



# The New England Defense Industry:

**CURRENT PROFILE AND ECONOMIC SIGNIFICANCE**



UMASS DONAHUE INSTITUTE

Economic & Public Policy Research

DECEMBER 2015

## This report includes, for New England and its states:

- Overview
- 2004-2013 trend of DoD/DHS grant and contract awards, and the number of contractors and grantees
- Economic contributions from DoD/DHS grant and contract work performed here
- Top ten industry sectors
- Top ten defense products and services
- Top ten defense contractors
- Top ten defense grant programs
- Top ten defense grant recipients
- Ten-year comparison of the dollar value of work contracted and the amount of work performed here
- Map of defense contract awards by ZIP Code



MASSDEVELOPMENT

Underwritten by MassDevelopment for the Commonwealth of Massachusetts  
Military Asset & Security Strategy Task Force

## Summary of Key Findings

The UMass Donahue Institute's latest analysis of U.S. defense contracting shows that New England remains an important source of defense-related products and associated services. Businesses and organizations in New England received nearly \$27 billion in defense-related grants and contracts during federal fiscal year (FFY) 2013 according to the analysis in this study.

Prepared on behalf of MassDevelopment, this study provides customized analysis based on detailed defense grant and contracting records to characterize strengths in the defense industry in each of the six states in the region, and describes the economic effects flowing from these activities in FFY2013. Economic activity resulting from the production of defense equipment and systems impacts both private and public sector activity in the region, with an estimated total employment impact of more than 218,000 jobs in FFY2013. Contract activities and research grants including Small Business Innovation Research and Small Business Technology Transfer awards benefit a wide range of businesses both large and small — especially manufacturers and research and development organizations — to support economic activity of \$48 billion within the region. This activity included more than \$22 billion in secondary effects generated through business spending and the household spending of employees.

While more than 4,600 New England firms and institutions receive DoD and DHS funds, the region's contract awards are concentrated in three industry sectors that show exceptional strength. Nearly half of contract awards go towards transportation equipment manufacturing; twenty-one percent go towards professional, scientific and technical services; and another fourteen percent go towards computer and electronic products manufacturing. Much of this activity requires highly educated and skilled workers, precision manufacturing, and scientific and technical support.

An analysis of trends shows that total value of grant and contract awards have decreased in New England since a peak in 2005, but recent declines in New England have been at a lower rate than declines in the United States. And in spite of downward trends in available funding nationally, the New England region remains competitive, garnering nearly nine percent of total U.S. funding in FFY2013.

This study should not be compared with our June 2012 study. Changes and updates to the IMPLAN multiregional input-output model such as the reorganization of the industry sector scheme, the introduction of new spending patterns, and revisions to the regional data, complicate comparisons between the two analyses. Historical USASpending data are also revised to reflect modifications to grant and contract awards.

### For more information contact:

UMass Donahue Institute  
100 Venture Way, Suite 9 | Hadley, MA 01035-9462  
phone: 413-545-0001 fax: 413-545-3420  
[www.donahue.umassp.edu](http://www.donahue.umassp.edu) or [www.MassBenchmarks.org](http://www.MassBenchmarks.org)



UMASS DONAHUE INSTITUTE  
Economic & Public Policy Research

# New England Summary



The defense industry is a major contributor to the economy of New England. Over the last ten years, the region has received one of every twelve defense grant and contract dollars. In 2013, the region received \$26.8 billion in Department of Defense (DoD) and Department of Homeland Security (DHS) grants and contracts, a 31 percent increase since 2004. Defense and Homeland Security grants and contracting are responsible for more than 218,000 jobs and a total payroll of \$17.0 billion across the region. Overall, the direct, indirect, and induced economic activity generated in New England by U.S. contractors and grantees is \$48.0 billion.

Regional involvement in the industry is widespread: 4,600 New England firms and institutions tied to DoD and DHS funds provide essential equipment, supplies, and technical services in support of defense operations. Many activities require highly educated and skilled workers, precision manufacturing, and cutting-edge scientific and technical support. But defense budget cuts and other factors have had impacts within the region. The number of DoD/DHS contractors in New England has decreased 19.3 percent since a ten-year peak of 5,694 in 2005.

Currently, the region's contract awards are concentrated in three industry sectors. The transportation manufacturing equipment sector (48.0 percent), based heavily in Connecticut, Rhode Island, and Maine, produces combat systems and

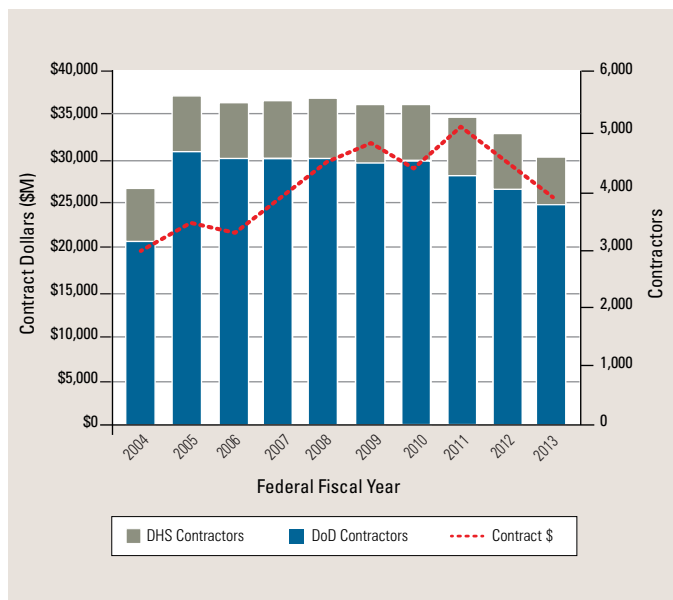
components like the Virginia-class submarine (SSN 774 Class), gas turbines, jet engines, Sikorsky UH-60 Black Hawk helicopters, and the DDG 51 Arleigh Burke Class AEGIS Destroyer. The professional, scientific, and technical services sector (20.6 percent), with a strong concentration in Massachusetts, provides services for defense electronics and communications equipment basic research; research, development, test and evaluation programs for submarines; and missile defense systems. And the computer and electronic product manufacturing sector (14.3 percent), also important in Massachusetts, produces systems like the AN/TPY-2 ballistic missile defense radar, integrated combat system software for the Navy's new DDG-1000 destroyer, and the AEGIS SPY-1 radar for the AEGIS, an integrated missile guidance system.

Two contracts accounted for one-sixth of all New England contract awards in FFY2013. General Dynamics Electric Boat in Groton, CT, received a \$2.5 billion award to build two Virginia-class submarines — South Dakota (SSN-790) and Delaware (SSN-791) — the 17th and 18th ships of the class. Construction of Virginia-class submarines is shared between Electric Boat — the prime contractor — and its teammate, Newport News Shipbuilding. United Technologies Sikorsky Aircraft in Stratford, CT, received a \$1.8 billion award to supply Black Hawk and Sea Hawk helicopters. Defense contracting generates economic activity throughout the region with more than 90,000 jobs directly supported in New England.

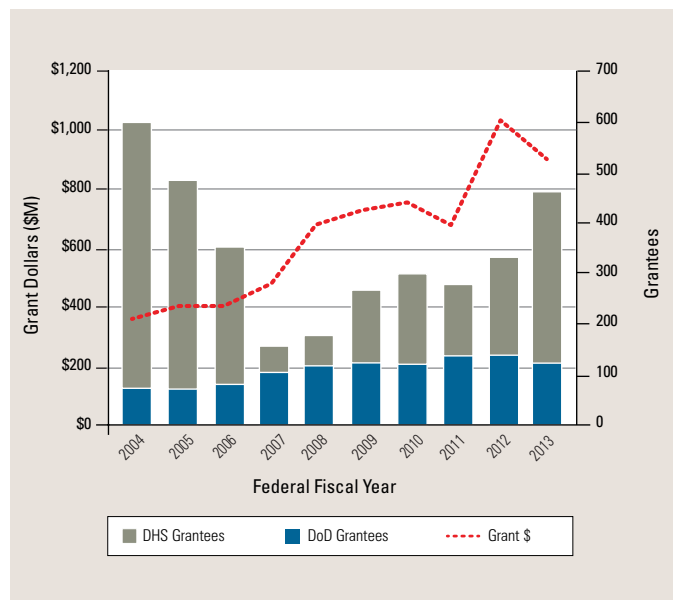
DoD and DHS Contractors and Payments to New England, FFY2004–2013 (\$M)

Federal Fiscal Year	Contract Dollars					Grant Dollars				
	U.S.	U.S. % Change	New England	N.E. % Change	N.E. % of All Contractors	U.S.	U.S. % Change	New England	N.E. % Change	N.E. % of All Grants
2004	\$228,618		\$20,089		8.8%	\$6,851		\$360		5.3%
2005	\$271,557	18.8%	\$22,713	13.1%	8.4%	\$13,357	95.0%	\$402	11.7%	3.0%
2006	\$300,749	10.7%	\$21,783	-4.1%	7.2%	\$16,601	24.3%	\$412	2.5%	2.5%
2007	\$331,986	10.4%	\$25,544	17.3%	7.7%	\$6,659	-59.9%	\$481	16.8%	7.2%
2008	\$393,661	18.6%	\$29,802	16.7%	7.6%	\$8,999	35.1%	\$685	42.3%	7.6%
2009	\$366,271	-7.0%	\$32,088	7.7%	8.8%	\$15,532	72.6%	\$733	7.1%	4.7%
2010	\$358,575	-2.1%	\$29,157	-9.1%	8.1%	\$12,317	-20.7%	\$746	1.8%	6.1%
2011	\$368,430	2.7%	\$33,886	16.2%	9.2%	\$12,214	-0.8%	\$678	-9.2%	5.5%
2012	\$355,239	-3.6%	\$29,623	-12.6%	8.3%	\$11,922	-2.4%	\$1,033	52.4%	8.7%
2013	\$302,520	-14.8%	\$25,938	-12.4%	8.6%	\$14,930	25.2%	\$903	-12.6%	6.0%

New England DoD and DHS Contracts and Contractors  
Contract awards are down 23 percent since their 2011 peak



New England DoD and DHS Grants and Grantees  
Grant awards are down 13 percent since their 2012 peak



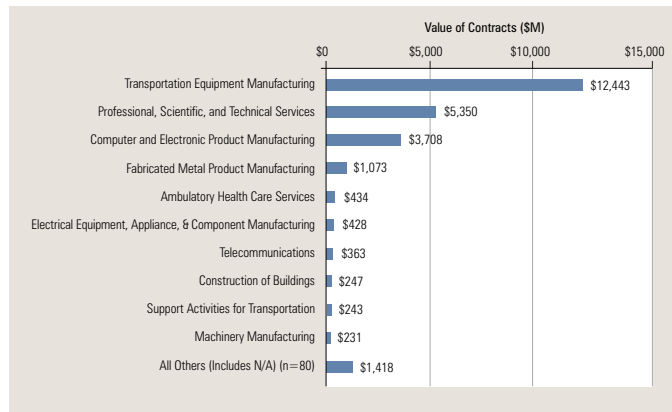
Economic Contributions from Defense Contract Work Performed in New England, FFY2013  
New England defense contracting generated \$48 billion and more than 218,000 jobs

	Direct Contribution of Work Performed in New England	Indirect + Induced Contribution from Work Performed in New England*	Total Contribution
<b>Output</b>	\$25.7 billion	\$22.3 billion	\$48.0 billion
<b>Employment</b>	90,064	128,117	218,181

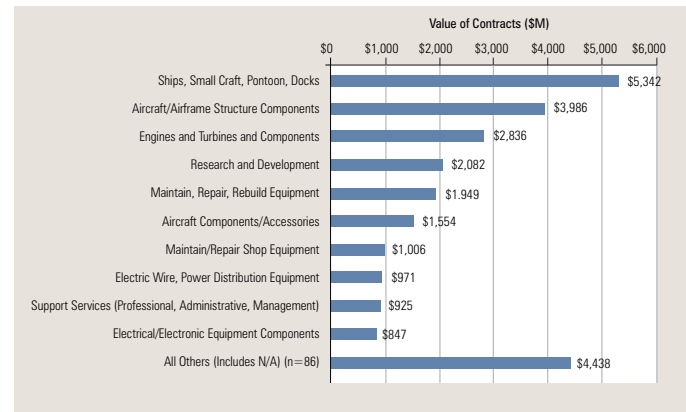
\*These indirect and induced contributions to New England result from the purchase of products and services used in defense work performed in other states.  
Sources: USASpending.gov; data extracts as of November 16, 2014 for contracts and January 2, 2015 for grants; MIG, Inc., IMPLAN System (2013 data).

## New England Summary of DoD and DHS Contracts

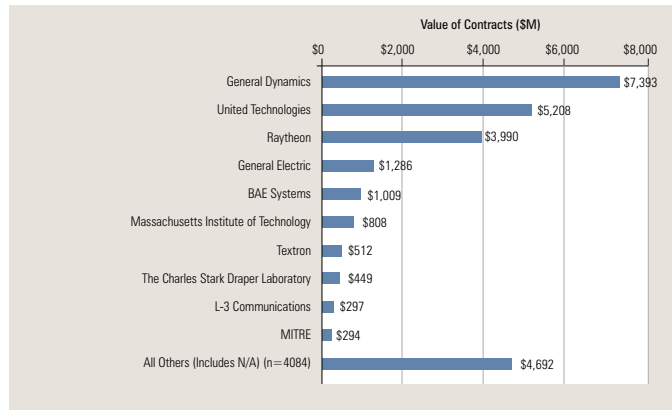
**Top Defense Industry Sectors in New England, by Dollar Value, FFY2013**  
*The top three industries accounted for 83 percent of New England contract awards*



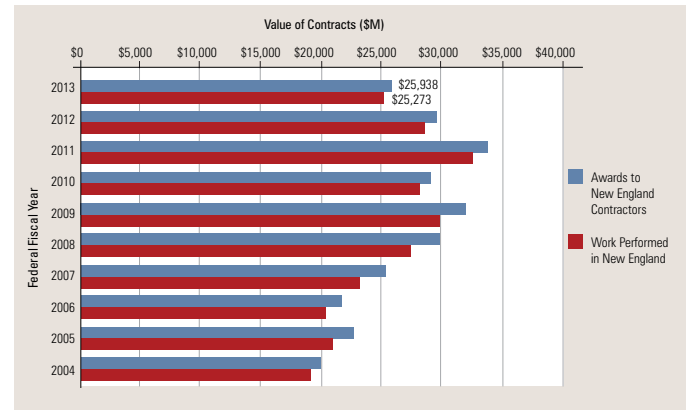
**Top Defense Products and Services in New England, by Dollar Value, FFY2013**  
*Nuclear submarines were the dominant product in New England*



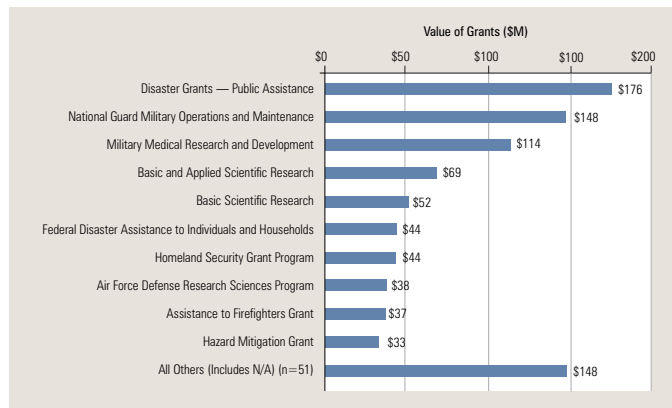
**Top Defense Contractors in New England, by Dollar Value, FFY2013**  
*With locations in Connecticut, Maine, Massachusetts, New Hampshire, and Vermont, General Dynamics is the top New England contractor*



