Fiscal Year 2011 Defense

Name of Project	Project Funding Recipient	Location	Project Purpose and Requested Amount	Interest to the Taxpayer
Advanced Cavitation Power Technology	AFTEC/Impulse Devices	Grass Valley, CA	To produce high-density, industrial scale thermal energy using high static pressure acoustic cavitation devices able to provide energy in the megawatt range from an inexpensive, non-polluting, stand-alone, and relatively silent source. ($8,423,000)	This program is directed to the ultimate production of a nonpolluting, large-scale energy source independent of fossil fuels. The environmental benefit alone greatly reduces environmental and economic costs now associated with clean power production.
Advanced Integrated Microsystems for Military Systems (AIMMS)	Camgian Microsystems	Starkville, MS	To develop next generation semiconductor technologies that have demonstrated the potential to radically improve the size, weight, power consumption and cost of critical Air Force intelligence, surveillance and reconnaissance systems. ($8,000,000)	The advanced semiconductor technologies developed through this program will enable the adoption of new intelligence, surveillance and reconnaissance systems and platforms that will improve situational awareness and fill critical capability gaps in overseas contingency operations.
Advanced Materials Design for Nano Devices	Mississippi State University	MS State, MS	To develop unique and innovative materials and magnetic memory elements for high-density nanoscale memory devices and nanosensors for chemical warfare agents. ($2,230,000)	The proposed voltage-switched multiferroic memory cell will be the first of its kind to operate at room temperature making it commercially viable. Our proposed nanosensor device utilizing hyper-efficient quenching properties of gold nanoparticles will be orders of magnitude more selective than currently available biosensors.
Advanced Novel Drug Development for the Warfighter	Cenomed Research	Laguna Hills, CA	To employ novel strategies to discover and identify compounds that can be developed into new broad-spectrum neuroprotective drugs that will enhance performance, survival and long term outcome in warfighters exposed to various brain insults. ($3,750,000)	Effective neuroprotectants against toxic chemicals and chemical warfare agents would be a quantum leap towards providing protection of our warfighters against traumatic brain injury and the ill-effects of exposure to chemical agents.
Advanced, Long Endurance Unattended Ground Sensor Technologies	Mississippi State University	MS State, MS	To develop a compact, covert, low power radar, aiming at a radar-on-a-chip, for intelligence surveillance and reconnaissance missions. ($8,000,000)	The project will evolve the wideband radar sensor towards the goal of a radar-on-a-chip and provide special operations forces with the ability to relay critical, actionable intelligence from remote areas to analysts and commanders worldwide in near real-time.
Antimicrobial Army Mobile Medical Facilities	Luvata Grenada	Grenada, MS	To demonstrate the effectiveness of copper to inactivate dangerous pathogens in military healthcare settings and other high-risk facilities and to reduce nosocomial (hospital-acquired) infections, including the conversion of touch surfaces in a healthcare facility (surgical work surfaces, bed rails, door and furniture hardware, sinks, etc.) to copper alloy surfaces. ($4,100,000)	Utilizing equipment proven to be antimicrobial with the objective of reducing warfighter susceptibility, this project will develop and construct a full-scale adaptation of an Army mobile medical treatment facility for a demonstration project.
Army Range Technology Program	Picatinny Arsenal	Picatinny, NJ	To develop innovative sensors that detect, map and characterize submerged munitions at underwater sites. Sensors will have the capacity to characterize munitions containing depleted uranium, conventional or chemical components. ($9,000,000)	Submerged Military Munitions in Gulf Coast and Atlantic regions pose potential risks to human health and the environment. This program provides the technology to find munitions before they wash ashore, damage the environment or present explosive hazards to boaters and fishermen.
Army Responsive Tactical Space	Miltec	Iuka, MS	To provide operational support of 3 additional nanosatellite launch opportunities to further demonstrate the military utility of low cost nanosatellites, advance next-generation microsatellite design and development, nano and microsatellite sensor technologies and systems, and assist development of an enhanced tactical field-deployable satellite command and control system. ($8,000,000)	Lower mass spacecraft on low cost launch vehicles reduces the overall mission cost while increasing the value to the taxpayer.

ASW Littoral Environmental Remote Tag (ALERT)	QinetiQ-North America	Long Beach, MS	To provide persistent acoustic surveillance and intelligence data collection and dissemination in shallow-water environments. ($5,000,000)	Geo-political events have re-focused Naval operations on littoral areas where enemy submarines patrol/threaten U.S. forces. For National Security, the Navy needs covert, robust, survivable and cost-effective intelligence and surveillance systems, like ALERT, to counter the emerging threats.
Automated Picoliter Digital Nucleic Acid Analysis for Medical Biologic Detection and Diagnostics	QuantaLife	Tupelo, MS	To provide the ability to rapidly, accurately, and cheaply evaluate the presence of pathogens ($11,450,000)	Development of a rugged, portable device that is capable of performing real-time polymerase chain reaction diagnosis will allow members of our military to quickly and accurately detect harmful pathogens in theater, resulting in the mitigation of the effects of biological attacks or disease.
Biopolymer Alternatives for Soil Stabilization	UXB	Blacksburg, VA	To design and biologically produce environmentally safe polymers that combine with soil to create properties that visually indicate disturbance, prevent soil erosion, suppress fugitive dust emissions and stabilize contaminants. ($4,000,000)	This program supports development of products to prevent landslides, prevent erosion of agricultural land and stabilize berms or soil-based retaining walls in flood prone areas.
