INDUSTRY DAY 2019

10 April 2019
Lethality Branch

LTC Christopher Kennedy – Branch Chief

Mr. Daryl Easlick
Small Arms Deputy

Mr. Matt Pickett
Firepower Deputy
Agenda

Presenters
Mr. Daryl Easlick and Mr. Matt Pickett

Welcome & Introductions
• Lethality Branch Functional Areas and POCs
• Lethality Mission
• Joint Service Support
• Government Partners
• Small Arms Capabilities

Questions
Breakouts with Subject Matter Experts
Soldier Portfolio Programs

Lethality

Individual Weapons
- M9/M11 & XM17
- M4/M4A1
- Lt/Med MGs
- SDM Wpn
- Fire Control, Sqd (AR / Carbine /SDM)
- Small Arms Ammunition (individual weapons)

Crew-Served Weapons
- Heavy MGs
- Fire Control, CSW (M240L, Grenade Launcher?)
- M2010 (.300 Win Mag)
- Crew Served Ammunition (CS weapons)

Mortars
- 81mm Automated Direct/Indirect Fire Mortar (ADIM)
- Mortar Fire Control (MFC)
- Mortar Ammunition

Rockets, Missiles, Bursting Weapons
- AT4 Family, Individual Assault Munition (IAM)
- Javelin
- Multi-Purpose, Anti-Personnel, Anti-Armor Weapon System (MAAWS)
- 40mm Ammunition

Crew Served Weapons
- CROWS
- Fire Control, Sniper
- Precision Sniper Rifle (PSR)
- Fire Control, Spotting Scope
- M110 SASS / CSASS
- M107

Limited Visibility Devices
- Thermal Weapon Sights
- FWS-Individual, Crew Served, Sniper
- Future Gen Smart SA Devices
- AN/PVS-14
- ENVG-IV
- STORM

Situational Awareness

Weapon Sights
- Leader Smart Sight
- FVMC: (1) Day FWS-I, (2) Networked ENVG, (3) PVS-14 Replacement
- AN/PVS-7
- ENVG

Counter Defilade
- M320 / M320A1 GL
- LMAMS / SMAM
- Down Range Wind Sensing

Soldier Sensors
- Close-Access Target Reconnaissance (CATR)
- LTLTM
- STORM
Joint Service Support

US Army

Special Operations Command (SOCOM)

US Marine Corps

US Navy

US Air Force

US Coast Guard
Small Arms
Small Arms Section

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Firepower

Military GS Civilian Contractor

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**Lethality**

**Individual Weapons**
- M9/M11 & XM17
- M4/M4A1
- Lt/Med MGs
- SDM Wpn
- Fire Control, Sqd (AR / Carbine /SDM)
- Fire Control, Sqd (M240L, Grenade Launcher?)
- Small Arms Ammunition (individual weapons)

**Crew-Served Weapons**
- Heavy MGs
- M2010 (.300 Win Mag)
- Fire Control, Sniper
- Fire Control, Snipe (PSR)
- CROWS
- Precision Sniper Rifle (PSR)
- Crew Served Ammunition (CS weapons)
- M110 SASS / CSASS
- Fire Control, Spotting Scope
- M107

**Counter Defilade**
- M320 / M320A1 GL
Summary of Small Arms Section
Desired Capabilities

**Individual Weapons**
- Carbine Product Improvements: M4A1 MWO proceeding
- NGSW-AR/R system on FBO
- NGSW Ammo (GP, RRA, Blank, CCMCK)

**Sniper Weapons/Accessories and SDM-R**
- Precision Sniper Rifle (PSR) CPD approved
- SDM-R DR proceeding 1 per IN Squad
- New equipment being added to the ASAK for units

**Pistols/Suppressions/Shotguns**
- Modular Handgun System (MHS) M17/M18 and Holster in fielding, Enabler to select maneuver positions
- Signature Suppression capabilities for both visual and acoustic signatures
- Tactical Compact Shotgun (TCS)

**Crew Served Weapons**
- Mounted Machinegun Optic for Mounted Machinegun (CPD Approved, RFP for paper proposal released 19 OCT 18, Down select complete, pending TC/FMR 2QFY20)
- Mounting solutions to support MG enablers and Fire Control integration (Articulating Rail, MK19 brackets, M192 Improvement)
- Future platoon Machine gun and Fire Control: pending the outcome of Sqd FC associated with NGSW-AR Soldier touch points, prototyping, & other industry input.