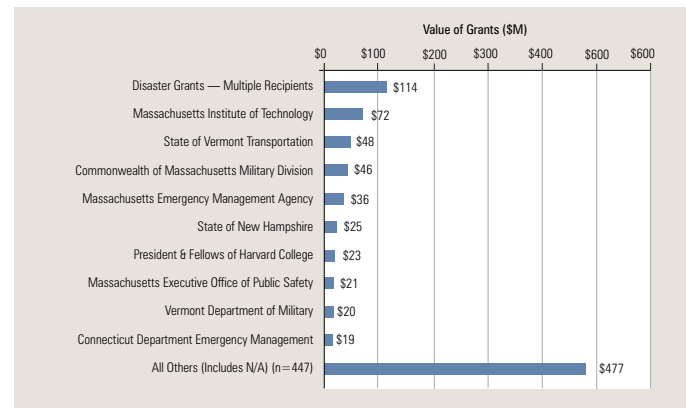
**Work Contracted and Work Performed in New England, FFY2004–2013**  
*New England received contracts for five percent more work than was performed here over the last ten years*

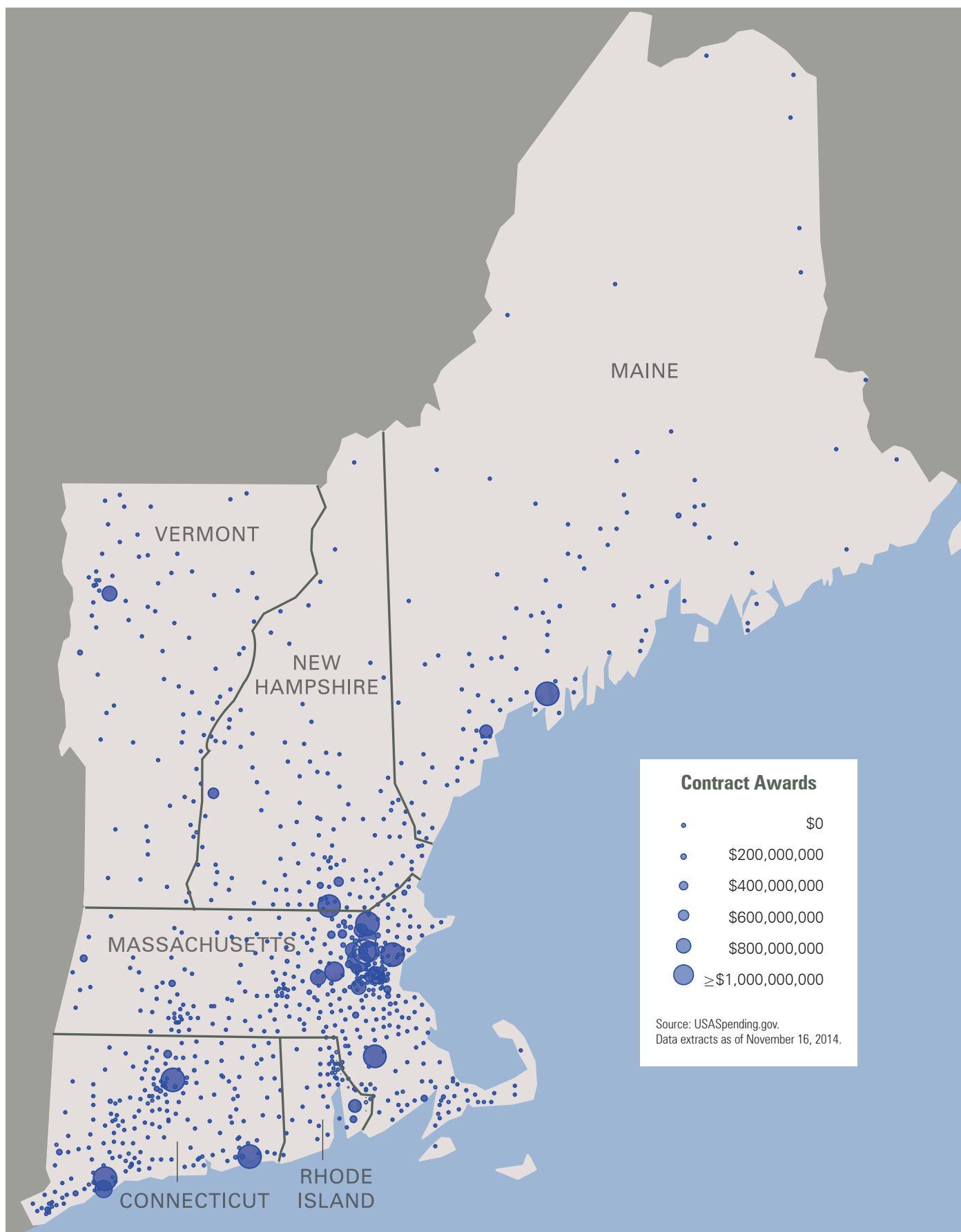


**Top Grant Programs in New England, by Dollar Value, FFY2013**  
*A large proportion of recent DoD and DHS grant awards funded disaster relief efforts, the National Guard, and research and development*



**Top Grant Recipients in New England, by Dollar Value, FFY2013**  
*Massachusetts received 46 percent of New England's DoD and DHS grants with more than one-third of funding going to colleges and universities*





# Connecticut Summary



Connecticut has a long history of providing the military with revolutionary advancements in defense manufacturing and its processes. Ship and submarine building and aircraft production have been major activities in the state since the turn of the 20<sup>th</sup> century. General Dynamics Electric Boat produced the first practical submarine design for the U.S. Navy in 1900 as well as the first nuclear-powered submarine and the first ballistic missile submarine. United Technologies Sikorsky developed the first production helicopter in 1943, and United Technologies Pratt and Whitney revolutionized the aircraft industry with its piston engines in 1925 and now provides engines for the advanced F-22 Raptor and F-35 Lightning II stealth fighters.

Connecticut is the second-largest DoD/DHS contractor in New England and ranks eighth in the nation. Over the last ten years, Connecticut has received an average of 3.2 percent of defense grants and contracts nationally. The defense industry in Connecticut received \$10.3 billion in DoD and DHS grants and contracts in 2013, representing a 13.4 percent increase since 2004. Defense and Homeland Security grants and contracting are responsible for 79,000 jobs and a total payroll of \$6.5 billion in Connecticut. The overall direct, indirect, and induced economic activity generated in Connecticut by contractors and grantees is \$18.8 billion. In 2013, there were 925 DoD and DHS

contractors and 81 DoD and DHS grantees located in Connecticut.

Connecticut's contract awards are concentrated in one industry sector, transportation manufacturing equipment (80.7 percent). The three major industry subsectors of this sector include ship building and repairing (35.8 percent), aircraft manufacturing (23.3 percent), and aircraft engine and engine parts manufacturing (17.3 percent).

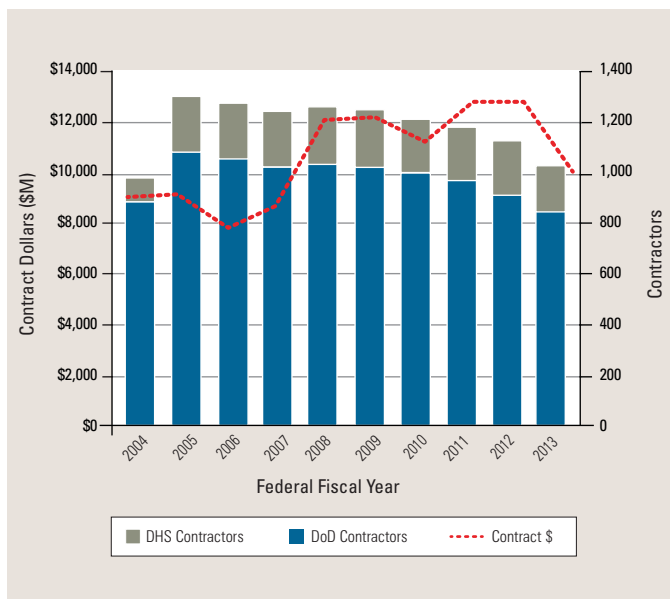
Three-quarters of Connecticut's awards by product and service are ships, small craft, pontoon, docks (40.7 percent), aircraft/airframe structure components (19.9 percent), and engines and turbines and components (15.3 percent). The largest amount of funding in FFY2013 went towards submarines. Electric Boat received full funding for two Virginia-class nuclear submarines and advanced funding for four more. The second largest pool of contracts went towards multiple versions of the Sikorsky Black Hawk helicopter for the U.S. Army and Navy and foreign militaries. The third largest amount of funding went towards domestic and foreign contracts for Pratt and Whitney's F117, F119, and F135 jet engines. These engines are used on the Boeing C-17 Globemaster III airlifter, F-22 Raptor, and F-35 Lightning II stealth fighters respectively.



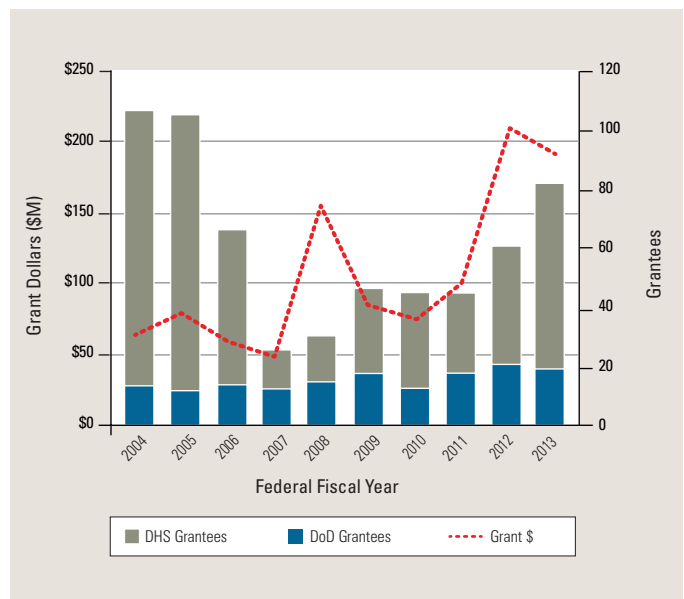
DoD and DHS Contractors and Payments to Connecticut, FFY2004–2013 (\$M)

Federal Fiscal Year	Contract Dollars					Grant Dollars				
	U.S.	U.S. % Change	Connecticut	Connecticut % Change	CT % of All Contractors	U.S.	U.S. % Change	Connecticut	Connecticut % Change	CT % of All Grants
2004	\$228,618		\$9,042		4.0%	\$6,851		\$64		0.9%
2005	\$271,557	18.8%	\$9,250	2.3%	3.4%	\$13,357	95.0%	\$81	25.2%	0.6%
2006	\$300,749	10.7%	\$7,874	-14.9%	2.6%	\$16,601	24.3%	\$60	-25.1%	0.4%
2007	\$331,986	10.4%	\$8,778	11.5%	2.6%	\$6,659	-59.9%	\$48	-19.6%	0.7%
2008	\$393,661	18.6%	\$12,168	38.6%	3.1%	\$8,999	35.1%	\$157	223.0%	1.7%
2009	\$366,271	-7.0%	\$12,244	0.6%	3.3%	\$15,532	72.6%	\$86	-45.3%	0.6%
2010	\$358,575	-2.1%	\$11,304	-7.7%	3.2%	\$12,317	-20.7%	\$75	-11.9%	0.6%
2011	\$368,430	2.7%	\$12,849	13.7%	3.5%	\$12,214	-0.8%	\$102	35.4%	0.8%
2012	\$355,239	-3.6%	\$12,879	0.2%	3.6%	\$11,922	-2.4%	\$210	105.5%	1.8%
2013	\$302,520	-14.8%	\$10,132	-21.3%	3.3%	\$14,930	25.2%	\$191	-8.9%	1.3%

Connecticut DoD and DHS Contracts and Contractors  
Contract awards are down 21 percent since their 2012 peak



Connecticut DoD and DHS Grants and Grantees  
Grant awards are down 9 percent since their 2012 peak



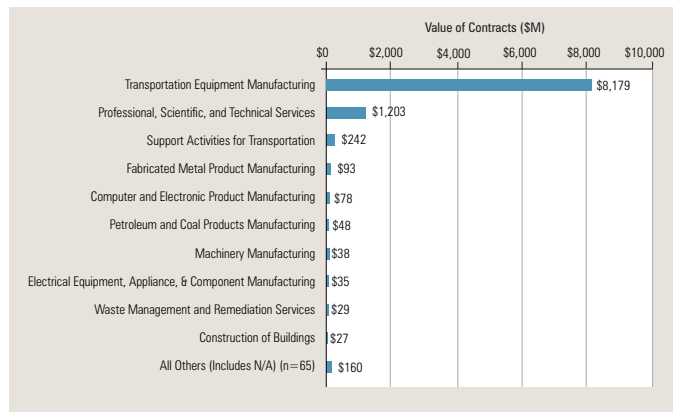
Economic Contributions from Defense Contract Work Performed in Connecticut, FFY2013

	Direct Contribution of Work Performed in Connecticut	Indirect + Induced Contribution from Work Performed in Connecticut*	Indirect + Induced Contribution from Work Performed in New England*	Total Contribution
<b>Output</b>	\$10.2 billion	\$7.3 billion	\$1.3 billion	\$18.8 billion
<b>Employment</b>	32,075	41,348	5,464	78,887

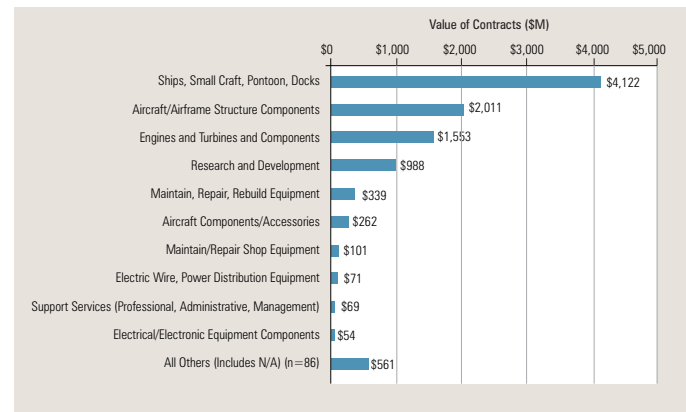
\*These indirect and induced contributions to Connecticut result from the purchase of products and services used in defense work performed in other states.  
Sources: USASpending.gov; data extracts as of November 16, 2014 for contracts and January 2, 2015 for grants; MIG, Inc., IMPLAN System (2013 data).

