VALUE ASSESSMENT

PART ONE: IMPORTANCE TO NATIONAL SECURITY

June 15, 2003

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NSWC CRANE AND OPERATION IRAQI FREEDOM

America's most recent military encounter provided numerous opportunities to utilize defense technologies supported by NSWC Crane. The clearing of the Umm Qasr port by mine detecting dolphins and the rescue of PFC Jessica Lynch are just two.

DOHA, Qatar (CNN) -- A coalition team of Australian and British navy divers aided by specially-trained dolphins completed work to clear mines from sea lanes around the Iraqi port of Umm Qasr, opening the way for humanitarian aid shipments, military officials say. Dolphins used in the mission carry special battery operated sensors that record their response to underwater objects.

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One of the lithium batteries provided by NSWC Crane used in dolphin sensors.

Recently received compliments

Wanted to pass along some very positive comments we received from the Special Operations visitors we entertained yesterday. At multiple times, both visitors praised Crane employees for the engineering, life-cycle support and acquisition that we provide to US Special Forces. I do not have exact quotes captured, so I will paraphrase some of the comments:

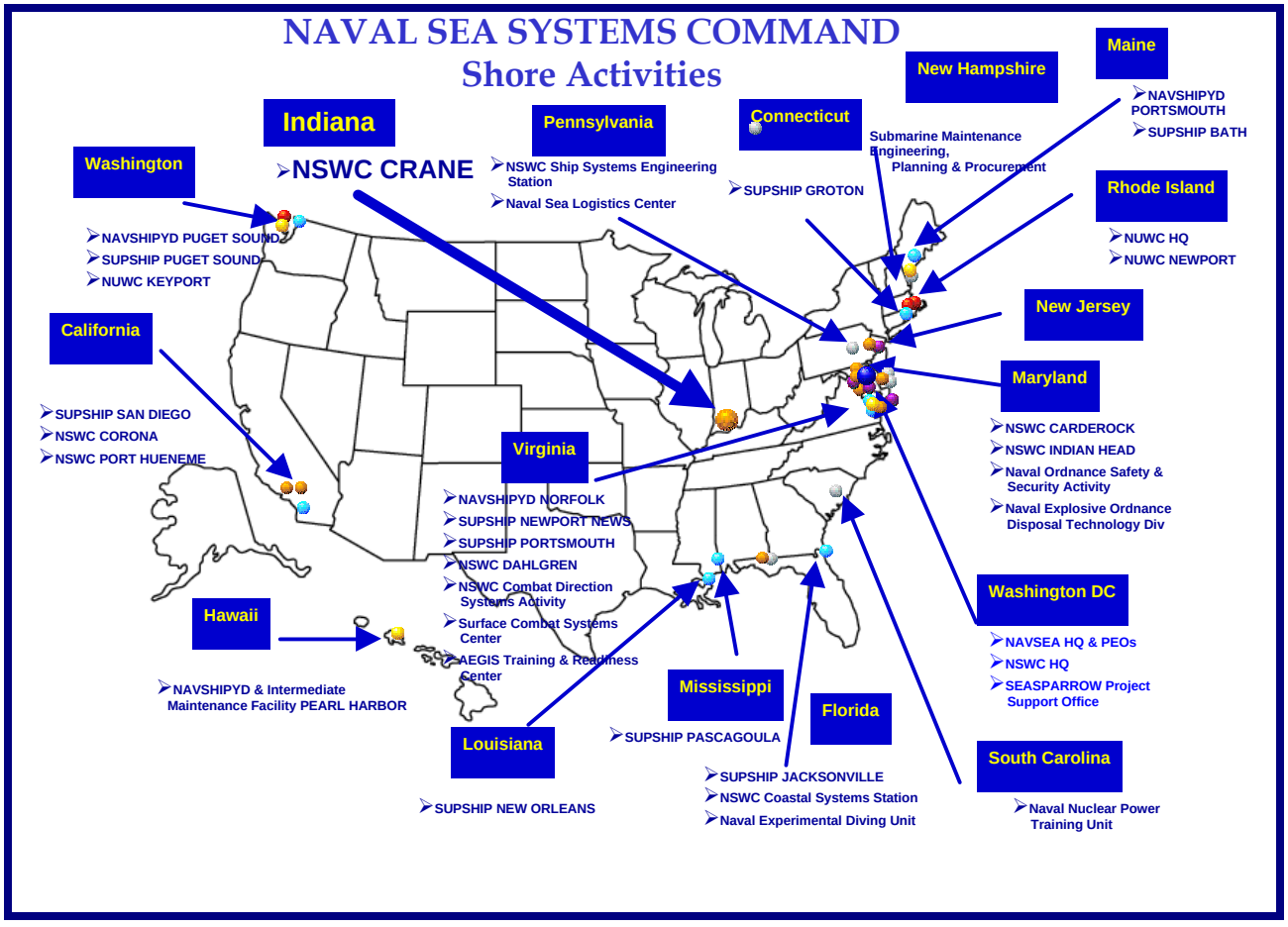
- "Operators were asked before they deployed 'what else do you need' and they replied 'nothing--we have everything we need' " (night vision, weapons and ordnance. This was, to me, an unprecedented statement in my 20 years of experience with Special Operations Forces.)
- "The people you support are truly the tip of the spear."
- "You are, without a doubt, DoD's Center of Excellence for Night Vision/Electro-Optics."
- "You are all outstanding Americans, and I am proud to work with each of you. Thanks again for your outstanding work"
- ***"You should be proud that the equipment you provided was the equipment used in the rescue of Pfc. Jessica Lynch"***

INTRODUCTION AND SUMMARY

NSWC Crane Division is a strategically important military facility providing critical support to national defense and homeland security. Centrally located and strategically equipped, it is a vital military product center that contributes components to most of our nation's defense systems. Activities at NSWC Crane have contributed to every major American defense initiative since 1940. Providing support to Operations Iraqi Freedom, Enduring Freedom, and Desert Storm, Crane has contributed to the effectiveness of the American military as well as the saving of American and other lives on battlefields all across the globe. It has done so by effectively and efficiently bringing technology to the American warfighter.

At more than 62,900 acres, it is the U. S. Navy's third largest base. Its combined facilities, including almost 900 buildings, are valued at more than $2.1 billion. Though many of the historic trappings and other identifying features of the military base are evident, the newer facilities, buildings, and activities are what make NSWC Crane the bustling technology park and testing center it is today. Employing hundreds of scientists, engineers, and technicians, the Crane facilities remain at the leading edge of defense technology.

Throughout America's military-industrial complex, few facilities can match the performance and potential of Crane Naval Surface Warfare Center. It was established as the Burns City Naval Ammunition Depot in 1941. As part of the Naval Sea Systems Command, Crane is now a leading engineering, electronics, and ordnance facility to today's Navy.



One of the most important aspects of Crane is its ability to launch manufacturing operations. As indicated in this study, several of the engineering units not only have product development potential, but the ability to commence immediate short term or small quantity manufacturing of new defense products in order to reach American fighting forces as soon as possible. This reduces and sometimes eliminates costly delays in searching for and selecting contractors. It also reduces delays resulting while contractors "tool up" for production runs. Crane engineers can commence the manufacturing engineering while simultaneously producing weapons, defenses, and other systems at the on-site facilities. Crane can step in as a "source of last resort" for the advancement or deployment of literally any electronic or ordnance system or product.

NAVSEA
CRANE
Surface Warfare Center Division

The largest of the Navy's five systems commands, Naval Sea Systems Command (NAVSEA) engineers build and support America's Fleet of ships and combat systems. Accounting for nearly one-fifth of the Navy's budget (approximately $20 billion), NAVSEA manages more than 130 acquisition programs, which are assigned to six affiliated Program Executive Officers (PEOs) and various Headquarters elements.
The nearly 50,000 NAVSEA team members serve the Fleet in four shipyards, the undersea and surface warfare centers, nine supervisors at major shipbuilding locations and the headquarters, currently located at the Washington Navy Yard, in Washington DC. America's Fleet operates throughout the world.
NAVSEA's world class team of professionals provide virtual support anywhere and anytime to ensure the Fleet remains ready and capable - operating around the globe. NAVSEA looks toward the future as an agile, responsive, and learning organization in a new millennium - successfully serving the American people and ***Keeping America's Navy #1 in the World***.

Still often referred to as a Navy base, Crane has matured into one of America's premier defense technical centers. Providing support to the U.S. Navy Fleet, other branches of the military, and other security and defense agencies, it is an integrated and full service defense facility nestled in the scenic rolling hills of southern Indiana. The surrounding communities, countryside, business resources, educational institutions, and quality of life make it an ideal location for the creative pursuits that will be necessary to maintain America's number one position in national defense, security, and technology deployment.

Now, more than ever, Crane's role in national security and defense is critical. It is also counted among only a few installations that are staffed and equipped to help the United States succeed in the new battleground of asymmetric warfare. Crane is home to one of the largest joint Army/Navy joint occupancy bases with synergistic missions for development, production, and deployment of ordnance.

NSWC Crane is located in southwestern Indiana approximately 80 miles from Indianapolis.

The future of NSWC Crane, like those of other American military bases, is constantly in question. Since the inception of BRAC (The Base Realignment and Closure Act), the U. S. Department of Defense has been constantly scrutinizing military operations and closing facilities. Military units and operations have been combined, relocated, and eliminated as the DOD determines they are no longer relevant to the defense mission of the present. Crane's most unique asset is that it is as much an "idea factory" as a production facility.

Crane's remote location is one of its key assets and its infrastructure makes the facility virtually self sufficient. Located in the rolling rural hills of southwest Indiana, it was secure from World War II air attacks. Far from major metropolitan areas and with no community encroachment, it remains virtually "off the radar screen" of our twenty-first century adversaries. The tools and technologies developed at this unique facility are deployed daily in the defense of our nation and in the quest for freedom.

The proud history of NSWC Crane is the basis with which it enters the twenty-first century. Crane's leadership and innovation in conventional warfare technology, coupled with product development, positions the center to embark on plans for economic development and national security. Utilizing its numerous partnerships and alliances with business and education, Crane is embarking on a new objective to promote economic development for southwest Indiana. This thrust will make our nation stronger even as it faces new forms of aggression from unfamiliar and non-traditional adversaries. It will also increase Crane's already significant military value to the nation.

One of many recognitions given to Crane for support provided to the Fleet.

MILESTONES IN NATIONAL DEFENSE AT NSWC CRANE DIVISION

ERA	ACHIEVEMENT
World War II	• More than two hundred million pounds of explosives and ordnance developed and stored for use by various services • Production of 1600 pound bombs • Production of 1000 pound bombs

Crane's munitions capacity A number of munitions and flares were assembled at Crane during WWII. Various types of five, six, eight, twelve, fourteen, and sixteen inch shells were assembled at the deport, along with bag charges for various caliber of naval guns together with twenty millimeter cartridges. In the last 28 months of the war, the number of three inch/fifty shells alone exceeded two million. Over one million rockets of various types were loaded at Crane between 1943 and 1945. In one month the pyrotechnics division produced almost 48,000 new and more than 3,000 reworked flares. In the summer and fall months of 1944, an average of 50,000 tons of shells, flares, and other munitions were shipped out monthly.

Korea	• Ordnance production continues, heavy and medium bombs
Vietnam	• One million MK68 and MK82 bombs produced • Production of all bombs exceeds 140,000 per month
Desert Storm	• Support of Desert Storm operations • Crane personnel deployed to Persian Gulf for technical support • Massive shipments of ordnance provided both to Navy ships and Marine Corps units

NAVSEA Crane Surface Warfare Center Division

Warfighter Support since 9/11

- ❑ ***56,697*** **Army/Navy Shipments (*96 MILLION LBS*) of Ordnance & Electronics Products**
- ❑ **2,016 Requests for Equipment Repair (2768 Reworked Products)**
- ❑ **8,956 Fleet Requests for Technical Assistance**

- ❑ **1100+ CASREPS with Response < 4 Hours**
- ❑ **60 Requests to Crane as Vendor of Last Resort**

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Harnessing the Power of Technology for the Warfighter

MILESTONES IN NATIONAL DEFENSE AT NSWC CRANE DIVISION

Iraqi Freedom
Enduring Freedom
and
War on Terrorism

- 57,000 shipments totaling more than 96,000 tons.
- Support and delivery of electronic warfare equipment including radars, jammers, and printed circuit cards.
- Delivery of 500 pound laser guided bomb kits and special small arms.
- Distant Support Help Desk responds to dozens of calls daily for technical information and assistance from American warfighters around the globe.
- Tuning of EA6B support equipment on USS George Washington, USS John F. Kennedy, USS Nimitz, and USS Constellation.
- Support and delivery of chemical warfare protective equipment
- Acquisition and delivery of more than 3,500 night vision devices for Special Forces.
- Development of biological and chemical detection equipment.
- Development of aviation security devices.
- Overhaul and Maintenance of M2 Heavy Barrel (HB) .50 caliber machine guns used in the nation's war on terrorism.
- Modification of weapons to accept night vision equipment, laser pointer, and flashlights.
- Repairs to more than 1,800 pieces of Fleet equipment and armaments.
- Technical lead and acquisition for Multi-Spectral Targeting System on U.S. Air Force weaponized Predator.
- In-service engineering AEGIS, fire control, and other systems on CG47 and DDG51 class ships.
- At least 57 "Vendor of Last Resort" (DLA) requests.
- Responded to more than 8,000 calls for product support.
- Thousands of weapons repaired, inspected, test fired, preserved, and packaged to be shipped back out to the fleet, ready for use – saving more than $3M in new weapons cost
- Developed more than 50 GAU16 Weapons Systems for H-60 helicopters
- Activated in-house flare production for protection against heat seeking missiles when private sector production shut down.
- Manages AT/FP Battle Group (BG) Radio program more than 3,000 radios to more than 50 ships and other fighting forces. This encrypted communications guarantees interoperability between deployed forces.

The newest storage magazine at NSWC Crane

PART ONE:

IMPORTANCE TO NATIONAL SECURITY

Research, development, and production facilities at NSWC Crane have been at the leading edge of the technology that brought the United States to victory in the Gulf War and other military and emergency engagements over the half century. Many of the technologies being employed in the war against terrorism were developed and provided to the warfighter by Crane. Tools and technologies that will keep our nation safe from both military and terrorist threats of the future are also being developed at this unique facility.

Crane's primary role in the overall defense of the United States is to develop defense products. In some cases, these products become components of larger systems, such as missile launch systems or navigation systems. In other cases, the products have individual applications such as with pyrotechnic devices, night vision instruments, chemical and biological agent detectors, ordnance, and the ever important military battery.

THE CRANE MISSION

The Crane Mission

Provide engineering and industrial base support of weapon systems, subsystems, equipment, and components with principal emphasis on industrial and product engineering associated with surface warfare systems in the areas of electronics, ordnance, pyrotechnic, microwave technology, small arms, and surface ship electronic warfare in-service engineering.

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Harnessing the Power of Technology for the Warfighter

Crane's mission statement verbalizes its commitment to our nation's defense values. Commitment to the Crane mission achieves the following:

- Crane's low operational costs leave more resources available for defense forces.
- Crane's commitment to quality ensures value for every tax dollar spent as well as confidence among the nation's fighting men and women.
- Crane's responsiveness helps the U.S. military meet challenges arising from across the globe and adapt to changes resulting from technology and culture.
- Crane's partnerships continue to access and utilize vast networks of industrial resources and human talent leveraging government resources to their maximum.

Crane's unique combination of resource, facilities, and undeveloped space provide an excellent location for military training. The lack of community encroachment maximizes the times, durations, and types of training and testing that can be conducted.

MISSION AREAS

Crane's vital mission is broken down into four primary areas, These are development, acquisition, testing and evaluation, and fleet support.

1. In the **DEVELOPMENT** of munitions, Crane experts and facilities are deployed in the conceptualization, design, prototyping, testing, and production of new products and technologies that contribute as components or methods associated with defense systems.

2. In Crane's **ACQUISITION** role, the attention is focused on sources of supply and adherence to specifications. This includes defining requirements, writing detailed product characteristics/specifications, establishing/monitoring contracts, evaluating products and working with industry to ensure product conformance. Acquisition at Crane also includes on-base building or fabrication of products to meet customer requirements when industry is unavailable.

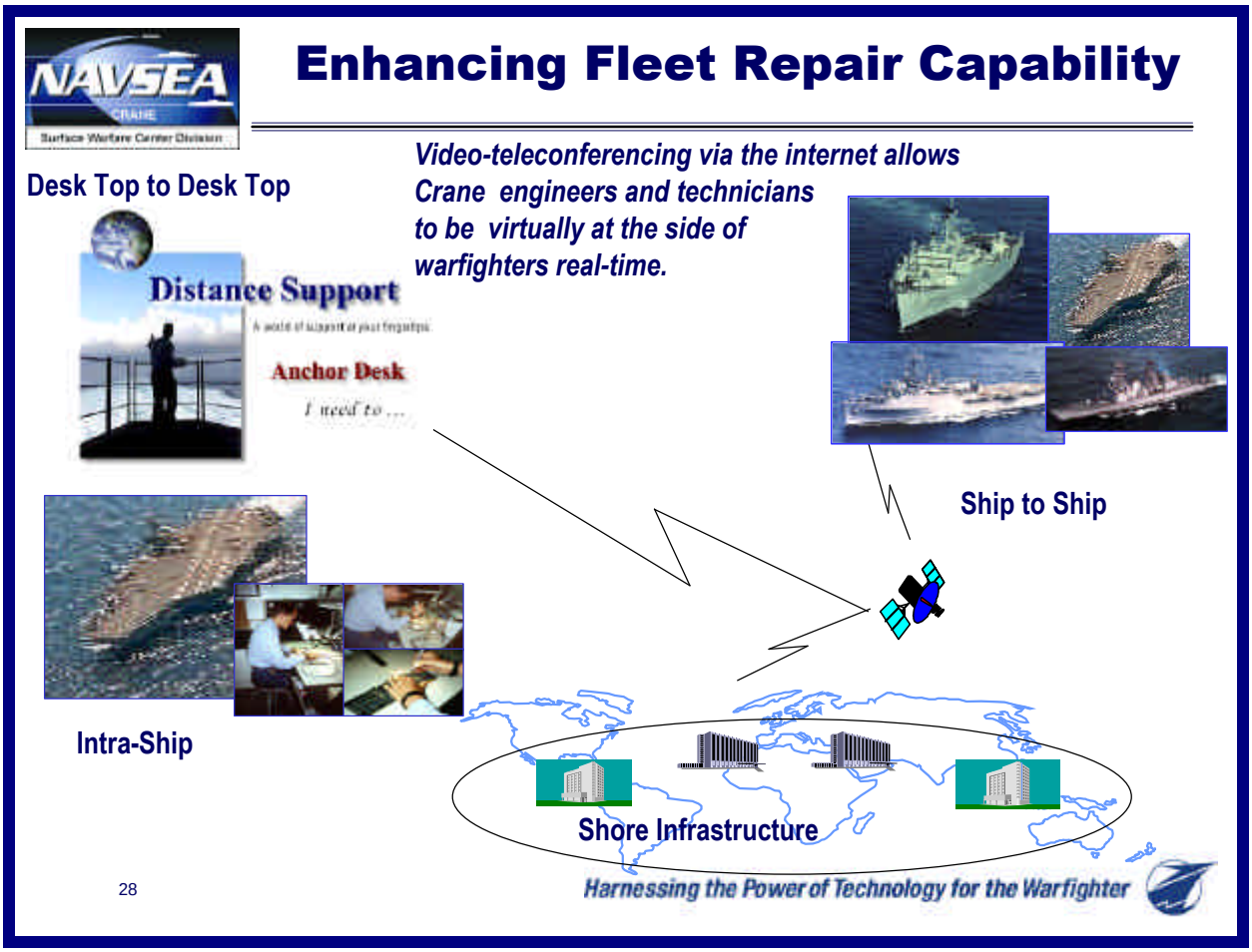
3. Crane provides **TESTING AND EVALUATION** for its products and other components at the facility. Each of the Crane departments conducts testing and evaluates each product continuously through its development and beyond its deployment to the warfighter. Though Crane has extensive area available for many of these activities, some products and systems require even more space. To this extent, NSWC Crane has entered into a Memorandum of Understanding with the Military Department of Indiana to utilize areas and facilities at Indiana's Camp Atterbury as an additional testing site. Atterbury is approximately 60 miles northeast of Crane. Camp Atterbury is also one of the USDOD's primary staging bases for the deployment of military units to overseas theaters of operation.

4. Crane's midwest location provides excellent **FLEET SUPPORT** through available information technology and transportation systems. Some of the support activities include the Fleet Technical Support Center and NSWC Crane ISEA Memorandum Of Cooperation (MOC), Casualty Report (CASREP) and Naval Message Watchdog, Alteration Installation Team (AIT) Coordinator, Quality Deficient Report (QDR) Coordinator, Inspection and Survey (INSURV) Coordinator, and the Scientist to Sea Program Coordinator. In addition, Crane's defense systems support desk provides real time response to technical problems occurring on ships and at facilities world wide.

   The mission of Crane's Fleet Support function is to provide engineering, technical, and logistic support interface between Crane, Fleet, Type Commanders, and other waterfront/shore activities. The Crane office is familiar with critical programmatic, technical, and operational issues in order to make accurate assessments, facilitate required communications, ensure critical Fleet support, and provide applicable feedback.

   Supplying ships and soldiers – on oceans and continents all around the world – would seem improbable for a land based facility such as Crane – until studying the logistical resources available. All modes of transportation (rail, air, commercial carrier, UPS, FEDEX, etc.) are utilized in shipping ordnance and equipment. The type of commodity, along with delivery destination, required delivery date, weight, size, and cube measurement determine the mode of transportation. The overall average delivery time to other Navy facilities was 2.3 days for FY02 and Army requirements were met 99.5% of the time.

Crane product experts support military personnel predominantly through commercial communication channels (phone, internet, fax, websites, etc.) as well as through restricted / secure military communication means. There are several websites or portals that are dedicated specifically for 'in the field' soldiers and sailors on both commercial (unclassified) and military (classified) internet. Additionally, Crane maintains a dedicated customer relations management process and tool to track and manage the requests from military customers.



CRANE UNITS AND TENANTS

Crane is home to several military units and facilities. Each of these has a unique and important function in national security and defense.

Naval Surface Warfare Center
The major tenant and primary purpose of the facility is the surface warfare center. It exists to provide acquisition, engineering, logistics, and maintenance for the Fleet's weapon and electronic systems, ordnance, and associated equipment and components.

Crane Army Ammunition Activity
Crane Army Ammunition Activity is an installation within the U.S. Army Joint Munitions

Command, a major subordinate command of the U.S. Army Material Command. This is a major facility for production, renovation, storage, and demilitarization of ordnance for all services.

In October 1999, command and control of the Letterkenny Munitions Center (LEMC) transferred to Crane Army Ammunition Activity. The mission of LEMC is to receive, store, issue, renovate, and demilitarize conventional ammunition. LEMC assembles, disassembles, and tests (commonly referred to as "All-Up-Rounding") various Air Force and Navy missile systems.

Explosive Ordnance Disposal
The U. S. Navy's Explosive Ordnance Disposal Mobil Unit TWO is located at NSWC Crane. The EOD unit and its Munitions Emergency Response Specialists are responsible for explosive and munitions emergencies at the base. This includes emergencies that are a result of, but not limited to munitions testing, damage, manufacturing, disarming, storage, or transportation. In addition to unexploded ordnance, the unit is also responsible for the disarming or removal of improvised explosive devices that may include other destructive or noxious materials.

Through a 2001 Memorandum of Understanding with the State of Indiana, the EOD also provides explosives and munitions emergency response to federal, state, and local law enforcement authorities.

SUPPORT SERVICES

Many Navy and other Defense support services are housed at Crane. These support the Crane mission as well as other Defense organizations and personnel in the region. Among these support units and services are:

Naval Criminal Investigation Service	**Military, Defense, and Security Contractors**
Navy Exchange	**Defense Reutilization and Marketing Office**
Defense Automated Printing Service	**U.S. Coast Guard**
Defense Commissary Agency Detachment	**Great Lakes Industrial Hygiene**

Some of the country's major defense contractors have operations at NSWC Crane. Among these are SAIC, EG&G, EDS, Dyncorp, and Technology Service Corporation. Crane's private sector partners ad strategic value to the military sector activities and projects being conducted all over the sprawling facility.

CRANE, A TRAINING CENTER

The vast expanse of the Crane base provides numerous opportunities and resources for various training exercises. These range from various military exercises to various kinds of domestic fire and police training programs.

RESERVIST TRAINING

The work of reservists is growing dramatically at Crane. There are currently six midwest Navy Reserve Detachments assigned to Crane. Since September 11, 2001, Crane has received Reserve support with more than 80 Army-activated Reservists and 60 Navy-activated Reservists being assigned to the base.

Many more are expected, and the public may notice this change. There may be groups of up to 900 Reservists at Crane on a given day. The Reserves benefit from the real-time training in their specialty areas, and Crane benefits from the work these Reservists accomplish during their exercises.

FIRE AND POLICE TRAINING

The use of Crane as a training site includes numerous activities and agencies. Riot Control and SWAT training are undertaken by the Indiana State Police; the Indiana Law Enforcement Academy conducts building entry training; and K9 training is held with Martin County Sheriff's Department, Shoals Police Department, Indiana Department of Natural Resources, Daviess County Sheriff's Department, and Vincennes University.

Crane also houses a Fire School. It has nine Mutual Aid agreements with local communities, as well as a standing agreement with the Indiana Fire Instructors Association to accept applications to the Fire School from these communities before applicants from any other fire departments. In the 2002 Crane Fire School class year, 499 received training on base. Of these, 474 were from U. S. Defense agencies and 25 were civilian firefighters.

Eagle View Golf Course at NSWC Crane.

BASE AMENITIES

Crane provides an environment for national defense work that balances the intense pressure and responsibility borne by the workforce. Its scenic areas and campus-like setting provide a combination of business and personal services that appeal to military and civilian educated professionals protecting our national security.

NSWC Crane provides a full complement of medical, occupational health, fire protection, housing, business services, safety, and security. In addition, its recreational resources include campgrounds, a community center, cafeteria, conference center, fitness center and gymnasium, and Lake Greenwood with its marina.

Eagle View golf club provides the golfer with the "total golf experience." Facilities include a driving range, putting green, 18 hole, par 72 golf course, and there is a PGA professional on staff to give lessons. The "19th" hole is where golfers can enjoy refreshments while relaxing in a covered picnic shelter.

Eagle View has plans to improve upon successful CGA sponsored events – tournaments, leagues, and golf outings by employee groups. There are also plans expand participation in other events like hosting state wide competitions and partnerships with Shoals, North Daviess, and Loogootee High Schools. The course has expanded into a very valuable asset for Crane and the. In 1998 Crane requested official approval from NAVSEA and NAVPERSCOM for usage of the golf course by the general public – approval was granted on Oct 8, 1998.

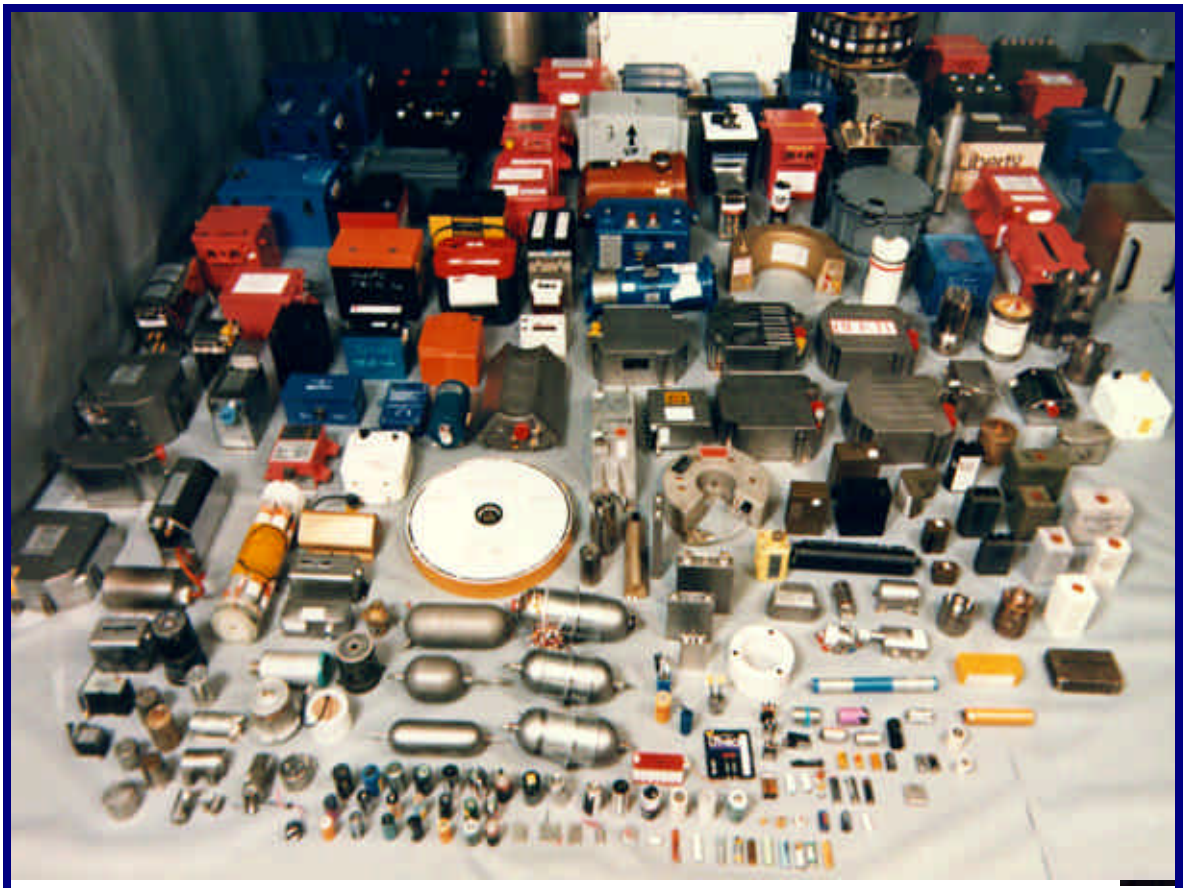
Lake Greenwood is the source of Crane's water supply as well as a recreational and aesthetic resource.

CRANE DEFENSE TECHNOLOGIES

Crane provides support to the Fleet through its Fleet Support Departments. The following descriptions indicate how each of the units integrates into the Crane defense mission. The battery story is an example. This same story applies to all of Crane's product "stewardship" areas including microwave tubes, printed circuits, radiation hardened microelectronics, pyrotechnics, and use of commercial "off-the-shelf" components in military systems.

THE MILITARY BATTERY

Armies and Navies existed for centuries without the battery; now virtually every ship, plane, vehicle, and soldier carries one or more defense tools that rely on battery power. Almost every military system is dependent on a power source and most of the time this power is delivered by a battery. Many military batteries differ from their commercial counterparts in that military batteries are



This photo shows some of the batteries used in defense products and systems throughout the American military.

expected to be more rugged, operate in more adverse environments, provide power to systems that are unmatched in the commercial world, and must be more reliable. There are more than 3,800 different types of military batteries. These batteries range in cost from a few cents for each battery to as much as $1.5 million for some underwater applications. In addition, military batteries may require special handling for safety, have a limited life requiring scheduled replacement, and are becoming difficult to dispose of due to environmental concerns.

Crane provides support for a wide variety of batteries incorporated within systems and platforms of the Department of the Navy (NAVSEA, NAVAIR, NSWC, NAWC, NUWC, SPO, SPECWAR, ONR, & NAVICP), United States Marine Corps., the Department of the Army, the Department of the Air Force, the National Aeronautics and Space Administration, the Department of Energy, Special Operations Command, Defense Advanced Research Projects Agency, Defense Supply Center, the Federal Aviation Administration, Coast Guard, Foreign Military Sales, NATO Maintenance and Supply Agency, and private industry. The ability to work across all of these programs allows for enhanced cross-fertilization of ideas and promotes synergism. This provides for sharing of resources and expertise to reduce program costs and attain solutions to complex battery problems that reduce the total ownership cost.

NSWC Crane provides sponsors (1) *solutions* to battery problems, (2) the technical support necessary to enable them to be *smart buyers* of their power systems, (3) assistance with the *establishment of standards*, (4) *independent verification, validation and certification* of component requirements and characteristics, and (5) direct services to the Fleet through liaison and training. Power system improvements are fostered through resident science and technology efforts working with industry to transition technology to the warfighter. These efforts have led Crane to documented cost avoidances in excess of $1 billion to-date. The documented cost avoidances in the area of *"Smart Buyer"* associated with standardization and innovative *technology insertion* were recognized with the presentation of the DOD "Standardization Program Award for Excellence."

The future of warfighters and freedom fighters, for as far as today's technology will carry us, may depend on the military battery and its ability to power the tools of defense. Crane is truly a steward of the nation's defense related battery knowledge.

TECHNOLOGY AREAS

Crane's Fleet support areas are aligned by product and technology. The following pages provide overviews and summaries of Crane's defense technology areas, the defense systems supported by each, and the services and capabilities each brings to the mission.

CRANE DEFENSE TECHNOLOGY AREAS

ACOUSTIC SENSORS

Provides acquisition support, test facilities, service engineering (including alterations) and integrated logistics concepts for Acoustic Sensors. Integration of these efforts requires extensive system knowledge gained through a highly extensive technical work force involved in the entire life cycle of the products. Capability includes engineering, technical, logistics, surge production and repair.

SYSTEMS SUPPORTED

- Air launched sonobuoys
- Airborne low frequency sonar
- Torpedo and sonar acoustic sensors
- Countermeasure systems
- Submarine towed array handler systems
- Transducers and elastomeric products
- Surface ship sonar
- Submarine sonar
- Tactical dropzone

SERVICES AND CAPABILITIES

- Product development & engineering
- Low rate manufacturing
- Test & evaluation
- Prototyping, modeling, simulation
- Technology insertion
- Design engineering
- In-Service engineering
- Acquisition engineering
- Depot maintenance
- Systems engineering

NAVSEA

Sub Acoustic Countermeasures

- **System Development & Integration/Test**
- **System Safety**
- **Integrated Logistic Support**
- **Fleet Training/Installation**

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Harnessing the Power of Technology for the Warfighter

CRANE DEFENSE TECHNOLOGY AREAS

CHEMICAL/BIOLOGICAL WARFARE DETECTION

Responding to the most eminent threats of the day, this unit develops systems for detection of and protection against chemical and biological agents.

SYSTEMS SUPPORTED

- AN/KAS-1A chemical warfare directional detector
- MK21 Model 1 chemical agent detection system
- MK 26 Model 0 improved point detection system
- M22 automatic chemical agent detection alarm
- Interim biological agent detectors
- Joint biological point detection system
- Joint service lightweight standoff chemical agent detector
- Joint chemical agent detector
- Shipboard automatic chemical agent detector
- Improved chemical agent monitor

SERVICES AND CAPABILITIES

- Develop & review specifications
- Develop procurement technical data packages
- Contract for products, components, or services
- Acceptance test new systems
- Repair chemical detection devices
- Provide on-site fleet support and training
- Initiate & implement engineering change proposals
- Provide sustainment logistics support
- Perform failure analysis

CRANE DEFENSE TECHNOLOGY AREAS

CONVENTIONAL AMMUNITION ENGINEERING

The Conventional Ammunition Engineering technical capability provides comprehensive life cycle management functions to provide safe, reliable, and effective munitions to the Fleet, Marine Corps, and Special Warfare. The capability provides program management, design and development, COTS insertion, simulation and modeling, systems safety support, acquisition and service support, test and evaluation including quality evaluation, maintenance, logistics support, and demilitarization/disposal functions.

SYSTEMS SUPPORTED

- Surface ship conventional ammunition
- Air launched conventional ammunition
- Marine Corps ammunition
- Tactical and strategic missiles
- Navy and Marine Corps special warfare systems
- Marine Corps air defense armor missiles
- Land mine countermeasures systems

SERVICES AND CAPABILITIES

- Life cycle engineering support
- Fleet responsiveness
- Logistics planning & system support
- Ordnance test, evaluation & analysis
- Ordnance materials characterization
- Environmental simulation & radiography
- Depot & intermediate maintenance
- Explosive storage
- Manufacturing (CAAA: prototype to full scale)

CRANE DEFENSE TECHNOLOGY AREAS

DEFENSE SECURITY SYSTEMS

Provides expertise to achieve total security solutions for safeguarding personnel, property, and material aboard Navy ships and at Navy, Marine Corps, and other DoD shore installations and activities. By coupling extensive knowledge of physical security with a workforce skilled in design, acquisition, logistics, and integration, the capability acts as a technical agent providing dynamic regionalized, integrated force protection solutions employing the latest in COTS electronic and physical security equipment. Core capabilities of Defense Security Systems include electronic security systems and devices for communications security, shipboard security, personal security, and force protection.

