

PM Soldier Weapons	NEED STATEMENT	DESCRIPTION
	WEAPONS	
	Recoil Mitigation Study	Attenuate recoil by canceling the momentum of moving components to maintain overmatch capability by enhancing accuracy, increasing velocity, extending range, and firing larger payloads. Conduct a trade study searching and categorizing all patents/ recoil attenuation efforts both national and international.
	Increased Barrel Life	Evaluate new barrel wrapping, lining and cladding techniques that extend barrel life, reduce weight and are suitable for mass production.
	Wear Resistant/ Protective Coatings for Weapon Systems	Reduce mechanical friction/ deterioration for components and outer surfaces in rapid firing guns. Reduce the need for lubrication.
	Advanced (Lightweight, High Strength) Materials and Processes	Evaluate candidate materials/ composites and processes for gun barrels, receivers, mechanisms, mounts.
	Reduced Weapons Signature	Suppress acoustic, visual, and IR signatures
	Central Power Source	Develop a central power source that would provide required electrical input to all small caliber weapon powered accessories.
	Recoil Management	Recoil Measurement-Refine prototype Recoil Measurement System so it may be standardized and used to acquire shock response parameters that simulate the effects of firing on the human shoulder.
	Volume Fire to Max Engagement Range	Acquire Weapon/ Mounting System to provide accurate Fire to 2400m versus personnel/ vehicles
	FIRE CONTROL/ OPTICS	
	Accurate Range Determination for Individual and Crew Served Weapons	Provide accurate targeting to 2400m via proper weapon superelevating in clear weather and dense rain, snow, smoke and haze conditions.
	Lightweight, Direct View Optics	Manufacture lenses and lens mounts for lightweight high-power telescopic sights, as part of fire control systems, and relatively long-range handheld optics.
	Water Repellant / Scratch Resistant Coatings for Optics/ Fire Control	Provide high optical transmission, scratch resistant and protective coatings for small arms optical devices.
	Adjusted Ballistic Reticle for 5.56mm and 7.62mm Rifles	Develop a sight system for rifles that contains an adjusted ballistic reticle, laser rangefinder, and magnified optic to minimize 3 major sources of error, aiming, ranging and crosswind.
	Multi-Function Laser	Have all laser functions performed by a single laser that is tunable in frequency, to replace the laser rangefinder, aimlight, illuminator, and/or white borelight lasers within advanced fire control systems on individual and crew served weapon systems to save size, weight, power and cost.
	Advanced Electro-Optics for Fire Control, Binoculars and RWS	Task 1: Develop integrated day/night fire control system to meet user requirements. System will offer a single optic which provides an unpowered, direct view optic fully integrated with a low light imaging system. Low light imager to be used will be either SWIR or MWIR sensor, coaligned with the direct view optic and using the direct view optic's eyepiece.
		Task 2: Implement ARDEC's hyperspectral technology, through integration with remote weapon station and binocular platforms. Conduct testing and continued integration on hyperspectral rifle scope, developed by ARDEC in FY11.
		Task 3: Refine foveated camera technology (a single camera which can provide a high resolution zoomed in region overlaid onto the wide angle scene, not unlike "picture-in-picture" technology) for application to binocular and remote weapon station platforms.
		Task 4: Integrate long range 3-D facial mapping technology into existing binocular and/or rifle scope platforms. Integration of this technology into M25 Stabilized binocular is most likely path forward. This technology would allow for positive identification of threats at extended ranges prior to engagement through utilization of advanced biometric technology.
	Wireless Battery Charging	Reduce battery load, reduce battery charging
	Fire Control for Course Correction Ammo	Provide precision fires for ranges beyond 600m

	Target Acquisition Sharing, hand-off Between Individual Weapon-Mounted TA/FCs	Provide network capability out to 2km that allows target acquisition data to be shared, relayed, and handed-off between ancillary weapon devices.
	Lightweight Weapon Mounted Detection Laser	Provide an Eyesafe Laser to Detect Threat Optical Devices Particularly at Night
	Improved Handheld,Stabilized, Magnified Optical Device with Improved All Weather Operation	Provide imaging capability to ID personnel and vehicle targets at extended ranges with greater clarity in many battlefield conditions.
	AMMUNITION	
	Course Correcting Small Arms Projectiles	Provide a significant improvement in P(h) at ranges up to 1000m.
	Nano Explosives/Nano Propellants	Increase HE explosive output, minimize explosive train; model thermobaric effects; increase launch energy.
	Insensitive Explosive for 25mm HE/HEAB Ammo	Reduce the hazard from random impacts on the munitions by projectiles, fragments, etc.
	Observation Munition	Increase battlefield awareness by providing real-time video/still pictures of concealed areas,rooftops,adjacent streets, etc that are not readily visible