



INDUSTRY DAY 2020





Lethality Branch

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Mr. Eric Seto
Small Arms Deputy

Mr. Steve Howard
Firepower Deputy



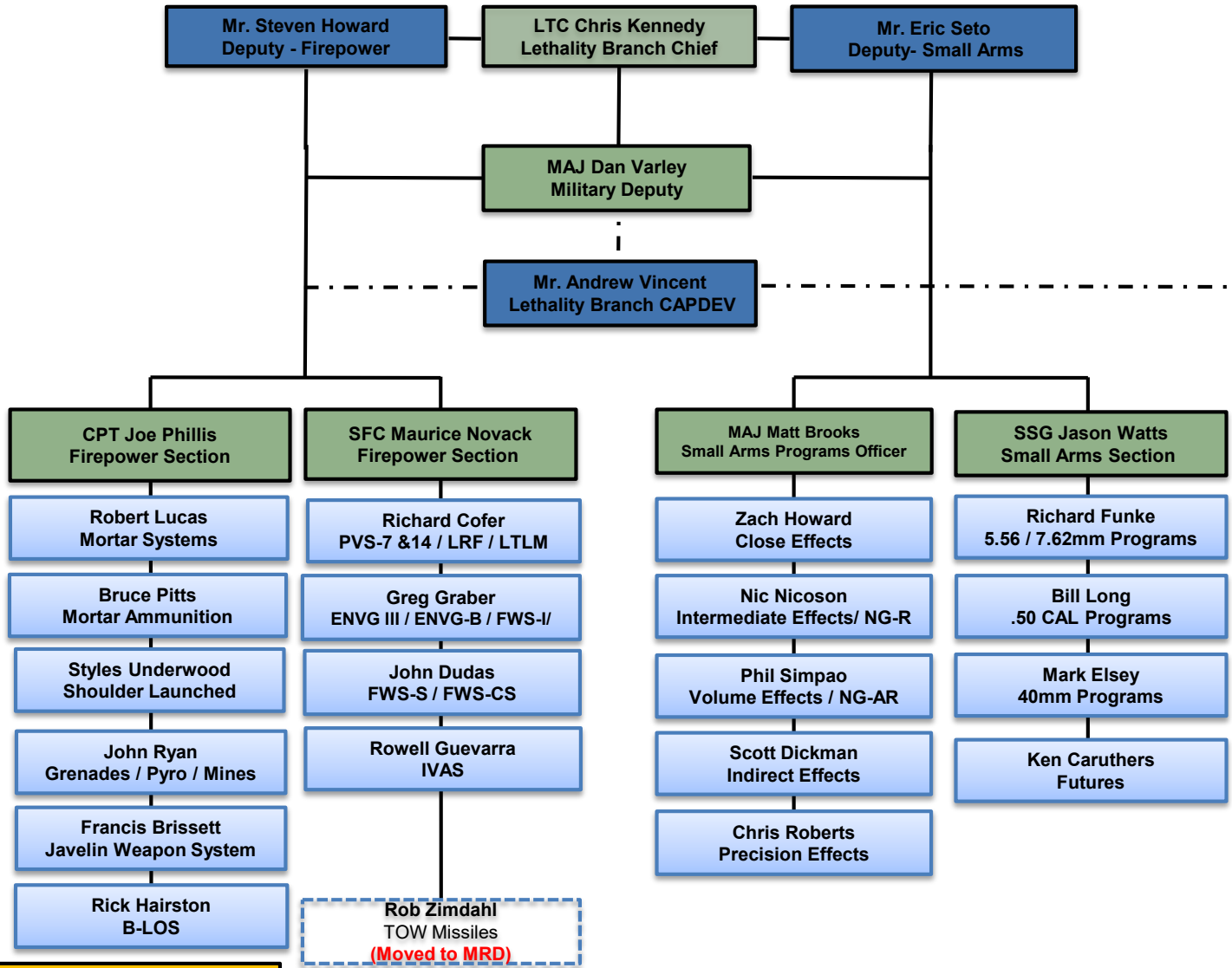
Agenda



- Lethality Branch Organization
- Lethality Branch Mission
- Small Arms Capabilities
- Challenges & Opportunities
- Fire Power Capabilities
- Challenges & Opportunities
- Questions



Lethality Branch



**SL-CFT
NGSW Efforts**

LNOS

- Mr. Tom Henthorn
JSSAP LNO
- Mr. John Amick
Small Caliber Programs
PM MAS Small Cal LNO
- Mr. Richard Reed
40mm Programs
PM MAS Medium Cal LNO