SYSTEMS SUPPORTED

- Badging and access control systems
- Biometrics
- Intrusion detection systems
- CCTV surveillance and assessment systems
- Smart card technology
- Medium and high security locking systems
- Wireless shipboard communications systems
- Force protection equipment
- AA&E physical security equipment

SERVICES AND CAPABILITIES

- DoD center of expertise for badging systems
- Advanced technology assessment/insertion
- System integration expertise
- Force protection solution engineering
- Engineering design, development, acquisition & installation
- Logistics planning and support
- On-site systems support and training
- Repair and maintenance of high security locking devices

CRANE DEFENSE TECHNOLOGY AREAS

ELECTRO-CHEMICAL POWER SYSTEMS

Includes engineering expertise and facilities to provide industrial base support services for batteries and other energy storage and transfer devices (fuel cells, UPS, solar cells, power supplies, and ancillary equipment).

SYSTEMS SUPPORTED

- Shipboard and underwater power systems
- Tactical and strategic missile power systems
- Special warfare systems
- Communications systems
- Navigation systems
- Smart munitions
- Mines and torpedoes
- Aircraft and avionic systems
- Satellite and space based systems
- Surveillance and intelligence systems
- Ground support equipment
- Power generation systems

SERVICES AND CAPABILITIES

- Applied research
- Requirements definition
- Design
- Product development
- Prototyping & limited manufacturing
- Standardization
- Test & evaluation
- Safety certification
- Technology evaluation & insertion
- Production engineering
- In-Service engineering
- System retirement
- Acquisition & acquisition support
- Failure analysis

NAVSEA

Military Batteries

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Harnessing the Power of Technology for the Warfighter

ELECTRONIC WARFARE SYSTEMS

Provides engineering and industrial base support for acquisition, testing, and maintenance of Electronic Warfare Systems. Includes teaming with the Fleet, industry, and other government activities to maintain and improve EW systems, subsystems, components, and support equipment across all warfare areas throughout their life cycles.

SYSTEMS SUPPORTED

- Communications jamming systems
- Communications surveillance systems
- Ground troops support

SERVICES AND CAPABILITIES

- In-service engineering
- Requirements definition
- Software support
- Systems design
- Product development
- Prototyping and limited production
- Testing and evaluation
- Production engineering
- Depot maintenance
- System retirement
- Failure analysis

ELECTRONIC MODULE TEST AND REPAIR

Provides the full spectrum of life cycle support functions at the electronic module level. This includes development of test requirements and test systems, product and source certification testing, obsolescence support, failure analysis and manufacture test and repair. Progressive maintenance and distance support capabilities are included. Services include teaming with the Fleet, industry, and other government activities to provide solutions to problems at the module/product level.

SYSTEMS SUPPORTED

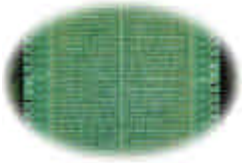
- Combat weapons systems
- Gun and fire control systems
- Shipboard electronics systems
- Tension winch controllers
- Anti-submarine warfare systems
- Standard computers / peripherals
- Strategic (FBM) fire control systems
- Submarine combat control / acoustic sets
- Tactical computer resources
- Test equipment and repair tools
- Video and data recorders
- Surface and airborne control systems

SERVICES AND CAPABILITIES

- Maintenance engineering
- Equipment design and manufacturing
- Testing and evaluation
- Prototype development
- Reverse engineering
- Life cycle support of ATE
- Integrated logistic support
- Industry liaison
- Equipment substitution analysis and control
- Technology evaluation and insertion
- Manufacturing process engineering

CRANE DEFENSE TECHNOLOGY AREAS

MICROELECTRONIC TECHNOLOGY



Crane develops technical requirements to support acquisition offices, performs evaluations to assure that these products are appropriately selected and robustly designed into systems, and supports the products and the systems that use them throughout their deployment and life cycle. Products include microcircuits, circuit cards and processors, packaging and interconnect technologies, and other electronic assemblies.

SYSTEMS SUPPORTED

- Shipboard electronic systems
- Strategic missile guidance systems
- Strategic (FBM) fire control systems
- Strategic missile electronics systems
- Strategic missile (FBM) navigation systems
- Tactical computer resources
- Surface ship combat systems
- Submarine combat systems
- Satellite / space based electronics
- USMC intelligence analysis systems
- USMC command and control systems
- Navy signal processors

SERVICES AND CAPABILITIES

- Design engineering and product development
- Transition to production
- Program management
- Testing and evaluation of electronics
- Technology evaluation / insertion
- Production engineering
- COTS evaluation / application
- Modeling and simulation
- System life-cycle support
- Failure and materials analysis
- Repair

NAVSEA

Microelectronics

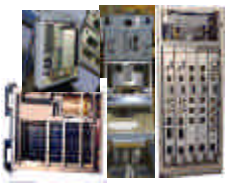
Printed Wiring Board

- Design/manufacturing knowledge base
- The only Navy printed wiring board manufacturing & engineering facility
- Recognized by the Association Connecting Electronic Industries (IPC) as a Unique National Asset

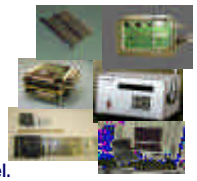
Radiation Hardened Electronics

- Highest Dose-Rate Linear Accelerator in the US Capable of Simulating Effects of a Nuclear Blast

Diminishing Manufacturing Sources Obsolescence Analysis/Solutions



- 504 alternatives to obsolescence problems ($20M - FY02 cost avoidance)
- Leader & center of technical expertise on DMS issues
- COTS management & engineering for surface combatants
- Chairs NAVSEA COTS steering board.
- Only implemented COTS technology refresh planning model.



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Harnessing the Power of Technology for the Warfighter

CRANE DEFENSE TECHNOLOGY AREAS

MICROWAVE COMPONENTS

Provides complete life cycle support of microwave components for military weapon systems. Includes design, testing qualification, failure analysis, repair, procurement, and engineering expertise necessary to develop and support military weapons systems.
The Antenna Branch provides necessary scientific and engineering disciplines to multiple government agencies and private industry during the design, acquisition process, and operational life of radar systems.

SYSTEMS SUPPORTED

- Navy shipboard radar and ECM systems
- Navy airborne ECM systems
- Airborne fire control systems
- Airforce airborne jammer radar
- Marine Corps diction radar system
- Land based communications

SERVICES AND CAPABILITIES

- Review and certify electronic designs
- Develop procurement technical data packages
- Develop, revise, and approve technical specifications
- Component production / repair vendor surveillance testing
- Transition new designs to production
- Failure analysis
- Environmental testing and analysis
- Product development and improvement

CRANE DEFENSE TECHNOLOGY AREAS

NIGHT VISION ELECTRO-OPTIC AND CHEMICAL/BIOLOGICAL/EXPLOSIVE DETECTION

Crane provides cradle to grave engineering and industrial base support for Night Vision, Lasers, Thermal Imagers, and Multi-Sensor Electro-Optic systems. Provides life cycle management engineering and industrial base support for Chemical/Biological/Explosive Detection Equipment. Support includes developing, purchasing, testing, maintaining, fielding, installing, and improving such equipment and representing the Navy on many Joint Service logistics and acquisition teams. Provides program management for Fleet Night Vision Devices.

SYSTEMS SUPPORTED

- Airborne night vision goggles
- Surface multi-sensor systems
- Special warfare night vision devices
- Special warfare lasers
- Surface night vision devices
- Remote surveillance systems
- Aircraft multi-sensor systems
- Aircraft laser systems
- Army avionics systems
- Manportable thermal imagers
- Tactical remote sensor systems
- Survival radios

SERVICES AND CAPABILITIES

- Application engineering
- Acquisition planning and engineering
- Acceptance testing
- Laser safety evaluations and certifications
- Image intensifier tube testing and screening
- Night vision, laser, and thermal image repair
- System installation and training
- In-service engineering and life cycle support
- Systems integration
- Failure analysis
- Value engineering analysis

CRANE DEFENSE TECHNOLOGY AREAS

PYROTECHNICS

Provides the war fighter with affordable, safe, reliable, and effective pyrotechnics for the many varied functions that are supported, including infrared countermeasures, target enhancement, illumination, and signaling and marking. Provides Fleet support and demilitarization and disposal for all Navy pyrotechnics. Provides Navy expertise and leadership for pyrotechnics.

SYSTEMS SUPPORTED

- Aircraft infrared countermeasures
- Surface launched pyrotechnics
- Submarine launched pyrotechnics
- Air launched pyrotechnics
- Signaling and marking pyrotechnics
- Smokes and obscurants
- Countermeasure dispenser systems

SERVICES AND CAPABILITIES

- Pyrotechnic design and development
- Modeling and simulation
- Prototype development and limited production
- Testing and evaluation
- Exploitation
- Transition from prototype to production
- Acquisition engineering
- In-service engineering

CRANE DEFENSE TECHNOLOGY AREAS

RADAR

Provides the NAVSEA Acquisition Program Managers technical alternatives for making investment decisions for acquisition of radar material resources, and provides the disciplines in the systems acquisition process to assure that the government obtains a product that satisfies the military requirement. Provides a core technical capability for Navy detection radar systems and components with emphasis on industrial support after completion of the acquisition process and until the end life of the system. Deputy program management services are provided for planning and budgeting, monitoring and controlling and directing. Acquisition Engineering services provided are technology management, affordability analysis, and developing technical data packages.

SYSTEMS SUPPORTED

- Shipboard detection and fire control radars
- Synthetic aperture radars
- Shipboard navigation radars
- Land based air defense radars
- Radar stimulators and simulators
- Radar data distribution systems

SERVICES AND CAPABILITIES

- Design and analysis
- Product development
- Prototype construction and limited manufacturing
- Testing and evaluation
- Obsolescence recovery
- Technology evaluation / insertion
- Production engineering
- Acquisition engineering
- Depot maintenance
- System retirement
- Failure analysis

CRANE DEFENSE TECHNOLOGY AREAS

SMALL ARMS

Provides complete life cycle support for Small Arms weapon systems. Responsibilities include design, development, T&E, acquisition, depot overhaul, and logistics management of small and minor caliber gun systems. This includes integration of state-of-the-art sensor and stabilization technology to enhance the overall performance of the weapon system. This technical capability is coordinated with Crane's responsibilities for Life Cycle Management of NVEO and RADAR equipment. Many of the advanced gun weapon systems and capabilities are already being employed in the direct support of current Anti-Terrorism/Force Protection.

SYSTEMS SUPPORTED

- Sniper weapons
- Automatic weapons
- Pistols
- Rifles and Shotguns
- Crew-served gun mounts
- Shipboard gun systems
- Gyro-stabilized and electrical powered gun systems for small boats, ground combat vehicles, and helicopters
- Ammunition up to 25mm including military grade, law enforcement, shotgun, recoilless rifle, mortar, and grenades

SERVICES AND CAPABILITIES

- Weapons concept and design
- Structural analysis
- Computer modeling
- Prototype fabrication and limited production
- Environmental and functional testing
- Full scale development

NAVSEA

Expeditionary Warfare Systems

- **Operation & Maintenance Training**
- **Live Fire Exercise Evaluation**
- **Site Maintenance & Engineering**
- **Readiness Evaluation & Planning**
- **Development & Fielding of Tactical & Advanced Technology Demonstration C4ISR & Air Defense Systems**

CRITICAL CAPABILITIES
DEFENSE RESPONSIBILITIES AND RESOURCES

Virtually every tool of modern warfare is supported by operations at Crane. The concentration of electronics technology provides extensive horizontal and vertical support of defense and security systems.

Crane resources provide for a wealth of possible activities, both now and in the future. The facility is well known for its design and development potential. In addition, its vertical and horizontal integration provides for numerous support and specialty operations. Most Crane development facilities also have the capacity to engage in short term and/or low production manufacturing of new items in order to bring technologies and devices to the American war fighter.

CRANE BUSINESS AND DEFENSE RESOURCES

Federal investment in NSWC Crane has resulted in a massive and productive facility. It also has unmatched potential for expansion. It has infrastructure, facilities, and space for many additional defense operations including research, development, design, testing, communication, manufacturing, storage, and maintenance. Most importantly, Crane is able to recruit almost unlimited technical personnel.

The infrastructure and facilities in each of Crane's mission-oriented departments is fully functional, integrated, up-to-date, and effective. This report lists those departmental assets in general terms as a matter of security, yet in enough detail to communicate the full value and potential of Crane at the departmental level.

One of the locomotives used to move ordnance and equipment around the Crane base as well as to and from rail connecting points.

DEFENSE INFRASTRUCTURE AT NSWC CRANE DIVISION

FEATURE	DESCRIPTION
3rd Largest Navy Base in the WORLD	**62,929 acres; 857+ buildings comprising approximately 6 million square feet under roof. Investment exceeds$2.13B. One of DOD's largest ordnance storage facilities with more than 1,600 explosives storage magazines.**
ENCROACHMENT	Crane is free of encroachment problems. Surrounding areas are gently rolling countryside, hills and farmland.
POWER	Electrical power is provided with redundant systems by Cinergy (investor owned utility and the SWREMC (member owned rural cooperative). Natural gas is piped onto the base and provided by Vectren (investor owned utility).
COMMUNICATIONS	Crane has unlimited bandwidth dark fiber with connections to Indianapolis and Internet II. Smithville Telephone and Indiana University circuits are used. Telephone service is provided by Verizon (investor owned utility) including voice and data circuits and several T-1 lines.
INTERNAL TRANSPORTATION	Crane has an internal road network consisting of more than 300 miles. The Crane railroad includes 150 miles of track, 10 diesel engines, 350 boxcars, and other rail equipment. It interconnects with the Canadian Pacific on base.
WATER SUPPLY	All water is supplied by an 800 acre lake on the property and is treated by the on-site water treatment plant. Non-potable water for fire protection and industrial processing can be pumped directly from the main lake and other bodies of water on site.
WASTE DISPOSAL	Base utilities include a network of sanitary sewers and on-site wastewater treatment.
EXTERNAL TRANSPORTATION	Crane is located approximately 50 miles north of Interstate 64. It is approximately 75 miles from Indianapolis, 100 miles from Louisville, Kentucky, and 150 miles from St. Louis, Missouri.
SECURITY	The Crane perimeter is protected by remote, rough terrain and roving patrols. An "Island Security" concept is used to protect sensitive areas with fencing, electronic surveillance, and increased patrols and guards.

DEPARTMENTAL INFRASTRUCTURE

Over the last fifty years, the amount of defense investment at NSWC Crane has been enormous. There are literally thousands of assets, each with its own specific defense purpose, located on the base. These assets could be itemized in numerous ways and in many categories. This section summarizes the major assets according to the department or mission area with which they are associated.

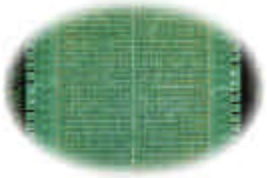
DEPARTMENTAL INFRASTRUCTURE AT NSWC CRANE DIVISION

DEPARTMENT	FACILITIES AND EQUIPMENT	PERSONNEL HIGHLIGHTS
ACOUSTIC SENSORS 	• 20 buildings, 100K SF Lab & Office • Specialized Facilities o 3 ATF Tanks/3 Hydrostatic Tanks o 2 Low Frequency Tanks o Overwater RF Pond o Tow and Sea State Simulation • Elastomer Manufacturing & Analysis • Remote "quiet lake" with explosive capability.	• Highly technical workforce of 105 • 50 scientists and engineers, 41 technicians / logisticians • 3 military • 2,000 workyears experience
CHEMICAL / BIOLOGICAL WARFARE DETECTION 	• Unique 25,000 SF chemical / biological detection center • Physical plant valued at $4.0M • Specialized detection equipment valued at $5.0M • Thermal collimators and chemical vapor diagnostic test sets • Chemical vapor generators	• Highly technical workforce of 35 with extensive detection experience • Skill mix of thermal imagers, and IMS expertise • 10 engineers and scientists • 10 skilled technicians / equipment specialists
CONVENTIONAL AMMUNITION ENGINEERING 	• 52 engineering, operating, & test buildings, 293K SF $33.4M value • 10 major laboratories • Explosive storage magazines • 88 acre ordnance test area • Co-located with CAAA for manufacturing & storage (671 K sq ft production; 4.8M SF storage) • Complete environmental, chemical, and electro optic analysis labs	• 165 scientists & engineers • 119 technicians • 25 wage grades • 36 all others • Total workforce of 389 • 5,854 years of experience • Internationally recognized expertise • Prototype manufacturing facility for pyrotechnics

DEPARTMENTAL INFRASTRUCTURE AT NSWC CRANE DIVISION

DEPARTMENT	FACILITIES AND EQUIPMENT	PERSONNEL HIGHLIGHTS
DEFENSE SECURITY SYSTEMS		
	• Shipboard mock-up to support testing of wireless communications and security equipment • Security & biometrics test lab • Part of a comprehensive electronics development, manufacturing, & repair infrastructure	• Over 500 workyears of experience in physical security programs • 18 scientists and engineers • 10 technicians • 6 physical security specialists • Professional workforce of over 45 personnel
ELECTROCHEMICAL POWER SYSTEMS		
	• DOD's largest (127K SF) electrochemical facility • Facilities include $16.1M plant • $20.9M of state-of-the-art test and evaluation equipment o High-energy battery evaluation o Missile/mine battery evaluation o Aircraft / Aerospace / Submarine / Surface ship battery evaluation o Material/Failure, battery prototyping, & fuel cell evaluation	• 58 scientists & engineers • 40 technicians • Dedicated professional workforce of 102 personnel • Recognized nationally & internationally as experts • 1,650 workyears of power systems experience
ELECTRONIC MODULE TEST AND REPAIR		
	• 161K SF, $17.3M plant o Model depot facility o Progressive level repair lab o Electronic module test & analysis o Printed circuit technology facility • $37.5M of modern test, manufacturing, & repair equipment • ISO 9002 certified	• Dedicated professional workforce of 150 personnel • 35 engineers • 105 skilled technicians (many fleet trained veterans) • Over 2,000 workyears experience
ELECTRONIC WARFARE SYSTEMS		
	• Over 230K SF of modern facilities, including $20M plant • $70M of state-of-the-art test & evaluation equipment • High & low power RF / digital / analog/high voltage test & measurement equipment • ATE software development facility • Environmentally safe corrosion control & physical repair facility • Ram air turbine wind tunnel	• Dedicated professional workforce of 415 personnel • Extensive technical knowledge of air / ships / expendable EW systems • 108 engineers & scientists • 140 technicians • 3,600 workyears of EW experience

DEPARTMENTAL INFRASTRUCTURE AT NSWC CRANE DIVISION

DEPARTMENT	FACILITIES AND EQUIPMENT	PERSONNEL HIGHLIGHTS
MICROELECTRONICS		
	• $70M facilities and equipment o Materials failure analysis o Semiconductor radiation effects o Electronic/photonic component engineering, electronic design and simulation labs o Electronic module test / analysis o Packaging and thermal analysis • Open architecture and computer standards / embedded computer performance evaluation labs	• 240 scientist and engineers • 160 technicians • Dedicated experienced workforce of 400 personnel • Recognized nationally & internationally as microelectronics experts • Total experience of over 6,000 years
MICROWAVE COMPONENTS		
	• Unique DOD microwave tube testing lab (90K SF) • Physical plant value of $35M • Specialized microwave / high voltage equipment value of $115M o Microwave tube test / evaluation o Component/transmitter interface o Cathode life test facility o Vacuum process / failure lab o Integrated environmental test and evaluation facility o Microwave integrated circuit test and repair lab	• Highly technical workforce of 136 personnel • Skills mix of microwave, digital, and electromechanical unique to microwave tubes • Nationally recognized Microwave device dxperts o 45 engineers and scientists o 63 microwave technicians • 2,136 workyears of microwave experience
NIGHT VISION / ELECTRO OPTICS		
	• 65,000 SF electro-optic center o 40,000 SF laboratory o 5,000 SF class 1K clean room o 85 ft. tower with line of sight distances to 40 miles o Physical plant valued at $7M • Open architecture test / diagnostics equipment valued over $10M o Automated Intensifier Measurement System (AIMS) o Sensor electronics test set o Sensor Optical Test Set (SOTS) o Mast mounted sight Test Support System (TSS) o Laser designator/marker test station and outdoor electro-optic test and training range	• Highly technical workforce of 122 professionals with extensive night vision and electro-optics experience • Skills mix of image intensifiers, thermal imagers, and lasers technical expertise • 47 engineers and scientists • 34 skilled technicians / equipment specialists

ECM AND SURVEILLANCE SYSTEMS *(a branch of Crane's Electronic Warfare Systems)*

- Testing and evaluation labs
- Anechoic chambers
- Repair labs

- 55 Engineers
- 54 Technicians
- 17 Logisticians
- 19 support staff

PYROTECHNICS

- Ordnance unique facilities (78K Square Feet, $12M plant value)
- Prototype manufacture
- Windstream test
- Automated IR test
- 88 acre ordnance test area
- Missile seeker characterization lab
- Mobile measurement vans and tracking mounts

- 55 scientists and engineers
- 35 technicians
- 10 wage grades
- 100 total workforce
- Navy pyrotechnics corporate knowledge base
- Forty years pyrotech history
- 2,500 years pyrotechnics experience
- Internationally recognized expertise

RADAR SYSTEMS

- $16.1M plant and $42.9M of state-of-the-art equipment
  - Antenna Analysis Facility
- Outdoor far field / compact and near field ranges
- Anechoic chambers
- Active aperture measurement test vehicle
- Component test & evaluation and shipboard radar test facilities
- Class 1K clean rooms / T/R module facility

- MMIC design facility / radiant energy system
- Dedicated professional workforce of 95 personnel
- Skills mix of microwave, digital and electro-mechanical unique to radars
- 28 engineers & scientists
- 548 workyears of radar experience

SMALL ARMS

- 120K SF operations building
- 25 yard indoor test range
- 100 meter underground test facility with walk-in environmental chamber
- Small-arms repair facility
- Powder-coating facility
- Prototype fabrication shop
- Secure small-arms storage area
- 1,000 yard outdoor test range
- Ammunition loading facility for limited production
- Explosives storage magazines

- Dedicated professional workforce of 117
  - o 63% with college degrees
  - o Over 1,200 workyears experience
- "Hands-on" knowledge (engineering and technical)
- Understanding of the customers needs – both conventional and special operations
- Fleet trained veterans

THE ARMY

Crane is home to one of the largest joint Army / Navy joint occupancy bases with synergistic missions for development and deployment of ordnance. Crane AAA was established as a Naval Ammunition Depot in 1941 to provide a storage and loading site away from the coast. Originally called Naval Ammunition Depot, Burns City, it was renamed in 1943 for Commodore William Montgomery Crane, first Chief of the Bureau of Ordnance. After World War II, activity increased during the Korean and Vietnam conflicts. In 1975, NAD Crane was renamed the Naval Weapons Support Center (NWSC Crane), reflecting its increased technical and electronics capabilities and growing role in defense. In 1977 CAAA was formed from NSWC Crane's Ordnance Department.

Crane Army Ammunition Activity is an installation within the U.S. Army Munitions Command, a major subordinate command of the U.S. Army Material Command. The Activity is one of three government owned/government operated ammunition production facilities within the Department of Defense. The Activity's mission is to produce and renovate conventional ammunition and ammunition-related components; perform manufacturing, engineering, and product assurance in support of production; and store, ship, and/or demilitarize and dispose of conventional ammunition and related items.

The production, handling, and storage of munitions require specialized equipment and related facilities. The Activity maintains the only operational white phosphorous demilitarization conversion plant in North America. The technology contained in this plant allows the Activity to extract deadly white phosphorous from old munitions and convert it into relatively harmless phosphoric acid that may ultimately be used in carbonated beverages and fertilizer. X-ray equipment is used in the nondestructive, real time testing of items such as 40mm mortar rounds to ensure quality products to the warfighter. A variety of special lifting devices allow workers to easily handle objects as large as 1,000-pound bombs.

The Activity's manufacturing capabilities include the ability to produce finished items as diverse as detonators weighing only 20 grams to 40,000-pound cast shock test charges. The Activity has extensive renovation and maintenance capabilities for conventional munitions, and is the recognized center of technical expertise in the production of pyrotechnic devices including signal smoke, illuminating and infrared flares, and distress signals. The Activity is one of four Tier 1 Ammunition Storage Sites within the Department of Defense which stores war reserve ammunition to meet initial ammunition needs in the first 30 days of a conflict.

Crane Army Ammunition Activity's organizational structure includes four major directorates, one center, and five staff offices, which directly support the organization. Process improvement opportunities are chosen from this list of processes and pursued by process action teams chartered by the Quality Council. In July 1998, the Activity became one of only a handful of organizations within the federal government to be ISO-9002 certified by a third-party registrar. Efforts continue to integrate Activity Based Management within a structured ISO-9002 environment by seeking to improve the processes which define the Activity and ensure quality products to the customer. Crane Army Ammunition Activity operates in a highly competitive environment, and the decision to seek ISO-9002 certification was made in order to partner with ISO-certified civilian contractors who would prefer, or in many cases be required, to only subcontract work to ISO-9000 certified organizations. In the time since becoming certified, the Activity has already won several contracts as a result of this strategy. For example, it recently won a five-year demilitarization contract with

Parsons Brinckerhoff worth more than $50 million.

Crane Army Ammunition Activity's ultimate customers are the warfighters in the U.S. Army, Navy, Air Force, Marines, and Coast Guard who use the products. The Activity's defect rate in the area of manufacturing is closely monitored to ensure that only quality goods are shipped. The Activity's record for the delivery of munitions to the field is exceptional with a 99% on-time delivery rate. The Activity consistently strives to be the best in the business of producing and supplying ordnance material to U.S. fighting forces, and the high volume of repeat business is an important indicator of its high level of customer satisfaction.

Crane Army AA and NSWC Crane have synergistic missions. For instance, Crane Navy supports the acquisition of five inch Navy shells which Crane Army produces. Crane Navy researches, develops, and prototypes pyrotechnic, missile countermeasure flares which Crane Army then produces. Together, these two activities bring unique ordnance and electronics capability to the nation's defense.

DEFENSE PARTNERSHIPS

FOR RESEARCH, DESIGN, TESTING MANUFACTURING

Crane is a leader and pioneer in the art of forging creative and effective military-business-education partnerships. On-going partnerships are in place with major universities, private business, industrial associations, and state government. All contribute to a more effect expenditure of the defense dollar and the leveraging of resources to make Crane operations as efficient as possible.

DEFENSE PARTNERSHIPS AT NSWC CRANE DIVISION

ORGANIZATION	DESCRIPTION
INDIANA UNIVERSITY And PURDUE UNIVERSITY	Indiana University and NSWC Crane will investigate and advance the development of technologies to improve Naval diagnostic and maintenance operations. The work will develop systems to enable technicians and engineers on shore, in diverse locations attached to the internet, to remotely identify and fix problems on a ship at sea. This will mean that problems now taking days to identify and resolve, and involving physically gathering technicians and engineers (and possibly transporting them to remote off-shore locations) will be handled in hours; saving time, money, and potentially lives. Other joint projects will focus on the development of training programs for Navy personnel that will be delivered via shared virtual environments (virtual reality), as well as other distance learning initiatives. Several of these virtual interactive environments can be connected using a network to create a shared "classroom" in which instructors and students can interact at the same time from around the globe. The evaluation of remote access to advanced analytical instrumentation and network security strategies is also of interest to NSWC Crane. Indiana University has a research program to develop means for researchers to use one-of-a-kind scientific instrumentation such as telescopes and microscopes remotely, from their home laboratories. Remote communication involving the maintenance of Naval platforms will require high levels of security not generally available over current internet and wireless technologies.
PURDUE UNIVERSITY	Research and development joint activity for chemical / biological detection.
ROSE-HULMAN INSTITUTE OF TECHNOLOGY	Research and development for signal optical processors.
IVY-TECH COMMUNITY COLLEGE	Shared staff and technologies.
ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES	IPC—Association Connecting Electronics Industries® has signed a three-year Cooperative Research and Development Agreement (CRADA) with the NSWC Crane. The goal of the program is to aid PCB manufacturing by researching state-of-the-art advances in design, development, and manufacturing processes. NSWC Crane has a complete PCB manufacturing facility, comprehensive failure analysis lab, an environmental test and evaluation lab, and extensive computer modeling capabilities to support this goal.

DEFENSE PARTNERSHIPS AT NSWC CRANE DIVISION

ORGANIZATION	DESCRIPTION
MILITARY DEPARTMENT OF INDIANA	Founded on a Memorandum of Understanding between the Military Department of Indiana and Crane Division, Naval Surface Warfare Center, this is a partnership that expands Crane's already large testing area. Camp Atterbury, located about 30 miles south of Indianapolis is a 33,000 acre base used largely by National Guard and other military units for training.
TECHNOLOGY TRANSFER PROGRAM	NSWC Crane's Technology Transfer Program opens the door for companies to access State-of-the-Art techniques and processes, test, evaluation, and prototype development facilities, as well as scientists, engineers, and technicians. This ability provides a competitive edge in today's global economy.
Facility Use	Inter/Intra Service Support Agreements (ISSAs) are support agreement mechanisms which allow the use of government unique facilities for the mutual benefit of government program sponsors, the prime contractor and NSWC Crane. The ISSA may be negotiated prior to solicitation or with an existing contract. During the period of the agreement the contractor may be allowed to perform additional or supplemental work for non-governmental customers.
Leasing of Non-Excess Facilities	Title 10, U.S. Code, Section 2667, permits the Secretary of the Navy to lease non-excess property whenever he considers that such action would be advantageous to the government, upon such terms and conditions as he considers will promote the national defense or be in the public interest.
Cooperative Research and Development Agreements (CRADAs)	CRADAs are agreements between a government R&D laboratory and a Non-Navy partner to cooperatively conduct research and development in a given technical area and share in the technical results and the profits received from the joint effort. It can save both industry and the government laboratory costs and valuable time to achieve mutually desirable results.
Testing Services	The Department of Defense policy under this provision is to promote research and development within the commercial sector of the U.S. economy, and the transfer of technology from the military to the commercial sector. These policies further national security by promoting the development of a national industrial and technological base from which to sustain military technology superiority while enhancing productive capabilities for the nation overall. In many cases, providing information or unique or scarce items to a private sector entity will significantly aid that entity's ability to engage in research critical to the development of a useful commercial technology.
Articles and Services	NSWC Crane Division is now eligible to seek approval to perform work for non-DoD customers pursuant to Section 2563. Congress recognized the benefits of this authority, including enhanced commercialization of dual-use technologies, promotion of economic growth and creation of jobs, increased use of defense assets to lower DoD operating costs, and increased access of the private sector to defense-unique capabilities. Through a delegation the Naval Surface Warfare Centers may sell articles and services that are manufactured or performed by any working-capital funded industrial facility, such as the NWSC Crane Division, to a person outside the Department of Defense, that are not available from any U. S. commercial source.

THE CRANE FUTURE

NSWC Crane provides the resources and location to continue as a vital element of national defense. Decades of investment in talent, infrastructure, and technology have provided the United States Department of Defense with a facility unmatched in its ability to meet current and future needs of the American warfighter.

NSWC Crane is currently operating under a five year strategic plan. It describes Crane's contribution to NAVSEA's support of customers' changing needs in a reformed and downsized public/private defense infrastructure. The plan is linked with NAVSEA's Strategic Plan and with the ASN(RD&A) Strategic Plan. Crane will partner with industry, academia, and other government activities to accomplish its mission and become the Navy's best fully integrated, acquisition and Fleet support organization.

The guiding principles described in this plan will govern internal operating concepts and relationships with workforce, customers, suppliers, competitors and partners. The plan establishes strategies, desired outcomes, and key measures for each strategic goal. Goals are focused on: CUSTOMERS; WORKFORCE; ORGANIZATION; INFRASTRUCTURE; the COMMUNITY; the ENVIRONMENT; and SAFETY, both in the general workplace and in the explosive area. The Board of Directors reviews the key measures associated with these goals on a regular basis. Together these key measures form a BALANCED SCORECARD, and are used to measure progress towards goals. Each senior leader is assigned as an advocate for one or more goals. They are responsible for developing and implementing detailed plans and for monitoring and reporting progress towards the goals. The strategic plan provides the foundation upon which Crane will develop both long term and short term business plans for Crane and for each of the business units to address more specific customer needs.

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VALUE ASSESSMENT

PART TWO: IMPORTANCE TO INDIANA ECONOMY

August 25, 2003

Commissioned by the Southern Indiana Business Alliance (SIBA) and prepared by
STRATEGIC DEVELOPMENT GROUP
2901 North Walnut
Bloomington, Indiana 47404

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PART TWO:

IMPORTANCE TO INDIANA ECONOMY

EXECUTIVE SUMMARY

Crane Division, Naval Surface Warfare Center, Crane, Indiana (NSWC Crane) is a major economic force in southwestern Indiana. With a total estimated economic impact approaching $1.5 billion, the area around the base consisting of eight Indiana counties shares a total annual benefit of $844.7 million. Much of this impact is generated by wages and purchases. The numbers of highly paid professionals and contract expenditures equal and even exceed those of many of Indiana's large private enterprises.

The most notable economic impact delivered by Crane is in its employment. Crane is the twelfth largest single-site employer in the state of Indiana and is the second largest single-site employer in the southwest part of Indiana. Its wide range of professional and technical jobs provide comparatively high pay in the otherwise mostly rural area. Crane's on-site employment of approximately 4,780 workers is supported by an additional regional workforce of approximately 3,700 workers. This brings the total employment value of NSWC Crane to about 8,500 jobs, approximately 7,400 of which are in Martin county and contiguous counties of southwest Indiana. The base draws most of its workers from a primary labor market area that includes Daviess, Dubois, Greene, Knox, Lawrence, Martin, Monroe, and Orange counties. Table 1 details the employment figures for this eight-county area, as well as the rest of Indiana.

Wages earned by Crane workers are among the highest in Indiana. The average wage of workers at Crane is approximately two times the average wage in each of the primary labor market counties. These eight counties (Daviess, Dubois, Greene, Knox, Lawrence, Martin, Monroe, and Orange) share nearly $845 million of total economic value. The highly skilled and highly paid jobs offered through the Navy, defense contractors, and other operations at the base have enabled this portion of Indiana to attract educated and talented professionals to communities that would otherwise have few scientific, engineering, and technology positions in their mix of jobs.

It is at the individual county level where Crane's impact is the greatest. From numbers of jobs supported, to wages and income, to commuting patterns, NSWC Crane is the major force supporting these elements of the area economy. As shown in Table 2, Crane economic impacts, wages, and retirements constitute large proportions of area income.

Table 1
NSWC CRANE
COUNTY EMPLOYMENT COMPARISONS

County	Labor Force		Percent of Crane Employees in county	Number of Crane Related Jobs				
	Total	Employed			Direct	2ndary	TOTAL CRANE RELATED JOBS	% of Empl'd
Daviess	13,580	13,040	13.4		640	506	1,146	8.8%
Dubois	22,840	22,210	1.7		80	60	140	0.6%
Greene	13,990	12,850	19.4		929	732	1,661	12.9%
Knox	18,980	18,270	1.6		77	60	137	0.7%
Lawrence	22,750	20,900	18.9		903	714	1,617	7.7%
Martin	5,075	4,815	12.8		612	483	1,095	22.7%
Monroe	61,390	59,470	17.4		832	657	1,489	2.5%
Orange	8,580	7,800	1.4		67	53	120	1.5%
SUBTOTAL	167,085	159,335	86.5		4,140	3,265	7,405	4.6%
Other IN Counties			8.0		382	302	684	
Indiana	3,106,388	2,970,500	94.5		4,522	3,567	8,089	
Outside Indiana			5.5		259	207	466	
Total			100.0		4,781	3,774	8,555	

The economic impact of NSWC Crane can best be seen at the individual community level. Other communities also have dramatic impacts, these three have been selected as examples. As Table 2 illustrates, NSWC Crane wages comprise 17.5% of all wages paid in Bedford. In Bloomfield, the percentage escalates to 46% – nearly half of all wages paid in the community are derived from NSWC Crane. In Loogootee, the percentage climbs again to a staggering 67%. Certainly the economic impacts of NSWC Crane are most tangible at the local levels.

In total, Crane is immediately responsible for the employment of about 8,000 persons in Indiana and provides a total economic impact of nearly $1.5 billion. Of the total impacted employment, approximately 55% work on the expansive base in Martin County, Indiana. The total economic value is shared among hundreds of business sectors and thousands of Indiana businesses annually. NSWC Crane is an economic engine of significant importance and on a par with the private sector industrial giants of the Hoosier state.