## Connecticut Summary of DoD and DHS Contracts

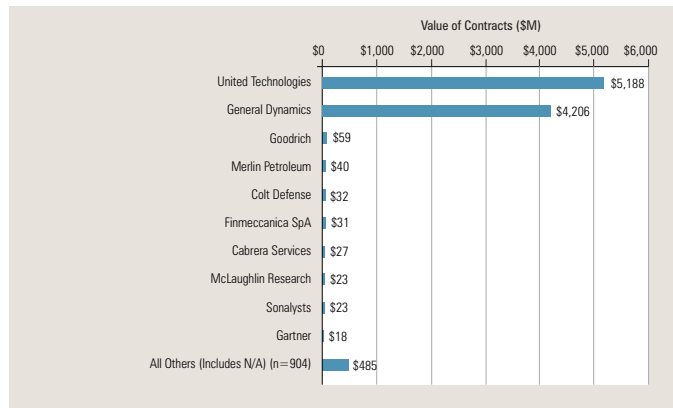
**Top Defense Industry Sectors in Connecticut, by Dollar Value, FFY2013**  
*Connecticut's contract awards are heavily concentrated in the transportation equipment manufacturing sector*



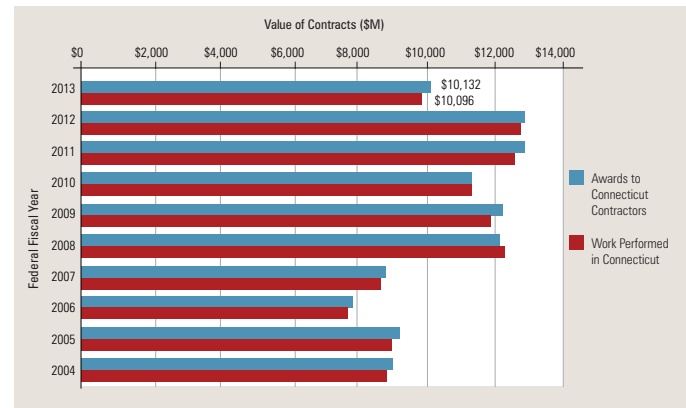
**Top Defense Products and Services in Connecticut, by Dollar Value, FFY2013**  
*Nuclear submarines, helicopters, jet engines and related maintenance, research and development are Connecticut's top products and services*



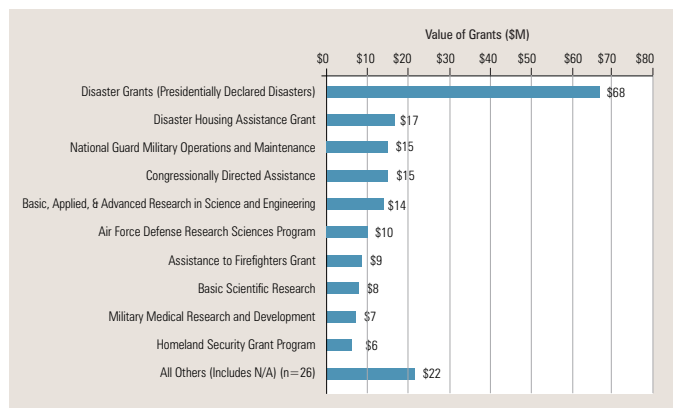
**Top Defense Contractors in Connecticut, by Dollar Value, FFY2013**  
*United Technologies and General Dynamics received 93 percent of Connecticut's total contract awards*



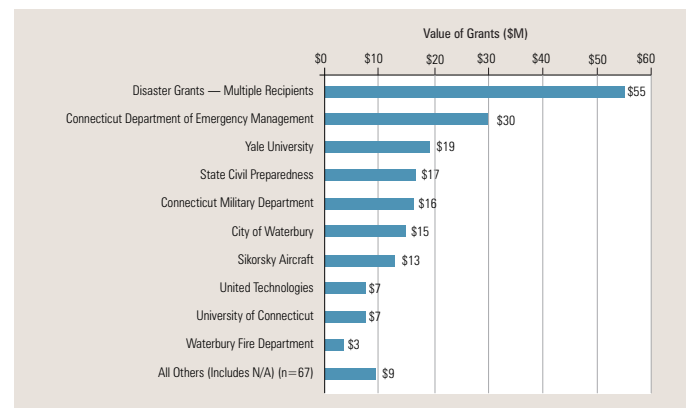
**Work Contracted and Work Performed in Connecticut, FFY2004–2013**  
*Connecticut contractors are typically awarded slightly more than the amount of defense work actually performed in Connecticut*

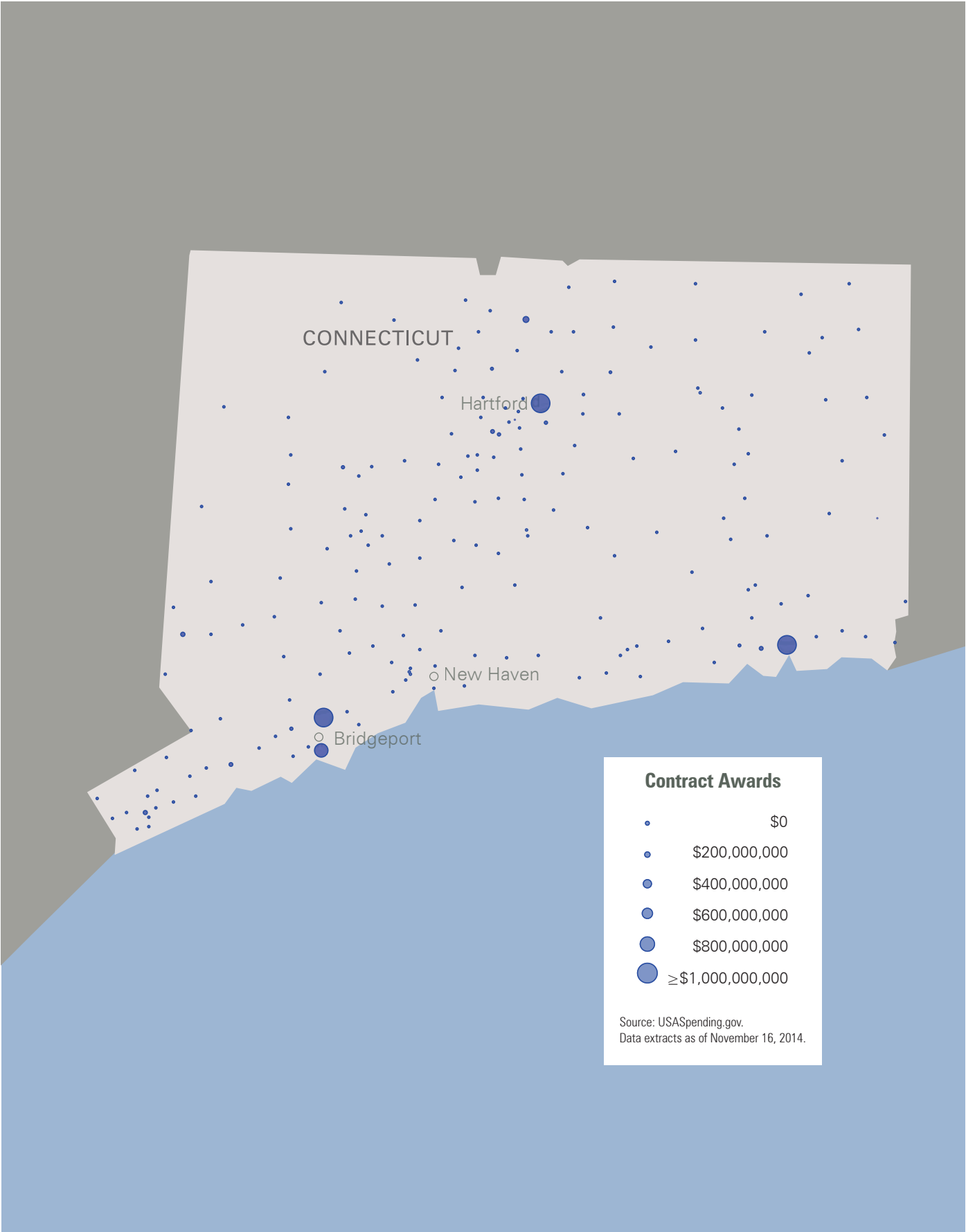


**Top Grant Programs in Connecticut, by Dollar Value, FFY2013**  
*In FFY2013, Connecticut received \$75M in DoD/DHS grants for defense, security and research programs*



**Top Grant Recipients in Connecticut, by Dollar Value, FFY2013**  
*Connecticut universities and private contractors received \$46M in DoD/DHS grants in FFY2013*





# Maine Summary



Maine defense contracting is anchored by shipbuilder General Dynamics Bath Iron Works. Bath Iron Works laid its first hull in 1890 and has since built 245 military ships. Bath Iron Works is building two of the most advanced warships in the world, the Arleigh Burke Class AEGIS Destroyer and the Zumwalt-class destroyer. The Zumwalt generates sufficient power to allow for future deployment of directed energy beam weapons and the electromagnetic railgun that are under development by other New England defense contractors.

Maine is the third largest DoD/DHS contractor in New England and ranks 31<sup>st</sup> in the U.S. in contracts received. In 2013, there were 279 DoD and DHS contractors and 57 DoD and DHS grantees. Over the last ten years, Maine has received an average of 0.5 percent of defense grants and contracts nationwide. In total, the defense industry in Maine received \$1.8 billion in DoD and DHS grants and contracts in 2013, a 19.4 percent increase since 2004. Defense and Homeland Security grants and contracting are responsible for more than 22,000 jobs and a total payroll of \$1.3 billion across the state. The overall direct, indirect, and induced economic activity generated in Maine by contractors and grantees is \$3.8 billion.

Maine's defense contracting is concentrated in two industries, transportation equipment manufacturing (74.8 percent) and ambulatory health care services (16.4 percent). Contract awards are also concentrated in two product and service codes: ships, small craft, pontoons and docks (69.0 percent); and medical services (16.4 percent).

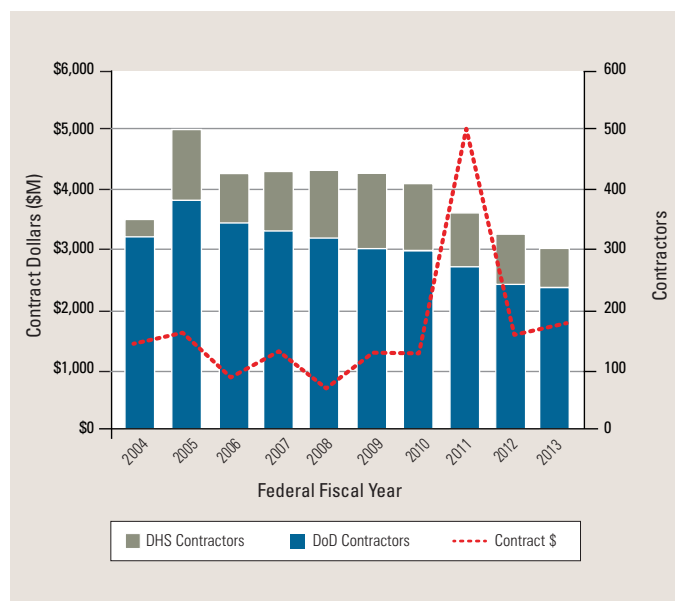
Contracting activity in Maine is concentrated: two contractors received 92.6 percent of all Maine awards in FFY2013. General Dynamics Bath Iron Works received 76.2 percent and Martin's Point Health Care 16.4 percent. The Navy awarded General Dynamics Bath Iron Works a \$2.8 billion contract in FFY2013 for four Arleigh Burke Class AEGIS Destroyers, with an option for a fifth, and is currently constructing two Arleigh Burke Destroyers. Bath Iron Works also received funds for the three Zumwalt-class destroyers under construction (the first launched in FFY2014). Also in FFY2013, Martin's Point Health Care received contract awards for \$288 million to provide healthcare services for active-duty family members, and for military retirees and their families.

# DoD and DHS Contractors and Payments to Maine, FFY2004–2013 (\$M)

Federal Fiscal Year	Contract Dollars					Grant Dollars				
	U.S.	U.S. % Change	Maine	Maine % Change	Maine % of All Contractors	U.S.	U.S. % Change	Maine	Maine % Change	Maine % of All Grants
2004	\$228,618		\$1,447		0.6%	\$6,851		\$50		0.7%
2005	\$271,557	18.8%	\$1,602	10.7%	0.6%	\$13,357	95.0%	\$29	-42.2%	0.2%
2006	\$300,749	10.7%	\$916	-42.8%	0.3%	\$16,601	24.3%	\$36	24.8%	0.2%
2007	\$331,986	10.4%	\$1,328	45.0%	0.4%	\$6,659	-59.9%	\$54	50.4%	0.8%
2008	\$393,661	18.6%	\$708	-46.7%	0.2%	\$8,999	35.1%	\$94	74.3%	1.0%
2009	\$366,271	-7.0%	\$1,276	80.2%	0.3%	\$15,532	72.6%	\$144	52.9%	0.9%
2010	\$358,575	-2.1%	\$1,308	2.5%	0.4%	\$12,317	-20.7%	\$70	-51.3%	0.6%
2011	\$368,430	2.7%	\$5,011	283.2%	1.4%	\$12,214	-0.8%	\$64	-8.0%	0.5%
2012	\$355,239	-3.6%	\$1,556	-68.9%	0.4%	\$11,922	-2.4%	\$107	66.6%	0.9%
2013	\$302,520	-14.8%	\$1,758	12.9%	0.6%	\$14,930	25.2%	\$28	-73.5%	0.2%

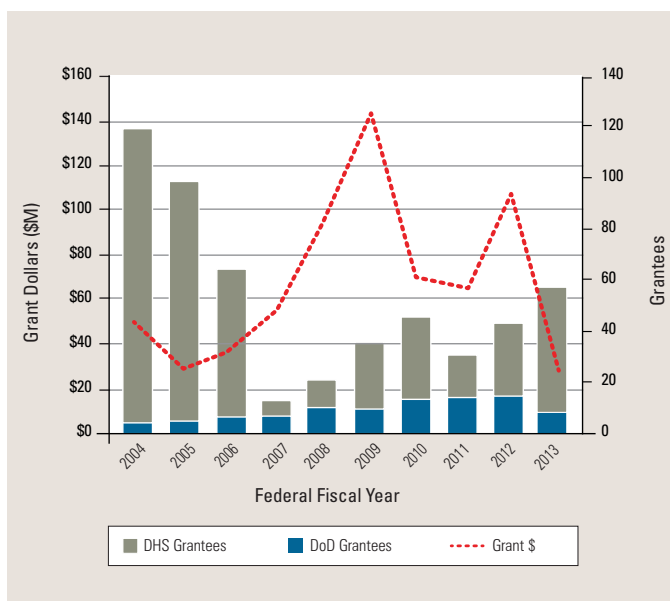
## Maine DoD and DHS Contracts and Contractors

Contract awards are down 65 percent since their 2011 peak



## Maine DoD and DHS Grants and Grantees

Grant awards are down 80 percent since their 2009 peak



## Economic Contributions from Defense Contract Work Performed in Maine, FFY2013

	Direct Contribution of Work Performed in Maine	Indirect + Induced Contribution from Work Performed in Maine*	Indirect + Induced Contribution from Work Performed Elsewhere in New England*	Total Contribution
<b>Output</b>	\$2.0 billion	\$1.3 billion	\$0.5 billion	\$3.8 billion
<b>Employment</b>	9,393	10,347	2,437	22,177

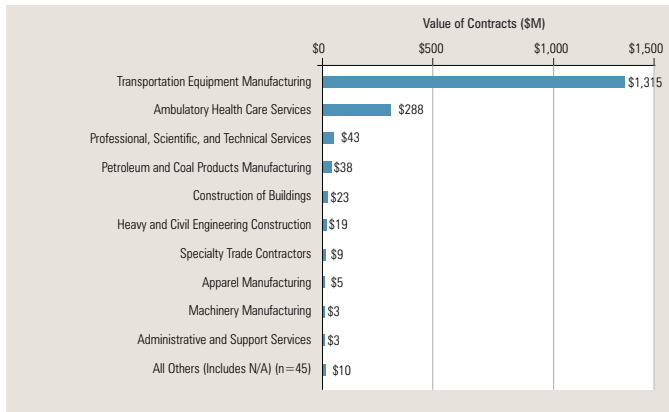
\*These indirect and induced contributions to Maine result from the purchase of products and services used in defense work performed in other states.

Sources: USASpending.gov; data extracts as of November 16, 2014 for contracts and January 2, 2015 for grants; MIG, Inc., IMPLAN System (2013 data).

