FY 2011 Defense Appropriations Requests

Project: Autonomous Unmanned Surface Vessel
Request: $5.7 million
Suggested Recipient: Harbor Wing Technologies, Inc.
Location: Honolulu, Seattle

Description: To continue development and accelerate delivery of a new wind-powered, energy scavenging, Autonomous Unmanned Surface Vessel (AUSV) as a cost-effective, high-endurance reconnaissance and persistent surveillance system providing situational awareness to on-shore or shipboard commanders in support of numerous military and Homeland Security ISR requirements, including maritime domain awareness, deep-ocean patrol, anti-terror force protection on the high seas, Underwater Unexploded Ordnance identification and recovery, netted Unmanned Vehicle Sentry and FORCENet architectures, and compliance with environmental laws to enable sonar use, shock tests, and other exercises on Navy test and training ranges.

Project: Communications Support Environment – State (CSE State)
Request: $10 million
Suggested Recipient: JFHQ-HI
Location: Various

Description: CSE-State is comprised of three modules that will integrate current capabilities with emerging technologies. The first component calls for the development of a diverse, survivable, and self-powered transport architecture based on satellite, aircraft, radio, cell, near-space, mobile, and other enabling technologies. Developing this everything-over-IP (EOIP) infrastructure will virtually guarantee communications services in all emergency response scenarios. The second component will develop an interoperable information sharing/collaborative environment that will incorporate proven information technologies configurable and tailored to specific mission scenario sets and provide virtual awareness among remotely located mission partners. The third component will integrate remotely fielded sensor/actuator systems that will receive real-time data, fuse a common operational picture, and transmit appropriate responses to the threat. The CSE-State will leverage National Guard and other federal and state resources already in place, apply "best practices" from ongoing HLS/HD initiatives, and partner with non-government organizations.

Project: CSTS Progeny Systems Corporation (Hawaii)
Request: $3.6 million
Suggested Recipient: Progeny Systems Corporation (Hawaii)
Location: Pearl Harbor, HI

Description: CSTS is a continuation of successfully competed SBIR Phase III project to develop a covert unattended sensing and tagging system that exploits vehicle radiated acoustic energy in a jungle riverine and desert environments, and provides acoustic detection and localization and

tracking of targets of interest with real-time reporting. The FY 11 effort will continue CSTS riverine system design, development, and operational testing as well as the development of a CSTS mortar/IED detection and localization variant.

Project: COSITE INTERFERENCE MITIGATION SUITE (CSIMS)
Request: $2.0 million
Suggested Recipient: Terasys Technologies LLC
Location: Honolulu HI

Description: In response to the use of the Improvised Explosive Devices (IED) in Iraq and Afghanistan over the last nine (9) years, the DoD has fielded tens of thousands of electronic jammers to block transmission of Radio-Frequency (RF) signals to prevent detonation of IED's. The Counter RCIED Electronic Warfare (CREW) systems currently deployed in Iraq and Afghanistan are experiencing a number of interoperability problems with CoSited Blue Force radios. Frequently, the Warfighter has been forced to choose between operating the CREW system or the Blue Force radios since both cannot be operated simultaneously. This will enable Blue Force Communications to be interoperable with high-power transmitters such as Long Range Radios and Electronic Warfare systems.

Project: Counterdrug Operations and Drug Demand Reduction (HICSO)
Request: $3 million
Suggested Recipient: JFHQ-HI
Location: Various locations

Description: Counterdrug Operations. The full time end strength of 38 personnel is made up of 21 Army National Guard soldiers and 17 Air National Guard Airmen on full time active duty status in support of Title 32, Section 112. HICSO sustained support to 25 federal, state, and local law enforcement agencies (LEAs) or task forces in FY 10. In FY 09 HICSO was involved in the eradication of 63,342.15 cultivated marijuana plants with a street value of $456,085,750.00 and 17,482.6 pounds of processed marijuana with a street value of $127,624,010.00. A total of 7,175.38 pounds of drugs were seized other than marijuana (i.e., Methamphetamine, Cocaine, Heroine, Ecstasy, etc.) which amounted to a street value of $6,811,863.00.