Table 2
NSWC CRANE
COUNTY IMPACT HIGHLIGHTS
With selected municipal impacts

County / Municipality	Total Direct and Indirect		Compare Averages		Total Economic Impact
	Crane Jobs as % of Residents Employed	Crane Wages as % of Resident Income	Avg Crane Wages as % of Avg Resident Wages	Crane Average Retirement as % of Resident Income	
Daviess	8.8%	13.50%	262.5%	106.2%	$127,312,688
Dubois	0.6%	0.64%	211.2%	86.9%	$18,679,135
Greene	12.9%	26.19%	283.1%	114.7%	$182,710,484
Bloomfield		**46%**			
Knox	0.7%	0.95%	207%	91.8%	$18,577,419
Lawrence	7.7%	11.80%	213.6%	90.3%	$199,801,504
Bedford		**17.5%**			
Martin	22.7%	37.08%	175.7%	72.4%	$125,375,928
Loogootee		**67%**			
Monroe	2.5%	3.29%	234.2%	98.8%	$167,966,194
Orange	1.5%	2.19%	227.7%	84.4%	$15,599,875

EMPLOYMENT

The most notable economic impact delivered by Crane is its employment. It is the second largest single employer in the southwest part of Indiana and its wide range of professional and technical jobs provide comparatively high pay in the otherwise mostly rural area. Though business contracts and purchases at Crane reach well into the millions of dollars, payrolls are even higher and this money is carried directly into the local economies of southwestern Indiana.

The largest on-site contractors have contract awards exceeding $20 million annually. Other individual companies have multi-million dollar awards and still others split millions of dollars for providing contracted services. The economic impacts presented in this report are based on the following combination of facts and derivations:

More than 4,700 persons work on the base. Most of these are Navy employees, yet more than 30 percent work for other branches of service and private defense and other contractors. Currently, there are only about 50 uniformed military personnel at Crane which leaves approximately 99 percent of the positions filled by civilian workers.

NSWC Crane develops and tests equipment to safeguard troops from chemical and biological warfare agents.

As shown in Table 3, virtually all positions require unique, sophisticated, and highly valued skills and education in science, technology, and management. Though there are a high number of scientists and engineers employed here, Crane provides even more jobs for technicians, skilled operators, crafters, managers, and other professionals.

Table 3
NSWC Crane
SUMMARY OF EMPLOYMENT DISTRIBUTION OF NSWC CRANE DIVISION

DEPARTMENT / UNIT	TOTAL		SCIENTIST ENGINEER		TECHNICIAN SKILLED OPERATOR		COMMAND MGMT		OTHER	
C=Civilian M=Military	C	M	C	M	C	M	C	M	C	M
TOTAL, NSWC Crane, Departments and Directorates	3,207	42	962	8	1,141	28	390	4	714	2
TOTAL, Tenants	667	9	21	0	71	0	113	4	462	5
TOTAL, Contractors	855	0	171	0	392	0	49	0	244	0
TOTAL Site Employment	4,730	51	1,155	8	1,604	28	552	8	1,420	7
	4,781		1,163		1,632		560		1,427	

Direct and Secondary Employment

SDG's analysis indicates that it takes a regional labor force of more than 3,700 persons working throughout southwest Indiana to support the business and personal needs created by the base.

Table 4
NSWC CRANE
SUMMARY OF DIRECT AND SECONDARY EMPLOYMENT

Total	Subtotals		Employer Groups					
			Navy Civilian		Area Contractors		Tenants / Military	
	Direct	2ndary	Direct	2ndary	Direct	2ndary	Direct	2ndary
8,557	4,781	3,776	3,207	2,188	855	815	719	773

In addition to the numbers of persons employed at the base, the educational backgrounds of the civilian workforce mirror those of most any other high tech employment facility. Over 99 percent of the civilian workforce has a high school diploma or equivalent. More than 40% have graduated from college. All combined, the civilian Navy employees have accumulated more than 46,000 years of education. The average education of this workforce is 14+ years.

NSWC Crane displayed the Remote Operated Small Arms Mount (ROASM) at the 2002 Sea-Air-Space Expo in Washington DC. The ROASM is a remote-controlled gun mount system used for force protection that interfaces with shipboard systems. (Photo by JOC David Nagle)

NSWC Crane is a part of the Indiana industrial community. Crane units and contractors participate in industrial trade shows, conferences, and conventions to keep up with the latest trends in technology, machinery, and materials.

Table 5
NSWC CRANE
EMPLOYMENT DISTRIBUTION OF NSWC CRANE DIVISION

DEPARTMENT / UNIT	EMPLOYMENT									
	TOTAL		SCIENTIST ---------- ENGINEER		TECHNICIAN ---------- SKILLED OPERATOR		COMMAND ---------- MGMT		OTHER	
C=Civilian M=Military	C	M	C	M	C	M	C	M	C	M
Crane Command)	73	3	11	0	0	2	47	0	15	1
01 Directorate	237	9	0	0	26	7	0	2	211	0
02 Directorate	78	2	19	0	0	0	54	2	5	0
Management Systems Directorate	104	0	13	0	0	0	77	0	14	0
Public Works Directorate	284	3	21	1	211	1	38	0	14	1
OIC Construction	43	2	31	1	0	1	0	0	12	0
Supply Directorate	206	2	0	1	0	1	123	0	83	0
Electronic Warfare Systems	401	10	108	2	126	8	6	0	161	0
Microelectronics	400	0	238	0	158	0	4	0	0	0
Electronic Module Test / Repair	150	1	35	0	105	1	5	0	5	0
Microwave Components	132	1	45	1	63	0	4	0	20	0
Batteries / Energy Storage Technlgy	102	0	58	0	40	0	1	0	3	0
Acoustic Sensors	105	3	50	0	41	3	3	0	11	0
Small Arms	117	3	10	0	94	3	3	0	10	0
Conventional Ammo Engineering	389	1	165	1	119	0	8	0	97	0
Pyrotechnics	100	0	55	0	35	0	3	0	7	0
Defense Security Systems	34	0	18	0	16	0	0	0	0	0
Night Vision / Electro Optics	122	1	47	1	34	0	5	0	36	0
Chem/Biological Warfare Detection	35	0	10	0	10	0	5	0	10	0
Radar Systems	95	1	28	0	63	1	4	0	0	0
U. S. NAVY TOTALS	3,207	42	962	8	1,141	28	390	4	714	2

Notes about directorates

Crane Command Staff (includes Command Evaluation, Small Business, Office of Counsel, Occupational and Explosive Safety, and Comptroller)

01 Directorate (includes QOL, Security, Fire, and Medical)

02 Directorate (includes Executive Director, EDA, Strategic Planning, Human Resources, and Conv. Ammo Program Management)

Table 5 (continued)
NSWC CRANE
EMPLOYMENT DISTRIBUTION OF NSWC CRANE DIVISION

TENANT / CONTRACTOR	EMPLOYMENT									
	TOTAL		SCIENTIST ---------- ENGINEER		TECHNICIAN ---------- SKILLED OPERATOR		COMMAND ---------- MGMT		OTHER	
C=Civilian M=Military	C	M	C	M	C	M	C	M	C	M
TENANT AND OTHER MILITARY OPERATIONS										
U.S. Army Ammunition Activity	480	4	21	0	51	0	84	4	324	0
Letterkenny Munitions Center	142	0	0	0	20	0	29	0	93	0
Naval Criminal Investigation Svc	1	0	0	0	0	0	0	0	1	0
Navy Resale Exchange	4	0	0	0	0	0	0	0	4	0
Defense Automated Print Service	3	0	0	0	0	0	0	0	3	0
Defense Commissary Agency	10	0	0	0	0	0	0	0	10	0
Defense Reutilization / Marketing	16	0	0	0	0	0	0	0	16	0
Explosive Ordnance Disposal	0	5	0	0	0	0	0	0	0	5
U.S. Coast Guard	6	0	0	0	0	0	0	0	6	0
Great Lakes Industrial Hygiene	5	0	0	0	0	0	0	0	5	0
TENANT TOTALS	667	9	21	0	71	0	113	4	462	5
CONTRACTORS										
EG&G	174	0	68	0	97	0	9	0	0	0
SAIC	222	0	49	0	117	0	9	0	47	0
Dyncorp	92	0	9	0	37	0	5	0	41	0
Raytheon Technical Services	46	0	8	0	18	0	5	0	16	0
Tri-Star	45	0	6	0	19	0	5	0	15	0
TSC	29	0	4	0	12	0	2	0	11	0
Nichols Research	12	0	2	0	4	0	1	0	5	0
Lloyd Lamont	35	0	6	0	12	0	4	0	13	0
EDSI	200	0	19	0	76	0	9	0	96	0
CONTRACTOR TOTALS	855	0	171	0	392	0	49	0	244	0
GRAND TOTALS	**4,730**	**51**	**1,155**	**8**	**1,604**	**28**	**552**	**8**	**1,420**	**7**
TOTAL EMPLOYMENT	**4,781**		1,163		1,632		560		1,427	

ECONOMIC IMPACTS OF OPERATIONS

Wages and Salaries

Wages earned by workers at Crane are high compared to all other area sources of employment. With an overall average wage exceeding $50,000 per year, jobs at Crane provide incomes higher than the averages of any other county in the region. Average Crane wages even exceed those of Monroe County which is home to several large manufacturing enterprises and Indiana University.

Table 6
NSWC CRANE
COUNTY EMPLOYMENT AND WAGE COMPARISONS

	Employment				Wages				
County	Total Labor Empl'd	% Crane Employees in county	Number of Crane employees		Estimated average Crane wage	Est'd average County wage	Total County Crane Navy Wages $000	Total County Crane Direct Wages $000	Total County Resident Income $000
			TOTAL	NAVY					
Daviess	13,040	13.4	640	404	$55,978	$21,325	$22,615	$35,826	$345,000
Dubois	22,210	1.7	80	80	$59,550	$28,196	$4,764	$4,764	$1,014,000
Greene	12,850	19.4	929	670	$56,684	$20,020	$37,979	$52,660	$257,000
Knox	18,270	1.6	77	62	$51,845	$25,045	$3,214	$3,992	$577,000
Lawrence	20,900	18.9	903	652	$56,811	$26,595	$37,041	$51,300	$596,000
Martin	4,815	12.8	612	413	$53,393	$45,510	$22,051	$32,676	$127,000
Monroe	59,470	17.4	832	665	$64,966	$27,745	$43,203	$54,051	$2,195,000
Orange	7,800	1.4	67	49	$54,000	$23,712	$2,646	$3,618	$223,000
SUBTOTAL	159,335	86.5	4,140	2,995			$173,513	$238,887	$5,334,000
Other IN Counties	--	8.0	382	205	$57,828	--	$11,539	$21,502	--
Indiana	2,970,500	94.5	4,522	3,200	$56,653	$31,465	$185,052	$260,389	$116,000,000
Outside Indiana	--	5.5	259	202	$51,200	--	$13,465	$101,887	--
Total		100.0	4,781	3,402			$198,517	$362,276	--

Other notable statistics regarding the relationship of NSWC Crane wages to other earnings in the area include:

- The average Crane wage is more than double the average in Daviess, Greene, Monroe, and Orange counties.
- Martin County has the smallest total workforce of only 5,075 persons. It also has the highest average county wage due to the nearly 13 percent of Martin County workers employed at NSWC Crane.

Navy Operations and Departments

The United States Navy is clearly the largest economic force at the base. With its 3,207 civilian and approximately 42 military personnel, the Navy represents 70 percent of the jobs in management, science, engineering, and technology. The operation of the Navy's directorates and departments contributes approximately $427 million to the area economy annually. Other branches of the U. S. Military and private contractors also have operations at Crane.

Table 7
NSWC CRANE
TOTAL REGIONAL ECONOMIC IMPACTS OF NAVY OPERATIONS

Total 2002 NSWC CRANE NAVY PAYROLL = $185,052,340.82			
Type of Impact	**Business Spending** ($000)	**Household Spending** ($000)	**Economic Impact** ($000)
Value Added			
Employee Compensation effects of worker wages	$19,500	$34,380	$53,880
Proprietor Income effects of business and investor profits	$1,509	$4,935	$6,444
Total Labor Income Impact			**$60,324**
Other Property Type Income such as leases and rentals	**$3,764**	**$22,211**	**$25,975**
Indirect Business Taxes paid through purchase of goods and services	**$1,651**	**$7,477**	**$9,128**
Total Value Added Impact			**$95,427**
Total Output Value effect of all purchases by intermediate and final customers.			**$146,618**
Total Secondary Economic Impact			**$242,045**
Total NSWC Crane Navy Indiana Payroll			**$185,052**
Total Economic Value of Operations			**$427,097**
Overall Impact Multiplier			**230%**

Tenants and Military Personnel

Employees working for tenant organizations and members of various military units are comprised of the Army Ammunition Activity and several relatively small employment groups. As indicated in Table 8, this employment subtotal includes approximately 670 individuals. Wages for this group are based on the approximate annual individual salary of persons working at Crane AAA and in the other military units.

Table 8 NSWC CRANE TENANT AND MILITARY EMPLOYMENT ESTIMATES	
Total current Crane personnel	4,781
Civilian Navy	(3,207)
Contractors	(855)
Tenants / Military	719
X estimated average military wage	$42,487
= Total wages	$ 28,296,342

Tenant operations and military personnel require a different mix of supporting economic services from the surrounding communities. Though the labor income impact is similar to that of the Navy civilian personnel impact, the tenant and military personnel group has a larger impact on other property type income and indirect business taxes.

The estimated $28 million in payroll has a total impact of four times the initial investment. As indicated at the bottom of Table 9, this payroll investment generates a total economic value of almost $114 million.

Table 9
NSWC CRANE
TOTAL REGIONAL ECONOMIC IMPACTS OF TENANTS / MILITARY PERSONNEL

Total Tenant Payroll $ 28,300,000			
Type of Impact	**Business Spending** ($000)	**Household Spending** ($000)	**Economic Impact** ($000)
Value Added			
Employee Compensation effects of worker wages	$6,820	$9,739	$16,559
Proprietor Income effects of business and investor profits	$1,068	$1,398	$2,466
Total Labor Income Impact			**$19,025**
Other Property Type Income such as leases and rentals	**$2,798**	**$6,291**	**$9,089**
Indirect Business Taxes paid through purchase of goods and services	**$1,125**	**$2,117**	**$3,242**
Total Value Added Impact			**$31,356**
Total Output Value effect of all purchases by intermediate and final customers.	**$21,757**	**$32,259**	**$54,016**
Total Secondary Impact			**$85,372**
Total Tenant/ Military Payroll			**$28,300**
Total Economic Value of Tenants / Military			**$113,672**
Overall Impact Multiplier			**401%**

On-Site Contractors

There are currently three major defense contractors with facilities and employees at Crane. Their total FY2002 contracts exceeded $44 million.

Table 10
NSWC CRANE
ON-SITE (OMNIBUS) CONTRACTOR PAYMENTS FY02

Dyncorp	$7,500,000	EDSI	$18,033,535
EG&G	$18,768,639		
Total $ with Contractors:	**$44,302,174**		

Table 11
NSWC CRANE
TOTAL REGIONAL ECONOMIC IMPACTS OF ON-SITE CONTRACTORS

Total Direct On-Site Contract Amount = $44,302,000			
Type of Impact	**Business Spending** ($000)	**Household Spending** ($000)	**Economic Impact** ($000)
Value Added			
Employee Compensation effects of worker wages	$12,696	$36,110	$48,806
Proprietor Income effects of business and investor profits	$1,948	$5,183	$7,131
Total Labor Income Impact			**$55,937**
Other Property Type Income such as leases and rentals	**$4,866**	**$23,329**	**$28,195**
Indirect Business Taxes paid through purchase of goods and services	**$1,918**	**$7,852**	**$9,770**
Total Value Added Impact			**$93,902**
Total Output Value effect of all purchases by intermediate and final customers.	**$31,110**	**$88,515**	**$119,615**
Total Secondary Economic Impact			**$213,517**
Total Direct On-Site Contract Amount			**$44,302**
Total Economic Value of Contracts			**$257,819**
Overall Impact Multiplier			**674%**

Off-Site and Other Contractors

There are currently twelve major contractors in other communities that have contracts for work at Crane. The FY2002 total for these contracts was $82.5 million with an overall state impact of more than $150 million.

Table 12
NSWC CRANE
OFF-SITE AND OTHER CONTRACTOR PAYMENTS FY02

SAIC	$26,322,949	Nichols Research	$1,593,597
Lloyd Lamont	$5,420,818	CPI	$2,392,975
SFA	$1,975,234	Justin Blackwell	$577,258
Raytheon Tech Svcs	$4,063,124	Aeroflex RDL	$1,834,998
Tri-Star	$3,799,816	USSI	$24,546,111
TSC	$5,039,837	ERAPSCO	$4,942,689
	$46,621,778.00		$35,887,628.00
Total $ with Largest Off Site and Other Contractors:			**$82,509,406**

Table 13
NSWC CRANE
TOTAL REGIONAL ECONOMIC IMPACTS OF OFF-SITE AND OTHER CONTRACTORS

Total Direct Off-Site Contract Amount = $82,509,406

Type of Impact	Business Spending ($000)	Household Spending ($000)	Economic Impact ($000)
Value Added			
Employee Compensation effects of worker wages	$12,027	$17,607	$29,634
Proprietor Income effects of business and investor profits	$1,427	$2,098	$3,525
Total Labor Income Impact			**$33,159**
Other Property Type Income such as leases and rentals	**$5,960**	**$10,780**	**$16,740**
Indirect Business Taxes paid through purchase of goods and services	**$2,126**	**$3,695**	**$5,821**
Total Value Added Impact			**$55,720**
Total Output Value effect of all purchases by intermediate and final customers.	**$38,893**	**$56,099**	**$94,992**
Total Secondary Economic Impact			**$150,712**
Total Direct Off-Site Contract Amount			**$82,509**
Total Economic Value of Contracts			**$233,221**
Overall Impact Multiplier			**282%**

Small Contracts and Purchases

Operations at NSWC Crane require a wide variety of goods and services. Many "common" items, such as office supplies, vehicle parts and repairs, trucking services, landscaping, and many more are obtained from local vendors, retailers, and other sources.

The Navy alone spends more than $57 million securing merchandise, materials, and services throughout Indiana providing a total economic value of more than $392 million.

Table 14
NSWC CRANE
TOTAL REGIONAL ECONOMIC IMPACTS OF SMALL CONTRACTS/ PURCHASES

Total FY 2002 Small Contracts and Purchases, $57,644,170			
Type of Impact	**Business Spending** ($000)	**Household Spending** ($000)	**Economic Impact** ($000)
Value Added			
Employee Compensation effects of worker wages	$18,646	$41,343	$59,989
Proprietor Income effects of business and investor profits	$1,978	$5,929	$7,907
Total Labor Income Impact			**$67,896**
Other Property Type Income such as leases and rentals	**$6,283**	**$26,693**	**$32,976**
Indirect Business Taxes paid through purchase of goods and services	**$2,190**	**$8,983**	**$11,173**
Total Value Added Impact			**$112,045**
Total Output Value effect of all purchases by intermediate and final customers.	**$85,347**	**$137,113**	**$222,460**
Total Secondary Impact			**$334,505**
Total Small Contracts and Purchases			**$57,644**
Total Economic Value of Small Contracts and Purchases			**$392,149**
Overall Impact Multiplier			**680%**

RETIREMENTS

Many of the workers who have retired from work at NSWC Crane have remained in the area. As a result, their government pensions and social security benefits flow in to the region as income. Retirees typically have economically significant spending habits as indicated in Table 15, adding more than $66 million to the economy.

Table 15
CRANE RELATED RETIREMENT INCOME ECONOMIC IMPACTS

COUNTY	Number of Retirees				Retirement Benefit			
	Navy Actual post 1992	Navy estimate pre 1992	Army and Others	Total	Average	Total (000)	Secondary Impact (000)	Total Impact (000)
Daviess	177	116	40	333	$22,655	$7,544	$2,875	$10,419
Dubois	12	8	3	23	$24,500	$563	$123	$686
Greene	269	180	65	514	$22,955	$11,799	$3,474	$15,273
Knox	33	20	8	61	$23,000	$1,403	$347	$1,750
Lawrence	244	160	60	464	$24,020	$11,145	$2,245	$13,390
Martin	178	110	65	353	$22,000	$7,766	$6,746	$14,512
Monroe	125	80	32	237	$27,400	$6,494	$1,990	$8,484
Orange	38	26	10	74	$20,020	$1,481	$255	$1,736
Total	1076	700	283	2059		$48,195	$18,055	$66,250

Retired Crane workers also support the employment base in the region. Table 16 indicates that the two thousand retirees living in the eight primary labor market area counties support an additional 480 jobs in various local sectors.

Table 16
CRANE RELATED RETIREMENT EMPLOYMENT IMPACTS

COUNTY	Number of Jobs		
	DIRECT	SECONDARY	TOTAL
Daviess	61	17	78
Dubois	5	1	6
Greene	114	32	146
Knox	4	5	9
Lawrence	93	22	115
Martin	52	68	120
Monroe	54	18	72
Orange	10	2	12
Total	393	165	558

The $48 million in retirement benefits paid to retirees from NSWC Crane returns nearly $6 million annually to governments at all levels. Over half this amount is paid to the federal government and about half that is in the form of income taxes.

Table 17
CRANE RELATED RETIREMENT TAX IMPACTS

COUNTY	INCOME TAXES			TOTAL TAXES		
	STATE	FEDERAL	TOTAL	STATE	FEDERAL	TOTAL
Daviess	$43,344	$212,212	$255,556	$276,097	$451,861	$727,958
Dubois	$3,727	$19,329	$23,056	$22,250	$39,542	$61,792
Greene	$98,588	$470,251	$568,839	$518,497	$961,033	$1,479,530
Knox	$10,579	$48,640	$59,219	$60,069	$99,997	$160,066
Lawrence	$74,460	$350,171	$424,631	$460,106	$701,336	$1,161,442
Martin	$53,041	$388,294	$441,335	$531,274	$866,650	$1,397,924
Monroe	$53,009	$241,061	$294,070	$314,084	$481,843	$795,927
Orange	$7,008	$35,120	$42,128	$47,430	$72,683	$120,113
Total	$343,756	$1,765,078	$2,108,834	$2,229,807	$3,674,945	$5,904,752

SOUTHWEST INDIANA WORK/RESIDENCE PATTERNS

A STATS Indiana Annual Commuting Trends Profile

Based on Indiana IT-40 Returns for Tax Year 2000

Martin County, Indiana

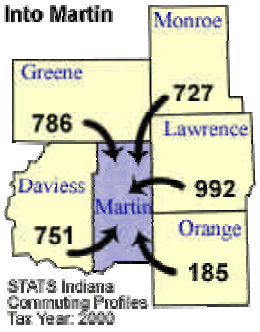
Summary of what this information tells us about the labor and workforce:

Number of persons who live in Martin County and work (resident labor force)	6,987
Number of persons who live AND work in Martin County	5,129
Number of persons who live in another county (or state) but work in Martin County	4,075
Total number of persons who work in Martin County (work force)	9,204

Top five counties sending workers INTO Martin County:

Lawrence County	992
Greene County	786
Daviess County	751
Monroe County	727
Orange County	185
Total of above	3,441 workers

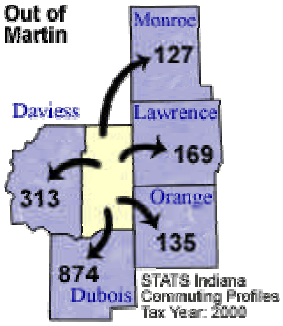
(37.4% of Martin County work force)



Top five counties receiving workers FROM Martin County:

Dubois County	874
Daviess County	313
Lawrence County	169
Orange County	135
Monroe County	127
Total of above	1,618 workers

(23.2% of Martin County labor force)



AREA COMMUTING PATTERNS

NSWC Crane is the stimulus for an extensive daily commuting activity that spans at least 19 Indiana counties and at least two nearby states. Of approximately 5,800 workers making their way in and out of Martin County on a daily basis, approximately 70 percent, more than 4,000, are commuting to jobs at Crane. Of all the commuters moving in and out of the seven-county primary Crane Labor Market Area, approximately 12 percent are going to jobs in Martin County. As shown below, Martin County ranks third as a regional employment destination and behind only the much more industrialized Dubois and Monroe counties.

Table 18
NSWC CRANE
REGIONAL COMMUTING TOTALS
Based on Indiana Department of Revenue, 1998

COUNTY	TOTAL INBOUND COMMUTERS	COMMUTERS INTO MARTIN COUNTY	COMMUTERS FROM MARTIN COUNTY
Crane Primary Labor Market Area			
Lawrence	2,508 (8%)	992	175
Greene	1,957 (7%)	786	40
Daviess	1,720 (6%)	751	366
Monroe	15,377 (49%)	727	133
Orange	1,480 (5%)	185	126
Dubois	8,385 (27%)	106	841
Total	31,427	3,547	1,681
Crane Secondary Labor Market Area			
Knox	3,121	115	27
Pike	1,118	39	9
Sullivan	1,322	38	2
Owen	767	30	2
Washington	1,018	25	3
Clay	2,145	24	0
Jackson	4,691	18	6
Marion	172,571	17	35
Gibson	3,204	13	7
Vigo	12,841	13	7
Johnson	9,877	10	7
Morgan	2,682	10	0
Vanderburgh	28,651	7	14
Total	244,008	359	119
Crane Local Labor Market Area			
Martin County	**Total Martin County Work Force**	**Residents working in Martin County**	**Residents commuting from Martin County**
	9,469	7,661	1,808

TAX IMPACTS

Though NSWC Crane is an installation that operates on federal tax dollars, its high employment and private sector activity are the source of significant tax revenues. Relatively high paying jobs in relatively high numbers result in significant revenues from income taxes at both the state and federal levels.

The total combined tax impact for all levels of government exceeds $219 million per year. Income taxes paid by Navy employees and contractor employers on-site at Crane account for $ 121 million from off-site contractor employees and the tenant / military group.

Table 19
NSWC CRANE
TAX REVENUE SOURCE HIGHLIGHTS

Tax Revenue Source	Federal Non Defense	Indiana State and Local Non education	Total
TOTAL TAXES			
from Crane Naval Operations	$52,383,020	$17,883,775	$70,266,795
from On-Site Contractors	$61,746,534	$19,241,560	$80,988,094
from Tenants / Military	$16,899,575	$5,933,969	$22,833,544
from Off-Site Contractors	$29,198,172	$10,307,543	$39,505,715
All Operations	$160,227,301	$53,366,847	$213,594,148
from Retirements	$3,674,945	$2,229,807	$5,904,752
Total All Sources	**$163,902,246**	**$55,596,654**	**$219,498,900**
INCOME TAXES			
from Crane Naval Operations	$36,124,904	$7,720,512	$43,845,416
from On-Site Contractors	$37,940,195	$8,109,035	$46,049,230
from Tenants / Military	$10,226,895	$2,186,732	$12,413,627
from Off-Site Contractors	$15,928,615	$2,687,134	$18,615,749
from Retirements	$76,005	$16,323	$92,328
Total All Sources	**$100,296,614**	**$20,719,736**	**$121,016,350**
COUNTY TAX DISTRIBUTIONS			
Daviess	$25,388,458	$8,611,922	$34,000,380
Dubois	$3,030,553	$1,027,982	$4,058,535
Greene	$36,763,274	$12,470,329	$49,233,603
Knox	$3,033,831	$1,029,094	$4,062,925
Lawrence	$35,812,641	$12,147,869	$47,960,510
Martin	$24,241,142	$8,222,745	$32,463,887
Monroe	$32,977,132	$11,186,047	$44,163,179
Orange	$2,655,216	$900,666	$3,555,882
Totals	**$163,902,246**	**$55,596,654**	**$219,498,900**

Cross-sectional views of tax revenues are presented in several ways, including the source of revenue, geographic distributions, and divided between federal and state recipients. Income taxes

make up the preponderance of federal taxes while state and local taxes are collected through more diverse means, including fines and fees.

TOTAL INDIANA IMPACT

The total impact to Indiana provided by Navy operations, tenants, military, and contractors at Crane is estimated at $1.46 billion annually and is summarized in Table 20. This federal investment has a total value to southwest Indiana of approximately $844.8 million, with the remainder being distributed throughout other parts of Indiana and other states.

When distributed at the county level throughout the region, the $760 in wage impact and $84 million in purchases impact becomes a significant portion of all the other economic sectors, especially in the primary labor market area. These impacts affect virtually all businesses in the local retail and service sectors, including health care, as well as agriculture and manufacturing enterprises.

Munitions prepared at NSWC Crane are deployed to Navy ships and other operating U. S. military units all around the world.

COUNTY IMPACTS: Primary Labor Market Area

NSWC Crane is a major economic force in each of the surrounding southwest Indiana counties from which the base draws workers. In addition to being the second largest single site employer in the region, it is the most common commuting destination in the region.

Overall, the region has a population growth rate slower than the state average influenced by a negative rate of domestic migration. The adult working age population represents a slightly greater proportion of the population than the state average, yet the numbers of children are less than in other parts of Indiana. Selected characteristics of Crane area counties are shown in Table 21.

Table 20
NSWC CRANE
SOURCE AND DISTRIBUTION OF ECONOMIC IMPACTS

	Percent Distribution Total Impact	Direct Impact	Total Value Added Impact	Total Output Impact	Economic Impact
All Economic Impact Areas					
Navy Operations	28.7%	$185,052,340	$95,427,000	$146,618,000	$427,097,340
On-Site Contractors	17.3%	$44,302,000	$93,902,000	$119,615,000	$257,819,000
Tenant / Military	7.6%	$28,300,000	$31,356,000	$54,016,000	$113,672,000
Off-Site Contractors	15.6%	$82,509,406	$55,720,000	$94,992,000	$233,221,406
Contracts / Purchases	26.3%	$57,644,170	$112,046,700	$222,460,400	$392,151,270
Retirements	4.5%	$48,195,000	$7,213,163	$10,842,195	$66,250,358
Total Impacts	**100%**	**$446,002,916**	**$395,664,863**	**$648,543,595**	**$1,490,211,374**
Operational and Retirement Impacts Summary by County *based on wages and retirement benefits*					
	Direct Impact	**Value Added Impact**	**Output Impact**	**Retirement Impact**	**Economic Impact**
Daviess	$35,825,920	$29,595,910	$43,159,529	$10,419,193	$119,000,552
Dubois	$4,764,000	$3,541,078	$5,153,924	$686,241	$14,145,243
Greene	$52,659,436	$42,847,810	$62,484,692	$15,272,937	$173,264,875
Knox	$3,992,065	$3,526,602	$5,152,830	$1,749,854	$14,421,351
Lawrence	$51,300,333	$41,743,485	$60,874,262	$13,390,530	$167,308,610
Martin	$32,676,516	$28,270,720	$41,227,013	$14,511,719	$116,685,968
Monroe	$54,051,712	$38,430,510	$56,042,971	$8,484,095	$157,009,288
Orange	$3,618,000	$3,092,110	$4,509,205	$1,735,789	$12,955,104
AREA SUBTOTAL	$238,887,982	$191,048,225	$278,604,426	$66,250,358	$774,790,991
Other IN Counties					$69,187,067
Indiana Subtotal					$843,978,058
Employment Based Impacts Outside Indiana					$35,187,558
TOTAL OPERATIONAL AND RETIREMENT BASED IMPACT					**$879,165,616**
Additional Indiana Purchases and Contracts Summary					
	Percent Distribution	**Direct Impact**	**Value Added Impact**	**Output Impact**	**Economic Impact**
Daviess	2.20%	$1,640,062	$3,187,894	$3,484,180	$8,312,136
Dubois	1.20%	$894,579	$1,738,851	$1,900,462	$4,533,892
Greene	2.50%	$1,863,707	$3,622,607	$3,959,295	$9,445,609
Knox	1.10%	$820,031	$1,593,947	$1,742,090	$4,156,068
Lawrence	8.60%	$6,411,151	$12,461,769	$13,619,974	$32,492,894
Martin	2.30%	$1,714,610	$3,332,799	$3,642,551	$8,689,960
Monroe	2.90%	$2,161,900	$4,202,224	$4,592,782	$10,956,906
Orange	0.70%	$521,838	$1,014,330	$1,108,603	$2,644,770
AREA SUBTOTAL	21.50%	$16,027,878	$31,154,422	$34,049,936	$81,232,236
Other IN Counties	78.50%	$58,520,390	$113,749,866	$124,321,860	$296,592,117
Indiana Subtotal	100.00%	$74,548,268	$144,904,288	$158,371,796	$377,824,353
Off site IN contractors					$233,221,406
TOTAL ADDITIONAL INDIANA PURCASES AND CONTRACTS IMPACT					**$611,045,759**
TOTAL ECONOMIC IMPACT					**$1,490,211,375**
Employment Based Impacts Outside Indiana					($35,187,558)
TOTAL INDIANA IMPACT					**$1,455,023,817**

Total Value Added = Employee Compensation Impact + Proprietor Income Impact + Other Property Type Income Impact + Indirect Business Tax Impacts.

Table 21
NSWC CRANE
SELECTED STATISTICS AND COUNTY COMPARISONS

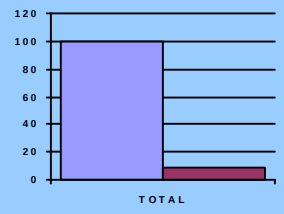
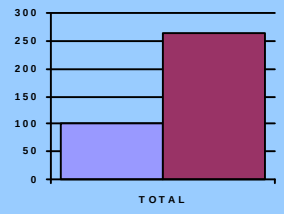
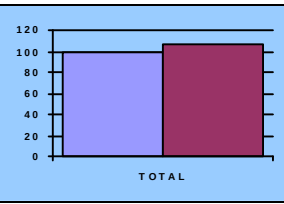
Demographics and Values

COUNTY	Land Area Sq. miles	Population 2001	Density Persons /SM	Assessed Value (000)	AV per capita	AV per Sq mile
Daviess	430	29,652	69.2	$236,671	$8,177	$550,397
Dubois	430	39,805	92.2	$479,434	$12,091	$1,114,962
Greene	541	33,171	61.2	$193,957	$5,820	$358,515
Knox	515	39,884	76.1	$281,071	$7,159	$545,768
Lawrence	448	46,020	102.3	$259,901	$5,688	$580,136
Martin	336	10,383	30.9	$67,278	$6,426	$200,232
Monroe	394	119,880	305.8	$954,530	$8,189	$2,422,665
Orange	399	19,442	48.3	$151,613	$7,739	$379,982
SUMMARY	TOTALS		AVERAGES			
	3,493	338,237	96.8	$ 328,056	$ 7,661	$ 769,082

The presence of Crane and the unique economic mix of each surrounding county provide a variation in the economic relationships among the base and its neighboring communities. The amount of land and number of employees in Martin County make it a dominant force there and the value of contracts, the numbers of commuting workers, and the highly skilled nature of Crane jobs make it a significant economic force throughout the region.

DAVIESS COUNTY
$550,397 per square mile assessed valuation

Table 22
NSWC CRANE
IMPACT PROFILE FOR DAVIESS COUNTY

Total Economic Impact of NSWC Crane on Daviess County			**$127,312,688**
Labor Force			
Total		13,580	
Total Employed (Feb 2003)		13,040	
Number of Crane Employees		640	
Crane Employees % of Employed		**4.9%**	
Indirect Jobs from Crane		506	
Total Crane Related Jobs		1,146	
Total Crane Jobs as % of Employed		**8.8%**	
Wages	Amount	Percent	
Total County Earnings (resident income)	$345,374,000	100%	
Direct Crane Wages	$35,825,920	10.37%	
Indirect Crane Wages	$10,790,450	3.12%	
Crane Wages as % of Total Earnings	$46,616,370	**13.50%**	
Average County Wage		$21,325	
Average Crane Wage for Daviess County		$55,978	
Crane Wages as % of Average Wage		**262.5%**	
Crane Economic Impact		$127,312,688	
Total Economic Impact as % of Total Earnings		36.9%	
Retirement			
Total Crane Retirement Income		$7,544,115	
Retirement Income as % of Total Earnings		2.2%	
Average Annual Retirement		$22,655	
Total Retirement Economic Impact		$10,419,115	
Average Retirement as % of Avg County Wage		**106.2%**	

Daviess County is one of the easiest commutes to and from Crane. With approximately 640 workers, five percent of its workforce, at Crane, Daviess has strong economic ties to the base. The county's 430 square mile area is populated at an average of 69 persons per square mile. In 2001 it ranked 54th in population with projected growth rates lower than the state average. Daviess ranks in the lower half of Indiana counties in regard to net migration and slightly higher regarding natural increase in population.

As Crane's neighbor to the west, Daviess receives an annual economic impact of approximately $127,000,000. To put that into perspective, it is equal to 54 percent of the entire county's assessed

valuation. The 640 Crane-employed Daviess county residents stimulate the local job market supporting more than 500 secondary jobs in the community.

The assessed valuation in Daviess County is in the lower half of Indiana counties. Its $8,177 per capita assessed valuation ranks the county 59th of Indiana's 92.

