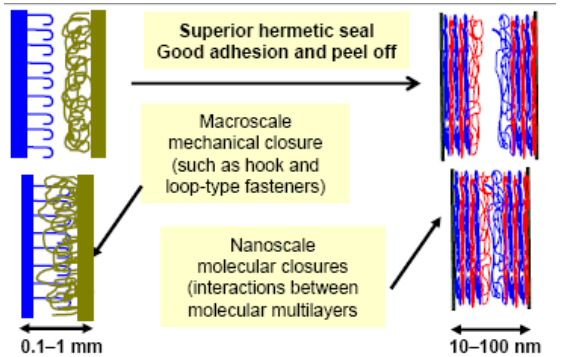
Tactile Barrier Materials

- **Technical Objectives**
  - Decreases Weight and Bulk
  - Greater Tactility
  - Greater Comfort
  - Selective Permeable Elastomers



Novel Closures

- **Technical Objectives**
  - Reduce or Eliminate Human to Ensemble Leak Paths
  - Easy-to-use
  - Self-cleaning
  - Hermetic and Reusable



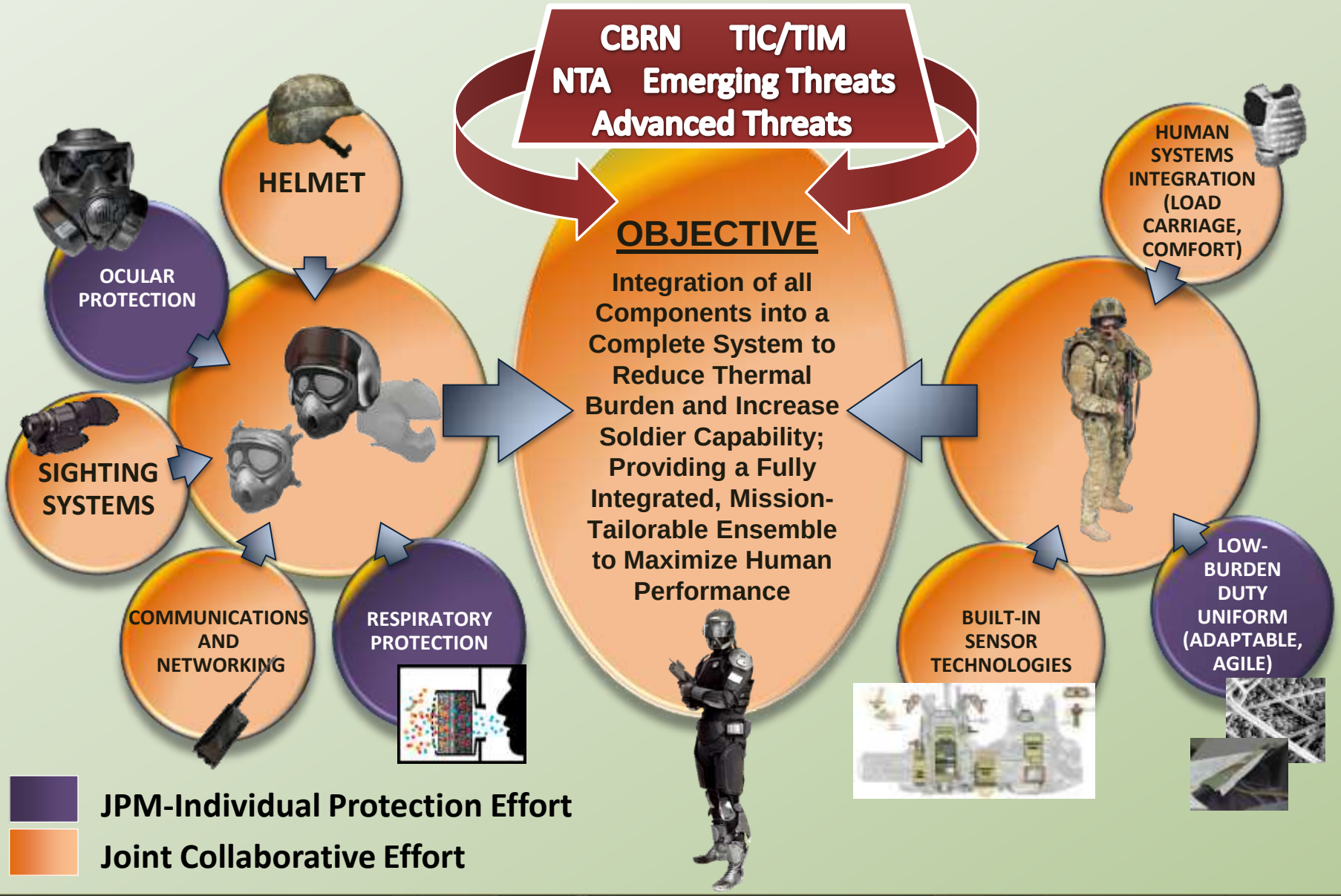
Closures that emulate natural nano-scale adhesion