Item Name: 4D Data Fusion and Visualization
Request: $3.2 million
Intended Recipient: Makai Ocean Engineering
Suggested Location of Performance: Kailua HI

Description: Currently, the Naval Meteorology and Oceanography Command operates a program called "Battlespace on Demand". This program is designed to streamline operations and minimize the response time to the fleet, in particular, those related to the Anti-submarine Warfare operations. The US Navy has identified fusion based visualization technology as a

solution to achieving these goals and has declared this technology to be a key development needed to improve the future naval capabilities in the area of "Knowledge Superiority and Assurance" (which lies to the heart of network-centric warfare). When completed, the technology currently under development will allow the Naval Meteorology and Oceanography Command, and ultimately fleet users, to immerse themselves into an interactive 3D/4D environment and visualize multiple facets of information, on-scene and in near real-time, in order to better understand the local environment and surrounding areas. The requested funding will be used to COMPLETE the on-going development of a PC-based system and address some of the key visualization issues faced by the Navy – in particular, how to process, fuse and rapidly visualize very large amounts of data to facilitate situational awareness and understanding of the battle space field by the commanders who need to make fast and accurate decisions.

Project: Detection, Tracking, and Identification for ISRTE (Intelligence, Surveillance, Reconnaissance, Targeting and Engagement) of Mobile and Asymmetric Targets
Request: $3.8 million
Suggested Recipient: Pukoa Scientific
Location: Honolulu, HI

Description: Nearly all of today's threats are against asymmetric or moving targets. Existing precision guided munitions (PGM) rely on the Global Positioning System (GPS) and are designed to strike fixed targets. Prosecution of asymmetric and moving targets will require a sensor system and its corresponding targeting information to be immediately conveyed to any available engagement system. The Naval Research Laboratory (NRL) has a critical requirement for advanced detection and tracking features with capabilities significantly beyond those currently deployed. For example, NRL has demonstrated a passive sea-side acoustic detection system to detect, track and identify asymmetric threats such as terrorist swimmers. The lack of a real-time processor has left many open questions about the overall performance of the system such as the background induced false alarm rate. The purpose of this program is to developed components to support multiple, simultaneous detections, tracking, identification and targeting of asymmetric and mobile threats in Intelligence, Surveillance, Reconnaissance, Targeting and Engagement (ISRTE) operations. Additional FY10 funding will continue to accelerate the development of the algorithms for the engagement of asymmetric and moving threats in a more complex environment with the goal of examining the feasibility of developing algorithms for insertion into the engagement systems. The past four years have seen great progress in the development of enhanced detection, tracking, and data fusion modules. Funding will be used to complete the data fusion modules, convert development software to real-time software, will start a module for autonomous vehicle control utilizing the identification data, and for field testing.

Project: Eagle Vision Program
Request: $8.1 million
Suggested Recipient: HIANG
Location: Various locations

Description: Eagle Vision 5 is one of five Eagle Vision systems stationed worldwide--a mobile commercial satellite imagery collection and processing system that is used as a wartime resource in the war on terrorism, as well as a Homeland Security asset. A proven FEMA asset during natural disasters for Hurricane Katrina and Rita, California Fires, Midwest Flooding and every hurricane response sense 2001. The Hawaii ANG has an Eagle Vision {EV 5} system already fielded and in use. It has participated in numerous military exercises and Theater Cooperation /Operational missions to include Thailand, India, Japan and the Philippines. It is a tasked asset for State/Federal/ Homeland Defense and Security/Disaster agencies. The Hawaii based EV unit has provided real world disaster imagery support to the Hawaii State Government and the Air National Guard for disaster response for the last four years. Requirement is for the upgrade of Eagle Vision 5 to incorporate a U.S. sub one meter satellite. The FY 10 Congressional Plus of $2.4M will provide the first phase of obtaining this capability by providing a 5.4 meter mobile antenna capable of downlinking the extremely high data rates transmitted from the U.S. satellites. The second phase of this upgrade of providing the processors and other associated technical equipment is the focus of the FY 11 Congressional request. Eagle Vision 5 is currently the most capable of the five Eagle Vision systems based worldwide. The importance of the Pacific Theater of Operations requires the best capability available. The system recently lost three satellites (SPOT 2, IRS 1C and IRS 1D) due to age and decommissioning. The performance promised by either one of the newer "on orbit" U.S. satellites will eclipse the capability of all of the recently decommissioned spacecraft.