Blast and Impact Resistant Composite Structures for Navy Ships	The University of Mississippi	University, MS	To use the latest technologies in modeling, analysis, fabrication and testing of blast, shock, ballistic and impact resistant composite structures for the new generation navy ships to achieve better mobility, survivability, stealth and safety at lower cost. ($3,000,000)	This research will enhance operational efficiency in littoral operations and reduce life time costs for naval ships by producing stronger, safer and cost effective structural platforms using innovative designs, materials and processing technologies.
Center for Intelligence and Security Studies (CISS)	The University of Mississippi	University, MS	To offer an academic program in intelligence analysis and produce highly qualified intelligence personnel for our nation. ($3,000,000)	The center serves as a valuable resource for the intelligence community.
Chemical Materials and Environmental Modeling Project	Jackson State University	Jackson, MS	To enhance and expand a collaborative, multi-disciplined and integrated research and education strategy, focusing on biomolecular and computational studies of warfare agents and structurally-related compounds and provide new insights into the assessment, characterization and management of potential health risks associated with chemical exposure. ($2,800,000)	It will continue investigations into emergency response approaches for the chemical and biological welfare homeland security and warfighter threats through a better understanding of the fundamental chemistry, physics, biology and engineering of the urban atmosphere and water supply.
Civil Support Radios for MSARNG CH-47 Aircraft	Cobham Avionics	Jackson, MS	To add civil support radios to MS ARNG CH-47 Chinook aircraft to enable aircrews to directly communicate with first responders when responding to the full spectrum of state emergency missions. ($700,000)	Adding civil support radios to MSARNG CH-47 Chinook aircraft will enhance the National Guard's capability when assisting first responders anywhere in performing the full spectrum of state emergency missions, including natural and man-made disaster relief efforts.
Civil Support Radios for MSARNG UH-60 Aircraft	Cobham Avionics	Jackson, MS	To add civil support radios to MS ARNG UH-60 Black Hawk aircraft to enable aircrews to directly communicate with first responders when responding to the full spectrum of state emergency missions. ($2,100,000)	Adding civil support radios to the National Guard UH-60 Black Hawk aircraft will enhance their capabilities when assisting first responders anywhere in performing the full spectrum of state emergency missions, including natural and man-made disaster relief efforts.
Combat Blast Recorder for Vehicles and Warfighters	Badenoch	Southfield, MI	To provide an engineering solution set to address Traumatic Brain Injury including critical measurement of the forces and accelerations from attacks on the warfighter. ($5,000,000)	The looming national problem of treatment of traumatic brain injury depends upon improved understanding of the mechanism of injury during combat The Combat Blast Recorder will provide the battlefield history that will drive advances in medicine forward.

Composite Air Cushioned Vehicle (CACV) Buoyancy Box	Northrop Grumman	Gulfport, MS	To Design and construct a buoyancy box for a Composite Air Cushioned Vehicle (CACV) capable of fulfilling the Ship-to-Shore Connector (SSC) mission and thus reduce the weight and increase the military utility of this next generation landing craft. ($10,500,000)	The existing LCAC is marginally capable of carrying a fully loaded tank because of weight issues. The SSC must have greater lift capability in order to meet its requirement. Composite materials would conceivably achieve weight reduction, while mitigating Aluminum's issues of fatigue, corrosion, cracking, and high life cycle costs.
Composite Deckhouse Detailed Design for DDG-51 Class	Northrop Grumman	Pascagoula, MS	To develop a composite deckhouse detail design for DDG 51 class ships to substantially increase both displacement and stability margins. Future incorporation of large Advanced Missile Defense Radars (AMDR) and other potential growth areas will have a large negative impact on weight and stability, and this weight offset could be beneficial to acquiring those added capabilities. ($24,300,000)	Since a lighter composite deckhouse is an enabling technology for successful deployment of AMDR, it is a vital stepping stone to meeting Navy and National Security goals. In addition, incorporation of a composite deckhouse will decrease operating cost of the modified DDG 51 class vessels by decreasing displacement and weight.
Composite Material Enhancements Through Polymer Science Research and Development	University of Southern Mississippi	Hattiesburg, MS	To provide critical research for composite matrix materials specific to the Navy's needs and advance the utilities of polymeric materials for U.S. Navy composites. ($8,000,000)	To conduct design, synthesis, characterization and performance validation of advanced composites required for the Navy's next generation of equipment, vessels and aircraft. This research will focus on materials that are lighter in weight and more fuel efficient to develop longer service lives compared to current materials.
Conditional Health Assessment Research Optimization	GTD Unlimited	Oxford, MS	To develop a systematic method for the Navy to design and test structural health monitoring systems for sea vessels and aircraft. ($1,950,000)	This technology will provide a systematic methodology for designing structural health monitoring systems for a variety of naval systems. This program has the potential to reduce the cost of maintaining naval vessels and aircraft by improving scheduled maintenance timeframes and better predictability of wear and tear.
Conducting Polymer Stress and Polymer Damage Sensors for Composites	Crosslink	Hattiesburg, MS	To create a solution for continuous real-time structural health monitoring and damage assessment systems in aircraft composites to prevent the potential for catastrophic failures. ($2,000,000)	New generations of manned and unmanned aircraft are being built with ever larger amounts of composites in primary structures, thus creating a need for continuous real-time structural "health" monitoring and damage assessment systems to prevent the potential for catastrophic failures and thereby protect the warfighter and our national assets.