Warfighter Needs

- **Respiratory/Ocular/Percutaneous**
  - **Reduced Breathing Resistance, Weight, Conformal/Lower Filter Profiles**
  - **Reduced Lens Fogging/Distortion, Increased Field-of-View**
  - **Cooler Systems (Lightweight, More Breathable Materials, Increased Water Vapor Transport Properties)**
  - **Improve Protection At Interfaces**
  - **Increased Protection (Toxic Industrial Chemicals/ Toxic Industrial Materials [TIC/TIM], Aerosol, NTAs, Advanced Threats, etc.)**
  - **Low Cost Flame Retardant Materials**
  - **Self-Detoxifying Materials**
  - **Reduced Physiological Burden**

In the Far-term; Develop a Combat Uniform that Possesses CBRN Protective Capabilities and Individual Protective Equipment Tailored towards Specific User Communities that Require Additional Protection.

JPM-IP Integrated Capabilities with CBRN Uniform Integrated Protection Ensemble (CBRN-UIPE)

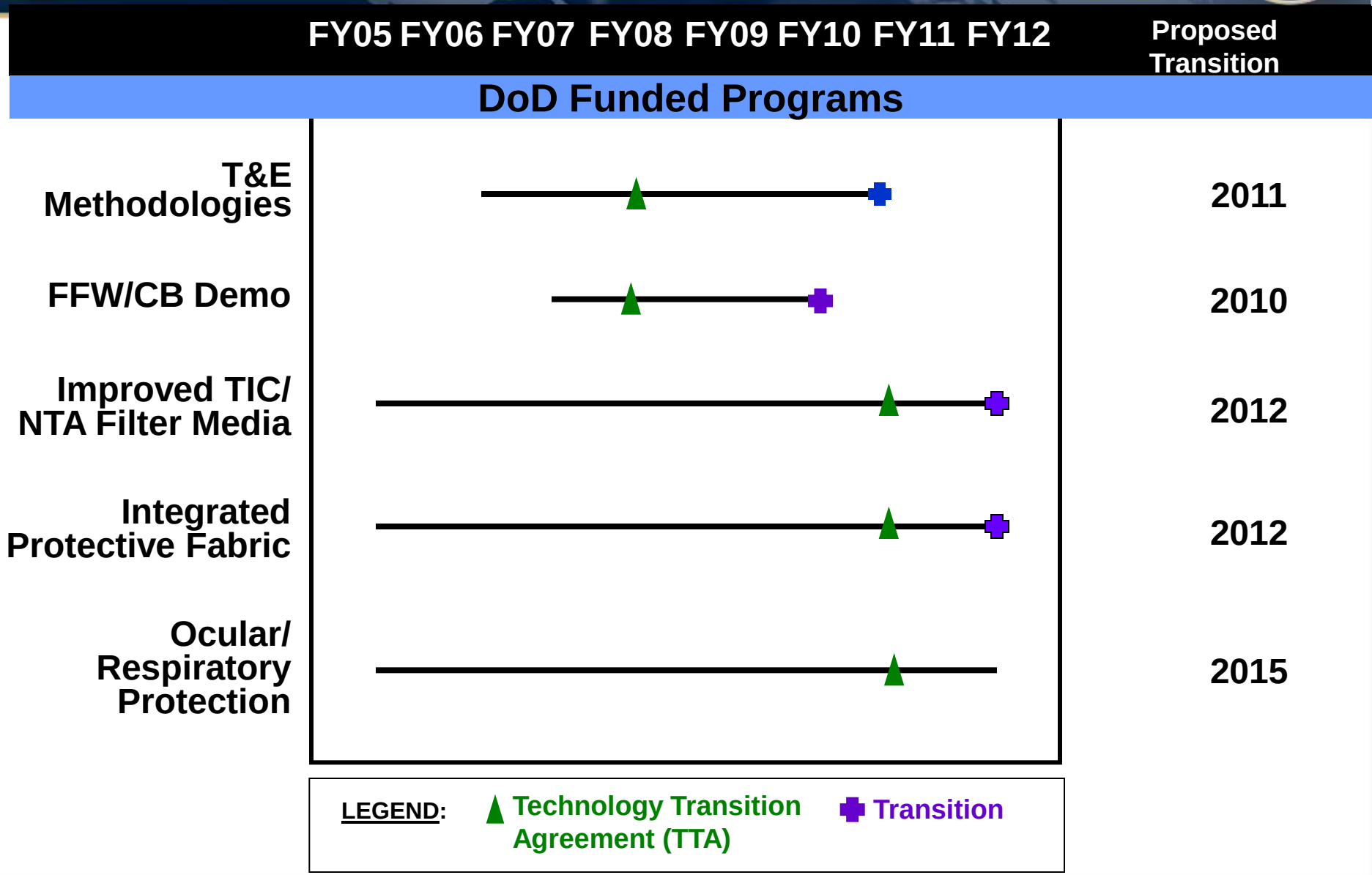


PHM S&T Funding ($M)

