W. Frank Barton School of Business

Center for Economic Development and Business Research

Aerospace Industry Competitiveness, 2012

For The Governor's Council of Economic Advisors

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Contents

Introduction 6

Industry Definition 7

336411 Aircraft Manufacturing 7

336412 Aircraft Engine and Engine Parts Manufacturing 7

336413 Other Aircraft Parts and Auxiliary Equipment Manufacturing 7

336414 Guided Missile and Space Vehicle Manufacturing 7

336415 Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing 7

336419 Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing 8

Community Economic Indicators 8

Production Indicators 9

Employment Costs 9

Tax Structure 11

Energy Costs 17

Transportation Infrastructure 19

Construction Costs 22

General Ease of Doing Business 24

Social Indicators 26

Education Performance 26

Cost of Living 29

Community Income 31

Existing Aerospace Infrastructure 34

Industry Concentration 35

Key Communities and Components 37

Alabama 38

Arizona 40

California 42

Connecticut 46

Florida 48

Georgia 50

Kansas 52

Massachusetts 54
Missouri 56
North Carolina 58
Ohio 60
Oklahoma 62
Pennsylvania 64
South Carolina 66
Texas 68
Washington 70
Utah 72
Organized Labor Overview 74
Arizona 75
California 76
Connecticut 77
Florida 78
Georgia 79
Kansas 80
Ohio 81
Texas 81
Washington 82
Missouri 83
Alabama 84
Massachusetts 85
Pennsylvania 86
South Carolina 86
Supply Chain Analysis 88
Suppliers of Aircraft Built in Kansas 88
Bombardier Aerospace Suppliers 89
Cessna Aircraft Company Suppliers 93
Hawker Beechcraft Corporation Suppliers 100
Aircraft Parts Supplied by Kansas Manufacturers 105
CAV Aerospace, Inc. 106

Electromech Technologies 107
Garmin International 110
McCauley Propeller Systems 116
Spirit AeroSystems, Inc. 118
Vermillion, Inc. 120
Other Kansas Suppliers 121
Qualitative Analysis 123
Aerospace Research and Development by State 123
Aerospace Research and Development Programs 124
Johns Hopkins University 124
Utah State University 124
Wichita State University 125
Georgia Institute of Technology 127
Primary Occupations and Educational Requirements within Aerospace Products and Parts Manufacturing in the United States 128
U.S. Distribution of Employment within Aerospace Products and Parts Manufacturing by Major Occupational Code 128
10 Largest Occupations within Aerospace Products and Parts Manufacturing by Occupational Code 129
Education Requirements for the 10 Largest Occupations within Aerospace Products and Parts Manufacturing 131
Aerospace Educational Opportunities 134
Engineering Degrees 134
Engineering Degrees by State 136
Aerospace Technical and Trade Programs 137
Aerospace Technical and Trade Programs by State 139
Incentive Overview 142
Fiscal Benefit per Employee 142
Project Overviews 143
Multiplier Analysis 146
Forecast and Impact 151
World-wide Aircraft Markets Forecasts and History 151
U.S. Aircraft Markets Forecasts and History 152

Kansas Aircraft Markets Forecasts and History 156
Appendix I: Construction Cost Data 160
Materials and Installation 160
Construction Costs Over Time 161
Construction Costs per Square Foot 162
City Cost Indices by Master Format divisions 165
Appendix II: Detailed Incentives by State 169
Existing State Incentives 169
Alabama Business Incentives 179
Arizona Business Incentives 181
California Business Incentives 182
Colorado Business Incentives 184
Connecticut Business Incentives 185
Florida Business Incentives 189
Georgia Business Incentives 191
Kansas Business Incentives 192
Mississippi Business Incentives 196
New Mexico Business Incentives 198
North Carolina Business Incentives 199
Ohio Business Incentives 201
Oklahoma Business Incentives 203
South Carolina Business Incentives 206
Texas Business incentives 209
Utah Business Incentives 210
Washington Business Incentives 211
Project Overview 213
Appendix III: Aggregate Multipliers by State 222

Introduction

The Kansas Economic Development Institute commissioned a study to analyze and better understand the aerospace manufacturing industry in Kansas. This study was conducted by the Center for Economic Development and Business Research, W. Frank Barton School of Business, Wichita State University. The objective of the study was to define the aerospace manufacturing industry, complete a comparative community analysis, complete a supply chain analysis, complete a qualitative analysis, forecast aerospace manufacturing output and estimate the forecast's impact to Kansas.

The aerospace products and parts industry has large economies of scale. This requires individual market players to have large amounts of capital to be part of the market place. Because of this, the majority of aircraft manufacturing is fixed in specific geographic areas. This has afforded aviation companies significant barriers to entry. As the aerospace industry has become more global, the industry has become more vulnerable to new entrants. This has forced aerospace manufacturers to become more competitive.

Increased firm-level competition has led to expansion in the industry. In order to facilitate growth, communities attempt to alleviate barriers to entry for new and expanding firms. Although barriers to entry exist within the industry, they do not exist for communities which are aggressively competing for expansion dollars.

Industry Definition[1]

The focus of this study is North American Industrial Classification System (NAICS) code 3364, Aerospace Products and Parts Manufacturing. Below is the Census Bureau's definition and description of each sub-sector within NAICS code 3364.

336411 Aircraft Manufacturing

This U.S. industry comprises establishments primarily engaged in one or more of the following:

- manufacturing or assembling complete aircraft,
- developing and making aircraft prototypes,
- aircraft conversion (i.e., major modifications to systems),
- complete aircraft overhaul and rebuilding (i.e., periodic restoration of aircraft to original design specifications).

336412 Aircraft Engine and Engine Parts Manufacturing

This U.S. industry comprises establishments primarily engaged in one or more of the following:

- manufacturing aircraft engines and engine parts,
- developing and making prototypes of aircraft engines and engine parts,
- aircraft propulsion system conversion (i.e., major modifications to systems),
- aircraft propulsion systems overhaul and rebuilding (i.e., periodic restoration of aircraft propulsion system to original design specifications).

336413 Other Aircraft Parts and Auxiliary Equipment Manufacturing

This U.S. industry comprises establishment primarily engaged in one or both of the following:

- manufacturing aircraft parts or auxiliary equipment (except engines and aircraft fluid power subassemblies) ,
- developing and making prototypes of aircraft parts and auxiliary equipment.

Auxiliary equipment includes such items as crop dusting apparatus, armament racks, inflight refueling equipment, and external fuel tanks.

336414 Guided Missile and Space Vehicle Manufacturing

This U.S. industry comprises establishments primarily engaged in one or both of the following:

- manufacturing complete guided missiles and space vehicles,
- developing and making prototypes of guided missiles or space vehicles.

336415 Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing

This U.S. industry comprises establishments primarily engaged in one or both of the following:

- manufacturing guided missile and/or space vehicle propulsion units and propulsion unit parts,
- developing and making prototypes of guided missile and space vehicle propulsion units and propulsion unit parts.

[1] U.S. Census Bureau, 2007 North American Industry Classification System
http://www.census.gov/eos/www/naics/index.html

336419 Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing

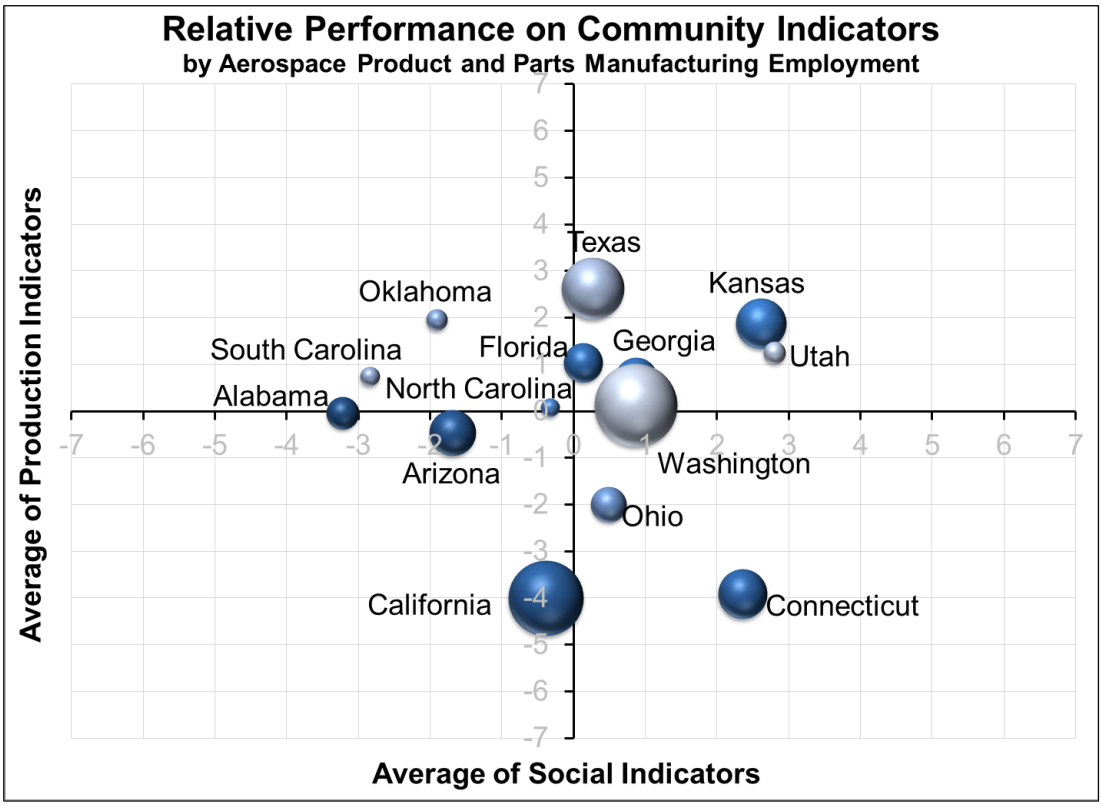
This U.S. Industry comprises establishments primarily engaged in one or both of the following:

- manufacturing guided missile and space vehicle parts and auxiliary equipment (except guided missile and space vehicle propulsion units and propulsion unit parts),
- developing and making prototypes of guided missile and space vehicle parts and auxiliary equipment.

Community Economic Indicators

As a way of measuring relative competitiveness between Kansas and other states, which have a presence in the aerospace manufacturing industry, data was collected and analyzed on two segments of economic indicators: social indicators and production indicators. Social indicators consist of education, cost of living, and income and poverty. Production indicators include labor costs, tax climate, energy cost, transportation infrastructure, construction costs, and an overall ease of doing business. In each of the nine categories, data were selected that would indicate a relative performance between the states. These measures have been selected from reputable sources, based on accessibility, partiality and consistency.

For each of the indicators, a ranking was developed for the 14 states being considered: Alabama, Arizona, California, Connecticut, Florida, Georgia, Kansas, North Carolina, Ohio, Oklahoma, South Carolina, Texas, Utah and Washington. Each state was assigned a value between positive and negative seven for each indicator. Seven represents the state with the highest relative performance; negative seven represents the lowest relative performance. An average ranking across all indicators was used to establish relative performance within each category. Additionally, an average across all categories was used to indicate overall performance in each segment.



In general, of the states being considered, no one state performed consistently well, or poorly, across all categories. Strengths in one category were offset by weakness in other categories, giving a fairly tight cluster of states around the origin. However, within that cluster of states Utah, Kansas and Connecticut had higher average performance on quality of life rankings. Texas, Oklahoma and Kansas have higher average performance on business interests.

Production Indicators

Of the economic indicators that are important to manufacturers when choosing to expand or relocate a business, transportation infrastructure, labor costs, tax climate, and construction cost are among the factors considered to be very important in the decision-making process.[2]

On average, across all production indicators, Kansas ranked third behind Texas and Oklahoma. This high average can be attributed to the fact that although Kansas did not rank first in any of the production indicators, it was in the top seven in all but one indicator. Relative to the other comparison states, Kansas had the strongest performance in construction costs and general ease of doing business. Kansas performed moderately well in employment cost, tax climate, and cost of utilities. The one area where Kansas ranked in the bottom half of the comparison states was in transportation infrastructure.

Employment Costs

Although high levels of community income are associated with general economic well-being, wages that are significantly higher than other areas can create an economic disadvantage in attracting business and

[2] Area Development-Site and Facility Planning, Executive Survey Issue, Winter 2012, Vol. 47 Num. 1, Pg. 48

industry to the area. Comparing the average salary of machinists and aerospace engineers across states gives a measure of this impact on competitiveness in the aerospace industry. [3]

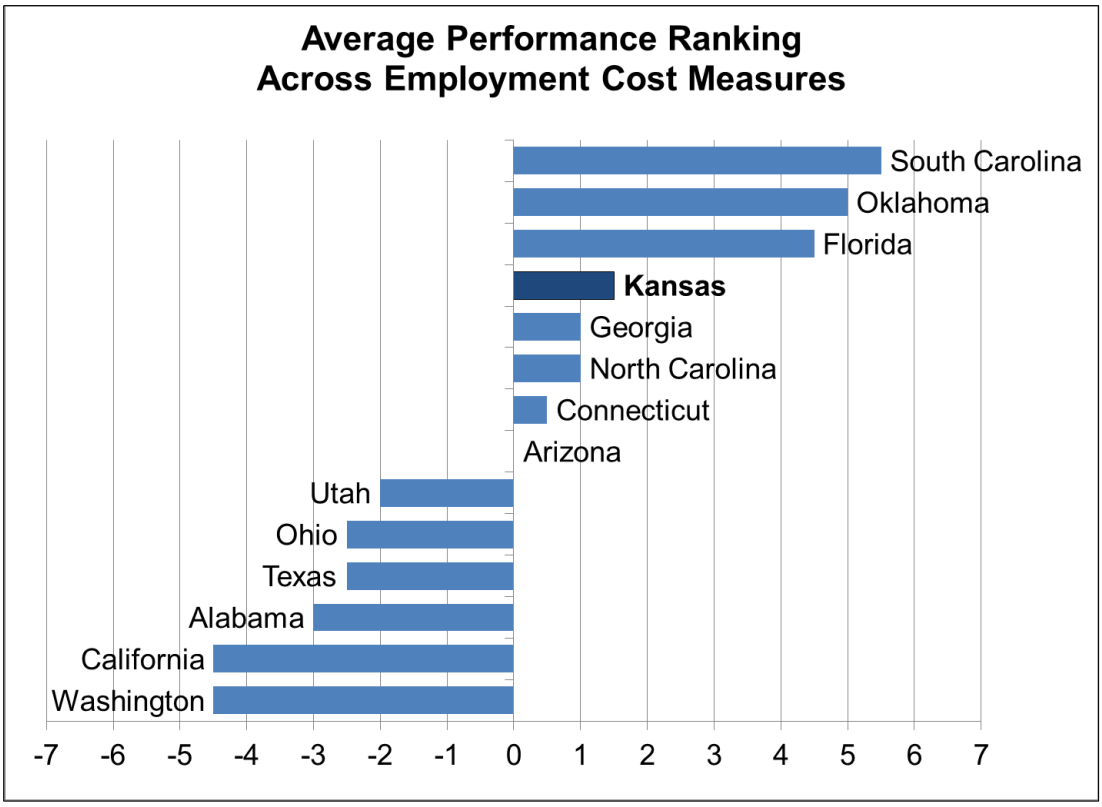
In general, Washington and California had higher employment costs in aerospace product and parts manufacturing than other states in the analysis. Washington has the highest average salary for machinists and the sixth highest for aerospace engineers. The average salaries for both machinists and aerospace engineers in California are above the U.S. average. South Carolina and Oklahoma are among the lowest in average salaries for both machinists and aerospace engineers.

Manufacturing Income

	Machinists		Aerospace Engineers	
	Average Salary	% of U.S.	Average Salary	% of U.S.
U.S.	40,520		103,870	
Alabama	38,110	94%	**116,150**	**112%**
Arizona	42,280	104%	89,670	86%
California	41,550	103%	111,370	107%
Connecticut	42,560	105%	86,090	83%
Florida	37,190	92%	90,810	87%
Georgia	**37,120**	**92%**	106,380	102%
Kansas	**37,740**	**93%**	**91,940**	**89%**
North Carolina	37,700	93%	93,670	90%
Ohio	38,890	96%	103,240	99%
Oklahoma	37,280	92%	89,150	86%
South Carolina	37,490	93%	**82,220**	**79%**
Texas	38,910	96%	102,660	99%
Utah	44,690	110%	91,010	88%
Washington	**49,840**	**123%**	101,360	98%

Source: Bureau of Labor Statistics

[3] Bureau of Labor Statistics, National Occupational Employment and Wage Estimates, May 2011



Tax Structure

There is significant variability in the tax structures of the comparison states. Some state revenues are more reliant on sales and use taxes, while other states' revenues come primarily from income taxes. Additionally, there can be a wide range of unemployment insurance tax rates across states. Property tax rates are primarily set at the county level and can vary greatly within states, as well as between states.

State Tax Rates

	Combined State and Local Sales Tax Rates	Gas Excise and Other Taxes (Cents Per Gallon)	Unemployment Insurance Average Tax Rate	Median Real Estate Taxes Paid
Alabama	8.33%	20.9	3.4%	**$471**
Arizona	**9.12%**	19.0	2.1%	$1,373
California	8.11%	**50.6**	**5.5%**	$2,841
Connecticut	**6.35%**	46.0	4.4%	**$4,602**
Florida	6.62%	35.0	3.7%	$1,906
Georgia	6.84%	29.4	2.6%	$1,349
Kansas	**8.26%**	**25.0**	**4.1%**	**$1,614**
North Carolina	6.85%	39.2	1.9%	$1,188
Ohio	6.75%	28.0	3.8%	$1,860
Oklahoma	8.66%	17.0	2.0%	$814
South Carolina	7.13%	**16.8**	3.9%	$762
Texas	8.14%	20.0	3.1%	$2,382
Utah	6.68%	24.5	**1.5%**	$1,340
Washington	8.80%	37.5	2.2%	$2,606

Source: Tax Foundation, American Petroleum Institute, U.S. Department of Labor, U.S. Census Bureau

Sales taxes may be collected at both the state and local level. The Tax Foundation compiles and combines these rates to formulate an average state sales tax rate.[4] Of the states in the comparison, Arizona has the highest combined sales tax rate, followed by Washington and Oklahoma at 9.12, 8.80 and 8.66 percent, respectively. The lowest combined sales tax rates are in Connecticut, Florida and Utah at 6.35, 6.62 and 6.68 percent, respectively.

As with other taxes, the ways in which gasoline taxes are applied by states can vary greatly. These variances include, but are not limited to, city taxes, county taxes, clean up funds, storage tank fees, environment assurance fees and inspection fees. The American Petroleum Institute calculates a volume-weighted average of state gasoline taxes that account for these variances.[5] Of the states in the comparison, California and Connecticut have the highest gasoline taxes at 50.6 and 46.0 cents per gallon, respectively. South Carolina, Oklahoma and Arizona have the lowest at 16.8, 17.0, and 19.0 cents per gallon, respectively.

The unemployment insurance average tax rate, as calculated by the U.S. Department of Labor, is the total of contributions from taxable employers, divided by taxable or total wages. It represents the average rate an employer would face in the state. It is possible that a specific aerospace employer

[4] Tax Foundation; Sales Tax Clearinghouse as of 1/1/2012 – City, county and municipal rates vary. These rates are weighted by population to compute an average local tax rate. The California rate includes a 1 percent, uniform local add-on sales tax.

[5] American Petroleum Institute, rates effective 4/1/2012 – For states with sales tax on fuel, price per gallon calculated based on AAA average prices for 4/3/12.

would pay a different rate. Statutory minimum rates are assigned to those employers laying off the fewest employees, and maximum rates are assigned to the employers laying off the most employees.

At 5.5 percent, California has the highest unemployment insurance average tax rate, of the comparison states. California is followed by Connecticut and Kansas, which have rates at 4.4 and 4.1 percent, respectively. Utah has the lowest rate at 1.5 percent.

There is also a wide range of real estate tax structures between the states. The lowest rates of the comparison group are $471 and $762 per year, in Alabama and South Carolina, respectively. The highest median rate is in Connecticut at $4,602 per year.

Corporate and individual income tax structures show no more similarity between states than any of the other forms of tax.[6] Connecticut has the highest corporate tax rate of the comparison states at 9.0 percent; Texas, Ohio, and Washington have no corporate income tax, but do tax businesses on gross receipts. Individual income taxes vary between states, not only in rates, but also in how those rates are applied to income brackets.[7] This makes a straight forward comparison of individual income tax levels between states challenging.

Income Tax Rates

(as of 1/1/2012)

	Corporate		Individual	
	Rates	Brackets	Rates	Brackets
Alabama	6.5% >	$0	2% >	$0
			4% >	$500
			5% >	$3,000
Arizona	6.968% >	$0	2.59% >	$0
			2.88% >	$10,000
			3.36% >	$25,000
			4.24% >	$50,000
			4.54% >	$150,000

Source: Tax Foundation

Continued

[6] Tax Foundation - State tax forms and instructions were used to compile income tax information.

[7] In May 2012, new tax legislation was passed in the state of Kansas. Effective in the 2013 tax year, the law changes the three-bracket structure for individual state income taxes into two-brackets of 3.0 and 4.9 percent.

Income Tax Rates

(as of 1/1/2012)

	Corporate		Individual	
	Rates	Brackets	Rates	Brackets
California	8.84% >	$0	1.0% >	$0
2012 rates, but 2011 brackets.			2.0% >	$7,124
Bracket levels adjusted for inflation each year.			4.0% >	$17,346
			6.0% >	$27,377
			8.0% >	$38,004
			9.3% >	$48,029
			10.3% >	$1,000,000
Connecticut	9% >	$0	3.0% >	$0
Rate includes a 20% surtax, which effectively			5.0% >	$10,000
increases the rate from 7.5% to 9%.			5.5% >	$50,000
			6.0% >	$100,000
			6.5% >	$200,000
			6.7% >	$250,000
Florida	5.5% >	$0	None	
Georgia	6% >	$0	1% >	$0
			2% >	$750
			3% >	$2,250
			4% >	$3,750
			5% >	$5,250
			6% >	$7,000
Kansas	4% >	$0	3.50% >	$0
	7% >	$50K	6.25% >	$15,000
			6.45% >	$30,000
North Carolina	6.9% >	$0	6.00% >	$0
North Carolina assesses a surcharge of 3%			7.00% >	$12,750
of the taxpayer's total liability.			7.75% >	$60,000
Ohio			0.587% >	$0
No corporate income tax, but do have a gross			1.174% >	$5,100
receipts tax.			2.348% >	$10,200
2012 rates, but 2011 brackets.			2.935% >	$15,350
Bracket levels adjusted for inflation each year.			3.521% >	$20,450
Ohio has county or city level income taxes, which			4.109% >	$40,850
are excluded.			4.695% >	$81,650
			5.451% >	$102,100
			5.925% >	$204,200

Source: Tax Foundation

Continued

Income Tax Rates

(as of 1/1/2012)

	Corporate		Individual	
	Rates	Brackets	Rates	Brackets
Oklahoma	6% >	$0	0.50% >	$0
			1.00% >	$1,000
			2.00% >	$2,500
			3.00% >	$3,750
			4.00% >	$4,900
			5.00% >	$7,200
			5.25% >	$8,700
South Carolina	5% >	$0	3% >	$2,800
			4% >	$5,600
			5% >	$8,400
			6% >	$11,200
			7% >	$14,000
Texas	None		None	
No corporate income tax, but do have a gross receipts tax.				
Utah	5% >	$0	5% >	$0
Washington	None		None	
No corporate income tax, but do have a gross receipts tax.				

Source: Tax Foundation

Due to the complexity of state tax structures, The Tax Foundations' State Business Tax Index[8] was used to rank the relative competitiveness of each state's tax structure. This index, calculated on the 2011-2012 fiscal year, accounts for corporate income, individual income, sales, unemployment insurance, and property taxes.

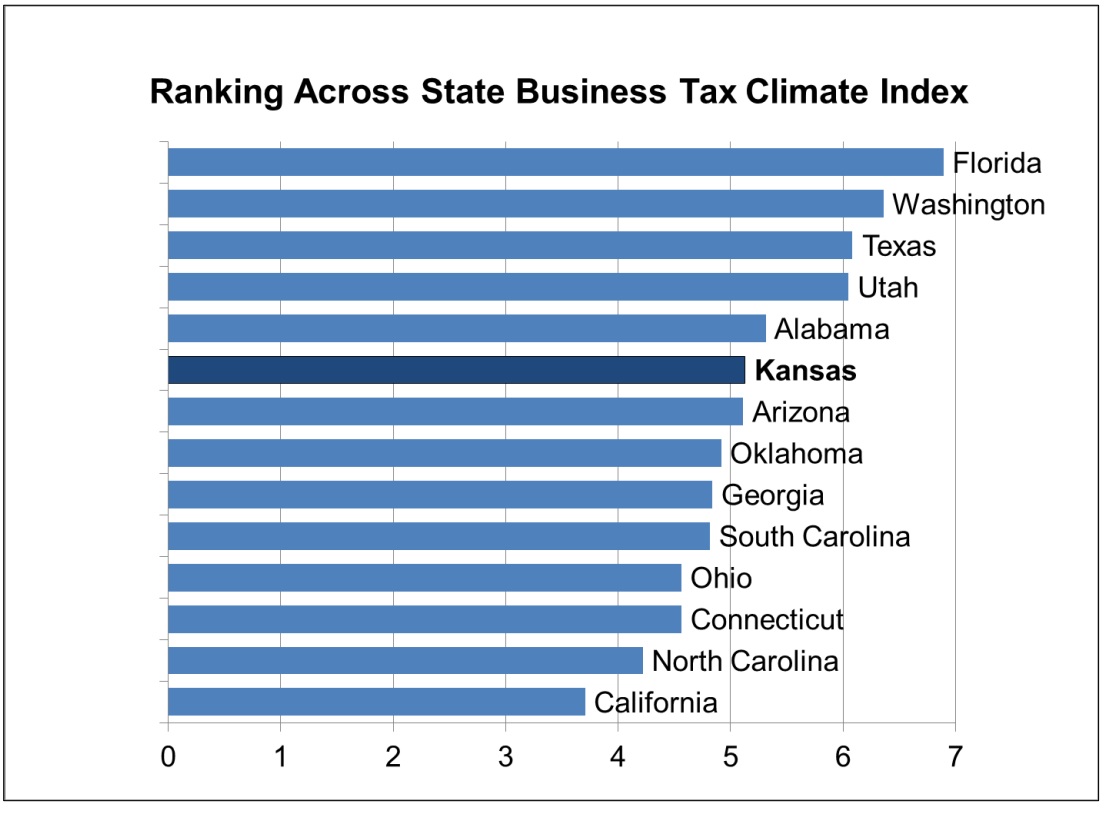
[8] Tax Foundation, The higher the score, the more favorable a state's tax system is for business. All scores are for fiscal years.

State Business Tax Climate Index

(2011–2012)

	Score
Alabama	5.31
Arizona	5.11
California	**3.71**
Connecticut	4.56
Florida	**6.90**
Georgia	4.84
Kansas	**5.13**
North Carolina	4.22
Ohio	4.56
Oklahoma	4.92
South Carolina	4.82
Texas	6.08
Utah	6.04
Washington	6.36

Source: Tax Foundation



Energy Costs

Prices vary within different sectors of energy (gas, coal, natural gas, and electric) and across classes of service (residential, commercial, industrial, transportation and electric power generation). Higher than average energy prices, in all classes of service, can create a competitive disadvantage. The total price of all classes of service, as calculated by the U.S. Energy Information Administration, has been used to compare relative energy prices between states.[9]

2010 Total Price
(Dollars per Million BTU)

	Petroleum		Coal		Natural Gas		Electric	
	Total Price	% of U.S.	Total Price	% of U.S.	Total Price	% of U.S.	Total Price	% of U.S.
U.S. Total	20.33		2.42		7.41		28.92	
Alabama	20.15	99%	2.97	123%	6.65	90%	26.44	91%
Arizona	20.86	103%	1.81	75%	6.87	93%	28.40	98%
California	21.55	106%	2.94	121%	6.97	94%	38.23	132%
Connecticut	22.49	111%	3.45	143%	8.86	120%	50.95	176%
Florida	19.24	95%	3.48	144%	6.91	93%	31.01	107%
Georgia	19.09	94%	3.90	161%	8.66	117%	26.07	90%
Kansas	**21.07**	**104%**	**1.52**	**63%**	**7.47**	**101%**	**24.52**	**85%**
North Carolina	21.58	106%	3.54	146%	9.12	123%	25.40	88%
Ohio	20.88	103%	2.50	103%	8.72	118%	26.89	93%
Oklahoma	20.24	100%	1.73	71%	6.77	91%	22.30	77%
South Carolina	19.55	96%	3.70	153%	6.95	94%	24.89	86%
Texas	18.69	92%	1.83	76%	5.23	71%	27.69	96%
Utah	21.65	106%	1.71	71%	6.24	84%	20.45	71%
Washington	20.97	103%	2.32	96%	8.97	121%	19.63	68%

Source: U.S. Energy Information Administration

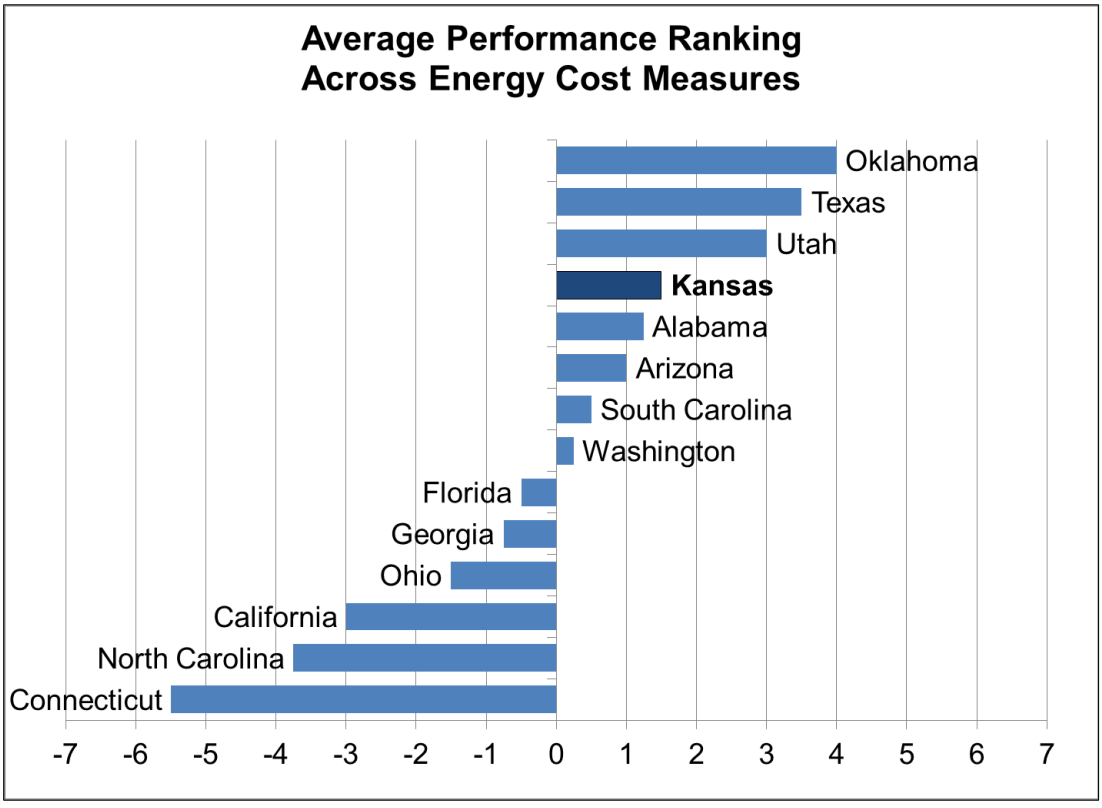
On average the states selected in this comparison have petroleum prices above the national average. Connecticut's petroleum prices are the highest at 11 percent above the United States, as a whole. North Carolina, California and Utah have the second highest prices at approximately 106 percent of the United States average. Texas, Georgia and Florida have the lowest petroleum prices at 92, 94, and 95 percent of the national average, respectively. At 21.07 dollars per million BTU, the average petroleum price in Kansas is 104 percent of the United States total.

Across the states in the comparison, coal prices are generally higher than the national average. The highest prices among these selected states are Georgia, South Carolina and North Carolina at 161, 153 and 146 percent of the national average, respectively. Kansas has the lowest coal price of the comparison states at 63 percent of the national average.

[9] U.S. Energy Information Administration – Total petroleum includes fuel ethanol blended into motor gasoline. Estimates for natural gas include supplemental gaseous fuels. Electricity is based on retail sales and revenues from retail sales.

The average natural gas price of the states in the comparison is only slightly above the national average. North Carolina, Washington and Connecticut have the highest natural gas prices at 123, 121, and 120 percent of the national average, respectively. Kansas' natural gas prices are only one percent above the national average. Texas and Utah have the lowest natural gas prices at 71 and 84 percent of the national average, respectively.

Across the comparison states the average electric price is below the national average. Only three states in the comparison have rates above the national average: Connecticut, California and Florida, with rates at 176, 132 and 107 percent of the national average, respectively. Washington, Utah and Oklahoma have the lowest electric rates at 68, 71, and 77 percent of the national average, respectively. At 24.52 dollars per million BTU, the average electric price in Kansas is 85 percent of the national average rate.



Connecticut consistently had the highest costs with prices above the national average in all energy sectors. Among the other states there was variability across the sectors, with low prices in some and higher prices in others.

Transportation Infrastructure

There are diverse geography types, from coast to plains, among the states with a high concentration of aerospace products and parts manufacturing. This geographic variability drives significant differences in transportation infrastructure between the nine states, from the congestion of roadways, available railroad miles, and accessible shipping ports.

The overall utility of roadways in an area can be measured using the Roadway Congestion Index (RCI) from the Annual Urban Mobility Report from the Texas Transportation Institute.[10] The RCI measures the density of traffic across urban areas. The index measures conditions on the freeway and arterial street systems according to the amount of travel on each type of road. The resulting ratio indicates an undesirable level of area wide congestion if the index value is greater than or equal to 1.0.

Wichita, Kan., is the metropolitan area with the lowest level of roadway congestion within the comparison area, with a RCI of 0.55. Greensboro, N.C., has the second lowest at 0.64. The highest levels of roadway congestion in the comparison are in Miami, Fla., and San Diego, Calif., at 1.32 and Los Angeles, Calif., at 1.54.

Railroad infrastructure in a state can be measured by total rail miles and by the ratio of total rail miles to total square miles of land in a state. Texas has the most total rail miles. Ohio has the highest density of rail in the comparison group, and Arizona the lowest, at 0.13 and 0.01, respectively.

Waterborne container traffic by port and waterway is measured in twenty-foot equivalent units (TEU) and provided by the U. S. Army Corps of Engineers, Waterborne Commerce Statistics Center.[11] California has, by far, the largest and most active ports. The ports of Long Beach and Los Angeles are two of the most active ports in the world, with a combined activity of 10.2 million TEU. Washington, Florida, Georgia and Texas also have port activity at 2.7, 2.2, 2.1 and 1.4 million TEU, respectively.

[10] University Transportation Center for Mobility, Texas Transportation Institute, 2011 Annual Urban Mobility Report.

[11] U.S. Army Corps of Engineers, Waterborne Commerce Statistics Center, foreign source, Commonwealth Business Media, Inc., Port Import Export Reporting Service. Loaded and Empty Twenty-Foot Equivalent Units (TEU).

Transportation Infrastructure

	Roadways		Rail			Ports	
	Metro Area	Congestion Index	Rail Miles	% of U.S.	Ratio	Port	Loaded TEU
Alabama	Birmingham	0.98	3,271	2.3%	0.06	Mobile	80,953
Arizona	Tucson	1.18	1,679	1.2%	**0.01**	**None**	
	Phoenix	1.24					
California	San Diego	1.32	5,305	3.8%	0.03	San Diego	51,335
	Los Angeles-Long Beach-Santa Ana	**1.54**				Long Beach	4,736,900
						Los Angeles	**5,479,351**
						Oakland	1,673,857
						Port Hueneme	24,566
Connecticut	Hartford	0.94	**327**	**0.2%**	0.07	**None**	
	Bridgeport-Stamford	1.14					
Florida	Miami	1.32	2,875	2.1%	0.05	Miami	678,916
	Palm Bay-Melbourne-Titusville	NA				Fernandina Beach	15,690
						Fort Pierce	11,338
						Jacksonville	725,472
						Palm Beach	108,987
						Panama City	26,872
						Port Everglades	578,950
						Port Manatee	15,923
						Tampa	27,626
Georgia	Savannah	NA	4,714	3.4%	0.08	Savannah	2,147,792
	Atlanta	1.27					
Kansas	**Wichita**	**0.55**	**4,890**	**3.5%**	**0.06**	**None**	
North Carolina	Greensboro	0.64	3,230	2.3%	0.06	Wilmington	199,727
	Raleigh-Durham	0.96					
	Winston-Salem	0.82					
Ohio	Cincinnati	1.00	5,286	3.8%	**0.13**	**None**	
Oklahoma	Oklahoma City	0.89	3,275	2.3%	0.05	**None**	
	Tulsa	0.75					
South Carolina	Charleston-North Charleston	1.10	2,292	1.6%	0.07	Charleston	1,061,326
Texas	Dallas-Fort Worth-Arlington	1.17	**10,405**	**7.4%**	0.04	Freeport	57,331
						Galveston	11,483
						Houston	1,341,897
Utah	Salt Lake City	0.97	1,358	1.0%	0.02	**None**	
Washington	Seattle	1.08	3,169	2.3%	0.05	Seattle	1,601,842
						Tacoma	1,086,347
						Vancouver	15,443
						Everett	13,792

Sources: Texas Transportation Institute, Associaton of American Railroads, U.S. Army Corps of Engineers

In addition to access to modes of transportation, the vitality of each state's transportation system can be measured by the value of goods imported and exported from the area. [12] Texas and California far exceed the other states, in the comparison, in both exports and imports. Oklahoma, Kansas, and Utah have the lowest levels of imports and exports.

Imports and Exports

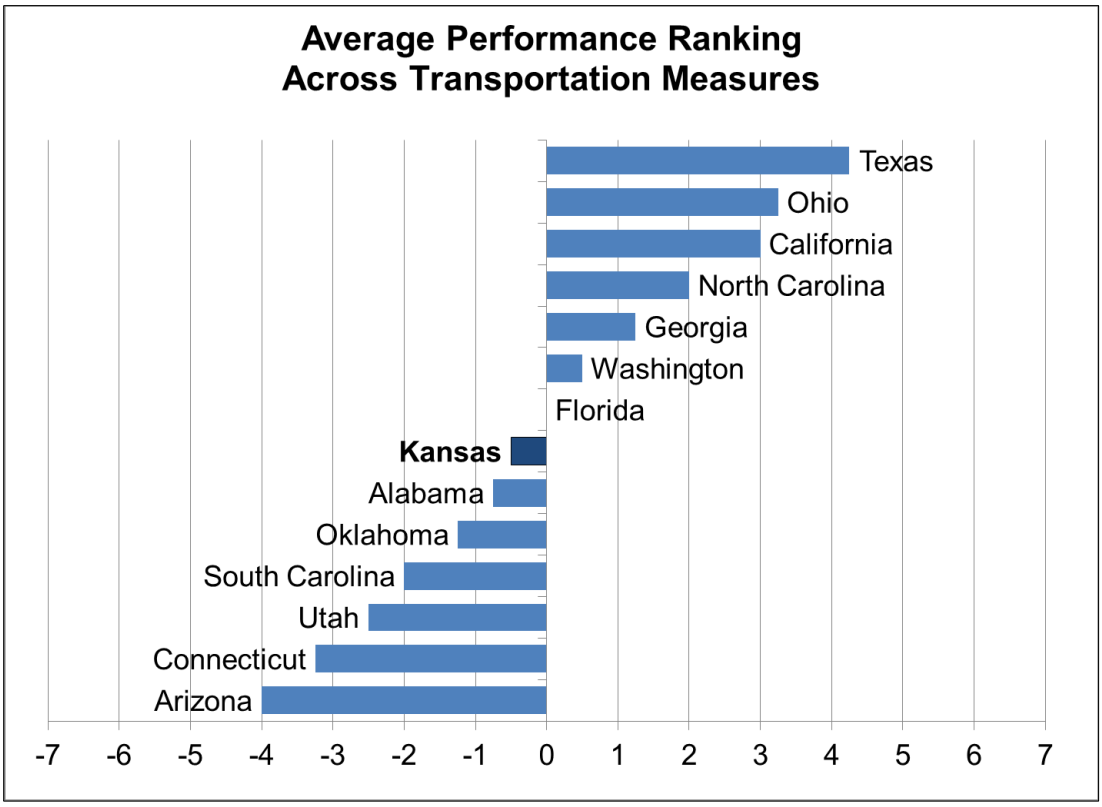
(2011 U.S. Millions of Dollars)

	Exports		Imports	
	Total	**% of U.S.**	**Total**	**% of U.S.**
All States	1,480,432	-	2,207,824	-
Alabama	17,854	1.2%	17,426	0.8%
Arizona	17,793	1.2%	17,569	0.8%
California	159,122	10.7%	**351,583**	**15.9%**
Connecticut	16,212	1.1%	24,028	1.1%
Florida	64,904	4.4%	65,292	3.0%
Georgia	34,776	2.3%	67,269	3.0%
Kansas	**11,598**	**0.8%**	**9,792**	**0.4%**
North Carolina	27,009	1.8%	47,860	2.2%
Ohio	46,416	3.1%	59,777	2.7%
Oklahoma	**6,222**	**0.4%**	11,324	0.5%
South Carolina	24,697	1.7%	33,837	1.5%
Texas	**251,006**	**17.0%**	318,826	14.4%
Utah	19,034	1.3%	11,113	0.5%
Washington	64,767	4.4%	46,685	2.1%

Source: U.S. Census Bureau, Foreign Trade Division

Texas, Ohio and California rank at the top of transportation infrastructure in both the availability of modes of transportation and the vitality of the state's transportation infrastructure. Connecticut and Arizona rank at the bottom of the comparison states in the availability and viability of transportation infrastructure.

[12] USA Trade Online, U.S. Census Bureau, Foreign Trade Division



Construction Costs [13]

There were three performance measures selected to measure construction costs; materials, installation and total cost. This data is not available at the state level, but metropolitan area information is used to make state level comparisons. The indices used in this comparison are from Reed Construction Data Inc., and defined as follows:

> "A construction cost index number is a percentage ratio of a cost at a stated time to the national average cost of the same item at a base period. The base period for the Means second quarter 2012 indices is January 1, 1993." [14]

[13] Index values in this section may not be reproduced or provided to the general public in any form.
[14] RSMeans, Reed Construction Data, Means Construction Cost Indexes, January 2012, p. 1.

Weighted Average Construction Indices

State	City	Material	Installation	Total
	U.S. Average	100.0	100.0	100.0
Alabama	Huntsville	98.2	68.3	85.0
	Mobile	99.2	67.7	85.3
Arizona	Tucson	98.5	72.4	87.0
	Phoenix	100.4	77.0	90.0
California	Los Angeles	101.5	117.2	108.4
	San Diego	101.0	108.9	104.5
Connecticut	Hartford	103.7	**121.9**	**111.7**
	Bridgeport	103.6	121.5	111.5
Florida	Miami	101.5	77.1	90.8
	Melbourne	103.0	78.4	92.1
Georgia	Savannah	99.9	61.6	83.0
	Atlanta	99.2	76.7	89.3
Kansas	**Wichita**	**100.5**	**64.1**	**84.4**
North Carolina	Wilmington	98.6	57.4	80.4
Ohio	Cincinnati	99.4	86.4	93.7
	Cleveland	100.1	100.0	100.0
Oklahoma	Tulsa	99.3	53.6	79.2
South Carolina	Charleston	99.7	57.5	81.1
	Greenville	**98.0**	**49.1**	**76.4**
Texas	Dallas	101.6	67.3	86.5
	San Antonio	98.5	66.5	84.4
Utah	Ogden	99.2	70.4	86.5
Washington	Seattle	**104.9**	106.8	105.8

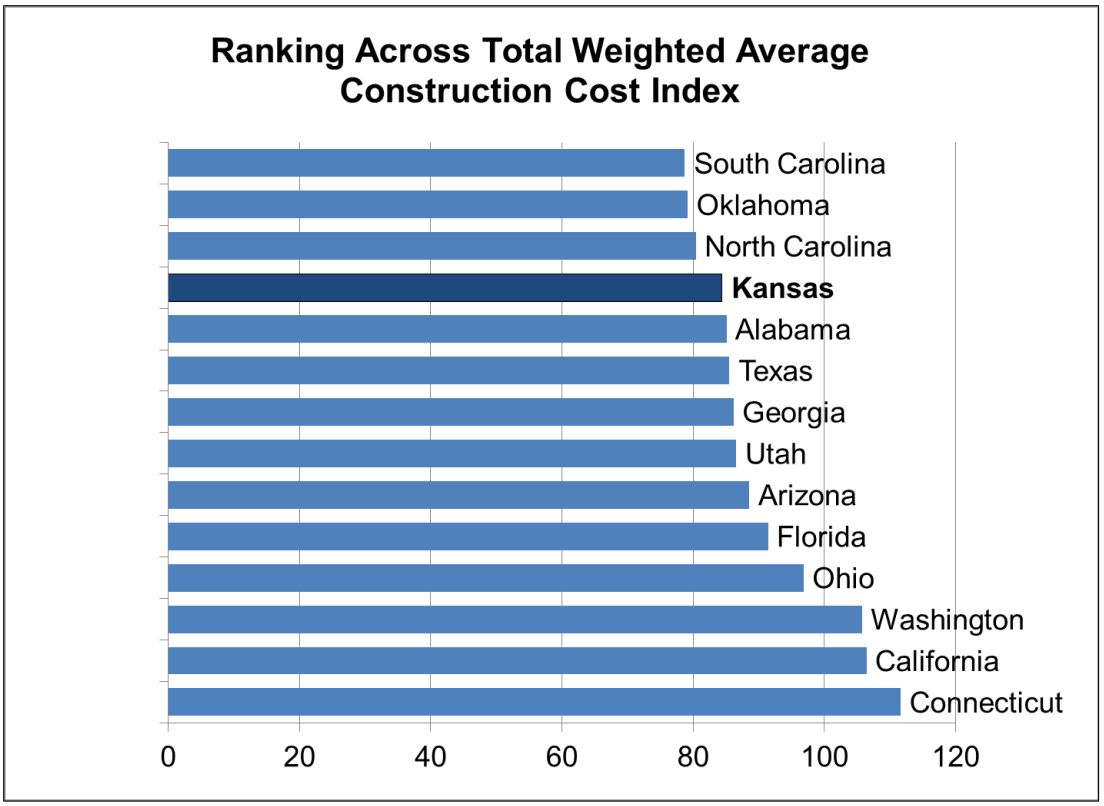
Source: Reed Construction Data, Inc., Second Quarter 2012.

There is a fairly small range in the cost of construction materials among the selected cities, with less than seven points separating the lowest from the highest. The cost of construction materials in Wichita, at 100.5, is only slightly higher than the U.S. average[15] and only 0.1 above the average of the selected cities, in the table above, of 100.4. The cost of materials in many of the selected cities is less than the U.S. average, with the lowest in Greenville, S.C. Cities in Washington and Connecticut have the highest weighted average indices for construction materials.

There is a significant range in the construction installation cost among the selected cities, with 72.8 points separating the lowest from the highest. With an index value of 64.1, Wichita's installation costs are significantly lower than the national average, and also below the average of the selected cities, of 79.5. The lowest installation costs are in Greenville, S.C., Tulsa, Okla., and Wilmington, N.C. with index values of 49.1, 53.6 and 57.4 percent, respectively. The cities in Connecticut, California and Washington

[15] The Means U.S. average is based on an average of construction cost indices for 30 major cities. See the Appendix for a list of those 30 U.S. cities.

have the highest installation costs, all of which are higher than the national average, with Connecticut's indices being significantly higher.



Using an average of the selected cities in each state, based on the total weighted average construction cost index, the state with the lowest construction costs is South Carolina, followed by Oklahoma, North Carolina and Kansas. The states with the highest construction costs are Connecticut, California and Washington.

Additional information on construction costs is presented in Appendix I for select metropolitan areas.

General Ease of Doing Business

There are a number of sources that create general ease of doing business rankings or indices. These would include, but are not limited to, The Tax Foundations' State Business Tax Index, U.S. Chamber of Commerce Ranking of State Liability Systems, CNBC's America's Top States for Business, and Forbes' The Best States for Business and Careers. Each of these classifications has different goals and produce different results.

The Tax Foundations' State Business Tax Climate Index was designed to measure the "tax-friendliness" to business of each state's tax system. As they say on their website, "Taxes matter to business. They

affect location decisions, job creation and retention, international competitiveness, and the long-term health of a state's economy. " [16]

The 2010 State Liability Systems Ranking Study was conducted for the U.S. Chamber Institute for Legal Reform. It is a survey of 1,482 in-house general counsel, senior litigators or attorneys, and other senior executives who indicated they are knowledgeable about the litigation matters of companies with at least $100 million in annual revenues. The survey has been conducted annually since 2002. This survey reveals that the litigation environment in a state is likely to impact important business decisions, which could have economic consequences for the states.

The 2012 CNBC's Top States for Business Ranking measures states on 43 different metrics in 10 key categories of competitiveness. Categories are weighted based on how frequently the states use them as selling points to attract business. The categories are cost of doing business, workforce, quality of life, infrastructure and transportation, economy, education, technology and innovation, business friendliness, access to capital, and cost of living.

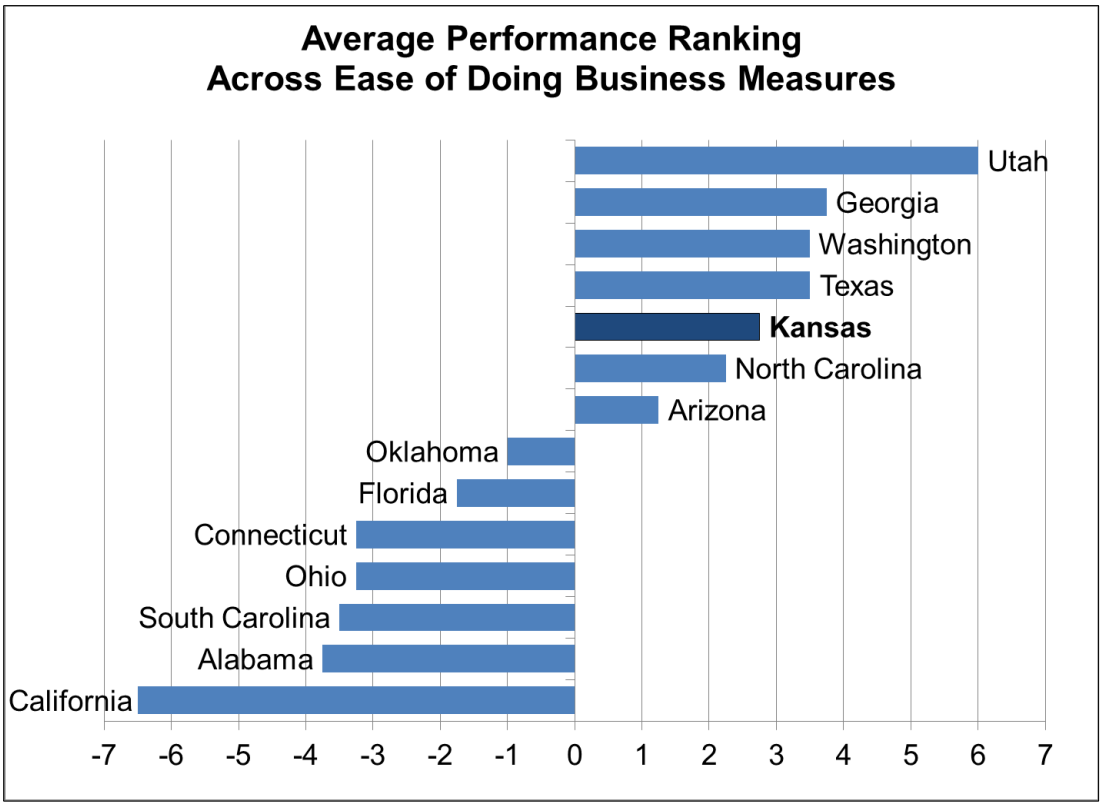
Forbes also formulates a list of the best states for business and careers. This scorecard is based on six categories, business costs, labor supply, regulatory environment, economic climate, growth prospects, and quality of life.