Copper Based Dye Sensitized Solar Cell	Mississippi Valley State University	Itta Bena, MS	To develop a sustainable, portable power system comprised of a flexible solar power generator, a durable storage system and intelligent sensor to manage power consumption. ($5,000,000)	Light-weight, portable power generation systems will improve the mission effectiveness of the U.S. military, thereby increasing mission success and saving lives.
Corrosion Control, Prevention and Prediction through Polymer R & D	University of Southern Mississippi	Hattiesburg, MS	To develop adequate screening protocols for early detection and characterization of corrosion failure through forensic analysis of already corroded coatings and substrates. ($6,000,000)	To invest in research on how best to prevent corrosion, increase life of military assets and reduce costly repairs.
Countering Weapons of Mass Destruction QDR Mandate of Radiation Detection Technologies	Nucsafe	Oak Ridge, TN	To provide radiation and nuclear detection equipment, to include detection backpacks and vehicle and aerial detection systems, to Nuclear Disablement Teams in support of national technical nuclear forensics missions. ($24,000,000)	This detection equipment is vital to providing two newly developed Nuclear Disablement Teams with the capabilities needed to detect, identify locate nuclear and radiological material in defense of our nation.

Fiscal Year 2011 Defense

Countermine LIDAR UAV - Based System (CLUBS)	Optech International Inc.	Kiln, MS	To develop advanced data fusion algorithms to produce seafloor classification images for use in anti-mine warfare applications. ($2,500,000)	Countermine LIDAR UAV- Based System provides a best-of-class software capability to support the warfighter. This unique software employs novel data fusion algorithms to combine multi-sensor airborne data to produce seafloor images and 3D models of the littorals, beach exit zone and riverine environments.
Cyber Security/Intelligence Academic Initiative	University of Southern Mississippi	Hattiesburg, MS	To collaborate with Keesler Air Force Base on program development that would lead to academic accreditation of course work taught by KAFB personnel and to undergraduate degrees for enlisted personnel and masters degrees for officers through USM in Cyber Security and Intelligence. ($1,000,000)	This will build on Keesler's undergraduate cyber training mission by providing academic accreditation of course work taught by Air Force personnel and undergraduate degrees for enlisted personnel and masters degrees for officers.
DDG-51 Hybrid Drive System	General Atomics	Shannon, MS	To continue development of a low-speed hybrid drive propulsion alternative system for the DDG-51 class of ships using advanced motor technologies and power electronics. ($10,000,000)	The net result of this project will be the savings of thousands of gallons of fuel per ship per year as well as a reduced demand for foreign oil.
Department of Defense Unique Identification Engineering Support Center	WSC Industries	Ridgeland, MS	To establish a technical and engineering support center that provides technical resources in support of policy decisions related to Unique Identification and tracking of DoD assets. ($2,400,000)	This will seek to provide the ability to track, locate, control and evaluate vital military assets and enable the DoD to make more informed decisions on strategic and tactical missions.
Development of Drugs for Malaria and Leishmaniasis	The University of Mississippi	University, MS	To identify safe and effective drugs for malaria prophylaxis and treatment and for the treatment of leishmaniasis. ($3,400,000)	To find a prevention methods and treatment for military and civilian personnel from malaria and other parasitic diseases.
Development of Hybrid Multi-functional Composites for Submarine Structures	Seemann Composites	Gulfport, MS	To develop a design and manufacturing approach for submarine hybrid multi-functional composite structures that integrate and maximize acoustic performance, structural reliability and manufacturability. ($4,000,000)	This project will allow the Navy to utilize advanced composite materials and processing techniques to develop submarine structures that reduce weight as well as incorporate critical acoustic mitigation strategies within the laminate, reducing installation and life cycle cost to the taxpayer.
Development of Improved Radiotherapy Treatment of Lung Cancer	North Mississippi Health System	Tupelo, MS	To test and evaluate a new technology that will track and predict the paths of patient breathing to increase the accuracy of radiation treatment delivery. ($2,800,000)	This project seeks to improve lung cancer radiotherapy treatment and lower healthcare costs by providing pinpointed treatment to affected areas only.
Development of Standard Electro-Thermal Models for High-Power Silicon Carbide Based Modules	SemiSouth Laboratories	Starkville, MS	To develop accurate, common platform electro thermal computer models of silicon carbide power semiconductor components called SiC power modules that do not exist today. ($9,000,000)	Commercial and defense applications are enabled through cost-effective models, allowing the beneficial impact of SiC technology to potentially save hundreds of millions of dollars annually in renewable energy conversion and hybrid electric vehicles in both defense and civilian service.
Directional Spectral Wave Generator Upgrade	MTS Systems	Eden Prairie, MN	To replace the digital controls, software, motors and drives of the existing Directional Spectral Wave Generator system at the U.S. Army Corps of Engineer's Coastal and Hydraulic Laboratory to enhance the performance capabilities and to allow for continued use for research. ($3,000,000)	Significant cost savings can be realized through simulation of real world wave environments in studies involving flooding, military applications, and infrastructure improvements. These studies benefit the nation and the world by providing more efficient coastal and navigation designs of protective infrastructure to minimize flooding and coastal erosion and provide safe military designs.