About 11 percent of the workforce is employed by government with total government sector wages of nearly $57 million averaging almost $33,000 per job. Total private sector earnings amount to almost $270 million per year. Contrasted to other employment sectors in the county, local utility and transportation wages average approximately $28,000 per job. Average annual earnings in the Daviess County retail sector are almost $13,000 per job per year.

The average wage in Daviess County, including all sectors, is $21,325 per year.

Table 23
NSWC CRANE ECONOMIC IMPACTS FOR DAVIESS COUNTY

Source	Direct	Value Added	Output	Retirement	Total
Operations and Retirement	$35,825,920	$29,595,910	$43,159,529	$10,419,193	$119,000,552
Additional Indiana Purchases and Contracts	$1,640,062	$3,187,894	$3,484,180	-	$8,312,136
TOTAL					**$127,312,688**

Table 24
NSWC CRANE
EMPLOYMENT COMPARISONS FOR DAVIESS COUNTY

TOP EMPLOYERS AND NSWC CRANE	NUMBER EMPLOYED
Perdue Corp.	900
NSWC Crane	**640**
Daviess Community Hospital	300
Grain Processing Corp	150
NASCO	110
K&K Industries	80
Graber Post Buildings	80
Daviess County Metals	80

Table 25
DAVIESS COUNTY SELECTED STATISTICS

Population Over Time	Number	Rank in State	Percent of State	Indiana
Yesterday(1990)	27,533	52	0.5%	5,544,156
Today(2001)	29,652	54	0.5%	6,114,745
Tomorrow(2020 proj.)	31,946	56	0.5%	6,481,489
Percent Change 1990 to 2000	8.3%	42		9.7%

Labor Force in 2001	Number	Rank in State	Percent of State	Indiana
Total Resident Labor Force	13,580	59	0.4%	3,106,388
Employed	13,040	57	0.4%	2,970,497
Unemployed	540	65	0.4%	135,891
Unemployment Rate	4.0	59	90.9%	4.4
December 2002 Unemployment Rate	**4.2**	**64**	**89.4%**	**4.7**

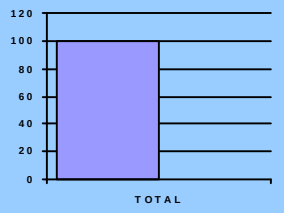
Employment and Earnings by Industry in 2000	Employment	Pct Dist. in County	Earnings ($000)	Pct Dist. In County	Avg. Earnings Per Job
Totals by Place of Work	16,196	100.0%	$345,374	100.0%	$21,325
Non-farm	14,590	90.1%	$326,209	94.5%	$22,358
Private	12,852	79.4%	$269,269	78.0%	$20,952
Manufacturing	2,444	15.1%	$59,500	17.2%	$24,345
Retail	2,603	16.1%	$33,568	9.7%	$12,896
Services	3,340	20.6%	$51,183	14.8%	$15,324
Transportation, Public Utilities	956	5.9%	$27,739	8.0%	$29,016
Other Private	3,509	21.7%	$97,279	28.2%	$27,723
Government	1,738	10.7%	$56,940	16.5%	$32,762

Assessed Property Value in 1999 (for taxes payable in 2000)	Value	Rank in State	Pct Dist. in County	Pct Dist. in State
Assessed Value by Property Class	$236,671,060	57	100.0%	100.0%
Commercial & Industrial	$74,607,900	59	31.5%	43.2%
Residential	$73,428,400	62	31.0%	41.5%
Agricultural	$77,191,790	19	32.6%	9.6%
Utilities	$11,442,970	61	4.8%	5.6%
Total Assessed Value Per Capita	$8,177	59		

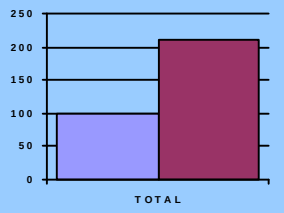
DUBOIS COUNTY
$1,114,962 per square mile assessed valuation

Table 26
NSWC CRANE
IMPACT PROFILE FOR DUBOIS COUNTY

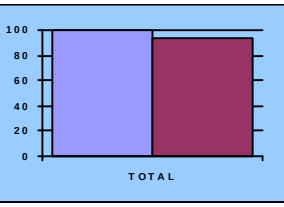
Total Economic Impact of NSWC Crane on Dubois County		**$18,679,135**
Labor Force		
Total	22,840	
Total Employed (Feb 2003)	22,210	
Number of Crane Employees	80	
Crane Employees % of Employed	**0.4%**	
Indirect Jobs from Crane	60	
Total Crane Related Jobs	140	
Total Crane Jobs as % of Employed	**0.6%**	



Wages	Amount	Percent
Total County Earnings (resident income)	$1,013,798,000	100%
Crane Direct Wages	$4,764,000	0.47%
Crane Indirect Wages	$1,691,760	0.17%
Total Crane Wages as % of Total Earnings	$6,455,760	**0.64%**
Average County Wage		$28,196
Average Crane Wage for Dubois County		$59,550
Crane Wages as % of Average Wage		**211.2%**
Crane Economic Impact		$18,679,135
Total Economic Impact as % of Total Earnings		1.8%



Retirement	
Total Crane Retirement Income	$563,500
Retirement Income as % of Total Earnings	0.0%
Average Annual Retirement	$24,500
Total Retirement Economic Impact	$686,500
Average Retirement % of Avg County Wage	**86.9%**



With approximately 80 workers, less than one percent of its workforce, at Crane, Dubois has fewer commuters to the Navy facility than other area counties. Dubois is a major employment destination in southwest Indiana with a total number of jobs that nearly equals the total population. The county's 430 square mile area is populated at an average of 92 persons per square mile. In 2001 it ranked 37th in population with projected growth rates lower than the state average. Dubois County's rank is average in net domestic migration and high in regards to net international migration and natural birth.

Even though the percentage of Crane workers represents a small part of Dubois' overall employment, these workers and spending contribute approximately $18 million per year to the

local economy. Dubois also benefits from an additional 60 employment positions being supported by the economic force of NSWC Crane.

The assessed valuation in Dubois County is in the upper quartile of Indiana counties. Its $12,091 per capita assessed valuation ranks the county 13th of Indiana's 92.

About six percent of the Dubois County workforce is employed by government with total government sector wages of $71 million, averaging $34,000 per job. Total private sector earnings amount to almost $926 million per year. Contrasted to other employment sectors in the county, local utility and transportation wages average approximately $36,000 per job. Average annual earnings in the Dubois County retail sector are almost $17,500 per job per year.

The average wage in Dubois County, including all sectors, is $28,196 per year.

Table 27
NSWC CRANE ECONOMIC IMPACTS FOR DUBOIS COUNTY

Source	Direct	Value Added	Output	Retirement	Total
Operations and Retirement	$4,764,000	$3,541,078	$5,153,924	$686,241	$14,145,243
Additional Indiana Purchases and Contracts	$894,579	$1,738,851	$1,900,462	-	$4,533,892
TOTAL					**$18,679,135**

Table 28
NSWC CRANE
REGIONAL EMPLOYMENT COMPARISONS FOR DUBOIS COUNTY

TOP EMPLOYERS AND NSWC CRANE	NUMBER EMPLOYED
Kimball International	3,000
MasterBrand Cabinets	2,050
Jasper Engine and Transmissions	1,800
Jasper Rubber Products	900
Best Chairs	720
JOFCO	500
Indiana Furniture Industries	465
Jasper Seating	300
Inwood Office Furniture	170
NSWC Crane	**80**

Table 29
DUBOIS COUNTY SELECTED STATISTICS

Population Over Time	Number	Rank in State	Percent of State	Indiana
Yesterday(1990)	36,616	38	0.7%	5,544,156
Today(2001)	39,805	37	0.7%	6,114,745
Tomorrow(2020 proj.)	42,584	36	0.7%	6,481,489
Percent Change 1990 to 2000	8.4%	41		9.7%

Labor Force in 2001	Number	Rank in State	Percent of State	Indiana
Total Resident Labor Force	22,840	33	0.7%	3,106,388
Employed	22,210	33	0.7%	2,970,497
Unemployed	630	59	0.5%	135,891
Unemployment Rate	2.8	86	63.6%	4.4
December 2002 Unemployment Rate	3.3	86	70.2%	4.7

Employment and Earnings by Industry in 2000	Employment	Pct Dist. in County	Earnings ($000)	Pct Dist. In County	Avg. Earnings Per Job
Totals by Place of Work	35,955	100.0%	$1,013,798	100.0%	$28,196
Non-farm	34,642	96.3%	$997,802	98.4%	$28,803
Private	32,549	90.5%	$926,317	91.4%	$28,459
Manufacturing	14,728	41.0%	$498,414	49.2%	$33,841
Retail	5,661	15.7%	$99,011	9.8%	$17,490
Services	5,969	16.6%	$138,430	13.7%	$23,191
Transportation, Public Utilities	1,268	3.5%	$46,464	4.6%	$36,644
Other Private	4,923	13.7%	$143,998	14.2%	$29,250
Government	2,093	5.8%	$71,485	7.1%	$34,154

Assessed Property Value in 1999 (for taxes payable in 2000)	Value	Rank in State	Pct Dist. in County	Pct Dist. in State
Assessed Value by Property Class	$479,434,330	27	100.0%	100.0%
Commercial & Industrial	$213,777,570	26	44.6%	43.2%
Residential	$178,192,980	30	37.2%	41.5%
Agricultural	$72,901,960	24	15.2%	9.6%
Utilities	$14,561,820	54	3.0%	5.6%
Total Assessed Value Per Capita	$12,091	13		

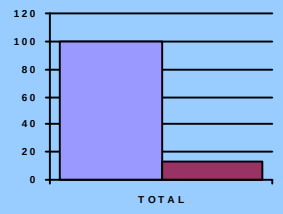
Residential Building Permits in 2001	Units	Pct Dist. in County	Pct Dist. in State	Cost ($000)	State Cost ($000)
Total Permits Filed	176	100.0%	100.0%	$28,779	$4,876,861
Single Family	176	100.0%	82.8%	$28,779	$4,494,309
Two Family	0	0.0%	2.7%	$0	$82,317
Three & Four Family	0	0.0%	1.3%	$0	$41,033
Five Families and More	0	0.0%	13.2%	$0	$259,163

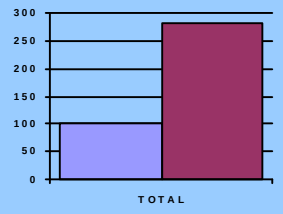
GREENE COUNTY

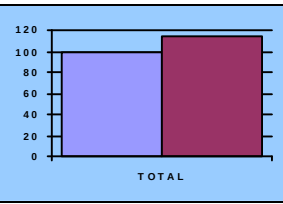
$ 358,515 per square mile assessed valuation

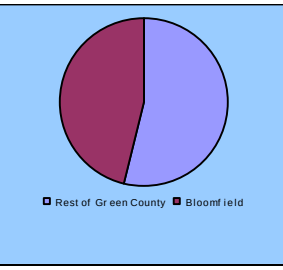
Table 30
NSWC CRANE
IMPACT PROFILE FOR GREENE COUNTY

Total Economic Impact of NSWC Crane on Greene County		**$182,710,484**
Labor Force		
Total		13,990
Total Employed (Feb 2003)		12,850
Number of Crane Employees		929
Crane Employees % of Employed		**7.2%**
Indirect Jobs from Crane		732
Total Crane Related Jobs		1,661
Total Crane Jobs as % of Employed		**12.9%**
Wages	Amount	Percent
Total County Earnings (resident income)	$257,000,000	100%
Direct Crane Wages	$52,659,436	20.49%
Indirect Crane Wages	$14,654,640	5.70%
Crane Wages as % of Total Earnings	$67,314,076	**26.19%**
Average County Wage		$20,020
Average Crane Wage for Greene County		$56,684
Crane Wages as % of Average Wage		**283.1%**
Crane Economic Impact		$182,710,484
Total Economic Impact as % of Total Earnings		71.1%
Retirement		
Total Crane Retirement Income		$11,798,870
Retirement Income as % of Total Earnings		4.6%
Average Annual Retirement		$22,955
Total Retirement Economic Impact		$15,272,870
Average Retirement % of Average County Wage		**114.7%**
Impact Details		
Total Contract Awards and purchases in County		$20,136,040
Total Crane Bloomfield Navy Salaries		$20,022,588
Other Crane Bloomfield Salaries		$8,008,000
Total Bloomfield Crane Related Salaries		$28,030,588
Total estimated Bloomfield Salaries		$60,395,000
Crane Bloomfield (zip code) Salaries % of Total Resident Wages		**46%**









Greene County is home to a plurality of Crane workers. With more than 900 workers, seven percent of its workforce, at Crane, Greene County has strong economic ties to the base. The county's 541 square mile area is populated at an average of 69 persons per square mile. In 2001 it

ranked 54th in population with projected growth rates lower than the state average. Greene County ranks in the lower half of Indiana counties in regard to net migration and slightly higher regarding natural increase in population.

The total current annual economic impact of NSWC Crane on Greene County is more than $180 million per year. This annual contribution to the economy is a significant 70 percent of total wages paid in the county on a yearly basis.

The assessed valuation in Greene County is almost Indiana's lowest. Its $5,820 per capita assessed valuation ranks the county 90th of Indiana's 92.

About 17 percent of the workforce is employed by government with total government sector wages of nearly $66 million averaging almost $31,000 per job. Total private sector earnings amount to almost $186 million per year. Average annual earnings in the Greene County retail sector are almost $13,000 per job per year.

The average wage in Greene County, including all sectors, is slightly over $20,000 per year.

Table 31
NSWC CRANE ECONOMIC IMPACTS FOR GREENE COUNTY

Source	Direct	Value Added	Output	Retirement	Total
Operations and Retirement	$52,659,436	$42,847,810	$62,484,692	$15,272,937	$173,264,875
Additional Indiana Purchases and Contracts	$1,863,707	$3,622,607	$3,959,295	-	$9,445,609
TOTAL					**$182,710,484**

Table 32
NSWC CRANE
EMPLOYMENT COMPARISONS FOR GREENE COUNTY

TOP EMPLOYERS AND NSWC CRANE	NUMBER EMPLOYED
NSWC Crane	**929**
Wal-Mart	300
Glenburn Nursing Home	300
Greene Co. General Hospital	270
Winalta USA	100
City of Linton	80

Table 33
GREENE COUNTY SELECTED STATISTICS

Labor Force in 2001	Number	Rank in State	Percent of State	Indiana
Total Resident Labor Force	13,990	56	0.5%	3,106,388
Employed	12,850	60	0.4%	2,970,497
Unemployed	1,140	29	0.8%	135,891
Unemployment Rate	8.2	3	186.4%	4.4
December 2002 Unemployment Rate	**6.4**	**15**	**136.2%**	**4.7**

Employment and Earnings by Industry in 2000	Employment	Pct Dist. in County	Earnings ($000)	Pct Dist. In County	Avg. Earnings Per Job
Totals by Place of Work	12,828	100.0%	$256,811	100.0%	$20,020
Non-farm	11,721	91.4%	$252,292	98.2%	$21,525
Private	9,574	74.6%	$186,232	72.5%	$19,452
Manufacturing	850	6.6%	$19,743	7.7%	$23,227
Retail	2,509	19.6%	$31,595	12.3%	$12,593
Services	3,135	24.4%	$49,324	19.2%	$15,733
Transportation, Public Utilities	549	4.3%	$16,532	6.4%	$30,113
Other Private	2,531	19.7%	$69,038	26.9%	$27,277
Government	2,147	16.7%	$66,060	25.7%	$30,769

Assessed Property Value in 1999 (for taxes payable in 2000)	Value	Rank in State	Pct Dist. in County	Pct Dist. in State
Assessed Value by Property Class	$193,956,980	66	100.0%	100.0%
Commercial & Industrial	$46,955,070	70	24.2%	43.2%
Residential	$68,455,650	68	35.3%	41.5%
Agricultural	$57,881,030	54	29.8%	9.6%
Utilities	$20,665,230	40	10.7%	5.6%
Total Assessed Value Per Capita	$5,820	90		

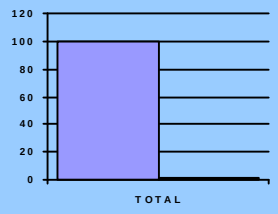
Residential Building Permits in 2001	Units	Pct Dist. in County	Pct Dist. in State	Cost ($000)	State Cost ($000)
Total Permits Filed	0	N/A	100%	$0	$4,876,861
Single Family	0	N/A	82.8%	$0	$4,494,309
Two Family	0	N/A	2.7%	$0	$82,317
Three & Four Family	0	N/A	1.3%	$0	$41,033
Five Families and More	0	N/A	13.2%	$0	$259,163

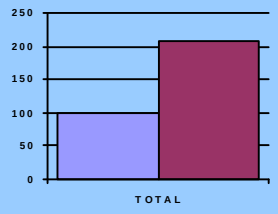
KNOX COUNTY

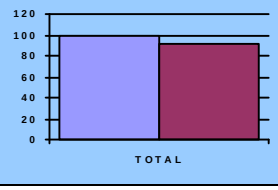
$ 545,769 per square mile assessed valuation

Table 34
NSWC CRANE
IMPACT PROFILE FOR KNOX COUNTY

Total Economic Impact of NSWC Crane on Knox County		**$18,577,419**
Labor Force		
Total		18,980
Total Employed (Feb 2003)		18,270
Number of Crane Employees		77
Crane Employees % of Employed		**0.42%**
Indirect Jobs from Crane		60
Total Crane Related Jobs		137
Total Crane Jobs as % of Employed		**0.7%**
Wages	Amount	Percent
Total County Earnings (resident income)	$576,945,000	100%
Direct Crane Wages	$3,992,065	0.69%
Indirect Crane Wages	$1,502,700	0.26%
Crane Wages as % of Total Earnings	$5,494,765	**0.95%**
Average County Wage		$25,045
Average Crane Wage for Knox County		$51,845
Crane Wages as % of Average Wage		**207%**
Crane Economic Impact		$18,577,419
Total Economic Impact as % of Total Earnings		3.2%
Retirement		
Total Crane Retirement Income		$1,403,000
Retirement Income as % of Total Earnings		0.25%
Average Annual Retirement		$23,000
Total Retirement Economic Impact		$1,749,854
Average Retirement % of Average County Wage		**91.8%**
Impact Details		
Total Contract Awards and purchases in County		$851,126







Knox county is one of the more distant communities with a significant connection. It is home to Vincennes University and several firms with Crane contracts. The county's 515 square mile area is populated at an average of 76 persons per square mile. In 2001 it ranked 38th in population with projected growth rates about the same as the state average. Knox county ranks near the middle of Indiana counties in regard to net migration and lower regarding natural increase in population.

The total economic impact of NSWC Crane on Knox county is more that $18 million per year. This annual contribution to the economy is low compared to other counties of the primary labor force counties. Additional benefits to Knox county occur as a result of it being a regional shopping and commercial location.

The assessed valuation in Knox county is about average, ranking at number 51 with an AV per capita of $ 7,159.

About 25 percent of the workforce is employed by government, slightly higher than other counties due to the presence of the university. Total government sector wages are nearly $167 million averaging almost $30,000 per job. Total private sector earnings exceed $390 million per year. Average annual earnings in the Knox county retail sector are almost $13,000 per job per year.

The average wage in Knox county, including all sectors, is slightly over $25,000 per year.

Table 35
NSWC CRANE ECONOMIC IMPACTS FOR KNOX COUNTY

Source	Direct	Value Added	Output	Retirement	Total
Operations and Retirement	$3,992,065	$3,526,602	$5,152,830	$1,749,854	$14,421,351
Additional Indiana Purchases and Contracts	$820,031	$ 1,593,947	$ 1,742,090	-	$4,156,068
TOTAL					**$18,577,419**

Table 36
NSWC CRANE
EMPLOYMENT COMPARISONS FOR KNOX COUNTY

TOP EMPLOYERS AND NSWC CRANE	NUMBER EMPLOYED
Good Samarian Hospital	1,680
Vincennes University	1,300
Knox County ARC	500
Hamilton Glass	470
Vincennes Community Schools	470
Wal-Mart Store	380
Essex Wire Company	284
Knox County government	250
Lewis Bakeries	210
Sodexho Management	160
Vincennes Steel	100
Tenneco Packaging	91
NSWC Crane	**77**

Table 37
KNOX COUNTY SELECTED STATISTICS

Population Over Time	Number	Rank in State	Percent of State	Indiana
Yesterday(1990)	39,884	31	0.7%	5,544,156
Today(2002)	38,531	38	0.6%	6,159,068
Tomorrow(2020 proj.)	41,857	38	0.6%	6,481,489
Percent Change 1990 to 2000	-1.6%	90		9.7%

Labor Force in 2002	Number	Rank in State	Percent of State	Indiana
Total Resident Labor Force	18,980	40	0.6%	3,174,763
Employed	18,270	40	0.6%	3,011,785
Unemployed	710	59	0.4%	162,978
Unemployment Rate	3.7	81	72.5%	5.1
May 2003 Unemployment Rate	**3.3**	**83**	**68.8%**	**4.8**

Employment and Earnings by Industry in 2000	Employment	Pct Dist. in County	Earnings ($000)	Pct Dist. In County	Avg. Earnings Per Job
Totals by Place of Work	23,036	100.0%	$576,945	100.0%	$25,045
Non-farm	22,147	96.1%	$560,040	97.1%	$25,287
Private	16,540	71.8%	$393,166	68.1%	$23,771
Manufacturing	1,709	7.4%	$56,597	9.8%	$33,117
Retail	4,400	19.1%	$55,590	9.6%	$12,634
Services	5,261	22.8%	$128,822	22.3%	$24,486
Transportation, Public Utilities	1,288	5.6%	$53,155	9.2%	$41,269
Other Private	3,882	16.9%	$99,002	17.2%	$25,503
Government	5,607	24.3%	$166,874	28.9%	$29,762

Assessed Property Value in 1999 (for taxes payable in 2000)	Value	Rank in State	Pct Dist. in County	Pct Dist. in State
Assessed Value by Property Class	$281,071,640	51	100.0%	100.0%
Commercial & Industrial	$104,321,960	42	37.1%	43.2%
Residential	$88,150,120	55	31.4%	41.5%
Agricultural	$61,949,320	47	22.0%	9.6%
Utilities	$26,650,240	32	9.5%	5.6%
Total Assessed Value Per Capita	$7,159	76		

Residential Building Permits in 2002	Units	Pct Dist. in County	Pct Dist. in State	Cost ($000)	State Cost ($000)
Total Permits Filed	51	100.0%	100.0%	$5,066	$4,979,507
Single Family	49	96.1%	77.8%	$5,001	$4,480,439
Two Family	2	3.9%	3.2%	$65	$109,885
Three & Four Family	0	0.0%	1.6%	$0	$47,670
Five Families and More	0	0.0%	17.5%	$0	$341,513

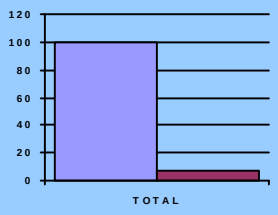
LAWRENCE COUNTY

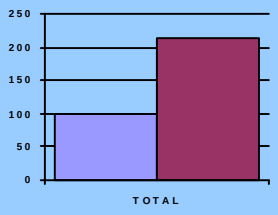
$ 580,136 per square mile assessed valuation

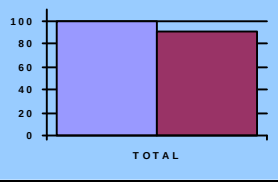
Lawrence County is home to two of south central Indiana's largest single site employers; yet Crane is the third largest employer of Lawrence County residents.

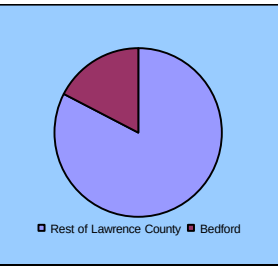
Table 38
NSWC CRANE
IMPACT PROFILE FOR LAWRENCE COUNTY

Total Economic Impact of NSWC Crane on Lawrence County		**$199,801,504**
Labor Force		
Total		22,750
Total Employed (Feb 2003)		20,900
Number of Crane Employees		903
Crane Employees % of Employed		**4.3%**
Indirect Jobs from Crane		714
Total Crane Related Jobs		1,617
Total Crane Jobs as % of Employed		**7.7%**
Wages	Amount	Percent
Total County Earnings (resident income)	$595,611,000	100%
Crane Direct Wages	$51,300,333	8.61%
Crane Indirect Wages	$18,988,830	3.19%
Crane Wages as % of Total Earnings	$70,289,163	**11.80%**
Average County Wage		$26,595
Average Crane Wage for Lawrence County		$56,811
Crane Wages as % of Average Wage		**213.6%**
Crane Economic Impact		$199,801,504
Total Economic Impact as % of Total earnings		33.5%
Retirement		
Total Retirement Income		$11,145,280
Retirement Income as % of Total Earnings		1.9%
Average Annual Retirement		$24,020
Total Retirement Economic Impact		13,390,280
Average Retirement as % of Avg County Wage		**90.3%**
Impacts Details		
Total Contract Awards and Purchases in County		$6,654,259
Total Crane Bedford Navy Salaries		$22,204,500
Other Crane Bedford Salaries		$8,881,600
Total Bedford Crane Related Salaries		$31,086,100
Total estimated Bedford Salaries		$177,492,100
Crane Bedford Salaries % of Total Resident Wages		**17.5%**









Lawrence County has both significant manufacturing and limestone mining industries. In 2001 and with 46,000 residents, it ranked 31st in population with projected growth nearly equal to the state average.

Lawrence County receives an annual economic boost from NSWC Crane amounting to more than $198 million. This is greater than the combined earnings in all of Lawrence County's retail and service sectors. The 900 plus full time commuters to Crane support more than 700 jobs in various sectors in the county.

Lawrence County has an assessed valuation that is low in spite of its industrial presence. This is partly because Lawrence is another of the commuter destinations for places of employment in south central Indiana. Its $5,686 per capita assessed valuation ranks the county 91st of Indiana's 92.

More than 82 percent of the workforce is employed in the private sector where average industrial wages are nearly $47,000 per year. Total private sector earnings amount to a proportionate 83 percent of total earnings. Wages in other Lawrence County sectors are competitive compared with those same wages and sectors in neighboring communities.

Table 39
NSWC CRANE ECONOMIC IMPACTS FOR LAWRENCE COUNTY

Source	Direct	Value Added	Output	Retirement	Total
Operations and Retirement	$51,300,333	$41,743,485	$60,874,262	$13,390,530	$167,308,610
Additional Indiana Purchases and Contracts	$6,411,151	$12,461,769	$13,619,974	-	$32,492,894
TOTAL					**$199,801,504**

The average wage in Lawrence County, including all sectors, is $26,595 per year. Average wages by sector in Lawrence County range from a low of $13,700 annually for retail to more than $47,000 annually for manufacturing.

Table 40
NSWC CRANE
EMPLOYMENT COMPARISONS FOR LAWRENCE COUNTY

TOP EMPLOYERS AND NSWC CRANE	NUMBER EMPLOYED
Visteon Systems	1,270
GM Powertrain	1,000
NSWC Crane	**903**
Dana Corporation	425
Manchester Tank	175
Indiana Limestone	160

Table 41
LAWRENCE COUNTY SELECTED STATISTICS

Population Over Time	Number	Rank in State	Percent of State	Indiana
Yesterday(1990)	42,836	28	0.8%	5,544,156
Today(2001)	46,020	31	0.8%	6,114,745
Tomorrow(2020 proj.)	50,289	30	0.8%	6,481,489
Percent Change 1990 to 2000	7.2%	53		9.7%

Labor Force in 2001	Number	Rank in State	Percent of State	Indiana
Total Resident Labor Force	22,750	34	0.7%	3,106,388
Employed	20,900	35	0.7%	2,970,497
Unemployed	1,850	19	1.4%	135,891
Unemployment Rate	8.1	4	184.1%	4.4
December 2002 Unemployment Rate	**7.5**	**5**	**159.6%**	**4.7**

Employment and Earnings by Industry in 2000	Employment	Pct Dist. in County	Earnings ($000)	Pct Dist. In County	Avg. Earnings Per Job
Totals by Place of Work	22,396	100.0%	$595,611	100.0%	$26,595
Non-farm	21,282	95.0%	$591,931	99.4%	$27,814
Private	18,540	82.8%	$501,665	84.2%	$27,059
Manufacturing	5,383	24.0%	$253,067	42.5%	$47,012
Retail	4,375	19.5%	$59,979	10.1%	$13,709
Services	4,941	22.1%	$93,723	15.7%	$18,968
Transportation, Public Utilities	671	3.0%	$24,973	4.2%	$37,218
Other Private	3,170	14.2%	$69,923	11.7%	$22,058
Government	2,742	12.2%	$90,266	15.2%	$32,920

Assessed Property Value in 1999 (for taxes payable in 2000)	Value	Rank in State	Pct Dist. in County	Pct Dist. in State
Assessed Value by Property Class	$259,901,020	54	100.0%	100.0%
Commercial & Industrial	$94,493,090	51	36.4%	43.2%
Residential	$105,196,060	47	40.5%	41.5%
Agricultural	$42,922,530	71	16.5%	9.6%
Utilities	$17,289,340	45	6.7%	5.6%
Total Assessed Value Per Capita	$5,688	91		

Residential Building Permits in 2001	Units	Pct Dist. in County	Pct Dist. in State	Cost ($000)	State Cost ($000)
Total Permits Filed	36	100.0%	100.0%	$2,247	$4,876,861
Single Family	34	94.4%	82.8%	$2,161	$4,494,309
Two Family	2	5.6%	2.7%	$86	$82,317
Three & Four Family	0	0.0%	1.3%	$0	$41,033
Five Families and More	0	0.0%	13.2%	$0	$259,163

MARTIN COUNTY

$200,232 per square mile assessed valuation (not including NSWC Crane assets)

Home to NSWC Crane, Martin County is one of Indiana's least densely populated areas. In 2001 and with 10,300 residents, it ranked 87th in population with projected growth rates lower than the state average. The 98 square mile Naval center occupies almost 30 percent of the county's 336 square mile area. Martin ranks in the lower half of Indiana counties in regard to net migration and natural increase in population.

Economic impacts to Martin County are positive and expressed differently than other counties because of two factors.

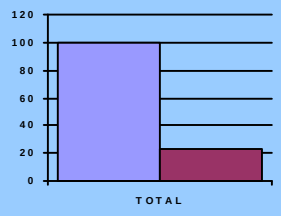
> **One**, Crane is located almost entirely in Martin County, so the total number of jobs available in the county is nearly two times the local working population. Nearly half the jobs in the county are filled by commuters from other counties. Only about 12 percent of the resident population works at the base.
>
> **Two**, total earnings express the total amount of wages paid for all jobs located in the county. This means that most of the higher wages are taken from the county to other communities. This means that the average wage paid in Martin County is relatively high ($45K). The average wage earned by county residents is much lower ($31K).

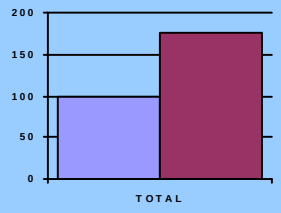
The economic impact of NSWC Crane on Martin County exceeds $126,000,000 annually. This is equal to approximately 31 percent of all wages paid in the county in a 12 month period. The 600 Martin County residents who work on the base, along with spending by the base and base contractors, support an estimated 480 secondary jobs in Martin County.

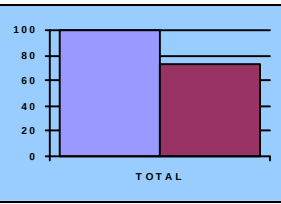
Engineers, technicians, and other specialists who make their homes in southwest Indiana travel abroad to service and install equipment developed and supported by NSWC Crane.

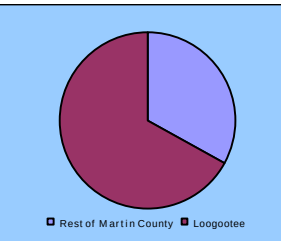
Table 42
NSWC CRANE
IMPACT PROFILE FOR MARTIN COUNTY

Total economic impact of NSWC Crane on Martin County			**$125,375,928**
Labor Force			
Total		5,075	
Total Employed (Feb 2003)		4,815	
Total Number of Crane Employees		612	
Crane Employees % of Employed		**12.7%**	
Indirect Jobs from Crane		483	
Total Crane Related Jobs		1,095	
Total Crane Jobs as % of Employed		**22.7%**	
Wages	Amount	Percent	
Total County Earnings	$400,310,000		
Resident Income (expressed separately due to the large number of Crane workers residing in other counties)	$127,716,000	100%	
Direct Crane Wages	$32,676,516	25.59%	
Indirect Crane Wages	$14,678,370	11.49%	
Crane Wages as % of Resident Income	$47,354,886	**37.08%**	
Average County Wage		$45,510	
Average resident wage		$30,390	
Average Crane Wage for Martin County		$53,393	
Crane Wage as % of Average Resident Wage		**175.7%**	
Crane Economic Impact		$125,375,928	
Total Economic Impact as % of total resident income		98.2%	
Retirement			
Total Retirement Income		$7,766,000	
Retirement Income as % of Resident Income		6.0%	
Average Annual Retirement		$22,000	
Total Retirement Economic Impact		$14,512,000	
Average Retirement as % of Avg Resident Wage		**72.4%**	
Impact Details			
Total Major Contract Awards in County *includes on-site contractors*		$45,309,900*	
Additional Purchases and Contracts		$1,779,627	
Total Crane Loogootee Navy Salaries		$16,091,412	
Other Crane Loogootee Salaries		$6,447,600	
Total Loogootee Crane Related Salaries		$22,539,012	
Total estimated Loogootee Salaries		$33,714,300	
Crane Loogootee Salaries % of Resident wages.		**67%**	









Martin County's assessed valuation is among the lowest in Indiana. Its $6,426 per capita assessed valuation ranks the county 86th of Indiana's 92. If the $2 billion value of Crane were added to the county tax rolls, the per capita would rise to $290,000 per resident.

Almost 49 percent of the workforce is employed by government with total government sector wages of nearly $300 million averaging almost $70,000 per job. Total private sector earnings amount to less than one third of government earnings at less than $97 million per year. Contrasted to other employment sectors in the county, local manufacturing, utility, and transportation wages average approximately $34,000 per job. Average annual earnings in the Martin County retail sector are less than $10,000 per job per year.

Martin County is also estimated to have the third largest concentration of residents who have retired from careers at NSWC Crane. Lawrence and Greene County rank first and second in that order. This is particularly important due to Martin County's service intense economy. The secondary employment generated from household and business spending supports a total of approximately 120 jobs in the community.

Table 43
NSWC CRANE ECONOMIC IMPACTS FOR MARTIN COUNTY

Source	Direct	Value Added	Output	Retirement	Total
Operations and Retirement	$32,676,516	$28,270,720	$41,227,013	$14,511,719	$116,685,968
Additional Indiana Purchases and Contracts	$1,714,610	$3,332,799	$3,642,551	-	$8,689,960
TOTAL					**$125,375,928**

Table 44
NSWC CRANE
EMPLOYMENT COMPARISONS FOR MARTIN COUNTY

TOP EMPLOYERS AND NSWC CRANE	NUMBER EMPLOYED
NSWC CRANE	**612**
United States Gypsum	215
Perfect Fit Industries	150
Loogootee Community Schools	120
Gold Bond	107
Shoals Community Schools	100
Martin County government	65

Table 45
MARTIN COUNTY SELECTED STATISTICS

Population Over Time	Number	Rank in State	Percent of State	Indiana
Yesterday(1990)	10,369	86	0.2%	5,544,156
Today(2001)	10,383	87	0.2%	6,114,745
Tomorrow(2020 proj.)	10,493	88	0.2%	6,481,489
Percent Change 1990 to 2000	0.0%	81		9.7%

Labor Force in 2001	Number	Rank in State	Percent of State	Indiana
Total Resident Labor Force	5,075	88	0.2%	3,106,388
Employed	4,815	88	0.2%	2,970,497
Unemployed	260	86	0.2%	135,891
Unemployment Rate	5.1	36	115.9%	4.4
December 2002 Unemployment Rate	**4.5**	**55**	**95.7%**	**4.7**

Employment, Earnings by Industry, 2000	Employment	Pct Dist. in County	Earnings ($000)	Pct Dist. In County	Avg. Earnings Per Job
Totals by Place of Work	8,796	100.0%	$400,310	100.0%	$45,510
Resident income			$127,716		
Non-farm	8,376	95.2%	$396,177	99.0%	$47,299
Private	4,093	46.5%	$96,654	24.1%	$23,614
Manufacturing	637	7.2%	$21,638	5.4%	$33,969
Retail	837	9.5%	$8,187	2.0%	$9,781
Services	902	10.3%	$14,973	3.7%	$16,600
Transportation, Public Utilities	845	9.6%	$28,844	7.2%	$34,135
Other Private	872	9.9%	$23,012	5.7%	$26,390
Government	4,283	48.7%	$299,523	74.8%	$69,933

Assessed Property Value in 1999 (taxes payable 2000)	Value	Rank in State	Pct Dist. in County	Pct Dist. in State
Assessed Value by Property Class	$67,278,970	88	100.0%	100.0%
Commercial & Industrial	$17,887,920	86	26.6%	43.2%
Residential	$23,735,580	88	35.3%	41.5%
Agricultural	$20,561,610	91	30.6%	9.6%
Utilities	$5,093,850	88	7.6%	5.6%
Total Assessed Value Per Capita	$6,426	86		

Residential Building Permits in 2001	Units	Pct Dist. in County	Pct Dist. in State	Cost ($000)	State Cost ($000)
Total Permits Filed	6	100.0%	100.0%	$465	$4,876,861
Single Family	6	100.0%	82.8%	$465	$4,494,309
Two Family	0	0.0%	2.7%	$0	$82,317
Three & Four Family	0	0.0%	1.3%	$0	$41,033
Five Families and More	0	0.0%	13.2%	$0	$259,163

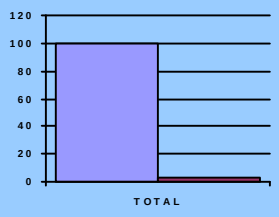
MONROE COUNTY

$ 2,422,665 per square mile assessed valuation

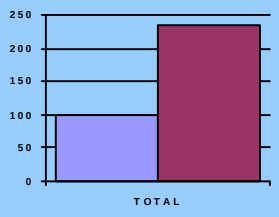
Monroe County is home to Indiana University, Bloomington Hospital, and several large manufacturing employers; yet Crane, two counties away, is still considered one of the community's major economic assets.

