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BAE SYSTEMS

The Nation's Changing Defense Emphasis:

IT'S IMPACT ON LONG ISLAND DEFENSE FIRMS

Every four years, the Secretary of Defense is required to conduct a comprehensive examination of the national defense strategy, force structure, force modernization plans and infrastructure. Known as the "quadrennial defense review", it was last conducted in 2006. The 2006 review concluded that although U.S. military forces are well equipped for traditional warfare, they must make greater efforts to confront non-traditional, asymmetric challenges. This, in turn, will require some reorientation in U.S. defense expenditures. This article examines the status of Long Island's defense sector during an era of changing defense priorities.



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Today's Defense Challenges

One of the principal challenges facing defense planners is how to deal with irregular warfare, in which enemy combatants are not regular military forces of nation-states. Preventing catastrophic terrorism involving weapons of mass destruction on U.S. soil is an equally daunting challenge. In order to successfully confront these challenges, the emphasis in defense spending will shift from major weapons systems that support conventional combat operations to equipment and systems that provide the nation's defense forces and homeland security personnel with timely information and knowledge. When the immediate threats are urban and asymmetrical, obtaining better intelligence and improving response capability are top priorities. The defense budget is also being reprioritized to support the wars in Iraq and Afghanistan. Troops and equipment are being stressed by these ongoing conflicts. As a result, significant future expenditures will be needed to refit and upgrade existing equipment and protect U.S. troops from weapons such as improvised explosive devices (IEDs). This will put further pressure on major weapons programs that enhance future defense capability but don't have immediate

applications in the field.

To enhance homeland security, there will be more spending for countermeasures against advanced biological weapons and other weapons of mass destruction. For example, advanced detection devices such as radiation monitors have become a key priority. There will be more military spending for both manned aircraft (Ospreys, Raptors and Super Hornets) and unmanned aircraft systems to

ensure that the nation can retain its air superiority. To ensure continued ground superiority, there will be more spending for systems that enhance precision firepower and joint networking. In effect, the future thrust in military spending will be toward light, smart, intelligent defense systems coupled with spending in support of our troops in the field. This new emphasis is evident in the most recent U.S. defense budgets. (See Table 1)

Table 1
Direct DOD Budget Plan, Fiscal years, 2006, 2007 & 2008 (Millions of dollars)

Item	FY 2006	FY 2007	FY 2008	% Change FY 2006-08
Operation & Maintenance	\$211,636	\$193,292	\$164,686	-22.2%
Procurement	105,315	103,810	101,679	-3.4
Research, Development, Testing & Evaluation	72,691	75,955	75,117	+3.3
All Other	146,630	136,535	140,072	-4.5
Total	536,272	509,592*	481,554	-10.2
Specific Program				
Aircraft Procurement, Army	\$3,400	\$4,950	\$4,180	+22.9
Aircraft Procurement, Navy	10,224	10,838	12,748	+24.7
Operational Systems Development	\$21,412	\$23,367	\$26,456	+23.6
Intelligence & Communications	14,317	15,344	18,207	+27.2

*With emergency supplements requested by the Pentagon, FY 2007 defense spending is expected to exceed \$660 billion.
Source: U.S. Department of Defense

Table 2

**DOD Prime Contract Awards*,
Fiscal Years 1996 - 2006 (Thousands of Dollars)**

Fiscal Year	Nassau Firms	Suffolk Firms	Total Long Island	% Change From Prior Year
1996	\$915,775	\$329,277	\$1,245,052	-12.9
1997	833,810	295,510	1,129,320	-9.3
1998	355,395	171,847	527,242	-53.3
1999	738,386	290,016	1,028,402	95.1
2000	742,809	360,888	1,103,697	7.3
2001	622,536	397,278	1,019,814	-7.6
2002	712,288	444,203	1,156,491	13.4
2003	630,246	609,533	1,239,779	7.2
2004	590,276	564,596	1,154,872	-6.8
2005	878,907	611,981	1,490,888	29.1
2006	1,100,431	570,159	1,670,590	12.1
From Army	76,075	84,941	161,016	
From Navy	908,087	173,810	1,081,897	
From Air Force	15,830	154,494	170,324	
All Other	100,439	156,914	257,353	