	OFF	ENL	CIV
Req.	13	14	11
Auth.	5	1	3
Assign	3	1	3

Updated as of 8 Apr 2020

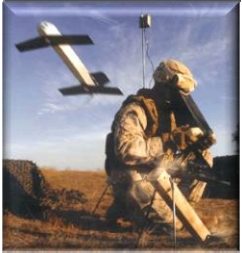
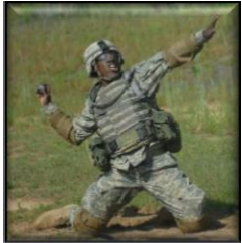
Military GS Civilian Contractor





Lethality Branch Mission

Serve as the DOD proponent for Small Arms Systems, Mortars, Close Combat Missile Systems, Beyond Line of Sight Systems, Shoulder Launched Munitions, Soldier Handheld Munitions, and Tactical Nonlethal weapon systems.





Soldier Portfolio Programs



Lethality

Individual Weapons



XM17



M4 / M4A1



SDM-R WPN



Small Arms Ammunition



(Individual / Crew Served Weapons)

Weapon Sights



Legacy Optics



Future Generation Smart SA Devices



Thermal Weapon Sights



FWS (Individual / Crew Served / Sniper)

FVMC

- (1) Day FWS-I
- (2) Networked ENVG
- (3) IVAS



STORM



Multifunction Aiming Lights PEQ-15



LTLM

Limited Visibility Devices



ENVG-B

Crew-Served Weapons



Heavy MGs



M110-A1 CSASS



LT / MED MGs



Precision Sniper Rifle (PSR)

Fire Control

- Sniper
- Spotting Scope
- CSW (M240L, Grenade Launcher)

Rockets / Missiles / Bursting Weapons



SLM Family, Individual Assault Munition (IAM)



Grenades, Smoke, Pyrotechnics)



M320 GSS



40mm Ammunition

Mortars

81mm Automated Direct / Indirect Fire Mortar (ADIM)



Mortar Fire Control (MFC)



Javelin



M3E1-Multi-Purpose, Anti-Personnel, Anti-Armor, Weapon System (MAAWS)





Small Arms

Compete

Penetrate

Disintegrate

Exploit

Re-Compete



Small Arms Section



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Individual Weapons/ Fire Control (FC)

Ammunition

LNO

Non-Lethal

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Updated as of 8 April 2020





Soldier Portfolio Programs



Small Arms

Individual Weapons



Weapon Sights



Thermal Weapon Sights

FVMC

- (1) Day FWS-I
- (2) Networked ENVG
- (3) IVAS

FWS (Individual / Crew Served / Sniper)



Limited Visibility Devices



Crew-Served Weapons



LT / MED MGs

Fire Control

- Sniper
- Spotting Scope
- CSW (M240L, Grenade Launcher)

Rockets / Missiles / Bursting Weapons

Mortars

81mm Automated Direct / Indirect Fire Mortar (ADIM)



Mortar Fire Control (MFC)

SLM Family, Individual Assault Munition (IAM)

Grenades, Smoke, Pyrotechnics)



Javelin

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40mm Ammunition



M3E1-Multi-Purpose, Anti-Personnel, Anti-Armor, Weapon System (MAAWS)





