

U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT, & ENGINEERING CENTER (ARDEC)



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

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13919 - Joint Service Small Arms Program Office Technical Base
Integration into NATO LCG-1 Weapons and Sensors Roadmap
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Bottom Line up Front



Our #1 initiative is the successful transition of technology for small arms related technology to PM Programs of Record

- Achieve this through a balanced portfolio strategy
- Focused on Capability Gaps as identified in the Joint Small Arms Capability Assessment and Army Small Arms Capability Based Analysis
- Focused on identified requirements from through the Joint Service Small Arms Master Plan
- Focused on leveraging:
 - Technology
 - Academia
 - Industry
 - Weapon concepts feasible for further research and development

International Development Programs

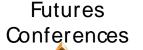




JSSAP Small Arms Systems R&D Strategy









Small Arms Capability
Based Assessments



Documented Requirements



TRADOC Gaps
Warfighter Outcomes



Technology Information Exchanges



National Small Arms Center – Industry Push



JSSAST Technology Shortfalls



International Small Arms Activities



oint Service Small Arms Master Plan



Intensive management of the DoD small arms tech base
 Harmonization of requirements



The NATO Requirement for Dismounted Soldier



- Rapid NATO Response Force
- Multinational Task Organization
- Technology Advanced
- Deployable with in 5 days
- Sustainable for 30 days
- Trained and equipped to common standards

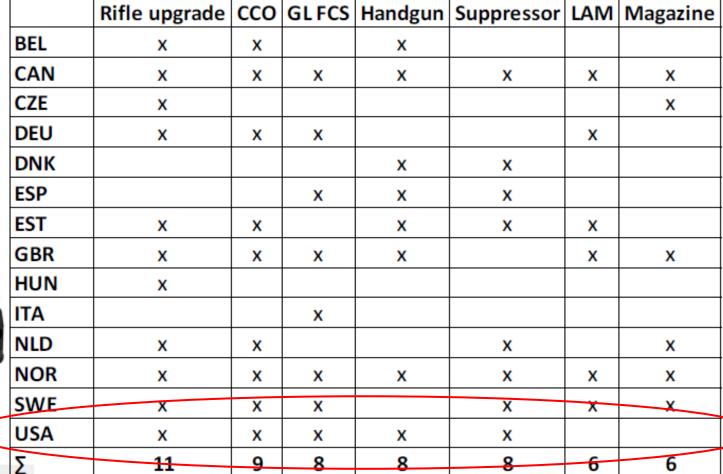




NATO LCG-1 Ongoing and Future Programs









CCO = Close Combat Optics

GL FCS = Grenade Launcher Fire Control System

LAM = Laser Aiming Module





JSSAP Technical Base Integration into LCG-1 Roadmap



- Supporting the development of NATO Staff Requirements:
 - Defining for Industry <u>new</u> NATO Staff
 Requirements for: Handgun, PDW, Grenade
 Launcher, Assault Rifle and a Machine Gun
 - Harmonized Requirements
 - Common Acquisition across NATO
 - Interoperability for the Soldier
 - Maximizing Industry IR&D





JSSAP Technical Base Integration into NATO LCG-1 Roadmap



- Supporting the development of NATO STANAG for the "Powered Rail":
 - -Defining for Industry a NATO requirement for the powered interface to the NATO Accessory Rail (STANAG 4694)
 - Voltage range
 - Max current
 - Data protocol
 - Typical grabber design
 - Spring pressure
 - Sealing / coating

