



Director, Soldier Division

TRADOC Capability Manager – Soldier

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Mission



Fort Benning, Home of the MCoE

Serve as the DOD proponent for Small Arms Systems, Mortars, Close Combat Missile Systems, Lethal Miniature Aerial Munition System and the Maneuver Center of Excellence Combat Development point of contact for Shoulder Launched Munitions, Soldier Handheld Munitions, and Tactical Nonlethal weapon systems.





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Small Arms



Small Arms Improvement Approach (SWEAT)



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Soldier + Weapon + Enabler + Ammo + Training = Effect



Current Capabilities
Future Capabilities



Gap Mitigation

Lethal Overmatch



Summary of Small Arms Section Desired Capabilities



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Individual Weapons

- Carbine Product Improvements: M4A1 MWO proceeding
- All other improvements pending SA-FC/FWS-i/NGSAR decision points
- **Interim Carbine Directed Requirement ?**

Sniper Weapons/Accessories and SDMR

- Precision Sniper Rifle (PSR) CPD approved, funding approved FY20
- Compact Semi-Automatic Sniper System (CSASS) upgrade to M110
 - Formal RFP closed Source Selection completed with contract awarded, funding pending
- Squad Designated Marksman-Rifle directed requirement, funding approved 3QFY19

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**

- Sig Sauer P320M selected
- XM17 Full size and XM18 Compact
- Production Verification Test, IOT&E ongoing, pending GAO outcome from protest
- Integration of Holster and Enabler efforts
- US Army BOI – 195,000
- Joint partners potential quantities:
 - USAF ~ 130,000
 - USMC ~ 35,000
 - USN ~ 61,000 (XM18 only)
 - USCG – NA
- Each weapon comes with:
 - S/M/L frame
 - 1 standard 17 round magazine
 - 2 extended 21 round magazines
 - Bore brush



Small Arms Fire Control



Concept Only

Precision Weapons



Concept Only

Crew-Served Weapons



Concept Only

Small Arms, Squad

- Decrease time to engage (Increase Probability of Hit)
- Increase detection and ID range
- Provide degraded capability in a no power situation (DVO)
- Digital overlay display inside optics field of view
- Provide covert pointing day and night
- Size Weight and Power optimized
- Range determination to the maximum effective range of the Squad
- Variable or selectable power/magnification
- Provide networked lethality through Intra Soldier Wireless and Nett Warrior (O)



Summary of Small Arms Section Desired Capabilities



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Small Caliber Ammunition

- Reduced weight/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

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)



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- First Unit Equipped 2025-2045
- Automatic Rifle, Medium Machinegun, Carbine, SDM (any or all possible)
- **Next Gen Squad Automatic Rifle in HQDA staffing funding in the POM**
- 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 Gen Squad Auto Rifle Industry Day within next 90 days (Secret) required



Small Arms Ammo Configuration Study



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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: Threats to the US military are armoring their individual Soldiers and developing their small arms weapons and ammunition. However, emerging US small arms technologies can provide an order of magnitude increase in small arms capability, providing extensive effects at range, increased probability of hit and incapacitation at range, and yielding significant overmatch to Army and Marine squads over threat adversaries.

Final Report to TSAG 18 May 2017

MCoE Modernization Strategy to Follow



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Questions?



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BACKUPS



Next Generation Squad Automatic Rifle



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- 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)

Generation 1

(Legacy Optics)

- Fixed Power Optic
- Basic Reticle



Generation 2

(COTS)

- Variable Power Optic
- Advanced Reticle



Generation 3

- Integrated Ballistics
- Disturbed Reticle



Generation 4

- Integrated with Weapon Platform
- Electro-Mechanical Aim Augmentation





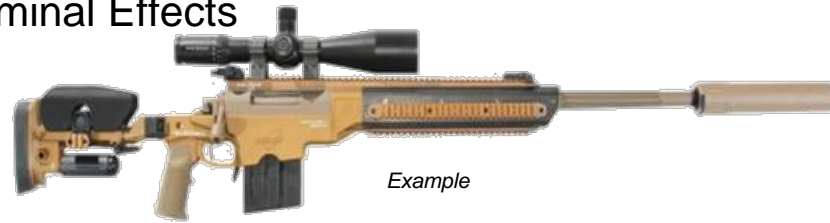
Precision Sniper Rifle Desired Capabilities



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➤ PSR Capability

- Provides Snipers With Precision Fire Out To 1500m
- Increased P(h)/P(i) at all intermediate ranges
- NEW Ammunition For Range & Terminal Effects
- Sound/Flash Suppressor
- Enhanced Rifle Scope
- Detachable Box Magazines
- Ergonomic Stock (Foldable w/ Adjustable Cheek & Butt-plate)



Example



Example

➤ PSR Objective

- To Qualify and TC-STD a Commercial and NDI Bolt-Action Extended Range Sniper Rifle & NEW Ammunition

➤ Multi-Caliber

- METT-TC, Training, Supportability, Costs

➤ PSR is a Joint Program

- Six letters of endorsement from JOINT services

➤ CPD approved Dec 2015





Squad Counter Defilade Target Engagement



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Desired Capability

Squad level Counter Defilade Target Engagement capability to precisely and quickly defeat, out to 500 meters, enemy combatants, while limiting collateral damage.

- Current direct-fire small arms (M4, M16, M249, and M240) do not fire their rounds with enough Kinetic Energy to penetrate most cover that the enemy uses.
- Current indirect fire systems immediately available to the squad (M203, M320, MK19, and 60mm Mortar) are either unable to range 500 meters, have flight times that allow the enemy reposition, are imprecise, or have dispersion issues that can cause significant collateral damage.
- Current indirect fire systems not immediately available to the squad (81mm and 120mm mortars, 105mm and 155mm field artillery, and close air support) have request times and flight times that allow the enemy to reposition, often fire non-precision munitions that are unable to effectively neutralize covered/defilade enemy, and are expensive solutions to neutralize a covered enemy combatant and can cause extensive collateral damage.



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Firepower



Summary of Firepower Section Desired Capabilities



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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 (\geq performance of HC)
- Enhanced Incendiary Hand Grenade (penetrate steel plate $\geq \frac{3}{4}$ ", reduce toxicity, and weight by 35%)



Summary of Firepower Section Desired Capabilities (Cont.)



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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.