INDUSTRY DAY 2016

Lethality Branch

MAJ Jason Bohannon – Branch Chief
Mr Matt Walker – Deputy Branch Chief

12 April 2017
Agenda

Welcome & Introductions
- Lethality Branch Functional Areas and POCs
- Lethality Mission
- Joint Service Support
- Government Partners
- SWEAT
- Small Arms Capabilities
- Firepower Capabilities
- SAAC
- DOTC

Questions
Breakouts with Subject Matter Experts

Presenters
MAJ Jason Bohannon
Mr Matt Walker
Joint Service Support

- US Army
- Special Operations Command (SOCOM)
- US Marine Corps
- US Navy
- US Air Force
- US Coast Guard
Government Partners

Fort Benning, Home of the MCoE

PEO Ammunition (973) 724-7116
PEO Soldier (703) 704-2802
PEO Missiles & Space (256) 313-3411

Army Capabilities Integration Center (757) 788-4280
Combined Arms Center (913) 238-4537
TRADOC Capability Manager Infantry Brigade Combat Team (706) 545-3911
TRADOC Capability Manager Armor Brigade Combat Team (502) 624-7955
TRADOC Capability Manager Stryker Brigade Combat Team (706) 545-5364

TCM-IBCT

TCM-SBCT

Army Research Laboratory (301) 394-3590

Combat Development Offices

Joint Nonlethal Weapons Directorate (573) 563-3041
Marine Corps Combat Development Command (703) 614-8610

Benet Labs Watervliet Arsenal 518-266-5627
ARDEC 973-724-4021
AMRDEC (256) 975-3202

Army Laboratoires
Small Arms
Small Arms Improvement Approach (SWEAT)

Soldier + Weapon + Enabler + Ammo + Training = Effect

Current Capabilities
Future Capabilities

Gap Mitigation
Lethal Overmatch

SEP
Summary of Small Arms Section
Desired Capabilities

Individual Weapons
- Carbine Product Improvements: M4A1 MWO proceeding
- All other improvements pending SA-FC/FWS-i/NGSAR decision points

Sniper Weapons/Accessories and SDM-R
- Precision Sniper Rifle (PSR) CPD approved, pending funding
- Compact Semi-Automatic Sniper System (CSASS) upgrade to M110
  — Formal RFP closed Source Selection in Process, funding pending
- Squad Designated Marksman-Rifle directed requirement pending funding

Pistols/Suppressions/Shotguns
- Modular Handgun System (MHS) XM17 in PVT, pending GAO outcome from protest, Holster and Enabler efforts integrating
- Signature Suppression capabilities for both visual and acoustic signatures
- Tactical Compact Shotgun (TCS) CPD, Standardize M500 in staffing ~30 days

Crew Served Weapons
- Mounted Machinegun Optic for Mounted Machinegun (CPD Approved, RFP for paper proposal scheduled for 4QFY17)
- Mounting solutions to support MG enablers and Fire Control integration (Articulating Rail, MK19 brackets)

Optics
- Fire Control across all platforms
Small Arms Fire Control

Fire Control is target engagement activities that maximize probability of hit and increase lethality

Small Arms Fire Control Threshold capability puts bullets on target faster and more accurately through optical clarity-far target location, environmental sensing, ballistic computation, an adjusted aiming point, and includes diagnostics, prognostics and training capabilities. Strategy is to procure four variants:

- Long Range (LR) precision (sniper)
- Medium Range (MR) precision (sniper)
- Crew served (M240L and M249)
- Squad (squad carbine / rifle)

Small Arms Fire Control Fire P(h) benefits

Focusing on the target effect and working back to the shooter while closing the probability of hit gap between the mechanical capability of the system and Soldier performance under combat stress is REVOLUTIONARY.
Summary of Small Arms Section
Desired Capabilities (cont.)