Energy Scavenging Unmanned Aerial Systems for Persistent ISR	North Eastern Aeronautical	Starkville, MS	To develop a small, electric Unmanned Aerial Systems platform with a power source that combines batteries and energy harvesting for enabling significant improvements in the operational endurance of airborne surveillance systems. ($5,000,000)	Wide Scale use of the proposed UAS technology will ultimately improve our warfighting performance in challenging environments such as Afghanistan and radically expand the scope of intelligence dissemination in the battle space, improving situational awareness and saving lives.
Enhanced In-Theater Remote Communications	Omega-Tec	Ridgeland, MS	To provide Special Forces elements with advanced communications capability for operations in remote environments. ($2,400,000)	This program directly benefits Special Forces elements' ability to execute intelligence gathering and operational missions against terrorist and extremist groups that are committed to launching attacks against American interests overseas and CONUS.
Enhanced Reading Capability of Passive RFID Tags on SeaVan Containers	WCS Industries	Ridgeland, MS	To demonstrate the implementation of enhanced reading capability of reusable SeaVan containers used in transporting goods by utilizing the container as an enhanced antenna mechanism for asset identification, location and tracking for mission critical goods and supplies. ($3,400,000)	This solution will utilize lower cost technology to track mission critical assets in the supply chain, saving valuable time of military members, reduce redundancy of shipping and save on logistics costs.
Extremely Large, Domestic Expendable and Reusable Structures Manufacturing Center	ATK Mission Systems	Iuka, MS	To scale-up domestic composites manufacturing/processing capacity, including evaluation, modification, qualification and acquisition of automated production equipment and facilities, all to meet emerging and critical military space access requirements. ($14,160,000)	The benefits to the government include worldwide leadership in composite space access structures for military and commercial applications, and increased domestic defense production capacity for extremely large composite structures.
F-15C AESA Radar for Air National Guard	Raytheon	Forest, MS	To procure Active Electronically Scanned Array radars for the Air National Guard. ($62,400,000)	The AESA radar has proven to add greatly to the situational awareness of fighter jets throughout the military, but Air National Guard requirements for these assets have not been adequately addressed. This funding will provide this capability to the fighter jets tasked with defending our national airspace.
F-15E Radar Common Data Link (RCDL) Demonstration	Raytheon	El Segundo, CA	To leverage completed development efforts on electronic attack/warfare and Radar Common Data Link efforts and transition these efforts onto the Air Force F-15E fighter aircraft. ($12,600,000)	This funding will allow for testing and demonstration of the value of AESA technology in several aspects of electronic warfare, including military mission areas currently experiencing significant offensive and defensive mission performance deficiencies.
Field Portable Analytical Equipment	Seacoast Science	MS State, MS	To develop technology with the ability to determine chemical concentration without waiting for analytical laboratory results, thus reducing data reporting and shipping costs of samples to laboratories from around the world. ($3,000,000)	Following the successful development of the technology, we will have the ability to determine chemical concentration without waiting for analytical laboratory results, which will speed up the process of data reporting, reduce costs of shipping samples to labs from around the world.
Four Dimensional Geospatial Visualization for the DoD Intelligence Community	Mississippi State University	MS State, MS	To provide senior decision makers a better understanding of critical intelligence information. ($3,000,000)	This project will develop a shared, immersive visualization environment to create a geospatial context for intelligence data, so that analysis can provide more complete intelligence information faster to save lives of warfighters.

Geospatial Intelligence, Information and Analysis (GIIA)	University of Southern Mississippi	Hattiesburg, MS	To support the growing need for Geographic Intelligence experts for U.S. intelligence organizations, NASA, the Department of Homeland Security and law enforcement agencies. ($1,000,000)	The program will enable integration of university research and instruction in the areas of satellite and airborne remote sensing, advanced geospatial data processing, automated feature extraction and target recognition to train and produce qualified candidates to fulfill intelligence needs critical for national security.
Gulf Coast Land Based Test Facility (LBTF)	Northrop Grumman	Pascagoula, MS	To ensure modeling, planning, component pre-assembly, equipment pre-assembly, system level pre-assembly, integration, and incremental testing prior to installing these complex components on Navy vessels. ($40,000,000)	This product will reduce the cost, efficiency and reliability of Navy ships by testing electronic and other complex components on the ground prior to installing them on the ship where errors are far more costly and time-consuming
Gulf Coast Over the Horizon Broadcast Extension (MS-GCOBE)	Ultra Electronics Prologic	Gulfport, MS	To provide the Gulfport Combat Readiness Training Center and Shelby Range with a mission critical data link capability integrated with requisite aircrew training and qualification in air-to-ground and air-to-air tactical data link operations with the Test/Training Enabling Architecture network. ($6,830,000)	The joint services' aircraft/crews are vital in the Global War on Terror and require the requisite aircrew training and qualification in air-to-ground and air-to-air tactical data link operations.
Gulf Coast Regional Digital Pathology Solutions and Demonstrations	University of Pittsburgh Medical Center	Pittsburgh, PA	To develop technology and infrastructure for a regional Air Force Medical Service medical network capable of supporting digital pathology and interoperable solutions. ($3,400,000)	This program will contribute to improved quality of healthcare for military members by enabling a regional collaborative care network to discuss cases with colleagues and obtain immediate medical advice and support to care givers.
Handheld Apparatus for Mobile Mapping and Expedited Reporting (HAMMER)	Compass Systems	Lexington Park, MD	To provide stand-off documentation of battlefield features, including improvised explosive devices and reporting real-time to command locations. ($5,000,000)	This project will reduce risk to soldiers and improve battle space awareness for all involved.