*Refers to contracts of \$25,000 or more.
Source: U.S. Department of Defense

Long Island's Defense Industry Infrastructure

Long Island still has a significant defense industry infrastructure, a legacy of its former role as a major producer of combat aircraft. Today, the industry's focus has shifted to the development and production of electronics, communications and detection devices. This new emphasis fits neatly with the DOD's growing need for better intelligence, surveillance, reconnaissance, detection and battle management. The dollar value of Defense Department prime contract awards to Long Island firms grew by 45 percent between fiscal years 2004 and 2006, which is helping to reinvigorate Long Island's defense sector. Two-thirds of the fiscal 2006 awards came from the Navy. (See Table 2) Certain Long Island communities, notably Bethpage, Bay Shore, Bohemia, Farmingdale, Greenlawn, Hauppauge, Melville, North Amityville and Ronkonkoma, have benefited substantially from recent increases in Long Island's share of U.S. defense spending. (See Table 3).

Some of the key defense players on Long Island and their areas of expertise are as follows:

BAE Systems' Electronics and Integrated Solutions Group, headquartered in Nashua, New Hampshire, has facilities in the New York Region and on Long Island. It specializes in the design and development of electronic systems and subsystems for both military and commercial applications. Its military

focus includes the development of electronic warfare and self-protection systems; surveillance and intelligence systems; platform systems; sensor and precision targeting systems; communication, navigation, identification and reconnaissance systems; and information management systems.

CPI Aerostructures of Edgewood, Long Island produces structural aircraft parts for the U.S. Air Force and other branches of the armed services and provides related engineering, technical and program management services. It also functions as a subcontractor to aerospace prime contractors.

EDO Corporation, headquartered in Manhattan, has facilities in North Amityville and Bohemia. It designs and manufactures products for defense, intelligence and commercial markets and provides related engineering and professional services. Its Electronic Warfare sector develops electronic protection technology, including the technology that is being used to foil roadside bombs in Iraq and Afghanistan. EDO's Integrated Systems and Structures sector designs and manufactures electronic assemblies for military and space applications. Its Intelligence and Information Warfare sector develops custom communications systems for the U.S. government.

Table 3

Long Island Communities With Significant DOD Prime Contract Awards Fiscal 2006

Community	Dollar Value of Awards
Bay Shore	\$42,358,009
Bethpage	798,290,388
Bohemia	32,484,762
Farmingdale	35,064,044
Greenlawn	101,326,911
Hauppauge	57,020,491
Melville	57,277,192
North Amityville	49,931,109
Ronkonkoma	33,571,449

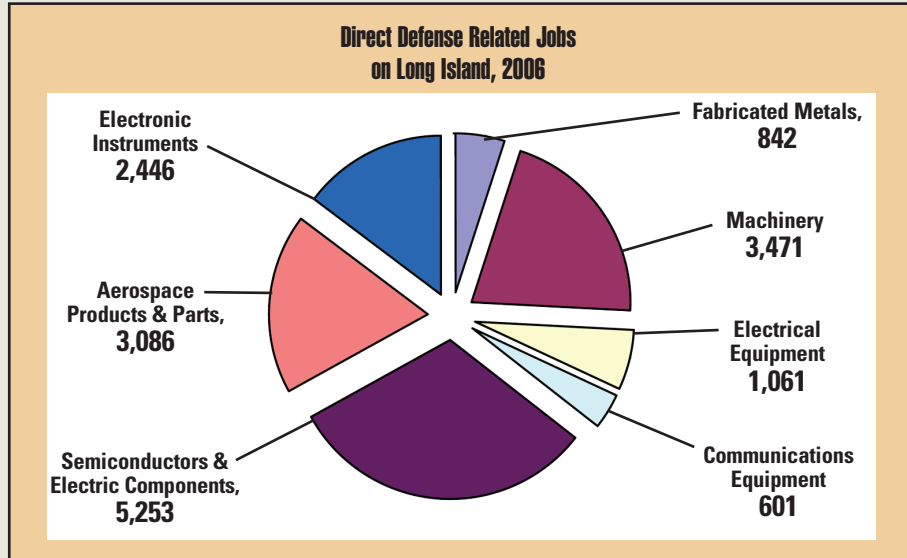
*Refers to contracts of \$25,000 or more.
Source: U.S. Department of Defense