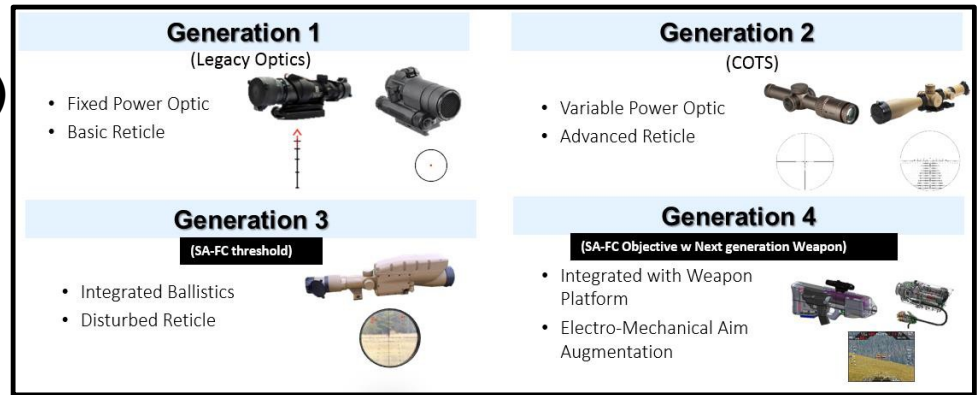
Small Arms Fire Control



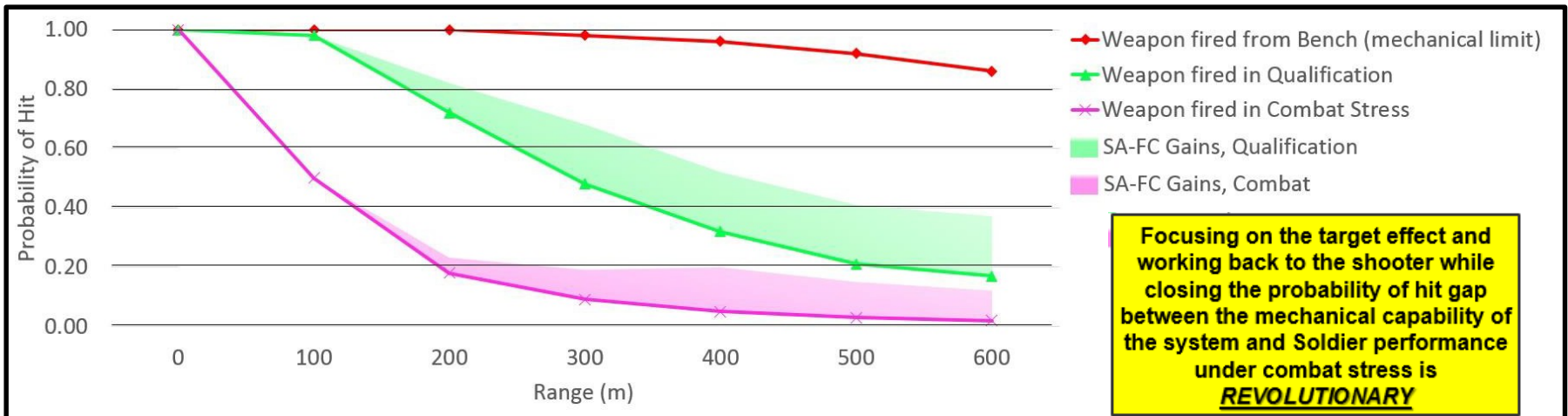
Fire Control is target engagement activities that maximize probability of hit and increase lethality.

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





Challenges / Opportunities



- For generations Warfighters have used a pyrotechnic material on ammunition to mark targets, observe fire placement, even provide visual signals. This form factor hurts Soldier survivability by giving away location of fires and orientation. Is there another way to achieve the effects of legacy tracer rounds without decreasing survivability?
- The fleet of ACOGs purchased during the last war served the Close Combat Force well, but the devices have a limited lifespan that is currently degrading limited visibility capabilities. With the CCF about to receive their NGSWs equipped with new advanced fire control devices the Army is left with a massive amount of less than optimal devices that could serve the remainder of the force well. How can Industry assist in either refurbishing ACOGs or replacing the capability at a lesser cost?



Challenges / Opportunities



- As the CCF fields the 6.8mm weapons, SDZ size and the feasibility of training is becoming an issue. How can Industry help the Army train with its new weapon systems with ever increasing SDZs without having to find new and bigger ranges to train on? How can this be done at a cost that is less than the go to war ammunition?
- With advancements in thermal optics, and increased restrictions due to environmental safety concerns, the Army is attempting to design training rounds that provide better feedback across the visual and infrared spectrums while simultaneously being less harmful to the environment. How can Industry help the Army design high velocity 40mm training ammunition that provides more realistic training (with and without thermal optics) and is more compliant with rigorous environmental standards?





Summary of Small Arms Section Desired Capabilities



Individual Weapons

- Carbine Product Improvements: M4A1 MWO proceeding
- SDM-R DR proceeding 1 per IN Squad

Sniper Weapons/Accessories and SDM-R

- Precision Sniper Rifle (PSR) CPD approved
- New equipment being added to the ASAK for units

Pistols/Suppression/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.

RED=Less opportunity for Industry
Green=More opportunity for Industry



Summary of Small Arms Section Desired Capabilities



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
- Rifle Combat Optic

Small Caliber Ammunition

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

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Summary of Small Arms Section Desired Capabilities (cont.)