Small Caliber Ammunition
- Reduced weight
- Reduced signature
- Reduced fouling and contaminants
- Improved terminal performance
- Improved intermediate barrier performance

40mm Low Velocity Ammunition
- Increased Range Anti-Personnel (High Explosive Air Burst XM1166): Improved Lethality, Improved Accuracy, Increased Range, and Counter Defilade
- Door Breaching capability (XM1167): Ballistic breach of an existing exterior door
- Short-Range Anti-Personnel (XM1168): Improved Lethality against close range, threat personnel

40mm High Velocity Ammunition
- Improved High Explosive Dual Purpose: Increased lethality, Counter defilade, Improved accuracy
Ammunition

**Lightweight Small Caliber Ammunition (LSCA)**
- Reduces Soldier load for one of his heaviest items – ammo
- Drop in solution for existing family of for 5.56mm, 7.62mm and .50 CAL weapons
- No compromise in current capability (e.g. reliability and durability)
- PM-MAS Industry Day 19APR16

**One Way Luminescence (OWL) Ammunition**
- Increases Soldier survivability by fielding a tracer our adversaries can’t readily see
- Drop in solution for existing family of for 5.56mm, 7.62mm and .50 CAL weapons
- Also increases effectiveness of current tracer ammo through advanced design
- Potential to eliminate tracer / ball mixed ammo in the future
Next Generation Squad Weapon(s)

- First Unit Equipped 2025-2045
- Automatic Rifle, Medium Machinegun, Carbine, SDM (any or all possible)
- Increased chamber pressure, increased muzzle velocity/energy
- Improved Probability of Hit out to 600m
- Improved Probability of Incapacitation
- Lightweight Weapon
- Lightweight Ammo
- Suppressed
- Reduced recoil
- Rounds counter
- Addresses SA CBA/Squad Gaps (precise fire, volume fire, improved operation and maintenance, avoid detection, improve Soldier mobility)
Next Generation Squad Automatic Rifle

- CDD in HQDA staffing funding in POM
- Replacement for M249 Squad Automatic Weapon by FY 2025
- Precise and Volume Fire Out to 600 meters [Increased P(h)/P(i)]
- Caliber TBD
- Lightweight weapon (12 pounds with bipod, sling, suppressor)
- Lightweight ammo (20% less than comparable brass)
- Capable of suppression (Unable to localize)
- Reduced recoil (Able to control automatic fire)
- Rounds counter (Predictive maintenance)
Firepower
Summary of Firepower Section

Desired Capabilities

Mortars Systems, Fire Control, and Ammunition
- Precision and Extended Range (HEGM, ERM, FERA)
- Automated Mortar Turret (AMT)
- Automated Remote Capability (ARC)
- Lightweight Fire Control (WULF, NW/LHMBC Integration)
- Enhanced Lethality
- Mortar CBA / JCIDS Status

Nonlethal Munitions
- NL munitions with marking capabilities and extended range (Standoff)
- Individual Nonlethal System (INS) that can deliver NL effects from 0-150 meters (variable velocity, directed energy, etc.)

Shoulder Launched
- Multi-target
- Confined space capability
- Lightweight Systems
- Anti-Personnel
- Increased range against area and personnel targets

Soldier Munitions
- Multipurpose (Frag & Blast) Hand Grenade (Increased Pi and IM Safe)
- Improved Tactical Obscuration Hand Grenade (≥ performance of HC)
- Enhanced Incendiary Hand Grenade (penetrate steel plate ≥ ¾", reduce toxicity, and weight by 35%)
Summary of Firepower Section
Desired Capabilities (Cont.)

Pyrotechnics
- Anti-personnel mine training device (Claymore MILES) Prototype Development
- Rapid assault lane line charge (RALLC) ARCIC validated sent for HQDA staffing
- Battlefield Smoke Pyrotechnics (BSP) CPD scheduled for WWS 4Q17

Close Combat Missile Systems (TOW/ITAS and Javelin)—Multi-target
- Javelin: Development of Lightweight Command Launch Unit (CLU) in progress, estimate FUE 2023, funding in the POM
  - Enhanced Portability for Dismounts, Networked Interoperability, Embedded trainer
- Multi-Purpose Warhead, Dominant Lethality Overmatch
- TOW/ITAS: Networked Interoperability

Next Generation Missile Compatibility
- Currently in HQDA staffing/not currently funded
- Non Line of Sight
- Provides small unit organic, responsive precision fire capability
- Limits collateral damage, capable of last second wave-off
- Limits enemy tactic of using population & terrain as a shield
- Attack at range, from any direction
- Affords protection and standoff
- Precisely engage combatants in complex terrain at standoff ranges
- Soldier-operated missile provides a flight time of 15 minutes and the capability to engage targets out to ranges of 10 KM.
Small Arms Ammo Configuration Study

**Purpose:** Provide an updated ammunition system approach to mitigate the capability gaps prescribed in the Small Arms CBA and inform small arms weapons priorities and modernization strategy.