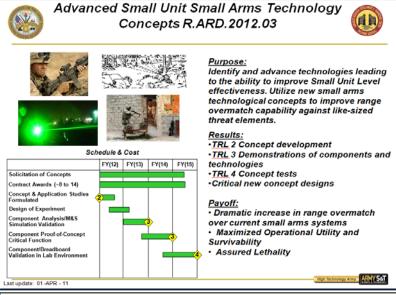




Recipient

JSSAP Technical Base Integration into LCG-1 Roadmap





Small Arms Material & Process Technology R.ARD.2012.04 Assess and develop state-of-the-art material and process component technology to enhance the operability and maintainability of small arms weapons for current and future warfighters. Product: ·Target and harvest state-of-the-art material and processes applicable to Superhydrophobic coating weapons, ammunition, optics, Schedule & Cost suppressors and barrels that increase the FY(12) FY(13) FY(14) FY(15) useable life, decrease weight, reduce Solicitation of Concepts signature and improve reliability of small Contract Awards (~8 to 14) arms weapons. Concept & Application Studies Design of Experiment · Increased weapon lifetime Component Analysis/M&S · Reduced maintenance or lubrication Component Proof-of-Concept Increased reliability Decreased weapon signature Component/Breadboard Reduced weight Transition to PM Soldier Weapons or other technology programs

Leveraging S&T Investments:

- Advanced Small Unit Small Arms Technology (ASUSAT) Concepts Research Program
 - Purpose: Identify and advance technologies leading to the ability to improve Small Unit Level effectiveness. Utilize new small arms technological concepts to improve range overmatch capability against like-sized threat elements.
- 2 <u>Small Arms Material Process</u> <u>Technology (SAM&PT) Research</u> <u>Program</u>
 - Purpose: Assess and develop stateof-the-art material and process component technology to enhance the operability and maintainability of small arms weapons for current and future warfighters.

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JSSAP Technical Base Integration into LCG-1 Roadmap



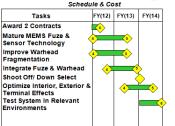


Demonstration Small Arms Grenade Munitions Integration and Evaluation D.ARD.2012.02









Demonstrate integration of component technologies and improve effectiveness of 40mm Low Velocity Grenade.

- Integrated small fragmenting payloads through directionality and materials for increased effectiveness leveraging breadboard technologies developed under Advanced Lethal Armaments ATO-R
- 40mm Low Velocity Grenade (TRL 6) with the following improvements over M433:
 - Better engage targets in defilade
 - Increased probability of incapacitation
 - Enhanced fuze initiation
- 3. Drawings and Specifications

Multiple critical technology demonstrations enabling increased Probability of Incapacitation for the Soldier, Squad and Platoon against non armored combatants in





Small Arms Weapons & Fire Control Integration D.ARD.2012.03





Tasks

Contract Negotiation/Award of Two (2) Contracts

Integrate Component Technologies into Fire Control System

Test, Assess & Redesign (Relevant

Mature Fire Control



Y(12) FY(13) FY(14) FY(15)

To demonstrate the integration of advanced fire control component technology which improves capability to determine range, track moving targets, and increase probability of hit. System will be evaluated on relevant current and developmental small arms weapons.

- Integrated Fire Control system leveraging breadboard technologies developed under Advanced Fire Control ATO-R
- Dynamic target tracking & range finding components
- · Adaptive polymer zoom lens subsystem Payoff:
- Critical fire control technology demonstrations addressing small arms capability gaps for acquiring targets, determining range to target, and engaging threats in open and defilade.

Leveraging S&T Investments:

Small Arms Grenade Munitions (SAGM) Integration and Evaluation **Demonstration Program**

Purpose: Demonstrate integration of component technologies and improve effectiveness of 40mm Low Velocity Grenade.

Small Arms Weapons and Fire Control Integration (SAW&FC) Demonstration Program

Purpose: To demonstrate the integration of advanced fire control component technology which improves capability to determine range, track moving targets, and increase probability of hit. Components will be demonstrated with a day electro-optic sensor on relevant current KE weapons. TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED. 9

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JSSAP Investment into Common Capability



- Supporting the mission of NATO
- Investigating interoperability between the different weapons attachments
- Standardization of connecting and power sources
- Ensuring our Warfighter has the Capability they need