## Maine Summary of DoD and DHS Contracts

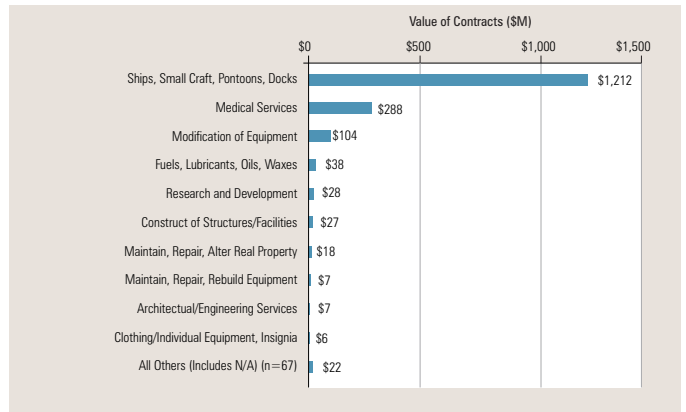
### Top Defense Industry Sectors in Maine, by Dollar Value, FFY2013

Maine's defense contracting is highly concentrated as nearly three-quarters of contract purchases go towards the transportation equipment manufacturing industry sector



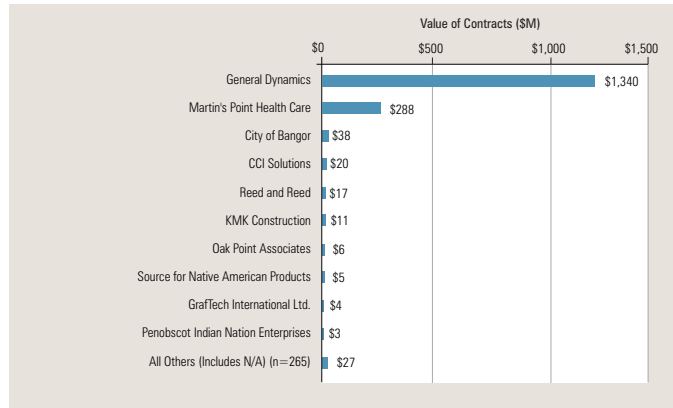
### Top Defense Products and Services in Maine, by Dollar Value, FFY2013

Maine's highest value defense product is Navy destroyers (69.0 percent)



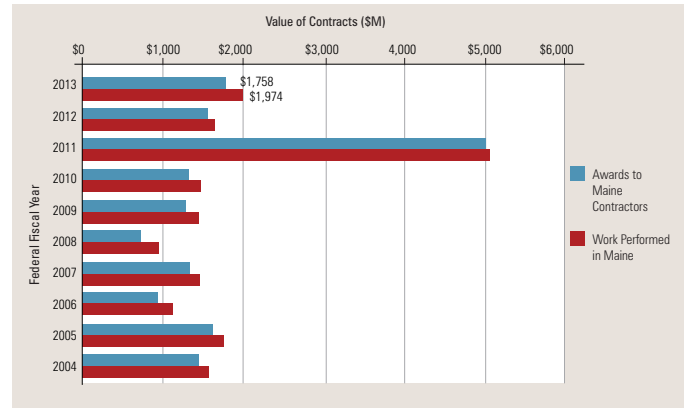
### Top Defense Contractors in Maine, by Dollar Value, FFY2013

General Dynamics Bath Iron Works is the primary defense contractor in Maine (76.2 percent)



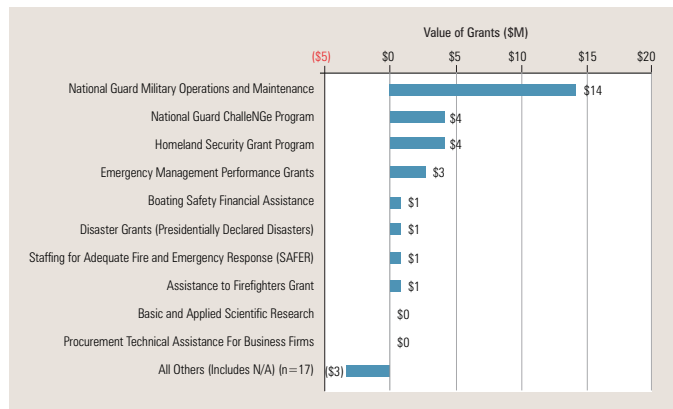
### Work Contracted and Work Performed in Maine, FFY2004–2013

The value of contracts performed in Maine is consistently greater than the amount of work contracted to Maine contractors



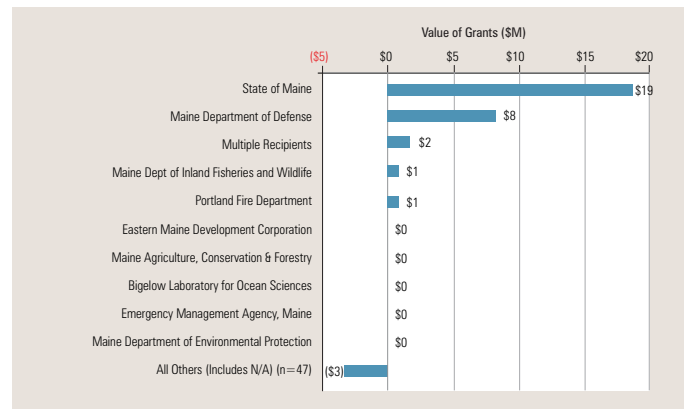
### Top Grant Programs in Maine, by Dollar Value, FFY2013

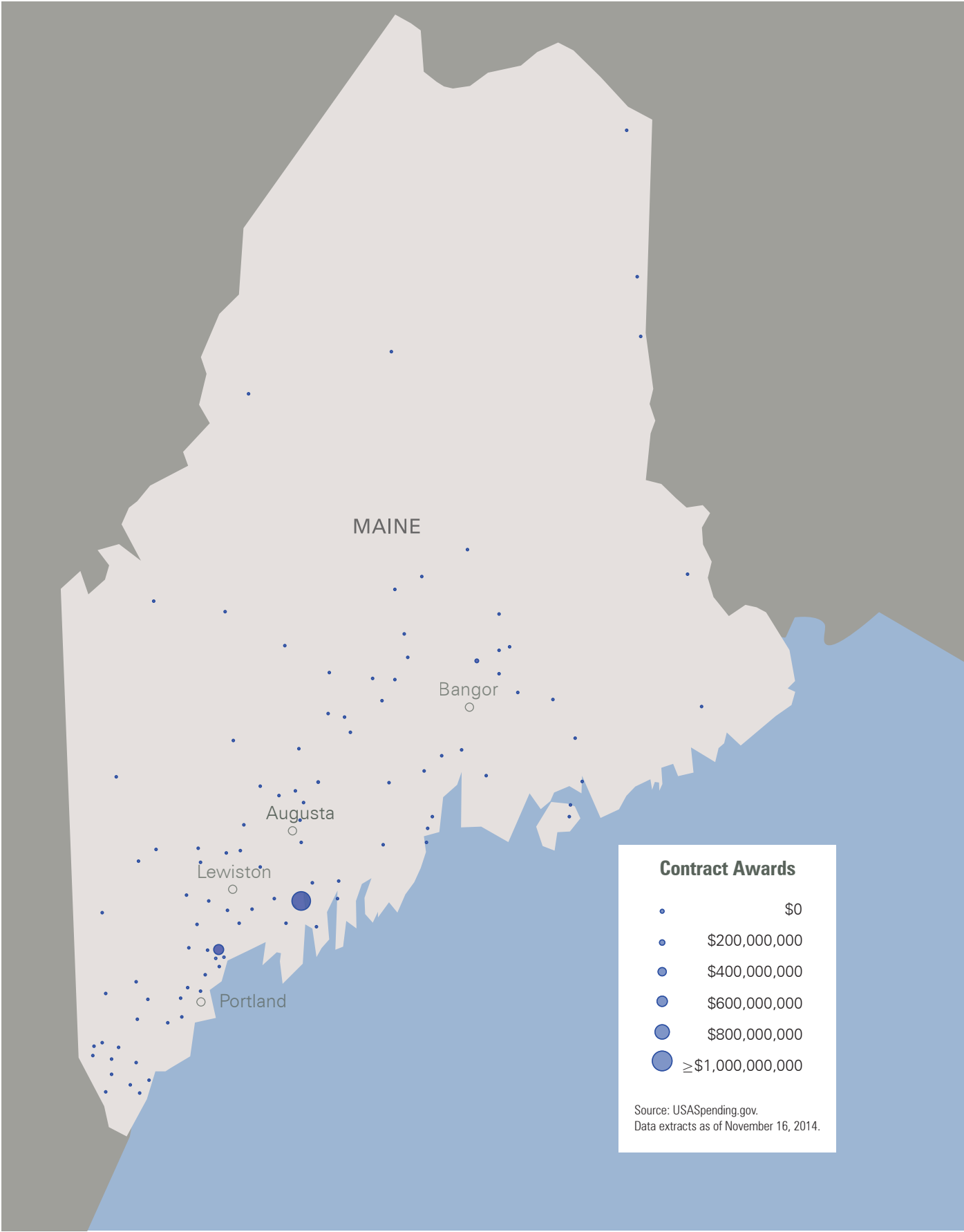
The top DoD/DHS grants were for National Guard programs (contract amendments, corrections or returned funds may result in negative grant and contract values)



### Top Grant Recipients in Maine, by Dollar Value, FFY2013

Contract amendments, corrections or returned funds may result in negative grant and contract values





# Massachusetts Summary



Massachusetts has been a defense industry leader since 1777, when George Washington selected Springfield as the site of the nation's first arsenal. Massachusetts Institute of Technology and its graduates ushered in the modern defense industry more than 100 years later, starting early technology companies that provided solutions to problems faced by the military in World Wars I and II. In the 21<sup>st</sup> century, Massachusetts defense companies and universities continue to invent and innovate, while its colleges and universities continue to attract top faculty and students to fuel future product lines and investment.

Massachusetts is the top defense contracting state in New England and ranks sixth in the U.S. in contracts received. Massachusetts received 3.7 percent of all DoD/DHS awards over the last ten years. In FFY2013, there were 2,012 DoD and DHS contractors and 206 DoD and DHS grantees located in Massachusetts. The Commonwealth received \$12.0 billion in DoD and DHS grants and contracts in 2013, a 45.4 percent increase since 2004. Defense and Homeland Security grants and contracting support more than 88,000 jobs and a total payroll of \$7.3 billion across the state. The overall direct, indirect, and induced economic activity

generated in Massachusetts by defense contractors and grantees is \$20.3 billion.

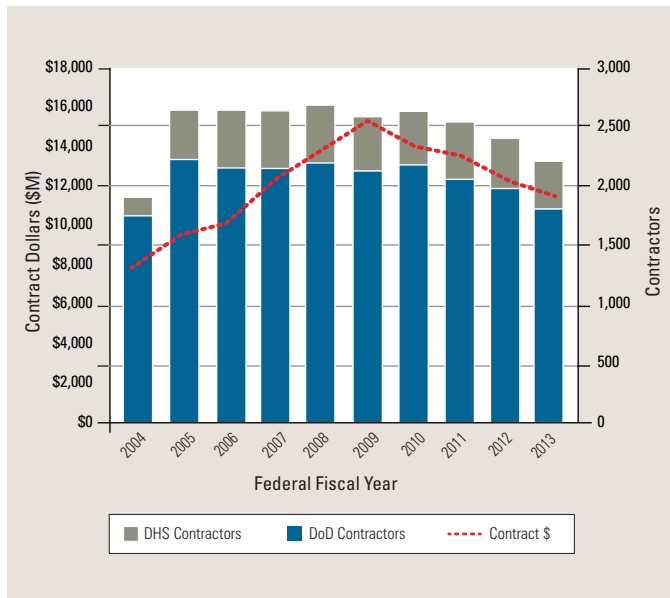
With several strong sectors, Massachusetts's defense industry is the most diversified in New England. Three major industry sectors were awarded 77.9 percent of all contracts in FFY2013. Professional, scientific, and technical services (31.1 percent) is the largest sector, and computer and electronic product manufacturing (24.4 percent) and transportation equipment manufacturing (22.4 percent) are almost tied as second largest. There are several major products and services in the state including concentrations in the following products and services categories: in research and development (24.0 percent of total contract values); support services (professional, administration, and management) (11.4 percent); engines, turbines, and components (11.1 percent); communication/detection/coherent radiation (10.4 percent); guided missiles (8.3 percent); and fire control equipment (7.4 percent).



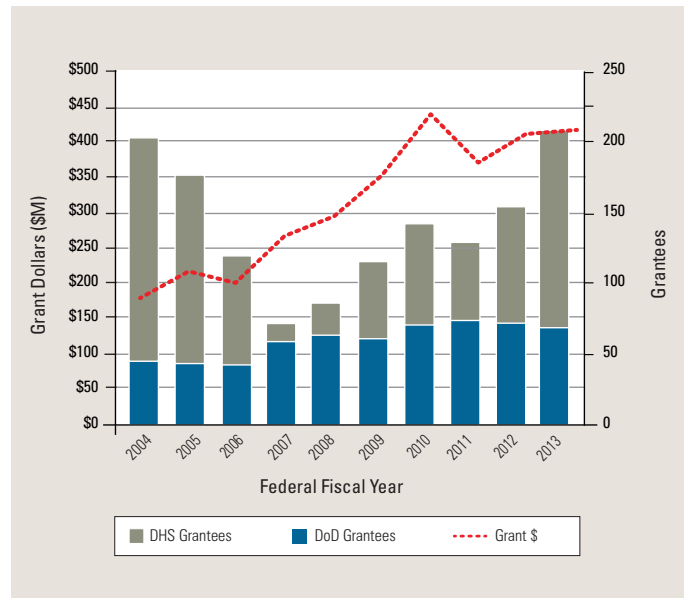
DoD and DHS Contractors and Payments to Massachusetts, FFY2004–2013 (\$M)

Federal Fiscal Year	Contract Dollars					Grant Dollars				
	U.S.	U.S. % Change	MA	MA % Change	MA % of All Contractors	U.S.	U.S. % Change	MA	MA % Change	MA % of All Grants
2004	\$228,618		\$8,047		3.5%	\$6,851		\$177		2.6%
2005	\$271,557	18.8%	\$9,628	19.6%	3.5%	\$13,357	95.0%	\$216	22.2%	1.6%
2006	\$300,749	10.7%	\$10,262	6.6%	3.4%	\$16,601	24.3%	\$199	-8.1%	1.2%
2007	\$331,986	10.4%	\$12,391	20.7%	3.7%	\$6,659	-59.9%	\$264	32.8%	4.0%
2008	\$393,661	18.6%	\$13,981	12.8%	3.6%	\$8,999	35.1%	\$295	11.9%	3.3%
2009	\$366,271	-7.0%	\$15,544	11.2%	4.2%	\$15,532	72.6%	\$352	19.3%	2.3%
2010	\$358,575	-2.1%	\$14,161	-8.9%	3.9%	\$12,317	-20.7%	\$439	24.7%	3.6%
2011	\$368,430	2.7%	\$13,671	-3.5%	3.7%	\$12,214	-0.8%	\$372	-15.3%	3.0%
2012	\$355,239	-3.6%	\$12,460	-8.9%	3.5%	\$11,922	-2.4%	\$412	10.6%	3.5%
2013	\$302,520	-14.8%	\$11,544	-7.4%	3.8%	\$14,930	25.2%	\$416	1.0%	2.8%

Massachusetts DoD and DHS Contracts and Contractors  
Contract awards are down 26 percent since their 2009 peak



Massachusetts DoD and DHS Grants and Grantees  
Grant awards are down 5 percent since their 2010 peak