Due to the different focus of each one of these performance matrices there can be a broad range of rankings for any one state. For example, Texas ranked first using CNBC's measures, but 36th on the U.S. Chambers legal environment index. However, Kansas consistently ranked in the upper half of all states on each poll, coming in fifth of the fourteen states in the comparison.

Ease of Doing Business Rankings

	Tax Foundation	U.S. Chamber	CNBC	Forbes
Alabama	5.31	**45.5**	38	37
Arizona	5.11	65.0	22	20
California	**3.71**	47.2	40	**39**
Connecticut	4.56	62.1	**44**	35
Florida	5.75	53.9	29	24
Georgia	**6.90**	60.9	9	11
Kansas	**5.13**	**64.6**	**15**	**12**
North Carolina	4.22	64.0	4	3
Ohio	4.56	59.7	25	38
Oklahoma	4.92	59.0	23	13
South Carolina	4.82	55.1	32	28
Texas	6.08	56.3	**1**	6
Utah	6.04	**67.8**	2	**1**
Washington	6.36	61.6	21	7

[16] Tax Foundation, http://taxfoundation.org/tax-topics/state-business-tax-climate-index



Social Indicators

The categories in the quality of life segment include education, cost of living, and income and poverty. Although this group of indicators is important, these factors are seldom considered by businesses relocating until primary site selection criteria have been satisfied. [17]

In the quality of life categories, Kansas ranked second of the 14 states being considered. This can be attributed to two factors. Kansas has the lowest cost of living of the states in this study. Also, Connecticut and Washington that ranked very high in education measures also ranked very low in cost of living measures, thereby reducing their average across all categories.

Education Performance

There were four educational performance measures selected.

- The percentage of the work age population with a bachelor's degree or higher.[18]
- The Science and Engineering Readiness Index (SERI) which focuses on 8th grade math and science scores, the number of students scoring three or above on advanced placement calculus and physics exams, and teacher qualification in science. [19] The SERI is based on a 0 to 5 scale.

[17] Area Development-Site and Facility Planning, Executive Survey Issue, Winter 2012, Vol. 47 Num. 1, Pg. 50
[18] U.S. Census Bureau, American Community Survey 2006-2010
[19] White, Susan and Paul Cottle. (2011). A State-by-State Science and Engineering Readiness Index (SERI): Grading States on Their K-12 Preparation of Future Scientists and Engineers. APS Physics Forum on Education http://www.aps.org/units/fed/newsletters/summer2011/white-cottle.cfm

- The state average scores on the 2011 National Assessment of Educational Progress (NAEP) exams.[20] These are based on representative samples of students in 4th and 8th grade who were tested in both mathematics and reading. The results are on a 0-500 scale.
- The percentage of public high school students taking advanced placement exams and the percent of public high school students scoring three or higher on at least one advanced placement exam.[21]

The percentage of the work age population with a bachelor's degree or higher is used as an indication of the current level of education in the workforce of each state. The SERI and NAEP averages, which focus on 4th and 8th graders, indicate the long-term potential level of education in the workforce; and the 2010 advanced placement exam performance, of current high school students, is an indication of the short-term potential education level in the workforce.

Of the states used in the comparison, Connecticut consistently ranked at the top of educational performance. Florida performed very well in AP exams, and moderately well in the other performance measures. Alabama and Arizona consistently ranked at the bottom of the fifteen states being considered.

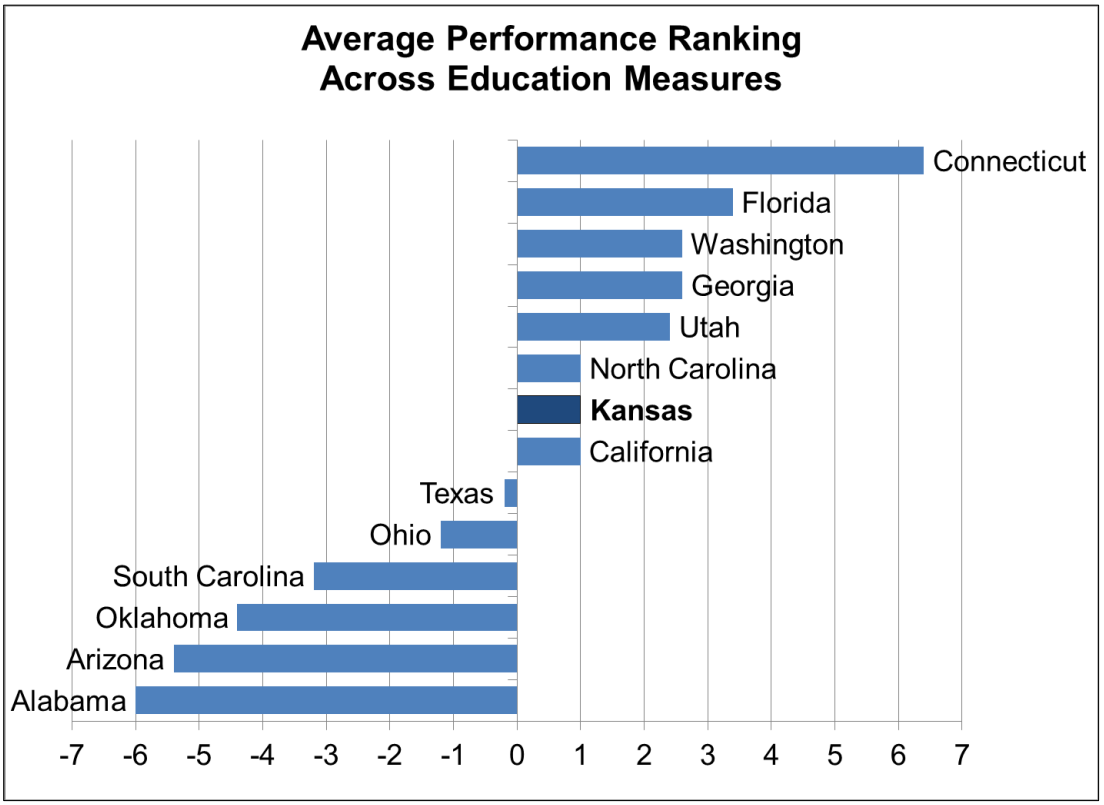
Overall, Kansas' rankings for education performance were mixed. The state level of educational attainment, currently in the workforce, is in the top one-third of all states. The performance on the SERI and NAEP averages is also in the top one third of all states. However, there are a very low percentage of students in the state taking, and performing well on advanced placement exams.

[20] National Center of Education Statistics, U.S. Department of Education
[21] National Science Foundation

Education Performance Measures

	Bachelor's or Higher	SERI		NAEP Average	AP Exams Taken	AP Exam Performance
Alabama	**23.3%**	**Far below average**	**1.60**	244.5	19.5%	9.0%
Arizona	27.1%	Far below average	1.91	246.5	**15.6%**	**8.8%**
California	31.1%	Below average	2.38	**243.3**	34.0%	22.3%
Connecticut	**38.0%**	**Above average**	**3.28**	**257.8**	32.2%	**23.2%**
Florida	27.2%	Average	3.13	251.3	**43.5%**	22.3%
Georgia	28.9%	Average	2.88	249.8	37.3%	19.1%
Kansas	**31.8%**	**Average**	**3.00**	**256.8**	**16.0%**	**9.5%**
North Carolina	27.9%	Below average	2.34	253.8	28.8%	17.5%
Ohio	26.4%	Average	2.64	256.3	18.9%	11.8%
Oklahoma	24.0%	Far below average	2.01	247.8	20.8%	10.3%
South Carolina	25.1%	Below average	2.20	248.3	26.8%	15.1%
Texas	26.9%	Below average	2.45	252.5	30.2%	15.5%
Utah	30.2%	Average	2.85	253.3	28.4%	19.2%
Washington	32.3%	Average	2.86	255.0	28.0%	17.1%

Sources: U.S. Census Bureau, APS Physics Forum on Education, National Center of Education Statistics, National Science Foundation



Cost of Living

There were three performance measures selected to quantify relative cost of living: current consumer prices, the 10-year home value appreciation rate, and the median home value. Current consumer price information is not available at the state level, but metropolitan area information is available. However, high level generalizations about consumer prices in a state can be drawn from the metropolitan area data available.

Consumer Prices

	Metropolitan Area	ACCRA Cost of Living Index (2011)	Difference from U.S. Average
United States		100.0	
Alabama	Huntsville	93.6	-6.4
	Mobile	92.0	-8.0
Arizona	Phoenix-Mesa-Scottsdale	96.5	-3.5
	Tucson	95.0	-5.0
California	Los Angeles-Long Beach-Glendale	132.8	32.8
	Riverside City	112.4	12.4
	San Diego-Carlsbad-San Marcos	130.6	30.6
	San Jose-Sunnyvale-Santa Clara	**150.3**	**50.3**
Connecticut	Bridgeport-Stamford-Norwalk	147.4	47.4
	Hartford-West Hartford-East Hartford	123.8	23.8
	New Haven-Milford	127.8	27.8
Florida	Jacksonville	93.9	-6.1
	Miami-Miami Beach-Kendall	107.1	7.1
Georgia	Atlanta	97.3	-2.7
	Savannah	91.6	-8.4
Kansas	**Wichita**	**92.2**	**-7.8**
North Carolina	Wilmington	99.5	-0.5
Ohio	Akron	99.9	-0.1
	Cincinnati-Middletown	93.3	-6.7
	Cleveland-Elyria-Mentor	101.4	1.4
	Dayton	93.1	-6.9
Oklahoma	Tulsa	**90.0**	**-10.0**
South Carolina	Charleston-North Charleston	99.7	-0.3
	Greenville	92.3	-7.7
Texas	Dallas-Plano-Irving	96.2	-3.8
	San Antonio	93.1	-6.9
Utah	Ogden-Clearfield	91.5	-8.5
Washington	Seattle-Bellevue-Everett	117.1	17.1

Source: The Council for Community and Economic Research

Overall, metropolitan areas in Connecticut, California, and Washington have consumer prices above the national average. The San Jose, Calif., metropolitan area has the highest consumer prices of the group at 50.3 percent above the national average. The Tulsa, Okla., metropolitan area has the lowest consumer prices of the group, followed by the Ogden, Utah, metropolitan area, at 10.0 and 8.5 percent below the national average, respectively.

In addition to comparing consumer prices, it is also important to measure relative housing costs between areas. The current value of housing in an area, relative to the United States, provides information on differences in housing costs. However, it is also important to measure how home values in an area tend to change over time, relative to the United States.

Housing Cost

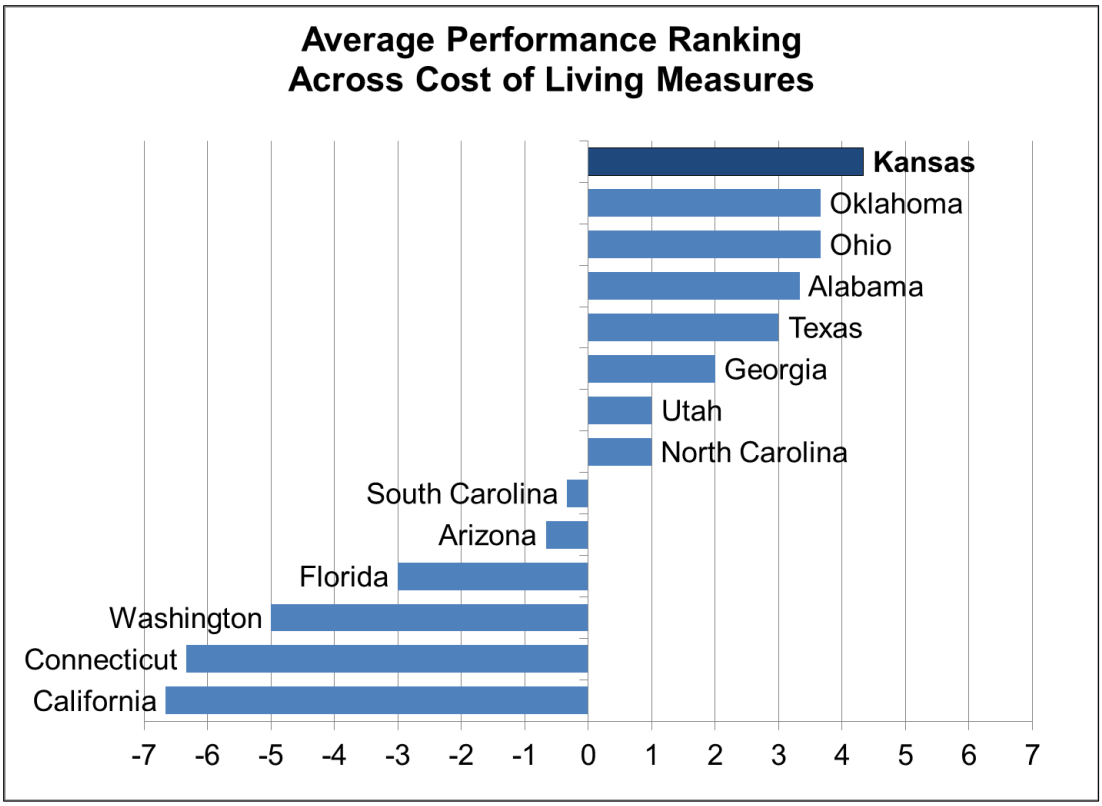
	Median Home Value		Home Appreciation	
	Value	Percent of U.S. Median	Average Change in FHFA Index (2000-2011)	Difference from U.S. Average
United States	$188,400	-	0.6%	-
Alabama	$117,600	62.4%	0.7%	0.1%
Arizona	$215,000	114.1%	0.5%	-0.1%
California	**$458,500**	**243.4%**	**1.0%**	**0.4%**
Connecticut	$296,500	157.4%	0.9%	0.3%
Florida	$205,600	109.1%	0.8%	0.2%
Georgia	$161,400	85.7%	**0.3%**	**-0.3%**
Kansas	$122,600	65.1%	0.6%	0.0%
North Carolina	$149,100	79.1%	0.6%	0.0%
Ohio	$136,400	72.4%	**0.3%**	**-0.3%**
Oklahoma	**$104,300**	**55.4%**	0.8%	0.2%
South Carolina	$134,100	71.2%	0.7%	0.1%
Texas	$123,500	65.6%	0.7%	0.1%
Utah	$218,100	115.8%	0.6%	0.0%
Washington	$285,400	151.5%	0.8%	0.2%

Source: U.S. Census Bureau, Federal Housing Finance Administration

The states of California, Connecticut, Washington, Utah Arizona and Florida all have median home values above the national average. The highest median home value, of the states being considered, is in California at $458,500, which is 243.4 percent above the national average. Connecticut and Washington also have median home values considerably higher than the national average, at 57.4 and 51.5 percent, respectively. Of the states with median home values above the national average, only Arizona's average home value appreciation is less than the national rate.

The lowest median home value, of the states being considered, is in Oklahoma, at $104,300, which is 55.4 percent of the national average. However, Georgia, North Carolina, Ohio, South Carolina, Texas, Kansas and Alabama also have median home values below the national average. Of these states,

Georgia and Ohio, on average, have home values that are increasing at less than the national average rate. North Carolina and Kansas are increasing on average at the national rate.



In a ranking of the fourteen states being considered, three states have consistently high measures of cost of living: California, Connecticut and Washington.[22] These states have high housing costs, which tend to increase faster than the national average, and higher than average prices for consumer goods.

Kansas had the best average performance across all three measures of cost of living, ranking moderately well in all three categories. Oklahoma, which had the second best average performance, had the lowest consumer prices and median housing value. However, housing costs in Oklahoma tend to increase faster than the national average. In Ohio consumer prices and housing costs are slightly below the national average, and housing costs increase slower than the national average rate.

Community Income

Median household income and percent of total population below the poverty level are both broad measures of the overall economic well-being in a state. Typically the higher levels of income will correlate with higher levels of health and education, while higher levels of poverty correlate with low levels of health and education.

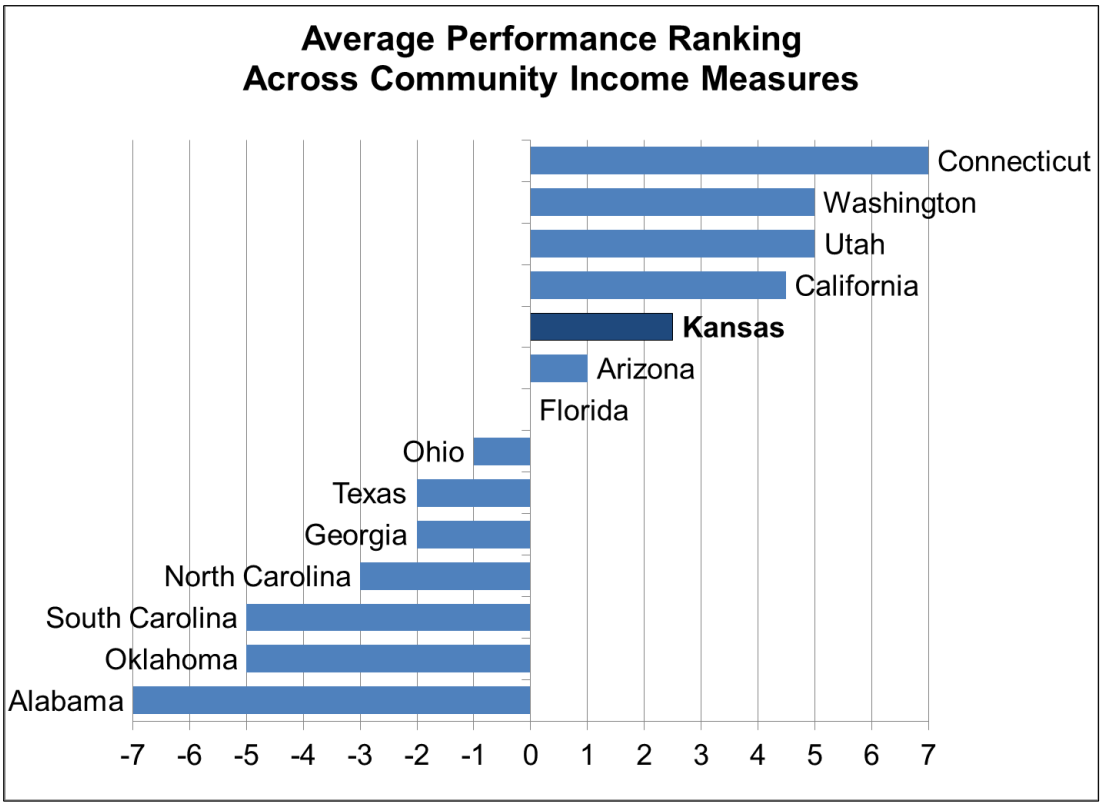
[22] To develop a ranking across cost of living measures, of the 14 states being considered, the average cost of living of all metropolitan areas in the state was used as a state average.

Income and Poverty

	Median Household Income		Percent of Population Below Poverty Level	
	Level	Percent of U.S.	Level	Difference from U.S.
United States	$51,914		13.8%	
Alabama	**$42,081**	**81%**	**17.1%**	**3.3%**
Arizona	$50,448	97%	15.3%	-1.8%
California	$60,883	117%	13.7%	-1.6%
Connecticut	**$67,740**	**130%**	**9.2%**	**-4.6%**
Florida	$47,661	92%	13.8%	4.7%
Georgia	$49,347	95%	15.7%	1.9%
Kansas	**$49,424**	**95%**	**12.4%**	**-3.3%**
North Carolina	$45,570	88%	15.5%	3.1%
Ohio	$47,358	91%	14.2%	-1.4%
Oklahoma	$42,979	83%	16.2%	2.1%
South Carolina	$43,939	85%	16.4%	0.2%
Texas	$49,646	96%	16.8%	0.4%
Utah	$56,330	109%	10.8%	-5.9%
Washington	$57,244	110%	12.1%	1.3%

Source: U.S. Census Bureau, American Community Survey 2006-2010

Of the comparison states, Connecticut has both the highest median household income and the lowest level of poverty. Alabama has both the lowest median household income and the highest level of poverty. Kansas ranked moderately well in both household income and the percent of the population below the poverty level.


Average Performance Ranking
Across Community Income Measures
Connecticut
Washington
Utah
California
Kansas
Arizona
Florida
Ohio
Texas
Georgia
North Carolina
South Carolina
Oklahoma
Alabama
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
7

Existing Aerospace Infrastructure

Aerospace Products and Parts Manufacturing

	Employment			Establishments	
	2011 Annual Average	2011 Percent of U.S. Total	Av. Annual Growth (2007-2011)	2011 Annual Average	Net Change (2007-2011)
Washington	**86,582**	**17.8%**	2.1%	178	-16
California	71,353	14.7%	-0.2%	**601**	**-33**
Texas	48,391	10.0%	0.3%	225	-25
Kansas	**32,196**	**6.6%**	**-5.6%**	**148**	**5**
Connecticut	30,546	6.3%	-0.8%	160	6
Arizona	26,435	5.4%	-0.7%	126	-5
Georgia	21,680	4.5%	3.4%	127	46
Florida	19,156	3.9%	-0.6%	297	**78**
Ohio	15,783	3.3%	-0.5%	125	10
Missouri	14,490	3.0%	-0.1%	47	4
Alabama	13,180	2.7%	0.5%	48	2
Massachusetts	11,776	2.4%	-0.2%	35	2
Pennsylvania	11,608	2.4%	7.0%	62	-12
Colorado	6,970	1.4%	-2.6%	33	-8
New York	6,932	1.4%	0.3%	98	-9
Indiana	6,787	1.4%	-1.1%	41	1
Utah	5,999	1.2%	**-7.6%**	56	5
Maryland	5,770	1.2%	4.2%	34	2
Oklahoma	5,600	1.2%	2.2%	67	-13
South Carolina	4,534	0.9%	**51.4%**	23	13
North Carolina	4,258	0.9%	5.4%	47	16
Arkansas	3,298	0.7%	-2.1%	29	2
Michigan	3,205	0.7%	1.6%	60	-7
Oregon	2,940	0.6%	1.4%	38	-5
Kentucky	2,826	0.6%	0.6%	24	11
Illinois	2,711	0.6%	0.2%	45	0
West Virginia	**2,501**	**0.5%**	-1.6%	**12**	-1

Source: Bureau of Labor Statistics

Between 2007 and 2011 total national employment contracted 4.4 percent. The aerospace product and parts manufacturing industry contracted only 0.38 percent by comparison. However, among the states with aerospace product and parts manufacturing, performance has varied.

Alabama, Georgia, North Carolina and South Carolina have had increases in both aerospace employment and the number of aerospace establishments.[23] At 51.4 percent, South Carolina had the highest annual average employment growth in the industry between 2007 and 2011, adding, on average, 13 new establishments over the same time period.

Oklahoma, Washington, Texas and Pennsylvania have all experienced growth in employment, as well. However, on average there were fewer aerospace establishments in 2011 than there were in 2007 in each of these states. Washington, the nation's largest aerospace employer, experienced an annual average growth rate of 2.1 percent in employment, yet saw an average decrease of 16 establishments. Texas saw a very modest annual average growth rate at 0.3 percent and a decrease of 25 establishments. Pennsylvania and Oklahoma aerospace employment grew, on average 7 and 2.2 percent, respectively, with a decrease in the average number of establishments of 12 and 13, respectively.

Between 2007 and 2011, aerospace product and parts manufacturing employment declined in Kansas, Connecticut, Florida, Ohio, Missouri, Utah and Massachusetts although there was an increase in the average number of establishments in each state. Of these states, Utah and Kansas had the most significant decrease in average annual employment of 7.6 and 5.6 percent, respectively, while adding five new aerospace establishments. Connecticut, Florida, Ohio, Missouri and Massachusetts all experienced decreases in average annual employment rates of less than one percent. Florida had the largest increase in the number of aerospace establishments at 78. The remaining key states added 10 or fewer establishments.

California and Arizona had both a decrease in employment and in the average number of establishments. California saw aerospace employment decrease at an annual average rate of 0.2 percent and has 33 fewer establishments. Arizona aerospace employment decreased at an annual average rate of 0.7 percent and has on average 5 fewer establishments.

Industry Concentration

In addition to measuring the absolute level of industry employment, measuring the concentration and performance of a local segment of the aerospace product and parts manufacturing industry relative to the industry's national performance develops a more comprehensive picture of aerospace infrastructure in the United States.

Employment growth in each state is measured relative to the growth of the industry nationally. Between 2007 and 2011 national aerospace products and parts manufacturing employment contracted by 0.38 percent. However, industry employment grew in some states, during this national recession. These states, on the right of the vertical axis on the following chart, had job retention that is greater

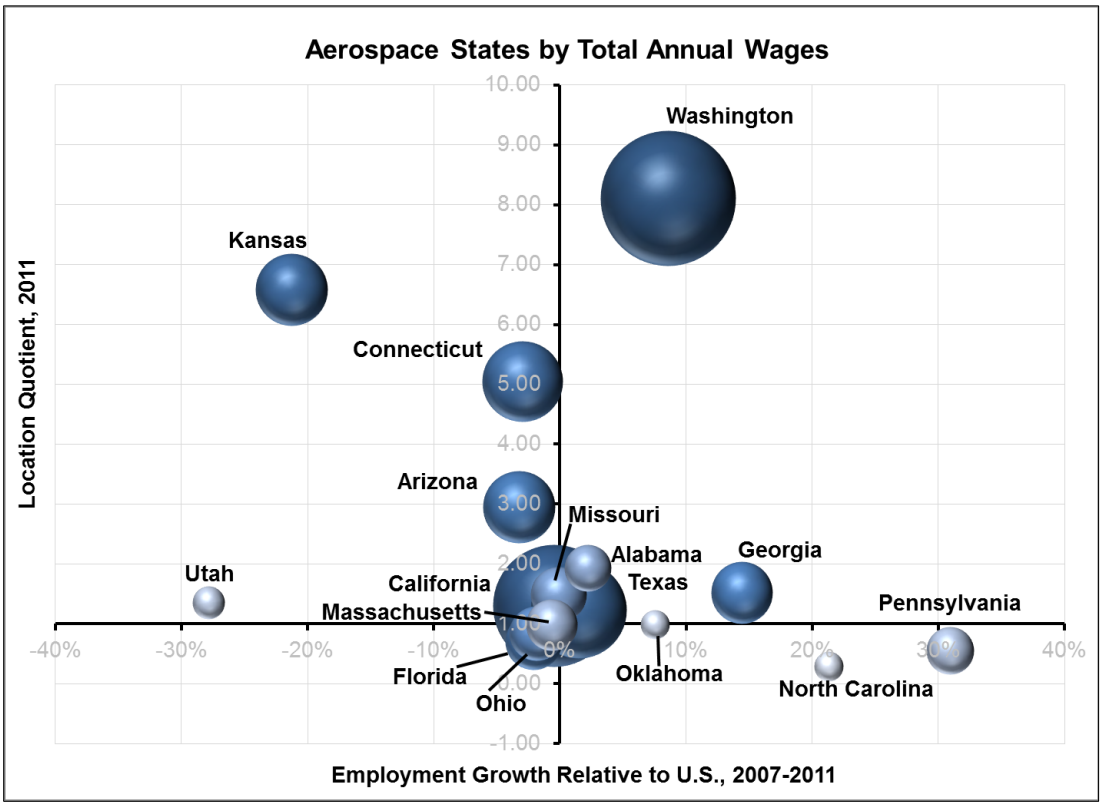
[23] Annual average of quarterly establishment counts. An establishment is commonly understood as a single economic unit that produces goods or services. Establishments are typically at one physical location and engaged in one, or predominantly one, type of economic activity for which a single industrial classification may be applied.

than the U.S. trend. The states to the left of the vertical axis indicate job retention that was less than the U.S. trend.

Additionally, a location quotient, which is the ratio between the percentage of regional industry employment and the percentage of national industry employment, is calculated to determine whether the regional economy has a greater share of an industry than expected. Values greater than 1.20 indicate specialization of an industry within the region.

Washington and Kansas have the highest degree of specialization in the aerospace product and parts manufacturing industry. The location quotient of the industry has increased in Washington State from 7.60 in 2007 to 8.12 in 2011. The location quotient of the industry in Kansas has decreased over the same time period from 8.41 to 6.58.

Furthermore, the overall value of the total wages paid by an industry into the local economy provides information on the impact of the aerospace industry in an area. The size of the bubble in the graph below represents the relative earnings between the nine key states. The total wages paid to aerospace products and parts manufactures are significantly higher in Washington and California than the other key states, primarily due to the larger number of aerospace workers in those areas.



Aerospace Product and Parts Manufacturing

	Employment		Change in Employment	Change Relative to U.S.	Location Quotient	
	2007	2011		2007-2011	2007	2011
U.S. Total	487,201	485,363	-0.38%	-	-	-
Washington	80,036	86,582	8.18%	8.56%	7.60	**8.12**
California	71,971	71,353	-0.86%	-0.48%	1.28	1.31
Texas	47,871	48,391	1.09%	1.46%	1.30	1.24
Kansas	**41,092**	**32,196**	**-21.65%**	**-21.27%**	**8.41**	**6.58**
Connecticut	31,609	30,546	-3.36%	-2.99%	5.21	5.05
Arizona	27,426	26,435	-3.61%	-3.24%	2.88	2.96
Georgia	19,012	21,680	14.03%	14.41%	1.30	1.52
Florida	19,639	19,156	-2.46%	-2.08%	0.69	0.71
Ohio	16,145	15,783	-2.24%	-1.86%	0.85	0.85
Missouri	14,560	14,490	-0.48%	-0.10%	1.49	1.49
Alabama	12,941	13,180	1.85%	2.22%	1.84	1.94
Massachusetts	11,899	11,776	-1.03%	-0.66%	1.02	0.98
Pennsylvania	8,891	11,608	30.56%	30.94%	0.44	0.56
Utah	8,359	5,999	**-28.23%**	**-27.86%**	1.90	1.36
Oklahoma	5,226	5,600	7.16%	7.53%	0.95	0.99
North Carolina	3,521	4,258	20.93%	21.31%	0.24	**0.30**
South Carolina	866	4,534	**423.56%**	**423.93%**	**0.13**	0.68

Source: Bureau of Labor Statistics

Location quotients greater than or equal to 1.20 indicate specialization

Key Communities and Components

Understanding the relative concentration and performance of each state within the national aerospace industry infrastructure is valuable. Therefore, CEDBR examined how the aerospace industry fits into the infrastructure of each state and the specific specialization of each state within the four subsectors of the aerospace industry: aircraft manufacturing, aircraft engine and engine parts manufacturing, other aircraft parts and auxiliary equipment manufacturing, and guided missile and space vehicle manufacturing.

- The aircraft manufacturing subsector is primarily dominated by manufacturers in Washington and Kansas.
- The aircraft engine and engine parts manufacturing subsector is primarily dominated by companies in Connecticut and Ohio.
- The other aircraft parts and auxiliary equipment manufacturing subsector, as with the aircraft manufacturing subsector, is primarily dominated by manufacturers in Washington and Kansas.
- Although much of the data on the guided missile and space vehicle manufacturing subsector is suppressed, a significant amount of this manufacturing is done in Arizona and California.

Alabama

The Alabama economy is most concentrated in textile and logging industries; however, there is a significant presence of aerospace product and parts manufacturers. Aerospace manufacturing employed more workers in the state than many of the more concentrated industries. Aerospace employment in the state increased since 2007 at an average annual rate of 0.5 percent. There is also a significant presence of automobile manufacturing in the state.

Alabama 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	1,813,588	100.0%	-
Aerospace Product and Parts Manufacturing	**13,180**	**0.7%**	**1.94**
Apparel Knitting Mills	1,877	0.1%	8.07
Fiber, Yarn, and Thread Mills	3,200	0.2%	7.87
Logging	4,096	0.2%	5.97
Pulp, Paper, and Paperboard Mills	8,726	0.5%	5.69
Manufacturing and Reproducing Magnetic and Optical Media	1,750	0.1%	5.57

Source: Bureau of Labor Statistics

Within the state of Alabama the aerospace industry had a presence in aircraft manufacturing, with almost half of the state's aerospace workers working in that subsector. Alabama also had a high concentration of employment in guided missile and space vehicle manufacturing, with the majority of these facilities located in the Huntsville metropolitan area in northern Alabama.

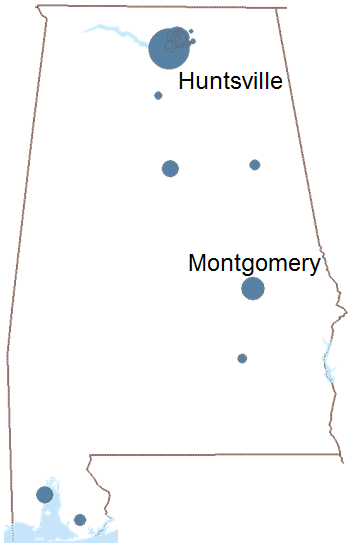
Wages in aerospace product and parts manufacturing, and both of the subsectors for which data is available, were below the national average wage.

Alabama 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**48**	**13,180**	**1.94**	**$74,622**	**84.7%**
Aircraft	17	6,218	1.90	$67,792	72.9%
Aircraft Engine and Engine Parts	8	NA	NA	NA	NA
Other Aircraft Parts and Auxiliary Equipment	9	1,899	1.35	$57,445	85.0%
Guided Missile and Space Vehicle	15	2,135	2.05	NA	NA

Source: Bureau of Labor Statistics

There are aerospace manufacturing facilities across the state, with the highest concentration in Huntsville where the largest aerospace employer is The Boeing Company. There was a small increase in the average number of aerospace establishments in the state since 2007, a gain of two. However, Airbus announced plans to bring a manufacturing facility and about 1,000 new jobs to the Mobile area in the southern part of the state[24]. Some of the largest employers in the state include, but are not limited to, those listed below.



Alabama Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	Boeing Co.	Huntsville	1,000-5,000
Aircraft Engine and Engine Parts	Teledyne Continental Motors	Mobile	500-1,000
	Honeywell Aerospace	Anniston	250-500
Other Aircraft Parts and Auxiliary Equipment	GKN Westland Aerospace	Tallassee	1,000-5,000
	Kaiser Aircraft Industries Inc	Birmingham	500-1,000
	Drs Test & Energy Mgmt LLC	Huntsville	500-1,000
	Westwind Technologies Inc	Huntsville	250-500
	Goodrich Aerostructures OEM	Foley	250-500
Guided Missile and Space Vehicle	Dynetics Inc	Huntsville	500-1,000
	Lockheed Martin Space Systems	Huntsville	500-1,000
	SAIC Inc	Huntsville	500-1,000
	COLSA Corp	Huntsville	500-1,000
	Aar Summa Technology Inc	Huntsville	250-500

Source: Reference USA, The Boeing Company

[24] Alabama Aerospace Industry Association

Arizona

Although not in the top five most specialized industries in Arizona, aerospace product and parts manufacturing is one of the largest employers outside of the service and retail sectors in the state. Employment in the aerospace industry in Arizona declined since 2007 at an average annual rate of 0.7 percent. Other large employers were in the building equipment contractors and depository credit intermediation industries.

Arizona had the fourth highest concentration of aerospace products and parts manufacturing behind Washington, Kansas and Connecticut. There is also a high concentration of electronic component manufacturing and trade schools, which are important to the aerospace industry.

Arizona 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	2,383,725	100.0%	-
Aerospace Product and Parts Manufacturing	**26,435**	**1.1%**	**2.96**
Metal Ore Mining	9,318	0.4%	12.40
Activities Related to Credit Intermediation	21,291	0.9%	4.44
Urban Transit Systems	3,093	0.1%	4.06
Land Subdivision	3,006	0.1%	3.60
Semiconductor and Other Electronic Component Manufacturing	23,108	1.0%	3.27

Source: Bureau of Labor Statistics

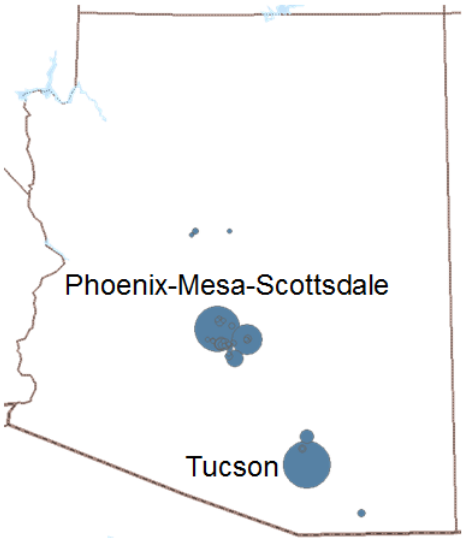
Arizona specializes in aircraft engine and engine parts manufacturing and other aircraft part and auxiliary equipment manufacturing. The data is not available on guided missile and space vehicle manufacturing; however, there is a strong presence of employers in this subsector in Tucson.

Average annual wages in the aircraft engine and engine parts manufacturing subsector in Arizona are 105.6 percent of the average annual national wage. This is the fourth highest of the aerospace states. Only Connecticut, Massachusetts and Ohio have higher wages at 117.1, 114.2 and 112.0 percent of the national average, respectively.

Arizona 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**126**	**26,435**	**2.96**	**$90,570**	**102.7%**
Aircraft	29	4,957	1.15	$89,261	96.0%
Aircraft Engine and Engine Parts	36	4,984	3.50	$86,933	105.6%
Other Aircraft Parts and Auxiliary Equipment	55	3,614	1.96	$66,835	98.8%
Guided Missile and Space Vehicle	6	NA	-	NA	-

Source: Bureau of Labor Statistics



The aerospace industry in Arizona is centralized in two metropolitan areas. The Phoenix metropolitan area in the south central part of the state is home to Boeing and Honeywell. Raytheon Missile Systems is one of the largest employers in Tucson, in the southern part of the state. The average number of aerospace establishments in the state has declined by five since 2007. Some of the largest aerospace employers in the state include, but are not limited to, those listed below.

Arizona Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	Boeing Co.	Mesa	1,000-5,000
	Aviation Communication	Phoenix	250-500
Aircraft Engine and Engine Parts	Honeywell Aerospace	Phoenix	5,000-10,000
	Hamilton Sundstrand Corp	Phoenix	500-1,000
Other Aircraft Parts	Goodrich Aircraft Interior Prd	Phoenix	500-1,000
Guided Missile and Space Vehicle	Raytheon Missile Systems	Tucson	5,000-10,000
	Orbital Sciences Corp	Chandler	1,000-5,000
	Honeywell Aerospace	Tucson	500-1,000

Source: Reference USA, TREO-Tucson Regional Economic Opportunities, Arizona Republic

California

There are 71,353 people employed in the aerospace product and parts industry in California. Only the state of Washington has more people employed in the industry. Aerospace employment in the state contracted since 2007 at an average annual rate of 0.2 percent. Although California has a high level of aerospace employment with respect to the total industry, it is a small portion of the state's economy. There are higher levels of concentration and employment in crop production, apparel manufacturing and the motion picture industry.

California has a high concentration of computer and peripheral equipment manufacturing, and semiconductor and other electronic component manufacturing, with a location quotient of 3.27 and 2.09, respectively. Each of these industries indirectly supports the aerospace industry.

California 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	14,568,804	100.0%	-
Aerospace Product and Parts Manufacturing	**71,353**	**0.5%**	**1.31**
Support Activities for Crop Production	182,379	1.3%	5.51
Fruit and Tree Nut Farming	95,530	0.7%	4.59
Private Households	297,124	2.0%	4.12
Cut and Sew Apparel Manufacturing	52,704	0.4%	3.83
Motion Picture and Video Industries	139,798	1.0%	3.56

Source: Bureau of Labor Statistics

The aerospace industry in California is highly concentrated in other aircraft parts and auxiliary equipment manufacturing, and guided missile and space vehicle manufacturing. There are more establishments in these subsectors in California than in any other state for which data is available.

Wages in the aircraft engine and engine parts, and other aircraft parts and auxiliary equipment subsectors in California have an average annual wage below the national average. Wage data for the guided missile and space vehicle subsector were not available.

At 116.9 percent of the national average, average annual wages in the aircraft manufacturing subsector were higher in California than in any of the other aerospace states for which data is available. Although, relative to the industry, California is not considered to be highly concentrated in this subsector, there are more aircraft manufacturing establishments in California than any other state.

California 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**601**	**71,353**	**1.31**	**$96,499**	**109.5%**
Aircraft	115	20,664	0.79	$108,715	116.9%
Aircraft Engine and Engine Parts	59	2,582	0.30	$72,321	87.9%
Other Aircraft Parts and Auxiliary Equipment	339	25,758	2.29	$66,655	98.6%
Guided Missile and Space Vehicle	89	22,350	2.67	NA	NA

Source: Bureau of Labor Statistics

The aerospace industry in California consists of a few large employers and a large number of small employers spread around the metropolitan areas of San Jose, Los Angeles and San Diego. San Diego is home to the Lawrence Livermore National Laboratory, a defense and global security testing center. The Boeing Company has a large manufacturing facility just south of Los Angeles. Northrop Grumman and Goodrich Aero-structures Group have large manufacturing facilities in and around San Diego. Although there are a large number of aerospace establishments in the state, the average number of establishments declined since 2007 by 33 establishments. Some of the largest employers in the state include, but are not limited to, those listed below.

California Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	Boeing Co	Huntington Beach	10,000+
	Robinson Helicopter Co	Torrance	1,000-5,000
	Continental Data Graphics	San Diego	500-1,000
	Aeronautical Systems Inc	Palmdale	250-500
	Concorde Battery Corp	West Covina	250-500
Aircraft Engine and Engine Parts	Pratt & Whitney	Canoga Park	1,000-5,000
	Alcoa Fastening Systems	Fullerton	1,000-5,000
	Hamilton Sundstrand Corp	San Diego	500-1,000
	Avibank Mfg Inc	North Hollywood	250-500

Source: Reference USA

Continued

California Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Other Aircraft Parts and Auxiliary Equipment	Goodrich Aerostructures Group	Chula Vista	1,000-5,000
	Northrop Grumman	San Diego	1,000-5,000
	C&D Zodiac Inc	Huntington Beach	1,000-5,000
	Ducommun Aero Structures	Monrovia	1,000-5,000
	Consolidated Precision Prods	Pomona	500-1,000
	Delta Design Inc	Poway	500-1,000
	Panasonic Avionics Corp	Lake Forest	500-1,000
	Rockwell Collins Inc	Pomona	500-1,000
	Endevco Corp	San Juan Cpstrno	500-1,000
	BAE Systems	Mojave	250-500
	ITT Corp	Morgan Hill	250-500
	Sonic Industries Inc	Torrance	250-500
	HITCO Carbon Composites Inc	Gardena	250-500
	Baumann Engineering	Claremont	250-500
	GE Aviation	Santa Ana	250-500
	CIRCOR Aerospace Inc	Corona	250-500
	Eaton Corp	Costa Mesa	250-500
	Hartwell Corp	Placentia	250-500
Guided Missile and Space Vehicle	Lawrence Livermore Natl Lab	Livermore	5,000-10,000
	Raytheon	Fullerton	1,000-5,000
	Aerospace Corp	El Segundo	1,000-5,000
	Triumph Aerostructures	Hawthorne	500-1,000
	Lockheed Martin Corp	Palo Alto	500-1,000
	GKN Aerospace Chem-Tronics Inc	El Cajon	500-1,000
	Senior Aerospace Ketema	El Cajon	500-1,000
	Boeing Satellite Systems Intl	El Segundo	500-1,000
	Applied Aerospace Structures	Stockton	250-500
	ATK Spacecraft Systems	San Diego	250-500

Source: Reference USA

Connecticut

Aerospace product and part manufacturing is the third highest concentrated industry in the state of Connecticut, only insurance and employee benefit funds, and hardware manufacturing are more highly concentrated. Of the high concentration industries, aerospace product and parts manufacturing had the highest employment at 1.9 percent of the total state employment. Insurance carriers are the only industry, outside of service and retail sectors, which provide a higher level of employment than aerospace. Aerospace employment in Connecticut declined since 2007 at an annual average rate of 0.8 percent.

Although not among the top five most concentrated industries in the state, Connecticut had a high concentration of engine, turbine and power transmission equipment manufacturing and nonferrous metal production and processing, both with a location quotient of 2.09. Each of these industries provides support to the aerospace industry.

Connecticut 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	1,612,372	100.0%	-
Aerospace Product and Parts Manufacturing	**30,546**	**1.9%**	**5.05**
Insurance and Employee Benefit Funds	4,129	0.3%	7.03
Hardware Manufacturing	1,773	0.1%	6.06
Cable and Other Subscription Programming	3,949	0.2%	4.29
Forging and Stamping	4,249	0.3%	3.59
Other Electrical Equipment and Component Manufacturing	5,369	0.3%	3.45

Source: Bureau of Labor Statistics

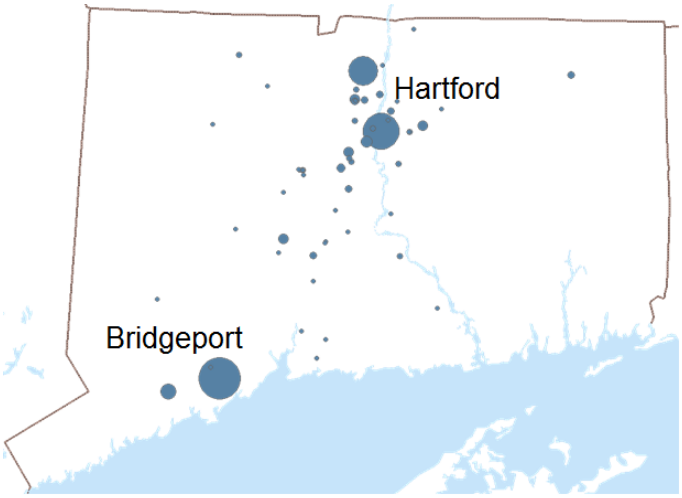
Of the aerospace states for which data is available, Connecticut had the highest concentration of aircraft engine and engine parts manufacturing. The average annual wage of aircraft engine and engine parts manufacturing is the highest of the states for which data is available, at 117.1 percent of the national average wage.

Although data is not available for the aircraft manufacturing subsector in Connecticut, the state had a significant presence in this subsector due to the Sikorsky Aircraft headquarters facility in Stratford.

Connecticut 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**160**	**30,546**	**5.05**	**$96,824**	**109.8%**
Aircraft	9	NA	NA	NA	NA
Aircraft Engine and Engine Parts	77	15,583	16.19	$96,370	117.1%
Other Aircraft Parts and Auxiliary Equipment	74	NA	NA	NA	NA
Guided Missile and Space Vehicle	NA	NA	NA	NA	NA

Source: Bureau of Labor Statistics



The aerospace industry in Connecticut is focused in two main metropolitan areas. Sikorsky Aircraft, a helicopter manufacturer, is the largest employer in the Bridgeport area. Pratt and Whitney, a manufacturer of engines, is the largest employer in the Hartford area. The annual average number of aerospace establishments in the state increased since 2007 by six establishments. Some of the largest employers in the state include, but are not limited to, those listed below.

Connecticut Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	Sikorsky Aircraft Corp	Stratford	10,000+
Aircraft Engine and Engine Parts	Pratt & Whitney	East Hartford	5,000-10,000
	General Electric Co	Fairfield	1,000-5,000
	United Technologies Corp	Hartford	500-1,000
Other Aircraft Parts and Auxiliary Equipment	Hamilton Sunstrand Corp	Windsor Locks	1,000-5,000
	Goodrich	West Hartford	500-1,000
	Kamatics Corp	Bloomfield	250-500
	Unison Engine Components	Manchester	250-500
	SPX Precision Components	Newington	250-500

Source: Reference USA, Hamilton Sunstrand Corp

Florida

Although there were 19,156 aerospace workers in the state of Florida, aerospace product and parts manufacturing is not highly concentrated in the state. Aerospace employment in the state has declined since 2007 at an average annual rate of 0.6 percent. Florida is highly specialized in the travel and tourism industries. The highest employment in the state was in the service and medical industries.

Florida 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	7,194,437	100.0%	-
Aerospace Product and Parts Manufacturing	**19,156**	**0.3%**	**0.71**
Amusement Parks and Arcades	61,962	0.9%	6.49
Deep Sea, Coastal, and Great Lakes Water Transportation	11,606	0.2%	5.46
Forest Nurseries and Gathering of Forest Products	605	0.0%	3.53
Vegetable and Melon Farming	15,526	0.2%	2.95
Travel Arrangement and Reservation Services	26,903	0.4%	2.55

Source: Bureau of Labor Statistics

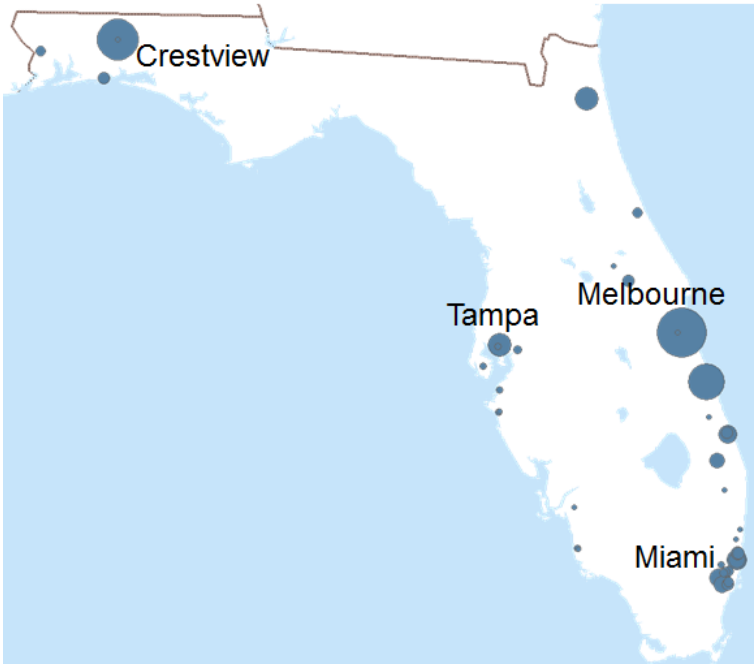
The state of Florida did not have a significantly high concentration of aerospace product and parts manufacturing in general; however, there was a significant presence in the guided missile and space vehicle subsector. This can be attributed to the presence of The Kennedy Space Center in Cape Canaveral on the southwest side of the State.

Wages in Florida, in all subsectors of aerospace product and parts manufacturing for which data is available, were between 15 and 25 percent less than the national average aerospace wage.

Florida 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**297**	**19,156**	**0.71**	**$77,345**	**87.7%**
Aircraft	65	4,112	0.32	$70,119	75.4%
Aircraft Engine and Engine Parts	94	3,985	0.93	$70,182	85.3%
Other Aircraft Parts and Auxiliary Equipment	84	3,271	0.59	$54,081	80.0%
Guided Missile and Space Vehicle	54	6,394	1.54	NA	NA

Source: Bureau of Labor Statistics



The aerospace industry has a presence in many areas of Florida, with a number of small companies. There are concentrations of establishments around Cape Canaveral on the southwest side of the state where Northrop Grumman has a large facility. L-3 Crestview Aerospace also has a large aero-structure fabrication and assembly facility in the northwest part of the state. The average number of aerospace establishments in the state increased by 78 since 2007, more than any other key aerospace state. Some of the largest employers in the state include, but are not limited to, those listed below.