Table 46
NSWC CRANE
IMPACT PROFILE FOR MONROE COUNTY

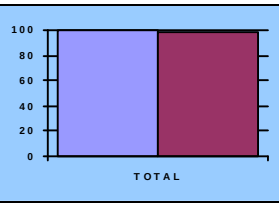
Total Economic Impact of NSWC Crane on Monroe County		**$167,966,194**
Labor Force		
Total	61,390	
Total Employed (Feb 2003)	59,470	
Number of Crane Employees	832	
Crane Employees % of Employed	**1.4%**	
Indirect Jobs from Crane	657	
Total Crane Related Jobs	1,489	
Total Crane Jobs as % of Employed	**2.5%**	



Wages	Amount	Percent
Total County Earnings (resident income)	$2,195,541,000	100%
Direct Crane Wages	$54,051,712	2.46%
Indirect Crane Wages	$18,228,465	0.83%
Crane Wages as % of Total Earnings	$72,280,177	**3.29%**
Average County Wage		$27,745
Average Crane Wage for Monroe County		$64,966
Crane Wages as % of Average Wage		**234.2%**
Crane Economic Impact		$167,966,194
Total Economic Impact as % of Total Wages		7.7%



Retirement	
Total Retirement Income	$6,493,800
Retirement Income as % of Total Earnings	0.3%
Average Annual Retirement	$27,400
Total Retirement Economic Impact	$8,483,800
Average Retirement as % of Avg County Wage	**98.8%**



Impact Details	
Total Contract Awards and Purchases in County	$ 5,660,900

Monroe County is also the most densely populated county in the primary labor market area with most of its residents living in the city of Bloomington. In 2001 and with 119,800 residents, it ranked 11th in population with projected growth rates lower than the state average. Average age in Monroe County tends to be below state averages due, in part, to the large percentage of students at Indiana University and Ivy Tech.

Monroe County's assessed valuation is among the highest in Indiana with a rank of 13th. Yet, its $8,189 per capita assessed valuation ranks the county 58th of Indiana's 92.

Due to university employment, local public schools, and significant employment in local government, almost a third of employment is in the government sector. Next to the government sector, Monroe County's service sector is the largest source of earnings. Government earnings top $660 million with service sector earnings exceeding $500 million. Average wages in most sectors are comparatively higher than in other Crane labor market area counties.

Table 47
NSWC CRANE ECONOMIC IMPACTS FOR MONROE COUNTY

Source	Direct	Value Added	Output	Retirement	Total
Operations and Retirement	$54,051,712	$38,430,510	$56,042,971	$8,484,095	$157,009,288
Additional Indiana Purchases and Contracts	$2,161,900	$4,202,224	$4,592,782	-	$10,956,906
TOTAL					**$167,966,194**

The average wage in Monroe County, including all sectors, is $27,745 per year. The average wage excluding workers and wages in the government sector is $32,895 per year.

Table 48
NSWC CRANE
EMPLOYMENT COMPARISONS FOR MONROE COUNTY

TOP EMPLOYERS AND NSWC CRANE	NUMBER EMPLOYED
Indiana University	6,987
Bloomington Hospital	2,585
General Electric	1,850
Cook Inc.	1,734
Monroe Co. School Corporation	1,700
NSWC Crane	**665**

Table 49
MONROE COUNTY SELECTED STATISTICS

Population Over Time	Number	Rank in State	Percent of State	Indiana
Yesterday(1990)	108,978	11	2.0%	5,544,156
Today(2001)	119,880	11	2.0%	6,114,745
Tomorrow(2020 proj.)	129,574	12	2.0%	6,481,489
Percent Change 1990 to 2000	10.6%	29		9.7%

Labor Force in 2001	Number	Rank in State	Percent of State	Indiana
Total Resident Labor Force	61,390	12	2.0%	3,106,388
Employed	59,470	12	2.0%	2,970,497
Unemployed	1,920	17	1.4%	135,891
Unemployment Rate	3.1	81	70.5%	4.4
December 2002 Unemployment Rate	**2.9**	**91**	**61.7%**	**4.7**

Employment and Earnings by Industry in 2000	Employment	Pct Dist. in County	Earnings ($000)	Pct Dist. In County	Avg. Earnings Per Job
Totals by Place of Work	79,133	100.0%	$2,195,541	100.0%	$27,745
Non-farm	78,619	99.4%	$2,193,553	99.9%	$27,901
Private	58,402	73.8%	$1,528,505	69.6%	$26,172
Manufacturing	9,570	12.1%	$378,977	17.3%	$39,601
Retail	14,449	18.3%	$212,359	9.7%	$14,697
Services	20,846	26.3%	$515,208	23.5%	$24,715
Transportation, Public Utilities	2,054	2.6%	$77,158	3.5%	$37,565
Other Private	11,483	14.5%	$344,803	15.7%	$30,027
Government	20,217	25.5%	$665,048	30.3%	$32,895

Assessed Property Value in 1999 (for taxes payable in 2000)	Value	Rank in State	Pct Dist. in County	Pct Dist. in State
Assessed Value by Property Class	$954,529,570	13	100.0%	100.0%
Commercial & Industrial	$392,618,910	12	41.1%	43.2%
Residential	$479,972,250	12	50.3%	41.5%
Agricultural	$43,304,700	69	4.5%	9.6%
Utilities	$38,633,710	24	4.0%	5.6%
Total Assessed Value Per Capita	$8,189	58		

Residential Building Permits in 2001	Units	Pct Dist. in County	Pct Dist. in State	Cost ($000)	State Cost ($000)
Total Permits Filed	879	100.0%	100.0%	$92,990	$4,876,861
Single Family	495	56.3%	82.8%	$70,035	$4,494,309
Two Family	60	6.8%	2.7%	$5,082	$82,317
Three & Four Family	8	0.9%	1.3%	$592	$41,033
Five Families and More	316	35.9%	13.2%	$17,281	$259,163

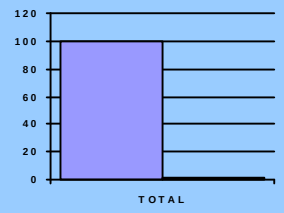
ORANGE COUNTY

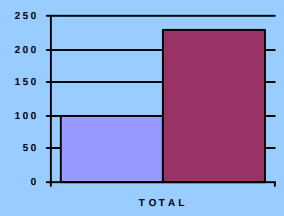
$ 379,982 per square mile assessed valuation

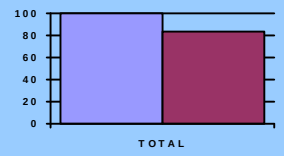
Even with Orange County's contiguous location to Martin County, its commuting ties are not as strong to Crane as they are to other locations. Dubois and Lawrence counties are more significant employment destinations, as are Washington County and metropolitan Louisville. Several manufacturers are located in the county, but the largest two employ a total of only about 1,300 workers. Other manufacturers employ 150 or fewer workers. The local schools and resort are the other large employers.

Table 50
NSWC CRANE
IMPACT PROFILE FOR ORANGE COUNTY

Total Economic Impact of NSWC Crane on Orange County		**$15,599,875**
Labor Force		
Total		8,580
Total Employed (Feb 2003)		7,800
Number of Crane Employees		67
Crane Employees % of Employed		**0.86%**
Indirect Jobs from Crane		53
Total Crane Related Jobs		120
Total Crane Jobs as % of Employed		**1.54%**
Wages	Amount	Percent
Total County Earnings (resident income)	$223,055,000	100%
Direct Crane Wages	$3,618,000	1.62%
Indirect Crane Wages	$1,256,736	0.56%
Crane Wages as % of Total Earnings	$4,874,736	**2.19%**
Average County Wage		$23,712
Average Crane County Wage		$54,000
Crane Wages as % of Average Wage		**227.7%**
Crane Economic Impact		$15,599,875
Total Economic Impact as % of Total Wages		7.0%
Retirement		
Total Retirement Income		$1,481,480
Retirement Income as % of Total Earnings		6.6%
Average Annual Retirement		$20,020
Total Retirement Economic Impact		$1,736,480
Average Retirement as % of Avg County Wage		**84.4%**







Orange County is consistently among Indiana's most economically distressed. Its 19,400 residents rank the county 74th in population with a stable population projected. Unemployment constantly ranks high in Orange County making all sources of employment extremely valuable to the community.

Orange County's assessed valuation is also in the lowest quartile of Indiana's 92 counties. Its $7,739 per capita assessed valuation is higher than some of its neighbors, yet ranks the county 69th of Indiana's 92.

The manufacturing sector is the largest employer in Orange County, but out-bound commuters make up the largest of all employed groups in the community.

Table 51
NSWC CRANE ECONOMIC IMPACTS FOR ORANGE COUNTY

Source	Direct	Value Added	Output	Retirement	Total
Operations and Retirement	$3,618,000	$3,092,110	$4,509,205	$1,735,789	$12,955,104
Additional Indiana Purchases and Contracts	$521,838	$1,014,330	$1,108,603	-	$2,644,770
TOTAL					**$15,599,875**

The average wage in Orange County, including all sectors, is $23,712 per year.

Table 52
NSWC CRANE
EMPLOYMENT COMPARISONS FOR ORANGE COUNTY

TOP EMPLOYERS AND NSWC CRANE	NUMBER EMPLOYED
Spring Valley School Corporation	970
Paoli, Inc.	700
Reynolds, Inc.	600
French Lick Springs Resort (seasonal)	400
Pluto Corporation	150
NSWC Crane	**67**

Table 53
ORANGE COUNTY SELECTED STATISTICS

Population Over Time	Number	Rank in State	Percent of State	Indiana
Yesterday(1990)	18,409	74	0.3%	5,544,156
Today(2001)	19,442	74	0.3%	6,114,745
Tomorrow(2020 proj.)	21,761	74	0.3%	6,481,489
Percent Change 1990 to 2000	4.9%	62		9.7%

Labor Force in 2001	Number	Rank in State	Percent of State	Indiana
Total Resident Labor Force	8,580	78	0.3%	3,106,388
Employed	7,800	79	0.3%	2,970,497
Unemployed	780	47	0.6%	135,891
Unemployment Rate	9.1	1	206.8%	4.4
December 2002 Unemployment Rate	**8.8**	**1**	**187.2%**	**4.7**

Employment and Earnings by Industry in 2000	Employment	Pct Dist. in County	Earnings ($000)	Pct Dist. In County	Avg. Earnings Per Job
Totals by Place of Work	9,407	100.0%	$223,055	100.0%	$23,712
Non-farm	8,708	92.6%	$218,685	98.0%	$25,113
Private	7,749	82.4%	$188,501	84.5%	$24,326
Manufacturing	2,334	24.8%	$65,505	29.4%	$28,066
Retail	1,270	13.5%	$20,265	9.1%	$15,957
Services	2,248	23.9%	$41,123	18.4%	$18,293
Transportation, Public Utilities	378	4.0%	$12,994	5.8%	$34,376
Other Private	1,519	16.1%	$48,614	21.8%	$32,004
Government	959	10.2%	$30,184	13.5%	$31,474

Assessed Property Value in 1999 (for taxes payable in 2000)	Value	Rank in State	Pct Dist. in County	Pct Dist. in State
Assessed Value by Property Class	$151,613,150	79	100.0%	100.0%
Commercial & Industrial	$54,046,220	68	35.6%	43.2%
Residential	$47,366,600	78	31.2%	41.5%
Agricultural	$40,536,130	72	26.7%	9.6%
Utilities	$9,664,200	65	6.4%	5.6%
Total Assessed Value Per Capita	$7,739	69		

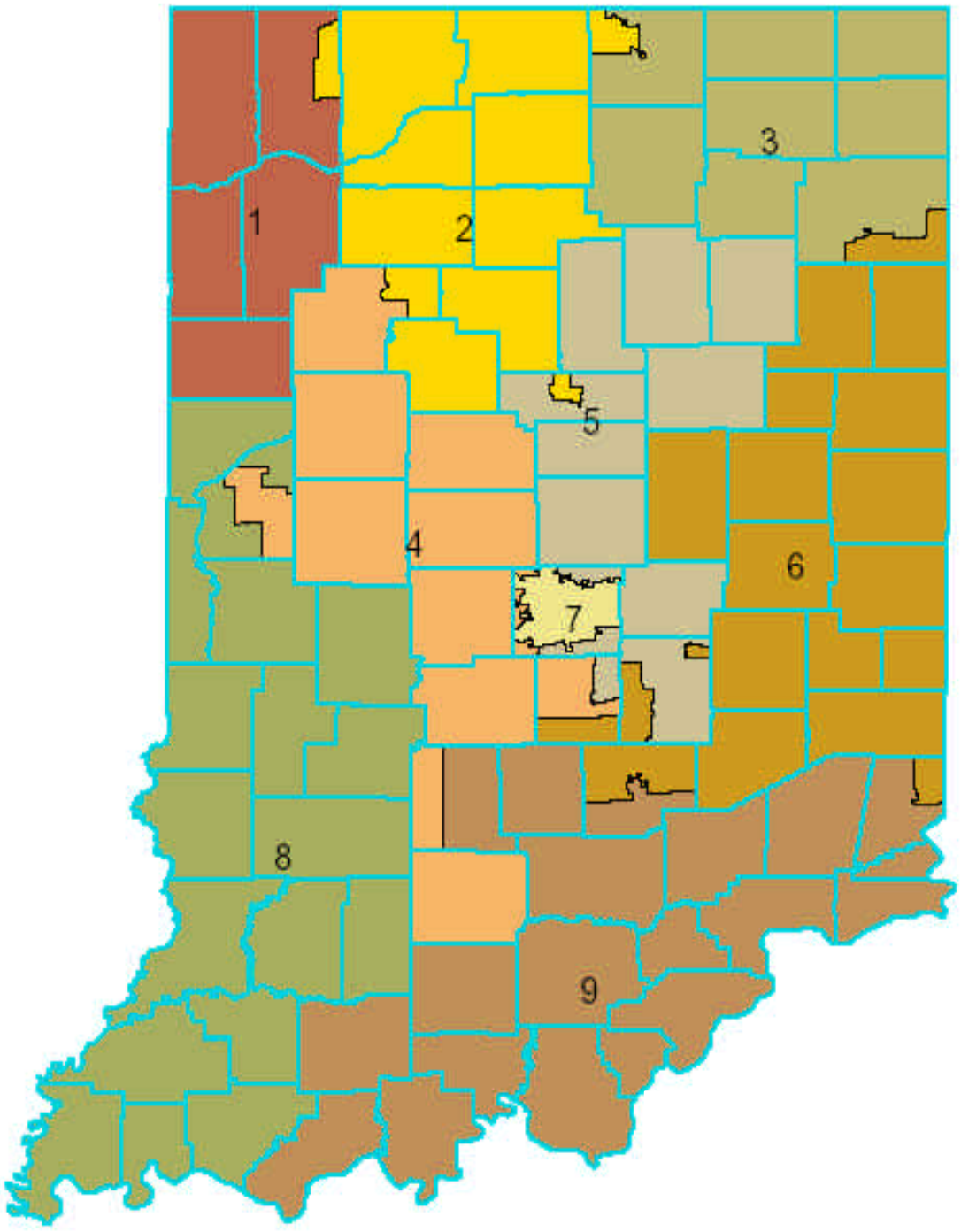
Residential Building Permits in 2001	Units	Pct Dist. in County	Pct Dist. in State	Cost ($000)	State Cost ($000)
Total Permits Filed	0	N/A	100%	$0	$4,876,861
Single Family	0	N/A	82.8%	$0	$4,494,309
Two Family	0	N/A	2.7%	$0	$82,317
Three & Four Family	0	N/A	1.3%	$0	$41,033
Five Families and More	0	N/A	13.2%	$0	$259,163

Table 54
NSWC CRANE ECONOMIC IMPACT ON CONGRESSIONAL DISTRICTS

County	Jobs		Wages	Additional Contracts / Purchases	Operations	Additional Contracts / Purchases	Retirement	Total Estimated Economic Impact
	Direct	In Direct						
U. S. Congressional District 4								
Lawrence	903	714	$49,065,944	$6,411,151	$102,617,747	$26,081,743	$13,390,530	$197,567,115
Monroe	92	72	$4,968,900	$743,273	$10,392,083	$494,884	$933,250	$17,532,390
Subtotals	**995**	**786**	$54,034,844	$7,154,424	$113,009,830	$26,576,627	$14,323,780	$215,099,505
U. S. Congressional District 8								
Daviess	640	506	$34,787,494	$1,640,062	$72,755,439	$6,672,074	$10,419,193	$126,274,262
Greene	929	732	$50,363,984	$1,863,707	$105,332,502	$7,581,902	$15,272,937	$180,415,032
Knox	77	60	$4,145,223	$820,031	$8,679,432	$3,336,073	$1,749,854	$18,730,613
Martin	612	483	$33,229,845	$1,714,610	$69,497,733	$6,975,350	$14,511,719	$125,929,257
Subtotals	**2258**	**1781**	**$122,526,546**	**$6,038,410**	**$256,265,106**	**$24,565,399**	**$41,953,703**	$451,349,164
U. S. Congressional District 9								
Dubois	80	60	$4,162,239	$894,579	$8,695,002	$3,639,313	$686,241	$18,077,374
Monroe	740	585	$40,202,921	$1,418,627	$84,081,398	$8,300,122	$7,550,845	$141,553,913
Orange	67	53	$3,634,514	$521,383	$7,601,315	$2,122,933	$1,735,789	$15,615,934
Subtotals	**887**	**698**	**$47,999,674**	**$2,834,589**	**$100,377,715**	**$14,062,368**	**$9,972,875**	$175,247,221
Totals	**4140**	**3265**	**$224,561,064**	**$16,027,423**	**$469,652,651**	**$65,204,394**	**$66,250,358**	**$841,695,890**

Table 55
CRANE RELATED TAX IMPACTS BY CONGRESSIONAL DISTRICTS

COUNTY	FEDERAL NON DEFENSE	INDIANASTATE AND LOCAL NON-EDUCATION	TOTAL
U. S. Congressional District 4			
Lawrence	$35,812,641	$12,147,869	$47,960,510
Monroe	$3,646,281.49	$1,236,841.22	$4,883,123
SUBTOTALS	**$39,458,922**	**$13,384,710**	**$52,843,633**
U. S. Congressional District 8			
Daviess	$25,388,458	$8,611,922	$34,000,380
Greene	$36,763,274	$12,470,329	$49,233,603
Knox	$3,033,831	$1,029,094	$4,062,925
Martin	$24,241,142	$8,222,745	$32,463,887
SUBTOTALS	**$89,426,705**	**$30,334,090**	**$119,760,795**
U. S. Congressional District 9			
Dubois	$3,030,552	$1,027,982	$4,058,534
Monroe	$29,330,851	$9,949,206	$39,280,056
Orange	$2,655,216	$900,666	$3,555,882
SUBTOTALS	**$35,016,619**	**$11,877,854**	**$46,894,472**
Totals	**$163,902,246**	**$55,596,654**	**$219,498,900**



INDIANA CONGRESSIONAL DISTRICTS

THE CRANE STORY

Employing over 4,700 personnel, the Naval Surface Warfare Center (NSWC), Crane Division operates as a Defense Business Operations Fund Command and depends on its ability to efficiently and effectively provide essential services and products to customers. The Crane Division is one of six divisions of NSWC which maintains a full spectrum research, development, acquisition, test and evaluation and support capability for surface warfare combat and weapon systems and hull, mechanical, and electrical systems.

The Crane Division is a leader in diverse and highly technical product lines such as microwave devices, acoustic sensors, small arms, microelectronic technology, as well as other products. It is also a leader in providing enhanced methods and technology in production of modern naval combat weapons systems.

Considering Crane's tenants, large contractors, and small contractors, as well as the operations of the Navy itself, few organizations surpass Crane in their impact on south central Indiana and the state overall. Crane is directly and indirectly responsible for more than 8,500 jobs, 8,000 of which are in Indiana, and the over $440 million in wages associated with those jobs. It also adds over $55 million in tax revenues to state and local coffers.

The Crane Division is typical of many Department of Defense facilities that are undergoing dramatic changes through realignment and re-focusing of priorities. This Division has historically been regarded as a key manufacturing and engineering support facility for DOD; management has taken the challenging leadership role to look beyond its boundaries to other markets and potential customers.

The area which comprises Crane Division, Naval Surface Warfare Center, was Indian territory until the signing of the Treaty of Greenville in 1795. In 1817, Martin County, where the majority of the base is located, was formed from a portion of Daviess County. Settlers, predominantly from Virginia, Kentucky, and the Carolinas, arrived in the county during the early 1800's.

The population continued to grow to its all-time peak of 14,711 in 1900, fostered by the opening of the Milwaukee Railroad 10 years earlier. The opening of the rail line permitted intensive development of timber resources and provided the backbone of the local economy until about 1900. After the turn of the century, the population of Martin County began to decline in response to the depletion of timber resources. By 1930, the population of the County had fallen to half the level of 1900.

This population decline, also spurred by poor farming conditions, resulted in the complete abandonment of a large portion of Martin County. Some of this depleted land was reoccupied during the depression, but living standards in the county were low and the local governments were unable to provide the required level of services.

At this time, the United States Department of Agriculture proposed the White River Land Utilization Project. This project provided for the acquisition of 32,000 acres of the poorest land in Martin County with the goal of restoring its forest productivity and developing a state park. Thousands of trees were planted, along with shrubs and grasses, and check dams were built to

control erosion. Approximately 90 acres of picnic areas were developed and a dam was constructed on Furst Creek to establish the 800-acre Lake Greenwood. Dedication of the White River Project was held on 15 September 1939.

Early in 1940, with the Second World War already begun in Europe, Congress passed the first supplemental National Defense Appropriation Act. This Act provided five million dollars for new inland ammunition production facilities, three million dollars of which were earmarked to build a Navy ammunition depot at Burns City on the site of the White River Project.

In addition to meeting the requirement of being far enough from the eastern seaboard to minimize the danger of enemy air attack, other factors added to the suitability of the Burns City area for building an ammunition facility. The site was remote and free from congested areas. The hilly terrain was ideal for magazine construction and camouflage, and Lake Greenwood could supply water for the facility. The area was traversed by two state highways, a railroad, and a 66,000-volt electric power transmission line. Limestone rock needed for building construction was available. The land could be obtained easily, and a suitable manpower pool was believed to exist.

The Naval Ammunition Depot (NAD), Burns City, Indiana, was commissioned on 1 December 1941. The initial mission was to prepare, load, renovate, receive, store, and issue all types of ammunition, including pyrotechnics and illuminating projectiles, and to act as a principal source of supply at a most critical time--the early days of World War II. In May, 1943, the depot was renamed the Naval Ammunition Depot, Crane, in honor of Commodore William Montgomery Crane, the Navy's first Chief of the Bureau of Ordnance. During World War II, civilian employment reached almost 10,000 and more than 1,300 Navy and Marine Corps personnel were assigned to the installation.

In the years after the end of World War II, Crane began to develop the expertise in engineering and electronics that has carried the facility into a leadership position in today's Navy. In 1947, the Bureau of Ordnance moved to expand its fledgling "quality control" laboratory system, which had been established to evaluate and determine the quality of ordnance materials stockpiled around the world. Because it was a major stocking point, a decision was made to establish a laboratory at NAD Crane. As the complexity and sophistication of weapons increased, the laboratory became involved in a widening scope of activities--developing testing methods, procedures, and equipment, and designing statistical tests--while the basic mission of the activity remained the same.

Employment dropped to 1,900 persons following World War II, increased to nearly 4,700 during the Korean conflict, then leveled off at about 2,000 for several years. However, in 1959, with the merger of the Bureau of Ordnance and the Bureau of Aeronautics into the Bureau of Weapons (BUWEPS), Crane was assigned responsibility for providing scientific and engineering support to new BUWEPS product areas owing to its "quality evaluation laboratory" resources and its ordnance production engineering experience. These new assignments included projects in such areas as electronics, rotating components, batteries, missile components, and aircraft/avionics equipment. As a result of these efforts, employment rose to nearly 2,900 by 1965, with a large portion of the increase made up of young engineers, scientists, and technicians.

In 1965/66, with the rapid buildup in support of Southeast Asian operations, NAD Crane became deeply involved with overall Fleet support. In addition to producing ordnance materials, Crane began providing technical support for weapons systems, including logistics, in-service engineering,

repair, and overhaul as well as design support. Employment grew to more than 7,000--about half involved in ordnance production--during this period.

In 1970, recognition of the extent and diversity of Fleet support efforts resulted in the formation of a new department dedicated to providing engineering talent and expertise to in-service systems. The development, success, and growth of the Fleet Logistics Support Department led to new and additional assignments and, in 1975, resulted in changing the name of the depot to the Naval Weapons Support Center, Crane. The new name more accurately reflected Crane's true function and, with attendant mission statement changes, established Crane as a research, development, test, and evaluation center. The name was changed again in 1992 due to reorganization with the Department of Defense. At this time it became the Crane Division of the Naval Surface Warfare Center.

In 1977, another major change occurred with the designation of the Army as the single-service manager of conventional ammunition. This resulted in the establishment of a tenant command, the Crane Army Ammunition Activity (CAAA). Headed by an Army Colonel, CAAA performed the loading, assembly, and storage of ammunition that had previously been the responsibility of the Crane Ordnance Department.

During the 1990s, through retirement, early retirement and other separations, about 1,460 employees or 31 percent of the workforce at NSWC Crane have stopped working at the naval base. This reduction, although in the same order of magnitude as the closing of nearby industrial facilities of comparable size, has not attracted nearly the regional nor statewide attention—even though these plant closings were associated with jobs involving lower average annual wages. Since 1994, employment levels at NSWC Crane have declined steadily. Only in 1998 were more employees hired (170) than were lost (139) through retirement, early retirement and resignation (excluding removal and death). Since 1994, a total of 998 employees left their jobs while at the same time 461 were hired. Near the peak of employment at Crane, in 1991, the navy employed 4,700 Hoosiers at the base. As of July 2000, that number was down to 3,240, reflecting a net loss of 1,460 jobs in nine years.

Today, Crane serves a modern and sophisticated Navy as a recognized leader in diverse and highly technical product lines such as microwave devices, acoustic sensors, small arms, microelectronic technology, and more. The pride and professionalism of Crane's workforce have significantly benefited the Navy and the taxpayer through better products at lower cost. Crane stands as an industrial leader in providing better methods and technology in the production of modern naval combat weapons systems.

Crane has enhanced its potential to serve the Navy well into the future by such actions as recruiting and training the very best personnel, acquiring state of the art equipment and facilities, and developing modern management practices. In addition, significant advances have been made in developing and broadening of associated private sector capabilities, which will provide a strong technological base to meet emerging national defense requirements.

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VALUE ASSESSMENT

PART THREE: QUALITY OF LIFE AND HISTORY

June 15, 2003

Commissioned by the Southern Indiana Business Alliance (SIBA) and prepared by
STRATEGIC DEVELOPMENT GROUP
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Bloomington, Indiana 47404

CONTENTS

PART THREE:

QUALITY OF LIFE AND HISTORY

EDUCATION

In the primarily rural counties most heavily impacted by NSWC Crane, the base has a significant positive impact on education. It employs residents in a range of skilled jobs, counteracting the state's "brain drain" problem by attracting and retaining educated workers. Workforce training dollars for Crane employees exceed $4.7 million annually. Crane contributes about $600,000 to Indiana colleges and universities. The base attracts federal aid to local schools, and its employees participate in a range of programs that enrich the education of the region's young people.

EDUCATION LEVELS AT NSWC CRANE

Crane injects high levels of education into a rural community that otherwise might suffer from a lack of educated workers. The average educational attainment of Crane employees is over 14 years of school.

Approximately 25% of employees have a high school diploma or equivalent as their highest attainment. More than 23% of NSWC Crane employees have obtained as their highest degree an associate's degree. Over 32% of Crane's workforce finished with a bachelor's degree, and over 9% have earned a master's degree or higher.

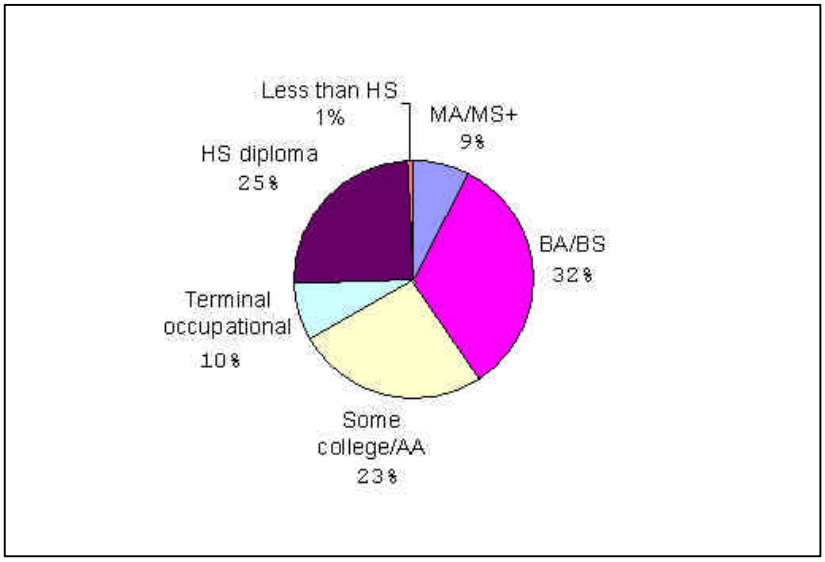


Figure 1 EDUCATIONAL ATTAINMENT OF NSWC CRANE EMPLOYEES

Table 1
NSWC CRANE
USDON CIVILIAN PERSONNEL BY EDUCATION, DECEMBER 2002

Level of Education	Number		Percentage	
	This Group	Accum	This Group	Accum
POST DOCTORATE Educational Studies	5	5	0.2	0.2
DOCTORATE DEGREE	20	25	0.7	0.9
POST MASTER'S Studies	19	44	0.6	1.5
MASTER'S DEGREE	210	254	6.5	8.0
FIRST PROFESSIONAL DEGREE	2	256	0.1	8.1
POST BACHELOR'S	91	347	2.8	10.9
BACHELOR'S DEGREE	945	1292	29.1	40.0
4 YEARS COLLEGE	32	1324	1.0	41.0
3 YEARS COLLEGE	48	1372	1.5	42.5
ASSOCIATE DEGREE	368	1740	11.4	53.9
2 YEARS COLLEGE	106	1846	3.3	57.2
1 YEAR COLLEGE	128	1974	4.0	61.2
SOME COLLEGE-LESS THAN 1 YEAR	237	2211	7.3	68.5
TERMINAL OCC PROG-CERT OF COMPLETION	256	2467	7.9	76.4
TERMINAL OCC PROG - DID NOT COMPLETE	31	2498	0.1	76.5
HIGH SCHOOL GRAD OR EQUIVALENT	722	3220	22.6	99.1
SOME HIGH SCHOOL - DID NOT GRAD	28	3248	0.9	100.0
TOTAL	**3248**			**100.0**

Recent census data indicates that 33.8% of adults in Daviess County, 35.6% of those in Martin County, and 35.1% of those in Orange County had not completed even a high school education, whereas 38.1% of Crane employees have obtained a bachelor's degree or higher and only 7.6% of adults in Daviess County had completed a bachelor's degree or higher. In Martin County 8.6% of adults have completed a bachelor's degree or higher and in Orange County 6% of adults have completed a bachelor's degree or higher. Lawrence, Greene, Dubois, and Knox counties are not much better off; the percentage of adults completing at least a four-year degree is 9.4%, 9.9%, 10.9%, and 11.1%, respectively, in those counties. Crane employees who reside in these counties are reflected in these figures; imagine how much lower the numbers would be if Crane were not located in the region. Crane's high educational profile is especially important given the otherwise low educational levels of these counties.

Table 2
NSWC CRANE
USDON CIVILIAN SCIENTISTS AND ENGINEERS

	01	02	ND 03	04	05	SES	TOTAL
ELECTRONIC ENGINEERING (0855)		33	32	493	28		**586**
MATH/OPS. RESEARCH/STATISTICIAN		1	1	41	2		**45**
COMPUTER SCIENTIST (1550)			1	7			**8**
MECHANICAL ENGINEERING (0830)		9	10	222	11		**252**
CHEMICAL ENGINEERING (0893)		3	3	29	1		**36**
INDUSTRIAL ENGINEERING (0896)		2		18			**20**
GENERAL ENGINEERING (0801)				4	3	1	**8**
OTHER ENGINEERS		1	5	30			**36**
CHEMIST (1320)		1	1	19	3		**24**
PHYSICIST (1310)			3	13	2		**18**
OTHER SCIENTISTS			3	8			**11**
TOTALS	**0**	**50**	**59**	**884**	**50**	**1**	**1044**

NSWC CRANE
USDON CIVILIAN TECHNICIANS AND SPECIALISTS

	GS										NT				TOTAL
04	05	06	07	08	09	10	11	12	13	02	03	04	05	06	
ENGINEERING TECHNICIAN (0802)															
	3	1	2		36	9	110	80	4	2	11	29	19		306
ELECTRONIC TECHNICIAN (0856)															
10	14	8	20	11	44	12	237	157				9	30	1	553
INDUSTRIAL ENGINEERING TECHNICIAN (0895)															
							1	2				1	1		5
TOTAL TECHNICIANS															
10	**17**	**9**	**22**	**11**	**80**	**21**	**348**	**239**	**4**	**2**	**11**	**39**	**50**	**1**	**864**
LOGISTICS MANAGEMENT SPECIALISTS (0346)															
	2		3		9		32	50				2	26	1	125
TOTAL TECHNICIANS AND SPECIALISTS															
10	**19**	**9**	**25**	**11**	**89**	**21**	**380**	**289**	**4**	**2**	**11**	**41**	**76**	**2**	**989**

The "brain drain" of educated and technically skilled professionals has been a sharp concern at both the regional and state levels. One of the key determinants in generating and retaining highly trained scientists and engineers is the existence of a critical mass or cluster of highly trained scientists and engineers. Crane provides that critical mass. Crane provides an element of diverse educated people in a region that otherwise would be less educated and more homogeneous. Crane's 4,700 current employees work in over 170 diverse job occupations.

Because of its aging workforce, Crane will hire approximately 1,700 workers through fiscal year 2011(if the workload remains at its current level). Future workforce projections call for increased emphasis on hiring technicians, scientists, engineers, and a small number of administrative personnel. Hires in other job categories will occur as a result of attrition; in other words, most will be replacements.

As a result of Crane's aggressive recruiting campaign, the number of new hires with bachelor degrees increased by 100 from 1997 to August 2000. Three PhDs were hired during that period.