Project: Immersive Group Simulation Virtual Training System (IGS-VTS) for the Hawaii Army National Guard
Request: $6.0 million
Suggested Recipient: Atlantis Cyberspace, Inc.
Suggested Location of Performance: Honolulu HI

Description: The Immersive Group Simulation Virtual Training System (IGS-VTS) is a fully immersive, interactive virtual reality platform that supports a physical interface for a driver, passenger or gunner or for a dismounted soldier and permits the transition from one position to another while remaining in the virtual world. It provides the equipment, licensing, and technical assistance necessary to support virtual training and can be expanded to allow to up to 64 soldiers to conduct platoon-sized training with a live opposing force. The system offers generic depth perception, head, chest, weapon and arm tracking, wireless weapon systems, sophisticated three-dimensional force feedback platforms, and intelligent virtual camera tools and allows trainers to place groups of soldiers into synthetic training environments that replicate real world conditions, stress reactive and decision-making capabilities, train on appropriate tactics and techniques, and make mistakes in a non-lethal environment.

Project: Internet-Based Installation Environmental Management Information System
Request: $3.0 million
Suggested Recipient: Enviance
Location: Various Hawaii locations

Description: The demonstration of Enviance's Environmental Management Information System (EMIS) for the Marine Corps will resolve many of the challenges associated with ever-increasing needs to reduce energy use, prevent pollution, and minimize the Marine Corps contribution to greenhouse gas emissions while balancing the need to train the warfighter and pursue the Marine Corps mission. Cost-effective automation of the workflow of environmental compliance will save money, improve the quality of performance, and dramatically enhance the Marine Corps' ability to prevent environmental obligations from negatively impacting mission. Demonstration of a commercial off-the-shelf application that has already been deployed around the world as an established as Industry best practice, and that has been successfully demonstrated in many diverse installations for the Army, will avoid the time and cost risk associated with any effort to "build" a "custom" system for the Marine Corps. Successful demonstrations at Army installations have led to funds being included in the FY 2010 and FY 2011 budgets and POMs, and the expectation of funding in the FY 2012-2017 POM. In addition to saving millions of dollars if eventually deployed service-wide, the centralized nature of a system like the Enviance EMIS would provide the Marine Corps for the first time with a single standardized approach to compliance. This standardized approach will drive costs down, quality up and, for the first time, provide the Marine Corps command with cost-effective environmental roll up reporting critical to optimizing cost savings and quality improvement in the environmental compliance activities.

Project: Management and Control of a Former Weapons Range
Request: $2.3 million
Suggested Recipient: Kaho`olawe Island Reserve Commission
Location: Wailuku HI

Description: Title X of the Fiscal Year 1994 Department of Defense Appropriations Act conveyed the island of Kaho`olawe to the State of Hawai`i. On May 6, 1994, the State and the U.S. Navy entered into a Memorandum of Understanding regarding the island of Kaho'olawe; both parties agreed to terms and conditions of the island's conveyance and UXO clean-up. Following the 2003 completion of a ten-year UXO clean-up project managed by the Navy, only ten percent of the island was Tier II cleared and only 65 percent was Tier I cleared, leaving 25 percent of the island, plus all of its waters, uncleared of UXO. Therefore, much of the island is off-limits or has controlled and limited access. Additionally, due to the technological limitations of the UXO clearance process, there still exists a residual UXO risk in the Tier I and Tier II areas (e.g., UXO items missed during the clearance process, changing terrain and UXO migration due to erosion forces). Continued federal funding is needed for the management and control of the Reserve and its waters. Due to the inherent danger posed by UXO, access to the Reserve must be carefully managed and a round-the-clock presence in the Reserve must be maintained. In order for KIRC's program activities to be conducted effectively, strict procedures and protocols relating to UXO safety and avoidance must be followed. The annual cost to support KIRC's ongoing management and control of the Reserve, including KIRC and contracted personnel,

transportation, on-island facilities repair and maintenance, enforcement, administrative support, supplies and equipment, is approximately $2.3 million.