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

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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

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Firepower

Compete

Penetrate

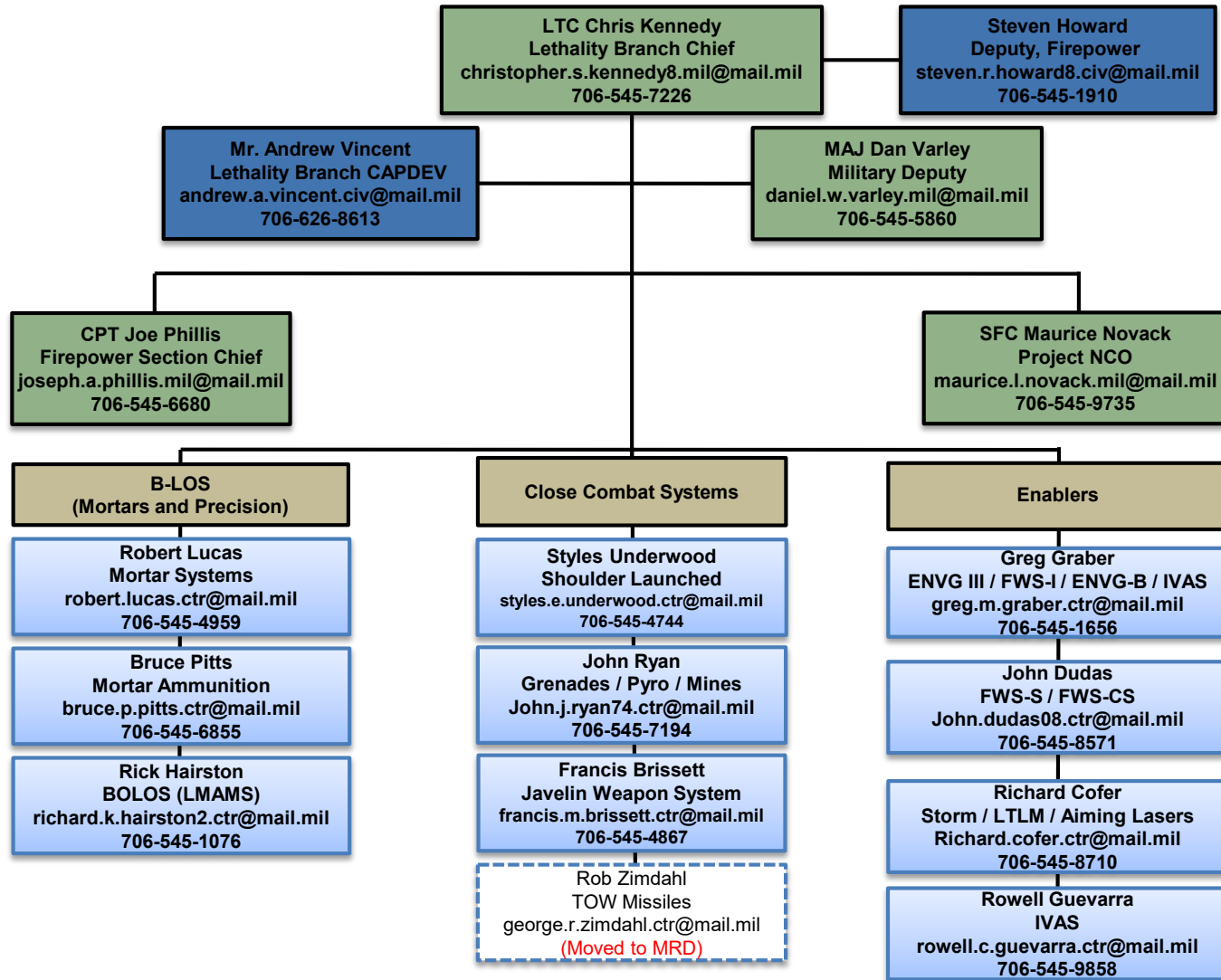
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Firepower Section



Military	GS Civilian	Contractor
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Challenges / Opportunities



- As the CCF is modernized with the IVAS, the remainder of the force will receive a cascade of various night vision devices that are all in various maintenance status and various levels of capability. The Army must plan now for the continued use of its large fleet of PVS14s and other devices. Legacy systems may not provide capabilities necessary for Soldiers in direct support of the CCF equipped with enhanced night vision capabilities. Can the fleet be refurbished or retrofit to save money and continue use? Can Industry supply a low cost replacement or refurbish legacy devices to meet demands?
- All fire fights become a counter defilade fight after the initial shots. What ideas does Industry have that could provide the Warfighter with ammunition, fired from our current systems, that is “correctable” in terminal flight to ensure targets in defilade are reachable?





Challenges / Opportunities



- Commanders are faced with a dilemma on which should be launched munition to carry each time they send their Soldiers on mission. They are forced to decide if they will carry an option designed for vehicle targets, or designed for structures, or carry both and put an even greater weight burden on their formations. How can industry help the Army minimize these decisions commanders face and provide an option where commanders don't have to make a choice, but are prepared for all target sets?





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 Solder-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

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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

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Desired Capabilities (Cont.)



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 $\geq 3/4$ ", reduce toxicity, and weight by 35%)

Close Combat Missile Systems (Javelin/CLU)–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

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Questions