Table 3
NSWC CRANE
USDON CIVILIAN TECHNICIANS AND SPECIALISTS

BLUE COLLAR	#	PATCOB LISTING	#
MACHINE TOOL WORK - 3400	12	ENGINEERS	938
ARMAMENT WORK - 6600	41	SCIENTISTS	106
ELEC EQUIPT INSTL & MAINT - 2600	2	OTHER PROFESSIONAL	67
ELECT INSTL & MAINT - 2800	20	ADMINISTRATIVE	619
METAL PROCESSING - 3700	7	TECHNICIANS	864
METAL WORK - 3800	3	OTHER TECHNICIANS	170
INSTRUMENT WORK - 3300	1	OTHER	102
AMMUNITION EXPL & TOXIC MTLS - 6500	10	BLUE COLLAR	354
PLIABLE MATERIALS - 4300 & 3600	7	CLERICAL	28
ALL OTHERS	248		
TOTAL	**351**	**TOTAL**	**3248**

INVESTMENT IN EMPLOYEE EDUCATION

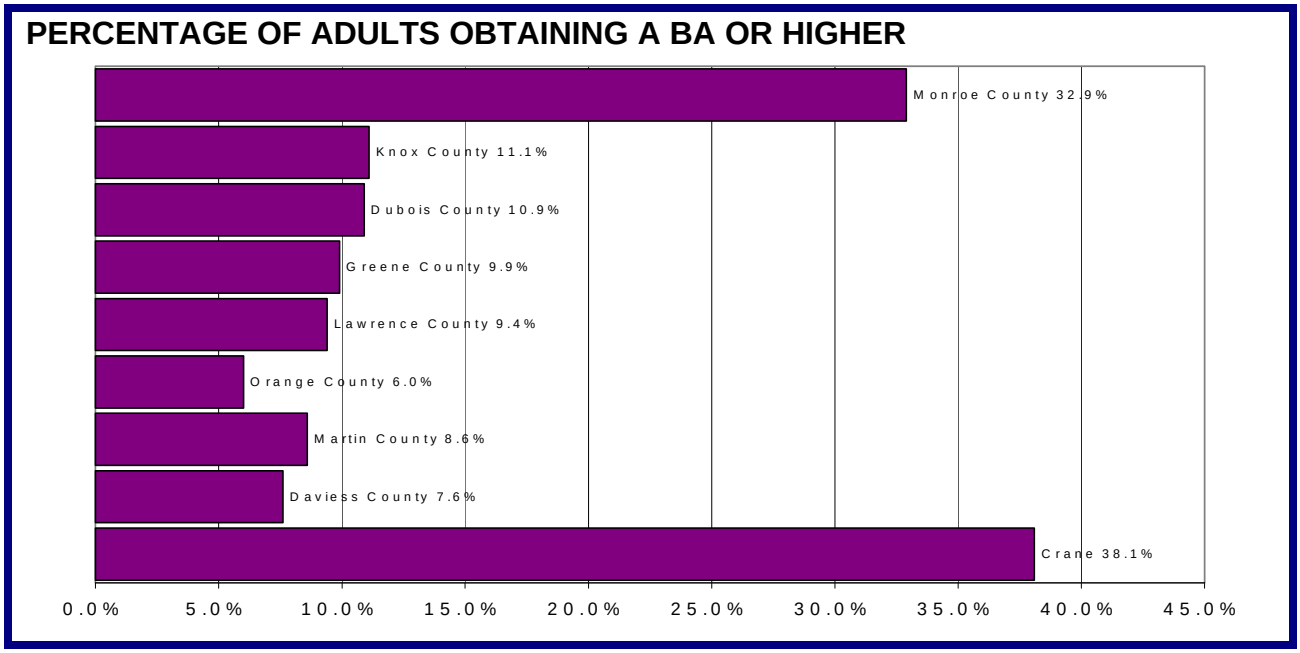
NSWC Crane recruits workers who are, on average, more educated than residents of the 8-county region in which the base is located. Its ability to recruit technicians, not just engineers, sets Crane apart from most other employers.

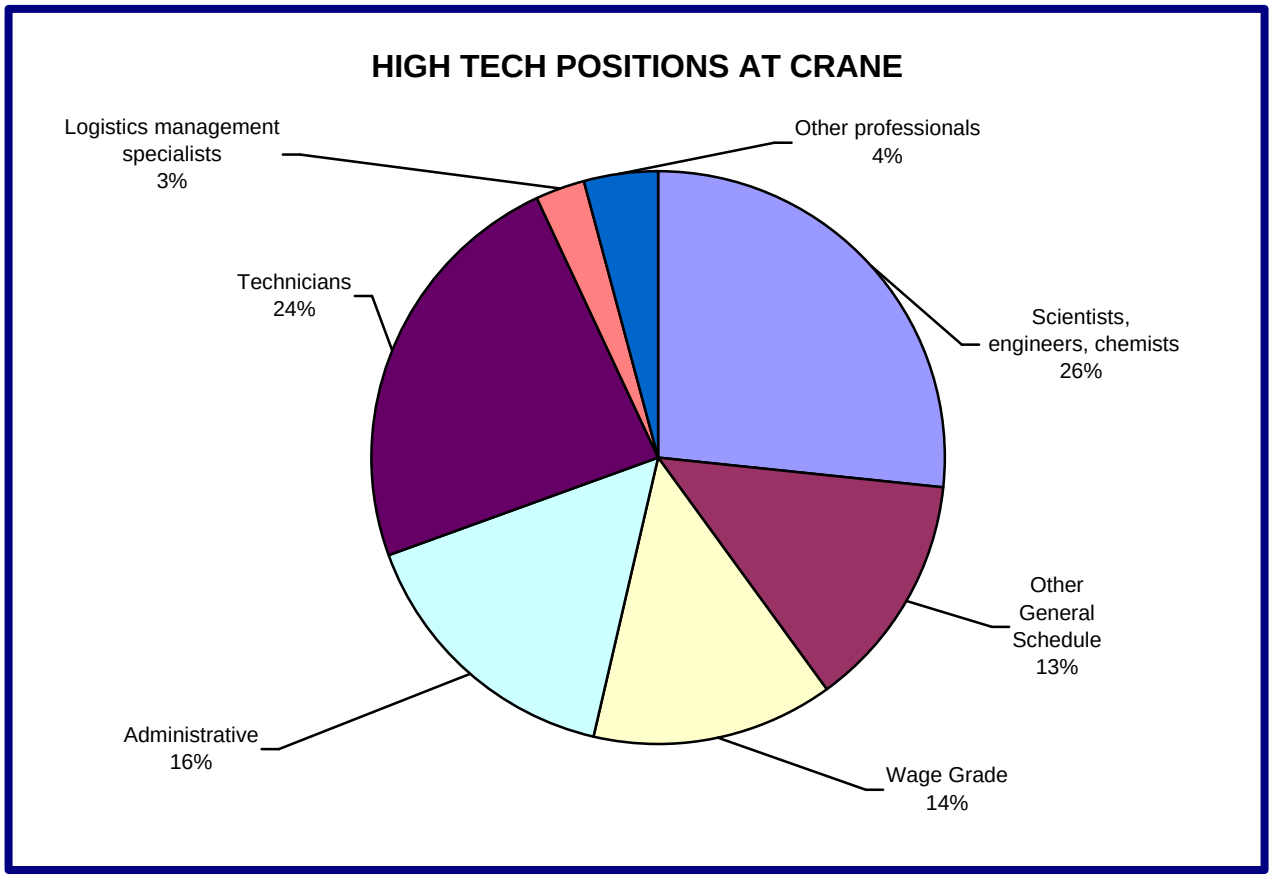
Additionally, the base promotes continued education for its employees. Concurrent with external hiring, Crane has master's level programs with Rose-Hulman, Purdue University, IUPUI, and Ball State. It has also developed a formal electronics training program with Vincennes University (24-27 semester hours of course work).

The School of Public and Environmental Affairs (SPEA) of Indiana University offers a number of courses and programs at Crane. The Master in Public Administration (MPA) program targets supervisors and potential leaders and includes approximately 25 students per year. The Public Management Certificate (PMC) program provides an opportunity to pursue 15 graduate credits culminating in a Certificate in Public Management. This program also targets supervisors and potential leaders and includes about 25 students per year. Students can also continue by earning a Masters of Public Administration (MPA) degree. Special seminars in selected topics and selected undergraduate programs are also offered.

Rose-Hulman offers graduate programs at Crane leading to an MS in engineering and engineering management. Purdue University offers courses in graduate engineering through the Indiana Higher Education Telecommunication Systems along with special seminars on selected topics. A Master in Business Administration can be earned from Ball State University through the Indiana Higher Education Telecommunication System. Undergraduate programs are offered by Vincennes University, Ivy Tech, and Indiana University Southeast.

Virtually every employee at Crane receives training annually. A wide range of classes are offered on base, including computer classes, internet training, pre-retirement planning, and a wide range of technical classes, such as radar principles, configuration management, technical drawing, team building, presentation skills, and relationship management. Another source of training is Crane's four-year apprenticeship program, which culminates in a journeyperson examination to test proficiency in the trade. This program will include classroom training in the respective craft. In addition, the apprentice will work under the guidance of a journeyperson in the respective craft. Crane is in the process of reestablishing apprentice programs for electrical work, pipefitting, and maintenance mechanics.





SUPPORT TO INDIANA COLLEGES AND UNIVERSITIES

By recruiting graduates of Purdue University, Indiana University, and other state schools, Crane strengthens the effectiveness of our state schools in serving Indiana for the long term.
Crane also contributes to higher education in Indiana through its direct support for employees' continued education. During fiscal year 2000, the base spent approximately $596,000 for education at Indiana institutions of higher education, including: Ball State, Indiana State, Purdue University, Rose-Hulman Institute of Technology, Indiana University Purdue University - Indianapolis, Butler University, Ivy Tech State College, Oakland City College/Bedford College Center, St. Mary of the Woods College, and Vincennes University.

Crane shares other resources with institutions of higher education. The base offers a co-op program that typically lasts two years. Crane also provides a protected environment for undertaking research of animals and nature in an undisturbed habitat. Both Indiana University and Purdue University have undertaken a number of significant research projects focusing on newts, birds, deer, turkey vultures, and barn swallows. There is a written agreement with Purdue that long-term research on deer can be undertaken at Crane.

SUPPORT FOR K-12 EDUCATION

The employees of Crane make a significant contribution to the educational levels of the region in many ways, including serving on local school boards. Not only are the educational levels of Crane employees high, but their spouses also tend to be highly educated. This has provided a great supply of high quality teachers to local schools. In addition, Crane provides a financial subsidy to local schools, compensating for children of military and civilian employees.

Crane has donated a large number of used computers and scientific equipment to local schools. In addition, annual scholarships to the children of employees are provided. This typically includes seven or eight scholarships of $1,000 a year.

Crane supports the following area educational organizations:

- Community Alliance for Lifelong Learning (Bloomington)
- Region 10 Tech Prep Consortium
- Bedford Chamber Education Committee
- Southwest School-to-Work Committee
- Eastern Schools Partners in Education Committee

Crane's School Partnership Program is designed to encourage the teaching of science and mathematics in Southern Indiana schools. With one of the largest concentrations of scientists, engineers, and technicians in the state, Crane is a unique resource for these schools.

In the classroom, the teacher's course outline can be supplemented and supported by in-class presentations and demonstrations by Crane personnel. During tours of Crane, students and teachers alike are afforded an opportunity to see state-of-the-art laboratories and equipment, and learn firsthand how training in math and the sciences is put to use in the defense of their country. The goal is to motivate students to actively pursue the study of math and science by demonstrating how rewarding and satisfying careers in these fields can be. The annual Science and Engineering Fair provides students with hands-on experience in these fields. Crane's School Partnership Program also offers tutoring for those students who can benefit from individual assistance or small group instruction, and career counseling for students who wish to learn more about the training required for jobs in these career fields.

Crane Division's School Partnership Program has grown to include nearly 50 southern Indiana schools. Such efforts are approved and encouraged by all levels of command in the Navy and the Department of Defense. Crane was among the first divisions to initiate such a program.

These are some of the accomplishments of the School Partnership Program:

- Crane Science Fair: 25 schools, 250 students
- School Science Fairs: three schools, 500 students
- Center Tours: 30 schools, 950 students
- Tutoring: 10 schools, 300 students
- Career days: five schools, 600 students
- Work/study activities: two schools, 10 students
- Class presentations: eight schools, 250 students
- Crane Employee Organizations awarded $9,550 in scholarships and $2,850 in Science Fair Awards.

COMMUNITY OUTREACH

There are 47,000 acres of publicly owned forest at NSWC Crane. In addition, Crane ensures the USS Constitution always has a source of white oak. An estimated 7,720,376 board feet of hardwood timber have been sold over the last 3 years. These sales returned in excess of $4 million to the government of which over $1 million was returned to the three local counties in which Crane is located.

Crane supports a quarterly Red Cross blood drive. Contributions in FY02 were 1,191 pints. Crane is the American Red Cross River Valley Region's largest contributor in the state of Indiana!

On Independence Day 2002, Crane paid tribute to rededicate itself to another 60 years of service. It also remembered Crane employees past and present. Crane also solemnly remembered September 11, 2001, now Patriot's Day, as the American Flag was hoisted at Bldg.1, the same flag raised and lowered over the Pentagon on 14 August 2002, in remembrance of those who lost their lives on September 11th. The Pentagon survivors from Crane were honored as 600 family and workforce members and community officials observed.

Crane participates annually in local parades and celebrations. Crane supports a life-changing program, "Success & Opportunity At Reading" (SOAR), in overcoming adult illiteracy as a continuation of its community outreach program goals.

The State of Crane briefings were held during FY02 to keep communities informed of Crane's focus and goals. Mayors and other officials came to Crane to discuss initiatives and partnering concepts. Crane, a long-time member of all local community Chambers of Commerce and Economic Development Groups, attends meetings regularly. Crane Command keeps state officials updated annually and briefs federal legislative personnel annually during a Congressional breakfast to provide information on programs and initiatives.

Crane's Professional Skills educated Indiana communities as it hosted its second annual Emergency Response Exercise based on a fictitious scenario of mass damage to an information technology infrastructure. Crane personnel and other professional teams led the fact-finding briefs and demonstrations. Forty local officials took advantage of this informational session. The Explosive Ordnance Detachment (EOD) provided four days of tech assistance and underwater search training to the FBI and Chicago's Palatine Police Dept. in investigations. EOD hosted its Fourth Annual Bureau of Alcohol, Tobacco, and Firearms Post Blast Seminar for 30 federal, state, and local law enforcement agents. It provided no cost berthing at the Reserve Compound to assist local lawmakers participating.

DOD and local communities have benefited dramatically from Crane's Firefighter Training School in FY02. Continuous requests of firefighters "worldwide," Crane has graduated more than 500 firefighters with Fire Officer, Inspector, and Instructor certifications based on DOD and Indiana

State Fire Marshal standards. This training is available to local volunteer firefighters at a very low cost.

The "Buy Indiana" business fair was Crane's 6th co-sponsored fair for Crane buyers and local businesses. Over 85 booths were staffed by state businesses and over 130 businesses were represented with 300 people in attendance. This event makes small businesses aware of opportunities in intrastate business and how to work with state and federal governments. Congressman John Hostettler, Indiana's 8th District, was the keynote speaker.

Crane's School Partnership Program continues to build on 19 years of success encouraging the teaching and application of science and math to the youth of southern Indiana. FY02's Annual Science Fair offered $3,125 in prizes donated by both employee organizations and individuals. Twenty-four schools participated for a total of 220 students and eight Crane professionals judged local school science fairs. Crane workforce tutored 300 students in FY02 and participated in seven Career Days at local schools. Crane hosted five school tours in FY02 interfacing with over 250 students looking for professional careers. Crane offers students the opportunity to shadow technicians, scientists, engineers, and support staff in their work environment.

Crane's employee organizations honored deserving recipients with over $13,500 in scholarships. Awards went to local high school graduating students and to Crane workforce members for use in continuing their education. Tree Lighting for the Crane community and the children of military personnel stationed at Crane, welcomed in the holiday season with the official tree lighting, along with a special visit from Jolly Old St. Nick.

NSWC Crane and its employees offer many resources to the region. Contributions to area communities are made through volunteerism and charity, use of Crane facilities, community safety and infrastructure partnerships, and active participation in local and regional economic development efforts.

VOLUNTEERISM AND CHARITY

An important contribution made by Crane is the high level of volunteerism provided by its employees. Employees play a particularly important role in volunteering for organizations such as the Boy Scouts and Girl Scouts. In addition, Crane employees provide school tutoring and serve in various community and professional organizations. Also, Crane employees helped sandbag the Wabash River during flooding to protect nearby communities.

Six years ago the NSWC Crane Fire Department decided to embark on a once a year commitment with the United States Marine Corps Reserves to collect toys for the Toys For Tots Program. Utilizing the only source of revenue at its disposal, the Fire Department solicited help from NSWC CRANE/CAAA and other Tenant Commands and contractor personnel at this military facility to help. The figures continue to show the overwhelming support these folks give to their community and their commitment to make sure that needy families in the surrounding region have joyful holidays. Crane has participated in the program each year since 1995, collecting a total of 6,441 toys between 1995 and 1999. In 2001, donated toys numbered 1,525 and in 2002, 1,721. The toys range

from match box cars and small dolls to bicycles and very expensive dolls. They are distributed to poor children in Daviess, Martin, Greene, and Lawrence counties.

Crane employees have also given money to support well-being in the region. Since 1971, the Combined Federal Campaign has been the uniform fundraising method for the federal service. The 1999 Combined Federal Campaign at Crane raised over $106,000. In 2002, the total had reached more than $162,000.

Crane employees also contribute to the nearby communities through the many professional organizations in which they participate. Organizations include:

- Navy League Council 216
- American Society of Naval Engineers
- Society of Logistics Engineers
- Federal Managers' Association
- Indiana Society of Professional Engineers
- Crane Bass Club
- American Defense Preparedness Association
- Blacks in Government
- Chief Petty Officer Association
- Crane Golf Association
- Crane Women's Club
- Military Wives Club
- Fraternal Order of Police #158
- American Federation of Government Employees, #1415
- Lake Greenwood Toastmasters 1521
- NSWC Crane Toastmasters #2339
- Federally Employed Women (Hoosier Hills Chapter)
- Crane's Millennium Hires
- International Society of Logistics (Southern Indiana Chapter)

These are private organizations that provide support to Crane member training and through donations in support of miscellaneous activities at Crane. For example, some of Crane's organizations award scholarships to members of the workforce for continuing education. This year Crane awarded in excess of $19,000 in scholarships to high school graduates and Crane employees continuing their education.

Crane supports these organizations by allowing them to hold meetings on base, use email and guard mail to get information to their members, and use infrastructure for the organizations' activities. These partnerships have proven to be very valuable, not only to Crane as an organization and to the members of the various organizations at Crane, but also to the surrounding communities these groups often serve.

The volunteerism and charity of employees, individually and in professional and other organizations operating at Crane, is evident. Additionally, Crane representatives serve in a variety of community organizations, linking community groups to the resources that Crane has to offer, including professional expertise as well as tangible resources. Groups so served include: Oakland City College, University of Bedford Advisory Board, Eastern Schools Partners in Education Committee, Monroe County Education Roundtable Steering Committee, Southern Indiana Mayors' Roundtable, Boy Scouts of America, Girl Scouts of America, and Greene County Solid Waste Management District. Other organizations to which Crane contributes are mentioned elsewhere in this report.

In a typical year, Crane hosts around 50,000 visitors, though visitor access has been more restricted since September 11, 2001. Many of these visitors are drawn by the community recreational programs Crane offers. Thousands take advantage of a public bike ride through the grounds held once a year. In addition there are several races held on the Crane grounds, including a run on the Lake Greenwood Nature Trail. These runs include a 5K run and a half marathon. Schools are allowed to use the Crane track and field as well as the football field. Crane supports Boy, Girl, and Cub Scouts with a dedicated campground. The trail around the lake is generally open to the public, as is the 18-hole golf course. Facilities are available at the gym for weight lighting, tanning, bowling, basketball, racquetball, and tennis. During Christmas break and summer months, day care is available. Crane has a historic district, as well as ten cultural sites. Along with the natural beauty and clean air at Crane, this raises the value of real estate in the area. Crane receives input from community leaders through the Crane Division Board of Visitors.

Crane provides direct financial support for the maintenance of local roads. It also provides the sewage treatment for Crane Village. (It used to provide water as well.) Revenues from logging and timber sales are shared with the appropriate county, thus contributing to the maintenance of local infrastructure.

Crane has also provided a number of security assets to local communities. Night vision equipment has been loaned to local police forces. Dogs have been trained for local police. Crane security forces have assisted in drug searches and searches for missing persons.

Crane has signed Mutual Aid Agreements with the surrounding fire departments, and the two new fire stations at Crane support the local firemen. In addition, Crane makes its training school for firefighters available to local firefighters. Weekend training is provided to 16 local firefighters. A special feature of these programs is a rescue site where rescues can be simulated.

The Fire Academy was started in March of 2000 for the purpose of obtaining national Firefighter Certification through the International Fire Service Accreditation Congress (IFSAC). Both the Department of Defense and the State of Indiana, along with several other states across the United States, have established these criteria as a requirement for firefighters to obtain promotion. The Fire Academy reflects a joint effort between the Commanding Officer of NSWC Crane, the Indiana State Fire Marshal and the Indiana Fire Instructors Association. This Fire Academy has trained more than 100 firefighters to the levels of Fire Inspectors, Fire Instructors, and Fire Officer Ranks. It continues to grow as more and more fire departments learn of its existence. Within the state of Indiana, attendees have come from the cities of Bedford, Clarksville, Crawfordsville, Evansville, Floyd Knobs, Ft. Wayne, Greencastle, Indianapolis, Vincennes, and Washington. In North America, they have come from California, Florida, Georgia, Kentucky, Mississippi, North Carolina, Ohio, Pennsylvania, Tennessee, and Texas. Firefighters have even come from as far away as the Bahamas, Guam, Italy, Japan, and Puerto Rico.

Another way Crane contributes to safety in the region and state is through the Explosive Ordnance Detachment (EOD). Facets of the EOD's service are illustrated with figures based on the period from October 1999 through August 2000:

- The EOD responds to explosives threats off of NSWC Crane. A total of 28 off-center responses, 13 ordnance-related, were completed. Forty-five ordnance items and 50 detonators

were picked up and disposed. Two Improvised Explosive Devices (IED) were taken care of and one suspect vehicle was searched.

- The EOD supports local schools. One hundred and sixty school officials in four K-12 schools were trained on Bomb Threat Procedures and Emergency Action Plans. The EOD participated in a career day and helped at a day camp.
- The EOD participates in information exchange with local law enforcement. Three information exchanges were conducted with local law enforcement agencies. The EOD gives training on identification of military munitions, explains the military munitions rule, and briefs police officers on the make up of the IED's encountered.
- The EOD participates in Post Blast Seminars. The EOD participated in two Post Blast Seminars, one hosted by the ATF and one hosted by the FBI. EOD covered military munitions identification and the military munitions rule and IEDs encountered. These seminars are attended by bomb technicians of the local law enforcement.
- The EOD shares its expertise through other training venues. For example, the EOD conducted a demolition training with the Indianapolis Bomb Squad.

ECONOMIC DEVELOPMENT

Much of Crane's success is due to the economic and business stability of the region. To promote business vitality and economic development in neighboring communities, Crane is a member of the following organizations:

- Indiana Business Modernization & Technology Corporation
- Crane Regional Economic Development Organization
- Indiana Manufacturers Association
- Crane Technology Transfer Industrial Outreach Program
- Indiana Economic Development Council
- Southern Indiana Development Commission
- Southwestern Indiana Development Council
- Bedford Economic Development Committee
- Daviess County Economic Development Committee
- Huntingburg Chamber of Commerce
- Knox County Chamber of Commerce
- Greene County Economic Development Committee

In addition, Crane is a member of the Chambers of Commerce for the state of Indiana, the counties of Daviess, Martin, Pike, and Sullivan, and the cities of Bedford, Bloomington, Bloomfield, French Lick/West Baden, Linton, and Mitchell.

Local elected officials understand the importance of Crane to economic well-being and development in their communities. John Fernandez, mayor of Bloomington, states that, "Although Bloomington's economy is diversified, the importance of Crane can not be underestimated. NSWC Crane employs hundreds of Bloomington residents. In addition, the base serves as the major focal point for our regional economic development strategy." The mayor of Bedford, John Williams, similarly emphasizes that, "NSWC Crane is the most important employer for the entire south central Indiana region. It makes a significant economic impact upon communities as diverse as Bloomfield,

Bloomington, and Bedford. Crane also provides a tremendous educational and social resource for this entire area. Crane has been an employer we have counted on to help our economy."
Crane also supports the local economy by buying from local businesses. It participates in the Buy Indiana initiative. In fiscal year 1999, it gave over $56 million to Indiana companies, representing about 15% of all dollars procured by Crane. As of June 2000, over $450,000 had been awarded in Daviess, Greene, Knox, Lawrence, Martin, Monroe, and Orange counties.

Crane also supports small businesses, minority-owned businesses, and businesses owned by persons with disabilities. In Fiscal Year 1999, about 43% of total dollars, or $346 million, went to small businesses, and about 4% of those dollars went to minority-owned businesses.

ENVIRONMENTAL LEADERSHIP

Crane has been a leader in environmental stewardship. Some of its contributions are described in the areas of natural resources management and research, hunting and fishing, outdoor recreation, green practices, and wildlife preservation and research.

Crane is vitally concerned with the conservation of the natural environment, both on and off the installation. These efforts have been recognized by the Navy and the Department of Defense with awards for excellence in natural resources management. In 1995 and 1996, Crane won the chief of Naval Operations Award for the best natural resources program. To share its abundant natural beauty with its neighbors, Crane has opened its 800 acre Lake Greenwood to the public for fishing and boating.

Crane provides stewardship to over 62,000 acres of land, of which about 49,000 acres are forested. The primary purpose of most of this forested land is to act as a buffer or safety zone for the materials stored at Crane. This is the largest forested tract of land in Indiana under a single ownership and will hopefully continue to be an important part of the Indiana ecosystem.
The Crane forest has been important to the re-establishment of deer, turkey, ruffed grouse, and eagles in Indiana. Wildlife research is conducted at Crane by both Purdue University and Indiana University.

The Crane forest is also a working forest where timber is harvested. Profits from the sale of these timber products are shared with local county governments. It is important to note that only about 21 percent of the annual growth is currently being harvested, so the forests continue to grow. Crane's overall goal is to manage its natural resources to best benefit the United States and its citizens. Timber sales for FY02 amounted to a record $532,531. This amount is distributed among Martin, Lawrence, and Greene counties.

NATURAL RESOURCES MANAGEMENT AND RESEARCH

Crane cooperates with the Martin County Soil and Water Conservation District to manage two major floodwater-retarding structures, which are located at NSWC Crane. These structures provide protection for farmland located downstream from Crane.

Universities have long recognized Crane as an almost ideal environment for conducting research in the natural resources field. The diverse natural environment has enticed both Purdue University and Indiana University to utilize Crane for natural resources research.

Lake Greenwood is the source of Crane's water supply as well as a recreational and aesthetic resource.

One of Crane's greatest natural resources is its forest. Approximately 48,583 acres of the base's terrain are classified as Central Hardwoods Forest. Commercial trees include black walnut, red and white oak, sugar maple, yellow poplar, white ash, hickory, and sycamore. When the Navy obtained title to the land, approximately one-half of the forested area was over-cut, burned, pastured, contained undesirable species, or had little growing stock. This depleted land has been restored and is now supporting a young and healthy forest.

Under the National Resources program, Crane shares the revenues accruing from the natural resources with the neighboring counties. The value of the timber on Crane's 48,583 acres of timberland is estimated to be $130 million. An estimated 2,802,197 board foot of hardwood saw timber have been harvested during the last three years, for an annual revenue of around $1 million. Forest products are sold by sealed bid and returned $2,772,641 to the government. The timber removed during annual sales never exceeds 21 percent of the annual growth as calculated in the management plan. Profits from the sale of timber products are shared with local government and in the last three years more than $560,101 was set aside for Greene, Lawrence, and Martin counties. Martin County, which contains the largest portion of the timber, received nearly $200,000 last year.

HUNTING AND FISHING

Approximately 54,000 acres of land are available for hunting and 900 acres of water in lakes and streams and ponds are open for fishing.

The annual deer hunt draws hunters throughout the state of Indiana and is a good example of the effort that is made to impartially extend the use of Crane's natural resources to all interested citizens. Hunters for the deer hunt are selected in a drawing conducted by the Indiana Department of Natural Resources. In the last three years there have been 18 days of public deer hunting with more than 7,669 hunters harvesting 1,317 deer. Estimated expenditures of these hunters equal approximately $272,000 per year.

In cooperation with the Indiana Deer Hunters Association and the Indiana Department of Natural Resources, Crane sponsors an annual one-day deer hunt for holders of the Indiana Handicapped Hunting Permit. The event has grown to attract 120 hunters annually. The day of hunting for the handicapped hunters has proven to be enjoyable for both the hunters and volunteer helpers.

Fishing is very popular on the 820-acre Lake Greenwood and again Crane has been able to make this valuable resource available to the public. Annual permits are sold for $15.00 with about 1,800 permits being sold each year. Daily permits for $2.00 are also available. Both the Crane Bass Club and Recreation Department sponsor fishing tournaments on Lake Greenwood. Membership to the Crane Bass Club is open to all citizens.

The sales from hunting and fishing permits are used to underwrite the Wildlife Management Program, which operates on an annual budget of about $50,000.

OUTDOOR RECREATION

Other recreational opportunities are made available to the public. A hiking trail of almost 17 miles has been constructed by high school volunteers from the Student Conservation Association (SCA). Crane has used the services of the SCA for the last six years. The SCA provides a means to accomplish labor-intensive conservation work and at the same time provides a wonderful opportunity for the young volunteers to learn more about the environment.

Crane is well known as one of the best bike riding areas in Indiana. Its ability to close roads to motorized vehicle traffic eliminates traffic safety concerns during scheduled events. The wooded and hilly terrain of the area provides the bikers a scenic and challenging ride. The annual Crane-sponsored bike ride had over 2,000 participants over the last three years. Permission is granted to several bike clubs each year to hold bike rides at Crane.

Other outdoor recreational events included the Crane-sponsored run, horseback rides, railroad motorcar rides, fishing tournaments, and picnics. All of these events are open to the general public. The fall foliage tour which Crane sponsors draws more than 1,000 people annually.

GREEN PRACTICES

The recycling program covers the entire 62,463 acre facility, including the Navy and tenant activities at Crane. In fiscal year 1999, the facility recycled and sold 34,211,793 pounds of metals, generating $3,760,704. With community interest and Crane personnel involvement, the recycling program has grown to include transparencies, batteries, toner cartridges, wood, Styrofoam, plastic, and various

automotive parts. In fiscal year 1999, the facility also recycled and sold 397,947 pounds of wood, generating $12,300. The recycling of 74,500 pounds of batteries generated $3,177 in proceeds, and resulted in a cost avoidance of $72,265. All of these materials are collected, transported, handled, documented, and disposed of in a manner that maximizes reuse, recovery, and recycling. In addition to recycling its materials, Crane makes an effort to buy recycled products. Many recycled materials were purchased and used at Crane in the last year, including 100 tons of paper and 1,155 gallons of re-refined oils.

Crane has been involved with community activities and local environmental organizations for several years. The base routinely cooperates with federal, state and local agencies, organizations, and academic institutions. Crane is a member of "Partners for Pollution Prevention," which involves state, private, and federal facilities in researching alternatives to hazardous material usage, recycling, providing information to other companies, and hosting a Pollution Prevention Conference. Crane is a member of a DOD Tri-State P2 Team, which focuses on recycling and P2. The facility also partners with the Martin County Solid Waste Management District, which includes 10,381 residents. Crane is an active member of the Indiana Recycling Coalition and the Southern Indiana Recycling Coalition.

WILDLIFE PRESERVATION AND RESEARCH

A partnership with the state has resulted in the preservation and even re-introduction of wildlife that had previously disappeared. Public Law 86-797, under the Sikes Act, provided for a Cooperative Agreement to preserve the wildlife at Crane. The Cooperative Agreement involves the U.S. Fish and Wildlife Division, the Indiana Department of Natural Resources, and NSWC Crane. The rough grouse, wild turkey, great blue heron, bald eagle, and Indiana bat have all been successfully reintroduced at Crane. In 1999, Congress passed the Hawk Program to preserve hawks. Crane has participated in this program. Crane is a member of the Sierra Club and has a strong commitment to nature conservation. It has also participated in Handicapped Americans for Wildlife.

The largest forest block in Indiana is found at Crane. As previously mentioned, Crane enables research of animals and nature to be undertaken in the undisturbed habitat found at the base. Both Indiana University and Purdue University have conducted a number of significant research projects focusing on newts, birds, deer, turkey vultures, and barn swallows. Crane has never turned away an interested and qualified researcher wishing to study some aspect of nature on its land.

TECHNOLOGY

Many resources related to Crane support economic development via the transfer of technology. Strengthening this process has the potential to significantly impact the economy of the region and the state.

TECHNOLOGICAL ACTIVITIES AND PROGRAMS

Crane has generated substantial benefits to both the region as well as the state in the form of technology assistance that is transferred out of the engineering laboratories to private firms. As

detailed below, Crane has demonstrated excellence in the areas of microelectronic technology, electronic circuit card production, test & repair, microwave components, acoustic sensors, security systems, small arms, conventional ammunition engineering, pyrotechnics, electrochemical and related technology power systems, radar systems, electro-optics, night vision, and chemical and bio-detection systems. In addition, Crane has state-of-the art design, development, and production engineering capabilities for a high spectrum of electronic systems.

To facilitate and promote technology transfer, in 1995 Crane established a Technology Transfer Office**,** which serves as a conduit between the engineering done at Crane and the private sector. The Technology Transfer Office enables contractors to access technology developed at Crane to improve their operations. In addition, the Technology Transfer Office works with economic development organizations in all of the various communities in the region. The Technology Transfer Program (T^2) has generated substantial benefits to both the region as well as the state by enabling business and academia to utilize Crane's enormous capabilities and facilities. Three T^2 programs in particular have provided major benefits to area and state businesses: The 32-hour Pro Bono Program, the Sale of Testing Services, and Cooperative Research and Development Agreements (CRADAs). Under the 32-hour program, a company experiencing difficulties in production or manufacturing can come to Crane and receive up to 32 hours of support to solve the problem. The project saved one southern Indiana company $350,000 by solving its manufacturing and processing problem in less than 20 hours. It enabled another company to avoid shutting down a manufacturing line for an extended period by remedying its dilemma in less than four hours. Over 250 Indiana companies have used the program to date, resulting in substantial cost savings and process and product improvement.

The Sale of Test Services (2539b) agreement gives state businesses access to Crane's testing facilities, which include material science, failure analysis, shock and environmental impact, vibration, and acoustic sensor testing. The service draws on Crane's expertise in a range of areas, as mentioned above. Since the inception of the 2539b program in the fall of 1998, more than 84 companies have contacted Crane for testing services. All have been satisfied with the results.

Numerous Indiana companies and organizations have utilized the Cooperative Research and Development Agreements (CRADA) program to team with Crane in the transfer and development of dual-use technologies. These include Cinergy, IPC, Battery Evaluation and Test Center (BETC), AdvanceTek, EG&G, Mid America Plastic Partners (MAPP), Davince Tek, and Technology Service Corporation. Over 28 CRADAs have been established with private industry and academia. The T^2 Program is a primary point of contact for industrial clients interested in partnering and teaming with Crane.

The T^2 Program developed a program that enables Crane to loan night vision goggles to state and local law enforcement agencies. This program has greatly improved the ability of law enforcement agencies to perform their duties and has received favorable recognition from numerous federal agencies. The T^2 Program is Crane's economic development liaison with state and local economic development directors. It focuses efforts on beneficial business endeavors. The program represents Crane on industrial, academic and business working groups, boards and committees such as Access Technology Across Indiana (ATAIN), Dean's Industrial Advisory Council (DIAC), Indiana Manufacturers Association (IMA), Technical Assistance and Services Center (TASC), Indiana Environmental Extension Network (IEEN), Institute for Forensic Imaging (IFF), BETC, and MAPP.

The T^2 Program worked to facilitate Congressional support for research and development projects with Rose Hulman, Purdue University, Cinergy, and Indiana University. These efforts amounted to over $7.5 million in project opportunities between the partners and have included technologies that ranged from the Proton Exchange Membrane Fuel Cell to the Solid State Microwave. The T^2 Program helps to develop, promote, and support events that generate teaming and partnering opportunities. Each event provides an opportunity to discuss programs and capabilities available at Crane, tour labs, meet with the Crane scientists and engineers, and explore the development of a "technology triangle" in the region.

CRANE PARTNERSHIP RESOURCES

Involvement of the Research Center in the Local/Regional Community

Crane has already established a long tradition of being involved in the local community. The connections and ties that have been built up over the years involving community service provide a strong foundation for extending the relationship to involving technology transfer.

High-Tech Talent

There is a great deal of human capital at Crane in the form of scientists and engineers. The demographics of Crane employees are promising in this regard, since a large cohort will be retiring in the next few years. While some of these employees will move away to traditional retirement locations, many will choose to remain in the area, and continue to be professionally active.
An important national trend among educated retirees has been an increase in the number that start their own firms. Given their technical and managerial competence, many of Crane's retirees may wish to become entrepreneurs. This has been a pattern found among retiring military and non-military personnel around the country.