Project: Managing and Extending DoD Asset Lifecycles (MEDAL)
Request: $4.0 million
Suggested Recipient: Referentia Systems Incorporated
Location: Honolulu HI

Description: Create new netcentric-ready asset health management capabilities and corrosion abatement technologies to maintain helicopter, aircraft, and unmanned systems Mission Capability Readiness (MCR). Decreasing budgets and increasing OPTEMPOs have compounded challenges for the warfighter's Mission Capability Readiness (MCR). The limited availability of asset lifecycle support systems and the need to extend the life of aging platforms is further increasing these challenges. The FY11 MEDAL program will pursue the further development of an initial Decision Support System (DSS). The DSS will evolve from the concepts for decision support tools based on requirements for asset health and logistics management and net-centric capability to support decentralized asset health and logistics management. The program will focus on develop of this technology for incorporation into existing systems to benefit the efficiency and effectiveness of current CBM+ programs.

Project: Multiple-Target-Tracking Optical Sensor-Array Technology (MOST)
Request: $5.0 million
Suggested Recipient: Oceanit
Location: Honolulu HI

Description: MOST addresses critical missile defense capability gaps. MOST has demonstrated unique capabilities for AES with both airborne and ground-based live fire missile testing, primarily under the Aegis program. Funding will allow MDA to extend these capabilities to address full operational requirements. In addition, wide field-of-view and enhanced processing functionality required for ELD has been partially developed on an Army SBIR contract. Additional funding will allow these capabilities to be incorporated into the MOST program and to extend them as necessary to meet operational requirements. The systems that will result will directly support deployment plans that are currently being developed by MDA. MOST provides a new technology approach with demonstrated operational applicability and unique sensor capability.

Item Name: Ocean Thermal Energy Conversion
Request: $3.0 million
Intended Recipient: MELE Associates
Location: Honolulu HI
Purpose: To support the use of Ocean Thermal Energy Conversion (OTEC) technology for the production of jet fuel from ocean water. This funding will be used to reduce risk in the areas of (1) carbon capture from seawater, (2) fuel synthesis, and (3) technology assessment and selection

concentrating on the areas of conceptual systems configurations and road map development scenarios. A comprehensive review of identified technologies should be completed and a list of alternative solutions developed. These subsystems need to be developed, tested, and validated. The development of this technology could greatly reduce the need for foreign based oil in the production of jet fuel. It would enhance National Security, and reduce the need to send assets to protect foreign oil assets.

Project: Reconnaissance and Data Exploitation (REX) System
Request: $7 million
Suggested Recipient: Nova-sol
Location: Honolulu, HI

Description: DoD needs improved intelligence, reconnaissance and surveillance (ISR) tools. With the rapidly increasing and pervasive deployment of unmanned, limited payload ISR platforms such as UAVs, the need for minimal size, weight and power (SWAP) ISR sensor systems is paramount. The Reconnaissance and Data Exploitation (REX) System will enable the implementation of fused HyperSpectral Imaging (HIS) and other Electro Optic (EO) sensors with integrated real time target detection. The REX payload will be capable of integration with a wide variety of airborne and ground-based platforms whose payload limitations previously precluded hosting such a capability. In particular, REX will allow the rapidly expanding fleets of small military UAVs to take advantage of the powerful automated target detection inherent to high spectral resolutions HIS and multispectral sensors and enable cueing of high spatial resolution panchromatic EO sensors for target identification. Combined with state of the art tactical free space laser communications for data transfer and exfiltration, the REX system will provide the inherent benefits of spectral sensing to the modern day warfighter. REX is a benefit to taxpayers because it will leverage existing developed technology into a transitional program for immediate deployment opportunities and warfighter impact.