Florida Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	L-3 Crestview Aerospace	Crestview	1,000-5,000
	Piper Aircraft Inc	Vero Beach	500-1,000
	Sikorsky Aircraft Corp	Jupiter	250-500
Aircraft Engine and Engine Parts	Unison Industries LLC	Jacksonville	500-1,000
	HEICO Corp	Hollywood	250-500
	Turbocombustor Technology Inc	Stuart	250-500
	Jet Avion Corp	Hollywood	250-500
	Aerothrust Corp	Miami	250-500
	Chromalloy Gas Turbine LLC	Fort Walton Bch	250-500
Other Aircraft Parts and Auxiliary Equipment	Cae USA Inc	Tampa	500-1,000
	Aircraft Technology Inc	Hollywood	250-500
	AAR Landing Gear Svc	Medley	250-500
	LPI Corp	Hollywood	250-500
Guided Missile and Space Vehicle	Northrop Grumman Aerospace	Melbourne	1,000-5,000

Source: Reference USA

Georgia

The state of Georgia has 21,680 aerospace workers. The industry was considered a specialty of the state. However, it was far more concentrated in textile production and timber even though these industries do not account for a significant level of state employment. Aerospace employment in Georgia increased at an annual average rate of 3.4 percent since 2007.

Georgia also had a specialty in scheduled air transportation. With a location quotient of 3.16, this industry accounted for one percent of the state's employment. This is due to Hartsfield-Jackson Atlanta International Airport in Atlanta, the busiest airport in the world.[25]

Georgia 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	3,792,174	100.0%	-
Aerospace Product and Parts Manufacturing	**21,680**	**0.6%**	**1.52**
Textile Furnishings Mills	25,303	0.7%	15.83
Fiber, Yarn, and Thread Mills	8,955	0.2%	10.54
Timber Tract Operations	717	0.0%	6.74
Hunting and Trapping	253	0.0%	4.93
Fabric Mills	7,139	0.2%	4.38

Source: Bureau of Labor Statistics

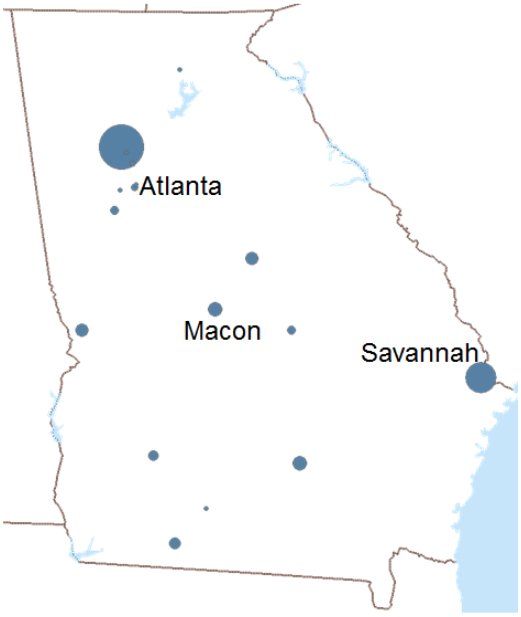
The aerospace industry in Georgia was concentrated in aircraft manufacturing. There is not a significant presence in other subsectors of the industry. The annual average wage in aircraft manufacturing in Georgia was 8.9 percent below the national average wage in aircraft manufacturing.

Georgia 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**127**	**21,680**	**1.52**	**$79,367**	**90.0%**
Aircraft	89	17,277	2.52	$84,746	91.1%
Aircraft Engine and Engine Parts	10	1,956	0.86	$57,471	69.8%
Other Aircraft Parts and Auxiliary Equipment	20	1,923	0.66	$54,024	79.9%
Guided Missile and Space Vehicle	8	NA	NA	NA	NA

Source: Bureau of Labor Statistics

[25] Airports Council International, 2011 North American (ACI-NA) Top 50 Airports



Aerospace facilities are spread around the state of Georgia, with the largest producers being Gulfstream, in Savannah, and Lockheed Martin, in Marietta. The average annual number of aerospace establishments in Georgia increased since 2007 by 46 establishments. Some of the largest employers in the state include, but are not limited to those listed below.

Georgia Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	Lockheed Martin	Marietta	5,000-10,000
	Gulfstream Aerospace Corp	Savannah	1,000-5,000
	Boeing Co	Macon	500-1,000
	Thrush Aircraft Inc	Albany	250-500
Aircraft Engine and Engine Parts	TECT Corp	Thomasville	250-500
Other Aircraft Parts and Auxiliary Equipment	PCC Airfoils	Douglas	500-1,000
	Cessna Aircraft Co	Columbus	500-1,000
	Triumph Aerostructures-Vought	Milledgeville	500-1,000
	World Airways Inc	Peachtree City	250-500

Source: Reference USA, Lockheed Martin

Kansas

Aerospace product and parts manufacturing was the second most concentrated industry in the state of Kansas. Many of the other highly concentrated industries in the state were agriculture related. There is also a high concentration of rail transportation support activities.

In Kansas, only restaurants and hospitals employ more people than the aerospace industry. Kansas had the second highest concentration of aerospace employment at 2.5 percent of total employment, only Washington had a higher percentage of their employment in the industry, at 3.0 percent. Aerospace employment in Kansas contracted at an average annual rate of 5.6 percent since 2007.

Kansas 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	1,304,070	100.0%	-
Aerospace Product and Parts Manufacturing	**32,196**	**2.5%**	**6.58**
Farm Product Raw Material Merchant Wholesalers	5,854	0.4%	7.87
Animal Food Manufacturing	3,048	0.2%	5.83
Oilseed and Grain Farming	2,010	0.2%	4.41
Animal Slaughtering and Processing	18,047	1.4%	3.69
Support Activities for Rail Transportation	877	0.1%	3.64

Source: Bureau of Labor Statistics

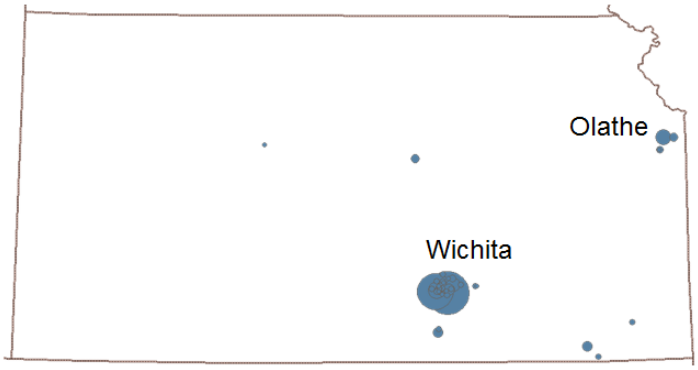
Kansas had one of the highest concentrations of both aircraft manufacturing and other aircraft parts and auxiliary equipment manufacturing, of the states for which data is available. However, it must be noted that some of the data in these subsectors were suppressed for both Washington and Connecticut which were also very active in aircraft manufacturing and other aircraft parts and auxiliary equipment manufacturing.

At 71.8 percent of the national average wage, Kansas had the lowest annual average wage for workers in the other aircraft parts and auxiliary equipment subsector of the aerospace states for which data is available. Kansas was also among the lowest in annual average wages in aircraft manufacturing.

Kansas 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**148**	**32,196**	**6.58**	**$73,224**	**83.1%**
Aircraft	21	25,343	10.76	$78,815	84.7%
Aircraft Engine and Engine Parts	14	1,044	1.34	$74,842	90.9%
Other Aircraft Parts and Auxiliary Equipment	113	5,809	5.76	$48,542	71.8%
Guided Missile and Space Vehicle	NA	NA	NA	NA	NA

Source: Bureau of Labor Statistics



The aerospace industry in Kansas is highly concentrated in the Wichita metropolitan area. There are, on average, five more aerospace establishments in the state than there were in 2007. Some of the largest employers in the state include, but are not limited to, those listed below.

Kansas Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	Spirit AeroSystems Inc	Wichita	10,000+
	Cessna Aircraft Co	Wichita	1,000-5,000
	Hawker Beechcraft Corp	Wichita	1,000-5,000
	Bombardier Aerospace	Wichita	1,000-5,000
Aircraft Engine and Engine Parts	GE Engine Svc	Arkansas City	1,000-5,000
	TECT Aerospace	Wellington	500-1,000
Other Aircraft Parts and Auxiliary Equipment	Honeywell Aerospace	Olathe	1,000-5,000
	Triumph	Wichita	250-500
	B/E Aerospace Inc	Lenexa	250-500
	Center Industries Corp	Wichita	250-500

Source: Reference USA

Massachusetts

Although there were 11,776 aerospace product and parts manufacturing workers employed in the state of Massachusetts, the industry is not considered a specialty of the state. Aerospace employment in the state decreased at an average annual rate of 0.2 percent since 2007. The state had a high concentration of various manufacturers, software publishers and hospitals. Hospitals are the largest employers in the state, after restaurants.

Massachusetts 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	3,187,984	100.0%	-
Aerospace Product and Parts Manufacturing	**11,776**	**0.4%**	**0.98**
Audio and Video Equipment Manufacturing	2,174	0.1%	4.46
Cutlery and Handtool Manufacturing	3,682	0.1%	3.71
Software Publishers	24,536	0.8%	3.69
Footwear Manufacturing	1,203	0.0%	3.57
Specialty (except Psychiatric and Substance Abuse) Hospitals	18,468	0.6%	3.55

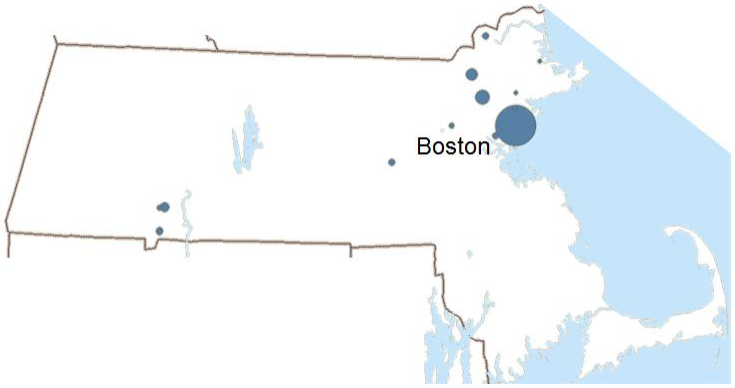
Source: Bureau of Labor Statistics

Within the state of Massachusetts, the aerospace product and parts manufacturing industry was concentrated in the manufacturing of aircraft engine and engine parts. Wages in this subsector tend to be higher in Massachusetts than in other states. Of the aerospace states for which data is available, only Connecticut had a higher annual wage in the aircraft engine and engine parts subsector.

Massachuetts 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**35**	**11,776**	**0.98**	**$103,905**	**117.9%**
Aircraft	2	NA	NA	NA	NA
Aircraft Engine and Engine Parts	21	4,328	2.27	$93,949	114.2%
Other Aircraft Parts and Auxiliary Equipment	8	217	0.09	$57,217	84.6%
Guided Missile and Space Vehicle	4	NA	NA	NA	NA

Source: Bureau of Labor Statistics



Aerospace product and parts manufacturing in Massachusetts is located around the Boston area. The largest aerospace employer in the state is GE Aviation, a manufacturer of aircraft engines and engine parts. Some of the largest employers in the state include, but are not limited to, those listed below.

Massachusetts Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	GE Aviation	Lynn	1,000-5,000
Other Aircraft parts and Auxiliary	AMETEK Aerospace & Defense	Wilmington	500-1,000
	Berkshire Industries Inc	Westfield	250-500
Guided Missile and Space Vehicle	Raytheon Integrated Defense	Andover	250-500

Source: Reference USA

Missouri

There were 14,490 workers employed in the aerospace product and parts manufacturing industry in the state of Missouri. The industry was one of the largest employers after services and retail establishments. Aerospace employment in the state declined slightly since 2007 at an average annual rate of 0.1 percent. The Missouri economy is highly focused on HVAC manufacturing, agricultural industries and gambling industries.

Missouri 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	2,585,111	100.0%	-
Aerospace Product and Parts Manufacturing	**14,490**	**0.6%**	**1.49**
Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	9,839	0.4%	3.82
Animal Food Manufacturing	3,713	0.1%	3.58
Gambling Industries	8,323	0.3%	3.30
Hog and Pig Farming	1,724	0.1%	2.99
Footwear Manufacturing	796	0.0%	2.91

Source: Bureau of Labor Statistics

Although data from the Bureau of Labor Statistics in the aircraft manufacturing, and guided missile and space vehicle sectors were suppressed, it is safe to assume that a significant portion of state employment in aerospace product and parts manufacturing can be attributed to these sectors. St. Louis is home to The Boeing Companies Defense, Space and Security division.

Missouri 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**47**	**14,490**	**1.49**	**$97,100**	**110.2%**
Aircraft	5	NA	NA	NA	NA
Aircraft Engine and Engine Parts	6	142	0.09	$60,301	73.3%
Other Aircraft Parts and Auxiliary Equipment	34	3,049	1.53	$69,687	103.1%
Guided Missile and Space Vehicle	1	NA	NA	NA	NA

Source: Bureau of Labor Statistics

Most of the aerospace product and parts establishments in the state are located around the St. Louis area. The average annual number of aerospace establishments in the state increased since 2007 by four establishments. Some of the largest employers in the state include, but are not limited to, those listed below.

Missouri Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	Boeing Co	St. Louis	10,000+
	Heizer Aerospace	Pevely	100-250
	Patriot Machine Inc	St Charles	100-250
Aircraft Engine and Engine Parts	Sabreliner Corp	Perryville	250-500
Other Aircraft Parts and Auxiliary Equipment	Signature Flight Support	St Louis	500-1,000
	LMI Aerospace Inc	St Charles	250-500
	RTI Tradco	Washington	100-250
	Triumph Structures	Grandview	100-250
	Growth Industries Inc	Grandview	100-250

Source: Reference USA, The Boeing Company

North Carolina

The state of North Carolina had neither a high concentration of aerospace product and parts manufacturing, nor a high level of employment in the industry. However, aerospace employment in the state grew at an average annual growth rate of 5.4 percent since 2007. This may be attributed to over $4.2 million in aerospace industry workforce grants awarded by the Golden Leaf Foundation in 2009.[26] The Golden Leaf Foundation is a nonprofit organization that distributes funds from the 1998 Master Settlement Agreement with cigarette manufacturers and places special emphasis on assisting tobacco-dependent, economically distressed and/or rural communities across the state. The states' economy is highly concentrated in tobacco manufacturing and textiles.

North Carolina 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	3,837,484	100.0%	-
Aerospace Product and Parts Manufacturing	**4,258**	**0.1%**	**0.30**
Apparel Knitting Mills	7,864	0.2%	15.99
Tobacco Manufacturing	6,820	0.2%	15.48
Fiber, Yarn, and Thread Mills	9,280	0.2%	10.79
Fabric Mills	12,762	0.3%	7.75
Textile and Fabric Finishing and Fabric Coating Mills	6,824	0.2%	6.50

Source: Bureau of Labor Statistics

The aerospace product and parts manufacturing employment in the state is most heavily concentrated in aircraft engine and engine parts manufacturing. Average wages in the industry are generally above the national average. However, in aircraft manufacturing average wages are below the national average.

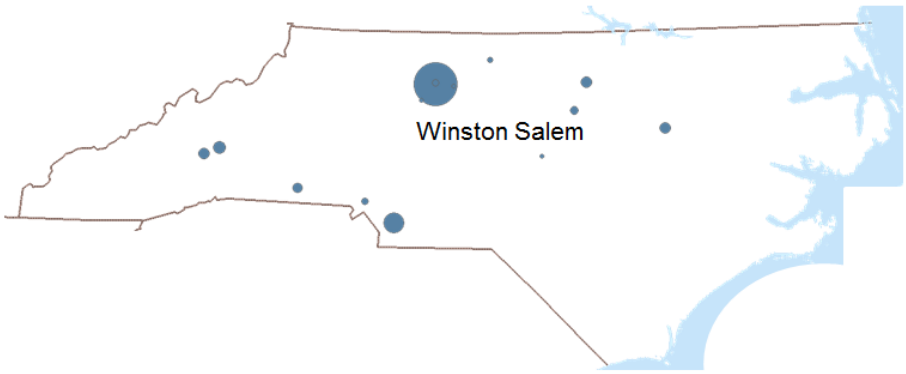
North Carolina 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**47**	**4,258**	**0.30**	**$90,555**	**102.7%**
Aircraft	10	121	0.02	$69,984	75.2%
Aircraft Engine and Engine Parts	25	2,762	1.21	$92,556	112.5%
Other Aircraft Parts and Auxiliary Equipment	13	1,376	0.46	$88,344	130.6%
Guided Missile and Space Vehicle	NA	NA	NA	NA	NA

Source: Bureau of Labor Statistics

[26] Golden Leaf Foundation

One of the largest aerospace employers in the state, B/E Aerospace, Inc. is located in the Winston Salem area. Many small manufactures are located across the state.



North Carolina Aerospace Product and Parts Manufacturing

	Large Employers	City	Estimated Employment
Aircraft	B/E Aerospace Inc	Winston Salem	500-1,000
Aircraft Engine and Engine Parts	Unison Engine Components	Asheville	250-500
	GE Aircraft Engines	Durham	250-500
Other Aircraft Parts and Auxiliary Equipment	Scott Health & Safety	Monroe	500-1,000
	Kearfott Motion Systems Div	Black Mountain	250-500
	Kidde Aerospace & Defense	Wilson	250-500
	Firstmark Aerospace Corp	Creedmoor	250-500
	Curtiss-Wright Controls	Shelby	250-500
	Landmark Aviation	Winston Salem	100-250
	UTC Aerospace Systems	Charlotte	100-250
	Beta Systems	Reidsville	100-250

Source: Reference USA

Ohio

Although 15,783 workers were employed in the aerospace product and parts manufacturing industry in Ohio, the industry was not highly concentrated in the state. The economy of Ohio was generally more focused on automobile manufacturing, which was also one of the largest employers in the state outside of the service and retail industries. Aerospace employment in Ohio decreased since 2007 at an average annual rate of 0.5 percent.

Ohio 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	4,968,225	100.0%	-
Aerospace Product and Parts Manufacturing	**15,783**	**0.3%**	**0.85**
Household Appliance Manufacturing	9,352	0.2%	4.33
Steel Product Manufacturing from Purchased Steel	7,761	0.2%	3.58
Nonscheduled Air Transportation	5,516	0.1%	3.52
Motor Vehicle Parts Manufacturing	57,182	1.2%	3.33
Vending Machine Operators	4,842	0.1%	3.32

Source: Bureau of Labor Statistics

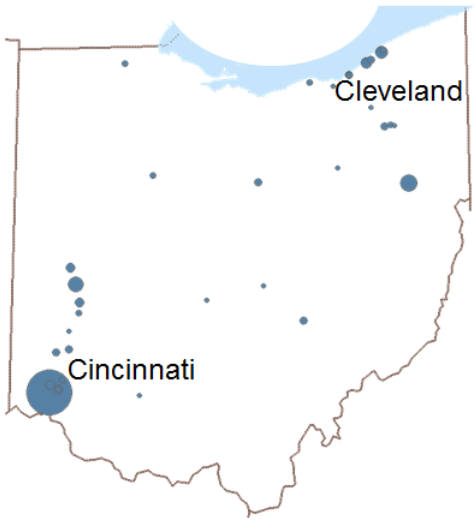
Although the state of Ohio was not considered to have a high concentration in general aerospace product and parts manufacturing, it is highly concentrated in aircraft engine and engine parts manufacturing. Only Connecticut had a higher concentration, in this subsector, of the states for which data is available.

Average annual wages, in Ohio engine and engine parts manufacturing, were above the national average rate. However, they were below both Connecticut and Massachusetts, where there is also a high concentration of aircraft engine manufacturing.

Ohio 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**125**	**15,783**	**0.85**	**$86,686**	**98.3%**
Aircraft	6	NA	NA	NA	NA
Aircraft Engine and Engine Parts	68	11,755	3.96	$92,181	112.0%
Other Aircraft Parts and Auxiliary Equipment	50	3,985	1.04	$70,926	104.9%
Guided Missile and Space Vehicle	1	NA	NA	NA	NA

Source: Bureau of Labor Statistics



Aerospace product and parts manufacturing is spread around the state of Ohio, with the highest level of employment in the Cincinnati area. This is due to a large GE Aviation facility. The average number of aerospace companies in the state has increased by 10 since 2007. Some of the largest employers in the state include, but are not limited to, those listed below.

Ohio Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft Engine and Engine Parts	GE Aviation	Cincinnati	5,000-10,000
Other Aircraft Parts and Auxiliary Equipment	PCC Airfoils	Minerva	1,000-5,000
	Goodrich Aircraft Wheels & Brk	Troy	500-1,000
	Hartzell Propeller Inc	Piqua	250-500
	CTL Aerospace Inc	West Chester	250-500

Source: Reference USA, GE Aviation

Oklahoma

The state of Oklahoma had neither a high concentration of aerospace product and parts manufacturing, nor a high level of employment in the industry. However, The Boeing Company has recently announced an expansion of its engineering facility in Oklahoma City. ASCO Aerospace has also announced plans to expand their facility in Stillwater, Okla. Aerospace product and parts manufacturing employment has grown at an average annual growth rate of 2.2 percent since 2007. The state of Oklahoma does have a high level of employment and concentration in industries related to oil and gas extraction.

Oklahoma 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	1,506,189	100.0%	-
Aerospace Product and Parts Manufacturing	**5,600**	**0.4%**	**0.99**
Other Pipeline Transportation	1,039	0.1%	13.26
Hog and Pig Farming	4,178	0.3%	12.45
Oil and Gas Extraction	21,070	1.4%	10.60
Support Activities for Mining	28,264	1.9%	7.04
Boiler, Tank, and Shipping Container Manufacturing	4,651	0.3%	4.50

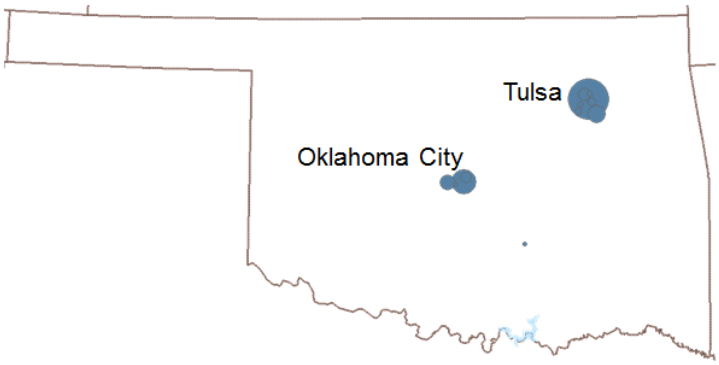
Source: Bureau of Labor Statistics

Within the state of Oklahoma employment is disbursed between two subsectors, aircraft and other aircraft parts and auxiliary equipment manufacturing, with the highest concentration in aircraft manufacturing. Wages in all sectors are significantly below the national average.

Oklahoma 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**67**	**5,600**	**0.99**	**$64,505**	**73.2%**
Aircraft	25	3,723	1.37	$72,273	77.7%
Aircraft Engine and Engine Parts	18	NA	NA	NA	NA
Other Aircraft Parts and Auxiliary Equipment	23	1,341	1.15	$48,180	71.3%
Guided Missile and Space Vehicle	1	NA	NA	NA	NA

Source: Bureau of Labor Statistics



The aerospace industry in Oklahoma is concentrated in two cities. Spirit Aero Systems, the largest aerospace company in the state, has a manufacturing facility in Tulsa. The Boeing Company has a facility near Tinker Air Force Base in Oklahoma City. Some of the largest

employers in the state include, but are not limited to, those listed below.

Oklahoma Aerospace Product and Parts Manufacturing

	Large Employers	City	Estimated Employment
Aircraft	The Boeing Company	Oklahoma City	1,000-5,000
	NORDAM Interiors/Stuctures Div	Tulsa	250-500
Aircraft Engine and Engine Parts	AAR Aircraft Svc Inc	Oklahoma City	500-1,000
	Chromalloy Gas Turbine LLC	Midwest City	250-500
Other Aircraft Parts and Auxiliary Equipment	Spirit Aero Systems	Tulsa	1,000-5,000
	Flight Safety Intl Inc	Broken Arrow	500-1,000
	Precise Machining & Mfg	Tulsa	100-250
	Limco Airepair Inc	Tulsa	100-250

Source: Reference USA

Pennsylvania

Although there were 11,608 aerospace product and parts manufacturing workers employed in the state of Pennsylvania, the industry is not considered a specialty of the state. However, aerospace employment in the state increased at an average annual rate of 7.0 percent since 2007. Pennsylvania was second only to South Carolina in the rate of employment growth in aerospace manufacturing. The state had a high concentration of rail car manufacturing, investment pools and funds, and iron and steel mills.

Pennsylvania 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	5,534,423	100.0%	-
Aerospace Product and Parts Manufacturing	**11,608**	**0.2%**	**0.56**
Railroad Rolling Stock Manufacturing	6,917	0.1%	7.65
Other Investment Pools and Funds	10,478	0.2%	6.18
Iron and Steel Mills and Ferroalloy Manufacturing	13,320	0.2%	3.40
Sugar and Confectionery Product Manufacturing	9,185	0.2%	3.20
Junior Colleges	6,781	0.1%	3.11

Source: Bureau of Labor Statistics

The majority of the aerospace employment in the state can be attributed to The Boeing Company's manufacturing facility in the Philadelphia area, with other aerospace facilities scattered across the state. Although the Bureau of Labor Statistics data was suppressed there were also a number of aerospace employers in the state in the guided missile and space vehicle subsector.

Pennsylvania 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**62**	**11,608**	**0.56**	**$88,354**	**100.2%**
Aircraft	10	7,275	0.73	$92,104	99.0%
Aircraft Engine and Engine Parts	13	NA	NA	NA	NA
Other Aircraft Parts and Auxiliary Equipment	27	1,588	0.37	$58,142	86.0%
Guided Missile and Space Vehicle	13	NA	NA	NA	NA

Source: Bureau of Labor Statistics

Although the state has seen a significant increase in aerospace employment, the average number of establishments has decreased by 12 since 2007. The largest employers in the industry in Pennsylvania are The Boeing Company and Lockheed Martin. Some of the largest employers in the state include, but are not limited to, those listed below.

Pennsylvania Large Aerospace Product and Parts Manufacturing

	Large Employers	City	Estimated Employment
Aircraft	Boeing Co	Ridley Park	5,000-10,000
	Agusta Aerospace Corp	Philadelphia	500-1,000
Aircraft Engine and Engine Parts	Textron Lycoming	Williamsport	500-1,000
Guided Missile and Space Vehicle	Lockheed Martin	Newtown	500-1,000
	Raytheon	State College	250-500

Source: Reference USA, The Boeing Company, Lockheed Martin

South Carolina

The state of South Carolina had neither a high concentration of aerospace product and parts manufacturing, nor a high level of employment in the industry. However, aerospace employment experienced more growth in South Carolina than any other state, growing at an average annual rate of 51.4 percent since 2007.

The state had a high concentration of industries that support aerospace manufacturing. Those are engine, turbine and power transmission equipment manufacturing, other fabricated metal product manufacturing and other electrical equipment and component manufacturing, with location quotients of 4.14, 3.10 and 2.31 respectively.

South Carolina 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	1,780,755	100.0%	-
Aerospace Product and Parts Manufacturing	**4,534**	**0.3%**	**0.68**
Fabric Mills	9,207	0.5%	12.04
Fiber, Yarn, and Thread Mills	2,926	0.2%	7.33
Textile and Fabric Finishing and Fabric Coating Mills	3,160	0.2%	6.49
Waste Treatment and Disposal	7,397	0.4%	5.69
Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	6,747	0.4%	5.44

Source: Bureau of Labor Statistics

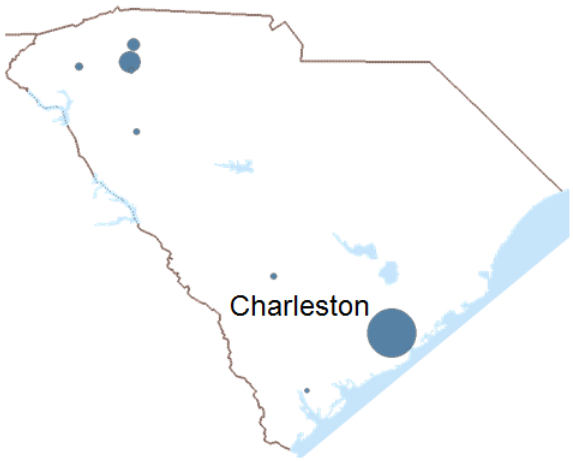
Although much of the aerospace product and part manufacturing data from the Bureau of Labor Statistics was suppressed, it is safe to assume that a significant portion of the aerospace employment in the state is, or will be, attributed to aircraft manufacturing, due to The Boeing Company's new final assembly and delivery facility in North Charleston.

South Carolina 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**23**	**4,534**	**0.68**	**$76,650**	**87.0%**
Aircraft	11	NA	NA	NA	NA
Aircraft Engine and Engine Parts	5	NA	NA	NA	NA
Other Aircraft Parts and Auxiliary Equipment	7	303	0.22	$73,439	108.6%
Guided Missile and Space Vehicle	NA	NA	NA	NA	NA

Source: Bureau of Labor Statistics

On average there were 13 more aerospace establishments in South Carolina than there were in 2007. The largest aerospace employers in the state are The Boeing Company and Lockheed Martin. Some of the largest employers in the state include, but are not limited to, those listed below.



South Carolina Aerospace Product and Parts Manufacturing

	Large Employers	City	Estimated Employment
Aircraft	Boeing*	Charleston	1,000-5,000
Aircraft Engine and Engine Parts	Goodrich Turbine Component Svc	Hodges	100-250
Other Aircraft Parts and Auxiliary Equipment	Lockheed Martin	Greenville	1,000-5,000
	Honeywell Aerospace	Greer	500-1,000
	Champion Aerospace Inc	Liberty	250-500
	Goodrich Spray Technologies	Bamberg	100-250
	Woven Electronics Corp	Simpsonville	100-250

Source: Reference USA, Charleston Metro Chamber of Commerce, Lockheed Martin

* This facility became active in late 2011, and employment numbers are not included in the Bureau of Labor Statistics numbers.

Texas

The state of Texas had the third highest level of employment in the aerospace product and parts manufacturing industry, after Washington and Kansas. Although there was a concentration of aerospace manufacturing in Texas, the highest levels of concentration and employment in the state were in the oil and gas extraction industry. Aerospace employment in Texas increased since 2007 at an average annual rate of 0.3 percent.

Texas 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	10,420,533	100.0%	-
Aerospace Product and Parts Manufacturing	**48,391**	**0.5%**	**1.24**
Oil and Gas Extraction	88,091	0.8%	6.41
Pipeline Transportation of Crude Oil	4,488	0.0%	6.23
Support Activities for Mining	137,906	1.3%	4.96
Pipeline Transportation of Natural Gas	10,770	0.1%	4.90
Agriculture, Construction, and Mining Machinery	52,642	0.5%	2.90

Source: Bureau of Labor Statistics

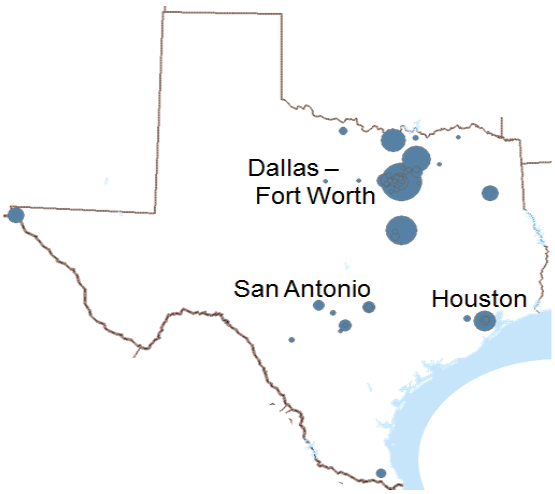
Within the state of Texas, the aircraft industry was most highly concentrated in aircraft manufacturing. Although data from the Bureau of Labor Statistics is suppressed, there were also a number of companies in the state which attribute at least part of their production to the guided missile and space vehicle production.

Wages in aerospace product and parts manufacturing in Texas were almost equal to the national average. However, within each subsector they range from 27.9 percent below the national average in aircraft engine and engine parts manufacturing, to 22.2 percent above the national average in other aircraft parts and auxiliary equipment manufacturing.

Texas 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**225**	**48,391**	**1.24**	**$88,167**	**100.0%**
Aircraft	86	32,976	1.75	$92,282	99.2%
Aircraft Engine and Engine Parts	53	4,708	0.76	$59,331	72.1%
Other Aircraft Parts and Auxiliary Equipment	83	8,969	1.11	$82,663	122.2%
Guided Missile and Space Vehicle	4	NA	NA	NA	NA

Source: Bureau of Labor Statistics



Within the state of Texas, aerospace products and parts manufacturing has the most significant presence in and around the Dallas-Fort Worth metropolitan area. There are also groupings of producers in the San Antonio and Houston metropolitan areas. Although aerospace employment in the state increased, the average annual number of establishments has decreased since 2007 by 25 establishments. Some of the largest employers in the state include, but are not limited to, those listed below.

Texas Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	Lockheed Martin	Fort Worth	10,000+
	L-3 Communications	Waco	1,000-5,000
	Boeing Co	Richardson	1,000-5,000
	American Eurocopter CORP	Grand Prairie	500-1,000
	Mooney Aviation Co	Kerrville	250-500
Aircraft Engine and Engine Parts	Weber Aircraft LLP	Gainesville	1,000-5,000
Other Aircraft Parts and Auxiliary Equipment	CEMEX	El Paso	500-1,000
	WEIR Spm	White Settlement	500-1,000
	Parker-Hannifin Stratoflex	Fort Worth	250-500
	M 7 Aerospace	San Antonio	250-500
Guided Missile and Space Vehicle	Raytheon Network Centric Systs	McKinney	1,000-5,000
	United Space Alliance LLC	Houston	1,000-5,000
	General Dynamics	Kilgore	500-1,000
	CFAN Co	San Marcos	250-500
	Oceaneering International Inc	Houston	250-500

Source: Reference USA, The Boeing Company, Lockheed Martin

Washington

The state of Washington had the highest level and most concentrated aerospace product and parts manufacturing industry in the nation. Three percent of the state's workforce was employed in the industry. Only restaurants employ more people in the state. Aerospace employment in the state increased at an average annual rate of 2.1 percent since 2007. Washington also had a high concentration in fishing industries and software publishers. Timber and forestry related industries were also important to the state's economy.

Washington 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	2,844,666	100.0%	-
Aerospace Product and Parts Manufacturing	**86,582**	**3.0%**	**8.12**
Fishing	1,682	0.1%	11.67
Fruit and Tree Nut Farming	42,323	1.5%	10.42
Software Publishers	51,531	1.8%	8.67
Seafood Product Preparation and Packaging	7,060	0.2%	8.66
Aquaculture	791	0.0%	6.33

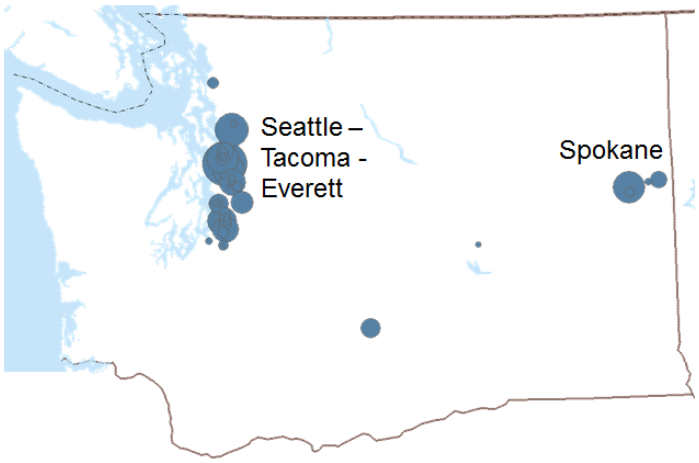
Source: Bureau of Labor Statistics

Although the data is suppressed for aircraft manufacturing in Washington, it is safe to assume that there is a very high, if not the highest, concentration in this subsector in the state. The Boeing Company has two major manufacturing facilities in Washington and almost half of the company's workforce is employed in the state. In addition to aircraft manufacturing, Washington also had a high concentration of other aircraft parts and auxiliary equipment manufacturing.

Washington 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**178**	**86,582**	**8.12**	**$97,214**	**110.3%**
Aircraft	41	NA	NA	NA	NA
Aircraft Engine and Engine Parts	8	174	0.10	$51,301	62.3%
Other Aircraft Parts and Auxiliary Equipment	128	10,389	4.73	$65,232	96.5%
Guided Missile and Space Vehicle	2	NA	NA	NA	NA

Source: Bureau of Labor Statistics



Aerospace production in the state is highly centralized in the Seattle-Tacoma-Everett metropolitan area. The Boeing Company's manufacturing facilities are in Renton and Everett. Although aerospace employment in the state increased, the average annual number of aerospace establishments decreased by 16 since 2007. Some of the largest employers in the state include, but are not limited to those listed below.

Washington Large Aerospace Product and Parts Manufacturers

	Large Employers	City	Estimated Employment
Aircraft	Boeing Co	Everett	10,000+
Aircraft Engine and Engine Parts	Exotic Metals Forming Co LLC	Kent	250-500
	Aerojet Redmond Operations	Redmond	250-500
Other Aircraft Parts and Auxiliary Equipment	Crane Aerospace & Electronics	Lynnwood	500-1,000
	C&D Zodiac Inc	Marysville	500-1,000
	Esterline Control Systs-Korry	Everett	500-1,000
	Panasonic Avionics Corp	Bothell	500-1,000
	Triumph Composite Systems Inc	Spokane	500-1,000
	Skills Inc	Auburn	250-500
	Avtech Corp	Everett	250-500
	TECT Aerospace	Everett	250-500
	GE Aviation	Yakima	250-500
	Spokane Industries Inc	Spokane Valley	250-500

Source: Reference USA, The Boeing Company

Utah

The state of Utah is considered to have a concentration in aerospace product and parts manufacturing. However, employment in the industry has declined at an average annual rate of 7.6 percent since 2007. The state does have a high concentration of industries related to metal ore mining. There is also a high level of employment in business support services in Utah.

Utah 2011 Employment Concentrations

Industry	Employment		Location Quotient
	Annual Av.	% of State	
State Total Employment	1,176,728	100.0%	-
Aerospace Product and Parts Manufacturing	**5,999**	**0.5%**	**1.36**
Metal Ore Mining	1,676	0.1%	4.52
Other Investment Pools and Funds	1,627	0.1%	4.52
Other Furniture Related Product Manufacturing	1,290	0.1%	4.02
Nonferrous Metal (except Aluminum) Production and Processing	2,202	0.2%	3.97
Sheep and Goat Farming	41	0.0%	3.24

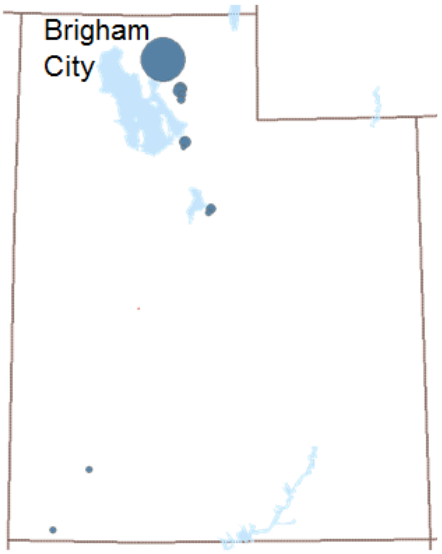
Source: Bureau of Labor Statistics

Although there is not a significantly high level of aerospace employment in Utah, the employers in the state are concentrated in other aircraft parts and auxiliary equipment manufacturing and guided missile and space vehicle manufacturing. Wages in the state are below the national average.

Utah 2011 Employment and Wages

	Estab. Count	Employment		Wages	
		Annual Av.	L.Q.	Annual Av.	% of U.S.
Aerospace Product and Parts Manufacturing	**56**	**5,999**	**1.36**	**$78,851**	**89.5%**
Aircraft	5	56	0.03	$53,606	57.6%
Aircraft Engine and Engine Parts	4	NA	NA	NA	NA
Other Aircraft Parts and Auxiliary Equipment	33	2,106	2.32	$62,128	91.9%
Guided Missile and Space Vehicle	14	NA	NA	NA	NA

Source: Bureau of Labor Statistics



Aerospace employment in Utah is concentrated in the Brigham City metropolitan area. One of the largest aerospace employers in the state, ATK Aerospace Systems, has a facility outside Brigham City, in Corinne, where they manufacture solid rocket propulsion systems. Some of the largest employers in the state include, but are not limited to those listed below.

Utah Aerospace Product and Parts Manufacturing

	Large Employers	City	Estimated Employment
Aircraft Engine and Engine Parts	Williams International	Ogden	100 to 249
	Barnes Aerospace	Ogden	100 to 249
Other Aircraft Parts and Auxiliary Equipment	Parker-Hannifin Control Systs	Ogden	250 to 499
	Boeing Co	Salt Lake City	250 to 499
	Wencor Group LLC	Springville	250 to 499
	Metalcraft Technologies Inc	Cedar City	100 to 249
Guided Missile and Space Vehicle	ATK Aerospace Systems	Corinne	500 to 999
	Petersen Inc	Ogden	250 to 499
	Klune Industries Inc	Spanish Fork	100 to 249
	Ram Co	St George	100 to 249

Source: Reference USA

Organized Labor Overview

Aerospace products are different from other manufactured goods or retail products in that they are heavily engineered. Aircraft have enormous unit costs, low production rates, steep learning curves, and very high expectations by the public and customers regarding performance and reliability. If ever an American manufacturing industry was dependent on human capital, aerospace is it.[27] For much of the history of the aerospace industry in the United States, unions have been a component of the relationship between the aerospace companies and the sizeable work force required to manufacture aerospace products and parts.

Aerospace Product and Parts Manufacturing States

	Right to Work	% of Employed Represented by Unions (2011)
Arizona	Yes	7.3%
California	No	18.2%
Connecticut	No	17.7%
Florida	Yes	7.6%
Georgia	Yes	**4.8%**
Kansas	**Yes**	**10.1%**
Ohio	No	14.7%
Texas	Yes	6.3%
Washington	No	**20.4%**
Missouri	No	12.5%
Alabama	Yes	10.8%
Massachusetts	No	15.4%
Pennsylvania	No	15.8%
South Carolina	Yes	5.0%

Source: Bureau of Labor Statistics, National Right to Work Legal Defense Foundation, Inc.

Within the aerospace states, half are right-to-work states, and half are not. Right-to-work states are those that protect the right of employees to decide whether or not to join or financially support a union. These states prohibit requiring workers to become dues-paying union members as a condition of employment. There are 22 states with right-to-work laws. In the 28 states that do not have right-to-work laws, workers can forego union membership in a unionized workplace, but they may still have to pay dues.[28] As would be expected, union representation in right-to-work states is typically lower than in states where union membership is required.

Although half of the aerospace states are right-to-work states, the states which do not have right-to-work laws employ more workers in the aerospace industry. The 14 aerospace states employ 84 percent of the aerospace product and parts manufacturing workers in the United States. Of that 84 percent of workers, 60 percent are in states that do not have a right-to-work law.

[27] Sorscher, Stan (2009). The Encyclopedia of Strikes in American History. New York, NY: M.E. Sharpe, Inc.
[28] National Right to Work Legal Defense Foundation, Inc.

Employment growth and wages for the aerospace industry, in a given area, can be attributed to many factors: supply of labor, demand for labor, final product demand, and cost and supply of other inputs. These factors can affect employment and wages as much as labor laws and one factor should not be given greater weight than another. The degree to which unions impact the aerospace infrastructure varies between states and aerospace companies.

Arizona

The average annual wage of aerospace product and parts manufacturers in Arizona was 102.7 percent of the national average annual wage. Aerospace engineers in the state are, on average, paid 78.2 percent of the national wage. Only Bridgeport, Conn. had a lower wage for aerospace engineers, of the aerospace states for which data is available. Machinists and inspectors, testers, sorters, samplers and weighers earn approximately 6 percent above the national average rate in Arizona.

Arizona Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Phoenix			
Aerospace Engineers	1,120	$81,240	78.2%
Aircraft Mechanics and Service Technicians	2,680	$48,760	89.5%
Aircraft Assemblers	540	$46,310	95.9%
Machinists	3,860	$43,020	106.2%
Inspectors, Testers, Sorters, Samplers, Weighers	4,350	$38,870	105.9%
Tucson			
Aerospace Engineers	NA	NA	NA
Aircraft Mechanics and Service Technicians	910	$50,340	92.4%
Aircraft Assemblers	NA	NA	NA
Machinists	690	$40,390	99.7%
Inspectors, Testers, Sorters, Samplers, Weighers	510	$37,470	102.1%

Source: Bureau of Labor Statistics, May 2011

Arizona is a right-to-work state with 7.3 percent of the employed represented by unions in 2011. This is down from 8.1 percent in 2010. Although unions are active in the state, there has only been one strike since 1984 in the aerospace industry. In 2007 the International Association of Machinists and Aerospace Workers (IAMAW) Local 933 went on strike for 69 days over wages and medical benefits.[29]

Arizona Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
2007	Guided Missile and Space Vehicle	Tucson	Raytheon Missile Systems	IAMAW 933	1,900	69

Source: Federal Mediation and Conciliation Service

[29] Stevens, Kate G. (2007, Jan. 15). Raytheon, strikers agree on raise, medical expenses *The Tucson Citizen*

California

The average annual wage of aerospace product and parts manufacturers in California was 109.5 percent of the national average annual wage in 2011. Aerospace engineers in California are among the highest paid of the aerospace states for which data is available. Wages for machinists vary among the aerospace cities in the state. San Diego and San Jose are above the national average rate for machinists by 5.2 and 20.3 percent, respectively. Machinists in Los Angeles are 4.1 percent below the national average wage.

California Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Los Angeles			
Aerospace Engineers	10,220	$114,300	110.0%
Aircraft Mechanics and Service Technicians	3,810	$58,530	107.4%
Aircraft Assemblers	1,660	$37,710	78.1%
Machinists	14,040	$38,840	95.9%
Inspectors, Testers, Sorters, Samplers, Weighers	20,520	$38,160	104.0%
San Diego			
Aerospace Engineers	1,510	$94,990	91.5%
Aircraft Mechanics and Service Technicians	1,080	$54,800	100.6%
Aircraft Assemblers	NA	NA	NA
Machinists	3,720	$42,620	105.2%
Inspectors, Testers, Sorters, Samplers, Weighers	4,770	$38,610	105.2%
San Jose			
Aerospace Engineers	2,240	$122,340	117.8%
Aircraft Mechanics and Service Technicians	290	$56,310	103.3%
Aircraft Assemblers	NA	NA	NA
Machinists	2,370	$48,730	120.3%
Inspectors, Testers, Sorters, Samplers, Weighers	4,600	$45,610	124.3%

Source: Bureau of Labor Statistics, May 2011

California does not have a right-to-work law, and 18.2 percent of the employed were represented by unions in 2011, down from 18.6 percent in 2010. This is the second highest percentage of employed represented by unions of the aerospace states. Only Washington has a higher level of union representation.

There have been four strikes in the aerospace industry in California since 1984. The most significant for the state was the 2006 strike between The Boeing Company and the IAMAW Locals 2024 and 720 over outsourcing prohibitions.[30]

[30](2008, Nov. 3). Boeing Strike Disrupted Deliveries, Ended With Deal *Defense industry Daily*

California Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
1984	Aircraft	San Diego	General Dynamics - Convair Aerospace Div.	IAM 50	4,400	13
1987	Aircraft	San Diego	General Dynamics - Convair Aerospace Div.	IAM 1125	3,950	25
2006	Aircraft	Huntington Beach, Edwards AFB, Vandenberg AFB & Torrance	The Boeing Co.	IAMAW 2024, 720	1,500	92
2010	Aircraft	Lakewood	The Boeing Co.	UAW 148	1,700	29

Source: Federal Mediation and Conciliation Service

Connecticut

The average annual wage of aerospace product and parts manufacturers in Connecticut was 109.8 percent of the national average annual wage in 2011. Aerospace engineers in Connecticut have the lowest average annual wage of the aerospace states. However, inspectors, testers, sorters, samplers, and weighers are among the highest paid in Connecticut, of the aerospace states.

Connecticut Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Hartford			
Aerospace Engineers	2,010	$85,860	82.7%
Aircraft Mechanics and Service Technicians	550	$55,460	101.8%
Aircraft Assemblers	NA	NA	NA
Machinists	3,590	$44,170	109.0%
Inspectors, Testers, Sorters, Samplers, Weighers	2,660	$44,770	122.0%
Bridgeport			
Aerospace Engineers	300	$76,340	73.5%
Aircraft Mechanics and Service Technicians	NA	$66,740	122.5%
Aircraft Assemblers	NA	NA	NA
Machinists	1,190	$47,920	118.3%
Inspectors, Testers, Sorters, Samplers, Weighers	1,740	$49,840	135.8%

Source: Bureau of Labor Statistics, May 2011

Connecticut does not have a right-to-work law, and 17.7 percent of the employed were represented by unions in 2011, up from 17.4 percent in 2010. This is the third highest among the aerospace states, after Washington and California.

Although there is a large union presence in the state, there have only been two strikes in the aerospace industry in Connecticut since 1984. The most significant was the 2006 strike at Sikorsky Aircraft by the International Brotherhood of Teamsters (IBT) over health insurance costs.[31]

Connecticut Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
2001	Aircraft Engine and Engine Parts	East Hartford	Pratt And Whitney (Div. Of United Technologies Corp.)	IAM 700, 707, 1746, 1746	5,020	10
2006	Aircraft	Stratford	Sikorsky Aircraft Corp.	IBT 1150	4,000	41

Source: Federal Mediation and Conciliation Service

Florida

The average annual wage of aerospace product and parts manufacturers in Florida was 87.7 percent of the national average annual wage in 2011. Miami has the lowest average annual wage for machinists and inspectors, testers, sorters, samplers and weighers of the aerospace states. Miami and Melbourne have the lowest wages for aircraft mechanics and service technicians, of the aerospace states.

Florida Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Miami			
Aerospace Engineers	1,220	$88,830	85.5%
Aircraft Mechanics and Service Technicians	3,340	$47,570	87.3%
Aircraft Assemblers	820	$44,350	91.8%
Machinists	2,000	$35,530	87.7%
Inspectors, Testers, Sorters, Samplers, Weighers	3,020	$32,790	89.4%
Melbourne			
Aerospace Engineers	1,190	$101,090	97.3%
Aircraft Mechanics and Service Technicians	280	$48,280	88.6%
Aircraft Assemblers	90	NA	NA
Machinists	340	$39,360	97.1%
Inspectors, Testers, Sorters, Samplers, Weighers	860	$42,610	116.1%

Source: Bureau of Labor Statistics, May 2011

Florida is a right-to-work state with 7.6 percent of the employed represented by unions in 2011, up from 6.9 percent in 2010.

[31] Haar, Dan (2006, Mar. 12). Sikorsky Strike: Universal Struggle Hartford Courant

There has only been one strike in the aerospace industry in Florida since 1984. The 143-day strike between the IAMAW Local 2061 and United Space Alliance, over pension benefits, is the longest running strike in the U.S. aerospace industry.

Florida Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
2007	Guided Missile and Space Vehicle	Kennedy Space Center	United Space Alliance	IAMAW 2061	560	143

Source: Federal Mediation and Conciliation Service

Georgia

The average annual wage of aerospace product and parts manufacturers in Georgia was 90.0 percent of the national average annual wage in 2011. Although the average annual wage in Georgia is 10 percent below the national aerospace wage, inspectors, testers, sorters, samplers and weighers in Savannah have the highest average annual wage for that occupation among the aerospace states.

Georgia Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Atlanta			
Aerospace Engineers	NA	$109,203	105.1%
Aircraft Mechanics and Service Technicians	4,830	NA	NA
Aircraft Assemblers	NA	NA	NA
Machinists	3,940	$40,190	99.2%
Inspectors, Testers, Sorters, Samplers, Weighers	5,300	$34,210	93.2%
Savannah			
Aerospace Engineers	NA	NA	NA
Aircraft Mechanics and Service Technicians	NA	NA	NA
Aircraft Assemblers	NA	NA	NA
Machinists	230	$45,370	112.0%
Inspectors, Testers, Sorters, Samplers, Weighers	440	$53,570	146.0%

Source: Bureau of Labor Statistics, May 2011

Georgia is a right-to-work state with 4.8 percent of the employed represented by unions in 2011, down from 5 percent in 2010. This is the lowest percentage of union representation among the aerospace states. Although there is not a high level of union activity in the state, there have been three strikes since 1984 between Lockheed Martin and the International Association of Machinists (IAM).