The Eastern Regional Office of **Northrop Grumman Corporation's** Integrated Systems sector is based in Bethpage, Long Island. Its areas of expertise include airborne early warning and airborne ground surveillance systems and electronic warfare and battle management systems. These programs support military and homeland security missions in the areas of intelligence, surveillance and reconnaissance; battle management command and control; and integrated strike warfare.

Telephonics Corporation, headquartered in Farmingdale, is a subsidiary of the Griffon Corporation. Telephonics provides high technology electronic systems and sub-systems for military and commercial applications. Its Communications Systems division specializes in aircraft intercommunications and wireless and audio products. Its Command Systems Division specializes in traffic management systems, maritime surveillance radar and aerospace electronics. The company's advanced technology wireless products allow the military to communicate voice and data rapidly, accurately and securely.

The Economic Significance of Long Island's Defense Sector

The economic significance of Long



Island's defense sector can be measured in terms of the jobs and payrolls generated by defense-related employers. According to the New York State Labor Department, there were some 16,760 defense-related employees on Long Island in 2006. (See Table 4) They accounted for approximately 20 percent of all Long Island manufacturing workers. Defense-related jobs generated annual payrolls in excess of \$1 billion. This is equivalent to \$61,000 per job and is approximately one-third higher than average Long Island wages.

Direct employment and payrolls are only the "tip of the iceberg" in terms of the economic significance of the defense sector. Most Long Island

defense workers are Nassau-Suffolk residents who spend their wages within the two counties. These wages then undergo several rounds of respending so that their ultimate economic impact is a multiple of the original expenditure. This is the so-called multiplier or ripple effect. It can be measured by applying multipliers from an input-output model of the Long Island economy to direct defense-related employment and payrolls. The model used in the following analysis is known as the Regional Input-Output Modeling System or RIMS II. It was developed by the Bureau of Economic Analysis of the U.S. Commerce Department and is specific to Long Island. It depicts the

**Table 4
Jobs & Payrolls in Selected Defense-Related Industries on Long Island Third Quarter 2006**

Industry Code	Industry	Jobs*	Estimated Annual Payrolls*
3320	Fabricated Metal Manufacturing	842	\$40,024,706
3330	Machinery Manufacturing	3,471	200,728,763
3350	Electrical Equipment & Appliance Manufacturing	1,061	45,941,173
3342	Communications Equipment Manufacturing	601	37,926,802
3344	Semiconductor & Electronic Component Manufacturing	5,253	283,131,657
3364	Aerospace Product & Parts Manufacturing	3,086	240,162,395
3345	Electronic Instrument Manufacturing	2,446	174,691,852
Total		16,760	1,022,607,348

* These jobs and payrolls reflect only a portion of the total employment in each of these industries as determined by the New York State Labor Department. The foregoing industry codes are NAICS codes. They permit a more accurate assessment of Long Island's degree of defense dependence than data derived under the former SIC code system. Source: New York State Labor Department

Table 5

Employment & Earnings Multipliers for Key Long Island Defense Industries

Industry Code	Industry	Employment Multipliers	Earnings Multipliers
3320	Fabricated Metal Manufacturing	1.9643	1.8730
3330	Machinery Manufacturing	2.5031	2.0534
3350	Electrical Equipment & Appliance Manufacturing	2.5955	2.3465
3342	Communications Equipment Manufacturing	2.9168	2.2023
3344	Semiconductor & Electronic Component Manufacturing	3.6119	2.2686
3364	Aerospace Product & Parts Manufacturing	2.5156	1.9471
3345	Electronic Instrument Manufacturing	2.8624	1.8510

Source: RIMS II input-output model of the Long Island economy.

flow of business activity between Long Island industries. Industry-specific multipliers for each of Long Island's key defense-related industries appear in Table 5. Because defense-related manufacturing touches so many other Long Island industries, these multipliers are high relative to multipliers for most other Long Island industries.

