

In compliance with the Fiscal Year 2011 Defense Authorization Disclosure and Transparency Requirement the following requests for authorization of funding have been submitted to the House Committee on Armed Services for consideration:

Project Name: Learning Total Health Program

Recipient: Livingstone College

Recipient Street Address: 701 West Monroe Street, Salisbury, NC 28144

Requested Amount: \$1,800,000

Explanation of the request (including purpose and why it is a valuable use of taxpayer funds): The Learning Total Health (LTH) Program is a demonstration project of optimal health and fitness training focusing on the establishment of the LTH curriculum/courses at Livingstone College. Livingstone College has a Center for Holistic Learning. The Center promotes among the participating student body awareness and mastery of a number of modules. These include health, wellness and fitness, emergency response and first aid and personal and social responsibility. This project is a valuable use of taxpayer funds because the program has the potential to impact the nation's health statistics and growing healthcare cost. The health statuses of students at Livingstone College are directly linked to health disparities. Over 60% of the student population has poor health indicators that include obesity, diabetes and cardiovascular disease. The goal of the program is to improve the health status and statistics through education and risk reduction programs. This program has the potential to impact the cost of healthcare in Salisbury, the state of North Carolina and the nation.

Project Name: Innovative Nanoengineered Materials for Soldier Protective Clothing and Shelters

Recipient: North Carolina A&T State University

Recipient Street Address: 301 IRC Building, North Carolina A&T State University, Greensboro, NC 27411

Requested Amount: \$1,600,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): This project will result in innovative nanoengineered materials for soldier protective clothing as well as for lightweight ballistic impact proof shelters. It is proposed to develop integrated technology for the development and manufacture of both enhanced lightweight body armor and lightweight high strength composite combat shelter structures. This project will have a direct application to all war fighters as well as homeland security and police personnel. This project is a valuable use of taxpayer funds because it will impact national security through planned research with strong foundations, education and outreach, as well as future workforce development.

Project Name: Vigilant Integrated Sensing Systems Center (VISenSC)

Recipient: North Carolina A&T State University

Recipient Address: 1601 East Market Street, Greensboro, NC 27411

Requested Amount: \$1,200,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): The proposed Vigilant Integrated Sensing Systems Center (VISenSC) will contribute significantly to the visions of the Air Force and Army by providing situational awareness and battle space management, effective methods to deal with unconventional and unsymmetrical threats and guaranteed superiority to this Air Force and Army research focus. This project is a valuable use of taxpayer funds because sensors have a pervasive impact on many civilian applications. The research done in this project will benefit applications in the construction and building industries and the transportation industry.

Project Name: High Performance Computing in Biomedical Engineering and Health Sciences Benefiting the War Fighter and the Public

Recipient: North Carolina A&T State University

Recipient Street Address: 1601 East Market Street, Greensboro, NC 27411

Requested Amount: \$2,200,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): This project would address high performance computing technologies and enable modeling advances for biomedical engineering and health science applications. This would enable the understanding of engineering behavior of human physiological and bioengineered systems benefiting the quality of life of injured war fighters returning from Iraq and Afghanistan, other veterans as well as the general public. The enabling technologies and developments stemming from the project will produce an interdisciplinary US workforce trained in the long term treatment, recovery and rehabilitation of injured war fighters. This project is a valuable use of taxpayer funds because it will also improve the quality of life for the US public with better health and welfare and would benefit health care worker training through the effective use of realistic models.

Project Name: North Carolina Tarheel ChalleNGe Academy

Recipient: North Carolina National Guard

Recipient Street Address: 4105 Reedy Creek Road, Raleigh, NC 27607

Requested Amount: \$1,000,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): North Carolina averages 21,000 high school dropouts annually. As part of the national Youth ChalleNGe Program, North Carolina's Tarheel Challenge Academy (TCA) helps at-risk youths develop the life-skills

necessary to become productive citizens. TCA, with one campus in Salemburg, NC, provides services to selected NC high-school dropouts between the ages of 16 and 18, graduating approximately 250 cadets each year. About 70% earn their General Education Development diploma while attending TCA. This project is a valuable use of taxpayer funds because it helps address the state's high school dropout problem by increasing the annual number of Tarheel ChallenNGe graduates with the opening of a second site in Badin, NC. At full capacity, Badin will graduate 500 cadets annually. This second site will provide a more western North Carolina location to ensure at-risk youth throughout the state have the opportunity to become productive, employed, law abiding citizens of North Carolina.

Project Name: ARNG/Family Support: North Carolina National Guard Family Assistance Centers

Recipient: North Carolina National Guard

Recipient Address: 4105 Reedy Creek Road, Raleigh, NC 27607

Requested Amount: \$1,600,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): Since 9/11, the North Carolina National Guard (NCNG) has experienced an unprecedented operational pace, mobilizing over 95% of the force. Mobilizations have a significant effect on families and children who are impacted not only during the deployment, but prior to and especially after the service member returns. Family Assistance Centers (FAC) provide essential support and services to families of the NCNG and of all the other Armed Services. NCNG families are not geographically centered near active military installations which provide services to their members. NCNG families are spread throughout the state and in most cases cannot get to installations on a routine basis or without some hardship. This project is a valuable use of taxpayer funds because it maintains the four federally funded FACs across the state allowing the NCNG to provide consistent and continuous vital support and services to the families of the NCNG and the Armed Services. Also, continued funding of this program will significantly reduce the impact on families, directly contributing to sustaining a strong NCNG.