Georgia Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
1997	Guided Missile and Space Vehicle	Saint Marys	Lockheed Martin Missiles & Space Co. Inc.	IAM 2772	260	16
2002	Guided Missile and Space Vehicle	Marietta	Lockheed Martin Aeronautics Co.	IAM 709, 1027, 2386	3,016	48
2005	Guided Missile and Space Vehicle	Marietta	Lockheed Martin Aeronautics Co.	IAM 709	3,000	7

Source: Federal Mediation and Conciliation Service

Kansas

The average annual wage of aerospace product and parts manufacturers in Kansas was 83.1 percent of the national average annual wage in 2011, the lowest of the aerospace states. This can be attributed to the lower than average wage and relatively high number of aerospace engineers in Wichita. The average annual wage of inspector, testers, sorters, samplers and weighers in Wichita is the fourth highest of the aerospace states. However, there is relatively few of them working in the Wichita area.

Kansas Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Wichita			
Aerospace Engineers	2,860	$92,140	88.7%
Aircraft Mechanics and Service Technicians	1,810	$53,790	98.7%
Aircraft Assemblers	NA	NA	NA
Machinists	2,190	$42,100	103.9%
Inspectors, Testers, Sorters, Samplers, Weighers	1,700	$46,630	127.1%

Source: Bureau of Labor Statistics, May 2011

Kansas is a right-to-work state with 10.1 percent of the employed represented by unions in 2011, up from 9.1 percent in 2010. Of the right-to-work aerospace states, this is the second highest level of union representation after Alabama.

There have been five strikes in the aerospace industry in Wichita since 1984. The most significant, due to the number of workers idled and the duration of the strike, was the 1995 strike between the IAM and The Boeing Company over health care benefits.[32]

[32] Sorscher, Stan (2009). The Encyclopedia of Strikes in American History. New York, NY: M.E. Sharpe, Inc.

Kansas Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
1984	Aircraft	Wichita	Beech Aircraft Corp.	IAM 70	4,000	12
1995	Aircraft	Wichita	The Boeing Co.	IAM 70	7,400	69
2000	Aircraft	Wichita	The Boeing Co.	SPEEA	1,349	40
2006	Aircraft	Wichita	Bombardier Aerospace Learjet	IAM 639	611	21
2008	Aircraft	Wichita	Hawker Beechcraft Co.	IAMAW 733	5,200	24

Source: Federal Mediation and Conciliation Service

Ohio

The average annual wage of aerospace product and parts manufacturers in Ohio was 98.3 percent of the national average annual wage in 2011. Average annual wages for most aerospace occupations in Ohio are moderate within the industry.

Ohio Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Cincinnati			
Aerospace Engineers	NA	NA	NA
Aircraft Mechanics and Service Technicians	390	$55,320	101.5%
Aircraft Assemblers	NA	NA	NA
Machinists	4,910	$40,140	99.1%
Inspectors, Testers, Sorters, Samplers, Weighers	3,730	$36,580	99.7%
Cleveland			
Aerospace Engineers	550	$107,020	103.0%
Aircraft Mechanics and Service Technicians	300	$50,250	92.2%
Aircraft Assemblers	NA	39,460	81.7%
Machinists	7,080	$38,210	94.3%
Inspectors, Testers, Sorters, Samplers, Weighers	4,730	$37,150	101.3%

Source: Bureau of Labor Statistics, May 2011

Ohio does not have a right-to-work law, and 14.7 percent of the employed were represented by unions in 2011, unchanged from 2010. This is the second lowest percentage of union representation of the aerospace states that do not have right-to-work laws. Of those states, only Missouri has a lower rate at 12.5 percent.

Texas

The average annual wage of aerospace product and parts manufacturers in Texas was almost equal to the national average annual wage in 2011. The average annual wage of machinists was 10.6 percent below the national annual average wage. Other aerospace occupations in the Dallas area were within 4.0 percent of the annual average wage.

Texas Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Dallas			
Aerospace Engineers	4,350	$101,120	97.4%
Aircraft Mechanics and Service Technicians	4,960	$54,660	100.3%
Aircraft Assemblers	NA	$50,110	103.7%
Machinists	7,330	$36,220	89.4%
Inspectors, Testers, Sorters, Samplers, Weighers	10,100	$37,240	101.5%

Source: Bureau of Labor Statistics, May 2011

Texas is a right-to-work state with 6.3 percent of the employed represented by unions in 2011, down from 6.7 percent in 2010. Although there have been five strikes in the aerospace industry in Texas, they have not been significant in either number of workers idled or the duration of the strike. The exception to this is the Lockheed Martin strike by the IAMAW Local 776 that began on April 29, 2012, and is not yet resolved.

Texas Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
1990	Guided Missile and Space Vehicle	Houston	Lockheed Engineering & Sciences Co.	IAM 1786	350	4
2003	Guided Missile and Space Vehicle	Fort Worth	Lockheed Martin Tactical Aircraft Systems	IAM 776	3,760	14
2003	Guided Missile and Space Vehicle	Fort Worth	Lockheed Martin Tactical Aircraft Systems	IAM 776	34	14
2005	Aircraft Engine and Engine Parts	Gainsville	Weber Aircraft Inc.	IBT 767	720	18
2012	Guided Missile and Space Vehicle	Fort Worth	Lockheed Martin Aeronautics Co.	IAMAW 776	3,639	***

Source: Federal Mediation and Conciliation Service

*** Strike in progress as of 7/1/2012

Washington

The average annual wage of aerospace product and parts manufacturers in Washington was 110.3 percent of the national average annual wage in 2011. Machinists in Seattle are the highest paid machinists among the aerospace states. Inspectors, testers, sorters, samplers, and weighers in Seattle are the second highest paid in that occupation in the industry, after Savannah, Ga.

Washington Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Seattle			
Aerospace Engineers	7,320	$101,220	97.4%
Aircraft Mechanics and Service Technicians	4,280	$56,530	103.7%
Aircraft Assemblers	NA	NA	NA
Machinists	2,570	$53,910	133.0%
Inspectors, Testers, Sorters, Samplers, Weighers	5,730	$52,890	144.2%

Source: Bureau of Labor Statistics, May 2011

Washington does not have a right-to-work law, and 20.4 percent of the employed were represented by unions in 2011, down from 21.3 percent in 2010. This is the highest percent of union representation among the aerospace states.

There have been seven strikes in the aerospace industry in Seattle since 1984, more than any other aerospace state. Most of these strikes, all with The Boeing Company, have been significant in both the number of workers idled and in the duration of the strike. The 1989 IAM Local 751 strike idled 55,000 workers, more than any other aerospace strike. The 1995 strike, at 70 days, was the seventh longest aerospace strike, but idled approximately 17,600 more workers than any of the other longer running strikes. Generally, the strikes were over job security, wages, and benefits.[33]

Washington Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
1989	Aircraft	Seattle	The Boeing Co.	IAM 751	55,000	48
1993	Aircraft	Seattle	The Boeing Co.	SPEEA	7,000	1
1995	Aircraft	Seattle	The Boeing Co.	IAM 824, 24, 70, 751	25,000	70
2000	Aircraft	Seattle	The Boeing Co.	SPEEA	22,000	40
2000	Aircraft	Seattle	The Boeing Co.	SPEEA	12,006	40
2005	Aircraft	Seattle	The Boeing Co.	IAM 751, 24	22,000	24
2008	Aircraft	Seattle	The Boeing Co.	IAMAW 751	27,000	56

Source: Federal Mediation and Conciliation Service

Missouri

The average annual wage of aerospace product and parts manufacturers in Missouri was 110.2 percent of the national average annual wage in 2011. All occupations, for which data are available, in the St. Louis area, earn an average annual wage above the national average annual wage.

[33] Sorscher, Stan (2009). The Encyclopedia of Strikes in American History. New York, NY: M.E. Sharpe, Inc.

Missouri Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
St. Louis			
Aerospace Engineers	NA	NA	NA
Aircraft Mechanics and Service Technicians	1,430	$57,010	104.6%
Aircraft Assemblers	NA	NA	NA
Machinists	3,280	$45,010	111.1%
Inspectors, Testers, Sorters, Samplers, Weighers	3,120	$39,910	108.8%

Source: Bureau of Labor Statistics, May 2011

Missouri does not have a right-to-work law, and 12.5 percent of the employed were represented by unions in 2011, up from 11.1 percent in 2010. This is the lowest level of union representation in the aerospace states that do not have a right-to-work law.

There have been two strikes in the aerospace industry in Missouri since 1984. The 1996 strike between McDonnell Douglas and the IAM Local 837 is the second longest strike in the aerospace industry. Boeing merged with McDonnell Douglas in 1997.[34]

Missouri Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
1996	Guided Missile and Space Vehicle	Hazelwood	McDonnell Douglas Aerospace	IAM 837	6,758	98
2011	Other Aircraft Parts and Auxiliary Equipment	Kansas City	Honeywell Federal Manufacturing & Technologies	IAMAW 778	837	42

Source: Federal Mediation and Conciliation Service

Alabama

The average annual wage of aerospace product and parts manufacturers in Alabama was 84.7 percent of the national average annual wage in 2011, the second lowest of the aerospace states, after Kansas. However, aerospace engineers in Huntsville earn the second highest average annual wage, of the aerospace states for which data are available.

[34] Sorscher, Stan (2009). The Encyclopedia of Strikes in American History. New York, NY: M.E. Sharpe, Inc.

Alabama Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Huntsville			
Aerospace Engineers	2,780	$117,430	113.1%
Aircraft Mechanics and Service Technicians	160	$54,450	99.9%
Aircraft Assemblers	NA	NA	NA
Machinists	820	$36,480	90.0%
Inspectors, Testers, Sorters, Samplers, Weighers	1,010	$35,820	97.6%

Source: Bureau of Labor Statistics, May 2011

Alabama is a right-to-work state with 10.8 percent of the employed represented by unions in 2011, down from 11.2 percent in 2010. This is the highest level of union representation in the right-to-work aerospace states.

There has been one strike in the aerospace industry in Alabama since 1994. The 2006 strike, between The Boeing Company and IAM Locals 2766 and 44, was over medical benefits.[35]

Alabama Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
2006	Aircraft	Huntsville, Decatur	The Boeing Co.	IAM 2766, 44	502	91

Source: Federal Mediation and Conciliation Service

Massachusetts

The average annual wage of aerospace product and parts manufacturers in Massachusetts was 117.9 percent of the national average annual wage in 2011, the highest of the aerospace states. Average annual wage, for all occupations for which data is available, in Massachusetts is above the national average wage.

Massachusetts Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Boston			
Aerospace Engineers	1,120	$107,580	103.6%
Aircraft Mechanics and Service Technicians	870	$61,030	112.0%
Aircraft Assemblers	NA	NA	NA
Machinists	5,600	$47,200	116.5%
Inspectors, Testers, Sorters, Samplers, Weighers	6,000	$40,890	111.4%

Source: Bureau of Labor Statistics, May 2011

[35] (2006, Jan. 31). Boeing: Rocket unit reaches contract deal with striking machinists *Chicago Tribune*

Massachusetts does not have a right-to-work law, and 15.4 percent of the employed were represented by unions in 2011, down from 15.6 percent in 2010. There has not been a strike in the aerospace industry in Massachusetts since 1984.

Pennsylvania

The average annual wage of aerospace product and parts manufacturers in Pennsylvania was 100.2 percent of the national average annual wage in 2011. Within the state, aerospace engineers earn below the national average wage, and machinists and inspectors, testers, sorters, samplers and weighers earn above the national average wage.

Pennsylvania Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Philadelphia			
Aerospace Engineers	NA	$86,350	83.1%
Aircraft Mechanics and Service Technicians	2,430	$51,990	95.4%
Aircraft Assemblers	NA	NA	NA
Machinists	5,330	$45,080	111.3%
Inspectors, Testers, Sorters, Samplers, Weighers	7,630	$41,300	112.6%

Source: Bureau of Labor Statistics, May 2011

Pennsylvania does not have a right-to-work law, and 15.8 percent of the employed were represented by unions in 2011, down from 15.9 percent in 2010. There has been one strike in the aerospace industry in Pennsylvania since 1984, which affected only 1,500 workers and lasted seven days.

Pennsylvania Aerospace Product and Parts Manufacturing Work Stoppages

Year	Subsector	City	Employer Name	Union Name	# Idled	Days Idled
2002	Aircraft	Crum Lynne	Boeing Helicopters	UAW 1069	1,500	7

Source: Federal Mediation and Conciliation Service

South Carolina

The average annual wage of aerospace product and parts manufacturers in South Carolina was 87.0 percent of the national average annual wage in 2011. However, the occupations for which data are available show average annual wages slightly above the national annual average wage.

South Carolina Metropolitan Employment and Wages

	Workers	Wages	
		Annual Mean	% of U.S.
Charleston			
Aerospace Engineers	NA	NA	NA
Aircraft Mechanics and Service Technicians	160	$55,040	101.0%
Aircraft Assemblers	NA	NA	NA
Machinists	840	$40,970	101.1%
Inspectors, Testers, Sorters, Samplers, Weighers	860	$38,580	105.2%

Source: Bureau of Labor Statistics, May 2011

South Carolina is a right-to-work state with 5.0 percent of the employed represented by unions in 2011, down from 6.2 percent in 2010. This is the second lowest percentage of union representation of the aerospace states. Only Georgia has a lower percentage, at 4.8 percent. There has not been a strike in the aerospace industry in South Carolina since 1984.

Supply Chain Analysis

The data used to assess the supply chain of aircraft manufactured in Kansas and aircraft parts produced in Kansas are from the Airframer database, a product of Stansted News Limited. The Airframer database is maintained by daily amendments and additions. However, the starting point for developing the database was to research all aircraft manufacturers worldwide and identify each company's aircraft programs. Through an ongoing process of gathering press releases from, and maintaining direct contact with, both suppliers and aircraft manufacturers, the information is collated on each supplier and the aircraft programs in which they are active. Additionally, there is research done on third-party media and third-party databases, but information gathered from third-party sources is always verified by either the supplier or aircraft manufacturer in question before inclusion in the database.

As with all datasets, Airframer does have inherent flaws. Although considered to be the most comprehensive dataset available on aircraft product and parts manufacturers, there are manufacturers that are not included in the dataset. The Airframer dataset includes primary suppliers to original equipment manufacturers. It does not include secondary suppliers.

Suppliers of Aircraft Built in Kansas

There are three aircraft manufacturers in Kansas, producing 32 different aircraft models. Although the final assembly and production of these aircraft are done in Kansas, components are manufactured in 14 other countries and various regions of the United States. In 2011, $1,188 million dollars of aerospace products and parts were imported into the state of Kansas. These imported parts were a component of the $2,122 million dollars of aerospace products and parts exported from the state in 2011.[36]

Although each of these companies is producing light and midsize aircraft, the suppliers to each are unique. There are only two suppliers used by all three companies. Primarily the aircraft produced in Kansas use auxiliary power systems produced by Honeywell Aerospace in Phoenix, Ariz., and fuel systems produced by Goodrich Engine Control Systems in West Hartford, Conn.

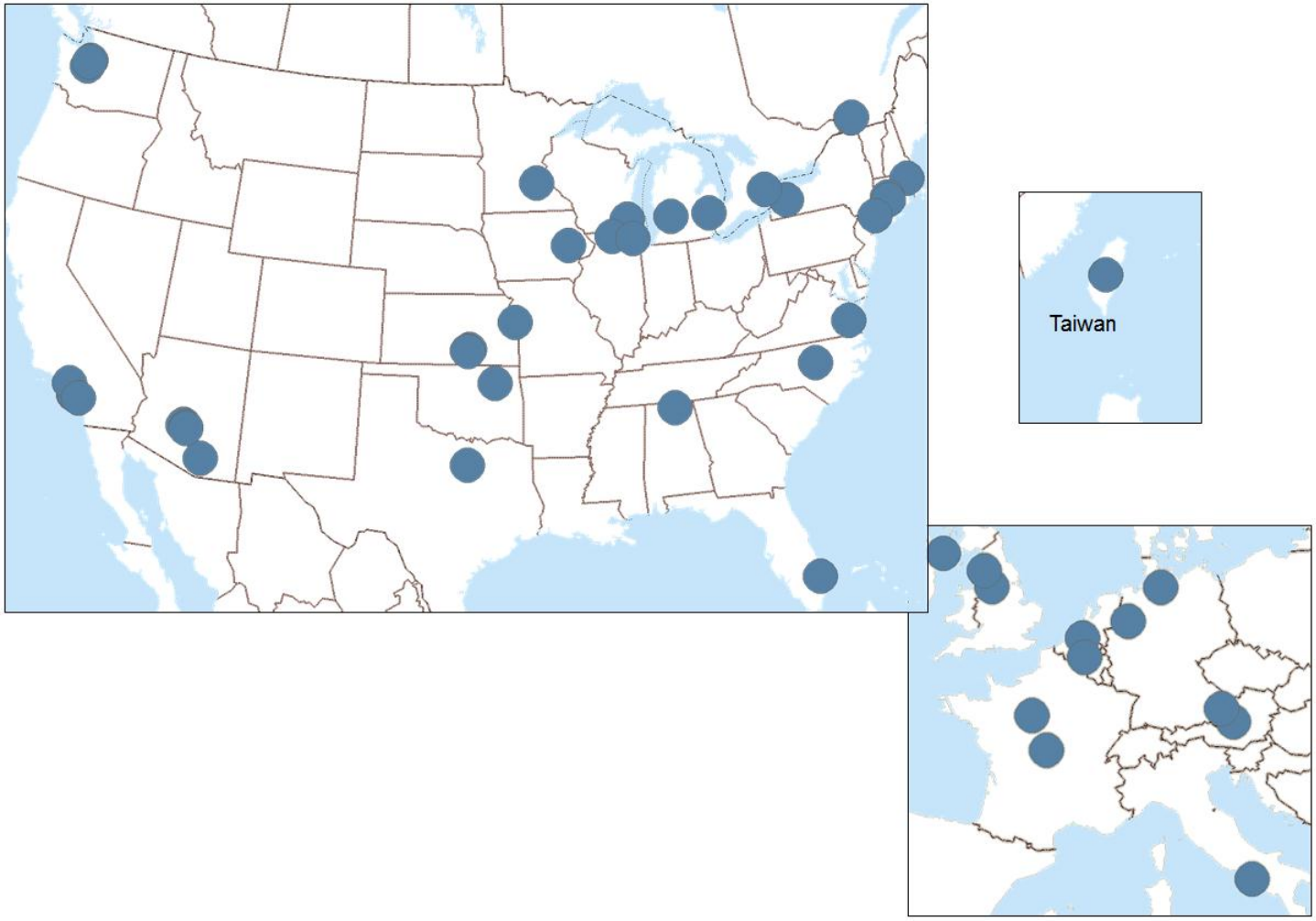
Bombardier produces six different light business jet models in its production facility in Wichita. There are approximately 53 suppliers to the Bombardier aircraft models produced in Kansas.

The Cessna Aircraft Company produces 17 different aircraft models in its production facilities in Wichita and Independence, Kan. These include light and midsize business jets, utility turboprops and single-engine aircraft. There are approximately 67 suppliers to the Cessna Aircraft Company models produced in Kansas.

The Hawker Beechcraft Corporation produces nine different aircraft models. Its headquarters and major facilities are in Wichita, with additional facilities in Arkansas, England and Mexico. There are approximately 51 suppliers to the Hawker Beechcraft Corporation models produced in Kansas.

[36] U.S. Census Bureau, Foreign Trade Division

Bombardier Aerospace Suppliers



Bombardier Aerospace Aircraft Built in Kansas

Country	Location	Supplier	40XR	45XR	60XR	70	75	85
Austria	Ried	Fischer Advanced Composite Components AG (Cabin Interiors)		x				
	Edlitz-Thomasberg	List components & furniture GmbH (Cabin Interiors)	x	x				
Belgium	Essen	ITS Europe NV (Handling Equipment)		x				
	Gosselies	Sonaca SA (Airframe Assemblies)		x	x			
Canada	Burlington, ON	Comtek Advanced Structures Ltd. (Airframe Assemblies)						x
	Longueuil, QC	Heroux Devtek (Landing Assemblies)						x
	Longueuil, QC	Pratt & Whitney (Engines)			x			x
France	Gonfreville L'Orcher	Aircelle (Engine Components)						x
	Paris	ECE (Electrical Power Systems, Lighting)		x				
	Chateaudun	IN-LHC (Mechanical Components)						x
	Velizy Villacoublay	Messier-Bugatti-Dowty (Landing Assemblies)						x
Germany	Hamburg	Lufthansa Technik (Cabin Interiors)				x	x	x
	Saerbeck	SAERTEX GmbH & Co. KG (Composites)						x
Italy	Naples	DEMA SpA (Composites, Tooling)						x
Taiwan	Xitun District, Taichung	Aerospace Industrial Development Corporation (Airframe Assemblies)		x				
United Kingdom	Hyde, Cheshire	Kaman Composites UK Holdings Ltd. (Airframe Assemblies)						x
	Salford, Manchester	Morson Projects Ltd (Design)						x
	Belfast, Northern Ireland	Bombardier Aerospace (Airframe Assemblies)	x	x				x
USA	Huntsville, AL	PPG Aerospace Transparencies (Windows & Glass)						x
	Tempe, AZ	Cytec Engineered Materials, Inc. (Composites)						x
	Chandler, AZ	Goodrich Engine Components (Engine Components)	x	x	x			
	Phoenix, AZ	Honeywell Aerospace (Auxiliary Power)		x				
	Phoenix, AZ	Honeywell Aerospace Engines & Systems (Engines)	x	x		x	x	
	Tucson, AZ	Universal Avionics Systems Corporation (Flight and Data Management)	x	x				

Source: Airframer

Bombardier Aerospace Aircraft Built in Kansas

Country	Location	Supplier	40XR	45XR	60XR	70	75	85
USA	Huntington Beach, CA	C & D Zodiac (Cabin Interiors)						x
	Irvine, CA	COAST Composites, Inc. (Tooling)						x
	Burbank, CA	Crane Aerospace/Hydro-Aire Inc. (Landing Assemblies)		x	x			
	Garden Grove, CA	GKN Aerospace Transparency Systems Inc. (Windows & Glass)		x				
	West Hartford, CT	Goodrich Engine Control Systems (Engine Components, Fuel Systems)			x			
	Bloomfield, CT	Kaman Aerospace Group (Airframe Assemblies)						x
	Wellington, FL	B/E Aerospace Inc. (Environmental Systems)						x
	Cedar Rapids, IA	Rockwell Collins Inc. (Flight and Data Management)			x			x
	Rockford, IL	Woodward Aircraft Turbine Systems (Valves)			x			
	Wheeling, IL	Dynomax, Inc. (Structural Components)						x
	Wichita, KS	Electromech Technologies (Electrical Power Systems, Actuation)		x	x			
	Olathe, KS	Garmin International (Indicators and Instruments)				x	x	
	Wichita, KS	National Institute for Aviation Research (Test Services)						x
	Wichita, KS	Vermillion Inc. (Electrical Power Systems)			x			
	Waltham, MA	VISTAGY, Inc., a Siemens Company (Design Software)						x
	Grand Rapids, MI	L-3 Communications Avionics Systems (Indicators and Instruments)			x			
	Lake Orion, MI	Odyssey Inc. (Tooling)						x
	Burnsville, MN	Goodrich Sensors & Integrated Systems (Indicators and Instruments)						x
	Cary, NC	LORD Corporation (Engine Components)						x
	Bedford Hills, NY	Allied International Corporation (Environmental Systems)		x				
	East Aurora, NY	Astronics Luminescent Systems Inc (Avionic Components)				x	x	
	Tulsa, OK	Nordam Interiors & Structures Division (Cabin Interiors)			x			

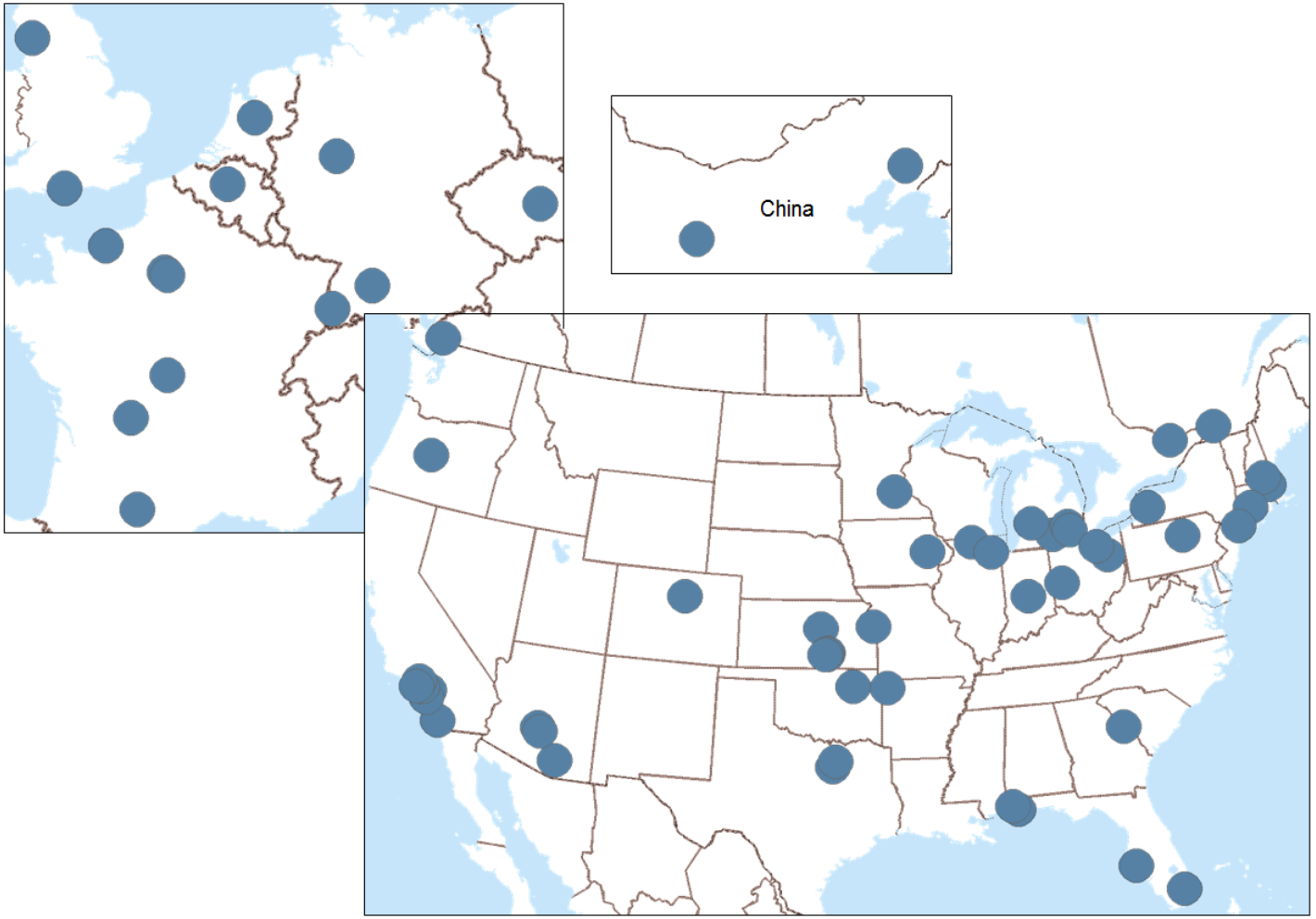
Source: Airframer

Bombardier Aerospace Aircraft Built in Kansas

Country	Location	Supplier	40XR	45XR	60XR	70	75	85
USA	Tulsa, OK	NORDAM Nacelles & Thrust Reverser Systems (Engine Components)	x	x				
	Fort Worth, TX	Dysol, Inc. (Chemicals)	x	x	x			
	Newports News, VA	International Communications Group (Communications (Airborne))	x	x	x			
	Redmond, WA	Astronics Advanced Electronic Systems (AES) (Electrical Power Systems)						x
	Bellevue, WA	Corena USA Inc. (Professional Services)						x
	Kent, WA	Hexcel Structures (Airframe Assemblies)		x				
	New Berlin, WI	EMTEQ (Lighting, Electrical Components, Electrical Power Systems)						x

Source: Airframer

Cessna Aircraft Company Suppliers



Cessna Aircraft Company Aircraft Built in Kansas

Country	Location	Supplier	162 SkyCatcher	172 Skyhawk	182 Skylane	206 Stationair	208 Caravan	350-400 Corvalis TT	Citation CJ2+	Citation CJ3	Citation CJ4	Citation Latitude	Citation Longitude	Citation M2	Citation Mustang	Citation Sovereign	Citation X	Citation XLS NGP
Belgium	Zavantem	Asco Industries N.V (Structural Components)													x			
Canada	Delta, BC	Avcorp Industries Inc. (Airframe Assemblies)							x	x					x			
	Delta, BC	Avcorp Industries Inc. (Structural Components)													x			
	Arnprior, ON	Hypernetics Ltd. (Sensors, Transducers & Detectors)												x				
	Longueuil, QC	Pratt & Whitney Canada (Engines)					x				x			x	x		x	
China	Shenyang, Liaoning	AVIC SAC Commercial Aircraft Company Ltd (Manufacturing Services)	x															x
	Sanzao Town	China Aviation Industry General Aircraft Co. Ltd. (Manufacturing Services)					x											
Czech Republic	Letnany	GE Aviation's Business & General Aviation Turboprops (Engines)					x											
France	Gonfreville L'Orcher	Aircelle (Engine Components)														x		
	Colombes Cedex,	Hispano Suiza (Engine Components)												x				
	Bourges Cedex	S.M.A. (Engines)			x													
	Paris Cedex 15	Sagem Défense Sécurité (Flight and Data Management)		x	x	x	x											
	Evry Cedex	SNECMA Moteurs (Engines)										x						
	Nexon	Sofrance (Indicators and Instruments)												x				
	Blagnac Cedex	Technofan (Mechanical Components)													x			

Source: Airframer

Cessna Aircraft Company Aircraft Built in Kansas

Country	Location	Supplier	162 SkyCatcher	172 Skyhawk	182 Skylane	206 Stationair	208 Caravan	350-400 Corvalis TT	Citation CJ2+	Citation CJ3	Citation CJ4	Citation Latitude	Citation Longitude	Citation M2	Citation Mustang	Citation Sovereign	Citation X	Citation XLS NGP
Germany	Lichtenstein	CENTURION Aircraft Engines AG & Co. KG (Engines)		x		x												
	Freiburg,	Northrop Grumman LITEF GmbH (Navigation Aids (Airborne))									x					x		
	Bestwig	TITAL GmbH (Structural Components)													x			
Nether-lands	AB Hoogeveen	Fokker Aerostructures (Airframe Assemblies)													x			
United Kingdom	Isle of White	GKN Aerospace Services (Airframe Assemblies)												x		x		
	Isle of White	GKN Aerospace Services (Engine Components)												x				
	Manchester	M&I Materials Ltd (Mechanical Components)												x	x			
USA	Huntsville, AL	PPG Aerospace Transparencies (Windows & Glass)								x								
	Chandler, AZ	Goodrich Engine Components (Engine Components)					x							x				
	Mobile, AL	Teledyne Continental Motors Inc. (Engines)	x					x										x
	Springdale, AR	TruTrak Flight Systems, Inc. (Flight and Data Management)	x															x

Source: Airframer

Cessna Aircraft Company Aircraft Built in Kansas

Country	Location	Supplier	162 SkyCatcher	172 Skyhawk	182 Skylane	206 Stationair	208 Caravan	350-400 Corvalis TT	Citation CJ2+	Citation CJ3	Citation CJ4	Citation Latitude	Citation Longitude	Citation M2	Citation Mustang	Citation Sovereign	Citation X	Citation XLS NGP
USA	Phoenix, AZ	Honeywell Aerospace (Communications (Airborne))		x	x	x	x								x				
	Phoenix, AZ	Honeywell Aerospace (Flight and Data Management)			x	x	x										x		
	Phoenix, AZ	Honeywell Aerospace (Indicators and Instruments)					x												
	Phoenix, AZ	Honeywell Aerospace (Auxiliary Power)													x		x		
	Tucson, AZ	Universal Avionics Systems Corporation (Flight and Data Management)															x		
	San Diego, CA	Atego (Design Software)								x									
	Burbank, CA	Crane Aerospace/Hydro-Aire Inc. (Landing Assemblies)						x								x			
	Duarte, CA	GE Aviation (Mechanical Systems LA) (Actuation)												x	x				
	Woodland Hills, CA	GKN Aerospace - Stellex (Airframe Assemblies)														x			
	Westminster, CA	NEi Software (Design Software)							x					x					
	Santa Clarita, CA	Woodward HRT (Actuation)												x					
	Broomfield, CO	Aircell (Communications (Airborne))						x	x	x					x	x	x		
	West Hartford, CT	Goodrich Engine Control Systems (Engine Components, Fuel Systems)						x	x	x				x	x	x	x		
	Miramar, FL	Becker Avionics, Inc. (Navigation Aids (Airborne))					x							x					
	Sarasota, FL	L-3 Communications Aviation Recorders						x					x				x		

Source: Airframer

Cessna Aircraft Company Aircraft Built in Kansas

Country	Location	Supplier	162 SkyCatcher	172 Skyhawk	182 Skylane	206 Stationair	208 Caravan	350-400 Corvalis TT	Citation CJ2+	Citation CJ3	Citation CJ4	Citation Latitude	Citation Longitude	Citation M2	Citation Mustang	Citation Sovereign	Citation X	Citation XLS NGP
USA	Evans, GA	Basic Aircraft Products, Inc. (Electrical Power Systems)			x	x												
	Cedar Rapids, IA	Rockwell Collins Inc. (Flight and Data Management)							x	x	x						x	
	Cedar Rapids, IA	Rockwell Collins Inc. (Warning Systems, Cabin Interiors)									x							
	Downers Grove, IL	Rosen Aviation LLC (Cabin Interiors)															x	
	Rockford, IL	Woodward Aircraft Turbine Systems (Valves)													x	x		
	Indianapolis, IN	Rolls-Royce Corporation (Engines)														x		
	Salina, KS	CAV Aerospace, Inc. (Mechanical Components)					x											
	Wichita, KS	Electromech Technologies (Actuation)													x	x		
	Wichita, KS	Electromech Technologies (Electrical Components)							x							x		
	Wichita, KS	Electromech Technologies (Electrical Power Systems)													x			
	Olathe, KS	Garmin International (Flight and Data Management)	x	x				x										x
	Olathe, KS	Garmin International (Indicators and Instruments)			x	x	x	x			x	x	x	x		x		
	Olathe, KS	Garmin International (Warning Systems)		x	x	x												

Source: Airframer

Cessna Aircraft Company Aircraft Built in Kansas

Country	Location	Supplier	162 SkyCatcher	172 Skyhawk	182 Skylane	206 Stationair	208 Caravan	350-400 Corvalis TT	Citation CJ2+	Citation CJ3	Citation CJ4	Citation Latitude	Citation Longitude	Citation M2	Citation Mustang	Citation Sovereign	Citation X	Citation XLS NGP
USA	Wichita, KS	McCauley Propeller Systems (Rotors & Propellers)	x	x	x	x	x											x
	Wichita, KS	Nordam Wichita (Cabin Interiors)								x								
	Wichita, KS	Winglet Technology, LLC (Airframe Assemblies)														x		
	Lincoln, MA	Avidyne Corporation (Indicators and Instruments, Warning Systems)					x											
	Livonia, MI	Beaver Aerospace & Defense, Inc. (Actuation)							x									
	Grand Rapids, MI	L-3 Communications Avionics Systems (Indicators and Instruments)										x			x	x		
	Walled Lake, MI	Williams International Co., LLC (Engines)						x	x	x			x					
	Jackson, MI	Eaton Aerospace, Fluid Conveyance Division (Fluid Power, Valves)												x				
	Burnsville, MN	Goodrich Sensors & Integrated Systems (Warning Systems)							x									
	Merrimack, NH	Kollsman Inc, an Elbit Systems of America company (Environmental Systems)												x				
	East Aurora, NY	Astronics Luminescent Systems Inc (Avionic Components)					x					x			x			
	East Aurora, NY	Astronics Luminescent Systems Inc (Lighting)										x			x			

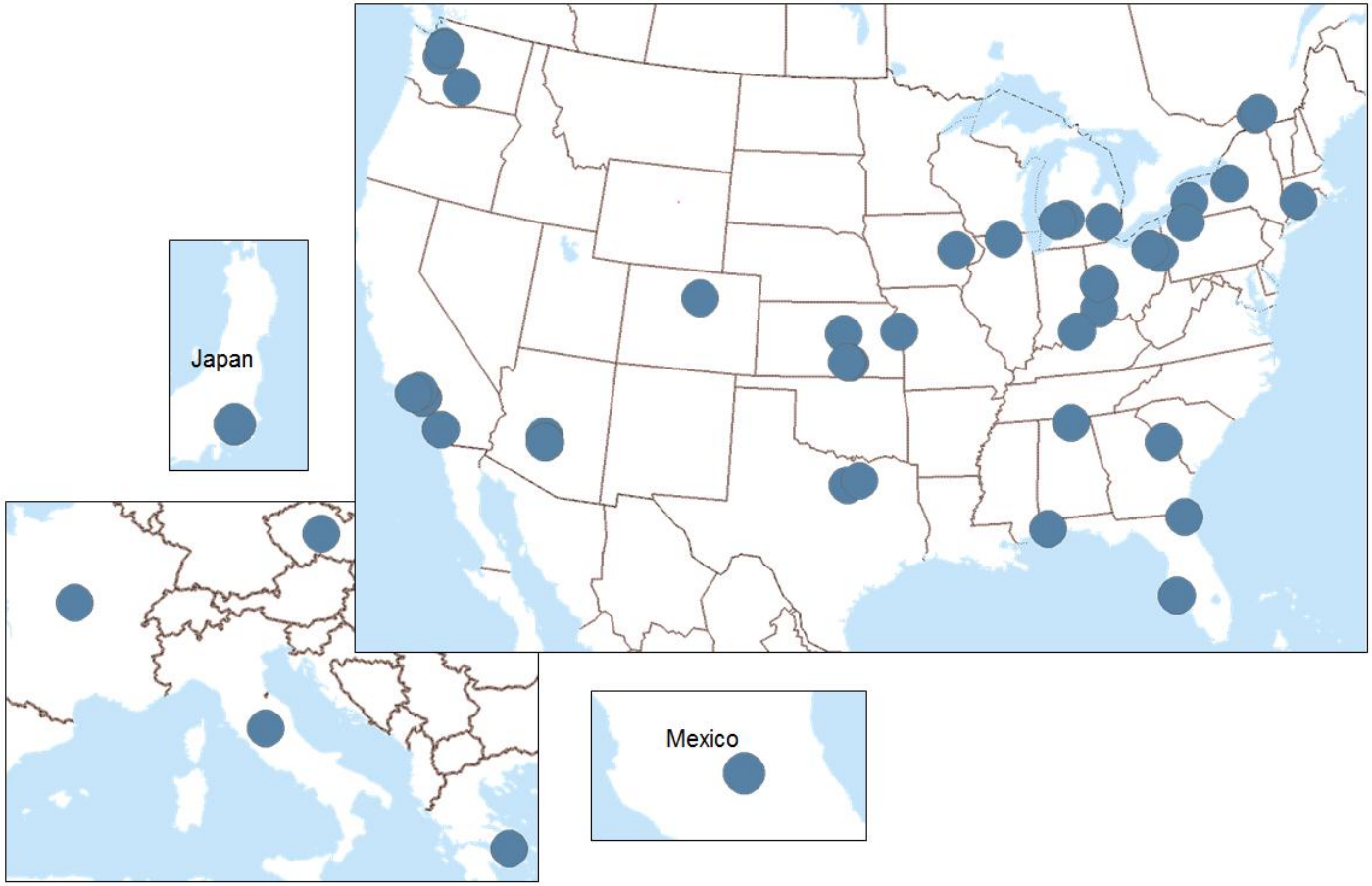
Source: Airframer

Cessna Aircraft Company Aircraft Built in Kansas

Country	Location	Supplier	162 SkyCatcher	172 Skyhawk	182 Skylane	206 Stationair	208 Caravan	350-400 Corvalis TT	Citation CJ2+	Citation CJ3	Citation CJ4	Citation Latitude	Citation Longitude	Citation M2	Citation Mustang	Citation Sovereign	Citation X	Citation XLS NGP
USA	White Plains, NY	Safe Flight Instrument Corporation (Engine Components)													x			
	Piqua, OH	Hartzell Propeller Inc (Rotors & Propellers)					x	x										
	Akron, OH	Meggitt Aircraft Braking Systems Corporation (Landing Assemblies)							x									
	Avon, OH	Parker Aerospace Aircraft Wheel & Brake (Landing Assemblies)	x															x
	Tulsa, OK	Nordam Interiors & Structures Division (Cabin Interiors)							x									
	Tulsa, OK	NORDAM Nacelles & Thrust Reverser Systems (Engine Components)												x				
	Tulsa, OK	NORDAM Transparency Division (Windows & Glass)												x				
	Bend, OR	Precise Flight Inc. (Lighting)															x	
	Williamsport, PA	Lycoming Engines (Engines)		x	x	x												
	Carrollton, TX	Heads Up Technologies Inc. (Cabin Interiors)								x					x			
	Carrollton, TX	Heads Up Technologies Inc. (Lighting)						x	x	x								
	Addison, TX	Keith Products, L.P. (Environmental Systems)		x	x	x												
	Dallas, TX	Triumph Aerostructures - Vought Aircraft													x			
	Carrollton, TX	Heads Up Technologies Inc. (Flight and Data Management)							x									

Source: Airframer

Hawker Beechcraft Corporation Suppliers



Hawker Beechcraft Corporation Aircraft Built in Kansas

Country	Location	Supplier	Baron G58	Bonanza G36	King Air 350	King Air 90	King Air B250	Premier IA/200	T-6	4000	900XP
Canada	Ville St. Laurent, QC	CMC Electronics Inc(Flight and Data Management)							x		
	Longueuil, QC	Pratt & Whitney Canada (Engines)			x	x	x		x	x	
Czech Republic	Praha 9, Letnany	GE Aviation's Business & General Aviation Turboprops (Engines)				x					
France	Plaisir Cedex	Intertechnique (Indicators and Instruments)								x	
	St. Quentin Yvelines	Labinal (Electrical Components)	x	x	x	x	x	x		x	x
	Toulouse Cedex 2	Liebherr-Aerospace SAS (Environmental Systems)									x
	Velizy Cedex	Messier-Dowty (Landing Assemblies)								x	
	Paris Cedex 15	Sagem Défense Sécurité (Flight and Data Management)		x							
Greece	Schimatari, Tanagra	Hellenic Aerospace Industry S.A. (Structural Components)							x		
Italy	Rivalta di Torino	Avio S.p.A (Engine Components)								x	
Japan	Shinjuku-ku, Tokyo	Fuji Heavy Industries Ltd. (Airframe Assemblies)								x	
Mexico	Quéretaro,	Aernnova Aerospace Mexico, SA de CV (Airframe Assemblies)	x	x	x			x			
United Kingdom	Middlesex	Ultra Electronics Controls Division (Environmental Systems)			x						
USA	Huntsville, AL	PPG Aerospace Transparencies (Windows & Glass)			x						
	Mobile, AL	Teledyne Continental Motors Inc. (Engines)	x	x							
	Phoenix, AZ	ACSS (Warning Systems)			x	x				x	x
	Phoenix, AZ	Honeywell Aerospace Engines & Systems (Engines)									x
	Phoenix, AZ	Honeywell Aerospace (Flight and Data Management)								x	
	Phoenix, AZ	Honeywell Aerospace (Indicators and Instruments)	x								

Source: Airframer

Hawker Beechcraft Corporation Aircraft Built in Kansas

Country	Location	Supplier	Baron G58	Bonanza G36	King Air 350	King Air 90	King Air B250	Premier IA/200	T-6	4000	900XP
USA	Phoenix, AZ	Honeywell Aerospace (Navigation Aids (Airborne))		x							
	Phoenix, AZ	Honeywell Aerospace (Warning Systems)			x						
	Phoenix, AZ	Honeywell Aerospace (Auxiliary Power)								x	
	Burbank, CA	Barry Controls Aerospace (Engine Components)						x			
	Burbank, CA	Crane Aerospace/Hydro-Aire Inc. (Landing Assemblies)						x			
	Moorpark, CA	Kavlico Corporation (Sensors, Transducers & Detectors)								x	
	Escondido, CA	TDG Aerospace Inc. (Electrical Components)								x	
	Santa Clarita, CA	Woodward HRT (Valves)								x	
	Broomfield, CO	Aircell (Communications (Airborne))								x	x
	West Hartford, CT	Goodrich Engine Control Systems (Engine Components, Fuel Systems)						x		x	x
	Jacksonville, FL	Kaman Aerospace Aerostructures (Metals)	x	x	x	x	x				
	Sarasota, FL	L-3 Communications Avionics Systems (Flight and Data Management)			x						
	Evans, GA	Basic Aircraft Products, Inc. (Electrical Power Systems)		x							
	Cedar Rapids, IA	Rockwell Collins Inc. (Imaging and Visual Systems, Flight and Data Management)			x	x	x	x			
	Cedar Rapids, IA	Rockwell Collins Inc. (Navigation Aids (Airborne))			x		x				
	Cedar Rapids, IA	Rockwell Collins Inc. (Cabin Interiors)			x						
	Cedar Rapids, IA	Rockwell Collins Inc. (Communications (Airborne))			x		x	x			
	Loves Park, IL	GE Aviation Systems - Rockford (Environmental Systems)			x	x	x				

Source: Airframer

Hawker Beechcraft Corporation Aircraft Built in Kansas

Country	Location	Supplier	Baron G58	Bonanza G36	King Air 350	King Air 90	King Air B250	Premier IA/200	T-6	4000	900XP
USA	Jeffersonville, IN	Carl F. Booth Veneers (Cabin Interiors)			x					x	
	Salina, KS	CAV Aerospace, Inc. (Mechanical Components)									x
	Wichita, KS	Electromech Technologies (Actuation, Mechanical Components)	x								
	Wichita, KS	Electromech Technologies (Sensors, Transducers & Detectors)				x	x				
	Wichita, KS	Electromech Technologies (Valves)			x						
	Wichita, KS	Electromech Technologies (Electrical Power Systems)	x							x	
	Olathe, KS	Garmin International (Indicators and Instruments)	x	x							
	Wichita, KS	McCauley Propeller Systems (Rotors & Propellers)				x					
	Wichita, KS	Precision Pattern Inc (Cabin Interiors)			x					x	
	Zeeland, MI	Gentex Corporation Automotive Products Group (Cabin Interiors)			x						
	Grand Rapids, MI	L-3 Communications Avionics Systems (Warning Systems)		x	x						
	Walled Lake, MI	Williams International Co., LLC (Engines)						x			
	East Aurora, NY	Astronics Luminescent Systems Inc (Lighting)	x	x							
	Liverpool, NY	Tactair Fluid Controls Inc. (Landing Assemblies, Actuation)							x		
	Troy, OH	Goodrich Aircraft Wheels & Brakes (Landing Assemblies)				x	x				
	Piqua, OH	Hartzell Propeller Inc (Rotors & Propellers)	x	x	x	x	x		x		
	Cincinnati, OH	MAG IAS, LLC (Composites)								x	

Source: Airframer

Hawker Beechcraft Corporation Aircraft Built in Kansas

Country	Location	Supplier	Baron G58	Bonanza G36	King Air 350	King Air 90	King Air B250	Premier IA/200	T-6	4000	900XP
USA	Ravenna, OH	Saint-Gobain Performance Plastics (Airframe Assemblies)								x	
	Russell, PA	Forward Vision (Imaging and Visual Systems)	x	x							
	Carrollton, TX	Heads Up Technologies Inc. (Lighting)			x						
	Fort Worth, TX	Parker Aerospace - Stratoflex Products Div. (Non-Mechanical Components)						x			
	Everett, WA	BLR Aerospace, LLC (Airframe Assemblies)				x	x				
	Lynnwood, WA	Crane Aerospace & Electronics - ELDEC Corp. (Sensors, Transducers & Detectors)				x					
	Yakima, WA	GE Aviation (Yakima) (Landing Assemblies)						x			
	Seattle, WA	Raisbeck Engineering Inc. (Cargo Systems, Structural Components)			x						
	Seattle, WA	Raisbeck Engineering Inc. (Power Transmission)					x				

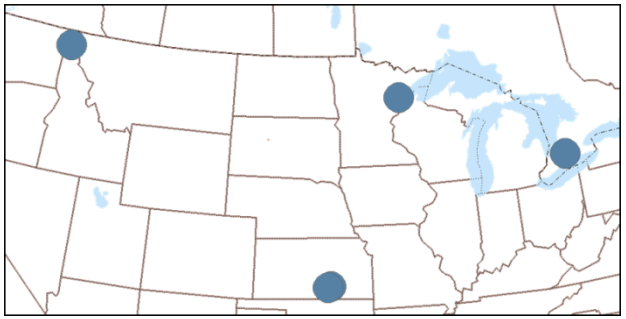
Source: Airframer

Aircraft Parts Supplied by Kansas Manufacturers

Although the production of the three aircraft manufacturers in Kansas is primarily focused on light to midsize private aircraft, the component manufacturers in the state supply parts to military and commercial aircraft in addition to light and midsize private aircraft. These Kansas suppliers to the aerospace product and parts industry include, but are not limited to, the following:

- CAV Aerospace, Inc. is an international company with a facility in Salina, as well as facilities in the United Kingdom, Central Europe, and Mexico. They produce a range of products and services to all sectors of the aerospace industry, specializing in mechanical components.
- Electromech Technologies is located in Wichita. The company produces products for the aerospace and defense industries. These products include, but are not limited to, actuation, electrical components, electrical power systems, mechanical components, sensors, transducers, detectors and valves.
- Garmin International is headquartered in Olathe, Kan. with additional facilities in Oregon, Taiwan and the United Kingdom. The company produces navigation, communication, information devices and applications to a wide range of industries. It provides indicators, instruments, airborne communications, airborne navigation aids, flight and data management, imaging and visual systems and warning systems to the aerospace industry.
- McCauley Propeller Systems is headquartered in Wichita, Kan. with an additional manufacturing facility in Columbus, Ga. The company produces rotors and propellers.
- Spirit AeroSystems, Inc. is headquartered in Wichita, Kan., with additional operations in Tulsa, Okla., McAlester, Okla., Prestwick, Scotland, Preston, England and Subang, Malaysia. The company produces fuselages, under-wing components, composites, wings and replacement parts, primarily for commercial aircraft.
- Vermillion, Inc. is headquartered in Wichita, Kan., with an additional manufacturing facility in Mexico. The company produces custom-made cables and shielding for the defense and aerospace industries.

CAV Aerospace, Inc.