HBCU Applied Research Incubator (HARI)	Jackson State University	Jackson, MS	To provide applied research products required by the Department of the Navy within their existing Submarine Advanced Processor Build development framework. ($8,700,000)	This program provides critical applied research products required by the Department of the Navy within their existing Submarine Advanced Processor Build development framework by working in cooperation with developers of applied research products to ensure a technology readiness level suitable for a one year insertion program.
Heron TP UAS	Stark Aerospace	Columbus, MS	To fulfill critical mission requirements associated with combating terrorism by providing persistent intelligence, surveillance and reconnaissance. The Heron TP's significant payload capacity and variety of sensor payloads, rapid surveillance speed and extensive endurance provides warfighters covert surveillance and monitoring of terrorist activities. ($15,000,000)	The Heron TP offers combatant commanders a capability for combating terrorism and drug traffickers that is unattainable with available manned assets, at a much lower cost.
High Performance Computational Design of Novel Materials	Jackson State University	Jackson, MS	To conduct studies of novel materials that represent the potential for applications as sensors, coatings and electronic elements, leading to better understanding of chemical reactivity, structures and properties of new materials and their possible environmental impact. ($4,000,000)	This research addresses the engineering of nanoparticle-based sensing devices which could be used as chemical and biological defense sensing systems at military locations worldwide.
High Performance Computing Modernization Program (HPCMP)	Instrumental	Bloomington, MN	To provide new efficiencies for DoD users and to contain the costs of data storage and storage management for the Program over the next ten years. ($4,500,000)	The dual objectives of the Storage Lifecycle Management Program of the HPCMP are to provide new efficiencies for DoD users and for containing the costs of data storage and storage management for the program, resulting in more efficient use of taxpayer dollars.

High Performance Military Aircraft Noise Reduction	The University of Mississippi	University, MS	To conduct an assessment on F/A-18 E/F aircraft to determine the number of personnel that could support launch and retrieval missions and not suffer permanent hearing loss. ($4,000,000)	This project will reduce noise at its source to save the hearing of service personnel and increase personnel productivity.
High Performance Polymers for Weapons and Munitions Technology	University of Southern Mississippi	Hattiesburg, MS	To develop lightweight, high-performance composites, low-friction surfaces, corrosion reduction and energetic polymers. ($4,300,000)	The project will advance mission critical performance for the warfighter.
High Temperature Polymers for Missile System Applications	University of Southern Mississippi	Hattiesburg, MS	To research, develop, experiment, test and validate improvements in materials technology applicable to missile vehicles, structures and components. ($5,500,000)	Anticipated high strength and low weight of durable polymers will enable multiple applications for high temperature devices on missile systems. These polymers are expected to become more cost effective and beneficial to our missile program.
High-Speed, High-Efficiency, Permanent Magnet Motor/Generator Development	General Atomics	Shannon, MS	To provide a critical enabling technology to the U.S. Navy on a faster development cycle that will help the Navy consider fielding advanced high energy weapon systems to counter evolving anti-ship missile threats to Navy ships. ($9,000,000)	The technology associated with this project will improve energy use and efficiencies on naval ships without costly modifications and be used in domestic energy industry production facilities.
Infrastructure Green Energy Initiative - "My Green Airport"	L-3 Communications	Jackson, MS	To design, build, test, and demonstrate hydrogen fuel cell and battery electric airport ground support equipment and vehicles. ($12,000,000)	Supports the Department of Defense's overall strategic energy goal of reducing ground vehicle fuel usage, thereby saving taxpayer dollars and reducing dependence on foreign sources of energy.
Institute for Cyber-Enabled Materials and Manufacturing (ICEMM)	The University of Mississippi	University, MS	To provide cyber-enabled research, educational and training opportunities in green and nanocomposite materials, and manufacturing to accelerate insertions of new ideas, methodologies, and technologies industries at a faster rate. ($3,000,000)	This will promote education and research based on cyber-enabled multi-scale holistic materials and manufacturing designs to experiment with next generation materials to produce multi-functional nanocomposites for light weight armor and improvised explosive device threat mitigation.
Integrated Multi-Mode PBIED Screener (IMMPS)	Rapiscan Systems	Ocean Springs, MS	To integrate several Person Borne Improvised Explosive Device screening and inspection technologies in a compact modular package to provide U.S. forces access to the latest security screening technologies in the most remote in theater locations and unimproved terrain. ($3,200,000)	This project supplies the warfighter with the latest, cost effective and comprehensive integrated Person Borne Improvised Explosive Device screening systems and technologies that will protect the men and women who are protecting the homeland from abroad.
Integrated Rugged Checkpoint Container	Rapiscan Systems	Ocean Springs, MS	To integrate a suite of modular ruggedized inspection systems into one mobile container to provide a turn key entry control checkpoint in any forward deployed terrain by producing a modular checkpoint to house the latest proven technologies in screening equipment for personnel, baggage, vehicles and footwear. ($3,000,000)	This container will be designed to be transported into forward deployed locations using military cargo aircraft or tow by vehicle and deployed in place at the desired checkpoint locations that might have unimproved terrain to provide screening protection for our military members.
Jet Fuel From Mississippi Biomass	Catalyst Renewable Fuels	Starkville, MS	To support the technical and operational test and evaluation to build sufficient capacity for the Department of Defense and the Department of Homeland Security renewable fuels supplies for tactical/strategic sustainability pipeline. ($1,000,000)	Provides the leanest possible infrastructure for development and application of high payoff technology able to meet Department of Defense alternative fuel requirements, thereby reducing cost.