**Objective:** Establish small arms ammunition system attributes and their associated values with defensible analytic evidence. The study evaluated the operational benefit and cost of alternative small arms ammunition capabilities to determine the preferred set of ammunition system attributes that mitigate capability gaps prescribed in the Small Arms CBA.

**Emerging Results:** Emerging threats require US small arms technologies to provide an order of magnitude increase in small arms capability, proving extensive effects at range, and yielding significant overmatch to Army and Marine squads over threat adversaries.

**Final Report due April 2017**
The DOTC Enterprise

DoD Ordnance Community

- OUSD (AT&L) LW&M
- Department of The Army
- Department of the Navy
- Department of the Air Force
- Special Operations Command
- DARPA
- DTRA
- Other Agencies and Departments

OVERARCHING AGREEMENT
PROTOTYPE
OTHER TRANSACTION

National Armaments Consortium

- Defense Contractors
- Small Businesses
- Academic Institutions
- Non Profit Organizations
- Not-for-Profit Organizations
- Non-Traditional Defense Contractors

The DOTC Consortium - Partnership to Accelerate Warfighter Superiority
Consortium Benefits

• **Industry/Academia:**
  - *Power of the Network* with innovative business relationships
  - More visibility and *higher resolution of technology gaps*
  - Open collaboration with Government during requirements development and project definition activities

• **Defense Technology Base:**
  - *Rapid Response* to DoD customer needs
  - Research & development activities focused on demonstration of prototypes for transition to the *Warfighter*
“Ordnance” is the ammunition, armaments, munitions, weapons, systems and related military materiel such as equipment and components that enables the military to achieve combat and mission effectiveness in all warfare environments: air, land, sea, undersea and space. Ordnance to support all of the warfare environments is further defined in the below technology areas:

**DOTC Technology Objective Areas**

- Warheads Lethal Mechanisms
- Ammunition
- Rockets, Missiles & Bombs
- Energetic Materials
- Demilitarization
- Directed Energy Warfare Systems
- Enabling Technologies
- Protection & Survivability
- JointInsensitive Munitions
- Weapon Systems
- Fuzes
- Sensor & Sensor Systems
Annual Cycle & Collaboration

- Early and extended engagement enhances industry, academia, and Government collaboration
- Collaborative processes improves alignment with customer requirements
- Industry and Government collaboratively work SOW and award process

Reduced Workload with Enhanced White Paper Selections

Maneuver Center of Excellence - Team of Soldiers, Families, and Civilians from the Best Army in the World!
Government POCs should contact the DOTC Program office directly

Industry and Academia POCs should contact ATI (Lindsey LePine is listed below) directly to join the NAC. NAC membership cost is $500/year.


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General Questions

(See SMEs for specifics)

• Fed Biz Ops
• SEP
• CTTSO
• NDIA (1-2 May 17)
• RCO
Backups
Vision:
An integration of Government, Industry, and Academia into a single enterprise executing Joint and co-funded initiatives, sharing and developing goals and objectives, resources and assets, and utilizing existing personnel, facilities and equipment

Mission:
To enhance our warfighters’ lethality, survivability and combat effectiveness by facilitating the industrial and academic research, development and technology demonstrations needed to advance and expand our military technological superiority

- Rapid technology transfer to the Warfighter
- Advocates a critical mass of world-class technologists
- Leverages government, private industry and academia R&D resources
- Promotes nontraditional defense contractor involvement
- Promotes innovation
**EXECUTIVE COMMITTEE**

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**ARDEC**
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