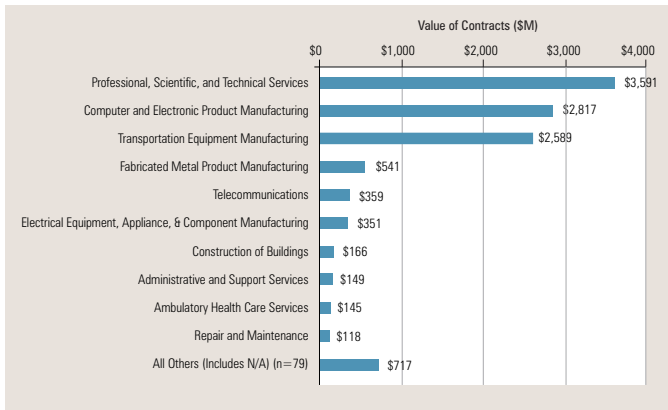
Economic Contributions from Defense Contract Work Performed in Massachusetts, FFY2013

	Direct Contribution of Work Performed in Massachusetts	Indirect + Induced Contribution from Work Performed in Massachusetts*	Indirect + Induced Contribution from Work Performed Elsewhere in New England*	Total Contribution
<b>Output</b>	\$11.0 billion	\$7.9 billion	\$1.4 billion	\$20.3 billion
<b>Employment</b>	36,254	46,496	5,705	88,455

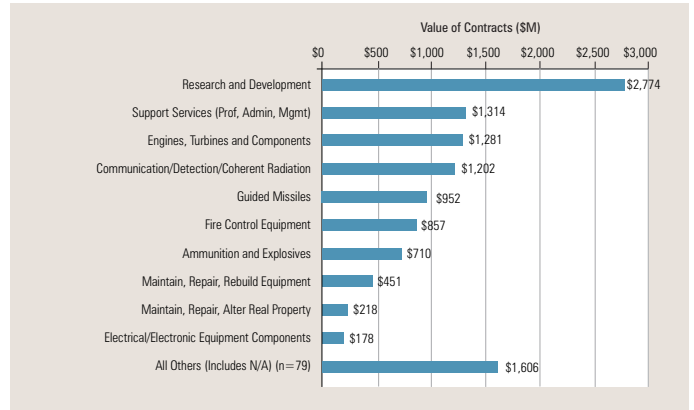
\*These indirect and induced contributions to Massachusetts result from the purchase of products and services used in defense work performed in other states.  
Sources: USASpending.gov; data extracts as of November 16, 2014 for contracts and January 2, 2015 for grants; MIG, Inc., IMPLAN System (2013 data).

## Massachusetts Summary of DoD and DHS Contracts

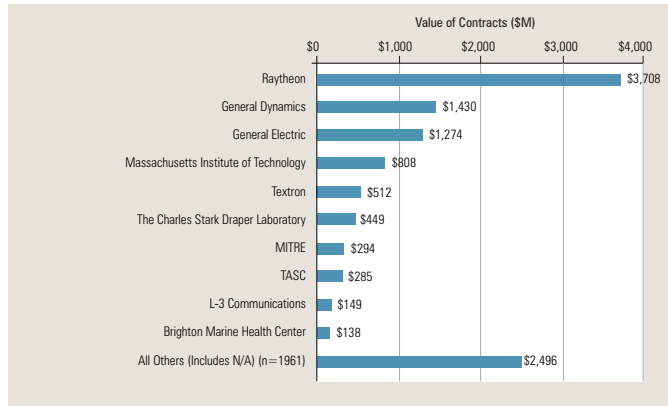
**Top Defense Industry Sectors in Massachusetts, by Dollar Value, FFY2013**  
*Three-quarters of federal defense spending in Massachusetts goes to three sectors*



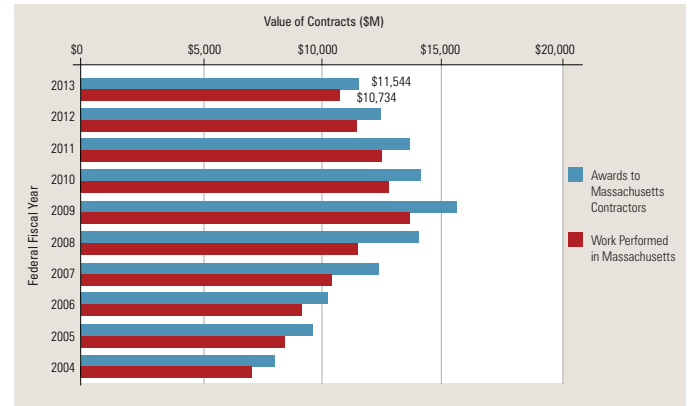
**Top Defense Products and Services in Massachusetts, by Dollar Value, FFY2013**  
*Research and development services is the dominant product in the state but there is a diverse mix overall*



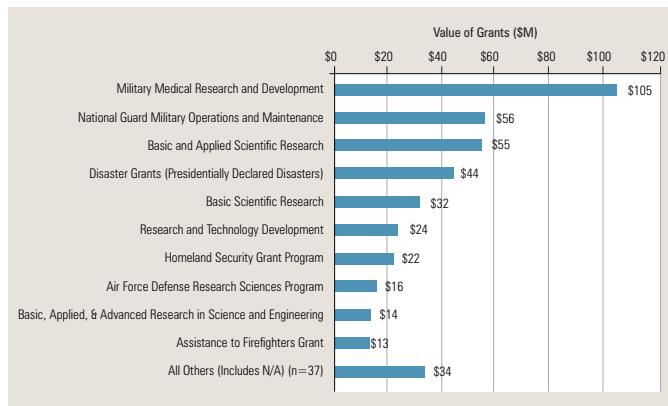
**Top Defense Contractors in Massachusetts, by Dollar Value, FFY2013**  
*Raytheon received one-third of all contract awards but an additional 66 contractors received \$10 million or more*



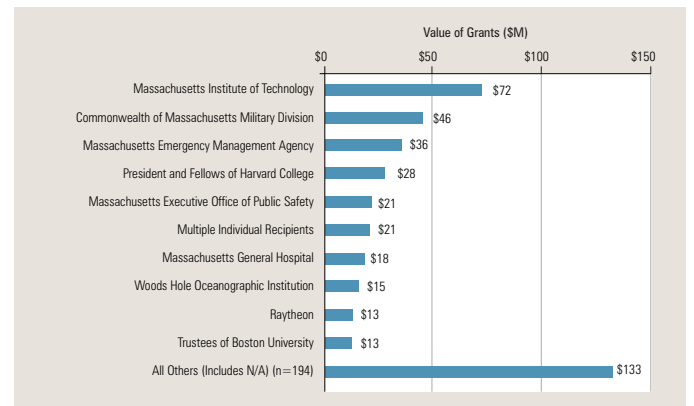
**Work Contracted and Work Performed in Massachusetts, FFY2004–2013**  
*The value of contracts to Massachusetts contractors average 13 percent more than the value of work performed in Massachusetts*

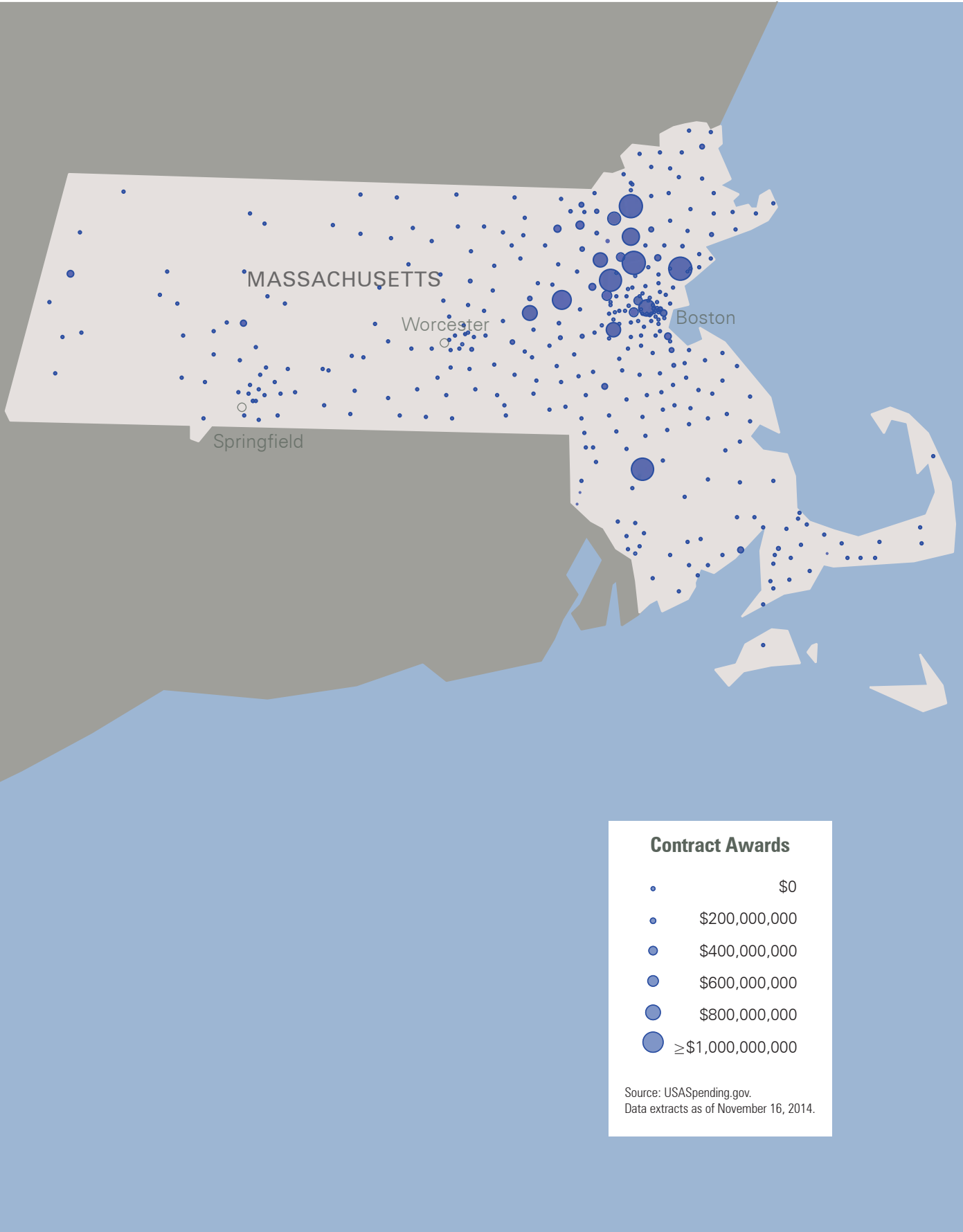


**Top Grant Programs in Massachusetts, by Dollar Value, FFY2013**  
*Massachusetts received more than \$330 million in defense, security and research grants*



**Top Grant Recipients in Massachusetts, by Dollar Value, FFY2013**  
*Massachusetts colleges and universities received \$134 million in DoD/DHS grants*





# New Hampshire Summary



As in Maine and Connecticut, New Hampshire's defense industry has been anchored in shipbuilding. Established by the federal government in 1800, the Portsmouth Naval Shipyard built, repaired, and overhauled ships until 1971 when it took on new mission to overhaul, repair, and refuel nuclear-powered submarines. BAE Electronics and Systems Integration is now New Hampshire's dominant defense contractor.

New Hampshire is New England's fourth largest defense contractor by dollars awarded and ranks thirty-fourth in the U.S. in contracts received. In 2013, there were 470 DoD and DHS contractors and 43 DoD and DHS grantees. These contractors have received an average of 0.4 percent of all DoD/DHS contracts over the last ten years. In FFY2013, New Hampshire's 513 contractors received \$1.6 billion in DoD/DHS grants and contracts, a 102 percent increase since 2004. Defense and Homeland Security grants and contracting are responsible for more than 16,500 jobs and a total payroll of \$1.1 billion across the state. The overall direct, indirect, and induced economic activity generated in New Hampshire by contractors and grantees is \$3.1 billion.

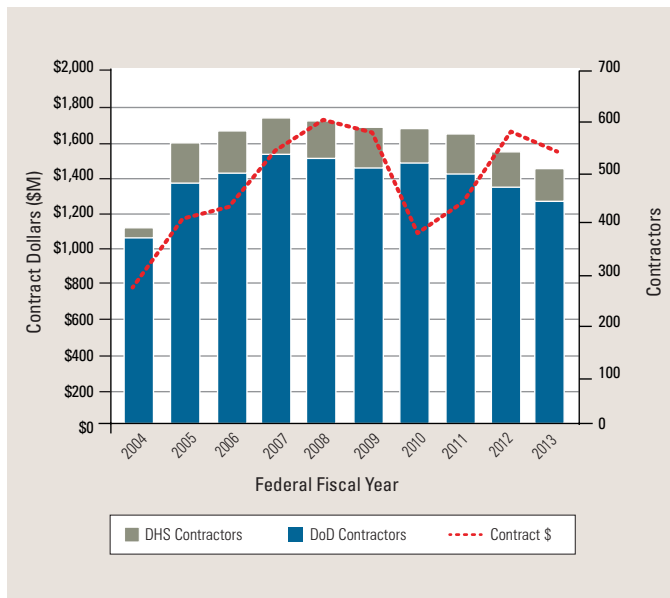
New Hampshire's defense contracting is concentrated in three industries: electronic product manufacturing (34.9 percent); professional, scientific, and technical services (27.4 percent); and transportation equipment manufacturing (17.5 percent). Contract awards are concentrated in three major product and service categories, communication/detection/coherent radiation (36.4 percent); automated data processing equipment/software/supplies, and equipment (11.7 percent); and research and development (10.7 percent). Contracting activity in the state is fairly concentrated with three contractors receiving 81.7 percent of all New Hampshire awards in FFY2013. BAE Systems received 59.8 percent, Red River Computer 12.4 percent, and L-3 Communications 9.5 percent.

All three companies provided technology-based manufactured products. BAE received contracts of more than \$400 million for electronic countermeasures systems and components; Red River Computer received \$175 million to supply computers, software, and supplies; and L-3 Communications received almost \$100 million for night-vision equipment.