Project Name: 145th Airlift Wing C-130 Squadron Operations Facility

Recipient: North Carolina National Guard

Recipient Address: 4105 Reedy Creek Road, Raleigh, NC 27607

Requested Amount: \$8,500,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): According to the requestor this project is a valuable use of taxpayer funds because the 156th Airlift Squadron, North Carolina Air National Guard, Charlotte, North Carolina, performs the vital mission of training, testing, certifying, planning and scheduling C-130H aircrews in support of State and Federal missions. The current facility does not meet mission needs, life safety standards, environmental standards, administrative, training and operational space. The facility was built 35 years ago and designed to support an Airlift Squadron that had 60 crewmembers. Due to mission increase, that same unit has 120 crewmembers with a corresponding growth in all support personnel. Limited administrative space, inadequate heating and air conditioning and a constrained work environment makes for adverse

working conditions. Insufficient aisle movement space between desks and office equipment presents serious fire and safety hazards. Substandard to non-existent fire suppression systems place all assets at risk. Existing infrastructure supporting the facility is at maximum capacity, with no additional phone or network connections available and limited ability to stand-up computer based training programs and forcing the aircrew readiness trainer to be located in another facility. Due to growth in female crewmembers, there is inadequate female restroom and aircrew locker space. All the above issues make it necessary to replace the existing facility. An efficient, safe work environment promotes effective mission training and planning, boosts morale, promotes teamwork and improves command and control resulting in enhanced mission readiness in conducting global airlift operations.

Project Name: Advanced Detection of Hazardous Material (ADHM)

Recipient: University of North Carolina at Charlotte

Recipient Street Address: 9201 University City Boulevard, Charlotte, NC 28223

Recipient Amount: \$6,000,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): Detection of trace and bulk explosives remains a top priority and a technically challenging problem. This program element investigates the detection and chemical analysis of explosive material signatures. The use of conventional high explosives and homemade explosives for the construction of improvised explosive devices (IEDs) remains a significant threat to our troops and by funding this project taxpayer funds because assist in making these devices less of a threat to our troops.

Project Name: Institute for Regenerative Medicine at Wake Forest University

Recipient: Institute for Regenerative Medicine at Wake Forest University

Recipient Street Address: 391 Technology Way, Winston-Salem, NC

Recipient Amount: \$5,000,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): This project is a valuable use of taxpayer funds because it will develop therapies that will greatly benefit wounded warriors, as well as the civilian population with, burns or severe trauma due to illness or injury.

Project Name: Ant-Based Cyber Defense

Recipient: Wake Forest University, Reynolda Campus

Recipient Street Address: Department of Computer Science, 239 Manchester Hall, Winston-Salem, NC 27109

Requested Amount: \$1,080,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): This project is a valuable use of taxpayer funds because adaptive cyber defense will enable member organizations of computer infrastructure to automatically detect emerging threats, repair damage and share solutions while preserving proprietary data. Human direction is retained without requiring human control. The method is more efficient at finding threats than current systems and quickly ramps up and down to defend against threats. The method is transformational in that it is truly an adaptive cyber defense technology that can protect large infrastructures and coalitions. The learning swarm functions like a colony organism such as ants in the real world. The decentralized approach moves analysis to the data sources. The decentralized approach facilitates collaborative defense without compromising proprietary information on organization member computers. With increasing frequency assets in the USA are undergoing cyber attack. The origin of the attacks is most often outside the US where there is little or no opportunity to shut down the operation. Use of this approach to attack US resources is of interest to nations and terrorist groups with limited resources.

Project Name: Center for Injury Biomechanics-Traumatic Brain Injury Prediction, Mitigation and Diagnosis

Recipient: Wake Forest University Health Sciences (WFUHS)

Recipient Street Address: Medical Center Boulevard, Winston-Salem, NC 27157

Requested Amount: \$4,000,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): Wake Forest University Health Sciences requests funds for targeted research designed to investigate and reduce the traumatic brain injuries (TBI) that soldiers face in the modern warfare arena. This project is a valuable use of taxpayer funds because this research will significantly enhance the ability to save lives and reduce TBI among military troops by using human body computer modeling to improve brain injury prediction, identification and treatment. These efforts will help to address the biomechanical questions for the three million active duty and reserve personnel who fight in the nation's conflicts. Estimates indicate that 19 percent of military soldiers have reported some level of traumatic brain injury (TBI) and that as many as 160,000 - 320,000 soldiers could have sustained a mild TBI (mTBI). Due to the critical need for soldier injury reduction, the Center for Injury Biomechanics will apply its expertise in experimental testing and computer modeling to research initiatives that are designed to reduce these traumatic brain injuries.

Project Name: Center for Nanomaterials in Biosensing and Therapeutics

Recipient: Wake Forest University

Recipient Street Address: 501 Deacon Boulevard, Winston-Salem, NC 27105

Requested Amount: \$3,000,000

Explanation of the request (must include purpose and why it is a valuable use of taxpayer funds): A family of nanoparticle transducers will be developed which will serve as the basis for rapid-detection and

reporting sensors that can then be coupled with a responsive-therapeutic modality. These composite “nanoprobes” will be engineered so that they selectively bind and identify biomarkers of specific antigens or bio-threats. Through this selective binding, the nanoparticle becomes a vehicle for the collection and concentration of the bioagent to be detected using the body’s natural circulation and defenses. Rapid detection systems such as this are needed as a result of the emerging threat of global pandemics, biowarfare and bioterrorism which creates an ever increasing challenge to the health and safety of our forward deployed soldiers and their ability to carry out their mission as well as our emergency responders and citizens here at home. This is a valuable use of taxpayer funds because the military, homeland security and emergency responders all need health monitoring and therapeutic delivery systems that can quickly identify life threatening pathogens and allow rapid response.