Joint Threat Emitter for Air National Guard	Northrop Grumman	Buffalo, NY	To procure additional Joint Threat Emitters to provide realistic electronic warfare training for pilots and air crew members. ($7,500,000)	This system will provide more realistic combat training and better prepare pilots for threats they may face in the combat zone, thereby saving lives and creating a more effective force.
Ka-Band Mini-Multimode Search and Imaging Radar Completion and Flight Testing	Global Technical Systems	Oxford, MS	To complete design, development and testing of a Ka-Band Mini-Multimode Search and Imaging Radar, for small/medium UAV applications. This will enhance surveillance capabilities and provide the U.S. with a much needed technology to improve situational awareness and reduce casualties. ($8,000,000)	This radar system will contribute to the supremacy of the U.S. industrial base in the radar international market, and will thus ensure that critical national security assets are not dependent on international partners.

Laser Guided Energy	Applied Energetics	Tucson, AZ	To provide stand off capability to neutralize Improvised Explosive Devices. ($10,350,000)	IED's are the number one cause of death and injuries for U.S. Forces operating in both Iraq and Afghanistan. Countering these weapons will save lives, prevent injuries and prevent the loss of valuable military equipment.
Light Utility Helicopter Survivability	EADS North America	Arlington, VA	To modify an in-service UH-72A with the survivability attributes required for non-permissive environment operations. Specific modifications include crew ballistic protection, ballistic tolerant fuel tank, and aircraft survivability equipment. ($5,000,000)	This would allow this rotorcraft already owned by the Army to expand its mission capabilities and increase protection for crew members.
Linear Alternator Pulsed Power for Electric Weapons	General Atomics	Shannon, MS	To develop an alternate pulsed power technology that provides the potential for significant reductions in the size and weight of these systems by directly converting fuel to a pulse, eliminating the need to store energy in large, heavy capacitors. With the projected size reduction, electric weapon technology could be applied to a wider variety of platforms - including small ships and combat maneuvering vehicles - providing the warfighter a significant increase in armor defeat capability through hypervelocity penetration from electromagnetic guns. ($10,000,000)	This will lead to dramatic improvements in defensive and offensive weapon technological superiority for the U.S.
Long Term Pain and Infection Management for Combat Casualty Care	Ablitech	Hattiesburg, MS	To provide advanced treatment and Long Term Pain and Infection Management of Combat Casualty Care for the warfighter. ($3,000,000)	Development of this technology will provide advanced treatment and long term pain and infection management and care for the warfighter by reducing long term inflammation, pain and infection resulting from combat and other injuries.
Medical and Healthcare Simulation Open Source/Open Architecture Solutions	National Center for Simulation	Orlando, FL	To develop and sustain a standard physiology model in an open architecture that will provide a continuously growing and re-useable capability. ($1,400,000)	Development of a standard physiology model and sustainable architecture for medical simulation will provide improved training of medics and health providers to the warfighter, better skill retention and certification of physicians.
Modeling and Analysis of the Response of Structures (MARS)	ES3	Vicksburg, MS	To provide advanced computational methods designed to support Department of Defense requirements in assessing vulnerabilities of critical U.S. assets to enemy threats. ($2,000,000)	This project will increase national security by increasing protection to the warfighter.
National Guard Family Program Training Plan	Dare Mighty Things	Portsmouth, NH	To institute a National Guard sponsored training program to educate family program staff and volunteers, improving support to families and increasing readiness through all phases of the deployment cycle. ($3,000,000)	This initiative will fully train more than 2,000 family program staff, improving overall family readiness throughout all phases of the deployment cycle. This impacts more than 135,000 families of activated citizen soldiers, preparing our entire force and their families for future deployment.
National Guard Wideband Imagery Dissemination System (WIDS)	Rockwell Collins	Stennis Space Center, MS	To upgrade the Wideband Imagery Dissemination System to the new DoD Wideband Global Systems specifications enabling the National Guard to receive National imagery in near-real time for civil support operations and wartime deployments. ($12,000,000)	Wideband Imagery Dissemination System will enable first responders in all of the states and territories to receive the critical imagery and video information they need to save lives and protect property in the event of natural or man-made disasters.
Navy Ordnance Real-Time Location System Using Passive Radio Frequency Identification	WCS Industries	Ridgeland, MS	To provide automated location and tracking of ordnance, both ashore and in ships' magazines, enabling automated inventory and real-time record of spent ordnance to facilitate automated re-supply and re-ordering from operational locations worldwide. ($2,900,000)	Eliminates manual processes and steps in the inventory of ordnance both ashore, afloat, and spent, thus improving the efficiency of the Navy and reducing the cost to the taxpayer.
Navy Special Warfare Performance and Injury Prevention Program for SBT 22 at Stennis	University of Pittsburgh School of Health & Rehab Sciences	Pittsburgh, PA	To conduct laboratory research activities and identify suboptimal characteristics which contribute to unintentional musculoskeletal injury to special forces personnel. ($2,400,000)	This project is designed to keep Navy Special Warfare members in optimum condition and prevent injury to these valuable human assets.