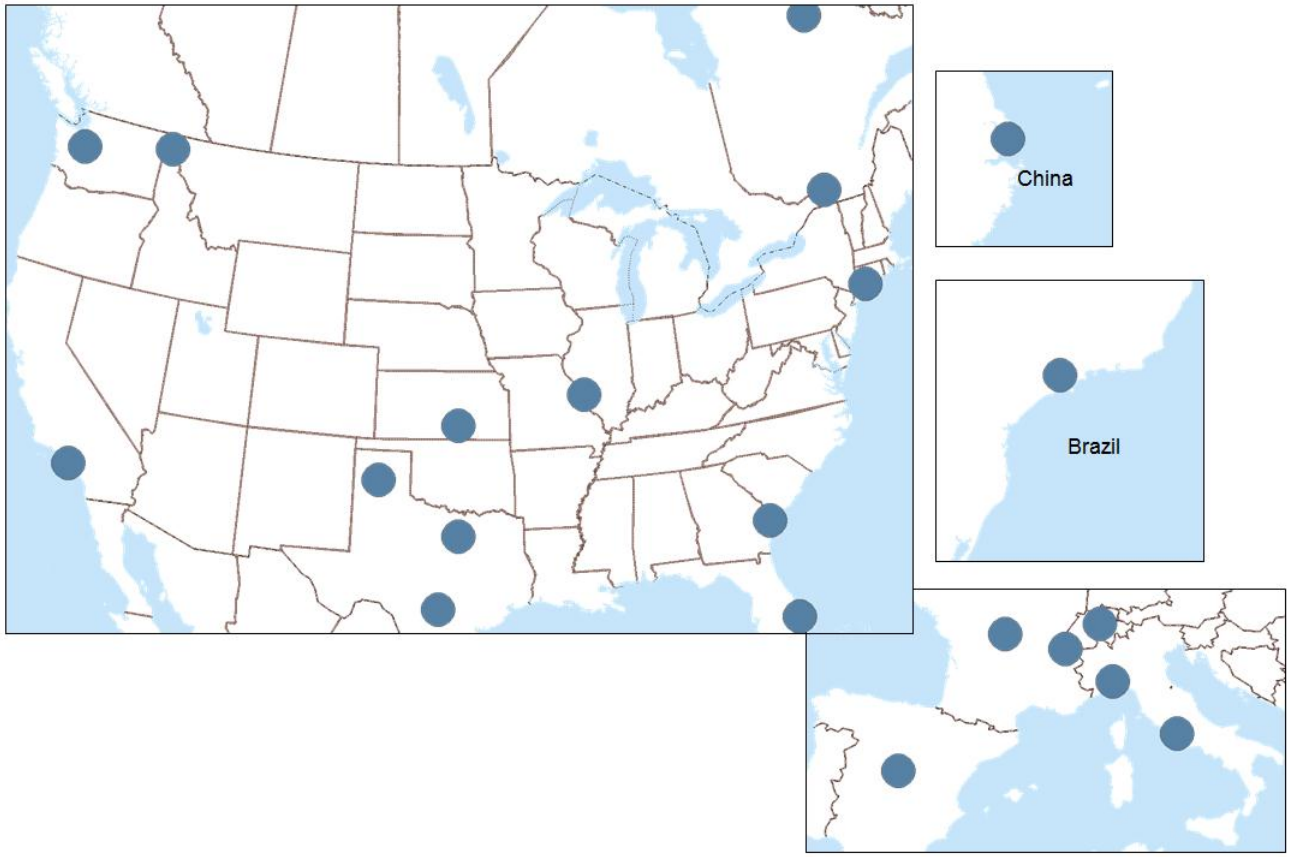


Purchasers of CAV Aerospace, Inc. Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
Canada	London, ON	Diamond Aircraft Industries Inc. (Mechanical Components)	Diamond DA42 Twin Star
USA	Sandpoint, ID	Quest Aircraft Company LLC (Mechanical Components)	Quest Kodiak
	Wichita, KS	Hawker Beechcraft Corporation (Mechanical Components)	Hawker 900XP
	Wichita, KS	Cessna Aircraft Company (Mechanical Components)	Cessna 208 Caravan
	Duluth, MN	Cirrus Aircraft (Mechanical Components)	Cirrus SR20
	Duluth, MN	Cirrus Aircraft (Mechanical Components)	Cirrus SR22

Source: Airframer

Electromech Technologies



Purchasers of Electromech Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
Brazil	Sao Jose dos Campos	Embraer-Empresa Brasileira de Aeronautica S.A. (Electrical Power Systems, Mechanical Components)	170
	Sao Jose dos Campos	Embraer-Empresa Brasileira de Aeronautica S.A. (Mechanical Components)	190
	Sao Jose dos Campos	Embraer-Empresa Brasileira de Aeronautica S.A. (Electrical Power Systems)	ERJ-145
Canada	Mirabel, QC	Bell Helicopter Textron Canada Ltd. (Actuation)	206L-4 LongRanger IV
	Mirabel, QC	Bell Helicopter Textron Canada Ltd. (Actuation)	407
	West Montreal, QC	Bombardier Aerospace (Actuation)	Challenger 300
	West Montreal, QC	Bombardier Aerospace (Electrical Power Systems)	Dash 8 Q
China	Shanghai, Pudong	Shanghai Sikorsky Aircraft Company Limited (Sensors, Transducers & Detectors)	Schweizer S-333
France	Blagnac Cedex	Airbus S.A.S (Electrical Power Systems)	A320
	Blagnac Cedex	Airbus S.A.S (Electrical Power Systems)	A330
	Blagnac Cedex	Airbus S.A.S (Actuation)	A400 M
	Pringy	Dassault Aviation (Electrical Power Systems)	7X
Italy	Rome	Alenia Aeronautica SpA (Electrical Power Systems)	C-27J Spartan
	Genova	Piaggio Aero Industries SpA (Actuation, Electrical Power Systems, Mechanical Components, Valves)	P.180 Avanti II
Spain	Madrid	Airbus Military (Actuation)	EADS CASA C-295
Switzerland	Stans	Pilatus Aircraft Ltd (Actuation, Electrical Power Systems)	PC-12
	Stans	Pilatus Aircraft Ltd (Actuation)	PC-21
USA	El Segundo, CA	Northrop Grumman Aerospace Systems (Electrical Power Systems)	RQ-4 Global Hawk
	Stratford, CT	Sikorsky Aircraft Corporation (Electrical Power Systems)	S-70A Black Hawk
	Stratford, CT	Sikorsky Aircraft Corporation (Electrical Power Systems)	S-76
	Stratford, CT	Sikorsky Aircraft Corporation (Electrical Power Systems)	S-92
	Verno Beach, FL	Piper Aircraft, Inc. (Mechanical Components)	PA-46-350P Mirage
	Verno Beach, FL	Piper Aircraft, Inc. (Mechanical Components)	PA-46-500TP Meridian

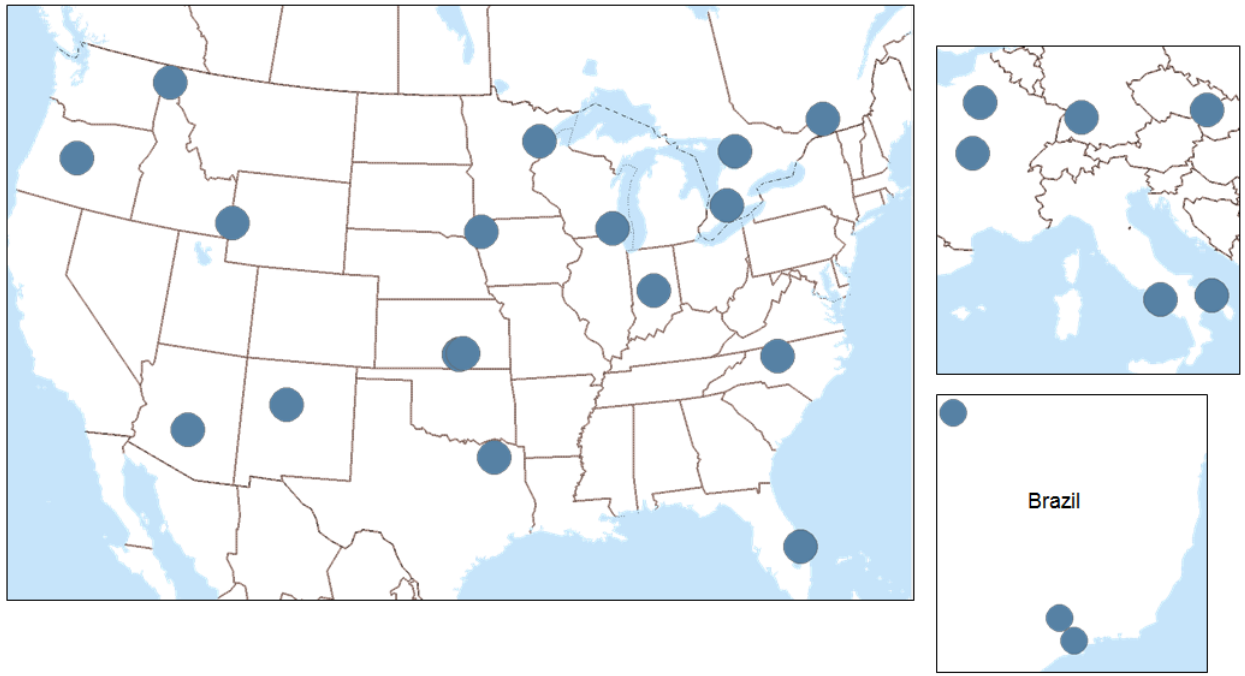
Source: Airframer

Purchasers of Electromech Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
USA	Savannah, GA	Gulfstream Aerospace Corporation (Actuation, Electrical Power Systems)	G450
	Savannah, GA	Gulfstream Aerospace Corporation (Electrical Power Systems)	G550
	Sandpoint, ID	Quest Aircraft Company LLC (Actuation, Sensors, Transducers & Detectors)	Kodiak
	Hazelwood, MO	Boeing Defense, Space & Security (Actuation)	C-17 Globemaster III
	Hazelwood, MO	Boeing Defense, Space & Security (Electrical Power Systems)	F/A-18 Super Hornet
	Wichita, KS	Hawker Beechraft (Actuation, Mechanical Components, Sensors, Valves, Electrical Power Systems)	Bonanza G36
	Wichita, KS	Bombardier (Actuation, Electrical Power Systems)	Learjet 45XR
	Wichita, KS	Cessna (Electrical Components)	Citation CJ2+
	Wichita, KS	Cessna (Actuation, Electrical Power Systems)	Citation Sovereign
	Wichita, KS	Cessna (Actuation)	Citation X
	Amarillo, TX	Bell Helicopter Textron/Boeing (Electrical Power Systems)	V-22 Osprey
	Fort Worth, TX	Lockheed Martin Aeronautics Company (Actuation)	C-130J Hercules
	San Antonio, TX	SyberJet Aircraft (Electrical Power Systems)	SJ30-2
	Renton, WA	Boeing Commercial Airplanes (Actuation)	737
	Renton, WA	Boeing Commercial Airplanes (Actuation, Electrical Power Systems)	767
	Renton, WA	Boeing Commercial Airplanes (Actuation, Electrical Power Systems)	777

Source: Airframer

Garmin International



Purchasers of Garmin International Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
Brazil	Bairro Anchieta, Porto Alegre	Aeromot Industria Mecanico-Metalurgica Ltda (Indicators and Instruments)	Aeromot AMT-600 Guri
	Sao Jose dos Campos	Embraer-Empresa Brasileira de Aeronautica S.A. (Indicators and Instruments)	Embraer Phenom
	Sao Joao Da Boa Vista	AirMax Construcoes Aeronauticas Ltda. (Navigation Aids (Airborne))	AirMax SeaMax
Canada	London, ON	Diamond Aircraft Industries Inc. (Communications (Airborne))	Diamond DA42 Twin Star
	London, ON	Diamond Aircraft Industries Inc. (Flight and Data Management)	Diamond DA20 C1
	London, ON	Diamond Aircraft Industries Inc. (Flight and Data Management)	Diamond DA40 Diamond Star
	London, ON	Diamond Aircraft Industries Inc. (Flight and Data Management)	Diamond DA42 Twin Star
	London, ON	Diamond Aircraft Industries Inc. (Flight and Data Management)	Diamond DA50 SuperStar
	London, ON	Diamond Aircraft Industries Inc. (Imaging and Visual Systems)	Diamond D-Jet
	London, ON	Diamond Aircraft Industries Inc. (Indicators and Instruments)	Diamond DA20 C1
	London, ON	Diamond Aircraft Industries Inc. (Indicators and Instruments)	Diamond DA40 Diamond Star
	London, ON	Diamond Aircraft Industries Inc. (Indicators and Instruments)	Diamond DA42 Twin Star
	London, ON	Diamond Aircraft Industries Inc. (Indicators and Instruments)	Diamond DA50 SuperStar
	London, ON	Diamond Aircraft Industries Inc. (Indicators and Instruments)	Diamond D-Jet
	London, ON	Diamond Aircraft Industries Inc. (Navigation Aids (Airborne))	Diamond DA20 C1
	London, ON	Diamond Aircraft Industries Inc. (Navigation Aids (Airborne))	Diamond HK36 Super Dimona
	Parry Sound, ON	Found Aircraft Canada Inc. (Communications (Airborne))	Expedition 350/XC

Source: Airframer

Purchasers of Garmin International Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
Canada	Mirabel, QC	Bell Helicopter Textron Canada Ltd. (Indicators and Instruments)	Bell 407
	Mirabel, QC	Bell Helicopter Textron Canada Ltd. (Indicators and Instruments)	Bell 525 Relentless
	Mirabel, QC	Bell Helicopter Textron Canada Ltd. (Navigation Aids (Airborne))	Bell 429 GlobalRanger
Czech Republic	Kunovice	Evektor-Aerotechnik A.S. (Communications (Airborne))	Evektor VUT 100 Cobra
France	Provence, Marignane	Eurocopter (Navigation Aids (Airborne))	Eurocopter EC130T2
	Tarbes	Daher-Socata (Indicators and Instruments)	Socata TBM700/850
	Paris	Groupe ALMS Sauper (Navigation Aids (Airborne))	ALMS Sauper Joker J300
	Paris	Groupe ALMS Sauper (Navigation Aids (Airborne))	ALMS Sauper Papango
Germany	Leinfelden-Echterdingen	Flight Design GmbH (Navigation Aids (Airborne))	Flight Design CT
Italy	Monopoli, BA	Blackshape SpA (Communications (Airborne))	Blackshape Prime
	Naples, Casoria	Vulcanair SpA (Indicators and Instruments)	Vulcanair P68
USA	Mesa, AZ	MD Helicopters Inc. (Indicators and Instruments)	MD 500E/530F
	Vero Beach, FL	Piper Aircraft, Inc. (Communications (Airborne))	Piper PiperSport
	Vero Beach, FL	Piper Aircraft, Inc. (Indicators and Instruments)	Piper PA-28 series
	Vero Beach, FL	Piper Aircraft, Inc. (Indicators and Instruments)	Piper PA-34-220T Seneca V
	Vero Beach, FL	Piper Aircraft, Inc. (Indicators and Instruments)	Piper PA-44-180 Seminole

Source: Airframer

Purchasers of Garmin International Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
USA	Vero Beach, FL	Piper Aircraft, Inc. (Indicators and Instruments)	Piper PA-46-500TP Meridian
	Vero Beach, FL	Piper Aircraft, Inc. (Navigation Aids (Airborne))	Piper PiperSport
	Orange City, IA	Angel Aircraft Corporation (Indicators and Instruments)	Angel 44
	Orange City, IA	Angel Aircraft Corporation (Navigation Aids (Airborne))	Angel 44
	Sandpoint, ID	Quest Aircraft Company LLC (Indicators and Instruments)	Quest Kodiak
	Indianapolis, IN	Algie Composite Aircraft (Navigation Aids (Airborne))	Algie LP-1
	Wichita, KS	Cessna Aircraft Company (Flight and Data Management)	Cessna 162 SkyCatcher
	Wichita, KS	Cessna Aircraft Company (Flight and Data Management)	Cessna 172 Skyhawk
	Wichita, KS	Cessna Aircraft Company (Flight and Data Management)	Cessna 350 Corvalis/400 Corvalis TT
	Wichita, KS	Bombardier Learjet (Indicators and Instruments)	Learjet 70
	Wichita, KS	Bombardier Learjet (Indicators and Instruments)	Learjet 75
	Wichita, KS	Cessna Aircraft Company (Indicators and Instruments)	Cessna Citation Mustang
	Wichita, KS	Cessna Aircraft Company (Indicators and Instruments)	Cessna 182 Skylane
	Wichita, KS	Cessna Aircraft Company (Indicators and Instruments)	Cessna 206 Stationair
	Wichita, KS	Cessna Aircraft Company (Indicators and Instruments)	Cessna 208 Caravan

Source: Airframer

Purchasers of Garmin International Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
USA	Wichita, KS	Cessna Aircraft Company (Indicators and Instruments)	Cessna 350 Corvalis/400 Corvalis TT
	Wichita, KS	Cessna Aircraft Company (Indicators and Instruments)	Cessna Citation Latitude
	Wichita, KS	Cessna Aircraft Company (Indicators and Instruments)	Cessna Citation Longitude
	Wichita, KS	Cessna Aircraft Company (Indicators and Instruments)	Cessna Citation M2
	Wichita, KS	Cessna Aircraft Company (Indicators and Instruments)	Cessna Citation X
	Wichita, KS	Hawker Beechcraft Corporation (Indicators and Instruments)	Beechcraft Baron G58
	Wichita, KS	Hawker Beechcraft Corporation (Indicators and Instruments)	Beechcraft Bonanza G36
	Wichita, KS	Cessna Aircraft Company (Warning Systems)	Cessna 172 Skyhawk
	Wichita, KS	Cessna Aircraft Company (Warning Systems)	Cessna 182 Skylane
	Wichita, KS	Cessna Aircraft Company (Warning Systems)	Cessna 206 Stationair
	Duluth, MN	Cirrus Aircraft (Flight and Data Management)	Cirrus SR20
	Duluth, MN	Cirrus Aircraft (Flight and Data Management)	Cirrus Vision SJ50
	Greensboro, NC	Honda Aircraft Company (Indicators and Instruments)	Honda HA-420 HondaJet
	Greensboro, NC	Honda Aircraft Company (Indicators and Instruments)	Honda HA-420 HondaJet

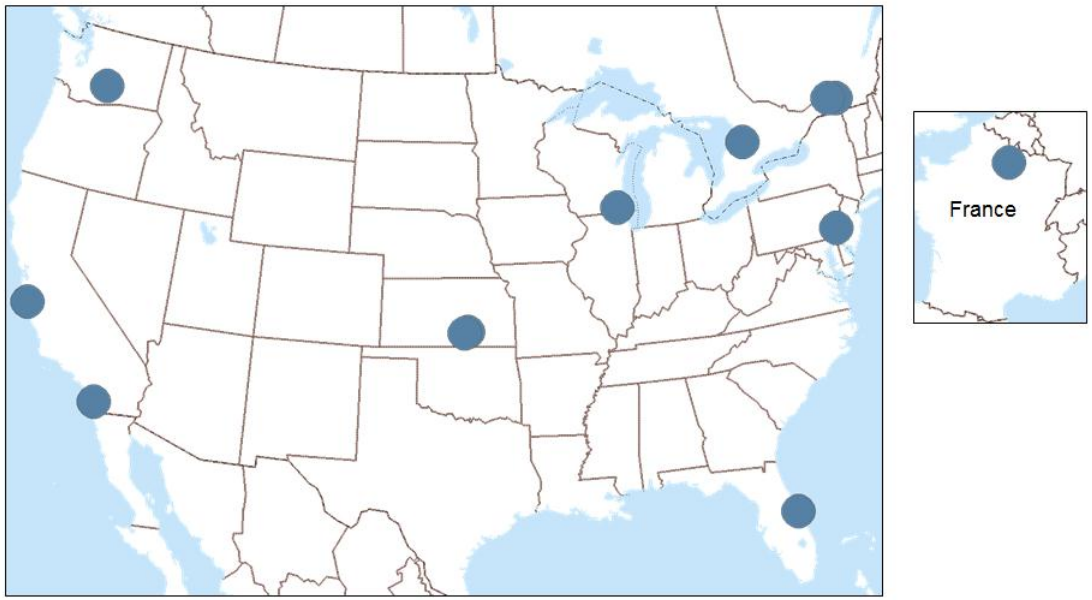
Source: Airframer

Purchasers of Garmin International Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
USA	Albuquerque, NM	Seeker Aircraft America, Inc. (Indicators and Instruments)	Seabird SB7 Seeker
	Bend, OR	Epic Aircraft, LLC (Indicators and Instruments)	Epic LT
	Sulphur Springs, TX	American Legend Aircraft Company (Flight and Data Management)	American Legend Cub
	Rochester, WI	American Champion Aircraft Corporation (Navigation Aids (Airborne))	American Champion 7ECA Citabria Aurora
	Rochester, WI	American Champion Aircraft Corporation (Navigation Aids (Airborne))	American Champion 7GCAA Citabria Adventure
	Rochester, WI	American Champion Aircraft Corporation (Navigation Aids (Airborne))	American Champion 7GCBC Citabria Explorer
	Rochester, WI	American Champion Aircraft Corporation (Navigation Aids (Airborne))	American Champion 8GCBC Scout
	Rochester, WI	American Champion Aircraft Corporation (Navigation Aids (Airborne))	American Champion 8KCAB Super Decathlon
	Afton, WY	Aviat Aircraft Inc. (Navigation Aids (Airborne))	Aviat Husky A-1

Source: Airframer

McCauley Propeller Systems



Purchasers of McCauley Propeller Systems Produced in Kansas

Country	Location	Purchaser	Aircraft
Canada	Tiny, ON	Custom Flight Ltd. (Rotors & Propellers)	Star Bushplane
	Mirabel, QC	Bell Helicopter Textron Canada Ltd. (Indicators and Instruments)	LongRanger IV
	Boucherville, QC	St. Just Aviation Inc. (Rotors & Propellers)	Cyclone
France	Prunay	Reims Aviation Industries (Rotors & Propellers)	Reims F406 Caravan
USA	Monterey, CA	Aircraft Designs Inc. (Rotors & Propellers)	ADI Super Stallion
	San Diego , CA	General Atomics Aeronautical Systems (Rotors & Propellers)	Predator B
	Merritt Island, FL	Comp Air, Inc. (Rotors & Propellers)	Comp Air 12
	Wichita, KS	Cessna Aircraft Company (Rotors & Propellers)	SkyCatcher
	Wichita, KS	Cessna Aircraft Company (Rotors & Propellers)	Skyhawk
	Wichita, KS	Cessna Aircraft Company (Rotors & Propellers)	Cessna 182 Skylane
	Wichita, KS	Cessna Aircraft Company (Rotors & Propellers)	Stationair
	Wichita, KS	Cessna Aircraft Company (Rotors & Propellers)	Caravan
	Wichita, KS	Hawker Beechcraft Corporation (Rotors & Propellers)	90
	Phoenixville , PA	Seawind LLC (Rotors & Propellers)	Seawind 300C
	Yakima, WA	CubCrafters Inc. (Rotors & Propellers)	Top Cub
	Rochester, WI	American Champion Aircraft Corporation (Rotors & Propellers)	8GCBC Scout

Source: Airframer

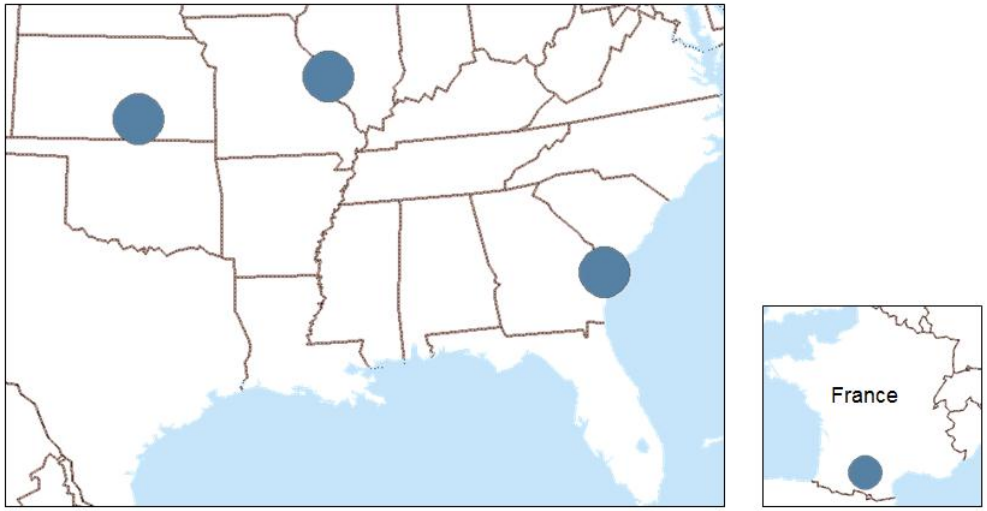
Spirit AeroSystems, Inc.

Purchasers of Spirit AeroSystems Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
Canada	West Montreal, QC	Bombardier Aerospace (Airframe Assemblies, Engine Components)	Bombardier Cseries
France	Blagnac	Airbus S.A.S. (Airframe Assemblies)	Airbus A350 XWB
Japan	Tokyo, Minato-ku	Mitsubishi Aircraft Corporation (Engine Components)	Mitsubishi MRJ
USA	Stratford, CT	Sikorsky Aircraft Corporation (Airframe Assemblies)	Sikorsky CH-53
	Savannah, GA	Gulfstream Aerospace Corporation (Airframe Assemblies)	Gulfstream G280
	Savannah, GA	Gulfstream Aerospace Corporation (Airframe Assemblies, Engine Components)	Gulfstream G650
	Renton, WA	Boeing Commercial Airplanes (Airframe Assemblies, Engine Components)	Boeing 737
	Renton, WA	Boeing Commercial Airplanes (Airframe Assemblies, Engine Components)	Boeing 747
	Renton, WA	Boeing Commercial Airplanes (Airframe Assemblies, Engine Components)	Boeing 767
	Renton, WA	Boeing Commercial Airplanes (Airframe Assemblies, Engine Components)	Boeing 777
	Renton, WA	Boeing Commercial Airplanes (Airframe Assemblies, Engine Components)	Boeing 787 Dreamliner

Source: Airframer

Vermillion, Inc.



Purchasers of Vermillion Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Aircraft
France	Blagnac	Airbus S.A.S. (Electrical Power Systems)	Airbus A320
	Blagnac	Airbus S.A.S. (Electrical Power Systems)	Airbus A330
	Blagnac	Airbus S.A.S. (Electrical Power Systems)	Airbus A330
	Blagnac	Airbus S.A.S. (Electrical Power Systems)	Airbus A350 XWB
	Blagnac	Airbus S.A.S. (Electrical Power Systems)	Airbus A380
USA	Savannah, GA	Gulfstream Aerospace Corporation (Electrical Power Systems)	Gulfstream G500
	Wichita, KS	Bombardier Learjet (Electrical Power Systems)	Learjet 60 XR
	Hazelwood, MO	Boeing Defense Space & Security (Electrical Power Systems)	Boeing C-17 Globemaster III

Source: Airframer

Other Kansas Suppliers

Purchasers of Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Kansas Supplier	Aircraft
Brazil	Sao Jose dos Campos	Embraer-Empresa Brasileira de Aeronautica S.A. (Electrical Power Systems)	Advanced Industries, Inc.	Embraer Phenom
Canada	Parry Sound, ON	Found Aircraft Canada Inc. (Indicators and Instruments)	Mid Continent Instruments	Expedition 350/XC
	Parry Sound, ON	Found Aircraft Canada Inc. (Indicators and Instruments)	Sigma Tek Inc.	Expedition 350/XC
	Mirabel, QC	Bell Helicopter Textron Canada Ltd. (Indicators and Instruments)	Honeywell Aerospace, Electronic Sys.	Bell 206L-4 LongRanger IV
	West Montreal, QC	Bombardier Aerospace (Structural Components)	Triumph Structures - Kansas City	Bombardier Global Series
France	Velizy-Vellacoublay	Dassault Aviation (Cabin Interiors)	Nordam Wichita	Dassault 7X
	Velizy-Vellacoublay	Dassault Aviation (Cabin Interiors)	Precision Pattern Inc	Dassault 2000 series
	Blagnac	Airbus S.A.S. (Fasteners)	Heartland Precision Fasteners Inc.	Airbus A380
USA	Sandpoint, ID	Quest Aircraft Company LLC (Design)	Millennium Concepts Inc	Quest Kodiak
	Wichita, KS	Cessna Aircraft Company (Airframe Assemblies)	Winglet Technology, LLC	Cessna Citation X
	Wichita, KS	Cessna Aircraft Company (Cabin Interiors)	Nordam Wichita	Cessna Citation CJ4
	Wichita, KS	Hawker Beechcraft Corporation (Cabin Interiors)	Precision Pattern Inc	Beechcraft King Air 350

Source: Airframer

Purchasers of Aircraft Parts Produced in Kansas

Country	Location	Purchaser	Kansas Supplier	Aircraft
USA	Wichita, KS	Hawker Beechcraft Corporation (Cabin Interiors)	Precision Pattern Inc	Hawker 4000
	Wichita, KS	Bombardier Learjet (Test Services)	National Institute for Aviation Research	Learjet 85
	Renton, WA	Boeing Commercial Airplanes (Mechanical Components)	HBD/Thermoid Inc. - a subsidiary of HBD Industries, Inc.	Boeing 737
	Renton, WA	Boeing Commercial Airplanes (Mechanical Components)	HBD/Thermoid Inc. - a subsidiary of HBD Industries, Inc.	Boeing 747
	Renton, WA	Boeing Commercial Airplanes (Mechanical Components)	HBD/Thermoid Inc. - a subsidiary of HBD Industries, Inc.	Boeing 767
	Renton, WA	Boeing Commercial Airplanes (Mechanical Components)	HBD/Thermoid Inc. - a subsidiary of HBD Industries, Inc.	Boeing 777
	Renton, WA	Boeing Commercial Airplanes (Mechanical Components)	HBD/Thermoid Inc. - a subsidiary of HBD Industries, Inc.	Boeing 787 Dreamliner
	Renton, WA	Boeing Commercial Airplanes (Structural Components)	TECT Aerospace, Inc.	Boeing 767

Source: Airframer

Qualitative Analysis

Aerospace Research and Development by State

Although research and development in the aerospace industry is important, and research dollars can be very important to the economic development of an area, there does not appear to be a strong connection between aeronautical and astronautical engineering research dollars in a state and the level of aerospace products and parts manufacturing jobs in a state.

Washington, California and Texas, all of which have a high level of aerospace employment, had a relatively low level of aeronautical and astronautical engineering research dollars reported in 2009. Connecticut, the fifth highest state in aerospace employment, had no aeronautical and astronautical engineering research dollars reported in 2009. There were five states that had a relatively low level of aerospace employment, yet had a significant amount of aeronautical and astronautical research expenditures in 2009: Maryland, Utah, Colorado, Indiana and Virginia.

Research and Development Expenditures in Aeronautical and Astronautical Engineering

State	Expenditures	Percent of Total
All institutions	$613,805,000	100.0%
Maryland	$111,585,000	18.2%
Georgia	$56,084,000	9.1%
Utah	$51,649,000	8.4%
Kansas	**$50,957,000**	**8.3%**
Colorado	$39,993,000	6.5%
Texas	$33,448,000	5.4%
California	$33,160,000	5.4%
Indiana	$27,744,000	4.5%
Ohio	$23,479,000	3.8%
Alabama	$22,303,000	3.6%
Massachusetts	$19,940,000	3.2%
Virginia	$15,829,000	2.6%
Pennsylvania	$14,519,000	2.4%
Florida	$11,558,000	1.9%
Washington	$4,772,000	0.8%
Arizona	$1,157,000	0.2%
Missouri	$372,000	0.1%
South Carolina	$103,000	0.0%

Source: National Science Foundation, Fiscal Year 2009

Aerospace Research and Development Programs

Although many universities conduct aeronautical and astronautical engineering research, this research is typically done within the engineering department of the university. However, there are a group of specialized research centers that attract a high level of research dollars. The top four programs accounted for 39.2 percent of the aeronautical and astronautical engineering research and development expenditures in 2009.

Johns Hopkins University

The state of Maryland accounted for the highest level of aeronautical and astronautical engineering research dollars, at 18.2 percent of total dollars spent in the field in 2009. Almost 15 percent of that research was done at Johns Hopkins University, the largest aerospace research program in the country, in 2009.

Research and Development Expenditures in Aeronautical and Astronautical Engineering

Institution	Dollars in Thousands	Percent of Total
Johns Hopkins University	$90,416	14.7%
University of Maryland	$19,666	3.2%
U.S. Naval Academy	$1,503	0.2%
Maryland Total	**$111,585**	**18.2%**

Source: National Science Foundation, Fiscal Year 2009

The majority of the research and development done at Johns Hopkins University, as it relates to the aerospace industry, is done at the Applied Physics Laboratory (APL). APL is a large research facility with a diversified portfolio of more than 600 programs and annual funding of about $980 million.[37] The aerospace research done there is primarily focused in the guided missile and space vehicles sector. The research programs within this sector are as follows:

- Air and missile defense – ballistic missile defense, sensors and weapons, integrated combat systems, and science and technology
- Civil space – designed, developed and launched 64 spacecraft and more than 150 space instruments
- National security space – space weather, multi-mission nanosatellite, operationally responsive space, precision tracking space system

Utah State University

The state of Utah accounted for the third highest level of aeronautical and astronautical engineering research dollars, at 8.4 percent of total dollars spent in the field in 2009. This research was done almost entirely at Utah State University, the second largest aerospace research program in the country, in 2009.

[37] The Johns Hopkins University Applied Physics Laboratory

Research and Development Expenditures in Aeronautical and Astronautical Engineering

Institution	Expenditures	Percent of Total
Utah State University	$51,638,000	8.4%
Weber State University	$11,000	0.0%
Utah Total	**$51,649,000**	**8.4%**

Source: National Science Foundation, Fiscal Year 2009

In addition to the academic research done in the department of mechanical and aerospace engineering at Utah State University, aerospace research is conducted at the Space Dynamics Laboratory (SDL). SDL is a nonprofit research corporation owned by Utah State University with locations in Logan, Utah, Albuquerque, N.M., Bedford, Mass., and Washington D.C. SDL employs more than 450 scientists, engineers and other professionals.[38] The aerospace research done there is primarily focused in space vehicle parts and auxiliary equipment manufacturing, with applications across the aerospace industry. Their core areas of expertise are as follows:

- Space-rated instruments and payloads
- Calibration
- Cryogenic and thermal management
- Small satellites and satellite systems
- Systems engineering
- Sensor system performance modeling and simulation
- Data handling, compression, and analysis
- Upper atmospheric measurements and modeling

Wichita State University

The state of Kansas accounted for the fourth highest level of aeronautical and astronautical engineering research dollars, at 8.3 percent of total dollars spent in the field in 2009. This research was done almost entirely at Wichita State University, the third largest aerospace research program in the country in 2009. The Wichita State program is the largest aerospace program that focuses on commercial and private aircraft and does not focus on guided missiles and space vehicles.

[38] Space Dynamics Laboratory - Utah State University Research Foundation

Research and Development Expenditures in Aeronautical and Astronautical Engineering

Institution	Expenditures	Percent of Total
Wichita State University	$50,023,000	8.1%
University of Kansas	$748,000	0.1%
Kansas State University	$175,000	0.0%
Pittsburg State University	$11,000	0.0%
Kansas Total	**$50,957,000**	**8.3%**

Source: National Science Foundation, Fiscal Year 2009

In addition to the academic research done in the Aerospace Engineering Department at Wichita State University, aerospace research is conducted at the National Institute for Aviation Research (NIAR). NIAR is a department of Wichita State University, operating on a nonprofit budget of more than $49 million in fiscal year 2011. NIAR operates more than 250,000 square feet of laboratory and office space and employs 350 people.[39] The aerospace testing, training and research done at the facility encompasses a range of topics related to aircraft manufacturing, including, but not limited to, the following:

- Advanced coatings research
- Aerodynamic testing and research
- Aging aircraft research
- Friction stir welding research and development
- CAD/CAM training in CATIA, ENOVIA, FiberSIM and Polyworks
- Calibration of test and measurement equipment traceable to NIST standards
- Composites and advanced materials research, testing and certification services
- Crash dynamics research, testing and certification
- Computational mechanics research
- Environmental testing for DO-160 certification and military standards and specifications
- Full-scale and component testing (static, durability and damage tolerance)
- Static and fatigue testing (composite and metallic)
- NDT testing and training
- Virtual reality for prototyping, design review, manufacturing, engineering, ergonomics and marketing

[39] National Institute for Aviation Research - Wichita State University

Georgia Institute of Technology

The state of Georgia accounted for the second highest level of aeronautical and astronautical engineering research dollars, at 9.1 percent of total dollars spent in the field in 2009. The majority of this research was done at The Georgia Institute of Technology, the fourth largest aerospace research program in the country, in 2009.

Research and Development Expenditures in Aeronautical and Astronautical Engineering

Institution	Expenditures	Percent of Total
Georgia Institute of Technology	$49,290,000	8.0%
Mercer University	$6,751,000	1.1%
Southern Polytechnic State University	$39,000	0.0%
Armstrong Atlantic State University	$4,000	0.0%
Georgia Total	**$56,084,000**	**9.1%**

Source: National Science Foundation, Fiscal Year 2009

The Daniel Guggenheim School of Aerospace Engineering, at the Georgia Institute of Technology, employs 43 academic faculty members, 54 research engineers and 22 administrative and technical staff members.[40] The facility is engaged in a wide variety of research topics ranging across all sectors of the aerospace industry, including, but not limited to, the following:

- Aerodynamics and fluid mechanics
- Aeroelasticity and structural dynamics
- Flight mechanics and controls
- Propulsion and combustion
- Structural mechanics and materials
- System design and optimization
- Sustainable energy systems

[40] The Daniel Guggenheim School of Aerospace Engineering - Georgia Institute of Technology

Primary Occupations and Educational Requirements within Aerospace Products and Parts Manufacturing in the United States

U.S. Distribution of Employment within Aerospace Products and Parts Manufacturing by Major Occupational Code[41]

Workers employed in aerospace products and parts manufacturing are concentrated in production and architecture and engineering occupations. Production occupations include positions such as supervisors of production workers and assemblers and fabricators. These occupations accounted for 33.6 percent of all employees. Architecture and engineering positions accounted for 20.8 percent of all employees. Architecture and engineering occupations include aerospace engineers, as well as industrial and mechanical engineers.

[41] Bureau of Labor Statistics, Occupational Employment Statistics, May 2011.

10 Largest Occupations within Aerospace Products and Parts Manufacturing by Occupational Code[42]

The 10 largest occupations were determined based on the number of employees in a given occupation in the United States. The occupation with the most employees was aircraft structure, surfaces, rigging and systems assemblers. This occupation contributed to 7 percent of the aerospace products and parts manufacturing industry, with an average annual wage of $48,560. Although aircraft structure, surfaces, rigging and systems assemblers contributed the most employees, the second largest occupation contributed more wages to the industry. That occupation was aerospace engineering with 28,340 employees and a total of $2.7 million in wages in May 2011. It should be noted that some of the most prevalent occupations within the aerospace products and parts manufacturing industry are not the most highly paid.

Hourly and annual wage percentiles for the 10 largest occupations are provided below.

	Employment		Average Wage		Total Wages Paid*	
	Number	Percent of Aero. Industry	Hourly	Annual	Number	Percent of Aero. Industry
Industry Total	**473,120**	**100.0%**	**$33.24**	**$69,150**	**$32,716,248,000**	**100.0%**
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	33,020	7.0%	$23.35	$48,560	$1,603,451,200	4.9%
Aerospace Engineers	28,340	6.0%	$46.51	$96,740	$2,741,611,600	8.4%
Machinists	21,590	4.6%	$21.62	$44,980	$971,118,200	3.0%
Inspectors, Testers, Sorters, Samplers, and Weighers	19,310	4.1%	$23.93	$49,780	$961,251,800	2.9%
Aircraft Mechanics and Service Technicians	17,580	3.7%	$26.81	$55,760	$980,260,800	3.0%
Industrial Engineers	16,830	3.6%	$41.51	$86,340	$1,453,102,200	4.4%
Software Developers, Systems Software	13,860	2.9%	$50.36	$104,750	$1,451,835,000	4.4%
Team Assemblers	13,590	2.9%	$17.84	$37,110	$504,324,900	1.5%
Mechanical Engineers	11,800	2.5%	$42.97	$89,390	$1,054,802,000	3.2%
Purchasing Agents, Except Wholesale, Retail, and Farm Products	10,500	2.2%	$32.56	$67,720	$711,060,000	2.2%
Top 10 Total*	**186,420**	**39.4%**	**$32.06**	**$66,693**	**$12,432,817,700**	**38.0%**

*Estimated by CEDBR.

[42] Bureau of Labor Statistics, Occupational Employment Statistics, May 2011.

	Hourly Wage Percentiles				
	10th	25th	50th	75th	90th
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	$13.84	$17.24	$22.27	$30.66	$34.25
Aerospace Engineers	$31.29	$37.69	$45.79	$55.53	$65.93
Machinists	$13.32	$16.74	$21.03	$26.23	$31.53
Inspectors, Testers, Sorters, Samplers, and Weighers	$13.83	$17.58	$23.59	$30.92	$34.69
Aircraft Mechanics and Service Technicians	$16.96	$21.41	$26.90	$32.66	$36.48
Industrial Engineers	$26.77	$32.91	$40.67	$49.91	$58.62
Software Developers, Systems Software	$33.35	$40.24	$49.95	$60.62	$70.60
Team Assemblers	$10.13	$12.88	$16.67	$22.24	$28.00
Mechanical Engineers	$27.18	$33.07	$41.33	$52.15	$63.69
Purchasing Agents, Except Wholesale, Retail, and Farm Products	$19.75	$24.62	$32.09	$40.37	$46.50

	Annual Wage Percentiles				
	10th	25th	50th	75th	90th
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	$28,790	$35,860	$46,320	$63,780	$71,230
Aerospace Engineers	$65,080	$78,390	$95,250	$115,490	$137,130
Machinists	$27,700	$34,820	$43,740	$54,560	$65,590
Inspectors, Testers, Sorters, Samplers, and Weighers	$28,770	$36,560	$49,060	$64,310	$72,160
Aircraft Mechanics and Service Technicians	$35,280	$44,530	$55,950	$67,940	$75,870
Industrial Engineers	$55,670	$68,450	$84,600	$103,810	$121,930
Software Developers, Systems Software	$69,370	$83,700	$103,890	$126,100	$146,850
Team Assemblers	$21,080	$26,790	$34,680	$46,270	$58,230
Mechanical Engineers	$56,540	$68,790	$85,960	$108,470	$132,480
Purchasing Agents, Except Wholesale, Retail, and Farm Products	$41,080	$51,210	$66,740	$83,970	$96,720

Education Requirements for the 10 Largest Occupations within Aerospace Products and Parts Manufacturing

Higher levels of education correlate with higher wages in the aerospace product and parts' manufacturing industry, but it does not ensure job growth in that occupation. The occupation with the highest level of employment and one of the lowest average annual wages, aircraft structure, surfaces, rigging and systems assemblers, requires a high school education and is expected to grow at an average rate between 2010 and 2020. Aerospace engineers, the occupation with the second highest level of employment and annual wage, is expected to grow at a slower than average rate. Software developers, the occupation with the highest average annual wage, are the only occupations in the industry expected to grow at an above average rate.

However, growth rates are not indicative of the number of job openings between 2010 and 2020. Aircraft structure, surfaces, rigging and systems assemblers are expected to grow at an average rate with approximately 12,200 openings between 2010 and 2020. At the same time, aerospace engineer occupations are expected to grow at a slower than average rate, but will have significantly more job openings (21,800 openings) compared to aircraft structure, surfaces, rigging and systems assemblers.

Occupation	Education Requirments[1]	Job Summary	Job Outlook 2010-2020[2]	Job Openings 2010-2020
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	High school diploma or equivalent	Assemble, fit, fasten, and install parts of airplanes, space vehicles, or missiles, such as tails, wings, fuselage, bulkheads, stabilizers, landing gear, rigging and control equipment, or heating and ventilating systems.	10% to 19% (Average)	12,200
Aerospace Engineers	Bachelor's degree	Perform engineering duties in designing, constructing, and testing aircraft, missiles, and spacecraft. May conduct basic and applied research to evaluate adaptability of materials and equipment to aircraft design and manufacture. May recommend improvements in testing equipment and techniques.	3% to 9% (Slower than average)	21,800
Machinists	Some college, no degree	Set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures.	3% to 9% (Slower than average)	99,500
Inspectors, Testers, Sorters, Samplers, and Weighers	High school diploma or equivalent	Inspect, test, sort, sample, or weigh nonagricultural raw materials or processed, machined, fabricated, or assembled parts or products for defects, wear, and deviations from specifications. May use precision measuring instruments and complex test equipment.	3% to 9% (Slower than average)	123,900
Aircraft Mechanics and Service Technicians	Some college, no degree	Diagnose, adjust, repair, or overhaul aircraft engines and assemblies, such as hydraulic and pneumatic systems. Includes helicopter and aircraft engine specialists.	3% to 9% (Slower than average)	45,200

O*NET OnLine: Created for the U.S. Department of Labor, Employment & Training Administration, by the National Center for O*NET Development.

[1]Majority of job holders have attained this specified level of education.

[2]The forecasted percentage increase expected for the 10 year period (growth compared to all occupations).

Occupation	Education Requirments[1]	Job Summary	Job Outlook 2010-2020[2]	Job Openings 2010-2020
Industrial Engineers	Bachelor's degree	Design, develop, test, and evaluate integrated systems for managing industrial production processes, including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination.	3% to 9% (Slower than average)	57,500
Software Developers, Systems Software	Bachelor's degree	Research, design, develop, and test operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computing applications. Set operational specifications and formulate and analyze software requirements. May design embedded systems software. Apply principles and techniques of computer science, engineering, and mathematical analysis.	29% or higher (much faster than average)	168,000
Team Assemblers	High school diploma or equivalent	Work as part of a team having responsibility for assembling an entire product or component of a product. Team assemblers can perform all tasks conducted by the team in the assembly process and rotate through all or most of them rather than being assigned to a specific task on a permanent basis. May participate in making management decisions affecting the work. Includes team leaders who work as part of the team.	3% to 9% (Slower than average)	241,000
Mechanical Engineers	Bachelor's degree	Perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of equipment such as centralized heat, gas, water, and steam systems.	3% to 9% (Slower than average)	99,600
Purchasing Agents, Except Wholesale, Retail, and Farm Products	Bachelor's degree	Purchase machinery, equipment, tools, parts, supplies, or services necessary for the operation of an establishment. Purchase raw or semi-finished materials for manufacturing.	3% to 9% (Slower than average)	91,200

O*NET OnLine: Created for the U.S. Department of Labor, Employment & Training Administration, by the National Center for O*NET Development.

[1]Majority of job holders have attained this specified level of education.

[2]The forecasted percentage increase expected for the 10 year period (growth compared to all occupations).

Aerospace Educational Opportunities

In the 10 largest occupations in the aerospace industry, there are two categories of occupations requiring education specific to the industry, engineers and certain production workers. Engineers account for approximately 12.1 percent of industry employment and require a minimum of a bachelor's degree. The two types of production workers that require specific training are machinists and mechanics. These two groups of workers account for approximately 8.3 percent of industry employment and generally have training and education from a community college or trade school.

Aerospace product and parts manufacturing is labor intensive; and therefore, education and training programs are important to the industry. However, due to labor force mobility, there is not necessarily a direct connection between the location of the education and training and the location of aerospace jobs. Also, high population states have higher numbers of certificates and degrees awarded across all disciplines, regardless of employment opportunities.

Engineering Degrees

There are three types of engineering degrees generally found in the aerospace work force: aerospace engineers, industrial engineers and mechanical engineers. There are three universities that award a significant number of the degrees earned in these engineering subspecialties. The Georgia Institute of Technology, in Atlanta Ga., awards more degrees in these combined fields than any other university. The University of Michigan, Ann Arbor, Mich. and Purdue University, West Lafayette, Ind., also issue a significant number of degrees in these fields.

Aerospace Engineering

Aerospace engineers apply mathematical and scientific principles to the design, development and operational evaluation of aircraft, missiles, space vehicles, and their systems. Aerospace engineers account for 6 percent of industry employment. There are approximately 66 engineering programs, in 28 states, that offer a bachelor's degree in aerospace engineering.

Five Largest Aerospace Engineering Programs

By Completions 2010-2011

Program	Bachelor		Master		Doctorate	
Total	3,342	100.0%	1,253	100.0%	237	100.0%
Embry-Riddle Aeronautical University Daytona Beach, Florida	259	7.7%	57	4.5%	-	-
Georgia Institute of Technology Atlanta, Georgia	147	4.4%	138	11.0%	31	13.1%
Purdue University West Lafayette, Indiana	159	4.8%	105	8.4%	15	6.3%
University of Michigan Ann Arbor, Michigan	124	3.7%	72	5.7%	13	5.5%
University of Colorado Boulder, Colorado	74	2.2%	61	4.9%	15	6.3%

Source: National Center for Education Statistics

Industrial Engineering

Industrial engineers apply scientific and mathematical principles to the design, improvement, and installation of integrated systems of people, material, information, and energy. Industrial engineers account for 3.6 percent of industry employment. There are approximately 106 engineering programs, in 41 states, that offer a bachelor's degree in industrial engineering.

Five Largest Industrial Engineering Programs

By Completions 2010-2011

Program	Bachelor		Master		Doctorate	
Total	3,112	100.0%	2,031	100.0%	289	100.0%
Georgia Institute of Technology Atlanta, Georgia	312	10.0%	100	4.9%	21	7.3%
University of Michigan Ann Arbor, Michigan	174	5.6%	79	3.9%	8	2.8%
Texas A & M University College Station, Texas	115	3.7%	128	6.3%	8	2.8%
Pennsylvania State University University Park, Pennsylvania	127	4.1%	41	2.0%	19	6.6%
Virginia Polytechnic Institute and State University Blacksburg, Virginia	119	3.8%	49	2.4%	13	4.5%

Source: National Center for Education Statistics

Mechanical Engineering

Mechanical engineers apply mathematical and scientific principles to the design, development and operational evaluation of physical systems used in manufacturing and end-product systems. Mechanical engineers account for 2.5 percent of industry employment. There are approximately 295 engineering programs, in all 50 states, that offer a bachelor's degree in mechanical engineering.

Five Largest Mechanical Engineering Programs

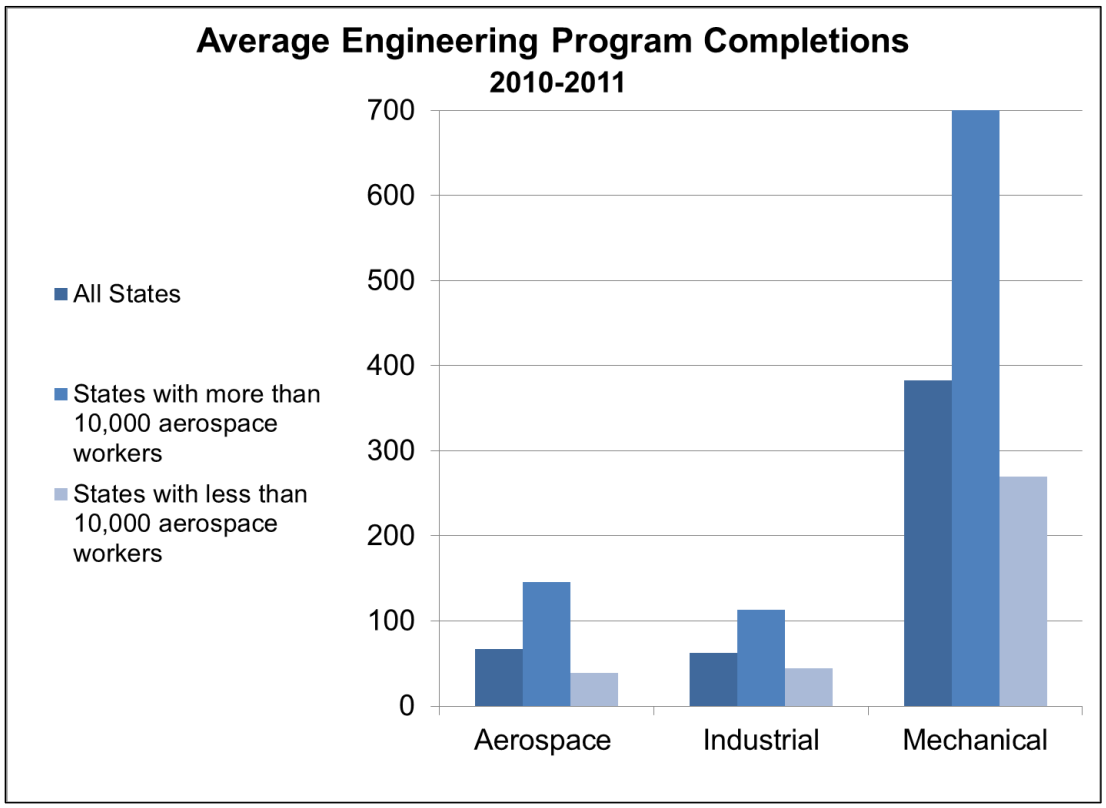
By Completions 2010-2011

Program	Bachelor		Master		Doctorate	
Total	19,175	100.0%	5,675	100.0%	1,130	100.0%
Georgia Institute of Technology Atlanta, Georgia	411	2.1%	187	3.3%	26	2.3%
Purdue University West Lafayette, Indiana	264	1.4%	104	1.8%	35	3.1%
University of Michigan Ann Arbor, Michigan	209	1.1%	120	2.1%	47	4.2%
Stevens Institute of Technology Hoboken, New Jersey	119	0.6%	239	4.2%	4	0.4%
Massachusetts Institute of Technology Cambridge, Massachusetts	169	0.9%	134	2.4%	56	5.0%

Source: National Center for Education Statistics

Engineering Degrees by State

Some of the largest engineering programs in the country are not in states that have a high level of aerospace employment. However, on average, there are more degrees awarded in the engineering fields important to the industry from universities in states with a high level of aerospace employment, than from states with lower levels of aerospace employment. Fifty-seven percent of aerospace engineering degrees are awarded in states with more than 10,000 aerospace product and parts manufacturing jobs.