YEAR/ RTDE	FY11	FY12	FY13	FY14	FY15	TOTAL FY11-15
BA2	27.3	22.2	20.2	16.3	16.6	102.6
BA3	2.6	2.7	3.2	8.6	8.8	26.0
TOTAL BUDGET	29.9	25.0	23.4	25.0	25.5	128.6

Total Protection S&T Funds reflects the FY11 President's Budget submission and includes Individual and Collective Protection and Hazard Mitigation

S&T Schedule


FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12
Proposed Transition
DoD Funded Programs
T&E Methodologies
2011
FFW/CB Demo
2010
Improved TIC/ NTA Filter Media
2012
Integrated Protective Fabric
2012
Ocular/ Respiratory Protection
2015
LEGEND:
Technology Transition Agreement (TTA)
Transition

Upcoming Business Opportunities-S&T

Solicitation/Opportunity	Time Period
DTRA Chemical & Biological Technologies Directorate FY12-13 2-yr Broad Agency Announcement (BAA) Extramural (non-US Government) only, leading to contract and grant awards Additional topics may be added in the future; continue to monitor	**FY12-13 Solicitation – *Open Now!***
Small Business Innovation Research (SBIR) program Opportunity for Small Business engagement in S&T program Lead to contract and grant awards • http://www.dodsbir.net/solicitation/default.htm	**November 2010**
DTRA R&D Innovation Office – Science and Technology New Initiatives BAA (HDTRA1-07-RDINO-BAA)	**OPEN**
DTRA Fundamental Research to Counter Weapons of Mass Destruction BAA (HDTRA1-09-14-FRCWMD-BAA)	**Autumn 2010**

JPM-IP Program Funding ($M)
President's Budget 11

YEAR	FY11	FY12	FY13	FY14	FY15	TOTAL FY11-15
RDT&E BA4	3.2	0.0	0.0	0.0	0.0	3.2
RDT&E BA5	9.7	4.8	3.0	.8	.6	18.9
RDT&E BA7	0.0	2.7	4.4	7.5	4.7	19.3
PROCUREMENT	74.7	82.6	85.5	87.3	83.9	414.0
TOTAL BUDGET	87.6	90.1	92.9	95.6	89.2	455.4

Total Protection RDT&E and Procurement Funds PB11

JPM-IP Business Opportunities

PROGRAM	DESCRIPTION	YEAR
Uniform Integrated Protection Ensemble (UIPE) Increment 1	Request for Proposal Release to Industry	30 Sept 2010* * Planned
M61 Filter	Request for Proposal Release to Industry	Sep/Oct 2010
Future/Advanced Filtration	Request for Proposal Potential Release to Industry	FY14
Uniform Integrated Protection Ensemble (UIPE) Increment 2	Request for Proposal Release to Industry	FY15

S&T Points of Contact

- **JSTO CBD Senior Science and Technology Manager for Protection and Hazard Mitigation**
  Charles Bass, Ph.D., P.E.
  (703) 767-3371
  charles.bass@dtra.mil

- **Individual Protection Science and Technology Manager**
  Lt Col Tilghman Rittenhouse, Ph.D.
  (703) 767-3382
  tilghman.rittenhouse@dtra.mil

- **Air Purification Science and Technology Manager**
  William Buechter
  (703) 767-3104
  william.buechter@dtra.mil

Program Points of Contact

- Joint Project Manager – Individual Protection
  - Mr. William D. Hartzell
  - (703) 617-2444
  - william.hartzell@usmc.mil
- Deputy Joint Project Manager – Individual Protection
  - Mr. Mike Stevens
  - (703) 617-2440
  - joseph.m.stevens@usmc.mil
- Director, Future Acquisition
  - Dr. Karen McGrady
  - (703) 617-2441
  - karen.a.mcgrady@usmc.mil
- Director, Systems Engineering
  - Ms. Deborah Singleton
  - (703) 617-2427
  - deborah.singleton@usmc.mil
- Director, Test & Evaluation
  - Dr. Gene Stark
  - (703) 617-2439
  - gene.stark@usmc.mil

Questions/Comments?