**Optics**
- Fire Control across all platforms
- AFC and PM-CSW is interested in long range precision “smart scope” technology
- New optics are starting to be issued at the institutional level with updated reticles
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:

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

Small Arms Fire Control Fire P(h) benefits:

![Diagram of generations of fire control systems]

**Generation 1** (Legacy Optics)
- Fixed Power Optic
- Basic Reticle

**Generation 2** (COTS)
- Variable Power Optic
- Advanced Reticle

**Generation 3** (SA-FC Threshold)
- Integrated Ballistics
- Disturbed Reticle

**Generation 4** (SA-FC Objective w Next generation Weapon)
- Integrated with Weapon Platform
- Electro-Mechanical Aim Augmentation

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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, Programmable HEAB
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)

**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)

- 6.8mm (not SPC)
- First Unit Equipped 4QFY22
- Automatic Rifle and Rifle
- Increased muzzle velocity/energy
- Improved Probability of Hit with NGSW-FC
- Improved Probability of Incapacitation
- Lightweight Weapon
- Lightweight Ammo
- Suppressed
- Controllable recoil
- Round counter
- Addresses SA CBA/Squad Gaps/SAAC (precise fire, volume fire, improved operation and maintenance, avoid detection, improve Soldier mobility)
MAAWS (M3E1) Fire Control

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

MAAWS Fire Control capability should be no more then four pounds and capable of ranging target sets up to 2400 meters putting 84mm rounds on target faster and more accurately through optical clarity-far target location, laser range designation, environmental sensing, ballistic solutions, disturbed reticle, cant meter, provide moving target ballistic solutions, compatible with future smart rounds, provided integrated NVD/Thermal capability, magnification, includes diagnostics, and training capabilities.
Firepower Section

OVERVIEW

Mission
Soldier Portfolio Programs

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**Rockets, Missiles, Bursting Weapons**
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- Javelin
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**Situational Awareness**

**Weapon Sights**
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- Future Gen Smart SA Devices

**Limited Visibility Devices**
- AN/PVS-7
- AN/PVS-14
- ENVG
- ENVG-IV

**Soldier Sensors**
- LTLTM
- Close-Access Target Reconnaissance (CATR)
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Future Day/Night SA Convergence

Future Electro-optics/Night Vision systems must:

• Provide a fully integrated day/night fire control system for all small arms
• Change the design/form factor of head mounted goggles
  - Version I: Small Form Factor Goggle
  - Version II: Integrated Helmet/Conformal System (See through Head mounted display compatible with NBC Equipment)
• Reduce Soldier burden and Soldier-required adjustments (so hands can stay on weapon)
  - Automatic adjustment of imagery (individual sensor and fused imagery)
  - Matched sensor Fields-of-View; matched latency
  - Multi-Spectral Rapid Targeting Acquisition (RTA)
  - Target Aided Tracking/Identification
• Provide a data display/interface for Soldier Network (Soldier as a System)
  - Overlay Data from Soldier Devices onto Sensor Imagery
  - Overlay Soldier Ammo Status on Sensor Imagery
  - Data Display which provides for Soldier Route Planning/Heading Information
• Provide advanced power management
• Leverage individual Soldier sensors to provide new capabilities
  - Transmit fused imagery across the battlefield
• Respond to possible downturn of US I2 industrial base and increased cost
Desired Capabilities

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

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%)
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
- Maneuverability
  - 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.
Questions