Finance & Funding Opportunities

Several new programs exist at both the federal and state levels that are designed to provide finance and funding opportunities to technology-based entrepreneurs. One of the most important policies to promote small and medium-sized enterprises (SMEs) at the federal level has been the Small Business Innovation Research (SBIR) program.

SBIR mandates that each participating government agency spend a share of its research budget on contracts to small firms. This includes the major federal agencies, such as the Department of Defense, the National Institutes of Health, the National Science Foundation, Department of Energy, and the National Aeronautics and Space Administration. The Small Business Innovation Development Act of 1982 required that agencies with extramural research and development budgets of $100 million or more set aside not less than 0.2 percent of that amount for the SBIR program. In addition, the Act provided for annual increases up to a ceiling of not less than 1.25 percent of the agencies' budgets.

Physical Infrastructure

The physical infrastructure provided by Crane is a strong asset to technology transfer. Most of the infrastructure needed for new technology-based enterprises as well as established high-tech firms is available at the Crane facility.

Entrepreneurial Culture
Indiana University and other Crane partners provide a good source of services for new startups.

Life-Style Amenities
Crane and the surrounding communities provide superb life-style amenities. These amenities should be leveraged to keep engineers and scientists in the area and to spur a high-tech cluster.

HISTORICAL PERSPECTIVE, THE CRANE STORY

The First Inhabitants

The first inhabitants of what is now the Naval Surface Warfare Center (NSWC) site probably arrived during the fifth century, A.D. Called the Fishermen, they were primitive long-headed hunters and fishermen who obtained most of their food from fishing in the White River. This group was followed by Mound-Dwellers, builders of earth-mounds for burial and ceremonial rites. There are known mounds on the Center, and some long time Crane employees believe a submerged island approximately 1000 feet northeast of the old Lake Greenwood concrete spillway was a burial mound.

The Early Settlers

By the beginning of the eighteenth century, the Crane area was claimed by the Miami Indians. The first Europeans in the area were French trappers from settlements along the Wabash River. These settlements were established to exploit the fur-bearing animals of the area and to stem the westward advancement of British settlers. French rule was ended by the British victory in the French and Indian War in 1763. After the American Revolution, the Miami Indians granted the friendly Delaware Indians hunting and fishing rights along the White River.

The British rule was brief, lasting only until 1787 when the newly founded United States created the Northwest Territory. At that time, the area was sparsely populated by Miami and Delaware Indians. The present area of Naval Surface Warfare Center Crane belonged to the Indians until the Treaty of Greenville (1795) which followed the defeat of the Indians at the Battle of Fallen Timbers by General Anthony Wayne in 1794.

Settlement of the Crane area was very slow because of unrest among the Indians, instigated in part by the British. However, the Indians were defeated at the Battle of Tippecanoe by Governor William Henry Harrison in 1809. Then the War of 1812 eliminated British interference in the area, and a second Treaty of Greenville provided the stability necessary to encourage settlement. Permanent settlements such as those at Shoals, Mt. Pleasant, and Hindostan followed in the next decade. By 1820, the population of present-day Martin County was over 1,000; by 1830, it was almost 2,000.

The Population Increases

During the nineteenth century, Martin County grew at a steady pace. Most of the major towns blossomed with the exploitation of virgin resources including hardwood, timber, furs and fish. These same resources had sustained the Indian population and the prehistoric civilization. By 1900, the population of Martin County approached 15,000. This peak in population was aided by the railroad which opened the area for development of the local timber and limestone resources. As the resources that supported the economy of the area dwindled, a decline in population began after 1910. Farming was difficult due to the submarginal nature of the land, so people simply moved away.

Problems of the Great Depression

When the Great Depression struck the United States in the early 1930's, people returned to these poor farmlands in south central Indiana to eke out an existence. Living standards were low, housing conditions were primitive, general health conditions were bad, and there was a high rate of tuberculosis. The county was almost completely devoid of recreational activities. Except for a few small manufacturing establishments in Shoals and Loogootee, there were no sources of industrial employment. The forests were depleted, and the limestone quarries were shut down.

Because of lack of taxable wealth, some 400 miles of unimproved roads were impassable in bad weather. Schools were small one-room buildings where the cost per pupil in many instances was double that of schools in adjoining communities. Tax delinquency was high, and the relief load was heavy.

Developing a State Park

In 1934, the White River Land Utilization Project began taking options on land which was later to become the Naval Surface Warfare Center, Crane. Approximately 32,000 acres were purchased in the period from 1934 to 1938. The land was to be developed into a recreational state park type area sponsored by the Indiana Department of Conservation and when completed was to be administered by the Conservation Department. During this development and improvement period (1935-1939), Lake Greenwood was built, picnic areas constructed, and roads and utility lines completed. Thousands of trees were planted, a game preserve was developed, and parking areas were cleared.

The Economic Outlook

The White River Land Utilization Project was completed and dedicated in October, 1939; and the recreational concessions turned over to the State Conservation Department for operation. The economic outlook for Martin County at the beginning of 1940 was better than it had been for years, and things were expected to become better as the recreational possibilities of the county became known. However, unemployment was extremely high in the cities as the important limestone industry was almost completely shut down.

An Inland Ammunition Depot Is Planned

Early in 1940, the United States Congress passed the First Supplemental National Defense Appropriations Act which was soon to have a dramatic impact on the White River Project. In this

Act, Congress appropriated five million dollars to build new inland ammunition production facilities which would be secure from enemy air attack. Three million dollars were set aside to build the Naval Ammunition Depot (NAD), Burns City which is now known as the Naval Surface Warfare Center Crane (NSWCC).

The local community first learned of plans to build the ammunition facility in a Bedford newspaper article on the day after Thanksgiving in 1940. The state of Indiana briefly fought to maintain ownership of Lake Greenwood and there was some resentment from people who had to relocate as a result of the establishment of the Burns City facility. However, the Navy quickly acquired the 32,000 acres of land in the White River Project and added 26,830 additional acres from private ownership. The Maxon Construction Company was awarded the job of building the Depot.

Constructing the Depot

Breaking of ground for the first construction occurred on January 27, 1941. On November 18, 1941, the depot received its first shipment of ordnance material. On December 1, 1941 – just six days before Pearl Harbor – the "NAD, Burns City" was officially commissioned.

The primary mission of the Center was to prepare, load, renovate, receive, store, and issue all types of ammunition. While the first plans called for the erection of twenty-three smokeless powder magazines, officers' quarters, a group of shop buildings, railroads, and service functions as needed; the outbreak of World War II caused the base to expand dramatically both in acreage and in the number of buildings and facilities.

The major portion of the construction at Crane took place over the three years from late 1941 through 1944. Construction reached its peak during the summer and fall of 1942 with 6,000 workers being employed. Even while construction was still going on at different parts of the Depot, Crane began producing and shipping large quantities of quality ammunition.

All of the construction was done with rather crude equipment by today's standards, and during a period when resources were in heavy demand for other priority projects as well. Yet, it was done on time and at a low cost, and most importantly was built to last. The original cost of the Depot amounted to $67,000,000. By 1954, it was estimated that the total public investment at the Depot was $1,139,700,000.

The main contractor for the Depot project, the Maxon Construction Company and its subcontractors, moved enough dirt to form a hill over two miles in circumference and over 250 feet high. For their performance, Maxon and associates won in 1942 the first Army-Navy "E" award ever presented for a construction project.

The Economic Impact on the Local Community

The construction of the Depot had a beneficial effect on the stagnant economy of Martin County. Workers built approximately 150 miles of railroad across NAD Crane. About three million tons of crushed stone went into the communications network. It was necessary to construct power lines and to lay hundreds of miles of water and sewer lines. In short, local labor transformed what had been a virtual wilderness into a modern heavy industrial area.

Lack of local housing for workers worsened as restrictions were tightened on tires and gasoline during World War II. To handle this shortage one hundred trailers were installed on the base in January, 1942; and the town of Crane was officially established by the Navy to house Center workers. The construction of the town which by 1948 had 600 homes and four commercial buildings also employed many workers. At peak seasons of employment, a special work train which ran from Bedford to Terre Haute was operated.

A serviceman ringing the bell at the Navy barracks to begin the day, circa 1941.

The Attitude of the Workers

Then, as now, loyalty and patriotism were the "name of the game" at Crane. On Sunday, April 19, 1942, some 4,000 or more workers appeared at the Depot and worked this extra day without pay as a contribution to the war effort. The amount which the Navy would have expended, had the workers been payed for this day, was approximately $62,000, sufficient to erect a building for the housing of microfilmed Navy records. This building was dedicated on June 14, 1942 as a memorial to the workers who had contributed a day's labor to the building of the Depot.

A New Name for the Depot

Secretary of the Navy Frank Knox had established "The Naval Ammunition Depot, Burns City, Indiana" in 1941. However, as time went by, government officials decided the Depot should have more than a geographical name. Since the Depot had begun operation approximately one hundred years after the origin of its parent organization, the Bureau of Naval Ordinance, the Depot was renamed "U.S. Naval Ammunition Depot, Crane, Indiana" on May 1, 1943 in honor of the founder of the Bureau – Commodore William Montgomery Crane.

Memorial for Commodore Crane on the base named for him.

World War II (WWII)

A number of munitions and flares were assembled at Crane during WWII. Various types of five, six, eight, twelve, fourteen, and sixteen inch shells were assembled at the depot, along with bag charges for various caliber of naval guns together with twenty millimeter cartridges. In the last 28 months of the war, the number of three inch/fifty shells alone exceeded two million. Over one million rockets of various types were loaded at Crane between 1943 and 1945. In one month, the pyrotechnics division produced almost 48,000 new and more than 3,000 reworked flares. In the summer and fall months of 1944, an average of 50,000 tons of shells, flares, and other munitions were shipped out monthly. From its beginning, Crane fulfilled its mission of delivering ammunition to the fleet. During WWII, the Depot received no adverse reports concerning any of the larger caliber projectiles, even though production had to proceed at a rapid pace.

At the close of World War II, thousands of carloads of equipment and ordnance including inert, component, and explosive containers returned from the fleet. The Fleet Returns Division had the responsibility for storing, preserving, sorting, scrapping, and shipping this tremendous amount of material.

The "Can Do" Reputation

From the earliest days, the people at Crane built a "Can Do" reputation through hard work, pride, common sense, and a certain degree of stubbornness. For example, in March 1943 when the Bureau of Ordnance estimated it would require five days for Crane to load and ship fifty 1,600-lb AP AN which the Navy wanted for experimental purposes, Crane personnel required less than one day. The bomb casings were received at 1530 one afternoon and by 1120 the next morning were loaded, painted, and readied for shipment to the Naval Proving Grounds at Dahlgren, Virginia.

Korea and Vietnam

Crane's performance, in terms of quality and quantity of the product, was equally good during the periods of fighting in Korea and Vietnam. Ordnance production reached its highest level in 1967 and 1968, as Crane produced approximately one million MK68 and MK82 bombs, one-half million major calibre projectiles, and one half million MK24 flares. During 1968, the production rate for all bombs was about 140,000 per month. On June 25, 1968, the number of bombs produced at NAD Crane from the start of the Vietnam conflict reached two million.

Additional Functions

Over the years, the NAD Crane took on functions above and beyond ammunition production and storage. These additional functions included Applied Science; Weapons Engineering; Quality Evaluation and Engineering; Maintenance; Industrial Production Equipment Support Services; Quality Assurance; and Fleet Logistics Support. In order to reflect more accurately its expanded functions, Crane received the name Naval Weapons Support Center (NWSC) on July 1, 1975.

Another New Name

In January, 1992, as part of the ongoing reorganization of the Department of Defense, Naval Weapons Support Center, Crane was merged with the Naval Ordnance Station at Louisville, Kentucky to form the Crane Division of the Naval Surface Warfare Center.

RESOURCES AND REFERENCES

Naval Surface Warfare Center, Naval Forces International Forum for Maritime Power, Special Issue, 2002

U. S. Department of Defense, Office of the Deputy Under Secretary of Defense for Installations, Base Structure Report, 1999.

NSWC Crane Public Information Office

Southern Indiana Business Alliance, Caucus Presentation, December 2002.

Impact Assessment, Crane Division Of Naval Surface Warfare Center, Naval Sea Systems Command Indiana University School of Public and Environmental Affairs. December 13, 2000.

Website: www.globalsecurity.org. Global Security 300 N. Washington St, B-100, Alexandria, VA 22314.

PART TWO:

IMPORTANCE TO INDIANA ECONOMY

EXECUTIVE SUMMARY

Crane Division, Naval Surface Warfare Center, Crane, Indiana (NSWC Crane) is a major economic force in southwestern Indiana. With a total estimated economic impact approaching $1.5 billion, the area around the base consisting of eight Indiana counties shares a total annual benefit of $844.7 million. Much of this impact is generated by wages and purchases. The numbers of highly paid professionals and contract expenditures equal and even exceed those of many of Indiana's large private enterprises.

The most notable economic impact delivered by Crane is in its employment. Crane is the twelfth largest single-site employer in the state of Indiana and is the second largest single-site employer in the southwest part of Indiana. Its wide range of professional and technical jobs provide comparatively high pay in the otherwise mostly rural area. Crane's on-site employment of approximately 4,780 workers is supported by an additional regional workforce of approximately 3,700 workers. This brings the total employment value of NSWC Crane to about 8,500 jobs, approximately 7,400 of which are in Martin county and contiguous counties of southwest Indiana. The base draws most of its workers from a primary labor market area that includes Daviess, Dubois, Greene, Knox, Lawrence, Martin, Monroe, and Orange counties. Table 1 details the employment figures for this eight-county area, as well as the rest of Indiana.

Wages earned by Crane workers are among the highest in Indiana. The average wage of workers at Crane is approximately two times the average wage in each of the primary labor market counties. These eight counties (Daviess, Dubois, Greene, Knox, Lawrence, Martin, Monroe, and Orange) share nearly $845 million of total economic value. The highly skilled and highly paid jobs offered through the Navy, defense contractors, and other operations at the base have enabled this portion of Indiana to attract educated and talented professionals to communities that would otherwise have few scientific, engineering, and technology positions in their mix of jobs.

It is at the individual county level where Crane's impact is the greatest. From numbers of jobs supported, to wages and income, to commuting patterns, NSWC Crane is the major force supporting these elements of the area economy. As shown in Table 2, Crane economic impacts, wages, and retirements constitute large proportions of area income.

Table 1
NSWC CRANE
COUNTY EMPLOYMENT COMPARISONS

County	Labor Force		Percent of Crane Employees in county	Number of Crane Related Jobs				
	Total	Employed			Direct	2ndary	TOTAL CRANE RELATED JOBS	% of Empl'd
Daviess	13,580	13,040	13.4		640	506	1,146	8.8%
Dubois	22,840	22,210	1.7		80	60	140	0.6%
Greene	13,990	12,850	19.4		929	732	1,661	12.9%
Knox	18,980	18,270	1.6		77	60	137	0.7%
Lawrence	22,750	20,900	18.9		903	714	1,617	7.7%
Martin	5,075	4,815	12.8		612	483	1,095	22.7%
Monroe	61,390	59,470	17.4		832	657	1,489	2.5%
Orange	8,580	7,800	1.4		67	53	120	1.5%
SUBTOTAL	167,085	159,335	86.5		4,140	3,265	7,405	4.6%
Other IN Counties			8.0		382	302	684	
Indiana	3,106,388	2,970,500	94.5		4,522	3,567	8,089	
Outside Indiana			5.5		259	207	466	
Total			100.0		4,781	3,774	8,555	

The economic impact of NSWC Crane can best be seen at the individual community level. Other communities also have dramatic impacts, these three have been selected as examples. As Table 2 illustrates, NSWC Crane wages comprise 17.5% of all wages paid in Bedford. In Bloomfield, the percentage escalates to 46% – nearly half of all wages paid in the community are derived from NSWC Crane. In Loogootee, the percentage climbs again to a staggering 67%. Certainly the economic impacts of NSWC Crane are most tangible at the local levels.

In total, Crane is immediately responsible for the employment of about 8,000 persons in Indiana and provides a total economic impact of nearly $1.5 billion. Of the total impacted employment, approximately 55% work on the expansive base in Martin County, Indiana. The total economic value is shared among hundreds of business sectors and thousands of Indiana businesses annually. NSWC Crane is an economic engine of significant importance and on a par with the private sector industrial giants of the Hoosier state.

Table 2
NSWC CRANE
COUNTY IMPACT HIGHLIGHTS
With selected municipal impacts

County / Municipality	Total Direct and Indirect		Compare Averages		Total Economic Impact
	Crane Jobs as % of Residents Employed	Crane Wages as % of Resident Income	Avg Crane Wages as % of Avg Resident Wages	Crane Average Retirement as % of Resident Income	
Daviess	8.8%	13.50%	262.5%	106.2%	$127,312,688
Dubois	0.6%	0.64%	211.2%	86.9%	$18,679,135
Greene	12.9%	26.19%	283.1%	114.7%	$182,710,484
Bloomfield		**46%**			
Knox	0.7%	0.95%	207%	91.8%	$18,577,419
Lawrence	7.7%	11.80%	213.6%	90.3%	$199,801,504
Bedford		**17.5%**			
Martin	22.7%	37.08%	175.7%	72.4%	$125,375,928
Loogootee		**67%**			
Monroe	2.5%	3.29%	234.2%	98.8%	$167,966,194
Orange	1.5%	2.19%	227.7%	84.4%	$15,599,875

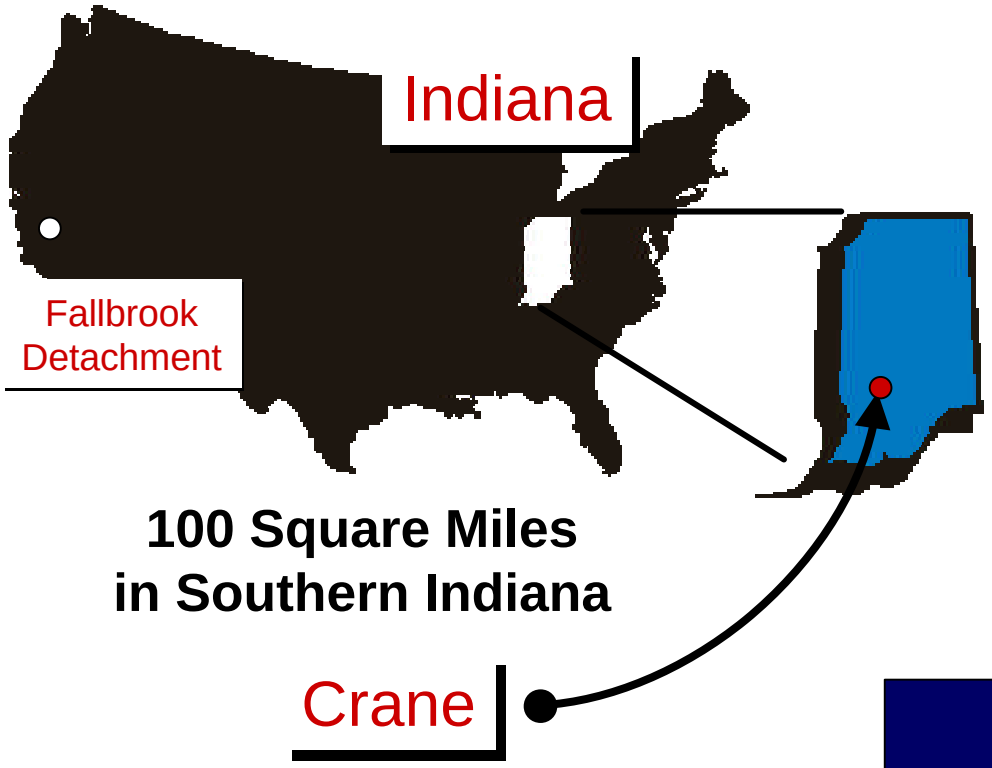
Crane

Critical to National Defense

Crucial to Indiana

NSWC Crane

Part of the Naval Sea Systems Command under
VADM Phillip M. Balisle and Naval Surface Warfare Center
under RADM Brad Hicks



- **3rd Largest Navy Base in World**
- **12th Largest Single-Site Employer in Indiana**
- **~4,000 Civilian Employees**
- **Only Base in Indiana**
- **Annual Revenue >$1 Billion**

Winner of the 2002 DoD Commander in Chief's Installation Excellence Award

Principal Tenant Activity - Crane Army Ammunition Activity

Electronics Development

AVENGER Air Defense System

Development,
In Service Engineering,
Field Training,

1st Marine Expeditionary Headquarters Command & Control Center developed and fielded within 6 weeks

Power Systems

DoD's Largest Power Systems Capability,

Specializing in Batteries, Fuel Cells, Chargers & Power Supplies

Battery Stewardship

MK 147 Battery Application

“In Kosovo, NATO Didn’t Fly Without the EA-6B & the EA-6B Didn’t Fly Without Crane ”

RADM John P. Cryer USN

Decoy Flares

Stewardship of fragile industry for airborne decoy flares

MK-44 Mini-Gun

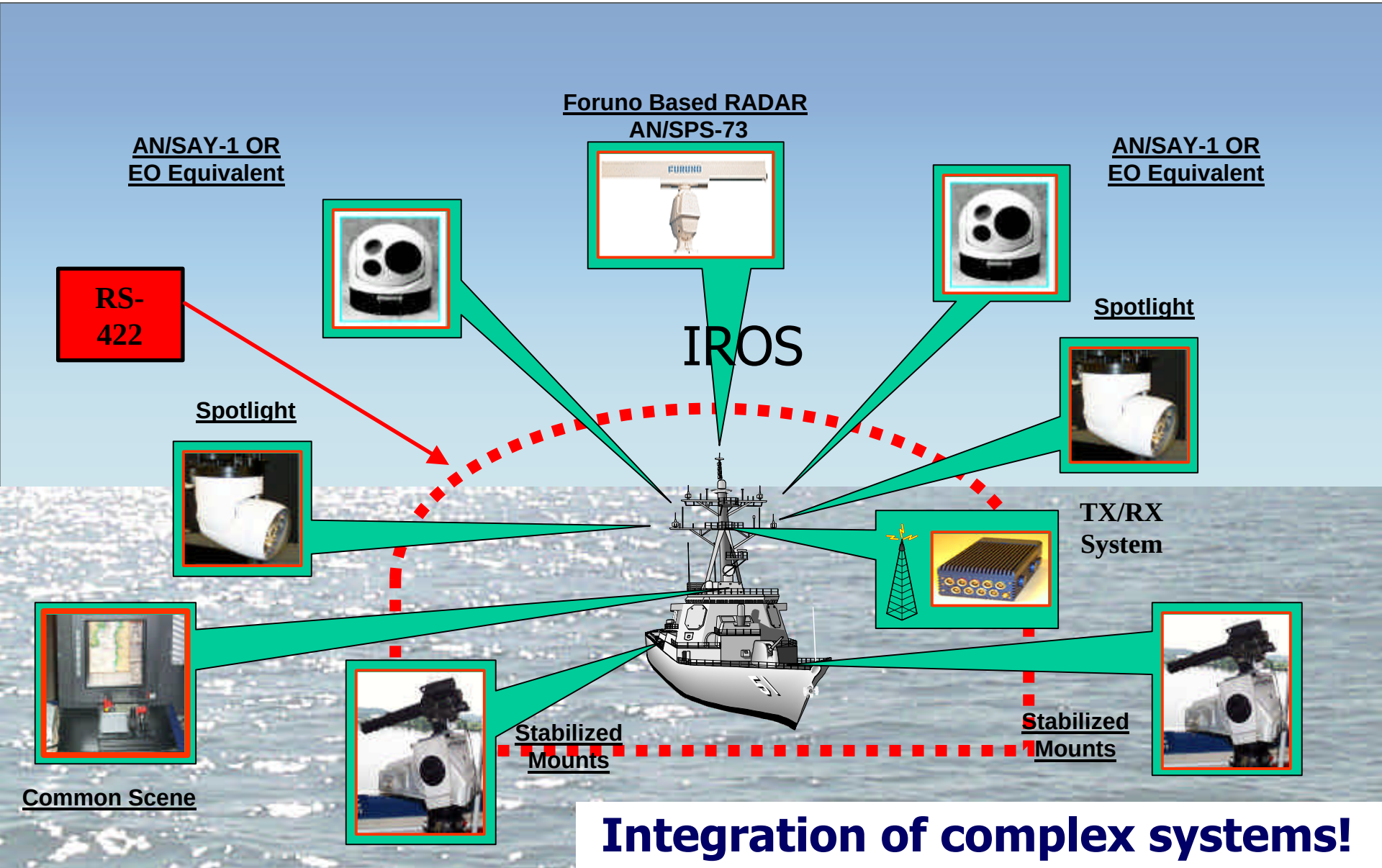
Rapid Response to Urgent Fleet Force Protection Needs!

"A truly superb effort. Your hard work and expertise helped make our ships combat ready and set the standard for waterfront service."

RADM Etnyre

Commander.
Naval Surface Force
U.S. Atlantic Fleet

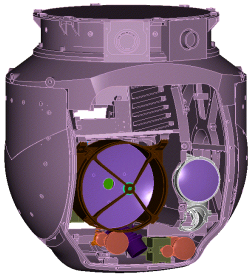
Ship-Centric Force Protection System
Shipboard IROS³ Components



Integration of complex systems!

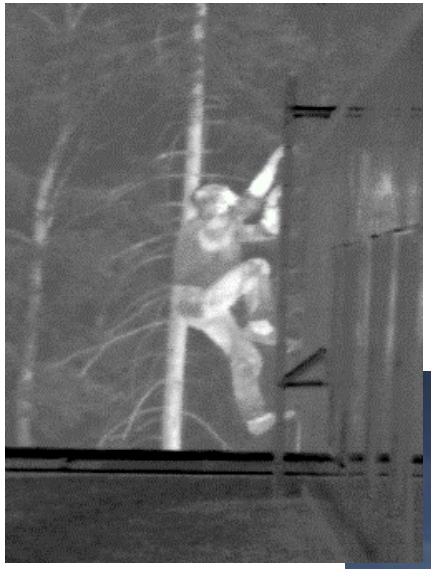
Night Vision/Electro-Optics

UAV Payloads



H-60 Armed Helicopter

Multi-Sensor Systems



Shipboard Thermal Imaging

Night Vision Goggles

Only Department of Defense activity with full life-cycle support for electro-optics.

Special Operations

On 2 April 2003 several of NSWC Crane's customers went to visit a friend in the hospital

Products from Crane helped them get in and out safely

Special Operations

Crane products utilized by Special Operations during The Jessica Lynch Rescue

MK262 ammunition Providing increase accuracy and lethality over standard ammunition

AN/PVS-15 Night Vision Goggles to allow forces to operate in darkness

Aimpoint Comp MXD parallex free Weapons Sight with both and night vision settings

AN/PVS-17A Miniature Night Vision Sight (MNVS) a compact, lightweight, advanced electro-optical Weapons Sight

Modified M4A1 Carbine with increase reliability parts kit and high reliability magazine

AN/PAS-13 Heavy Thermal weapons sight

Special Operations

Crane products utilized by Special Operations during The Jessica Lynch Rescue

AN/PSQ-18 Grenade Launcher Day/Night Sight Mount Provides capability to fire the M203 grenade launcher in daylight, low light, and night time

MK44 Mini-Gun Providing suppressive firepower for the Black Hawk helicopters

ANPEQ-2 IR pointer IR illuminator used to illuminate and designate targets

Visible light illumination – i.e. backup flashlight to illuminate targets with white light

UNS – Universal Night Sight weapons mounted clip-on

Crane

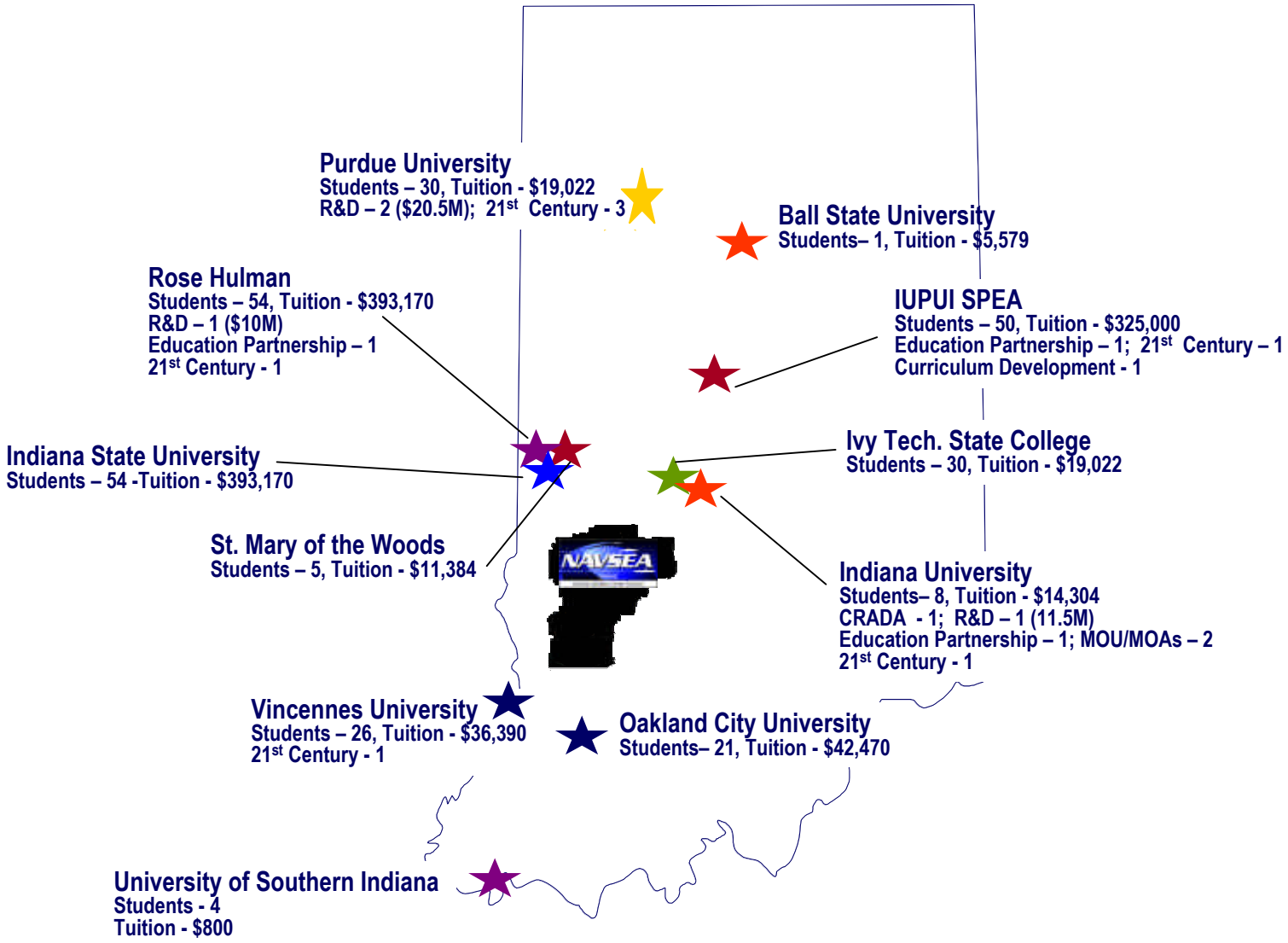
Crucial to Indiana

Crane is a good neighbor!

- Environmental protection
- Education
- Economic development
- Public safety
- Recreational opportunities
- Community involvement

Academic Involvement

Over $42M in University Partnerships

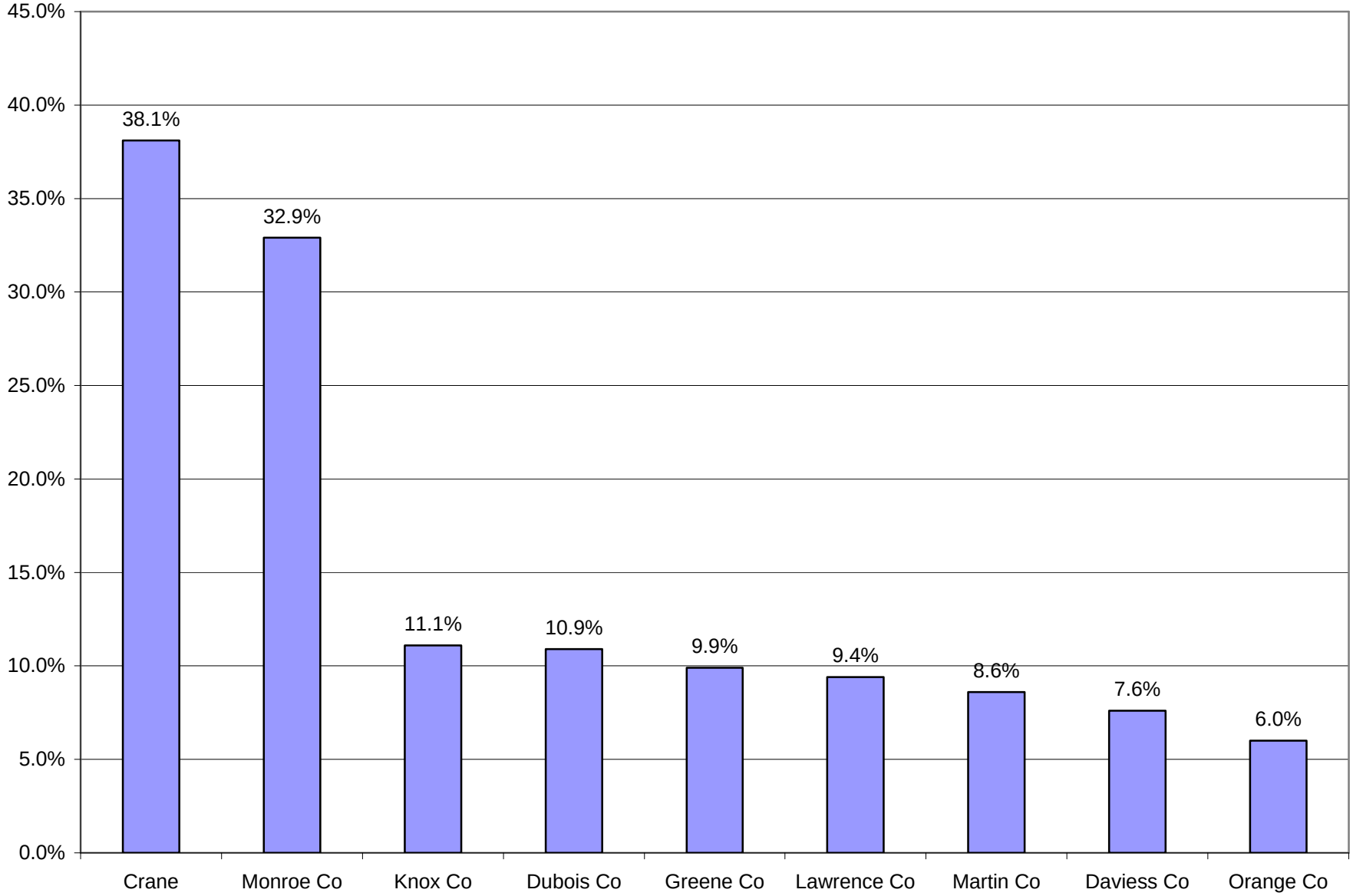


2003 School Partnership Program

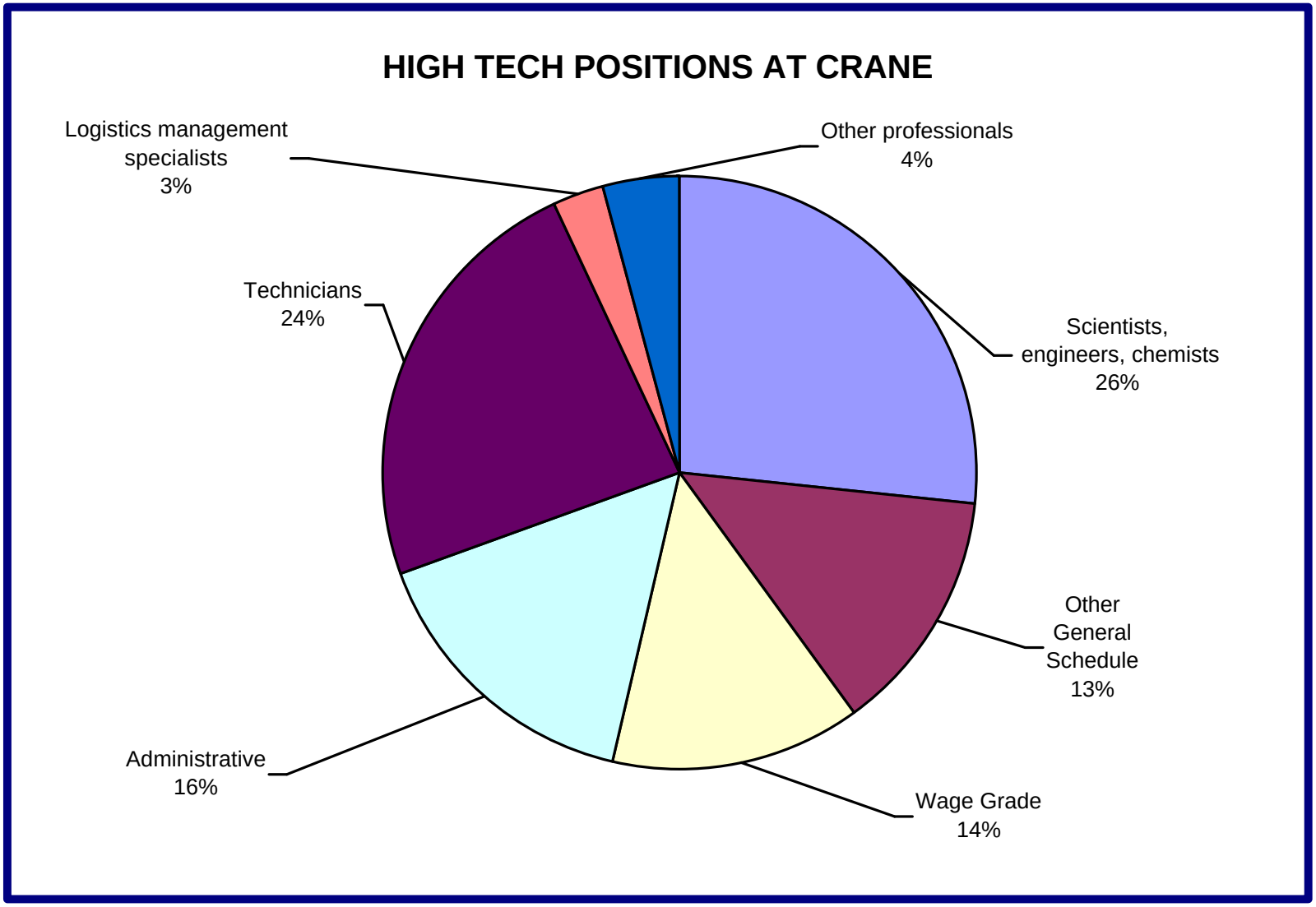
ACTIVITY	SCHOOLS	STUDENTS
CRANE SCIENCE FAIR	20	250
SCHOOL SCIENCE FAIRS	11	300
CENTER TOURS	13	390
TUTORING	10	300
CAREER DAYS	5	600
WORK/STUDY	1	2
CLASS PRESENTATIONS	12	600
TOTAL STUDENTS		**2,442**