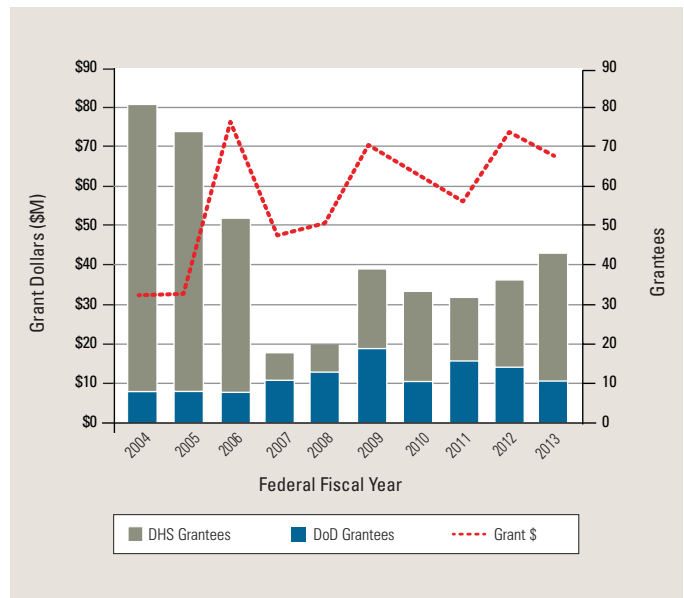
DoD and DHS Contractors and Payments to New Hampshire, FFY2004–2013 (\$M)

Federal Fiscal Year	Contract Dollars					Grant Dollars				
	U.S.	U.S. % Change	NH	NH % Change	NH % of All Contractors	U.S.	U.S. % Change	NH	NH % Change	NH % of All Grants
2004	\$228,618		\$772		0.3%	\$6,851		\$32		0.5%
2005	\$271,557	18.8%	\$1,161	50.3%	0.4%	\$13,357	95.0%	\$33	1.5%	0.2%
2006	\$300,749	10.7%	\$1,248	7.5%	0.4%	\$16,601	24.3%	\$77	133.8%	0.5%
2007	\$331,986	10.4%	\$1,552	24.4%	0.5%	\$6,659	-59.9%	\$47	-38.2%	0.7%
2008	\$393,661	18.6%	\$1,725	11.1%	0.4%	\$8,999	35.1%	\$51	6.9%	0.6%
2009	\$366,271	-7.0%	\$1,664	-3.5%	0.5%	\$15,532	72.6%	\$71	39.5%	0.5%
2010	\$358,575	-2.1%	\$1,101	-33.8%	0.3%	\$12,317	-20.7%	\$62	-12.1%	0.5%
2011	\$368,430	2.7%	\$1,260	14.5%	0.3%	\$12,214	-0.8%	\$57	-8.9%	0.5%
2012	\$355,239	-3.6%	\$1,667	32.3%	0.5%	\$11,922	-2.4%	\$73	29.8%	0.6%
2013	\$302,520	-14.8%	\$1,557	-6.6%	0.5%	\$14,930	25.2%	\$68	-7.8%	0.5%

New Hampshire DoD and DHS Contracts and Contractors  
Contract awards are down 10 percent since their 2008 peak



New Hampshire DoD and DHS Grants and Grantees  
Grant awards are down 12 percent since their 2006 peak



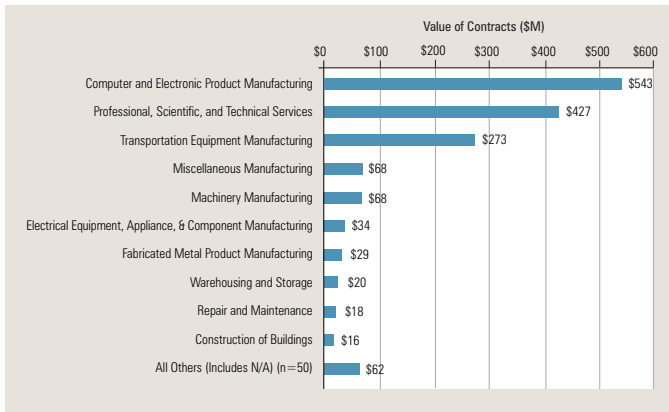
Economic Contributions from Defense Contract Work Performed in New Hampshire, FFY2013

	Direct Contribution of Work Performed in New Hampshire	Indirect + Induced Contribution from Work Performed in New Hampshire*	Indirect + Induced Contribution from Work Performed Elsewhere in New England*	Total Contribution
<b>Output</b>	\$1.5 billion	\$1.1 billion	\$0.4 billion	\$3.1 billion
<b>Employment</b>	6,639	8,017	1,879	16,535

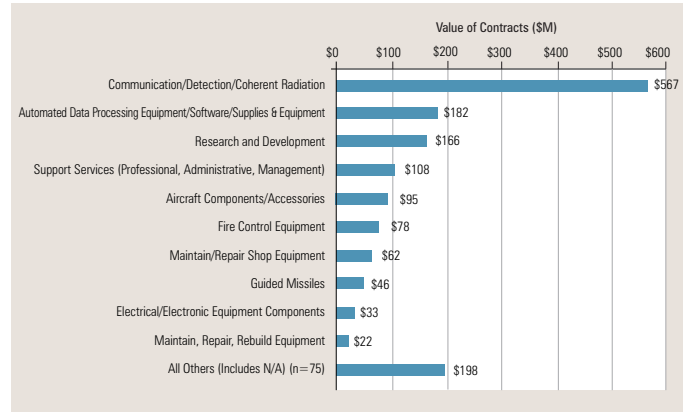
\*These indirect and induced contributions to New Hampshire result from the purchase of products and services used in defense work performed in other states.  
Sources: USASpending.gov; data extracts as of November 16, 2014 for contracts and January 2, 2015 for grants; MIG, Inc., IMPLAN System (2013 data).

## New Hampshire Summary of DoD and DHS Contracts

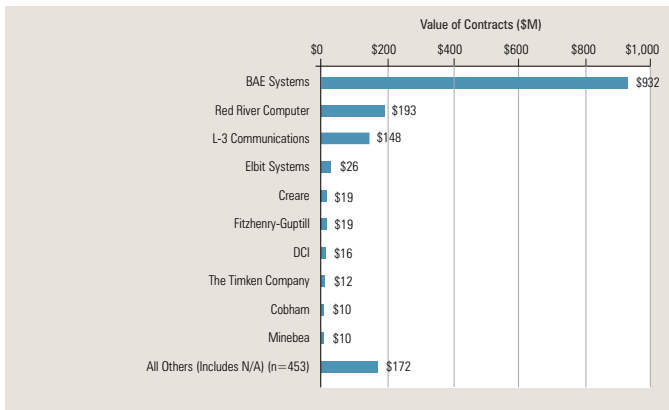
**Top Defense Industry Sectors in New Hampshire, by Dollar Value, FFY2013**  
*Three industry sectors in the state received four-fifths of all contracts*



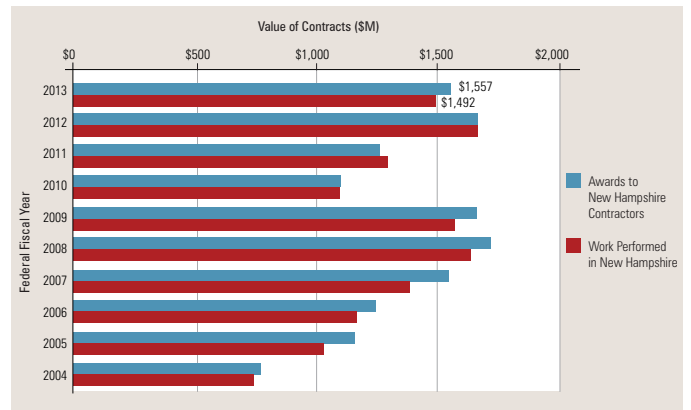
**Top Defense Products and Services in New Hampshire, by Dollar Value, FFY2013**  
*One-third of contract awards were for electronic countermeasures and night-vision equipment*



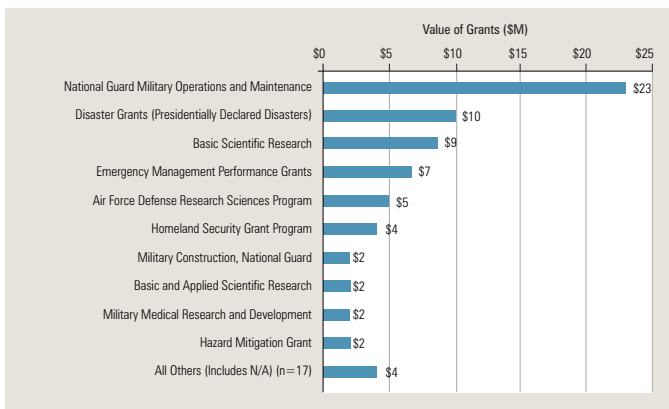
**Top Defense Contractors in New Hampshire, by Dollar Value, FFY2013**  
*BAE Electronics and Systems Integration received 60 percent of all contract awards*



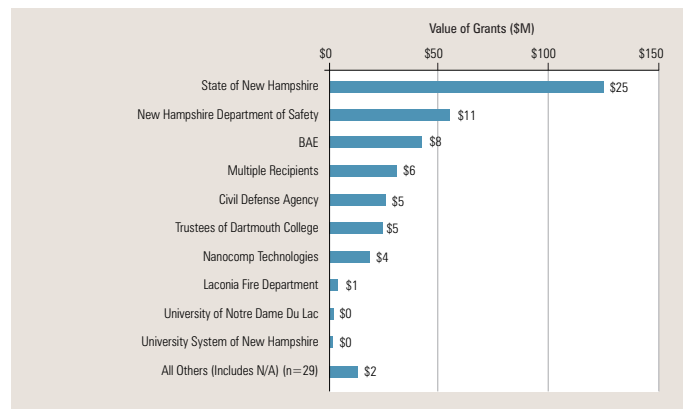
**Work Contracted and Work Performed in New Hampshire, FFY2004–2013**  
*Over the last ten years, New Hampshire received four percent more work than was performed here*

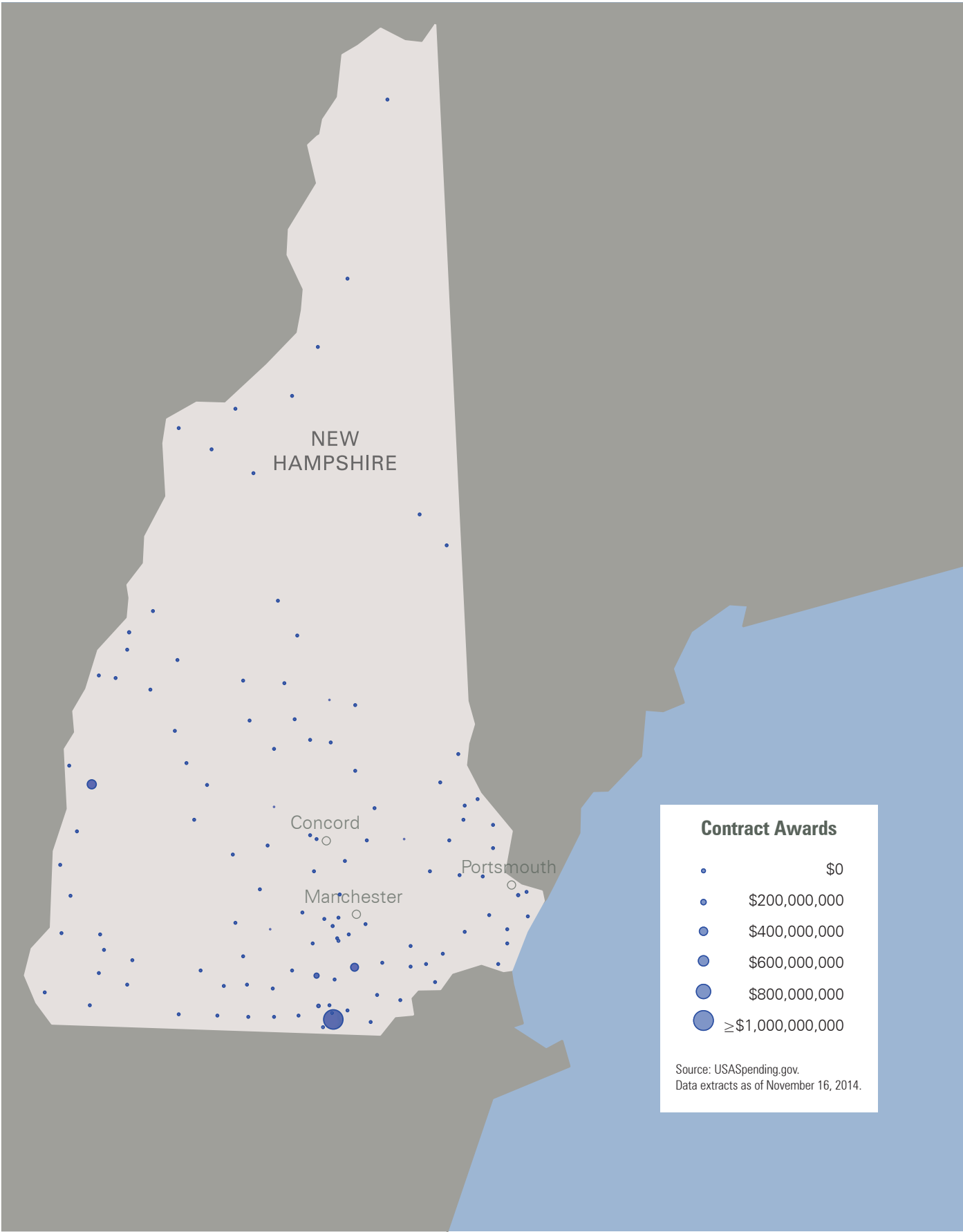


**Top Grant Programs in New Hampshire, by Dollar Value, FFY2013**  
*New Hampshire received \$46 million in defense, security and research grants*



**Top Grant Recipients in New Hampshire, by Dollar Value, FFY2013**  
*The public sector received 62 percent of all DoD/DHS grants awarded to New Hampshire*





# Rhode Island Summary



Newport, Rhode Island has been a center of research and development for undersea warfare since 1869, when the U.S. Navy established the U.S. Naval Torpedo Station on Goat Island in Newport Harbor. The Torpedo Station has since evolved through Navy reorganization and realignment to become the Naval Undersea Warfare Center (NUWC). NUWC performs research, development, and in-service engineering for torpedoes and other tactical submarine-launched weapons; anti-submarine warfare mobile targets; countermeasures; unmanned underwater vehicles; sonar and underwater fire control; and a wide range of submarine auxiliary components, such as periscopes and antennas.

Rhode Island is New England's smallest defense contractor by dollars awarded and ranks thirty-fourth in the U.S. in contracts received. In FFY2013, there were 308 DoD and DHS contractors and 47 DoD and DHS grantees located in Rhode Island. These contractors received an average of 0.1 percent of all DoD/DHS contracts over the last ten years. In FFY2013, its 355 contractors received \$519 million in DoD/DHS

grants and contracts, a 44 percent increase since 2004. Defense and Homeland Security grants and contracting are responsible for almost 8,700 jobs and a total payroll of \$540 million across the state. The overall direct, indirect and induced economic activity generated in Rhode Island by contractors and grantees is \$1.5 billion.

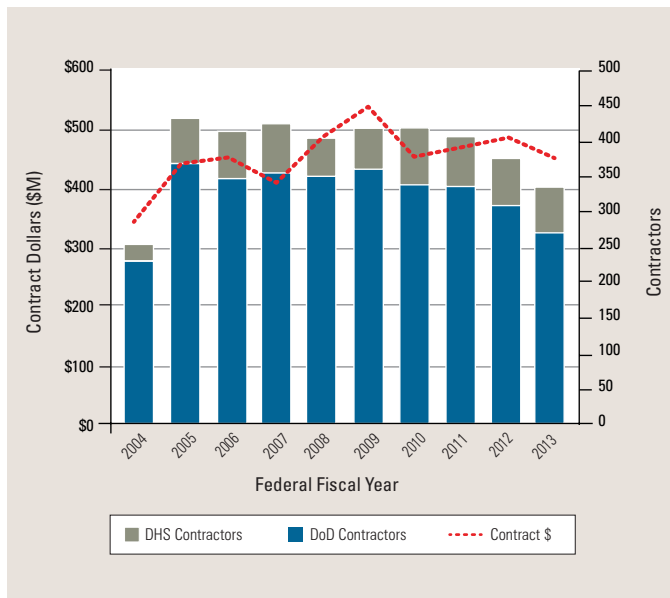
Rhode Island defense contracting is concentrated in three industries, computer and electronic product manufacturing (47.8 percent); professional, scientific, and technical services (17.3 percent); and transportation equipment manufacturing (12.8 percent). More than half of Rhode Island's contract awards are in two product and service categories, communications/detection/coherent radiation (39.0 percent) and support services (professional, administrative, management) (13.3 percent). Raytheon received almost two-thirds of all Rhode Island DoD/DHS contract awards for various sonar equipment and torpedoes for the U.S. Navy.