Source: National Center for Education Statistics

A weighted ranking of the states was developed based on the prevalence of engineering subspecialties within the aerospace industry. For example, Kansas had 54 aerospace engineering graduates in the 2010-2011 academic year; this number was multiplied by 6 percent, the percent of total aerospace engineers in the aerospace industry. The calculation was repeated for each type of engineering degree. The sum of the products was then used as an index value to rank the states' production of engineering degrees important to the aerospace industry. Kansas ranked 24th out of 50 states in the completion of engineering degrees important to the aerospace industry in the 2010-2011 academic year. Kansas employed 6.7 percent of total aerospace workers in 2011. The number of degree completions, as well as the percent of total degree completions for each subspecialty, is also provided for reference.

Engineering Bachelor's Degree Completions 2010-2011

Rank*	State	% of Aero. Emp. - 2011	Aerospace		Industrial		Mechanical	
	Total		3,342	100.0%	3,112	100.0%	19,175	100.0%
1	California	14.8%	392	11.7%	156	5.0%	**1,938**	**10.1%**
2	Texas	10.0%	184	5.5%	293	9.4%	1,335	7.0%
3	Florida	4.0%	**454**	**13.6%**	112	3.6%	777	4.1%
4	New York	1.4%	183	5.5%	163	5.2%	1,243	6.5%
5	Michigan	0.7%	147	4.4%	239	7.7%	996	5.2%
6	Pennsylvania	2.4%	103	3.1%	206	6.6%	1,081	5.6%
7	Indiana	1.4%	194	5.8%	150	4.8%	680	3.5%
8	Ohio	3.3%	94	2.8%	117	3.8%	926	4.8%
9	Georgia	4.5%	147	4.4%	**312**	**10.0%**	421	2.2%
10	Massachusetts	2.4%	125	3.7%	72	2.3%	815	4.3%
14	Colorado	1.4%	163	4.9%	7	0.2%	321	1.7%
15	Arizona	5.5%	161	4.8%	45	1.4%	231	1.2%
16	Missouri	3.0%	85	2.5%	29	0.9%	404	2.1%
17	North Carolina	0.9%	60	1.8%	66	2.1%	409	2.1%
20	Alabama	2.7%	60	1.8%	39	1.3%	398	2.1%
22	Washington	**17.9%**	40	1.2%	32	1.0%	372	1.9%
23	Oklahoma	1.2%	60	1.8%	60	1.9%	221	1.2%
24	**Kansas**	**6.7%**	**54**	**1.6%**	**52**	**1.7%**	**241**	**1.3%**
27	Utah	1.2%	-	**0.0%**	-	**0.0%**	364	1.9%
29	South Carolina	0.9%	-	**0.0%**	53	1.7%	229	1.2%
32	Connecticut	6.3%	-	**0.0%**	11	0.4%	206	1.1%

Source: National Center for Education Statistics

* Weighted based on engineering subspecialties' prevalence in the industry.

This ranking shows that some of the states with the highest level of aerospace employment do have a large number of graduates in the engineering subspecialties important to the industry. However, there are notable exceptions. Washington, Kansas and Connecticut have high levels of aerospace employment, but rank 22nd, 24th, and 32nd, respectively, in degrees awarded. There are also states with relative low levels of employment in the industry that rank moderately well in engineering subspecialties prevalent in the industry: New York, Michigan, and Indiana.

Aerospace Technical and Trade Programs

Machinists and mechanics account for 4.6 and 3.7 percent of aerospace industry employment, respectively. Workers in these trades generally receive education and training at community colleges or technical and trade schools.

Machine Tool Technologist/Machinist

Machine tool technologists and machinists apply technical knowledge and skills to plan, manufacture, assemble, test, and repair parts, mechanisms, machines, and structures, in which materials are cast, formed, shaped, molded, heat treated, cut, twisted, pressed, fused, stamped or worked. There are 238

programs at technical and trade schools offering a certificate or associate's degree in machine tool technology or machinist.

The largest machinists training program in the United States is NTMA Training Centers of Southern California that issued 430 certificates in the 2010-2011 academic year, six times the number issued from the next largest program. NTMA is an independent, nonprofit trust of the Los Angeles chapter of the National Tooling and Machining Association.

Five Largest Machinist Training Programs
By Completions 2010-2011

Program	Certificates	Percent
Total	2,513	100.0%
NTMA Training Centers of Southern California Ontario, California	430	17.1%
Acadiana Technical College Lafayette, Louisiana	71	2.8%
Bakersfield College Bakersfield, California	70	2.8%
Hawkeye Community College Waterloo, Iowa	69	2.7%
Linn-Benton Community College Albany, Oregon	54	2.1%

Source: National Center for Education Statistics

Aerospace Mechanics

There are three types of mechanics that work in the aerospace industry.

- Airframe Mechanics and Aircraft Maintenance Technologists/Technicians service and maintain all aircraft components, other than engines, propellers, avionics, and instruments.
- Avionics Maintenance Technologists/Technicians service and maintain all types of aircraft operating, control, and electronic systems.
- Aircraft Powerplant Technologists/Technicians service and maintain all types of aircraft powerplant and related systems, including engine inspection and maintenance, lubrication and cooling.

There are 139 programs in the United States that offer certificates in one or more of these mechanic training programs. The largest program in the United States, the Community College of the Air Force, is located in Montgomery, Ala., and draws students from throughout the Department of Defense. The second largest program is at Edmonds Community College in the Seattle, Wash., metropolitan area.

Five Largest Aerospace Mechanics Training Programs

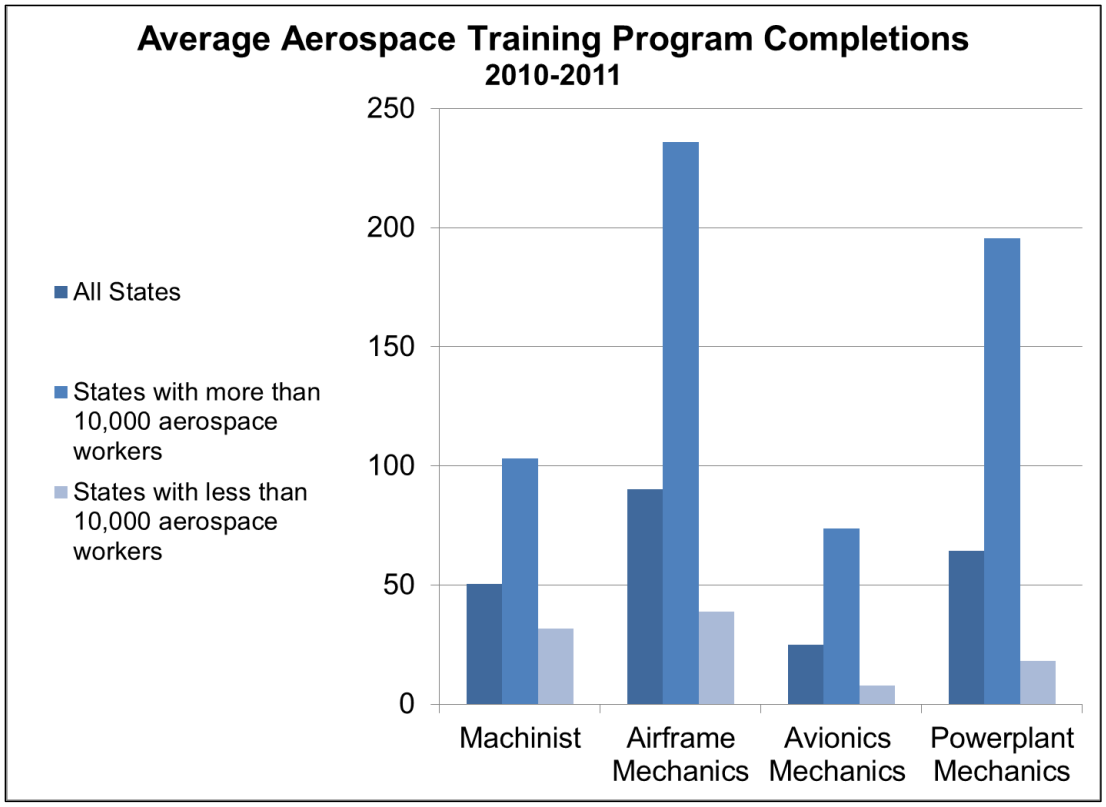
By Completions 2010-2011

Program	Airframe Mechanics and Aircraft Maintenance		Avionics Maintenance		Aircraft Powerplant	
Total	4,505	100.0%	1,249	100.0%	3,218	100.0%
Community College of the Air Force Montgomery, Alabama	12	0.3%	788	63.1%	1,827	56.8%
Edmonds Community College Lynnwood, Washington	604	13.4%	-	-	-	-
Redstone College Broomfield, Colorado	262	5.8%	39	3.1%	1	0.0%
National Aviation Academy Clearwater, Florida	252	5.6%	41	3.3%	-	-
Enterprise State Community College Enterprise, Alabama	146	3.2%	44	3.5%	83	2.6%

Source: National Center for Education Statistics

Aerospace Technical and Trade Programs by State

There are large training programs in states that do not have a high level of aerospace employment. However, on average, there are more certificates earned in the trades important to the aerospace industry from programs in states with a high level of aerospace employment, than from states with lower levels of aerospace employment. Fifty-three percent of machinists' certificates are awarded in states with more than 10,000 aerospace product and parts manufacturing jobs. Approximately 70 percent of all aerospace mechanics training program completions are in states with more than 10,000 aerospace product and parts manufacturing jobs.



Source: National Center for Education Statistics

A weighted ranking of the states was developed based on the prevalence of machinists and mechanics within the aerospace industry, in the same way the engineering ranking was developed. This ranking shows that states with the highest levels of aerospace employment do have a high level of participation in the technical and trade training programs important to the aerospace industry. A notable exception to this would be Connecticut, which has the fifth highest level of aerospace employment, but ranks 36th in the technical and trade training programs important to the industry. However, there are also states with relative low levels of employment in the industry that rank moderately well in training programs: Tennessee, South Carolina, and Michigan.

Technology/Technicians Program Completions 2010-2011

Rank*	State	% of Aero. Emp. - 2011	Machinist		Mechanics Airframe		Mechanics Avionics		Mechanics Powerplant	
	Total		2,513	100.0%	4,505	100.0%	1,249	100.0%	3,218	100.0%
1	Alabama	2.7%	5	0.2%	158	3.5%	**832**	**66.6%**	**1,910**	**59.4%**
2	California	14.8%	**773**	**30.8%**	575	12.8%	-	**0.0%**	139	4.3%
3	Washington	**17.9%**	154	6.1%	604	13.4%	-	**0.0%**	40	1.2%
4	Georgia	4.5%	-	**0.0%**	**667**	**14.8%**	18	1.4%	62	1.9%
5	Texas	10.0%	140	5.6%	290	6.4%	9	0.7%	119	3.7%
6	Tennessee	0.3%	129	5.1%	49	1.1%	69	5.5%	250	7.8%
7	Florida	4.0%	-	**0.0%**	336	7.5%	42	3.4%	62	1.9%
8	Oklahoma	1.2%	57	2.3%	87	1.9%	137	11.0%	63	2.0%
9	South Carolina	0.9%	182	7.2%	81	1.8%	-	**0.0%**	24	0.7%
10	Michigan	0.7%	51	2.0%	232	5.1%	-	**0.0%**	12	0.4%
13	**Kansas**	**6.7%**	**41**	**1.6%**	**99**	**2.2%**	**15**	**1.2%**	**89**	**2.8%**
14	Arizona	5.5%	65	2.6%	116	2.6%	15	1.2%	16	0.5%
15	Pennsylvania	2.4%	64	2.5%	76	1.7%	22	1.8%	39	1.2%
22	Ohio	3.3%	63	2.5%	13	0.3%	3	0.2%	24	0.7%
23	Missouri	3.0%	33	1.3%	50	1.1%	2	0.2%	7	0.2%
24	Utah	1.2%	62	2.5%	11	0.2%	-	**0.0%**	-	**0.0%**
27	Massachusetts	2.4%	-	**0.0%**	80	1.8%	-	**0.0%**	-	**0.0%**
33	North Carolina	0.9%	3	0.1%	41	0.9%	6	0.5%	-	**0.0%**
36	Connecticut	6.3%	3	0.1%	1	0.0%	-	**0.0%**	36	1.1%

Source: National Center for Education Statistics

* Weighted based on trades prevalence in the industry.

Incentive Overview

The following section provides an overview of four aircraft manufacturing projects in which incentives have been offered by four different states. A listing of more than 200 incentive projects by state is available in Appendix II. A list of public incentive projects is also available.

Type II, direct effect multipliers were used in this section of the analysis to capture the effective change aviation employees, and the subsequent indirect and induced effects that occur due to their employment, would have on state tax revenues.[43]

Fiscal Benefit per Employee

Tax revenues are generated by people and by workers. More specifically, all people, employed or not, contribute to the retail sales tax revenues of the state. Employees contribute to the income tax base. Combining tax revenues[44] that occur at the per capita level with tax revenues from employees gets an average state tax contribution per employee. Based on the average annual wage in Kansas in 2011 of $39,991, the average employee contributed $3,793 in tax revenues to Kansas; approximately 9.5 percent of their gross wages in 2011.

The wage multiplier for aircraft manufacturing is 2.1799 for Kansas. This means for every one dollar paid to an employee in the aircraft manufacturing industry, there is an additional $1.18 paid in wages in the state of Kansas. The average aircraft manufacturing employee made $78,815 in 2011 in Kansas. Using the wage multiplier, the annual wage impact per aircraft manufacturing employee in Kansas was $171,809.

Average Annual Wage of Aircraft Manufacturing Employee		Type II, Direct Effect Wage Multiplier - Kansas		Annual Wage Impact Per Aircraft Manufacturing Employee
$78,815	×	2.1799	=	$171,809

Assuming that 9.5 percent of all wages go toward state tax revenues across wage levels, the average aircraft manufacturing employee provides, directly and indirectly, $16,322 in state tax revenues annually.

[43] Type II multipliers address the indirect and induced impacts business activity has within a given geographic area. If the demand for aviation products increases, this will lead to an increase in demand from industry suppliers. Therefore, payroll increases as a direct result of the expanding firm's operations and indirectly as a result of the expanding firm's increase in demand for locally supplied inputs. The induced effect occurs when paid employees create additional demand for products and services in their local economy by spending money. Direct effect multipliers are reported for both employment and earnings impacts. Direct effect multipliers calculate the change in total employment based on a change in a specific industry's employment.

[44] Tax revenues included in this analysis are: motor carrier, general and motor vehicle property tax, individual, corporate, financial and SKILL income tax withholdings and excise taxes (excluding corporate franchise and severance taxes).

Annual Wage Impact Per Aircraft Manufacturing Employee		Employee Contributions to Kansas		Annual Revenue Per Aircraft Manufacturing Employee
$171,809	×	9.5%	=	$16,322

In other words, the state of Kansas can provide approximately $16,322 in incentives annually per employee hired in aircraft manufacturing without experiencing a net loss in tax revenues.

Project Overviews

The following four tables describe recent, large economic development projects in Kansas, Alabama, Oklahoma and South Carolina. The date, location and description are provided in the first three rows of the table. In addition, employment, the average annual wage, capital investment and incentive information have been provided. The final three rows describe the incentives being provided on a per employee basis; the amount of incentive Kansas can provide given the project parameters (using the equations above) while still breaking even at an annual rate; and the number of years needed to recoup the state incentives.

A summary of findings is below:

- The incentives offered to The Boeing Co. by South Carolina were estimated to be $210,526 per employee – the largest incentives offered per employee.
- It will take more than 18 years to recoup the incentives offered to Airbus from Alabama – the longest payback period under analysis.
- The ASCO project received the most conservative incentives package totaling $22,500 per employee. The state of Oklahoma will recoup their investment in less than 2.5 years.

Bombardier Learjet	
Date	Summer 2010 January 2012
Location	Wichita, Kansas
Description	Flight Test Center, Bombardier Centers for Excellence for Engineering and Information Technology, new facilities for paint and production flight testing, a new delivery center and parking lots.
FTE Jobs	Summer 2010: 600 January 2012: 450
Average Annual Wage	Summer 2010: $65,000 January 2012: $98,060
Full Capacity Total Annual Wages	Combined: $83.1 million
Capital Investment	Summer 2010: $69.2 million January 2012: $52.7 million
Incentive Package Bond financing.	Summer 2010: $27 million January 2012: $16 million
Incentive per Employee	**$40,952**
Kansas Revenues per Aircraft Manu. Emp.	**$16,395**
Number of years needed to recoup incentives.	**2.50**

Airbus	
Date	July 2012
Location	Mobile, Alabama
Description	Establishing a manufacturing facility to assemble and deliver the A320 Family aircraft.
FTE Jobs	1,000
Average Annual Wage	$41,295
Full Capacity Total Annual Wages	$61 million
Capital Investment	$300 million
Incentive Package	$158.5 million
Includes initial bond payments/cash, lease payments, site prep/soil stabilization, land lease assistance, environmental insurance policy, roadway improvements, on-site training and training center, sales and use tax abatements, property tax abatements and state corporate income tax credits.	
Incentive per Employee	**$158,470**
Kansas Revenues per Aircraft Manu. Emp.	**$8,552**
Number of years needed to recoup incentives.	**18.53**

ASCO	
Date	July 2012
Location	Stillwater, Oklahoma
Description	"Machining, heat and surface treatment, and assembly operations for complex machined parts made of titanium, steel and aluminum"
FTE Jobs	600
Average Annual Wage	$45,000
Full Capacity Total Annual Wages	$27 million
Capital Investment	$100 million
Incentive Package	$13.5 million
Payroll tax rebate of up to 5 percent for creating new jobs in the state.	
Incentive per Employee	**$22,500**
Kansas Revenues per Aircraft Manu. Emp.	**$9,319**
Number of years needed to recoup incentives.	**2.41**

The Boeing Co.	
Date	October 2009
Location	North Charleston, South Carolina
Description	787 Dreamliner factory
FTE Jobs	3,800
Average Annual Wage*	$76,650
Full Capacity Total Annual Wages	$291.3 million
Capital Investment	$750 million
Incentive Package	$800 million
Property tax abatements, corporate tax credits, cash, training dollars.	
Incentive per Employee	**$210,526**
Kansas Revenues per Aircraft Manu. Emp.	**$15,873**
Number of years needed to recoup incentives.	**13.26**

*Unreported. Used South Carolina average annual wage for aerospace product and parts manufacturing from the Bureau of Labor Statistics for comparison purposes.

Multiplier Analysis[45]

RIMS II multipliers from the Bureau of Economic Analysis, aggregated by NAICS industry by state, were used to further analyze the aerospace industry. The notion of a multiplier effect arises due to the interrelatedness of local industries. The basic approach to calculating a multiplier involves a framework called an I-O table. I-O tables track the distribution of purchases and sales of an industry. Therefore, multipliers model the structure of a local economy based on the transactions occurring between local industries.

Type I, final demand multipliers were used in this analysis. Type I multipliers address the indirect impact business activity has within a given geographic area. If the demand for aviation products increases, this will lead to an increase in demand from industry suppliers. Therefore, payroll increases as a direct result of the expanding firm's operations and indirectly as a result of the expanding firm's increase in demand for locally supplied inputs.

Final demand multipliers are used to assess the effect a change in output in one industry has on other industries within an economic region. Direct effect multipliers are reported for both employment and earnings impacts. Direct effect multipliers calculate the change in total employment based on a change in a specific industry's employment.

Below are tables of Type I, final-demand multipliers for aircraft manufacturing, aircraft engine and engine parts manufacturing and other aircraft parts and auxiliary equipment manufacturing industries.

The first data column provides a disaggregated multiplier for final-demand output. Each number represents the dollar change in output that occurs in the industry from a dollar change in final demand by the represented industry within Kansas. For example, if final demand spending increased by $1,000,000 in the aircraft manufacturing (336411) industry, total manufacturing output would increase by ($1,000,000 x 1.2854) = $1,285,400.

The second data column provides a disaggregated multiplier for final-demand earnings. Each number represents the dollar change in earnings that households employed in the industry could anticipate from a dollar change in final demand by the represented industry within Kansas. For example, if final demand spending increased by $1,000,000 in the aircraft manufacturing (336411) industry, total manufacturing earnings would increase by ($1,000,000 x .2427) = $242,700.

The third data column provides a disaggregated multiplier for final-demand employment. Each number represents the change in the number of jobs within an industry that occurs from a one million dollar change in final demand by the represented industry within Kansas. For example, if final demand spending increased by $1,000,000 in the aircraft manufacturing (336411) industry, total manufacturing employment would increase by ($1,000,000 x 3.8369)/1,000,000 = 3.8369 jobs.

[45] Bureau of Economic Analysis

The final data column provides a disaggregated multiplier for final-demand value-added. The final demand value-added amount refers to the contribution companies add to a final product. Kansas companies import intermediate goods from companies and use these goods in the production of a final product. As an example, a retailer imports its goods from outside Kansas to sell locally. If the prices of the imported good and additional non-labor input costs are $32 and the price the good is sold for locally is $42, the value-added by the Kansas company would be $10.

Each number represents the dollar change in value-added that occurs in the industry from a dollar change in final demand by the represented industry within Kansas. For example, if final demand spending increased by $1,000,000 in the aircraft manufacturing (336411) industry, total manufacturing value-added would increase by ($1,000,000 x 0.4585) = $458,800.

Additional information and multipliers can be found in Appendix III.

KANSAS Type I Final Demand Multipliers
Aircraft Manufacturing (NAICS 336411)

	Output (dollars)	Earnings (dollars)	Employment (number of jobs)	Value-added (dollars)
Agriculture, forestry, fishing, and hunting	0.0002	0	0.0006	0
Mining	0.0027	0.0006	0.0149	0.0014
Utilities*	0.0085	0.0017	0.0213	0.0052
Construction	0.002	0.0007	0.018	0.001
Manufacturing	1.2854	0.2427	3.8369	0.4585
Wholesale trade	0.0371	0.0104	0.1776	0.025
Retail trade	0.0021	0.0007	0.0303	0.0014
Transportation and warehousing*	0.0209	0.0058	0.1407	0.0106
Information	0.0149	0.003	0.0538	0.0082
Finance and insurance	0.0097	0.0026	0.0659	0.0062
Real estate and rental and leasing	0.0093	0.0013	0.0665	0.0068
Professional, scientific, and technical services	0.0243	0.0095	0.2072	0.0162
Management of companies and enterprises	0.0566	0.0218	0.2847	0.0351
Administrative and waste management services	0.013	0.0052	0.2302	0.0087
Educational services	0.0001	0.0001	0.0024	0.0001
Health care and social assistance	0.0002	0.0001	0.0019	0.0001
Arts, entertainment, and recreation	0.0004	0.0001	0.0073	0.0002
Accommodation	0.0006	0.0002	0.009	0.0004
Food services and drinking places	0.0018	0.0005	0.0329	0.0009
Other services*	0.0039	0.0012	0.0298	0.0023
Total	**1.4937**	**0.3082**	**5.2319**	**0.5883**

Source: Bureau of Economic Analysis

*Includes Federal Government enterprises.

KANSAS Type I Final Demand Multipliers
Aircraft Engine and Engine Parts Manufacturing (NAICS 336412)

	Output (dollars)	Earnings (dollars)	Employment (number of jobs)	Value-added (dollars)
Agriculture, forestry, fishing, and hunting	0.0002	0	0.0006	0
Mining	0.0025	0.0006	0.013	0.0013
Utilities*	0.0121	0.0024	0.0298	0.0073
Construction	0.0024	0.0008	0.0214	0.0012
Manufacturing	1.282	0.2652	4.4201	0.4836
Wholesale trade	0.0216	0.0061	0.1033	0.0146
Retail trade	0.0017	0.0005	0.0244	0.0011
Transportation and warehousing*	0.0179	0.0051	0.1259	0.0092
Information	0.0158	0.003	0.054	0.0086
Finance and insurance	0.0143	0.0038	0.099	0.0092
Real estate and rental and leasing	0.0098	0.0013	0.0748	0.0074
Professional, scientific, and technical services	0.0429	0.0171	0.3923	0.029
Management of companies and enterprises	0.0619	0.0238	0.3114	0.0384
Administrative and waste management services	0.0265	0.0105	0.4567	0.0179
Educational services	0.0001	0	0.0021	0.0001
Health care and social assistance	0.0002	0.0001	0.0016	0.0001
Arts, entertainment, and recreation	0.0006	0.0002	0.0111	0.0003
Accommodation	0.0011	0.0003	0.0164	0.0007
Food services and drinking places	0.003	0.0009	0.0563	0.0016
Other services*	0.0043	0.0013	0.0338	0.0024
Total	**1.5209**	**0.343**	**6.248**	**0.634**

Source: Bureau of Economic Analysis

*Includes Federal Government enterprises.

KANSAS Type I Final Demand Multipliers

Other Aircraft Parts and Auxiliary Equipment Manufacturing (NAICS 336413)

	Output (dollars)	Earnings (dollars)	Employment (number of jobs)	Value-added (dollars)
Agriculture, forestry, fishing, and hunting	0.0003	0	0.0009	0.0001
Mining	0.0131	0.0032	0.0742	0.0066
Utilities*	0.0198	0.004	0.0491	0.012
Construction	0.0025	0.0008	0.0225	0.0013
Manufacturing	1.1499	0.3236	7.0882	0.4824
Wholesale trade	0.0309	0.0087	0.1481	0.0209
Retail trade	0.0021	0.0007	0.0307	0.0014
Transportation and warehousing*	0.048	0.0126	0.2988	0.0237
Information	0.0167	0.0033	0.0599	0.0091
Finance and insurance	0.0173	0.0045	0.1159	0.0111
Real estate and rental and leasing	0.0134	0.0018	0.109	0.01
Professional, scientific, and technical services	0.0336	0.013	0.2815	0.0224
Management of companies and enterprises	0.0746	0.0287	0.3751	0.0463
Administrative and waste management services	0.0252	0.0101	0.451	0.0172
Educational services	0.0001	0.0001	0.0024	0.0001
Health care and social assistance	0.0002	0.0001	0.002	0.0001
Arts, entertainment, and recreation	0.0006	0.0002	0.0126	0.0004
Accommodation	0.0012	0.0004	0.0184	0.0008
Food services and drinking places	0.0033	0.001	0.0623	0.0017
Other services*	0.0048	0.0014	0.0376	0.0026
Total	**1.4576**	**0.4182**	**9.2402**	**0.6702**

Source: Bureau of Economic Analysis

*Includes Federal Government enterprises.

Forecast and Impact

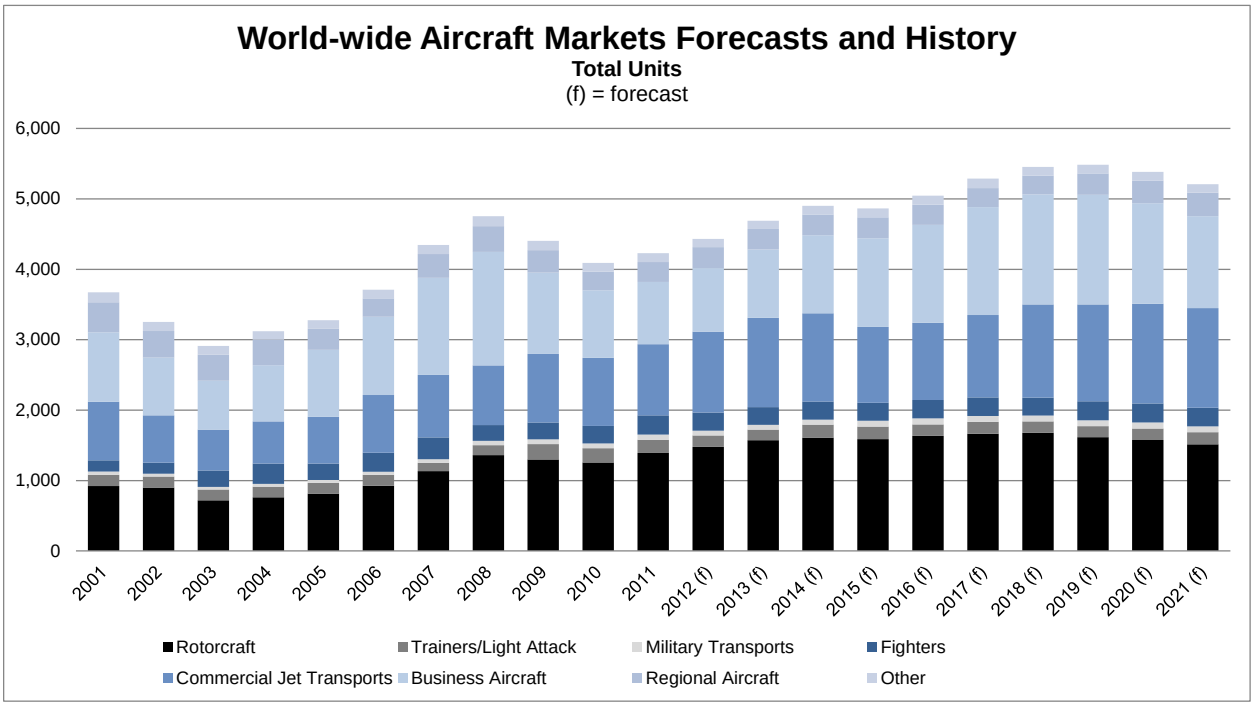
World-wide Aircraft Markets Forecasts and History

The Teal Group produces one of the most reputable aerospace and defense industry market forecasts. Their forecast of the world-wide aircraft industry has been used as the basis to estimate the history and forecast of the aircraft market in the United States and Kansas.

The Teal Group's aerospace and defense industry production forecast is comprised of the production of rotorcraft, trainers/light attack, military transports, fighters, commercial jet transports, business aircraft, regional aircraft and "other" categories. The forecast consists of whole units produced, not parts. Each segment of the market is included in the following world-wide charts and figures.

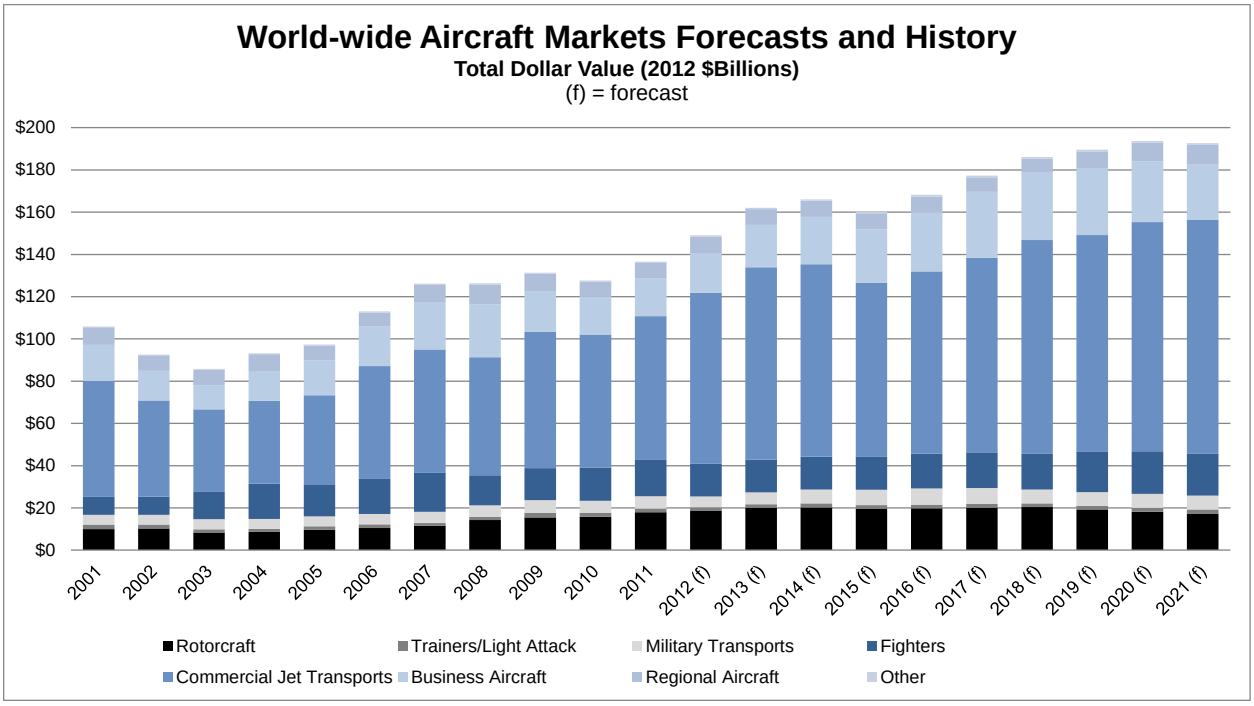
In 2001, the total number of aircraft units produced in the world experienced production levels unseen since the early 1990s, reaching 3,673 units. By the end of 2001, facing waning demand world-wide, the industry began to decline and continued to do so through 2003, falling 20.7 percent. Between 2003 and 2008, total units increased at an average annual rate of 12.6 percent to 4,754 units. In 2008, with decreasing demand and tight credit conditions, the market declined and did not reach a bottom until 2010 at 4,091 units, a fall of nearly 14 percent.

Since 2010, the number of aircraft units produced has increased. Production levels are not expected to reach the previous peak until 2014. In 2015, the market is expected to experience a temporary decline, and then begin to increase through 2019, reaching 5,484 total units produced. Production is anticipated to decline post 2019.



The total value of aircraft units produced follows a relatively similar, but healthier, pattern compared to the number of units produced. In 2001, the value of units produced reached a peak and declined through 2003. From 2003 to 2008 the total value of units produced grew, reaching $126.33 billion. Unlike the number of units produced, the total value increased in 2009 to $131.40 billion. The following year exhibited declining values. In 2011, values increased to $136.57 billion.

The Teal Group estimates the total value of aircraft units produced to increase between 2011 and 2014. In 2014, the value of aircraft production is expected to be $166.08 billion. A slight decline in value is expected in 2015, to $160.20 billion, corresponding with a decline in units produced. From 2016 to 2020, the total value is expected to grow, reaching $193.73 billion in 2020.



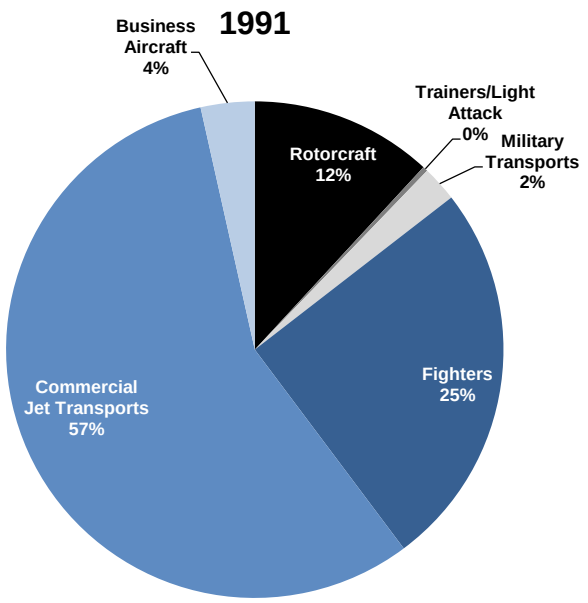
U.S. Aircraft Markets Forecasts and History

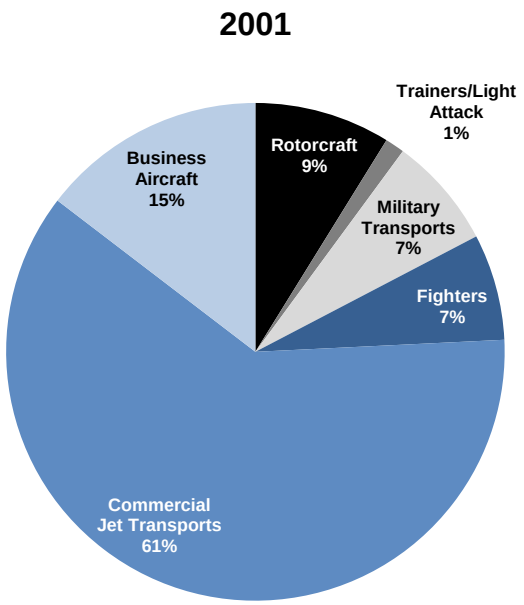
Using the Teal Group forecast and data, the Center for Economic Development and Business Research estimated the U.S. aircraft markets forecasts and history. Included in the forecast was the production of rotorcraft, trainers/light attack, military transports, fighters, and business aircraft categories from the Teal Group forecast. Between 2003 and 2011, Boeing's total output was equal to the total output value for commercial jet transports. Assuming this holds moving forward, commercial jet transports in the United States are represented by the Teal Group's forecast for Boeing.

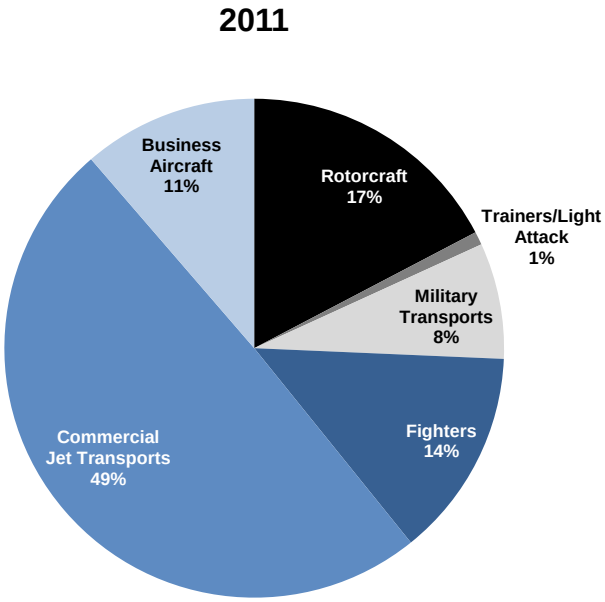
The estimated U.S. market share, based on the value of production, is as follows:

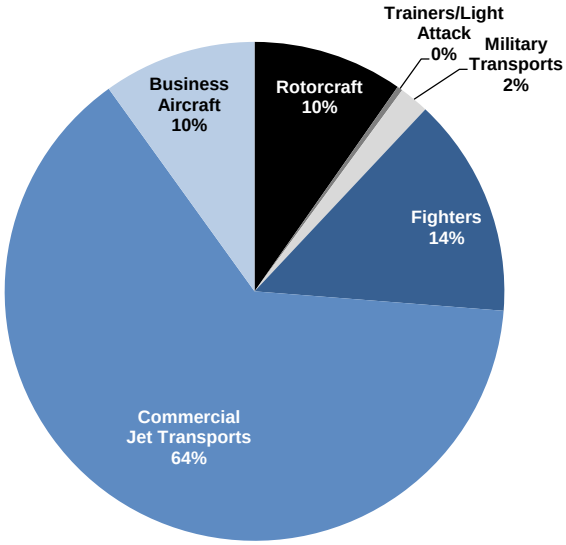
- In 1991, 57 percent of the value of aircraft production in the United States was from commercial jet transports (CJT). The value increased to 61 percent in 2001 and declined to 49 percent in 2011. The total U.S. CJT contribution is expected to increase to 64 percent by 2021.

- Business aircraft accounted for 4 percent of the value of aircraft production in the United States in 1991. The value increased to 15 percent in 2001, and then fell to 11 percent in 2011. Market share is expected to increase into 2017, before declining to 10 percent in 2021.
- Rotorcrafts have also varied in U.S. market share. In 1991, approximately 12 percent of the value of U.S. aircraft production was attributable to rotorcraft. In 2001, the value declined to 9 percent, climbed to 17 percent in 2011 and is expected to be approximately 10 percent in 2021.
- Trainers and light attack production has been, and will continue to be, a very small portion of the U.S. value of aircraft production.
- Military transport production contributed 2 percent to the total value of U.S. aircraft production in 1991. In 2001, the value increased to 7 percent. By 2011, military transports composed 8 percent of the market. Market value is expected to decline to 2 percent in 2021.
- Fighters production contributed to a quarter of the market production value in 1991. By 2001, the market value had declined to 7 percent of the total market value, and then increased to 14 percent by 2011. Fighters production value share is expected to drop in the near term and then begin to increase. In 2021, the sector is expected to account for 14 percent of the total market value.


1991
Business Aircraft 4%
Trainers/Light Attack 0%
Military Transports 2%
Rotorcraft 12%
Fighters 25%
Commercial Jet Transports 57%


2001
Trainers/Light Attack 1%
Business Aircraft 15%
Rotorcraft 9%
Military Transports 7%
Fighters 7%
Commercial Jet Transports 61%

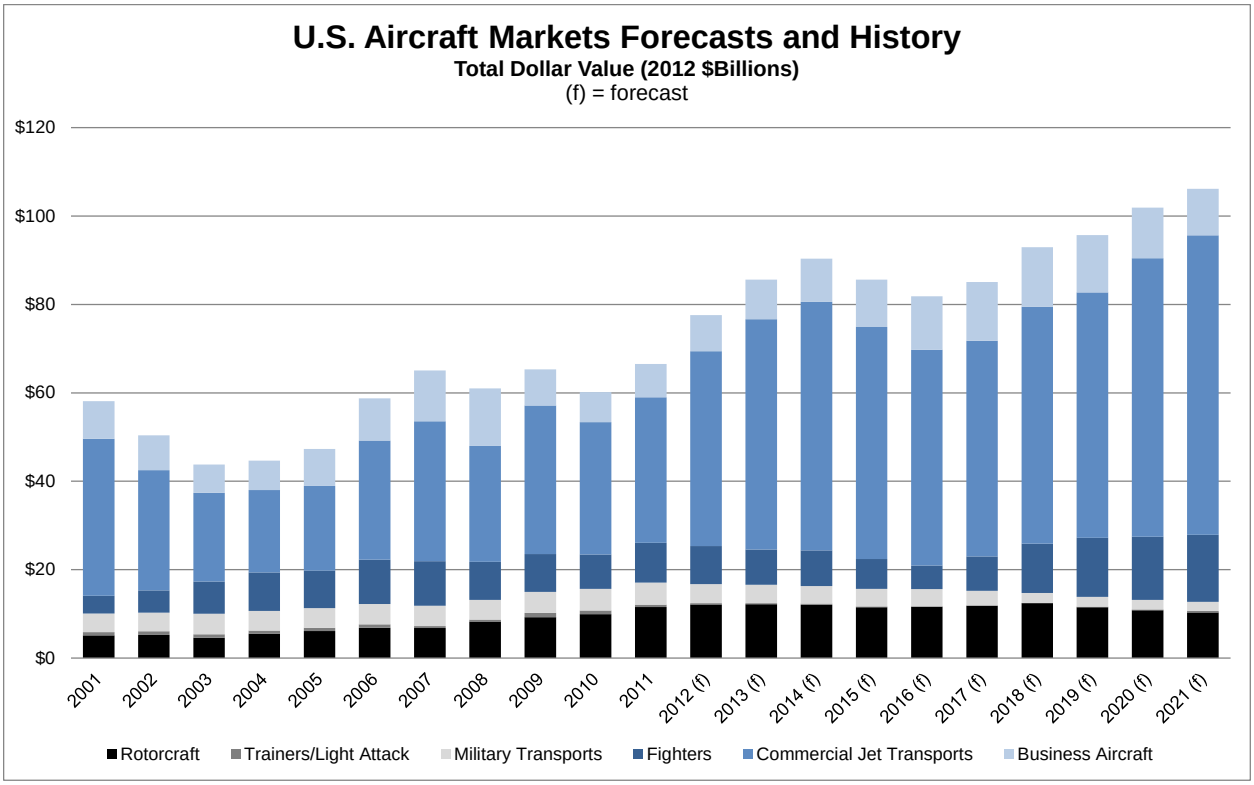

2011
Business Aircraft 11%
Rotorcraft 17%
Trainers/Light Attack 1%
Military Transports 8%
Fighters 14%
Commercial Jet Transports 49%


2021 (f)
Trainers/Light Attack 0%
Military Transports 2%
Business Aircraft 10%
Rotorcraft 10%
Fighters 14%
Commercial Jet Transports 64%

(f) = forecast

In 2001, the total value of US aircraft production was $58.11 billion. The total value declined in 2002 and 2003, hitting a low of $43.77 billion. From 2003 to 2007 the total dollar value increased 48.6 percent, or 12 percent annually. The total dollar value of aircraft production in 2007 was $65.04 billion. Since 2007, the production value has been volatile, ending 2011 at $66.55 billion.

The Teal Group's forecast indicates total U.S. aircraft production values are expected to increase from 2012 through 2014. In 2014, the total value is expected to reach $90.37 billion. Declines are expected in 2015 and 2016, with total production dollar values at $85.60 and $81.87 billion, respectively. Growth is expected between 2017 and 2021. The total value of production in 2021 is expected to reach $106.17 billion.



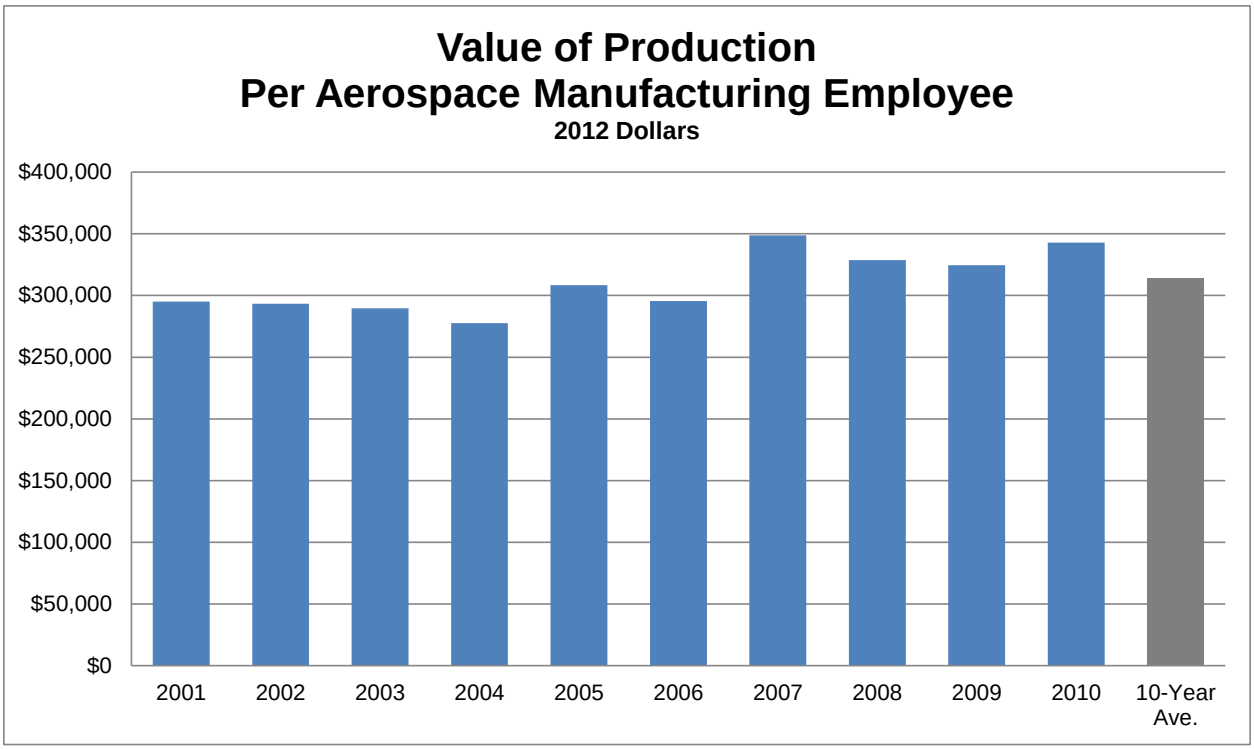
Kansas Aircraft Markets Forecasts and History

To develop a Kansas aircraft market forecast and history, elements of the Teal Group's forecast were used in combination with data from the Bureau of Labor Statistics (BLS). The value of production per aerospace manufacturing employee cannot be directly derived from Teal Group information. The Teal Group forecasts the total production value of aerospace units produced and does not include other components of the aerospace manufacturing process, such as parts and services. To account for the value of the entire manufacturing process done in Kansas, the center used the Bureau of Labor Statistics (BLS) total value of production for the 3364 industry to calculate the value of production per aerospace manufacturing employee and the subsequent information.

For example, the national value of production per aerospace employee in 2001 was $295,069.

Total Production Value of Aerospace Products and Parts (2012 $Billions)	÷	Total Emploment in Aerospace Products and Parts	=	Productivity Per Employee
$149.305		506,002		$295,069

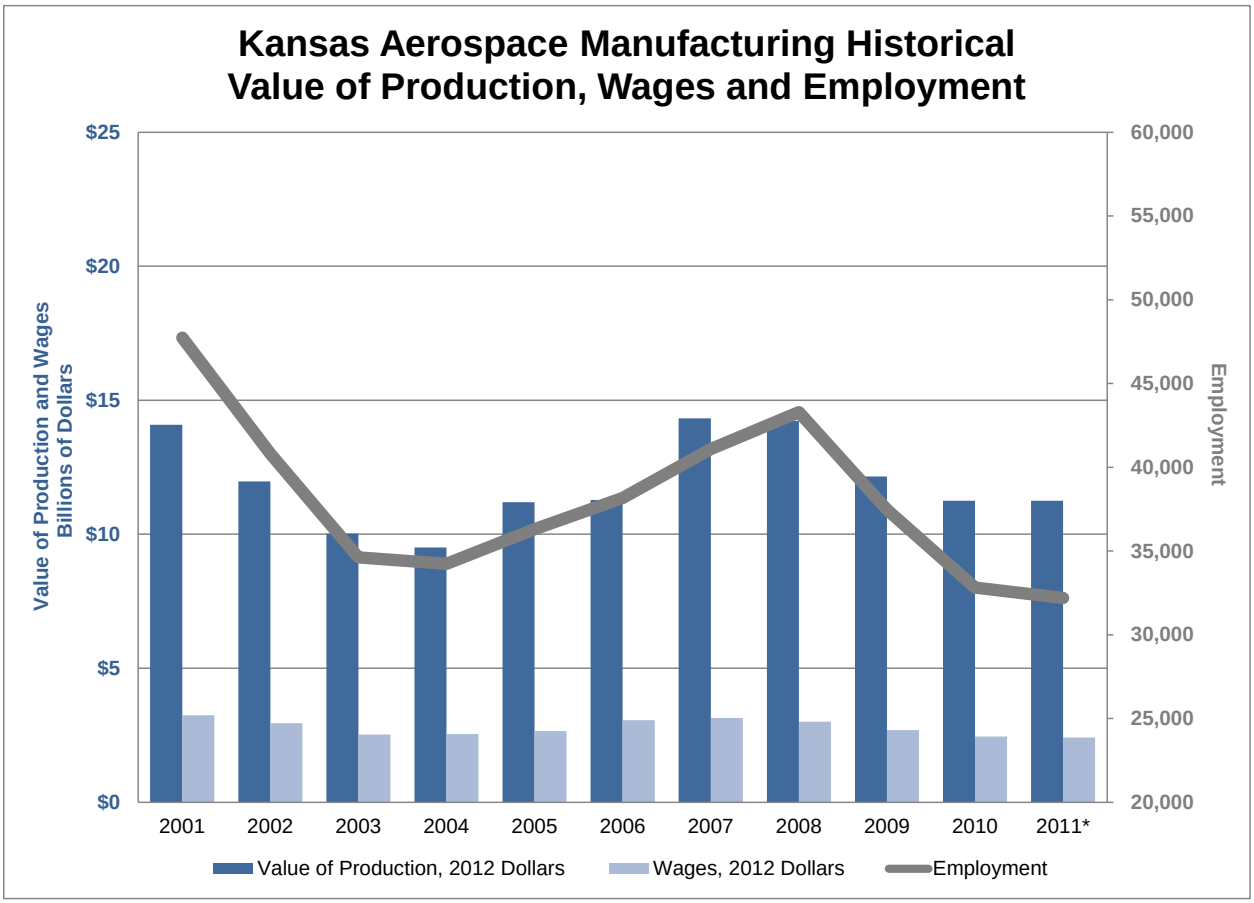
The national value of production per aerospace employee slowly declined between 2001 and 2004. In 2004, each aerospace employee produced $277,578 worth of aerospace products and parts. Between 2004 and 2010 productivity wavered. In 2007, productivity reached a high point at $348,700 produced per employee. The 10-year average value of production per aerospace employee was $313,959.