CRANE EMPLOYEE ORGANIZATIONS SCHOLARSHIPS AWARDED	$19,000
SCIENCE FAIR AWARDS	$3,000

Percentage of Adults Obtaining a BA or Higher



High Tech Positions at Crane



Crane's Community Involvement

Much of Crane's success is due to the economic and business stability of the region. To promote business vitality and economic development in neighboring communities, Crane is a member of the following organizations:

- Southwestern Indiana Development Council
- Bedford Economic Development Committee
- Daviess County Economic Development Committee
- Huntingburg Chamber of Commerce
- Knox County Chamber of Commerce
- Greene County Economic Development Committee
- Indiana Business Modernization & Technology Corporation
- Crane Regional Economic Development Organization
- Indiana Manufacturers Association
- Crane Technology Transfer Industrial Outreach Program
- Indiana Economic Development Council
- Southern Indiana Development Commission

State Government Partnership

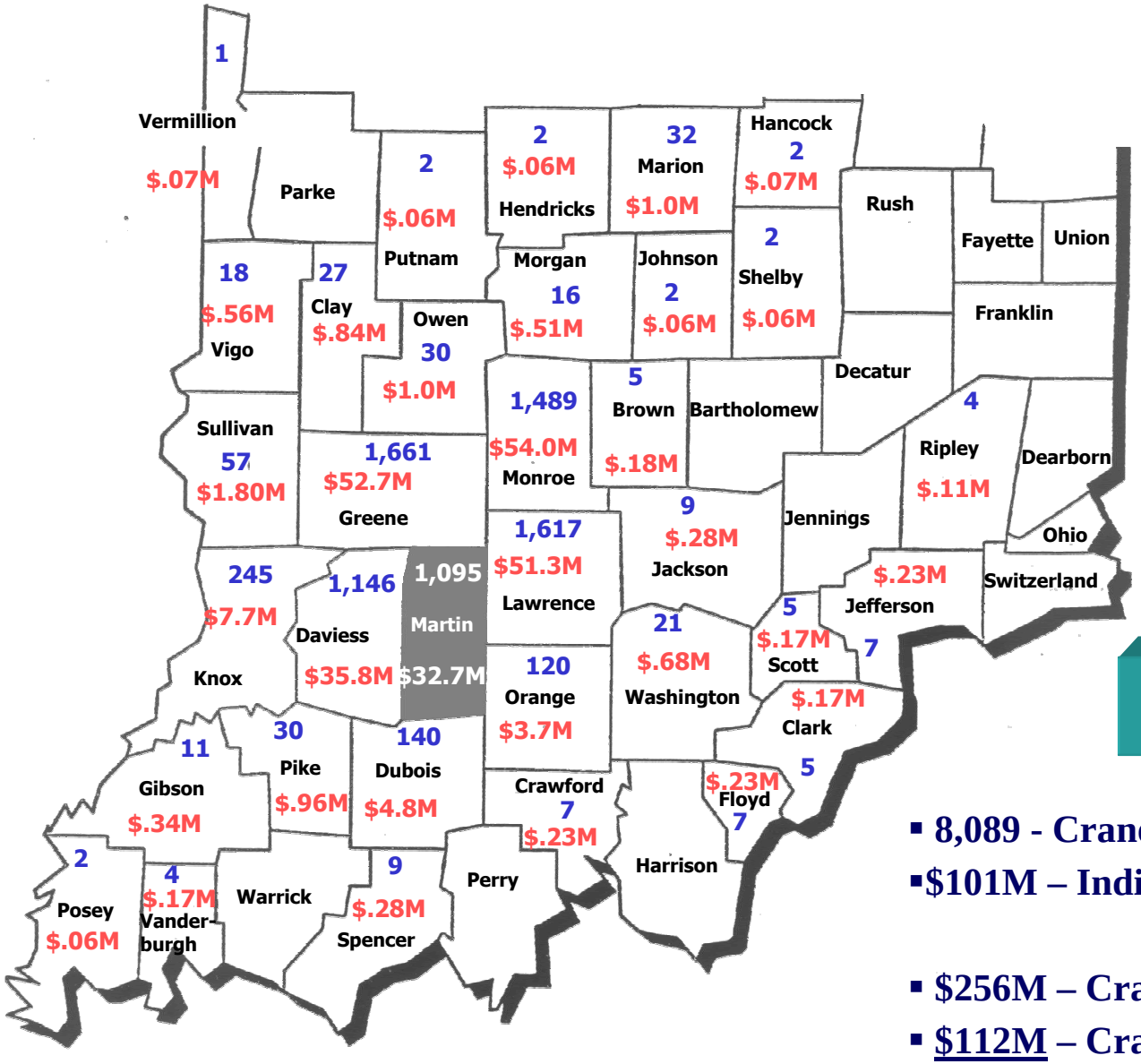
NSWC Crane

Camp Atterbury

Expanding Memorandum of Understanding (MOU) With Camp Atterbury

1) Increase the Use of Camp Atterbury as an Extension of the Product Test Ranges
2) Increase the Use of Crane for Reserve Training Exercises
3) Enhance Camp Atterbury Training Ranges Using Crane Technical Capability
4) Enhance Homeland Security in Indiana with State Government Atterbury Property/Crane Technology
5) Enhance National Homeland Security Enhance the Homeland Security of Midwest Region

Crane's Widespread Influence



$1.3 Million a Day!

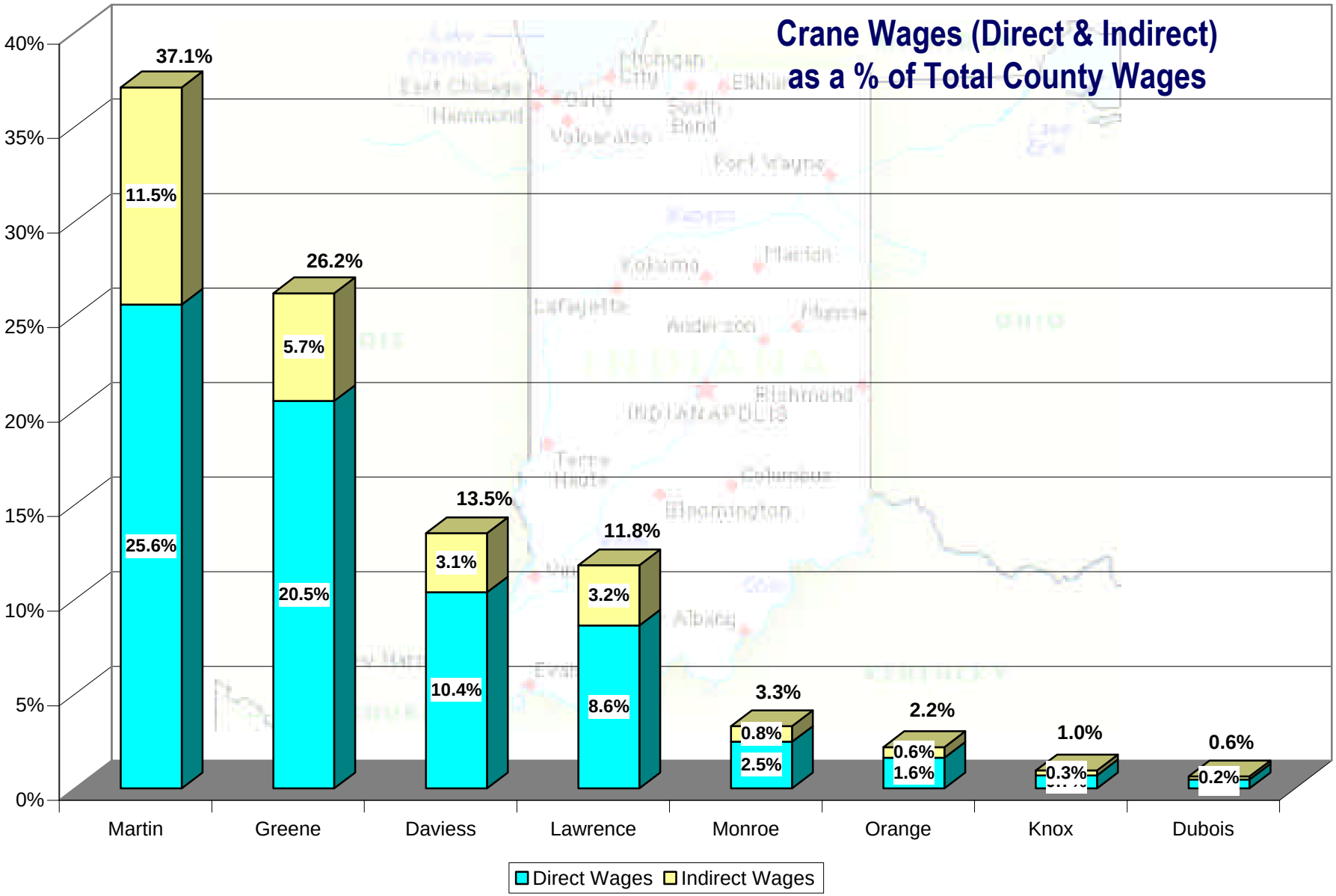
- 8,089 - Crane Related Jobs
- $101M – Indiana Contracts

- $256M – Crane Direct Wages
- $112M – Crane Indirect Wages
- $368M – Crane Related Wages

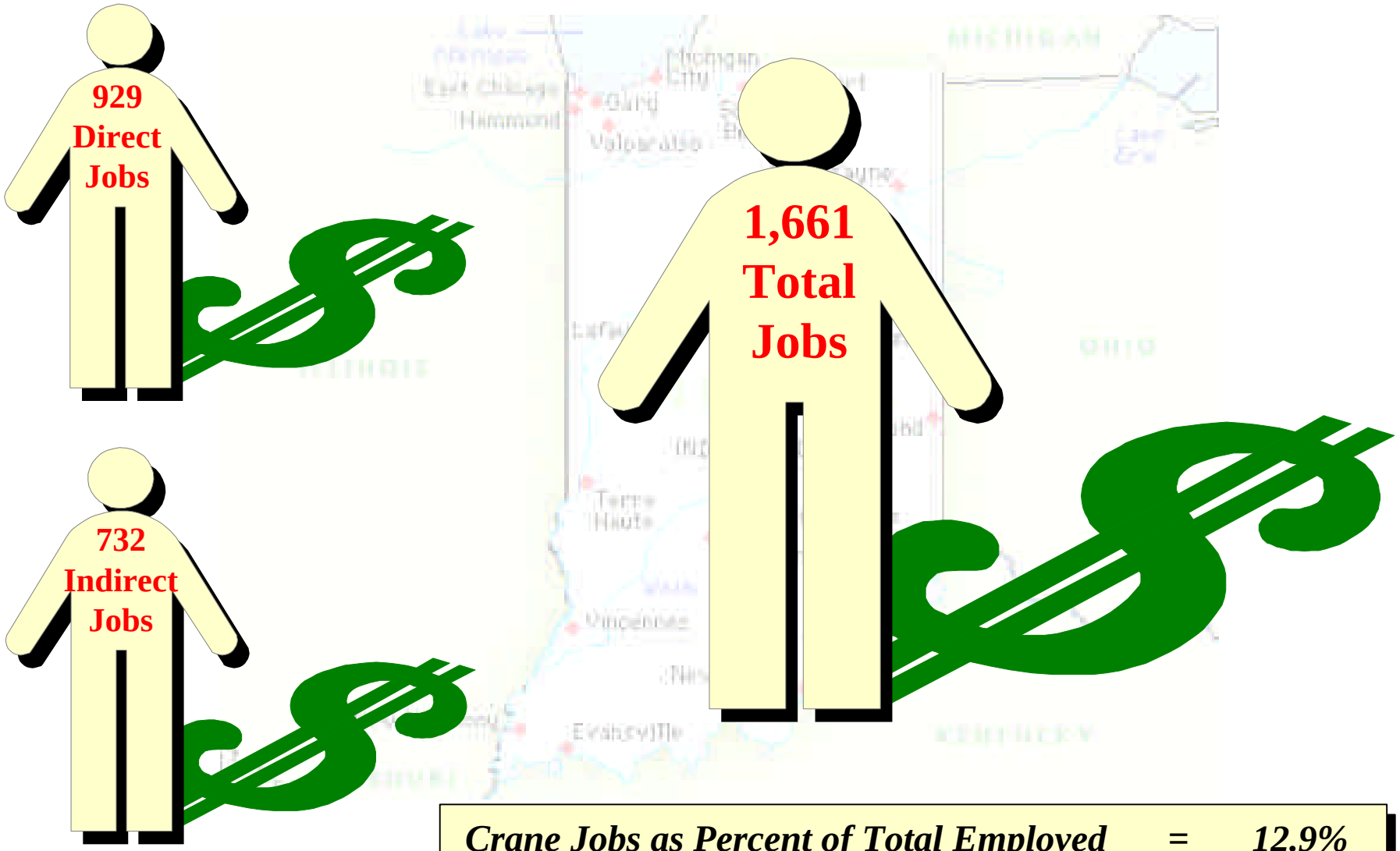
Other Indiana Counties – 119

Other States - 187

Wage Impact on Local Community



Greene County



Crane Jobs as Percent of Total Employed	=	*12.9%*
Crane Wages as Percent of Resident Income	=	*26.2%*

Bloomfield (Greene County)

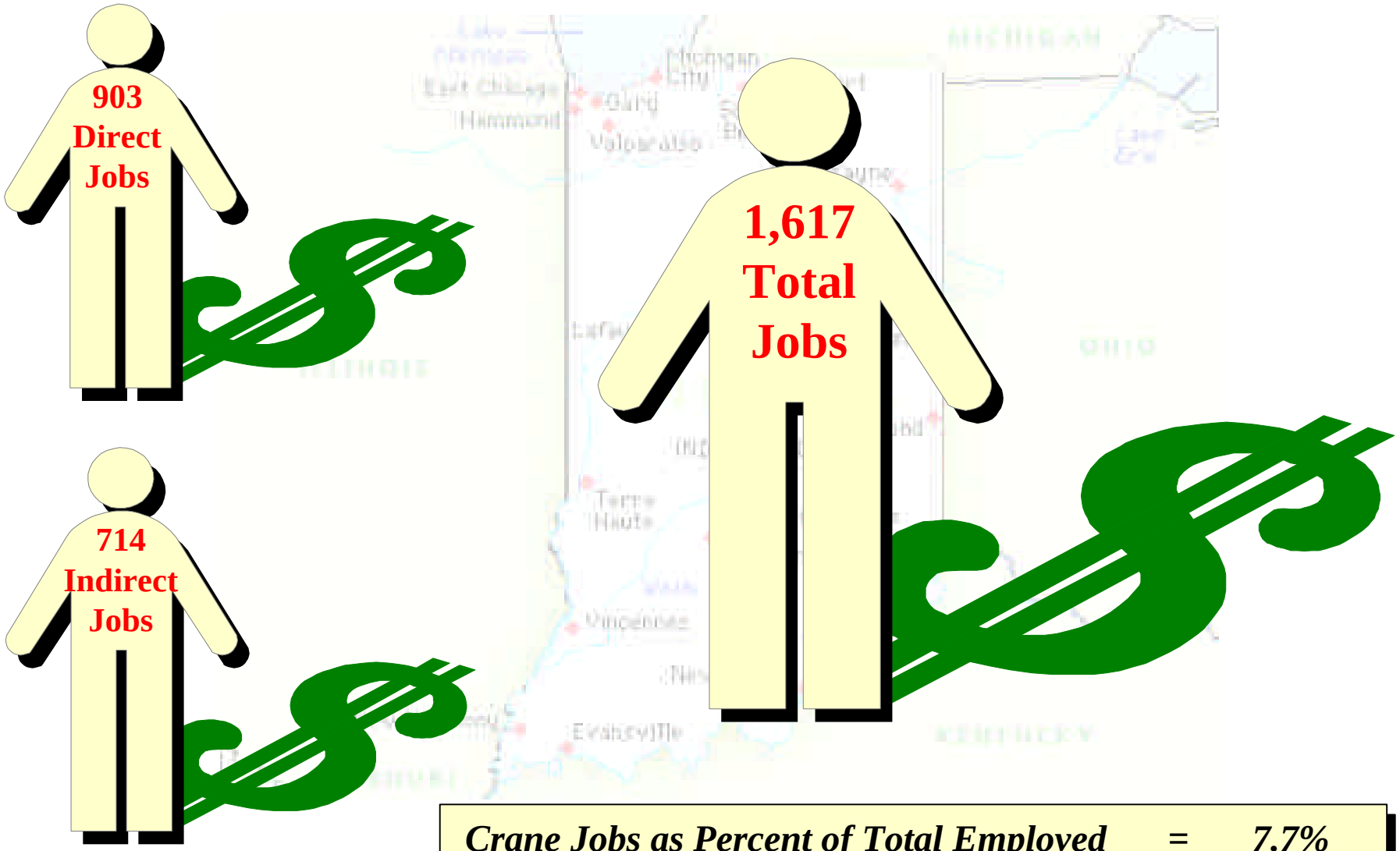
Total Bloomfield wages = *$60M*

Bloomfield Crane-related wages = *$28M*

Crane represents ***46%*** *of*

all wages paid in Bloomfield

Lawrence County



Crane Jobs as Percent of Total Employed	=	*7.7%*
Crane Wages as Percent of Resident Income	=	*11.8%*

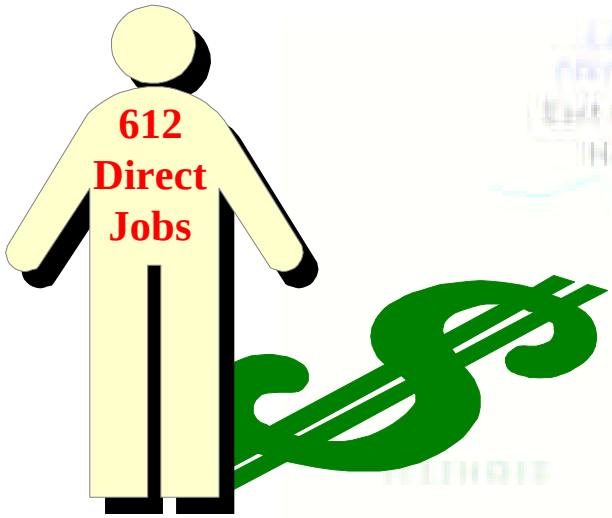
Bedford (Lawrence County)

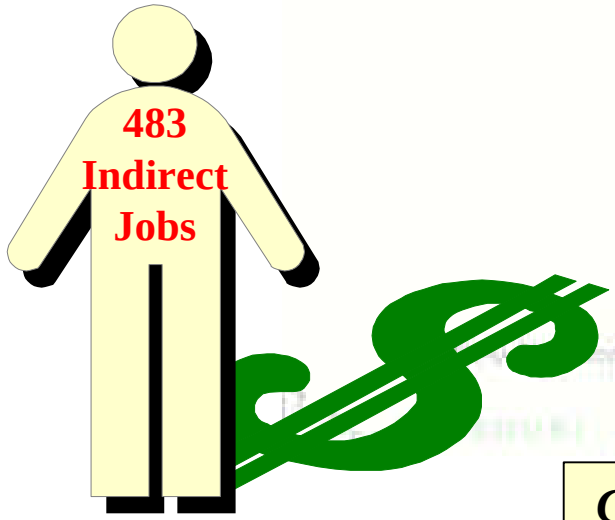
Total Bedford wages = *$177M*

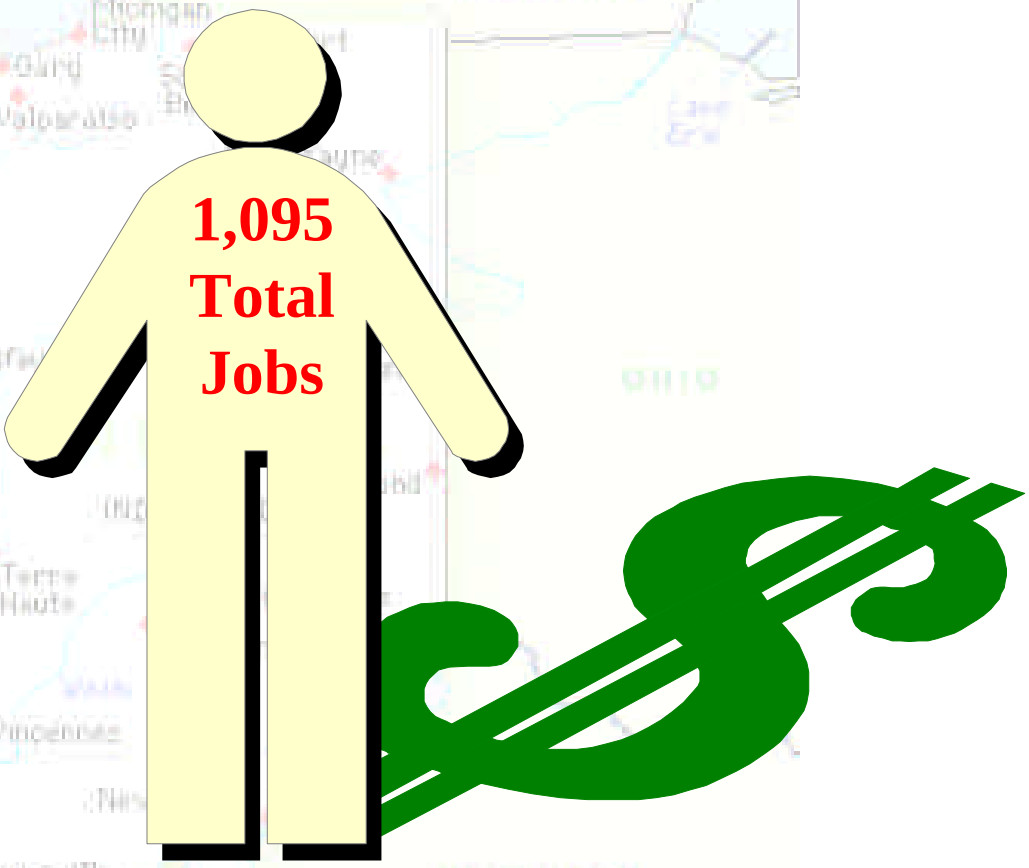
Bedford Crane-related wages = *$31M*

*Crane represents **18%** of all wages paid in Bedford*

Martin County







Crane Jobs as Percent of Total Employed	=	*22.7%*
Crane Wages as Percent of Resident income	=	*37.1%*

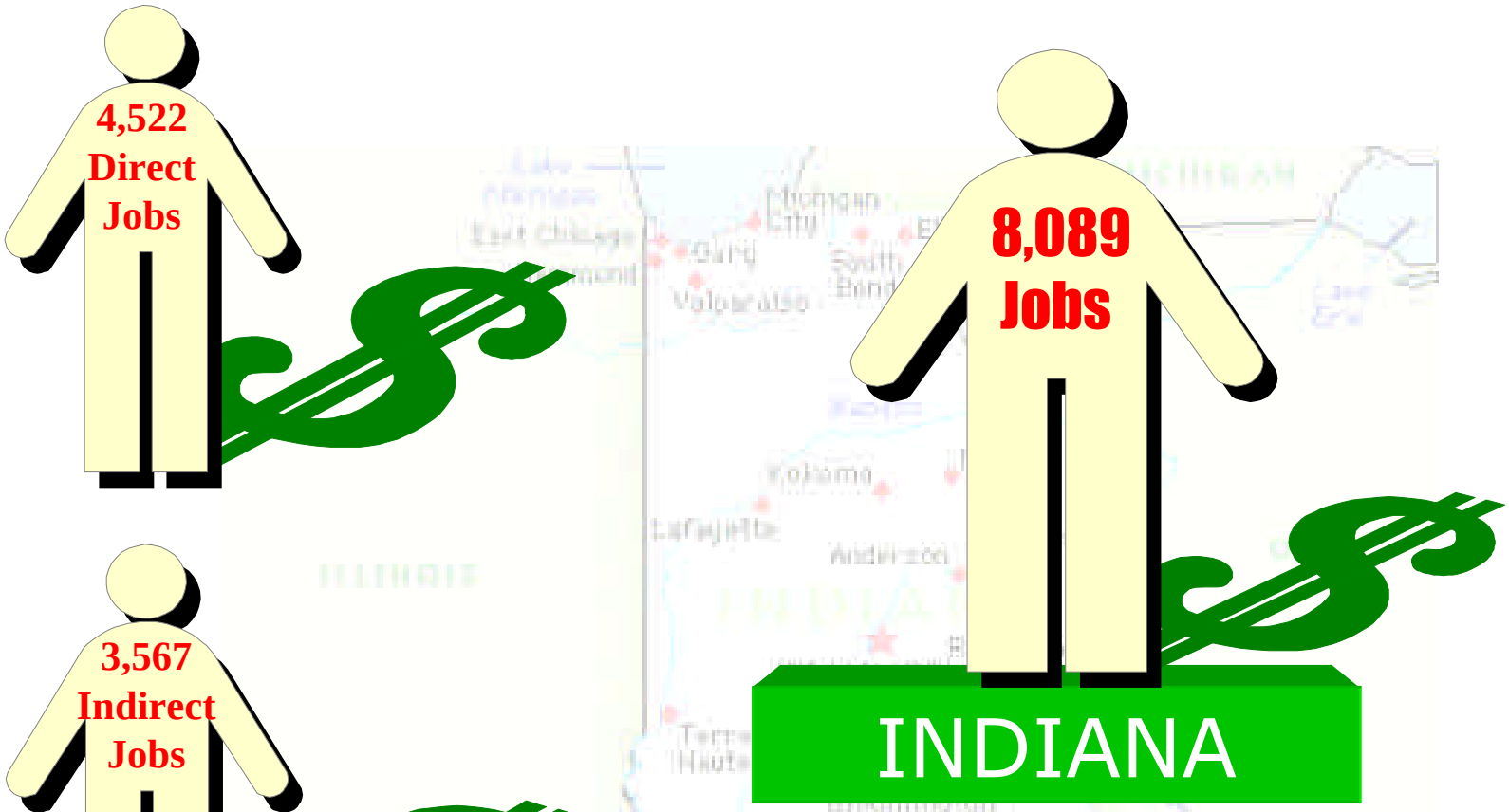
Loogootee (Martin County)

Total Loogootee wages = *$33.7M*

Loogootee Crane-related wages = *$22.5M*

Crane represents ***67%*** *of*

all wages paid in Loogootee



or
$1.3 Million
A Day!

$368M
Crane-generated Wages

$38M
State/Local Tax Revenues

$101M
Indiana Contracts

Title XXX of the 2002 Defense Authorization Law authorizes a round of base closures, culminating in 2005.

Base Realignment and Closure (BRAC)

After giving much to its surrounding communities for the past 60 years, Crane now faces threat of closure.

The BRAC is scheduled to happen in 2005, but *the selection process has already begun*.

Indiana BRAC Attack

BRAC	Base	Positions
1988	Jefferson Proving Ground	400
	Indiana Army Ammo Plant	2,000
1991	Ft. Benjamin Harrison	1,050
	Grissom Air Force Base	800
1995	Naval Air Warfare Center	2,200
	Crane’s Louisville Facility	1,600
2005	??????????????????????	?,???

The "Snapshot" Timeline

- **Summer 2003**—the process to define Closure Criteria begins.
- **December 2003**—the criteria will be sent to Congress.

December 2003 will also be the "snapshot" of Crane that will be used in the BRAC process.

Competing Navy Labs & Tech Centers

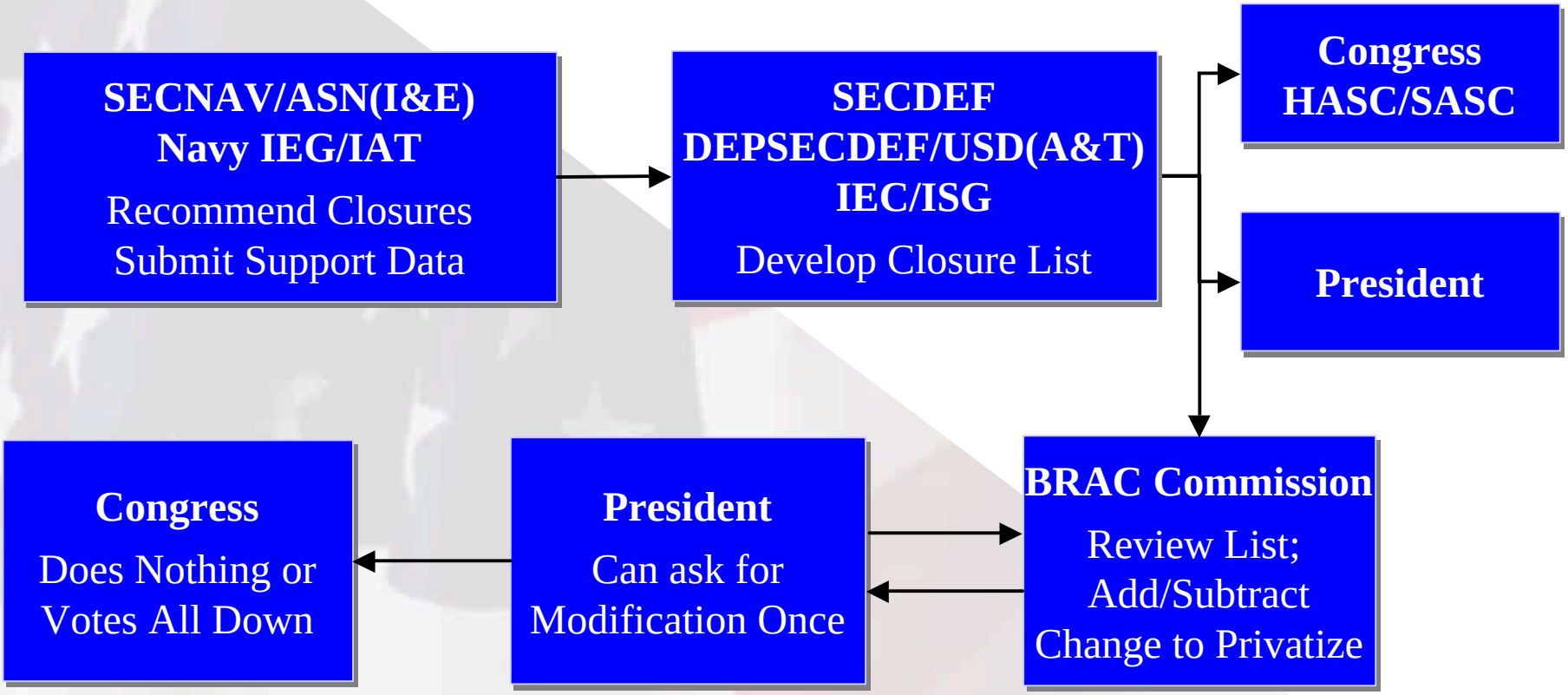
Laboratories

- NSWC Dahlgren
- NAWC Patuxent River
- NSWC Panama City
- NAWC China Lake
- NSWC Carderock
- NAWC Pt. Mugu
- NUWC Newport
- SSC San Diego

Technical Centers

- NSWC Crane
- NUWC Keyport
- NSWC Indian Head
- NAEC Lakehurst
- NSWC Pt. Hueneme
- NSC Charleston
- NWAD Corona
- FTSC PAC PH, HI
- FTSC LANT Norfolk

BRAC – A Political Process



Supporting Crane, Building Our Future

Defense Engineering Science

Revenue Environment Community

S.I.B.A., Inc.

Southern Indiana Business Alliance

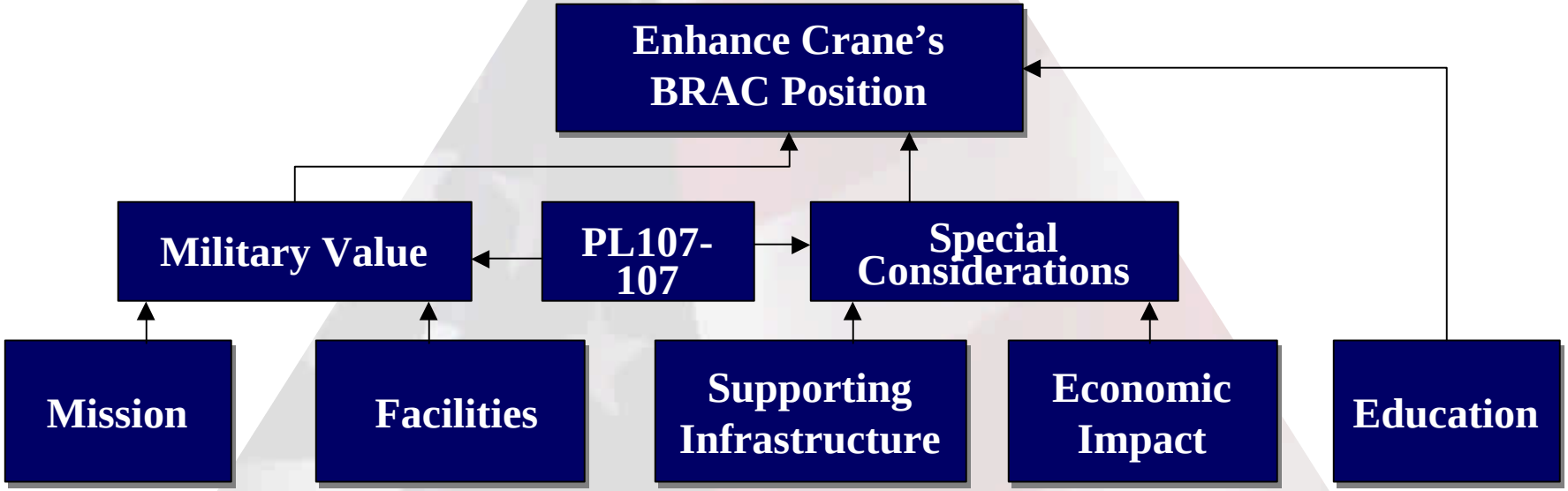
S. I. B. A., Inc.

Southern Indiana Business Alliance

Mission

- Support Crane through BRAC Process
- Leverage Crane for Economic Development

The Framework



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Crane Division, NSWC

Vital to Keeping America's Navy #1 in the World by Harnessing the Power of Technology for the Warfighter.

HIGH MILITARY VALUE

Vital to the Local & State Economy.

Vital to Reducing Costs to the Warfighter.

Questions

or

Comments?

S.I.B.A., Inc.

** Southern Indiana Business Alliance **