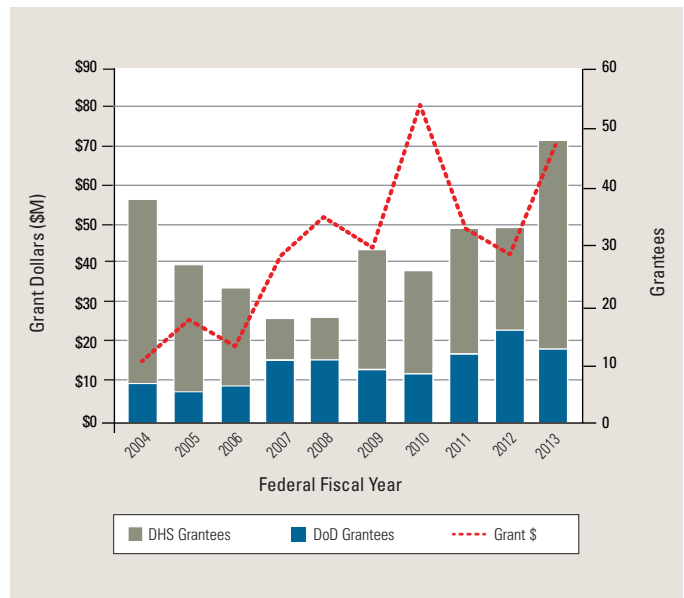
DoD and DHS Contractors and Payments to Rhode Island, FFY2004–2013 (\$M)

Federal Fiscal Year	Contract Dollars					Grant Dollars				
	U.S.	U.S. % Change	RI	RI % Change	RI % of All Contractors	U.S.	U.S. % Change	RI	RI % Change	RI % of All Grants
2004	\$228,618		\$345		0.2%	\$6,851		\$16		0.2%
2005	\$271,557	18.8%	\$443	28.3%	0.2%	\$13,357	95.0%	\$26	59.5%	0.2%
2006	\$300,749	10.7%	\$456	3.0%	0.2%	\$16,601	24.3%	\$18	-30.4%	0.1%
2007	\$331,986	10.4%	\$410	-10.1%	0.1%	\$6,659	-59.9%	\$42	131.9%	0.6%
2008	\$393,661	18.6%	\$484	18.2%	0.1%	\$8,999	35.1%	\$53	25.0%	0.6%
2009	\$366,271	-7.0%	\$540	11.4%	0.1%	\$15,532	72.6%	\$44	-15.5%	0.3%
2010	\$358,575	-2.1%	\$453	-16.0%	0.1%	\$12,317	-20.7%	\$81	81.8%	0.7%
2011	\$368,430	2.7%	\$469	3.5%	0.1%	\$12,214	-0.8%	\$49	-38.9%	0.4%
2012	\$355,239	-3.6%	\$488	4.0%	0.1%	\$11,922	-2.4%	\$43	-12.3%	0.4%
2013	\$302,520	-14.8%	\$449	-8.0%	0.1%	\$14,930	25.2%	\$70	61.2%	0.5%

Rhode Island DoD and DHS Contracts and Contractors  
Contract awards are down 17 percent since their 2009 peak



Rhode Island DoD and DHS Grants and Grantees  
Grant awards are down 14 percent since their 2010 peak



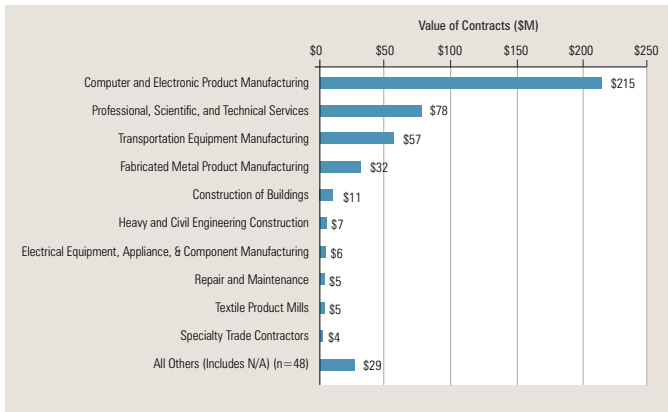
Economic Contributions from Defense Contract Work Performed in Rhode Island, FFY2013

	Direct Contribution of Work Performed in Rhode Island	Indirect + Induced Contribution from Work Performed in Rhode Island*	Indirect + Induced Contribution from Work Performed Elsewhere in New England*	Total Contribution
<b>Output</b>	\$0.7 billion	\$0.5 billion	\$0.2 billion	\$1.5 billion
<b>Employment</b>	3,888	3,932	836	8,656

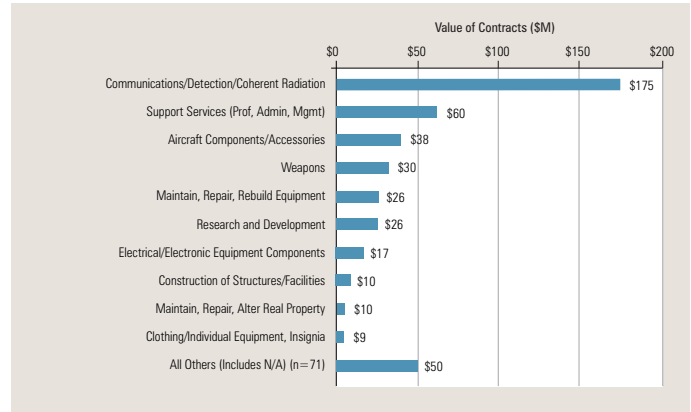
\*These indirect and induced contributions to Rhode Island result from the purchase of products and services used in defense work performed in other states.  
Sources: USASpending.gov; data extracts as of November 16, 2014 for contracts and January 2, 2015 for grants; MIG, Inc., IMPLAN System (2013 data).

## Rhode Island Summary of DoD and DHS Contracts

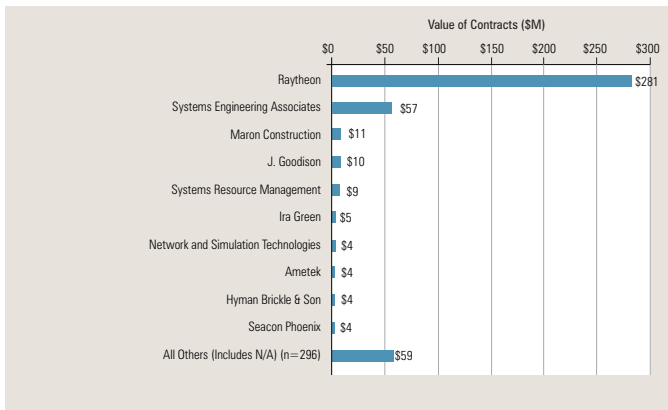
**Top Defense Industry Sectors in Rhode Island, by Dollar Value, FFY2013**  
*Three-quarters of Rhode Island's defense contracts are in three industry sectors*



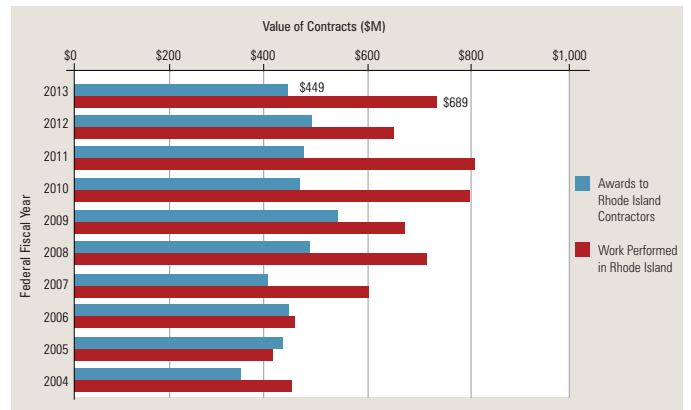
**Top Defense Products and Services in Rhode Island, by Dollar Value, FFY2013**  
*Thirty-nine percent of Rhode Island's contract awards went towards the purchase of sonar equipment*



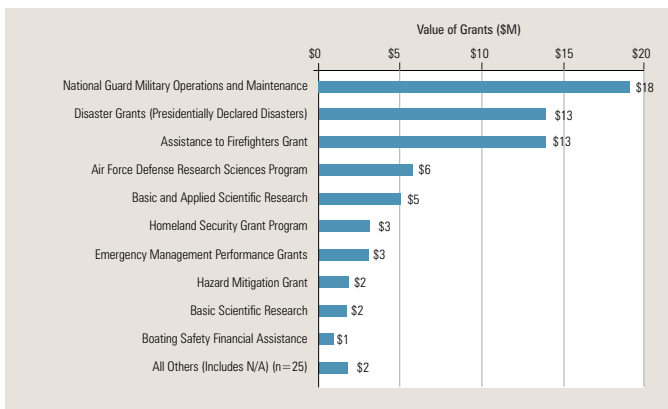
**Top Defense Contractors in Rhode Island, by Dollar Value, FFY2013**  
*Raytheon received almost two-thirds of all Rhode Island's defense contracts*



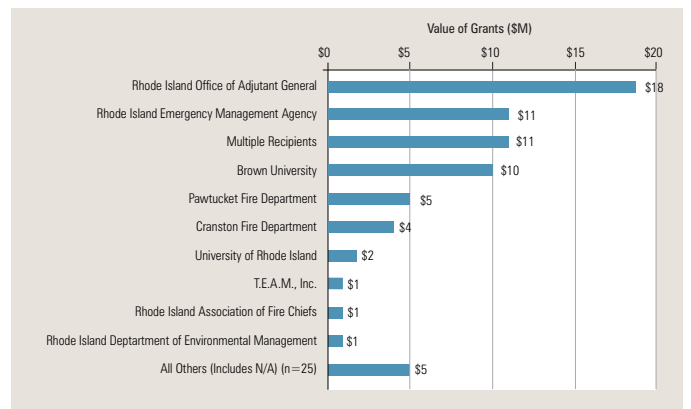
**Work Contracted and Work Performed in Rhode Island, FFY2004–2013**  
*Over the last ten years, 40 percent more defense contract work has been performed in Rhode Island than was awarded to businesses located there*

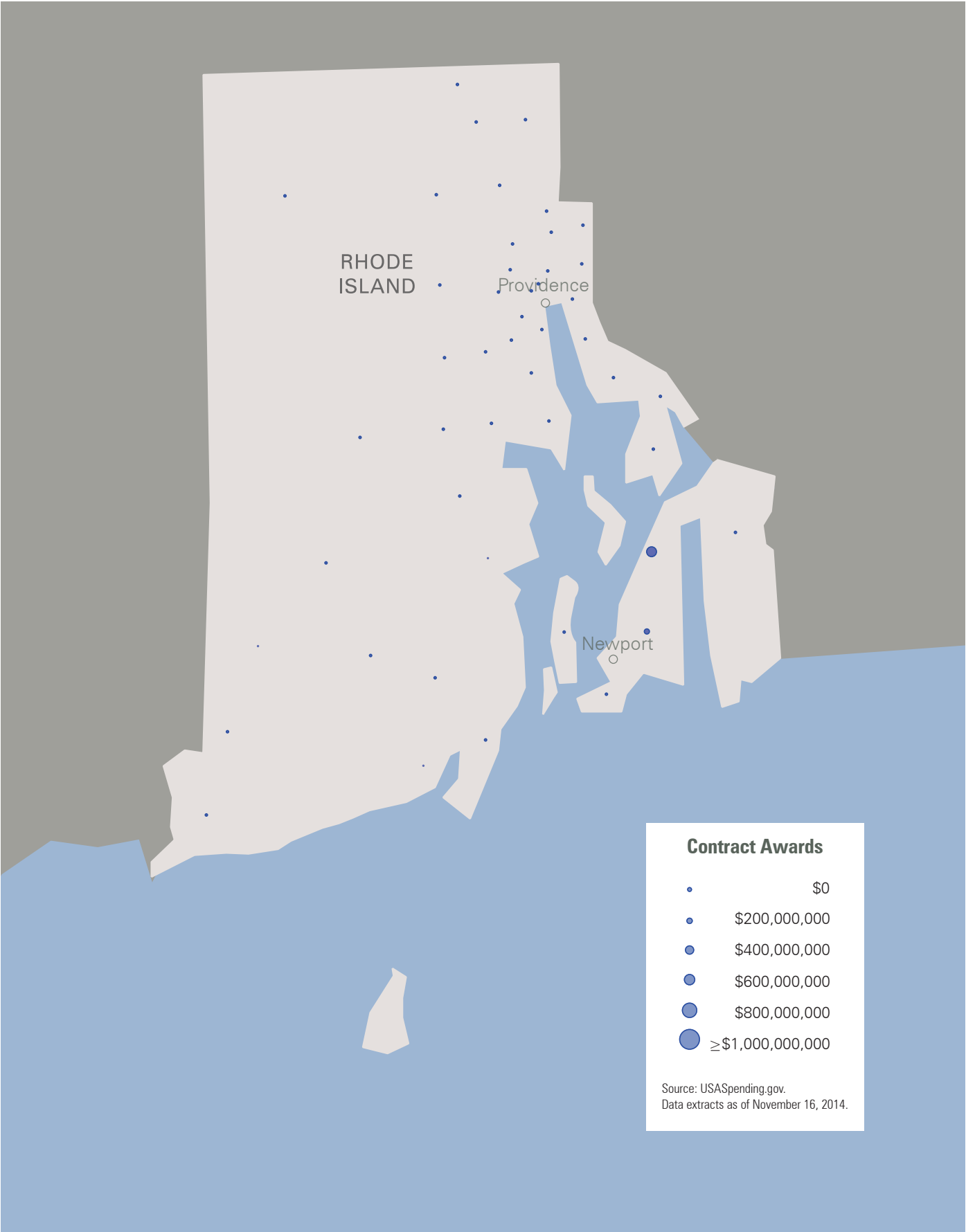


**Top Grant Programs in Rhode Island, by Dollar Value, FFY2013**  
*Rhode Island received more than \$36 million in DoD/DHS grants for defense, security, and research and development*



**Top Grant Recipients in Rhode Island, by Dollar Value, FFY2013**  
*The Rhode Island National Guard was the largest DoD/DHS grant recipient*





# Vermont Summary



Vermont's Robbins and Lawrence Armory in Windsor, now a museum, once produced thousands of rifles for the Union Army using a new manufacturing process where interchangeable parts were made by machines instead of by hand. Replacement parts no longer had to be custom-made and fitted, a manufacturing process adopted by other industries that led to the mass production of goods. Vermont is also home to Norwich University, the oldest private military college in the U.S. and the birthplace of ROTC, the Reserve Officers' Training Corps.

Vermont is New England's fifth largest defense contractor by value of contract awards and ranks forty-seventh in the U.S. In FFY2013, there were 233 DoD and DHS contractors and 33 DoD and DHS grantees located in Vermont. When compared to states with major defense industry involvement, Vermont's activity overall is not large: its contractors received an average of 0.2 percent of all DoD/DHS contracts over the last ten years. However, in FFY2013, its 266 contractors received \$628 million in DoD/DHS grants and contracts, a 38 percent increase since 2004. Defense and Homeland

Security grants and contracting are responsible for almost 3,500 jobs and a total payroll of \$205 million across the state. The overall direct, indirect, and induced economic activity generated in Vermont by contractors and grantees is \$569 million.

The majority of Vermont defense contracting (75.4 percent) awards went to the fabricated metal product manufacturing sector. Contracting awards by product and service category were more diverse. Three-quarters of Vermont's contracts in FFY2013 were in three categories: ammunition and explosives (39.3 percent); weapons (22.4 percent); and machine gun barrel kits (12.8 percent). General Dynamics dominated Vermont's defense contracting in FFY2013, when it received five-sixths (83.4 percent) of the state's awards for a total of \$416 million. Only fourteen Vermont contractors received more than \$1 million in FFY2013.