The center estimated the value of Kansas aerospace product and parts production based on the national productivity per employee and Kansas employment data from the BLS.

For example, the total value of production in Kansas in 2001 was $14,085,406,345.

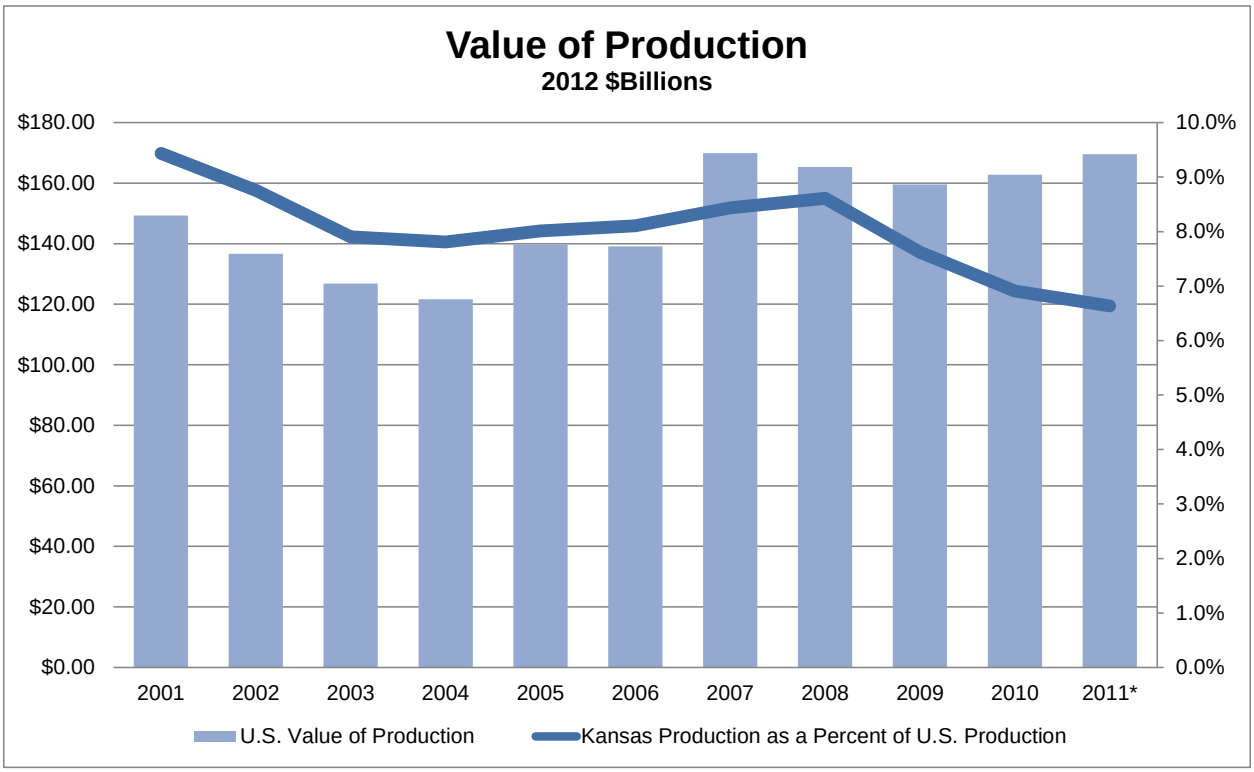
Productivity Per Employee		Kansas Emplomentin Aerospace Products and Parts		Kansas Production Value of Aerospace Products and Parts (2012 $Billions)
$295,069	×	47,736	=	$14,085,406,345



* The 2011 estimate of the value of aerospace products and parts production was estimated based on actual 2011 employment and a 1.6 percent average annual productivity growth rate.

Comparing the total value of U.S. aerospace products and parts production to the total value of Kansas aerospace products and parts production highlights the disparate performance between aerospace product and parts manufacturing, as a whole, and the business jet subsector. As can be seen in the chart below, the national value remained relatively flat between 2007 and 2010 and increased in 2011. At the same time the local market has continued to decline. This is due to Kansas' reliance on business jet production, the sector's downturn, and the associated job and wage losses.

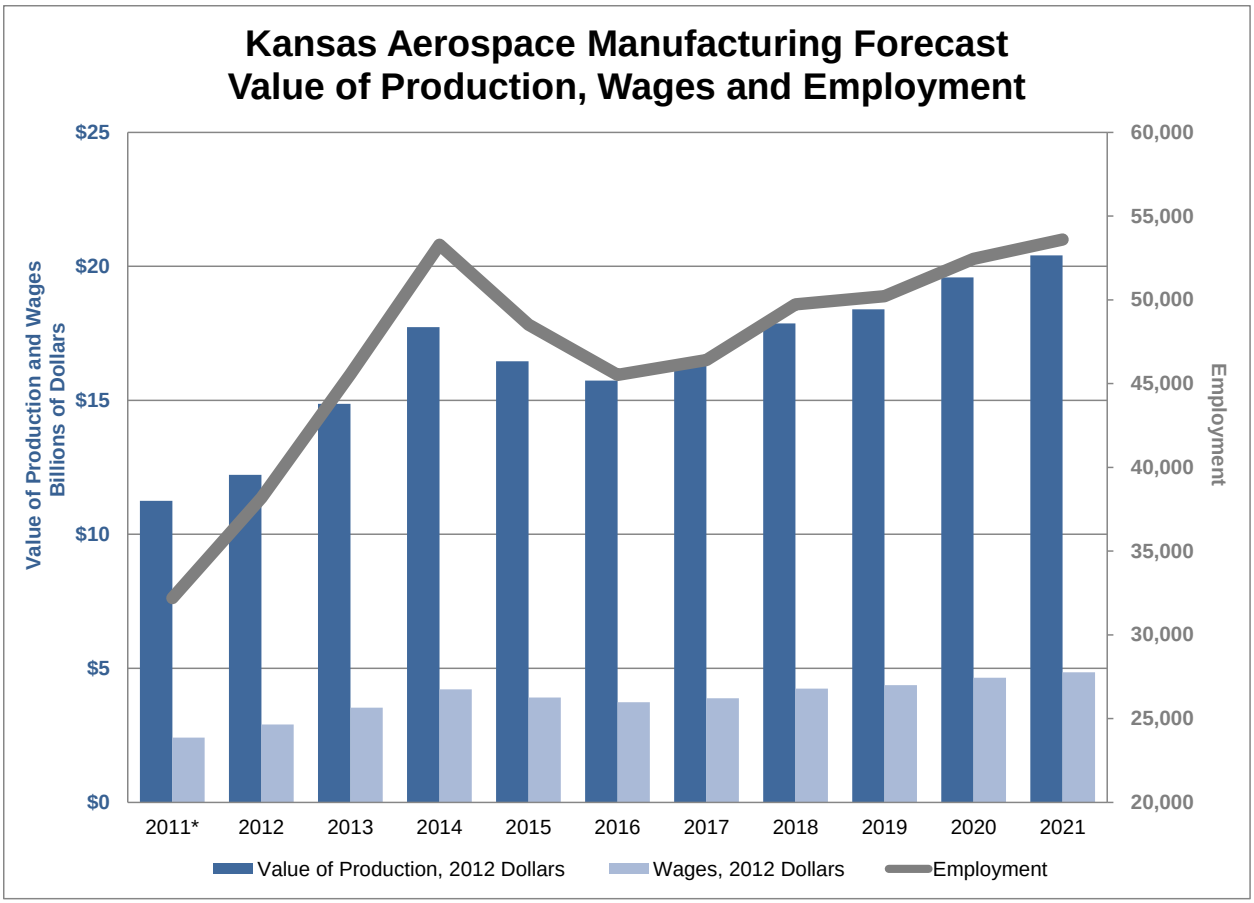
In 2007, the Kansas value of production as a percent of US production was 8.4 percent. It rose to 8.6 percent in 2008. For the next three years the percentage declined to 7.6 in 2009, 6.9 percent in 2010 and 6.6 in 2011.



* The 2011 estimate of the value of aerospace products and parts production was estimated based on actual 2011 employment and a 1.6 percent average annual productivity growth rate.

The expected value of production in Kansas was calculated based on the U.S. value of production and Kansas' respective share. The value of production in Kansas is expected to regain market share in 2012, 2013 and 2014. In 2015, the Kansas market share is expected to recover to the 2007 level of 8.4 percent and remain there through 2021.

The total value of aerospace products and parts production is expected to increase through 2014, reaching $17.7 billion. At the same time, employment in aerospace products and parts production is expected to reach 53,295, and wages will reach $4.2 billion. The industry is then expected to decline in 2016. The total value of production that year is expected to be $15.7 billion, employment is expected to be 45,515, and wages will be approximately $3.7 billion. From 2017 through 2021, the industry is expected to grow, reaching $20.4 billion in total production value in Kansas in 2021. The industry is expected to employ 53,603 workers, receiving $4.8 billion in wages in the same time period.



* The 2011 estimate of the value of aerospace products and parts production was estimated based on actual 2011 employment and a 1.6 percent average annual productivity growth rate.

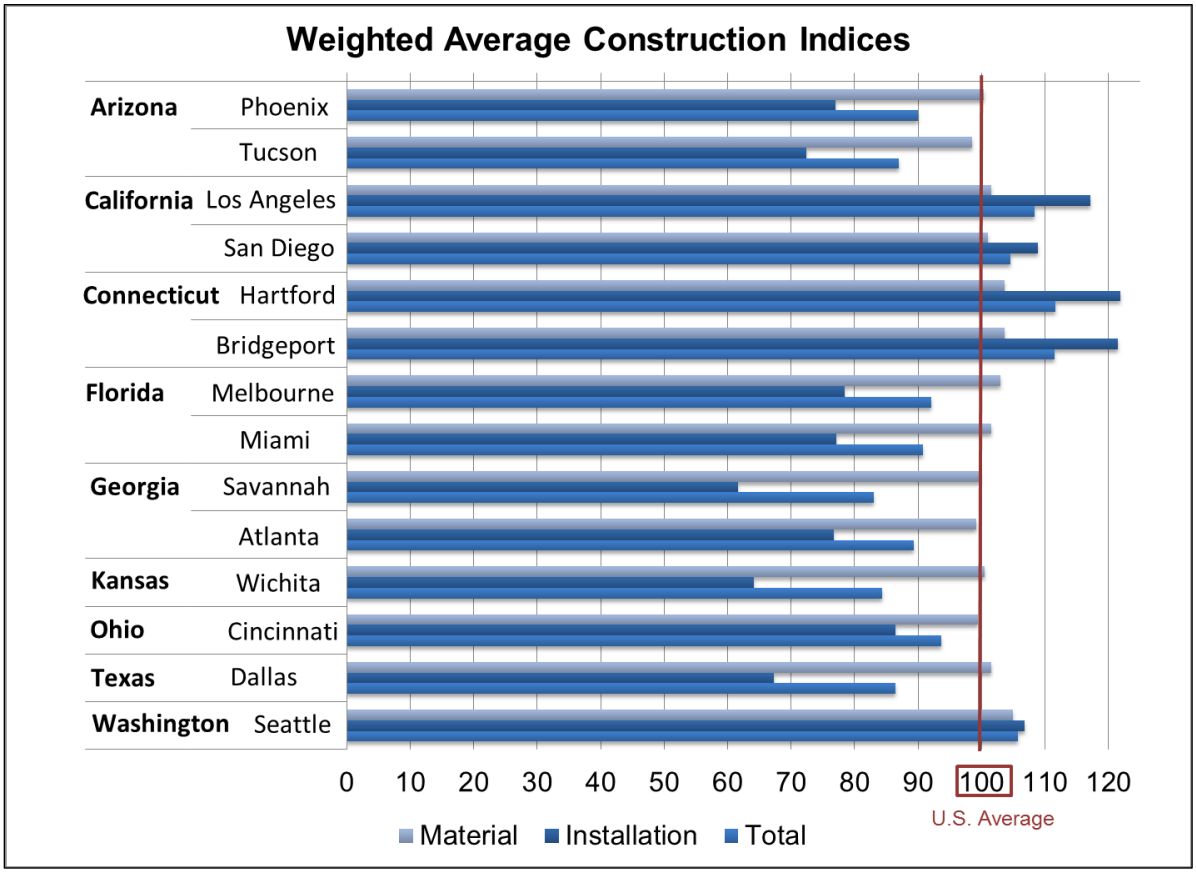
Appendix I: Construction Cost Data

List of 30 Cities Used by RSMeans to Calculate the National Average for the City Cost Indices

Atlanta, GA	Cleveland, OH	Indianapolis, IN	Nashville, TN	St. Louis, MO
Baltimore, MD	Columbus, OH	Kansas City, MO	New Orleans, LA	San Antonio, TX
Boston, MA	Dallas, TX	Los Angeles, CA	New York, NY	San Diego, CA
Buffalo, NY	Denver, CO	Memphis, TN	Philadelphia, PA	San Francisco, CA
Chicago, IL	Detroit, MI	Milwaukee, WI	Phoenix, AZ	Seattle, WA
Cincinnati, OH	Houston, TX	Minneapolis, MN	Pittsburgh, PA	Washington, DC

Materials and Installation

Using construction cost indices, the following graph compares construction costs for materials and installation, as well as the weighted average for total in place construction costs for selected cities, including Wichita, Kan. See the Appendix for construction cost indices by the Construction Specifications Institute's (CSI) MasterFormat divisions, for each selected city in the graphs below.



Source: Reed Construction Data, Inc., Second Quarter 2012

Weighted Average Construction Indices

State	City	Material	Installation	Total
Arizona	Phoenix	100.4	77.0	90.0
	Tucson	**98.5**	72.4	87.0
California	Los Angeles	101.5	117.2	108.4
	San Diego	101.0	108.9	104.5
Connecticut	Hartford	103.7	**121.9**	**111.7**
	Bridgeport	103.6	121.5	111.5
Florida	Melbourne	103.0	78.4	92.1
	Miami	101.5	77.1	90.8
Georgia	Savannah	99.9	**61.6**	**83.0**
	Atlanta	99.2	76.7	89.3
Kansas	**Wichita**	**100.5**	**64.1**	**84.4**
Ohio	Cincinnati	99.4	86.4	93.7
Texas	Dallas	101.6	67.3	86.5
Washington	Seattle	**104.9**	106.8	105.8

Source: Reed Construction Data, Inc., Second Quarter 2012.

According to second quarter 2012 Means Construction Cost Indices, the cost of construction materials in Wichita, at 100.5, is only slightly higher than the U.S. average.[46] The cost of materials in Cincinnati, Ohio, the two Arizona cities and the two cities in Georgia are somewhat less expensive than Wichita, and except for Phoenix, are also less than the U.S. average. Cities in Washington and Connecticut have the highest weighted average indices for construction materials, while cities in Florida, Texas and California have higher indices than both Wichita and the national average.

Wichita's installation costs, as shown in the graph above, are significantly lower than the national average. When compared to the other 13 selected cities for this study, only Savannah, Ga., has an index value lower than Wichita. The cities in Connecticut, California and Washington have the highest installation costs, all of which are higher than the national average, with Connecticut's indices being significantly higher.

The total weighted average of materials and installation, by CSI divisions, as illustrated in the graph above, shows Wichita as being very competitive with other densely populated cities. Again we see Connecticut, California and Washington cities with the highest indices, all of which exceed the U.S. average.

Construction Costs Over Time

Using historical cost indices by city[47], it is possible to compare construction costs for a particular project in different cities for different years. The table below illustrates what a construction project would cost

[46] The Means U.S. average is based on an average of construction cost indices for 30 major cities. See the Appendix for a list of those 30 U.S. cities.
[47] Data was not available for Melbourne, FL.

in selected cities in 2012, if that project cost $1,000,000 in Wichita, Kan., in 2012. It also shows how construction costs have increased in the selected cities from 2008 to 2012. .

Change in the Cost
of a $1,000,000 Project*

State	City	2012 Construction Cost	Percent Change 2008-2012
Arizona	Phoenix	$1,066,914	13.1%
	Tucson	$1,030,979	12.1%
California	Los Angeles	$1,283,767	12.2%
	San Diego	$1,232,342	**10.6%**
Connecticut	Hartford	**$1,328,377**	**15.5%**
	Bridgeport	$1,325,279	15.1%
Florida	Miami	$1,076,208	13.6%
Georgia	Savannah	**$984,511**	12.6%
	Atlanta	$1,057,621	11.4%
Kansas	**Wichita**	**$1,000,000**	**12.8%**
Ohio	Cincinnati	$1,106,568	12.3%
Texas	Dallas	$1,023,544	14.6%
Washington	Seattle	$1,250,929	14.1%

Source: Reed Construction Data, Inc.
*Base of comparison is a $1,000,000 project in Wichita, KS, in 2012.

Among the 13 cities examined in the $1,000,000 project above, Wichita, Kan., had the median percentage change in construction costs from 2008 to 2012. Some of the highest 2012 construction costs were in Connecticut and Washington cities. These geographic areas have not only had consistently higher construction costs from 2008 to 2012, but have also had some of the highest percentage increases in construction costs over that five-year period. California cities, on the other hand, have had consistently higher construction costs, yet ranked among the four cities with the lowest percentage increases in construction costs from 2008 to 2012. Construction costs for seven of the cities above were lower in 2012 than the 2008 construction costs of the six most expensive cities.

Construction Costs per Square Foot

The tables below compare the cost per square foot for seven building types for each of the cities in this study. For consistency across cities, a single wall/framing type was chosen for each building type. See the Appendix for other building specifications used to price the building types below.

Factory Construction Costs

($ per square foot)

		1 Story	% of U.S.	3 Story	% of U.S.
	U.S. Average	$114.73	-	$129.88	-
Arizona	Phoenix	$102.06	89%	$116.76	90%
	Tucson	$97.99	85%	$113.08	87%
California	Los Angeles	$122.88	107%	$136.98	105%
	San Diego	$117.94	103%	$132.73	102%
Connecticut	Bridgeport	**$124.62**	**109%**	$140.17	108%
	Hartford	$124.31	108%	**$140.36**	**108%**
Florida	Melbourne	$103.95	91%	$120.49	93%
	Miami	$102.52	89%	$118.66	91%
Georgia	Atlanta	$102.02	89%	$116.56	90%
	Savannah	**$93.86**	**82%**	**$109.46**	**84%**
Kansas	**Wichita**	**$96.01**	**84%**	**$111.95**	**86%**
Ohio	Cincinnati	$105.29	92%	$119.87	92%
Texas	Dallas	$96.92	84%	$113.56	87%
Washington	Seattle	$120.97	105%	$135.46	104%

Source: Reed Construction Data, Square Foot Estimator, Year 2012.

Factory, 1 story, is priced with a wall/framing type of concrete block/steel frame.

Factory, 3 story, is priced with a wall/framing type of face brick common brick bacup/steel frame.

Office Construction Costs

($ per square foot)

		1 Story	% of U.S.	2-4 Story	% of U.S.
	U.S. Average	$150.00	-	$168.23	-
Arizona	Phoenix	$132.57	88%	$148.40	88%
	Tucson	$126.86	85%	$142.46	85%
California	Los Angeles	$161.35	108%	$180.57	107%
	San Diego	$153.93	103%	$173.07	103%
Connecticut	Bridgeport	**$163.57**	**109%**	**$183.66**	**109%**
	Hartford	$162.78	109%	$183.33	109%
Florida	Melbourne	$135.15	90%	$152.05	90%
	Miami	$134.36	90%	$151.28	90%
Georgia	Atlanta	$133.00	89%	$148.43	88%
	Savannah	**$122.50**	**82%**	**$136.56**	**81%**
Kansas	**Wichita**	**$124.86**	**83%**	**$139.75**	**83%**
Ohio	Cincinnati	$137.79	92%	$154.74	92%
Texas	Dallas	$126.57	84%	$142.87	85%
Washington	Seattle	$157.15	105%	$175.23	104%

Source: Reed Construction Data, Square Foot Estimator, Year 2012.

Office, 1 story, is priced with a wall/framing type of wood siding/wood truss.

Office, 2-4 story, is priced with a wall/framing type of face brick with concrete block backup/wood joists.

Warehouse Construction Costs

($ per square foot)

		Typical	% of U.S.	Mini	% of U.S.
	U.S. Average	$86.81	-	$116.17	-
Arizona	Phoenix	$75.77	87%	$100.58	87%
	Tucson	$73.59	85%	$97.08	84%
California	Los Angeles	$93.25	107%	$125.62	108%
	San Diego	$89.53	103%	$120.10	103%
Connecticut	Bridgeport	**$95.84**	**110%**	**$129.50**	**111%**
	Hartford	$95.77	110%	$128.94	111%
Florida	Melbourne	$79.02	91%	$104.03	90%
	Miami	$77.37	89%	$102.30	88%
Georgia	Atlanta	$76.79	88%	$101.26	87%
	Savannah	**$70.08**	**81%**	**$91.75**	**79%**
Kansas	**Wichita**	**$70.76**	**82%**	**$92.70**	**80%**
Ohio	Cincinnati	$79.23	91%	$105.40	91%
Texas	Dallas	$72.65	84%	$95.92	83%
Washington	Seattle	$90.58	104%	$120.92	104%

Source: Reed Construction Data, Square Foot Estimator, Year 2012.

Typical warehouse is priced with a wall/framing type of tiltup concrete panels/steel frame.

Warehouse, mini, is priced with a wall/framing type of concrete block/steel frame.

Hanger Construction Costs

($ per square foot)

		Aircraft Hanger	% of U.S.
	U.S. Average	$111.82	-
Arizona	Phoenix	$101.12	90%
	Tucson	$97.88	88%
California	Los Angeles	$118.37	106%
	San Diego	$114.10	102%
Connecticut	Bridgeport	**$122.14**	109%
	Hartford	$121.40	109%
Florida	Melbourne	$102.86	92%
	Miami	$101.12	90%
Georgia	Atlanta	$100.41	90%
	Savannah	**$93.90**	84%
Kansas	**Wichita**	**$95.65**	**86%**
Ohio	Cincinnati	$102.01	91%
Texas	Dallas	$97.48	87%
Washington	Seattle	$117.18	105%

Source: Reed Construction Data, Square Foot Estimator, Year 2012.

Aircraft hanger is priced with a wall/framing type of concrete block reinforced/steel frame.

When comparing the cost of different building types, city rankings do not vary much from one building type to another. The same cities, those in Connecticut, California and Washington, have higher square footage costs than the national average for each building type. Wichita ranks second lowest in construction costs for all building types, with Savannah, Ga., consistently having the lowest cost per square foot.

The same historical cost indices, as those used in the $1,000,000 project above, can be applied to cost per square foot. Consequently, the percentage change in costs per square foot from 2008 to 2012, for each building type in each city, would be the same as the percentage changes shown in the table presented in the $1,000,000 example above.

City Cost Indices by Master Format divisions[48]

In each row, blue text is the lowest Index value and red text is the highest.
For all tables, the U.S. average = 100.0

City Cost Indices

State	City	Weighted Average (All Divisions)		
		Mat.	Inst.	Total
Arizona	Phoenix	100.4	77.0	90.0
	Tucson	98.5	72.4	87.0
California	Los Angeles	101.5	117.2	108.4
	San Diego	101.0	108.9	104.5
Connecticut	Bridgeport	103.6	121.5	111.5
	Hartford	103.7	121.9	111.7
Florida	Melbourne	103.0	78.4	92.1
	Miami	101.5	77.1	90.8
Georgia	Atlanta	99.2	76.7	89.3
	Savannah	99.9	61.6	83.0
Kansas	**Wichita**	**100.5**	**64.1**	**84.4**
Ohio	Cincinnati	99.4	86.4	93.7
Texas	Dallas	101.6	67.3	86.5
Washington	Seattle	104.9	106.8	105.8

Source: Reed Construction Data, Year 2012, Quarter 2.
NA=Not Applicable

[48] Construction cost indices and other construction cost information in this Appendix may not be reproduced or provided to the general public in any form.
Specialties consists of; equipment, furnishings, special construction, conveying systems, integrated automation, electronic safety and security, material processing and handling equipment, process gas and liquid handling, purification and storage equipment, pollution and waste control equipment, water and wastewater equipment.

City Cost Indices

State	City	Contractor Equipment			Site & Infrastructure, Demolition			Concrete		
		Mat.	Inst.	Total	Mat.	Inst.	Total	Mat.	Inst.	Total
Arizona	Phoenix	NA	97.3	97.3	89.1	101.5	97.7	97.8	75.3	86.8
	Tucson	NA	96.8	96.8	84.3	101.3	96.0	96.3	74.9	85.9
California	Los Angeles	NA	101.2	101.2	98.4	108.5	105.4	102.3	121.5	111.7
	San Diego	NA	99.6	99.6	99.6	103.4	102.2	103.0	110.2	106.5
Connecticut	Bridgeport	NA	100.0	100.0	115.1	103.2	106.9	106.4	127.1	116.5
	Hartford	NA	100.0	100.0	106.9	103.2	104.4	106.0	127.0	116.2
Florida	Melbourne	NA	98.5	98.5	120.4	89.4	99.0	102.5	76.6	89.9
	Miami	NA	91.5	91.5	98.9	78.0	84.5	94.4	78.1	86.4
Georgia	Atlanta	NA	94.5	94.5	93.9	94.6	94.4	101.4	76.1	89.1
	Savannah	NA	93.2	93.2	98.1	80.4	85.9	98.7	56.6	78.2
Kansas	**Wichita**	**NA**	**102.6**	**102.6**	**93.2**	**92.6**	**92.8**	**90.9**	**54.8**	**73.4**
Ohio	Cincinnati	NA	102.4	102.4	88.5	106.8	101.1	92.9	84.1	88.6
Texas	Dallas	NA	98.5	98.5	103.7	87.6	92.6	99.2	61.2	80.7
Washington	Seattle	NA	104.9	104.9	93.7	111.7	106.1	100.3	102.7	101.4

Source: Reed Construction Data, Year 2012, Quarter 2.

City Cost Indices

State	City	Masonry			Metals			Woods, Plastics & Composites		
		Mat.	Inst.	Total	Mat.	Inst.	Total	Mat.	Inst.	Total
Arizona	Phoenix	98.0	65.9	78.4	100.8	78.9	93.6	97.2	71.2	82.2
	Tucson	96.0	62.8	75.7	100.0	77.7	92.6	96.6	71.2	81.9
California	Los Angeles	90.4	120.1	108.6	105.9	104.3	105.4	104.2	122.2	114.6
	San Diego	94.5	114.6	106.7	106.3	103.3	105.4	96.5	107.2	102.7
Connecticut	Bridgeport	103.3	134.5	122.3	106.4	125.4	112.7	97.7	124.7	113.3
	Hartford	96.6	134.5	119.7	111.5	125.3	116.1	96.3	124.7	112.7
Florida	Melbourne	94.5	73.8	81.9	112.2	93.0	105.9	95.8	73.6	83.0
	Miami	96.6	76.0	84.1	108.7	92.3	103.2	102.1	71.4	84.4
Georgia	Atlanta	98.9	67.7	79.9	98.9	80.0	92.7	97.7	78.0	86.3
	Savannah	97.2	51.5	69.4	98.5	84.8	94.0	115.0	47.5	76.0
Kansas	**Wichita**	**99.6**	**53.1**	**71.3**	**108.4**	**84.1**	**100.4**	**97.2**	**45.2**	**67.1**
Ohio	Cincinnati	85.4	87.3	86.6	103.5	85.6	97.6	101.3	80.0	89.0
Texas	Dallas	102.3	58.7	75.7	109.8	80.2	100.0	102.4	68.9	83.0
Washington	Seattle	117.8	100.7	107.4	112.9	95.8	107.3	100.0	99.1	99.5

Source: Reed Construction Data, Year 2012, Quarter 2.

City Cost Indices

State	City	Thermal & Moisture Protection			Openings			Finishes		
		Mat.	Inst.	Total	Mat.	Inst.	Total	Mat.	Inst.	Total
Arizona	Phoenix	101.0	68.8	87.9	109.0	74.8	100.4	97.8	66.2	80.2
	Tucson	102.4	64.5	87.0	103.3	74.8	96.1	94.1	63.2	76.9
California	Los Angeles	101.6	122.8	110.2	104.2	122.3	108.8	101.9	119.7	111.9
	San Diego	104.3	106.0	105.0	100.2	111.9	103.1	100.7	110.2	106.0
Connecticut	Bridgeport	99.5	131.4	112.4	107.2	133.3	113.8	102.9	126.2	115.9
	Hartford	106.1	127.9	115.0	107.9	133.3	114.3	101.4	126.2	115.2
Florida	Melbourne	97.8	80.3	90.7	104.1	74.0	96.5	104.1	76.6	88.8
	Miami	106.0	79.5	95.2	102.6	69.5	94.2	104.8	73.3	87.3
Georgia	Atlanta	93.6	74.6	85.9	101.9	74.4	94.9	92.5	75.1	82.8
	Savannah	97.6	58.7	81.7	103.8	48.6	89.9	103.5	50.5	74.0
Kansas	**Wichita**	**98.5**	54.6	80.7	**102.4**	**53.0**	**90.0**	**99.5**	49.9	71.8
Ohio	Cincinnati	102.0	91.5	97.7	108.0	79.9	100.9	101.4	83.7	91.6
Texas	Dallas	92.8	64.3	81.2	107.9	59.2	95.6	98.5	61.8	78.0
Washington	Seattle	106.2	101.5	104.3	109.1	100.2	106.9	108.0	98.7	102.8

Source: Reed Construction Data, Year 2012, Quarter 2.

City Cost Indices

State	City	Specialties			Fire Suppression, Plumbing & HVAC			Electrical Communications		
		Mat.	Inst.	Total	Mat.	Inst.	Total	Mat.	Inst.	Total
Arizona	Phoenix	100.0	88.0	97.6	101.1	83.1	93.8	99.2	70.9	84.6
	Tucson	100.0	87.9	97.6	101.2	73.6	90.0	94.2	59.9	76.5
California	Los Angeles	100.0	115.1	103.0	101.2	115.3	106.9	99.2	123.0	111.5
	San Diego	100.0	112.9	102.6	101.1	113.8	106.2	95.5	101.0	98.3
Connecticut	Bridgeport	100.0	112.8	102.6	101.0	119.8	108.6	101.3	109.9	105.7
	Hartford	100.0	112.8	102.6	101.0	119.8	108.6	99.5	113.5	106.8
Florida	Melbourne	100.0	79.9	96.0	101.0	79.2	92.2	96.9	68.0	82.0
	Miami	100.0	88.6	97.8	101.0	71.3	89.0	99.9	78.4	88.8
Georgia	Atlanta	100.0	89.2	97.9	101.0	73.4	89.8	98.6	75.5	86.7
	Savannah	100.0	52.7	90.6	101.0	63.8	85.9	95.9	61.0	77.9
Kansas	**Wichita**	**100.0**	50.3	90.1	100.8	63.6	85.7	**101.3**	**73.7**	**87.1**
Ohio	Cincinnati	100.0	95.7	99.2	101.0	84.1	94.1	95.8	81.3	88.3
Texas	Dallas	100.0	85.5	97.2	101.0	63.7	85.9	93.0	67.6	79.9
Washington	Seattle	100.0	104.2	100.9	101.1	122.2	109.6	102.8	107.9	105.4

Source: Reed Construction Data, Year 2012, Quarter 2.

Construction Costs 2008-2012

		2008	2009	2010	2011	2012
Arizona	Phoenix	$942,999	$999,380	$995,663	$1,014,870	$1,066,914
	Tucson	$919,455	$971,499	$974,597	$988,228	$1,030,979
California	Los Angeles	$1,144,362	$1,218,092	$1,207,559	$1,234,201	$1,283,767
	San Diego	$1,114,622	$1,187,113	$1,166,047	$1,191,450	$1,232,342
Connecticut	Bridgeport	**$1,151,177**	**$1,232,962**	$1,231,722	**$1,271,375**	$1,325,279
	Hartford	$1,150,558	$1,231,103	**$1,237,918**	$1,270,756	**$1,328,377**
Florida	Miami	$947,336	$1,023,544	$1,011,772	$1,034,696	$1,076,208
Georgia	Atlanta	$949,195	$1,019,207	$991,945	$1,016,109	$1,057,621
	Savannah	**$874,226**	$946,716	**$916,357**	**$939,901**	**$984,511**
Kansas	**Wichita**	**$886,617**	**$944,238**	**$937,423**	**$962,206**	**$1,000,000**
Ohio	Cincinnati	$985,130	$1,041,512	$1,031,599	$1,061,338	$1,106,568
Texas	Dallas	$892,813	$963,445	$960,967	$978,315	$1,023,544
Washington	Seattle	$1,096,035	$1,167,906	$1,188,352	$1,202,602	$1,250,929

Source: Calculations were made using the Means Historical Cost Indexes 2012.

Based on a $1,000,000 project in Wichita, KS, in 2012.

Building Type Specificatins for Determining Constructin Costs per Square Foot

Building Type	Story Count	Story Height (L.F.)	Floor Area (S.F.)	Labor Type	Basement Included
Factory, 1 Story with Concrete Block/Steel Frame	1	20	30,000	Open Shop	No
Factory, 3 Story with Face Brick Common Brick Backup/Steel Frame	3	12	90,000	Open Shop	No
Hangar, Aircraft with Concrete Block Reinforced/Steel Frame	1	24	20,000	Open Shop	No
Office 1 Story with Wood Siding/Wood Truss	1	12	7,000	Open Shop	No
Office, 2-4 Story with Face Brick with Concrete Block Backup/Wood Joists	3	12	20,000	Open Shop	No
Warehouse with Tiltup Concrete Panels/Steel Frame	1	24	30,000	Open Shop	No
Warehouse, Mini with Concrete Block/Steel Frame	1	12	20,000	Open Shop	No

Source: Reed Construction Data, Square Foot Estimator, Year 2012. L.F. = Linear Feet; S.F. = Square Feet.

Appendix II: Detailed Incentives by State

Existing State Incentives[49]

States develop and use incentives in order to promote growth. A degree of competition emerges between states in the kinds and sizes of incentives offered. This section of the report lays out the different types of incentives that states employ to recruit and maintain manufacturing and aerospace companies. The majority of the government incentives includes tax and financial incentives and are available at both the state and local level. Some states have used customized incentives that target specific industries, in addition to the standardized typical incentives.

The different types of business incentives are briefly defined as the following:

- Tax incentives include any concessions, credits, exemptions, abatements of corporate or personal income, sales, property, etc.
- Financial incentives comprise any type of direct loan, loan guarantee, grant, infrastructure development, job training assistance, etc.
- Supplementary incentives, offered by some states, do not belong to the categories of tax or financial incentives. Examples of these incentives are job-training, public-private partnerships, airport assistance, environmental regulation, child care facilities, and research and development programs.

The following tables provide incentives offered by type, by state. Definitions and additional detail can be found after the incentive summary tables.

[49] Information in this section comes from the Council for Community and Economic Research's State Business Incentives Database. The database was current as of December 2011 and is updated annually. There may have been changes to economic development incentives since this date. Those changes have not been reflected in this report.

Loan	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
Loan			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**					
Direct Loan Expansion Program					X					X		X					
Capital Access Program			X		X							X					
Minority Direct loan												X					
Research and Development Investment												X					
Innovation Loan Fund												X					
Job Training Incentive Program										X							
Airport Revitalization Revolving Loan Program									X								
Energy Investment Program									X		X						
Economic Opportunity Initiatives Fund								X									
Florida Recycling Development Fund						X											
Export Assistance and Financing			X			X											
Economic and Manufacturing Assistance Act					X												
Small Business and Entrepreneurs Loan Program			X	X	X		X										

Grant	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
	X	X		X	X	X		X	X		X	X	X	X	X	X	X
Industrial Development Grant Program	X																
Development Training Program	X	X		X		X		X				X	X		X		
High Impact Performance Incentive Grant						X		X									
Business Recruitment								X									
Advantage Jobs Incentive Program	X							X	X				X	X		X	
First Light Venture Center											X						
Development Investment Grant											X						
Quality Jobs Program													X				
Venture Investment Program													X				
Research and Technology Development Program																	X
Advanced Energy Grant Program												X					
Brownfields Redevelopment					X							X					

Tax Credit	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
Tax Credit	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		**X**	
Enterprise Zone Program	X	X	X	X		X						X	X			X	
Income Tax Capital Credit	X																
Income Tax Education Credit	X						x										
Transaction Privilege Tax Factoring		X															
Manufacturing Enhancement Area			X		X												
Investment			X		X	x	X										
Electronic Data Processing Equipment Property					X												
Neighborhood Assistance Program					X												
Donation of Open Space Land					X												
Hiring Incentive			X	X	X		X	X	X		X	X	X	X			
Welfare to work					X					X							
Quality Jobs Program							X			X							
Small Business Growth Companies					X		X										
Telecommunications								X									
Employer Health Insurance Contribution								X									
Child Day Care Assistance								X		x				X			
Disabled Access								X									
Environmental Compliance								X									
Basic Skills Training or Retaining									X								
Renewable Energy Production								X		X	X						
Foreign Trade Zones													X				
Former Indian Lands													X				
Recycling , Reuse and Source Reduction Incentive Act													X			X	
Gas Usage Tax Credit Manufacturing													X				
Small Business Administration Guarantee													X				

Tax Credit Continued…	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
Commercial Space Industry													X				
Excise Tax On Aircraft Sales													X				
Research		X			X		X	X	X	X	X		X	X		X	
Job Development Credit for Retraining														X			
Credit for Investing in an Economic Impact Zone						X								X			
Corporate Headquarters			X						X					X			
Credit for Hiring Family Independence Recipient														X			

Tax Exemption	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
Tax Exemption	**X**	**X**	**X**	**X**		**X**	**X**	**X**	**X**			**X**	**X**	**X**	**X**	**X**	
Manufacturing													X	X			
Research & Development			X									X	X	X			
Inventory and Intangibles								X						X			
Environmental Cleanup		X												X			
Air Carrier Hub														X			
Machines Used in Recycling														X			
Technology Transfer Income						X							X				
New Products Development Income													X				
Aircraft Maintenance Facilities													X				
Spaceport													X				
Freeport													X		X		
Growth and Prosperity									X								
Transfer of National/Regional Headquarters				X					X					X		X	
Sales and Use Tax Exemptions Related to the Jobs Tax Credit			X			X	X	X	X								
Tax Exempt Industrial Revenue Bond								X									
Property Tax Exemption-Business Aircraft								X									
Machinery, Equipment, Materials, Supplies								X									
Exemption of Property for Economic Development Purposes								X									
Sales Tax Exemption for Electrical Energy						X											
Property	X																
Foreign Trade Zones		X															

	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
Preferential Rate	**X**	**X**											**X**	**X**			
Little Fee														X			
Big Fee														X			
Simplified Rate														X			
Super and Enhancement Investment Fee														X			
Small Business Linked Deposit Program													X				
Military Reuse Zone Program		X															
Business Privilege Tax Rate	X																
Inventory Tax	X																

	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
Tax Refund		**X**				**X**							**X**		**X**		
Computer Services/Data Processing/Telecommunications Equipment													X				
Constructions Materials													X				
Business Equipment Sales: Rural and Urban Enterprise Zones						X											
Building Material Sales: Rural and Urban Enterprise Zones						X											
Qualified Defense and Space Contractor						X											
Qualified Target Industry		X				X							X				
Aircraft Maintenance or Manufacturing Facility																	
Refund for Economic Development															X		

	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
Tax Deduction							**X**	**X**		**X**					**X**		
Aerospace Research and Development										X							
Double Weight Sales Factor										X							
Aircraft Manufacturing										X							
Aircraft Maintenance or Remodeling										X							
Aerospace: Space Gross Receipts										X							
Research and Development Gross Receipts										X							
Machinery and Equipment Expensing								X									
Texas Economic Development Act															X		
Foreign Trade Zones							X										

	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
Tax Abatement	**X**				**X**										**X**		
Targeted Investment Community Benefits					X												
Urban Jobs Program					X												
Property Tax and Sales	X																
Sales and Use Tax Incentive	X																
Reinvestment Zones															X		

Bond	Alabama	Arizona	California	Colorado	Connecticut	Florida	Georgia	Kansas	Mississippi	New Mexico	North Carolina	Ohio	Oklahoma	South Carolina	Texas	Utah	Washington
		X	X	X	X	X		X	X	X	X	X	X		X		
JEDA Bond																	
Public Trust Financing													X				
General Obligation Limited Tax Bonds													X				
Private Activity Bond Allocation													X				
Ohio Enterprise Bond Fund												X			X		
Volume Cap Program												X					
Industrial Revenue Bond			X		X			X	X	X	X						
Small Enterprise Development Program									X								
Florida First Business Bond Pool						X											
Tax Increment Financing					X			X									
Manufacturing Revenue Bond				X													
The Pollution Control tax Guarantee Program			X														
Private Activity Bonds		X															

Alabama Business Incentives

Grant

- **Industrial Development Grant Program (Site Preparation):** Alabama Act No. 91-635, as amended by Act. No.'s 97-645, 99-590, and 99-591; authorizes the State Industrial Development Authority to sell bonds to make grants to counties, municipalities, local industrial development boards or authorities or economic development councils or authorities, airport authorities, port authorities or public corporations or certain state agencies or departments to pay for site preparation for land owned or possessed by lease by these entities.
- **Industrial Development Training Program:** AIDT, an institute of the State's Department of Postsecondary Education, encourages economic development through job-specific training. Training services are offered in many areas and are free of charge to new and expanding businesses throughout the State. AIDT was established by the Alabama State Legislature in June 1971 as a line item in the state education budget. The program is authorized annually through the appropriations process.
- **Economic Development Fund (CDBG):** This fund is available to all eligible communities for projects supporting the creation or retention of jobs. Generally, applicants for ED loans, ED Float Loans, Section 108 Loans, and ED grants should have a commitment from the business to create or retain 15 or more jobs. The business should fall within the SIC codes 20-39 or provide a significant economic benefit. Projects must not include intrastate relocation. The program is available on a continuous funding cycle.

Tax Credit

- **Enterprise Zone Program**: The Alabama Enterprise Zone Program Authorized state tax and non-tax incentives are available in 28 cities and counties throughout the State of Alabama. The zones are utilized to encourage economic growth in areas considered to have depressed economies. In addition, each designated area offers local incentives to encourage businesses to locate or expand into that area's designated Enterprise Zone.
- **Income Tax Capital Credit**: The Income Tax Capital Credit has been available since 1995. This legislation is currently codified as Article 7, Chapter 18, Title 40, and Code of Alabama 1975. The purpose of this law is to create jobs and to stimulate business and economic growth in the state by providing an income tax capital credit for approved projects. The capital credit is a credit of 5 percent of the capital costs of a qualifying project, to be applied to the Alabama income tax liability or financial institution excise tax generated by the project income, each year for 20 years. This credit cannot be carried forward or back (you use it or lose it) and cannot be used to generate a refund to the taxpayer. The capital credit is used only after all other deductions, losses, or credits permitted under Titles 40 and 41 of the Code of Alabama 1975. The credit will follow the income generated by the project and, therefore, will be allowed to "pass-through" entities such as: S corporations, partnerships, limited liability companies, etc.
- **Income Tax Education Credit**: An employer could qualify to receive an income tax credit of 20 percent of the actual cost of an employer-sponsored educational program that enhances basic

skills of employees up to and including the 12th grade functional level. This concept would include programs which teach English as a second language.

Tax Abatement

- **Property Tax & Sales Tax Abatements:** The Tax Incentive Reform Act of 1992 (Chapter 9B, Title 40, Code of Alabama 1975) gives cities, counties, and public industrial authorities the ability to abate the following: State sales and use taxes; Non-educational county and city sales and use taxes; Non-educational state, county, and city property taxes - up to 10 years; Mortgage and recording taxes. To receive abatement for any or all of these taxes, a business must meet certain qualifications and follow certain procedures, as determined by law and regulation.
- **Sales and Use Tax Incentives:** The state sales and use tax general rate in Alabama is 4.0 percent. The state sales and use tax rate for manufacturing and farm machinery is 1.5 percent. In addition to state taxes, most cities and counties also levy their own sales and use taxes, which provide similar rate differentials.
- **Sales and Use Tax Abatements:** The Tax Incentive Reform Act of 1992 (Chapter 9B, Title 40) allows qualifying industries to receive abatements of state and non-educational county and city construction-related sales and use taxes.
- **Sales and Use Tax Exemptions on Pollution Control Equipment:** Equipment or materials purchased primarily for the control, reduction, or elimination of air or water pollution are exempt from sales and use tax under Alabama law (Sections 40-23-4(a)(16) and 40-23-62-(18)).
- **Raw Materials:** Tangible personal property used by manufacturers or compounders as an ingredient or component part of their manufacturing or compounded product are specifically exempt from sales and use tax under Alabama law (Sections 40-23-1(a)(9)b and 40-23-60(4)b).
- **Utility Gross Receipts Tax Exclusion:** Alabama law (Sections 40-21-83 and 40-21-103) allows exclusions from the utility gross receipts tax and the utility service use tax if electricity or natural gas is used in an electrolytic or electro-thermal manufacturing or compounding process. Other exemptions for sales and use taxes are described in the Sales and Use Tax Laws.
- **Enterprise Zone Exemption:** This exemption is offered to help encourage economic growth in areas considered to have depressed economies (Section 41-23-30, Code of Alabama 1975). To qualify for this incentive, a business must meet detailed requirements concerning site location and employee qualifications.

Preferential Rate

- **Business Privilege Tax Rate**: The business privilege tax is an annual tax paid by corporations and limited liability entities (including disregarded entities) for the privilege of conducting business in Alabama. The tax base is the taxpayer's net worth apportioned to Alabama.
- **Inventory Tax**: Alabama does not levy a property tax on inventory of goods, wares and merchandise that is offered for sale. However, inventory that is used for lease or rental purposes is subject to the property tax. Materials that are to be compounded or manufactured and are stocked at plants or furnaces for manufacturing purposes are also exempt.

Tax Exemption

- **Property Tax Exemptions**: All non-exempt property in Alabama is classified and assessed at 20 percent of fair and reasonable market value for manufacturers. The rate of tax per $1,000 of assessed value is $6.50 (includes $3.00 for schools).

Arizona Business Incentives

Bonds

- **Private Activity Bonds (Industrial Revenue Bonds):** The PAB program can be used for the construction of industrial and manufacturing facilities and the purchase of equipment, utilities, solid waste and other exempt facilities, multifamily and Single family housing and student loans. Director's Discretion allocation: rural projects and manufacturing have priority.

Grant

- **Job Training Program:** The Arizona Job Training Program (extended through 2016) supports the design and delivery of training plans that meet unique industry standards and challenges. Under the "Net New Hire" portion of the grant program, businesses can apply for grants that return up to 75 percent of the costs of training net new employees in jobs that meet wage criteria. The "Incumbent Worker" portion of the grant program will allow for training that upgrades the skills of existing employees. The Incumbent Program can reimburse employers up to a maximum of 50 percent of allowable training costs.

Tax Credit

- **Enterprise Zone Program**: The program enhances opportunities for private investment in certain areas that are called Enterprise Zones (EZ). The program offers two incentives to eligible applicants: tax credits for non-retail businesses or insurers and a property tax reduction for manufacturers. Enterprise zones are designated by the Arizona Department of Commerce; there are 21 active zones in Arizona.
- **Research & Development Income Tax Credit (Income Tax Credit for Increased Research Activities):** Research & Development Income Tax Credit is a state income tax credit for qualified research and development done in Arizona. This includes research conducted at a state university and funded by the company.
- **Transaction Privilege (Sales) Tax Factoring:** Alternative method for calculating Arizona corporate income tax owed by multi-state companies that may have the effect of reducing income taxes for companies with significant investment in the state, but relatively few sales.

Tax Exemption

- **Foreign Trade Zone (FTZ):** Federal FTZ benefits are received, including being treated as though legally outside of the U.S. Custom's territory. Merchandise may be brought in duty-free for purposes such as storage, repacking, display, assembly or manufacturing. Imports may be landed and stored quickly without full customs formalities. State benefit is a real and personal property tax abatement.
- **Pollution Control Tax Credit:** Pollution Control Tax Credit provides a 10 percent income tax credit on real or personal property used to control or prevent pollution. This tax credit is administered by the Arizona Department of Revenue (AZDOR).

Preferential Rate

- **Military Reuse Zone Program**: In 1992, the Arizona Legislature established the Military Reuse Zone Program to lessen the impact of military base closures. The program provides economic incentives for aviation and aerospace businesses that create new jobs and make capital investments within a designated military reuse zone in Arizona. The program offers income tax credits for net increases in qualified employment, reclassification of qualified taxable property to reduce property tax, and an exemption from transaction privilege tax to prime contractors for the construction of certain facilities. A business located in a Military Reuse Zone must be certified by the Arizona Department of Commerce and submit annual reports that include employment goals and progress toward meeting those goals in order to receive benefits. All the necessary forms are enclosed with these guidelines. Once the certificate of qualification has been issued, if the business meets the other qualifications it may (1) claim income tax credits on Arizona tax returns; (2) apply for reclassification of real and personal property from class 1 to class 6 (25 percent assessment ratio to 5 percent); and (3) apply for exemption from transaction privilege tax can be completed by a prime contractor operating in behalf of the business.

Tax Refund

- **Accelerated Depreciation**: Formerly called the accelerated depreciation program. The state provides an additional depreciation schedule to encourage new capital investment by reducing personal property tax liability.

California Business Incentives

Bonds

- **Industrial Development Revenue Bond Program**: Industrial Development Bonds (IDBs) are tax-exempt securities issued by a governmental entity to provide money for the acquisition, construction, rehabilitation and equipping of manufacturing and processing facilities for private companies. IDBs can be issued by the California Infrastructure & Economic Development Bank (I-Bank), local Industrial Development Authorities, or by Joint Power Authorities.
- **The Pollution Control Tax-Exempt Bond Financing Program:** The Pollution Control Tax-Exempt Bond Financing Program provides private activity tax-exempt bond financing to California businesses for the acquisition, construction, or installation of qualified pollution control, waste disposal, waste recovery facilities, and the acquisition and installation of new equipment.

Loan

- **Small Business Loan Guarantee Program**: The Small Business Loan Guarantee Program is administered by the Business, Transportation and Housing Agency and the state's 11 Financial Development Corporations (FDC). The program provided 1,319 guaranteed loans in Fiscal Year 2006-07, the program's highest one-year total and an increase of 51 percent since 2002-03. It also guaranteed $161 million in financing for small businesses in FY 2005-06, an increase of 61 percent since 1999-00. The purpose of this program is to encourage local banks and non-bank lenders to make small- to medium-sized business loans that are not traditionally bankable, by providing the lender with additional security for a credit request in the form of a guarantee,

which serves as an incentive to approve a commercial credit request it might not normally consider.