Project: Resource Assurance
Request: $3.5 million
Suggested Recipient: University of Hawaii
Location: Honolulu, HI

Description: Presently there is no resource framework to support Phase Zero COCOM planning. The Resource Assurance initiative directly supports Phase Zero by providing a global model to fill critical information gaps with a common operating picture and information sharing environment to support accurate and timely policy, technology application and infrastructure project decisions for energy, water and waste processing. The model leverages advancements in visualization science, sensor integration, data collection, communication networks, and high performance computing provided by the unique capabilities of the University of Hawaii, Mississippi State University and a National Laboratory team lead by Oak Ridge National Laboratory. The initiative fills a vital unmet need within the DOD, DOS and DOE by providing a collaborative framework to structure resource strategy development, planning and to provide state of the art resource analysis tools.

Project: STARBASE Hawaii, Annual Operating Allocation
Request: $ 0.3 million
Suggested Recipient: HIANG
Location: Various locations

Description: STARBASE Hawaii held its first class in September 2008 and has since completed sessions in 12 schools in the Kea'au / Ka'u / Pahoa Complex and Hilo Districts on the island of Hawaii. The program has now reached over 1,200 mostly 5th grade students. STARBASE Hawaii provides opportunities to help develop a strong foundation of personal direction, self-esteem, teamwork and socialization skills for these disadvantaged students. The program's interactive learning activities, which focus on science, technology, engineering and math, have brought stimulating educational experiences to the students.

Project: Establishment of a STARBASE Academy on the Island of Maui, Hawaii

Request: $ 0.3 million
Suggested Recipient: HIANG
Location: Maui, Hawaii

Description: STARBASE HAWAII held its first class in September 2008 and has since completed sessions in 12 schools in the Kea'au / Ka'u / Pahoa Complex and Hilo Districts on the island of Hawaii. The program has now reached over 1,200 mostly 5th grade students. STARBASE Hawaii provides opportunities to help develop a strong foundation of personal direction, self-esteem, teamwork and socialization skills for these disadvantaged students. The success of the current program has inspired the State of Hawaii to seek to establish a new STARBASE academy on the island of Maui. The current STARBASE program's interactive learning activities, which focus on science, technology, engineering and math, have brought stimulating educational experiences to the students.

Project: Tactical Lighted Rescue Streamer (TLRS) Program
Request: $2.5 million
Suggested Recipient: Rescue Technologies Corporation
Location: Aiea HI

Description: The Tactical Lighted Rescue Streamer (TLRS) program will leverage the past success and deployment of rescue streamers to develop a multi-functional, personal carry, land and sea signaling device. FY2011 funding is being requested to design, develop, test and evaluate a TLRS product based on the requirements and specifications of the Navy and Army's search and rescue, signaling, vectoring and extraction mission scenarios.

Project: Vigilance Assistance in Screening, Surveillance, and Reconnaissance (VAISSAR)
Request: $6.0 million
Suggested Recipient: Archionetics
Location: Honolulu HI

Description: Intelligence, Surveillance, and Reconnaissance (ISR) and security systems where humans are required to make decisions using real-time video and platforms that use Remotely Piloted Aircraft (RPA) control, such as the Predator, have no inherent capabilities for assessing the vigilance or awareness state of their operators. Yet, fundamentally, these platforms and systems rely on acute human vigilance to maintain acceptable performance. Given the pervasiveness and diversified application of these systems, it is considered unacceptable and cost prohibitive to require re-engineering these systems to include an internal component for vigilance assessment/assistance. VAISSAR seeks to develop a standalone system to augment these existing systems and meet those systems' needs for vigilance-assistance.

Project: VIRONA (Virtual On-Board Analyst)
Request: $4.0 million
Suggested Recipient: BAE Systems
Location: Honolulu, HI

Description: Current remote sensing systems have limited ability to adapt in real time to changing missions conditions, such as threats, environment and sensor performance. Effective utilization of multi-sensor systems with autonomous onboard processing requires the adaptive knowledge-based fusion provided by VIRONA, including "scene understanding" algorithms using learning-based and principle-based data fusion techniques, employing intelligent expert analyst-based tenets. VIRONA will also demonstrate the utility of current modeling, simulation, visualization and analysis (MSVA) tools to provide a synthetic environment for effective training and testing in complex scenarios. The development of end-to-end models for the environments and sensors using open-architecture, modular software is a critical component of the VIRONA effort.