Nitrile Rubber Collapsible Fuel Bladders	Avon Engineered Fabrications	Picayune, MS	To improve storage and dispensing of fuel and liquid bulk in support of the Marine Air Ground Task Force in Iraq and Afghanistan operations. ($4,100,000)	These fuel storage tanks are fabricated from material that resists the adverse effects of the high temperature in desert locations, preventing failure risk and fill capacity limitations associated with the current systems by U.S. Marines. This will provide a safer working environment that allows the military members to maintain maximum operations tempo.
Non-Traditional Body Armor, Warfighter Protection Initiative	Ideal Innovations	Arlington, VA	To provide the warfighter with multiple solutions for increased body armor protection. The testing and evaluation program will give operational commanders the opportunity to fully assess the viability of proposed solutions in real, operational scenarios and give the military a tool to evaluate current and future body armor designs. ($4,500,000)	By exploring non-traditional uses of existing armor materials, this program will create armor configurations that function in an improved manner to provide, in one year, increased survivability prototype concepts for the warfighter while lightening the load.
Novel Camouflage Cosmetic Paints and Textile Treatments to Protect Warfighters From Fire	SciGenesis	Hattiesburg, MS	To increase warfighter survivability from fire and thermal injuries by developing Novel Camouflage Cosmetic Paints and Textile Treatments for the Department of Defense. ($2,500,000)	Development of the Novel Camouflage Cosmetic Paints and Textile Treatments through the Department of Defense will provide additional protection for the warfighter from fire and thermal injuries and consequently will increase survivability of the warfighter operating in the battlefield.
Online Health Services Optimization	Deloitte	Hattiesburg, MS	To work with the Tricare Management Activity Information Management requirements identification work teams to identify focused research needs, perform research, and provide findings for their incorporation into new projects to complete analysis remaining functions in phase one. ($5,000,000)	Online Health Services Optimization will document the improved paperless clinical processes based upon new technologies that result in reduced costs and improved quality of care.
Ophthalmic Imaging Project (OIP)	Base Technologies	McLean, VA	To address information security issues, develop interfaces to the Military Health System's electronic health record and validate the business case outlined in Phase I with a system in "day-to-day" use by practicing eye care teams. ($2,100,000)	This will lead to a digital DoD integrated eye care program and records system and also provide the ability to track patients with vision related problems resulting from Traumatic Brain Injury.
Orion Long Endurance UAS	Aurora Flight Sciences	Columbus, MS	To develop a high altitude, long endurance fixed-wing Remotely Piloted Aircraft to allow for week-long persistence of EO/IR, SIGINT, GMTI and other payloads to enhance ISR capabilities ($25,000,000)	This platform will provide persistent, remote situational awareness for commanders and the warfighter while keeping troops out of harms way.
Oxygenated Wound Healing Treatment	University of Mississippi Medical Center	Jackson, MS	To accelerate clinical development and deployment of wound healing treatment to increase survivability and ensure better medical treatment for warfighters. ($3,600,000)	The project will accelerate clinical development and deployment of this product to improve survivability and ensure better medical treatment outcomes for Warfighters wounded in combat and other military operations.
Preventing the Insider Terrorist Threat	Agincourt Solutions	Reston, VA	To quickly and significantly aid counterintelligence screening efforts by uncovering innate speech patterns of Islamic terrorist groups operating in the Afghanistan theater of conflict. ($895,000)	This project will provide a more thorough vetting of Afghan police, border patrol, military, and civil servants, thus preventing infiltration by Taliban, al Qaeda, and other terrorist operatives.
Projectile Penetration Research	USACE Engineer Research & Development Center	Vicksburg, MS	To develop new hardened structural design criterion to help protect U.S. assets. Experimental results also drive the enhancement of the U.S.'s capability to perform High Performance Computer Modeling of a wide range of targets or scenarios effecting survivability, structural enhancements; weapon design and provides direct input to multiple DoD and federal agency programs. ($2,750,000)	Projectile Penetration Research is used extensively to develop new hardened structural design criteria to help protect U.S. assets as well as attack and defeat enemy assets.
Reactive Skin Decontamination Lotion (RSDL)	Bracco Diagnostics (EZEM)	Princeton, NJ	To replace the existing outdated chemical agent absorbent and protect warfighters against chemical weapons attacks on the battlefield. ($7,200,000)	The Reactive Skin Decontamination Lotion will protect warfighters against chemical weapons attacks on the battlefield.

Real Time MS Laser Applied Research	Radiance Technologies	Hattiesburg, MS	To allow the Space and Missile Defense Command Technology Center to expand the capabilities of the Advanced Measurements Optical Range to include battlefield cyber security, Space Protection and flexible materials properties signature measurement. ($3,800,000)	This effort will create a highly flexible coherent laser transmitting/receiving system that can be used to identify improvised explosive devices and provide better protection to our military members.
Regional Counterdrug Training Academy	Regional Counterdrug Training Academy	NAS Meridian, MS	To develop and provide the highest quality drug law enforcement training for state and local law enforcement officers at no cost to the officers or their agencies. ($4,000,000)	Continuation of this effort will train law enforcement officers, from across the nation in more than 40 advanced counterdrug subjects.
Research and Development Initiative: Capacity Building for Stronger National Defense with Greater Diversity	Thurgood Marshall College Fund	Nationwide	To provide direct support to public Historically Black Colleges and Universities to increase the pipeline of applied research and defense-related opportunities at these institutions. ($8,000,000)	Federal sponsorship of these programs will enhance the quality of education and life of the American community.