Application of these multipliers to direct defense-related employment and earnings indicates that the estimated 16,760 defense-related jobs on Long Island support almost 32,000 additional Long Island jobs. This puts the total impact of

the defense sector at almost 48,600 jobs. The more than \$1 billion in defense industry payrolls support another \$1.1 billion in secondary payrolls throughout the Long Island economy. In effect, the defense sector accounts for \$2.1 billion in Long Island payroll spending either directly or indirectly. (See Table 6)

Conclusions

Long Island's defense sector is considerably smaller than it was at

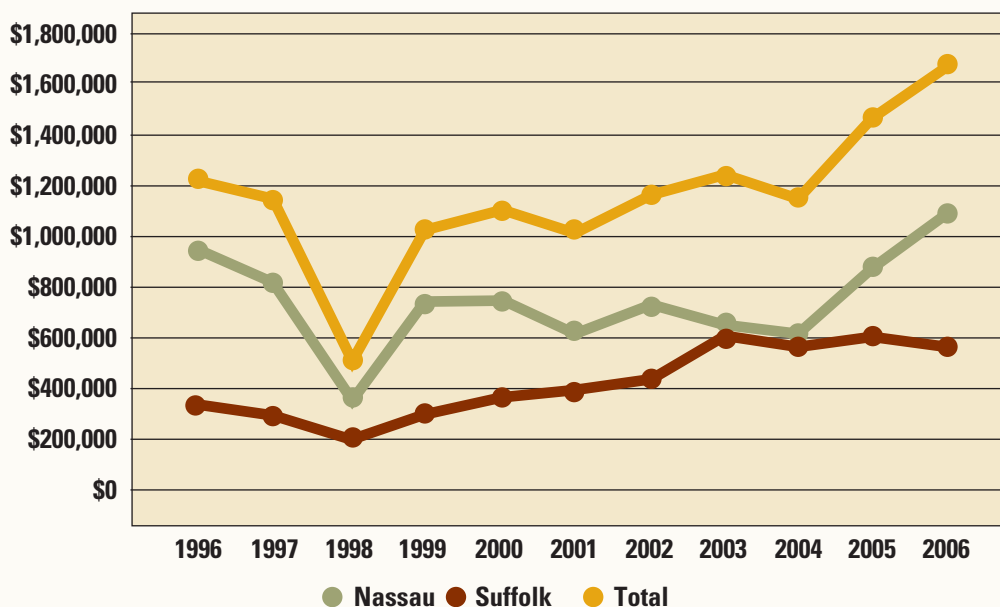
Table 6

The Direct & Indirect Employment & Earnings Impact of Long Island's Defense-Related Industries

Industry	Direct & Indirect Jobs	Indirect Jobs	Direct & Indirect Earnings	Indirect Earnings
Fabricated Metals	1,654	812	\$74,966,274	\$34,941,568
Machinery	8,688	5,217	412,176,442	211,447,679
Electrical Equipment & Appliances	2,754	1,693	107,800,962	61,859,789
Communications Equipment	1,753	1,152	83,526,196	45,599,394
Semiconductors & Electronic Components	18,973	13,720	642,312,477	359,180,820
Aerospace Products & Parts	7,763	4,677	467,620,199	227,457,804
Electronic Instrument Manufacturing	7,001	4,555	323,354,618	148,662,766
Total	48,587	31,827	2,111,757,169	1,089,149,821

Source: Computations based on RIMS II input-output model

DOD Prime Contract Awards to Nassau-Suffolk Firms (Thousands of Dollars)



the height of the Cold War, when the industry was focused on the manufacture of sophisticated combat aircraft. Nevertheless, defense-related jobs remain a vital and vibrant part of the Long Island economy. Long Island's defense-related businesses have shifted to the development and production of electronics, communications and detection devices. This puts them in an excellent position to meet the nation's urgent need for products and systems that result in improved intelligence, surveillance, reconnaissance, detection and battle management.