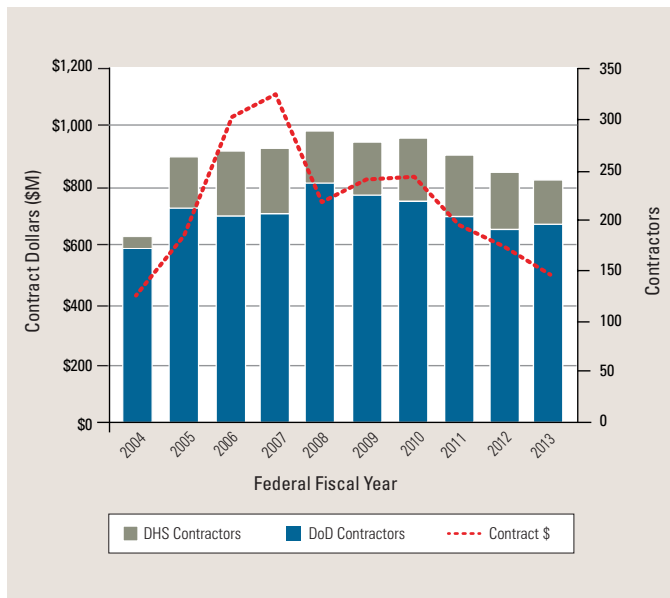
General Dynamics received large contracts for Hydra Rockets; machine gun barrel kits; AEGIS gun and guided-missile directors; director controllers; and associated material and engineering services.

DoD and DHS Contractors and Payments to Vermont, FFY2004–2013 (\$M)

Federal Fiscal Year	Contract Dollars					Grant Dollars				
	U.S.	U.S. % Change	VT	VT % Change	VT % of All Contractors	U.S.	U.S. % Change	VT	VT % Change	VT % of All Grants
2004	\$228,618		\$436		0.2%	\$6,851		\$20		0.3%
2005	\$271,557	18.8%	\$630	44.3%	0.2%	\$13,357	95.0%	\$17	-12.9%	0.1%
2006	\$300,749	10.7%	\$1,026	63.0%	0.3%	\$16,601	24.3%	\$22	27.5%	0.1%
2007	\$331,986	10.4%	\$1,085	5.7%	0.3%	\$6,659	-59.9%	\$25	14.6%	0.4%
2008	\$393,661	18.6%	\$735	-32.2%	0.2%	\$8,999	35.1%	\$35	39.6%	0.4%
2009	\$366,271	-7.0%	\$821	11.6%	0.2%	\$15,532	72.6%	\$36	1.9%	0.2%
2010	\$358,575	-2.1%	\$829	1.1%	0.2%	\$12,317	-20.7%	\$19	-48.6%	0.2%
2011	\$368,430	2.7%	\$625	-24.6%	0.2%	\$12,214	-0.8%	\$33	76.1%	0.3%
2012	\$355,239	-3.6%	\$573	-8.4%	0.2%	\$11,922	-2.4%	\$186	469.0%	1.6%
2013	\$302,520	-14.8%	\$499	-12.9%	0.2%	\$14,930	25.2%	\$129	-30.7%	0.9%

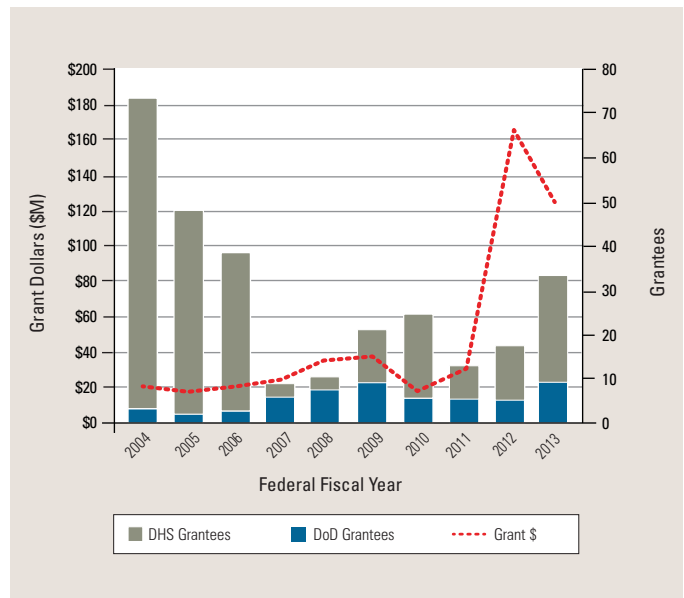
Vermont DoD and DHS Contracts and Contractors

Contract awards are down 54 percent since their 2007 peak



Vermont DoD and DHS Grants and Grantees

Grant awards climbed significantly in 2012 but declined 31 percent in 2013



Economic Contributions from Defense Contract Work Performed in Vermont, FFY2013

	Direct Contribution of Work Performed in Vermont	Indirect + Induced Contribution from Work Performed in Vermont*	Indirect + Induced Contribution from Work Performed Elsewhere in New England*	Total Contribution
<b>Output</b>	\$0.3 billion	\$0.2 billion	\$0.1 billion	\$0.6 billion
<b>Employment</b>	1,813	1,276	380	3,470

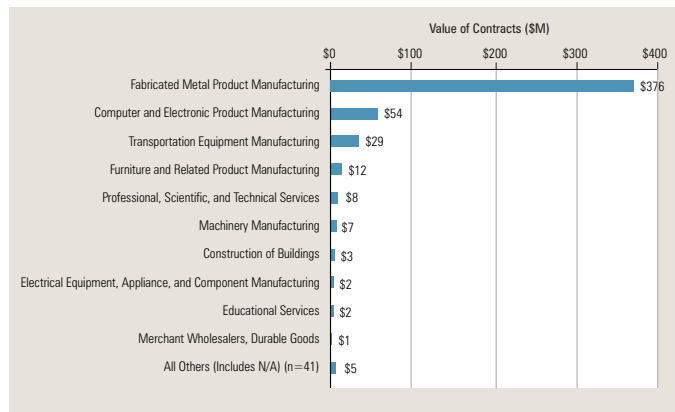
\*These indirect and induced contributions to Vermont result from the purchase of products and services used in defense work performed in other states.

Sources: USASpending.gov; data extracts as of November 16, 2014 for contracts and January 2, 2015 for grants; MIG, Inc., IMPLAN System (2013 data).

## Vermont Summary of DoD and DHS Contracts

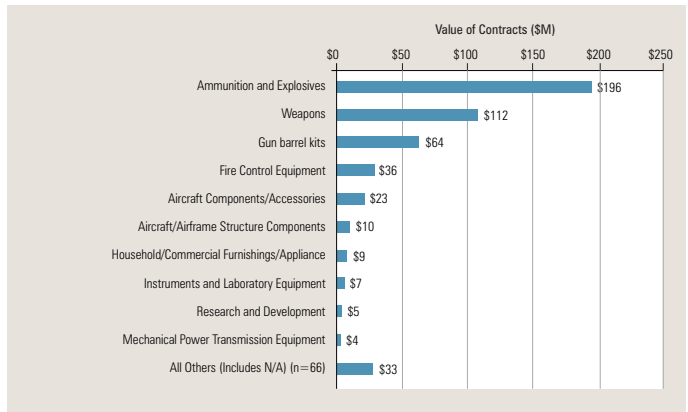
### Top Defense Industry Sectors in Vermont, by Dollar Value, FFY2013

*Seventy-five percent of awards were to the fabricated metal product manufacturing industry sector*



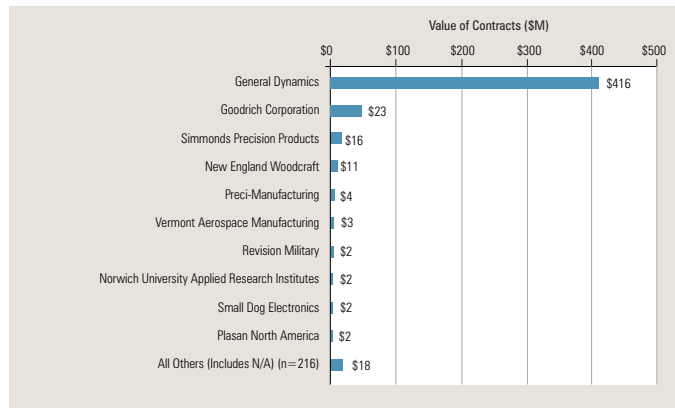
### Top Defense Products and Services in Vermont, by Dollar Value, FFY2013

*Vermont provides large amounts of small rockets to the military*



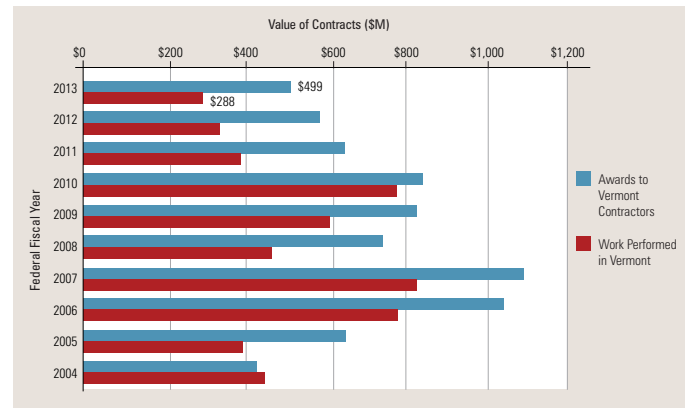
### Top Defense Contractors in Vermont, by Dollar Value, FFY2013

*General Dynamics received 83 percent of all DoD/DHS contracts*



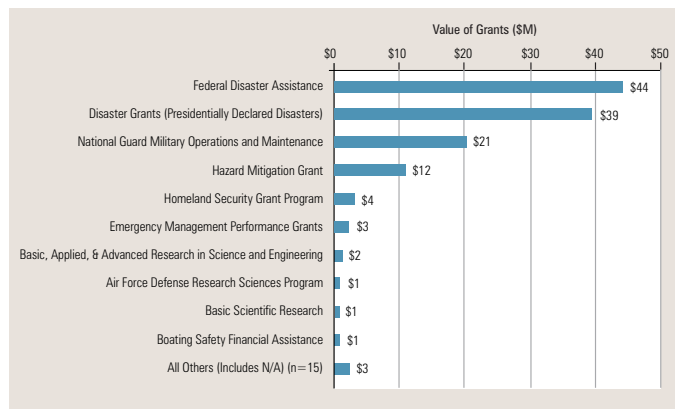
### Work Contracted and Work Performed in Vermont, FFY2004–2013

*Over the last ten years, 37 percent more work has been contracted in Vermont than was performed there*



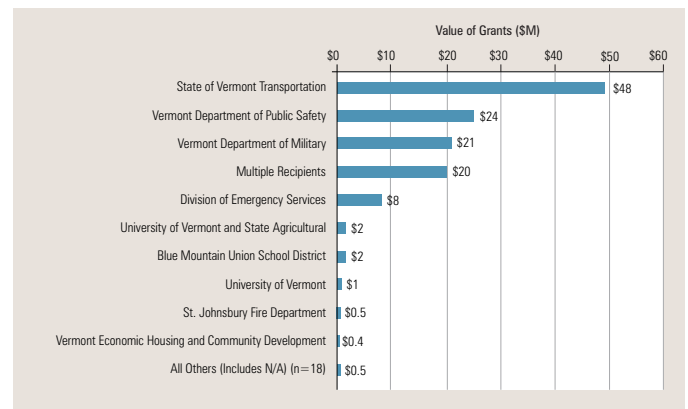
### Top Grant Programs in Vermont, by Dollar Value, FFY2013

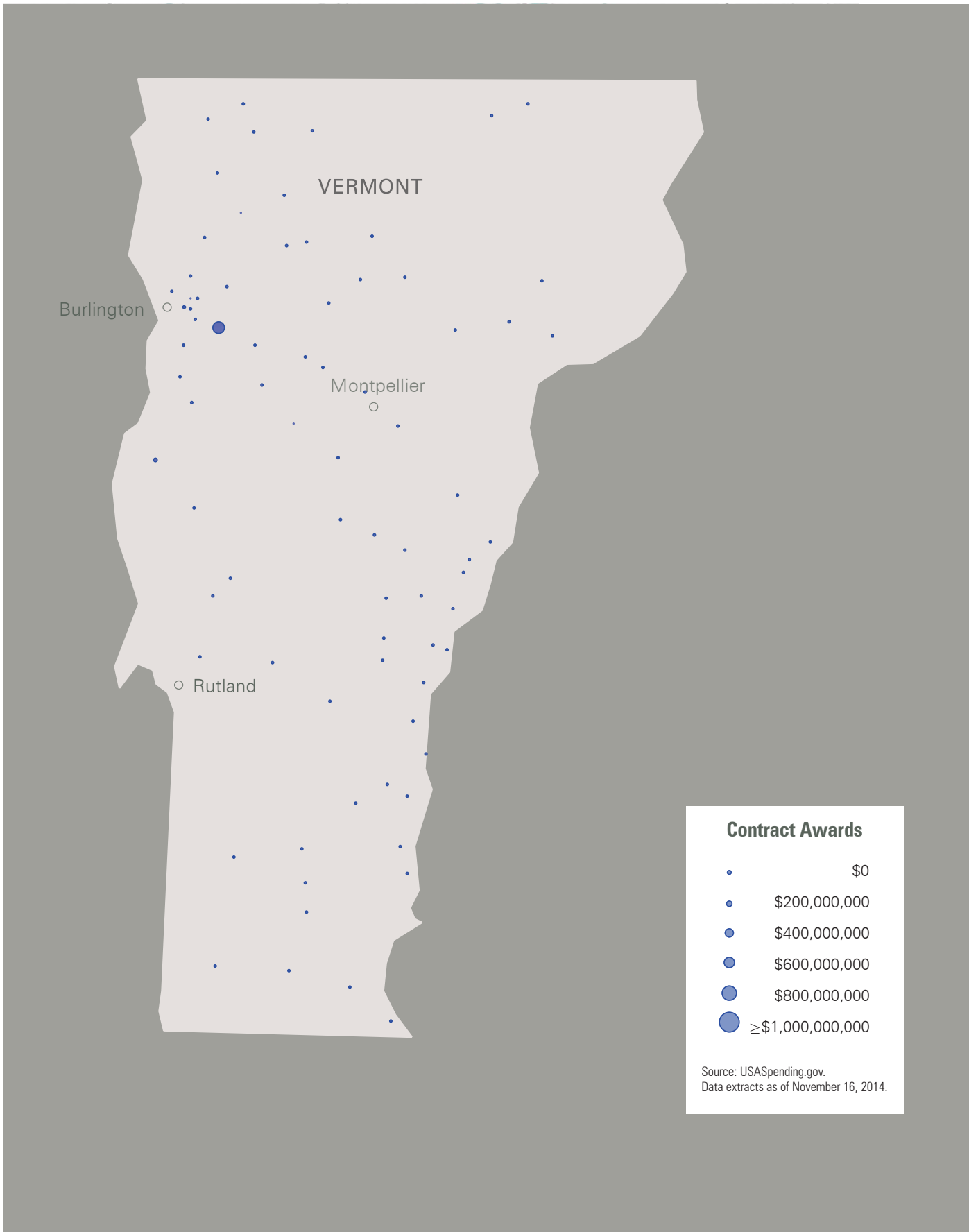
*Vermont received more than \$29 million in DoD/DHS grants for defense, security and research and development*



### Top Grant Recipients in Vermont, by Dollar Value, FFY2013

*The Vermont National Guard received \$21.1 million in DoD grants in FFY2013*







UMASS DONAHUE INSTITUTE

Economic & Public Policy Research