Research and Development of Metamaterial Technologies for Naval Applications	Hyperion Technology Group	Tupelo, MS	To develop and demonstrate novel applications of metamaterial systems and apply this technology to the next generation filter circuits, antennas and acoustic cloaking materials crucial to the next-generation surface and sub-surface Navy vessels. ($1,900,000)	Metamaterials could soon be considered a game-changing technology that could give the United States Navy an unprecedented advantage over current and future threats to the national security of the United States.
Sentinel Active Electronically Scanned Array	Raytheon	Fullerton, CA	To incorporate Active Electronically Scanned Array technology into Sentinel to further upgrade capability and protection of our homeland. ($5,000,000)	The addition of low cost, panel-based AESA technology would significantly increase the Sentinel radar's ability to classify and detect small radar cross section targets, such as cruise missiles and Unmanned Aerial Systems that threaten the safety and security of the American populace.
Sewage-Derived Biofuels Project	General Atomics	Starkville, MS	To demonstrate the feasibility of large-scale biofuels production from military and municipal wastewater treatment facilities using a combination of algae and microorganisms found in sewage to be used as transportation fuels or aviation fuels. ($5,500,000)	This program will lead to development of a previously untapped source of clean, domestically-produced fuel that could help reduce the DoD need for petroleum-based fuels in the next decade.
Silicon Carbide Material Manufacturing Initiative	II-VI Wide Band Gap Materials Group	Pine Brook, NJ	To expand the domestic second source of Silicon Carbide based materials and devices, required for highly energy efficient, high frequency and high power systems for critical military platforms and commercial applications. ($7,000,000)	This project will provide significant reductions in the size, weight and energy usage of military platforms and commercial applications while improving capabilities and performance at much lower costs.
Simulation Based Reliability and Safety (SimBRS)	Mississippi State University	MS State, MS	To provide a relationship with other universities/corporate entities in research to develop experimentally validated cradle-to-grave modeling and simulation to optimize reliability in vehicular components and systems to decrease weight and cost and increase performance, durability, and safety of the warfighter. ($5,000,000)	This research and development effort will provide automotive design and manufacturing technologies to produce stronger and more reliable military vehicles for our warfighters.
Special Operations Craft - Riverine	United States Marine	Gulfport, MS	To procure four additional Special Operations Craft - Riverine for the insertion, extraction, and reconnaissance missions carried out by Special Forces in riverine environments. ($7,306,404)	Special Operations Forces uses these assets for the insertion and extraction of special forces into riverine environments. Often these crafts deliver the first soldiers to and from a theater. Procurement of additional craft would ensure these forces have adequate equipment to safely and effectively perform their mission.
Strategic/Tactical Resource Interoperability Kinetic Environment Program II (STRIKE II)	Adara Networks	San Jose, CA	To implement technology that will improve the Department of Defense's capability to support the nation’s warfighter and improve overall communication capabilities. ($10,400,000)	The expansion of the STRIKE program will help the nation meet the need for geographically separated, yet globally, regionally, or tactically integrated, networked warfighting forces.
The Cooperative International Neuromuscular Research Group	Foundation to Eradicate Duchenne	Washington, DC	To assist The Cooperative International Neuromuscular Research Group research sites conduct research on cures and treatments for muscle and motor neuron diseases. ($7,000,000)	Muscle and motor neuron disease are also among the most common disorders affecting our nation. Medical research results can lead to cures or improved lifestyle for many military members and their families.

Vectored Thrust Ducted Propeller (VTDP) Compound Helicopter Flight Demonstration	Piasecki Aircraft	Essington, PA	To allow for modification of the aircraft to further investigate and refine the performance and flight control characteristics of the technology, including VTDP yaw axis control system, wing incidence geometry, and drag reduction modifications, as well as analytical assessment of acoustic characteristics. ($7,300,000)	Validation of this technology will aid ongoing recapitalization programs and provide the DoD with a solution to critical operational need for additional rotorcraft.
VePro - Implementation of Fatigue Data Analysis & Management Methods to Extend Vehicle Life	HBM-nCode Products	Starkville, MS	To identify and implement measures to reduce fatigue damage and extend life of vehicles. ($4,500,000)	Improved component design and vehicle readiness will provide significant cost savings.
Vertical Integration for Missile Defense Surveillance Data	Jackson State University	Jackson, MS	To integrate a variety of data collection media located on different and uncoordinated military collection systems. Facilitating the integration of defense threat information will provide DoD leaders with higher value decision-making information. ($4,500,000)	By facilitating the integration of defense and homeland security threat information, leaders will be able react quicker, make better informed decisions and be more responsive in all phases of their duties in protecting our nation and military members.
Virtual Integrated Support for the Information Operations eNvironment (VisIOn)	Circadence Corporation	Tupelo, MS	To provide the Department of Defense decision makers the ability to constantly monitor and analyze information collected intelligence data from a wide array of sources to ensure situational awareness to warfighters, evaluate battle plans and develop and execute appropriate courses of action that maximize operational effectiveness. ($10,000,000)	This project will leverage the expertise of intelligence agencies and partners by providing an easier way to collect, analyze and act upon intelligence information collected through various means. As a result, warfighters will receive critical information quicker to act upon and to keep themselves and our allies safe.
Zirconium Oxychloride Manufacturing Optimization	Southern Ionics	West Point, MS	To develop and refine the necessary logistical steps in Zirconium Oxychloride processing that will have the capacity to supply the needs of the Department of Defense without having to rely upon the sole source from China. ($3,100,000)	This project will reduce dependency on a foreign nation for providing strategic material to our defense industry.