- **California Export Finance Services - Loan Guarantees**: The California Export Finance Office (CEFO) helps exporters finance their export sales by providing working capital loan guarantees to financial institutions on behalf of small- and medium-sized California companies, to support specific export transactions.
- **California Commerce and Economic Development:** This program allows a business to not only obtain a loan it could not otherwise obtain, but to establish a favorable credit history with a lender. With that, the business may obtain further loans on its own, without the assistance of the program. The State of California's Small Business Loan Guarantee Program differentiates itself from the U.S. Small Business Administration's programs by providing a niche in guarantee financing on revolving lines of credit, small loans and agricultural loans.
- **California Capital Access Program (CalCAP):** The California Capital Access Program (CalCAP) encourages banks and other financial institutions to make loans to small businesses that fall just outside of most banks' conventional underwriting standards. CalCAP is a form of loan portfolio insurance that provides up to 100 percent coverage on certain kinds of loan defaults. The State's Treasurer's Office, through the California Pollution Control Financing Authority (CPCFA), has committed to provide "loan loss" guaranty accounts to participating banks willing to make loans to small businesses with higher than conventional risk.

Tax Credit

- **Manufacturer's Investment Credit:** The Manufacturers' Investment Credit, or MIC, is a credit available to a qualified taxpayer that may be used to reduce the taxpayer's income or franchise tax. The credit is 6 percent of qualified costs paid or incurred on or after January 1, 1994, for acquiring, constructing, or reconstructing qualified property. It is available to qualified taxpayers engaged in manufacturing-type activities. The credit is claimed on the return filed for the taxable or income year in which the qualified property is placed in service in California.
- **Local Agency Military Base Recovery Area (LAMBRAs):** The Local Agency Military Base Recovery Area (LAMBRA) program was developed to attract reinvestment and re-employ workers. A LAMBRA designation has tax incentives that are similar to Enterprise Zones and is binding for a period of eight years. The LAMBRA's boundaries are the closing base or a portion of it.
- **Up to 100 percent Net Operating Loss (NOL) carry-forward:** NOL may be carried forward 15 years. Firms can earn $31,544 or more in state tax credits for each qualified employee hired, up to $2 million per year with a few provisions. Corporations can earn sales tax credits on purchases of $20 million per year of qualified machinery and machinery parts. Up-front expensing of certain depreciable property is also available for up to $40,000 annually. Unused tax credits can be applied to future tax years, stretching out the benefit of the initial investment. In addition to the California tax credits, LAMBRA communities also have community incentives as a part of the business attraction package. Each community is marketing base property and existing buildings to attract expanding and new businesses. The incentives may include the use of machinery, tools, or office equipment left behind by the military.

- **Manufacturing Enhancement Area (MEA):** The benefits of a Manufacturing Enhancement Area (MEA) are as follows: streamlined local regulatory controls; reduced local permitting fees; and eligibility to earn $29,234 or more in state tax credits for each qualified employee hired.
- **Targeted Tax Area (TTA):** The Targeted Tax Area was established to stimulate development in a selected economically depressed area. Special tax incentives are available for entities and individuals that operate or invest in a business located within the designated Targeted Tax Area. The law provides for the designation of one (1) Targeted Tax Area (per Government Code Section 7097). The Targeted Tax Area designation expires October 31, 2013.
- **Enterprise Zones**: The California Legislature created the Enterprise Zone Program to stimulate economic growth in the most economically distressed areas in the State. California currently has 42 enterprise zones located throughout the State. The Enterprise Zone Program is a 15-year partnership between local governments, government agencies, non-governmental agencies and private business to generate new private-sector investment and growth. To assist this partnership, the State of California establishes a geographical area in which businesses are eligible for exclusive State incentives and programs, which include the following: Tax credits for sales and use taxes paid on qualified machinery purchases; Tax credits for hiring qualified employees; Interest deductions for lenders on loans to firms within the areas; A 15-year net operating loss carry-forward; Accelerated expense deductions; and Priority for various state programs, such as state contracts. For their part, local cities and counties applying for an enterprise zone must be strongly committed to an economic revitalization and development program.

Tax Exemption

- **Partial Sales or Use Tax Exemption**: Provide "new" or start up companies the option of a 5 percent partial sales or use tax exemption on all qualifying manufacturing property purchased or leased, generally during the company's first three years of operation.
- **Research and Development Tax Credit**: The California R&D Credit reduces income or franchise tax. A company qualifies for the credit if paid or incurred qualified research expenses while conducting qualified research in California. The company would receive 15 percent of the excess of current year research expenditures over a computed base amount (minimum of 50 percent of current year research expenses). The credit is claimed on the return for the taxable year the qualified expenses were incurred.

Colorado Business Incentives

Loan

- **Certified Capital Companies (CAPCO) Program:** The CAPCO Program was created by the Colorado Legislature with the goal of making venture capital funds available to new or expanding small businesses throughout Colorado.
- **Direct Loan Program:** The CHFA Direct Loan Program has been created by the Colorado Housing and Finance Authority (“Authority”) to provide fixed-interest rate, long-term financing to Colorado small businesses seeking financing for real estate and/or manufacturing equipment.

- **Rural Loan Program:** To provide fixed-interest rate, long-term financing to rural Colorado small businesses seeking financing for real estate and/or manufacturing equipment.
- **Small Business and Entrepreneurs Loan Program:** To provide financing for small business development projects

Bonds

- **Manufacturing Revenue Bonds**: The Manufacturing Revenue Bond Program provides favorable tax-exempt Private Activity Bond financing targeted to small manufacturers in Colorado.

Grant

- **Colorado FIRST/Existing Industry Customized Training Programs:** Colorado **First grants** are for companies that are relocating to Colorado or existing companies that are undertaking a major expansion. **Existing Industry grants** are designed for Colorado companies that are implementing new technology to remain competitive and keep jobs in Colorado. Approved training is for transferable job skills that support both the company's economic competitiveness by re-training its workers in new skills, while enhancing the workers' resumes and long-term employment opportunities. These training programs received $2.7 million in funding for the 2010-2011 program year.

Tax Credit

- **Enterprise Zone Tax Credit**: To encourage businesses to locate and expand in designated economically distressed areas of the state. The Economic Development Commission (EDC) designates certain economically distressed areas of the state as Enterprise Zones. There are 16 Enterprise Zones and 2 sub-zones in Colorado. Businesses located in a zone may qualify for up to 10 different Enterprise Zone Tax Credits and/or Incentives to encourage and reward job creation and investment in these zones. To determine if a specific address is within a zone, contact the local zone administrator.
- **Colorado Works Program Credit**: To encourage employers to employ individuals who receive public assistance. Colorado employers are allowed to claim a credit, for not more than two years, of 20 percent of their annual expenditures for eligible services for their employees who receive public assistance, pursuant to the “Colorado Works Program”.

Tax Exemption

- **Sales Tax Exemption on Manufacturing Equipment**: To assist manufacturing firms and create jobs. Purchases of machinery or machine tools and parts, thereof, are exempt from state sales and use tax when the machinery will be used in manufacturing.

Connecticut Business Incentives

Bonds

- **Industrial Revenue Bonds:** To assist Connecticut businesses by offering industrial revenue bonds. 1. Interest on bonds is exempt from federal and state income tax, resulting in lower debt service 2. Bonds are repaid from project and/or borrower’s revenues. 3. Flexible amortization and maturity, up to 40 years or 120 percent of the economic life of the asset financed. 4. Bonds

can equal 100 percent of project cost. 5. Bonds are customarily credit-enhanced when sold to the public: privately placed bonds may not require credit enhancement. 6. Bonds are customarily secured by mortgage or security interest.

- **Enterprise Zone Program:** The Enterprise Zone Program is the core program on which all other business related incentive programs are based. Divisional staff provide guidance to DECD regional representatives, as well as municipal officials who coordinate the program application process at the local level.
- **Tax Increment Financing**: The Connecticut Development Authority may issue tax-exempt and taxable bonds, payable entirely or in part, from incremental taxes allocated and deemed appropriate from the state's General Fund, to help finance, on a self-sustaining basis, significant economic projects located in the state.

Loans

- **Direct Loans**: To accelerate business formation and expansion and retain and create jobs. 1. Direct senior and subordinated loans. 2. Selective, Mezzanine Investments, Environmental, remediation and redevelopment, Inducement -- below market interest rate -- loans for significant expansion or relocation. 3. Can be coupled with loans or investments from other public- or private-sector sources.
- **Economic and Manufacturing Assistance Act**: Incentive driven direct loans for projects when there is a strong economic development potential.
- **URBANK: Access to capital for Connecticut's small businesses**: Access to capital for Connecticut's small businesses. 1. Banks can meet the financing needs of more small and entrepreneurial businesses. 2. URBANK provides the bank with loss protection on loans up to $350,000. 3. Can be coupled with loans or investments from other public- or private-sector sources.
- **Guaranteed Loans**: To accelerate business formation and expansion and retain and create jobs. 1. Loan guarantees to help private-sector lenders meet their borrower's total financing requirements. 2. Guarantees can fully cover losses up to 40 percent of the principal balance. 3. Can be coupled with loans or investments from other public- or private-sector sources.

Equity Investment

- **Eli Whitney Fund:** Since 1995, the Eli Whitney Fund has provided more than $100 million in early-stage funding to some of Connecticut's fastest growing companies. The Eli Whitney Fund is aimed at strengthening the state's high-technology environment by providing entrepreneurs with the capital and strategic guidance they need to start and build successful Connecticut businesses. Additionally, Connecticut's investment team has provided mentoring, management, and marketing support to help these companies reach their potential.

Grant

- **Grants for Brownfields Redevelopment**: 1. Up-front TIF-based cash for developers that remediate and redevelop environmentally contaminated properties. 2. Cash incentive equal to the net present value of a portion of the future incremental municipal tax revenues generated by the project. 3. Benefits the developer/owner by: providing investment capital, reducing

equity/financing requirements, reducing financial, legal and regulatory risks, enhancing return on investment. 4. TIF cannot be combined with municipal real estate tax abatements.

Tax Credit

- **Manufacturing Apprenticeship Tax Credit**: This tax credit is designed to encourage the development of skilled workers through apprentice training programs in order to counter the current and projected shortage of skilled craft workers in the manufacturing trades, which exists in Connecticut.
- **Urban and Industrial Site Tax Credit Program:** Dollar-for-dollar corporate tax credit of up to 100 percent of an investment, up to a maximum of $100,000,000 in Connecticut.
- **Insurance-related Facilities Tax Credit**: 100 percent credit against the premium, corporation or income tax for investment over 10 years in an investment fund, creating insurance-related facilities and jobs.
- **Electronic Data Processing Equipment Property Tax Credit:** Credit equal to 100 percent of property taxes owed and paid on electronic data processing hardware peripheral equipment and software; credit may be applied against certain other CT taxes.
- **Computer Donation Credit Program**: A credit may be applied against various Connecticut business taxes for the donation of new or used computers to a local or regional board of education or a public school.
- **Machinery and Equipment Expenditure Credit:** To assist corporations in Connecticut by providing a business tax credit on machinery and equipment. A credit may be applied against the Connecticut corporation business tax based upon a percentage of the incremental increase in expenditures for machinery and equipment acquired for and installed in a facility in Connecticut, which exceeds the amount spent for such expenditures in the prior income year.
- **Neighborhood Assistance Program Credit (REVISED):** Credit may be applied against various Connecticut business taxes by business firms that make individual cash investments of at least $250 to certain community programs that have received both municipal and state approval. However, the business firm's total charitable contributions during a taxable year must equal or exceed its total charitable contributions during the preceding taxable year. Programs must be proposed and conducted by tax exempt or municipal agencies and be approved, both by the municipality in which they are conducted and the DRS.
- **Research and Development Tax Credit -- Nonincremental Expenditures**: To assist Connecticut businesses by providing a tax credit for research and development expenses. A credit may be applied against the Connecticut corporation business tax for research and development expenses incurred in Connecticut.
- **Research and Development Tax Credit -- Incremental Expenditures**: To assist Connecticut businesses by providing a tax credit to those involved in research and development. A credit may be applied against the Connecticut corporation business tax for research and development expenses incurred in Connecticut.
- **Donation of Open Space Land Credit**: A credit against the Connecticut corporation business tax credit is available in an amount equal to 50 percent of any donation of open space land. In order to qualify for the credit, the donated land must be permanently preserved as protected open

space. For purposes of calculating the credit, the amount of the donation shall be based on the use value of the donated open space land.

- **Small Business Guaranty Fee Tax Credit**: A tax credit is allowed against the corporation business tax in an amount equal to the amount paid during the income year by a small business to the federal Small Business Administration as a guaranty fee to obtain guaranteed financing.
- **Hiring Incentive Credit (Formerly Opportunity Certificate Tax Credit Program):** To offer a tax credit to Connecticut businesses that hire recipients of the Temporary Family Assistance program. A credit may be applied against the Connecticut corporation business tax based on a portion of the wages paid by Connecticut businesses that hire recipients of the Temporary Family Assistance (TFA) program. A qualifying employee is any employee who: During and after income year 2000, is employed not less than 30 hours per week; and at the time of employment, has been receiving benefits from the TFA for more than nine months and meets other requirements that the Labor Commissioner may establish.
- **Human Capital Investment Tax Credit**: To help Connecticut corporations by offering a tax credit to those that have incurred costs for types of Human Capital investments.
- **Welfare-To-Work Tax Credit**: To assist Connecticut companies hire long-term family assistance recipients by offering a tax credit. The Federal Welfare-to-Work Tax Credit program provides a tax credit up to $8,500 over a two-year period to companies that hire long-term family assistance recipients.
- **Tangible Personal Property Tax Credit:** 5 percent credit for fixed capital investment in tangible personal property.
- **Research and Development Tax Credit -- Carry-Forward**: Unused R&D credits can be carried forward and, for companies with gross income of $70 million or less, can be sold to the state for 65 percent of their value

Tax Exemption

- **Corporate Sales Tax Exemptions**: Provides exemptions for purchases of raw materials and services for manufacturing, computer/data processing, ISO 9000 training, website development, aircraft repair and services, safety apparel, and for production of goods for export outside the state.
- **Real and Personal Property Tax Exemptions:** Exemption on property taxes associated with inventory, depreciable equipment, and real property improvements.

Tax Abatement

- **Targeted Investment Community (TIC) Benefits**: Provides special assistance to any place designated as a "Targeted Investment Community, Enterprise Zone or an Enterprise Corridor.
- **Urban Jobs Program**: The intent is to make it attractive for manufacturers already located in the targeted investment communities to reinvest in their communities and to attract new manufacturers and jobs to these municipalities. This program provides an 80 percent tax abatement on real property for five years, 80 percent tax abatement on personal property for five years, 25 percent corporate tax credit for 10 years.

Florida Business Incentives

Loan

- **Florida Recycling Development Fund**: The Florida Recycling Loan Program, administered by Florida First Capital Finance Corp. (FFCFC) for the Department of Environmental Protection, provides below market financing for companies that manufacture products from recycled materials or convert recyclable materials into raw materials for use in manufacturing. The program offers funding for the purchase of machinery and equipment at a fixed interest rate as low as 2 percent below the Prime Lending Rate for the life of the loan (up to 10 years). The potential borrower is required to have an equity injection of 10 percent of the total amount of the loan.
- **Florida Black Business Investment Board**: The Florida Black Business Investment Board, Inc. (FBBIB) is a not-for-profit corporation that supports the creation and expansion of Florida black enterprises in Florida.
- **Export Assistance and Financing:** The FEFC will assist exporters and lenders in arranging loans exceeding the FEFC limits in order to complete an export sale of any size, including Ex-Im Bank product and project loans and SBA loans. The FEFC, as a holder of an Ex-Im Bank Umbrella Insurance Policy, will assist exporters and lenders in obtaining credit insurance to mitigate foreign risk.

Grant

- **High Impact Performance Incentive Grant (HIPI):** The High Impact Performance Incentive is a negotiated grant used to attract and grow major high impact facilities in Florida.
- **Quick Response Training Grants**: Quick Response Training (QRT) grants, administered by Workforce Florida, provide funding for customized training to new or expanding businesses. The grants are structured to be flexible and "respond quickly" to meet the business's training objectives. As of June 2009, QRT grants have provided nearly $73 million in funds for customized training for almost 82,000 employees, for just under 320 businesses and industries throughout Florida.
- **Incumbent Worker Training Program:** The Incumbent Worker Training (IWT) grants provide funding for customized training to existing for-profit businesses.

Bond

- **Florida First Business Bond Pool:** Florida First Business Bond Pool reserves 20 percent of Florida's total annual private activity bond allocation for large industrial projects, making significant contributions to Florida's economy.

Tax Credit

- **Enterprise Zone Property Tax Credit:** New or expanded businesses located within an enterprise zone are allowed a credit against Florida corporate income tax equal to 96 percent of ad valorem taxes paid on the new or improved property.

- **Jobs Tax Credit (Sales Tax**): Rural Enterprise Zones: Provides a credit of 30 percent of wages paid to new eligible employees who are residents of the Florida Enterprise Zone. If more than 20 percent of the employees are residents of a Florida Enterprise Zone, the credit is 45 percent.
- **Jobs Tax Credit (Sales Tax):** Urban Enterprise Zones: Allows a business located within an Urban Enterprise Zone to take a sales and use tax credit for 20 or 30 percent of wages paid to new employees who reside within an enterprise zone. To be eligible, a business must create at least one new job. The Sales Tax Credit cannot be used in conjunction with the Corporate Tax Jobs Credit.
- **Jobs Tax Credit (Corporate Income Tax):** Rural Enterprise Zones: Allows a business located within a Rural Enterprise Zone to take a corporate income tax credit for 30 or 45 percent of wages paid to new employees who reside within a rural county. To be eligible, a business must create at least one new job. The Corporate Tax Credit cannot be used in conjunction with the Sales Tax Credit.
- **Jobs Tax Credit (Corporate Income Tax):** Urban Enterprise Zones: Allows a business located within an Urban Enterprise Zone to take a corporate income tax credit for 15 or 20 percent of wages paid to new employees who reside within an enterprise zone. The Corporate Tax Credit cannot be used in conjunction with the Sales Tax Credit.
- **Property Tax Credit (Corporate Income Tax):** Rural and Urban Enterprise Zones: New or expanded businesses located in an Enterprise zone are allowed a credit on Florida corporate income tax equal to 96 percent of ad valorem taxes paid on the new or improved property.
- **Community Contribution Tax Credit Program**: Rural and Urban Enterprise Zones: Allows businesses anywhere in Florida a 50 percent credit on Florida corporate income tax, insurance premium tax, or sales tax refund for donation to local community development projects.
- **Capital Investment Tax Credit (CITC):** The Capital Investment Tax Credit is used to attract and grow capital-intensive industries in Florida. It is an annual credit, provided for up to 20 years, against the corporate income tax.
- **Community Contribution Tax Credit:** A business that makes a donation of cash, property, or goods to an approved community-based organization or government agency may take a credit against Florida corporate income tax.

Tax Refund

- **Business Equipment Sales Tax Refund: Rural and Urban Enterprise Zones:** A refund is available for sales taxes paid on the purchase of certain business property, which is used exclusively in an Enterprise Zone, for at least three years.
- **Building Materials Sales Tax Refund: Rural and Urban Enterprise Zones**: A refund is available for sales taxes paid on the purchase of building materials used to rehabilitate real property located in an Enterprise Zone.
- **Qualified Defense and Space Contractor Tax Refund (QDSC):** Florida is committed to preserving and growing its high technology employment base by giving Florida defense, homeland security, and space business contractors a competitive edge in consolidating contracts or subcontracts, acquiring new contracts, or converting contracts to commercial production.

- **Qualified Target Industry Tax Refund Program (QTI):** The Qualified Target Industry Tax Refund incentive is available for companies that create high wage jobs in targeted high value-added industries.

Tax Exemption

- **Sales Tax Exemption for Electrical Energy: Rural and Urban Enterprise Zones:** A 50 percent sales tax exemption is available to qualified businesses, located in an Enterprise Zone, on the purchase of electrical energy.
- **Semiconductor, Defense, or Space Technology Sales and Use Tax Exemption (SDST):** Sales and use tax exemption on semiconductor, defense and space technology-based purchases of production and/or research and development equipment.

Georgia Business Incentives

Loan

- **Local Revolving Loan Funds (RLF's):** Local Revolving Loan Funds (RLF's) are potential sources of funding for new or expanding businesses in select areas throughout Georgia.

Tax Deduction

- **Foreign Trade Zones:** Foreign-Trade Zones (FTZ) enable individuals or companies to import merchandise to specified sites without going through formal customs entry procedures or paying import duties.

Tax Credit

- **Quality Jobs Tax Credit:** Companies that create at least 50 jobs in a 12-month period, where each job pays wages at least 110 percent of the county average, are eligible to receive a tax credit of $2,500-$5,000 per job, per year, for up to five years. New quality jobs created within seven years can qualify for the credit. Credits may be used to offset the company's payroll withholding once all other tax liability has been exhausted, and may be carried forward for 10 years. New jobs that do not meet the requirements for the Quality Jobs Tax credit may count toward the Jobs Tax Credit Program if they meet the eligibility requirements for that program separately.
- **Investment Tax Credit:** Investment tax credits generally range from 8 percent to 10 percent of qualified capital investment. The exact credit depends on the tier level of the county where the investment occurs.
- **Job Creation Tax Credit:** The Job Tax Credit (JTC), part of the Georgia Business Expansion Support Act, is a tax credit for the creation of new jobs in six qualifying industries: manufacturing, telecommunications, warehouse distribution, research and development, processing, or tourism.
- **Optional Investment Tax Credit:** The optional investment tax credit can be taken in lieu of the investment tax credit. The credits range from 10 percent to 6 percent of qualified capital investment.

- **Research and Development Tax Credit:** To provide a tax credit to qualified businesses engaged in one of the categories to which the jobs tax credit is available. The R&D tax credit is a flat 10 percent of the additional R&D expense over a base amount.
- **Retraining Tax Credit:** The purpose of the Retraining Tax Credit is to 1) foster the profitability and competitiveness of Georgia's existing businesses by encouraging workforce development through retraining tax incentives; 2) help companies offset the costs of retraining employees that are affected by the implementation of new equipment or new technology; 3) enhance the skills of Georgia employees to enable them to successfully use new equipment, technology, or operating systems. The Georgia Department of Technical and Adult Education, as authorized and directed by law, sets standards to approve retraining programs. The retraining tax credit is one-half the employer's approved direct retraining cost, up to $500 per employee.
- **Small Business Growth Companies Tax Credit**: Georgia income tax credits are available to a small business having Georgia net taxable income growth of 20 percent or more each year for three consecutive years.
- **Tax Credit for Adult Basic Skills Education:** The Georgia Tax Credit for Adult Basic Skills Education is designed to encourage businesses to provide or sponsor basic skills education programs for their employees. Business enterprises may benefit by providing or sponsoring, for their employees, basic educational skills that enhance reading, writing, or mathematical skills up to and including the 12th grade level.
- **Ports Activity Job Tax and Investment Tax Credits**: Businesses, or the headquarters of any such businesses engaged in manufacturing, warehousing and distribution, processing, telecommunications, tourism, or research and development, that have increased their port traffic tonnage through Georgia ports during the previous 12-month period by more than 10 percent over their 1997 base year port traffic, or by more than 10 percent over 75 net tons, five containers or 10 20-foot equivalent units (TEU's) during the previous 12-month period, are qualified for increased job tax credits or investment tax credits.

Tax Exemption

- **Sales Tax Exemption:** To ensure a stable employment base and support the productivity of the state of Georgia. Manufacturing production machinery is exempt from state and local sales tax, as well as machinery or components bought to upgrade or replace existing machinery; additionally, the exemption covers re-manufacturing of aircraft engines and components.

Kansas Business Incentives

Grant

- **The IMPACT program**: The program is designed to respond to the training and capital requirements of major business expansions and locations in the state. Under certain circumstances, IMPACT may also be used for job retention projects. IMPACT has two major components: SKILL (State of Kansas Investments in Lifelong Learning) and MPI (Major Project Investment). SKILL funds may be used to pay for expenses related to training a new, and under certain instances, an existing workforce. MPI funds may be used for other expenses related to the project, such as the purchase or relocation of equipment, labor recruitment, or building

costs. IMPACT costs are financed through tax exempt, public purpose bonds issued by the Kansas Development Finance Authority. These bonds are retired through the revenue received from statewide employer withholding taxes.

- **Kansas Industrial Retraining Program**: The Kansas Industrial Retraining program is a job retention tool that assists employees in restructuring industries, who are likely to be displaced because of obsolete or inadequate job skills and knowledge.
- **Kansas Industrial Training Program**: The Kansas Industrial Training program is a flexible workforce-training program designed to respond to the specific needs of new and expanding companies. The KIT program may be used to assist firms involved in both pre-employment and on-the-job training. Pre-employment training may be used to allow the company and prospective employees an opportunity to evaluate one another before making any employment commitments. Prospective employees are given the knowledge and specific skills necessary for job entry. On-the-job training is conducted after hiring. Trainees may receive instruction on the company's own production equipment on the plant floor or on similar machinery in a classroom setting.
- **Veterans Program:** The Kansas Department of Commerce, with grants funding from the U.S. Department of Labor, Veterans Employment and Training Service, offers employment and training services to eligible veterans.
- **Enterprise Zone**: The Kansas Enterprise Zone Program is designed to encourage businesses to create new jobs. Enterprise Zone incentives are available to qualified businesses throughout Kansas, based on the location of the facility, the type of facility (manufacturing, non-manufacturing, or retail), the capital investment made, and the number of jobs created. **Note: The 2011 Kansas Legislature repealed the Enterprise Zone Program statewide for tax years commencing after 12/31/11. Existing carry-forward credits to offset State income tax liability may still be used until exhausted. Businesses wishing to request a sales tax project exemption certificate can do so until 12/31/11. If granted, the exemption certificate can extend beyond 12/31/11 for up to two years.
- **Promoting Employment Across Kansas (PEAK):** In 2009, the Kansas Legislature created a new incentive that authorizes the retention of employee payroll withholding taxes for qualified companies or third parties performing services on behalf of such companies.
- **Business Recruitment**: The Business Recruitment Section provides assistance to out-of-state companies or their consultants who are considering Kansas for new manufacturing, distribution or office facilities. These companies range from Fortune 500 firms to smaller companies. Assistance includes recommending the best Kansas communities based on the company's criteria for available buildings and sites, labor, utilities, and other factors; developing incentive proposals including tax exemptions and workforce training grants; coordinating in-state site visits; serving as a liaison with other state agencies, including the Departments of Revenue, Human Resources, and Health and Environment; and serving as the single Kansas contact point to ensure project confidentiality.

Loan

- **Kansas Economic Opportunity Initiatives Fund**: These funds are provided by the State Legislature to address opportunities or emergencies that may have substantial impact on the Kansas economy.

Tax Credit

- **High Performance Incentive Program**: The HPIP provides tax incentives to eligible employers that pay above-average wages and have a strong commitment to skills development for their

workers. This program recognizes the need for Kansas companies to remain competitive and encourages capital investment in facilities, technology, and continued employee training and education. A substantial investment tax credit for new capital investment in Kansas and a related sales tax exemption are the primary benefits of this program. HPIP offers employers four potential benefits:
    - a 10 percent income tax credit for eligible capital investment that exceeds $50,000 at a company's qualified business facility.
    - a carry-forward that can be used in any of the next 10 years in which the qualified business facility re-qualifies for HPIP (The capital investment must be pre-identified on a CIPD form, which is available below.)
    - a sales tax exemption to use in conjunction with the company's eligible capital investment at its qualified business facility.
    - a training tax credit of up to $50,000 priority consideration for access to other business assistance programs offered through the State.
- **Research and Development Credit:** The Kansas research and development credit allows a taxpayer who makes expenditures in research and development activities in Kansas to claim an income tax credit.
- **Telecommunications Credit:** Income tax credit, for an amount equal to the difference between the property tax levied at 33 percent assessment rate and an assessment rate of 25 percent on all taxes actually and timely paid during the appropriate income tax year.
- **Employer Health Insurance Contribution Credit:** An income tax credit is allowed to an employer for amounts paid during the taxable year on behalf of an eligible employee to provide health insurance or care.
- **Child Day Care Assistance Credits:** Child Day Care Assistance Credits.
- **Business and Job Development Credit:** The business and job development credit is allowed as a direct tax credit against the income tax of any Kansas taxpayer if: an investment in a qualified business facility is made; and, at least two qualified business facility employees are hired as a direct result of that investment.
- **Business Machinery and Equipment Credit**: Any taxpayer may claim an income or privilege tax credit for personal property tax paid on commercial and industrial machinery and equipment.
- **Disabled Access Credit:** The disabled access credit is available to individual and business taxpayers who make their property accessible to the disabled.
- **Environmental Compliance Report**: An income taxpayer that makes qualified expenditures for an existing refinery, to comply with environmental standards, shall be allowed a tax credit.
- **Renewable Electric Cogeneration Facility Tax Credit**: A renewable electric cogeneration facility is a facility owned and operated by the owner of an industrial, commercial or agricultural process to generate electricity for use in such process in order to displace current or provide for future electricity use.

Tax Deduction

- **Machinery and Equipment Expensing Deduction:** Effective January 1, 2012, Kansas taxpayers will be allowed to claim an expense deduction for business machinery and equipment placed in service in Kansas during the tax year.

Tax exemption

- **Tax-Exempt Industrial Revenue Bonds:** The board of county commissioners of any county, or the governing body of any city, may approve an exemption of property funded by industrial revenue bonds (IRB's).

- **Property Tax Exemption - Business Aircraft:** A property tax exemption exists for aircraft used in business and industry.
- **Property Tax Exemption - Machinery, Equipment, Materials, and Supplies:** A property tax exemption exists for low-dollar items of machinery, equipment, materials and supplies used for business purposes or activities by an entity not subject to Kansas income tax.
- **Property Tax Exemption - Merchants' and Manufacturers' Inventory:** A property tax exemption exists for merchants' and manufacturers' inventories.
- **Exemption of Property for Economic Development Purposes:** The board of county commissioners of any county, or the governing body of any city, may approve for economic development purposes, a property tax exemption for up to 10 years per Article 11, Section 13 of the Kansas Constitution.
- **Commercial and Industrial Machinery Tax Exemption:** All commercial and industrial machinery and equipment acquired by qualified purchase or lease, made or entered into after June 30, 2006, shall be exempt from property tax. All commercial and industrial machinery and equipment transported into this state after June 30, 2006, for the purpose of expanding an existing business or the creation of a new business, shall be exempt from property tax.
- **Telecommunications Machinery and Equipment Tax Exemption:** All telecommunications machinery and equipment acquired by qualified purchase or lease, made or entered into after June 30, 2006, shall be exempt from property tax. All telecommunications machinery and equipment transported into this state after June 30, 2006, for the purpose of expanding an existing business or the creation of a new business, shall be exempt from property tax.
- **Sales Tax Exemptions - Enterprise Zone:** For qualifying companies, both the Enterprise Zone Program and High Performance Incentive Program offer a 100 percent sales tax exemption on the purchase of labor and materials to construct or remodel a facility, as well as on the machinery, equipment, furniture and fixtures used in the facility.
- **Other Sales Tax Exemptions:**
    - New machinery and equipment for manufacturing and distribution.
        - This also includes pre- and post-production machinery and equipment, including raw material handling, waste storage, water purification and oil cleaning, as well as ancillary property such as gas pipes, electrical wiring and pollution control equipment.
    - Tangible personal property that becomes an ingredient or component part of a finished product.
    - Tangible personal property that is immediately consumed in the production process, including electric power, natural gas and water.
    - Incoming and outgoing interstate telephone or transmission services.
    - Real and personal property financed with an Industrial Revenue Bond.
- **Inventory Tax Exemption:** All merchant and manufacturers’ inventories are exempt from property taxes.
- **Machinery and Equipment Personal Property Tax Exemption:** Commercial and industrial machinery and equipment, acquired by qualified purchase or lease or transferred into the state, is exempt from state and local property tax.

Mississippi Business Incentives

Loan

- **Mississippi Airport Revitalization Revolving Loan Program:** The Mississippi Airport Revitalization Revolving Loan Program is available to provide loans to airport authorities to assist with the location and expansion of businesses and for the improvement of airport facilities.
- **Agribusiness Enterprise Loan Program:** The Agribusiness Enterprise Loan Program is available to provide loans through financial institutions to businesses that are related to the agricultural economy of the state.
- **Energy Investment Program:** The Energy Investment Loan Program provides loans to businesses that are increasing the energy efficiency of their buildings, equipment and processes.

Bond

- **Industrial Development Revenue Bond Program:** The Industrial Development Revenue Bond Program reduces the interest costs of financing projects for companies through the issuance of both taxable and tax-exempt bonds.
- **Small Enterprise Development Program:** This program provides tax-exempt financing for small projects and gives banks in the State, which meet MBFC criteria, an opportunity to issue letters of credit to support these efforts.

Grant

- **Advantage Jobs Incentive Program:** The Advantage Jobs Incentive Program is a rebate program designed to encourage businesses that create new quality jobs to locate in the state. Jobs must meet or exceed the average annual wage of the state or the county in which the company locates, whichever is lower.
- **Mississippi Ace Fund:** Program available by invitation only. The Mississippi Ace Fund ("Ace Fund"), administered by the Mississippi Development Authority (“MDA”) is a program designed for making grants to local economic development entities to assist in funding extraordinary economic development opportunities to promote economic growth in the State of Mississippi (“State”). Local economic development entities are encouraged to use these grants in connection with other state and federal programs. Funding for grants is derived from monies contributed to the Ace Fund by private and public sources.

Tax Credit

- **Rural Economic Development Assistance Program:** Companies financing projects through the Small Enterprise Development or Industrial Revenue Bond Programs may be eligible to participate in the Rural Economic Development Assistance Program. The program allows eligible companies to receive credits on Mississippi corporate income taxes and ad valorem exemptions.
- **Basic Skills Training or Retraining Tax Credit**: The credit allowed is 50 percent of qualified expenses, not to exceed 50 percent of the income tax liability. Any excess credit will not be refunded, but may be carried forward for up to five years. The program must be certified for a specific number of years, not to exceed five years.

- **Child/Dependent Care Credit:** Available to employees during the employee's working hours. The credit allowed is 25 percent of qualified expenses. Starting January 1, 1998, the credit allowed is 50 percent of qualified expenses. This credit can offset up to 100 percent of the income tax due from the entity. Any excess credit will not be refunded, but can be carried forward for up to five years.
- **Jobs Tax Credit:** Income tax credits are available for: Permanent business enterprises that are primarily engaged in manufacturing, processing, distribution, wholesaling, research and development and warehousing. Permanent business enterprises designated by rule or regulation of the Department of Economic and Community Development as air transportation and maintenance facilities, final destination or resort hotels having a minimum of 150 guest rooms, recreational facilities that impact tourism, movie industry studios or telecommunication enterprises.
- **National or Regional Headquarters Credit**: A credit is available to any company transferring or establishing a national or regional headquarters from within or outside the State of Mississippi and creating a minimum of 35 jobs at the headquarters. The amount of the credit is $500 for each net new full- time employee for the first five years. The minimum increase of 35 jobs must occur within one year.
- **Research and Development Skills Credit**: Under Miss. Code Ann. Section 57-73-21(6), a credit of $1,000.00 is available for the first five years for each net new full- time employee in any job requiring research and development skills. The employee has to be engaged in research and development activity. Qualification of jobs for this credit would require at a minimum, a bachelors degree in a scientific field of study from an accredited four- year college or university, employment in the employees area of expertise, compensation at a professional level and two years of related job experience. Examples are chemists and engineers. This credit is available to most companies regardless of the business in which it engages. However, no business enterprise for the transportation, handling, storage, processing or disposal of hazardous waste is eligible to receive this credit.

Tax Exemption

- **Growth and Prosperity Program:** The Growth and Prosperity Program (GAP) is an incentive program designed to encourage development in economically challenged areas of the state. This program designates specific counties as GAP counties and provides income, franchise, sales, and property tax incentives to companies that locate or expand in these areas of the state.
- **Exemption Related to the Transfer of National/Regional Headquarters:** A sales and use tax exemption is available for eligible businesses that create or transfer their national or regional headquarters to the state. This exemption applies to component building materials used in the construction or improvement of a facility, as well as the machinery and equipment used in the facility. A minimum of 35 new headquarters jobs must be created at the location to qualify for this exemption, as determined by the Mississippi State Tax Commission.
- **Sales and Use Tax Exemptions Related to the Jobs Tax Credit:** Jobs tax credits are credits that can be applied to state income tax to reduce an employer's income tax liability. These credits are earned by certain types of businesses that create and sustain new jobs in Mississippi. The

following businesses qualify for these credits: manufacturers, wholesalers, processors, research and development facilities, distributors, and warehouses.

New Mexico Business Incentives

Loan

- **The Loan Fund:** The loan fund makes loans to new and existing small businesses for such needs as equipment, inventory, building renovations and operating capital. It also makes loans to non-profits for such needs as bridge financing against awarded private and public contracts, capital improvements and equipment. In addition, the fund makes loans to non-profits that develop affordable housing.
- **Job Training Incentive Program:** Under the program, financial assistance is available to help new or expanding businesses with the expense of training employees. The amount of funding allocated to a company is determined by the number of trainees, the wage and the hours of training.

Bonds

- **Industrial Revenue Bonds:** IRBs may be issued in one of two ways:
  1) A municipality or county may issue an IRB to finance privately operated development projects. The private party initiates the process by requesting that the government unit issue the bonds (a political process done in accordance with local and state laws).
  2) Through the Statewide Economic Development Finance Act the Economic Development Department can recommend projects to the New Mexico Finance Authority for issuance of taxable and tax-exempt IRB's.

Tax Deduction

- **Aerospace Research and Development Deduction:** Aerospace services are the research and development services sold to the U.S. Air Force. When R&D services are sold to Phillips Laboratory for resale to the Air Force, the seller's receipts are deductible. If the R&D services are sold to an intermediary for resale to Phillips Laboratory, followed by resale to the Air Force, those receipts are also deductible.
- **Aircraft Manufacturing Tax Deduction:** Receipts of an aircraft manufacturer or affiliate from selling aircraft or aircraft parts, or from selling services performed on aircraft or aircraft components, or from selling aircraft flight support, pilot training, or maintenance training services, may be deducted from gross receipts.
- **Aircraft Maintenance or Remodeling Tax Deduction**: Receipts from refurbishing, remodeling or otherwise modifying transport category aircraft over 10,000 pounds gross landing weight may be deducted from gross receipts.
- **Aerospace: Space Gross Receipts Tax Deductions:** There are four separate deductions connected with the operation of a spaceport in New Mexico. Businesses may deduct the receipts from launching, operating or recovering space vehicles or payloads; from preparing a payload in New Mexico; from operating a spaceport in New Mexico; and from the provision of

research, development, testing and evaluation services for the United States Air Force operationally responsive space program.

- **Research and Development Gross Receipts Tax Deduction:** Any research and development service that are exported from the state are not subject to New Mexico gross receipts tax.

Tax Credit

- **Welfare-to-Work Tax Credit:** The credit equals 50 percent of the federal welfare-to-work credit for which the employer is eligible, up to $1,750 for the first year of employment and rising to $2,500 for the second year. The state credit piggybacks on the federal credit of the same name and can be applied to New Mexico personal or corporate income tax.
- **Child Care Corporate Income Tax Credit:** A taxpayer that pays for child care services in New Mexico for dependent children of an employee of the taxpayer, during the employee's hours of employment, may claim a credit against the corporate income tax in an amount equal to 30 percent of the total expenses, net of any reimbursements, for child care services incurred and paid by the taxpayer in the taxable year.
- **Renewable Energy Production Tax Credit:** Each qualified energy generator may earn 2.7 cents (on average) per kilowatt-hour for the first 400,000,000 kilowatts of electricity, using a qualified energy source for 10 consecutive years, beginning with the first year of production.
- **Technology Jobs Tax Credit:** A taxpayer conducting qualified research at a qualified facility and making qualified expenditures is eligible to claim the basic technology jobs tax credit. Additional credit is available for a taxpayer who increases annual payroll expense by $75,000 over base payroll for every $1,000,000 in qualified expenditures claimed by the taxpayer in a taxable year in the same claim.
- **High Wage Jobs Tax Credit:** A credit is available that is equal to 10 percent of the wages and benefits paid for each new economic-base job created that: a. Pays at least $28,000/year in a community with a population of less than 40,000 or in the unincorporated area of a county b. Pays at least $40,000/year in a community with a population of at least $40,000.

North Carolina Business Incentives

Grant

- **First Flight Venture Center**: Provides assistance to businesses via business incubation. The First Flight Venture Center (FFVC) is a technology incubator located in the heart of Research Triangle Park. The incubator was established in 1991 specifically to serve the initial needs of entrepreneurs and early stage companies in the Research Triangle area. The First Flight Venture Center has more than 14 years experience in successfully launching new businesses in North Carolina. This success lies in FFVC's turnkey approach — the ability to enable tenant businesses to reduce both their initial capitalization requirements and their annual operation costs by providing affordable space with flexible leases, shared business services, technology support services, and management guidance and counseling. FFVC strives to produce companies that graduate from the facility as financially viable and freestanding businesses. These incubator graduates migrate into the mainstream of the business community, creating jobs and

commercializing important new technologies that contribute to a stronger North Carolina economy.

- **North Carolina Fund**: The fund consists of nonrecurring appropriations made by the General Assembly which are intended to be immediately available for companies seeking to undertake new expansion or locate new operations in the state. The immediacy of the fund allows the Governor to distribute grants on an "as-needed" basis, which ensures the Fund's flexible application and speedy distribution.
- **Job Development Investment Grant:** The Job Development Investment Grant (JDIG) is a discretionary incentive capable of providing sustained annual grants to new and expanding businesses, measured against a percentage of withholding taxes paid by new employees.

Bonds

- **Industrial Revenue Bonds:** The State's principal interest in these bonds is assisting new and expanding industry while seeing that North Carolinians get good jobs at good wages. Industrial Revenue Bonds (also called Industrial Development Bonds, IDBs, IRBs and qualified small issue bonds) offer qualified manufacturing facilities and certain solid waste disposal facilities convenient, long-term, flexible financing. They assist new and expanding industry in all 100 counties, while also providing workers with high-quality jobs.

Direct Business Financing

- **The Energy Improvement Loan Program (EILP):** The Energy Improvement Loan Program (EILP) is available to North Carolina businesses, local governments, public schools and nonprofit organizations for projects that include energy-efficiency improvements and renewable-energy systems. Loans with an interest rate of 1 percent are available for certain renewable-energy projects and energy-recycling projects.

Tax Credit

- **Jobs Creation Tax Credit**: This tax credit is for the creation of new, full-time jobs, in order to encourage business location and expansion in North Carolina.
- **Business Property Tax Credit**: Eligible taxpayers may claim a credit based on a percentage of the cost of capitalized tangible personal property that is placed in service during the taxable year, in excess of an applicable threshold.
- **Research and Development Tax Credits:** This tax credit program is for taxpayers that have qualified North Carolina research expenses, and is used to encourage investment in research and development.
- **Renewable Energy Property Investment Tax Credit:** A tax credit is allowed equal to 35 percent of the cost of renewable energy property. If a taxpayer has constructed, purchased, or leased the property and placed it into service in this State during the taxable year, then the taxpayer is eligible for the credit.

Ohio Business Incentives

Loan

- **166 Direct Loan**: Provides low-interest loans to businesses committed to creating new jobs or preserving existing employment opportunities in the State of Ohio.
- **Regional 166 Loan Program:** Provides loans for land and building acquisition, expansion or renovation, and equipment purchase. Twelve local economic development agencies administer the program.
- **Pioneer Rural Loan Program:** Provides direct loans for businesses locating or expanding in Ohio's rural areas.
- **Capital Access Program:** The Ohio Capital Access Program encourages state chartered financial institutions to make loans to for-profit or non-profit small businesses that are having difficulty obtaining business loans through conventional underwriting standards.
- **Minority Direct Loan:** The Ohio Minority Direct Loan Program provides direct loans for businesses, locating or expanding in Ohio, that demonstrate they will create new jobs for Ohio citizens. The program is administered by the Ohio Department of Development's (ODOD) Office of Minority Financial Incentives.
- **Research and Development Investment Tax Credit:** The Ohio Research and Development Investment Tax Credit is a nonrefundable credit against an Ohio C-Corporation's Corporate Franchise Tax. Currently the tax credit is applied against a company's Corporate Franchise Tax but will be taken against the Commercial Activity Tax (CAT) for corporations subject to ORC Section 5733.01(G)(2) after tax year 2008.
- **Innovation Ohio Loan Fund:** The State of Ohio created the Innovation Ohio Loan Fund (IOF), as part of the Third Frontier Project, to help existing Ohio companies develop new products and services based on new technology or the creative application of existing technology, within Targeted Industry Sectors. The IOF is administered by the Ohio Department of Development (ODOD).

Bonds

- **Ohio Enterprise Bond Fund (OEBF):** Provides funding for land and building acquisition, construction, expansion or renovation, and equipment purchases for commercial or industrial projects between $1.5 million and $10 million in size.
- **Volume Cap Program:** The Volume Cap Program is a federally authorized program which allows the state to allocate tax-exempt bond authority to various projects throughout the state. With this authority, bond issuers are able to finance projects at interest rates below that of the conventional market. It provides authority to issue tax-exempt bonds for select private activities. The term "volume cap" refers to the restrictions placed on the amount of tax-free bonds that may be issued by state and local governments for such assets.

Direct Business Financing

- **Advanced Energy Grant Program:** The Ohio Department of Development's (ODOD) Office of Energy Efficiency (OEE) is offering grants on a first-come, first-serve basis for the installation of

new distributed energy resources (DER) projects, non-residential renewable-energy projects, residential renewable-energy projects, and homebuilders who construct houses with photovoltaic (PV) systems to support the implementation of certain energy-efficiency projects. It has provided nearly $7 million in incentives to deploy utility-scale and consumer-scale projects as well as support for wind and solar manufacturing operations, leveraging a total investment of $307 million.

Direct Community Financing

- **Rural Industrial Park Loan Program:** The Rural Industrial Park Loan Program was created to provide direct loans to local communities and other eligible applicants committed to creating well-planned industrial parks.

Grant

- **Clean Ohio Revitalization and Assistance Fund**: To encourage brownfield redevelopment. The Clean Ohio Revitalization Fund and the Clean Ohio Assistance Fund are financial tools, which were developed to provide funding for brownfield clean up activities that are key components in brownfield redevelopment.
- **Ohio Workforce Guarantee Program:** The Ohio Workforce Guarantee(OWG), formerly known as Ohio Investment Training Program (OITP), provides financial assistance and technical resources for customized training involving employees of new and expanding Ohio businesses.

Tax Credit

- **Enterprise Zone Program:** Enterprise Zones are designated areas of land in which businesses can receive tax incentives in the form of tax exemptions on eligible new investments.
- **Job Creation Tax Credit:** The program provides a refundable tax credit against a company's corporate franchise or income tax, based on the state income tax withheld from new, full-time employees.
- **Job Retention Tax Credit (JRTC):** To foster the retention of full-time jobs in Ohio. The program makes nonrefundable tax credits available to reduce the corporate franchise or income tax liabilities of companies operating in Ohio.
- **Technology Investment Tax Credit (TITC) Program:** Ohio's Technology Investment Tax Credit program offers a variety of benefits to Ohio taxpayers who invest in small, research and development and technology-oriented firms. Through this innovative program, Ohio investors may reduce their state taxes by up to 25 percent of the amount they invest in qualified, technology-based Ohio companies.

Tax Exemption

- **Research and Development Sales Tax Exemption:** Provides an exemption from the usual state and county sales tax for companies that purchase equipment for research and development activities.

Oklahoma Business Incentives

Grant

- **Quality Jobs Program:** This innovative program gives qualifying enrolled companies quarterly cash rebates of up to five percent of taxable wages for up to 10 years. New legislation in 2005 allows companies in the program, who expand again, to receive up to 6 percent wage rebates based on meeting certain criteria.
- **Investment/New Jobs Tax Credits:** Investment/New Jobs Tax Credits provide growing manufacturers a significant tax credit based on either an investment in depreciable property or on the addition of full-time-equivalent employees engaged in manufacturing, processing, or aircraft maintenance.
- **Training For Industry Program (TIP):** Consistently ranked as one of the nation's leading workforce training efforts, Oklahoma's Training for Industry Program (TIP) is a no-cost/low-cost way for new or growing companies that create jobs to get a skilled, focused, and motivated workforce.
- **Industrial Access Road Program:** The Industrial Access Road Program is designed to provide assistance to local industrial development efforts by funding, within practical limitations, access facilities connecting a specific industry or industrial area directly to the state or local road system.
- **Venture Investment Program:** Through its venture capital program, the Oklahoma Capital Investment Board (OCIB) facilitates investment in venture capital companies that focus on investing in quality Oklahoma companies.
- **Workforce Investment Act:** The passage of the Workforce Investment Act (WIA) of 1998 represents the nation’s attempt to align the delivery of employment and training programs in a one-stop environment with services for employers and job seekers. The Oklahoma Employment Security Commission (OESC) and Local Workforce Investment Boards (LWIB) are working together to stay responsive to changing needs in local economies.

Tax Credit

- **Foreign Trade Zones:** A foreign-trade zone is a designated site, licensed by the Foreign-Trade Zones (FTZ) Board, in which special customs procedures may be used. These procedures allow domestic activity involving foreign items to take place prior to formal customs entry.
- **Former Indian Lands Tax Credit:** Federal legislation clarifies the location of special American Indian lands in Oklahoma that qualify for related tax credits that benefit new and established businesses in Oklahoma. Businesses locating or expanding in these areas benefit by accelerated depreciation of investment and by employment tax credits, when employing tribal members or their spouses.
- **Research and Development New Jobs Credit:** A State income tax credit is available for up to eight years for a net increase in the number of full-time equivalent employees engaged in computer services, data processing or research and development. No credit may be claimed for jobs created during the period of July 1, 2010, through June 30, 2012, for which the credit would

otherwise be allowable. This credit may be claimed for tax year 2012 and subsequent tax years, for new jobs created on or after July 1, 2012.

- **Recycling, Reuse And Source Reduction Incentive Act:** This program is available to Oklahoma manufacturing and service industries that install equipment for the reduction of hazardous waste.
- **Gas Usage Tax Credit for Manufacturing:** This incentive is available to Oklahoma manufacturers that use gas for their production.
- **Small Business Administration (SBA) Guarantee Fee Tax Credit:** Every small business operating in Oklahoma may claim a credit against income tax liability resulting from the conduct of the small business. No credit may be claimed for guaranty fees paid during the period of July 1, 2010, through June 30, 2012, for which the credit would otherwise be allowable under 68 O.S. Section 2357.30. This credit may be claimed for tax year 2012 and subsequent tax years, for guaranty fees paid on or after July 1, 2012.
- **Commercial Space Industry Credit**: Investors may take a credit of 5 percent of investment in qualifying projects that encourage the development of commercial space industries, as certified by the Oklahoma Tax Commission.
- **Work Opportunity Tax Credit Program (WOTC**): The Work Opportunity Tax Credit Program (WOTC) was designed to promote the hiring of target group individuals through December 2011.
- **Excise Tax On Aircraft Sales:** Generally, excise tax in lieu of sales tax is imposed on the sale, transfer, or lease of aircraft that will be based in Oklahoma. However, resident taxpayers purchasing an aircraft may request that the excise tax paid be designated to another entity.
- **Opportunity and Enterprise Zones:** Businesses located in one of Oklahoma's Opportunity or Enterprise Zones may receive enhanced financial incentives for stimulating economic expansion in rural and disadvantaged communities.

Bonds

- **Public Trust Financing:** Industrial Revenue Bonds (IRBs): Oklahoma authorizes public trust financing for economic development purposes at the state, county and city level. Trusts may enter into lease-leaseback, sale-leaseback, interest rate swaps and similar transactions, as well as issue bonds.
- **General Obligation Limited Tax Bonds (GOLTBs):** Many Oklahoma counties and cities have approved the issuance of General Obligation Limited Tax Bonds for industrial development projects. Generally, these “revenue bonds” are issued in association with a particular private activity project.
- **Private Activity Bond Allocation:** Private Activity Bonds that render interest payments that are federally tax-exempt, in accordance with the Internal Revenue Code, must receive an allocation from the State Bond Advisor’s Office.

Preferential rate

- **Small Business Linked Deposit Program:** The Small Business Linked Deposit Program provides below-market interest rates for qualified small businesses and certified industrial parks through local financing sources.

Insurance

- **Oklahoma Export Finance Program**: The Oklahoma Department of Commerce works with Oklahoma firms to identify financing options for exports. Assistance is available through a relationship with the Export-Import Bank of the United States (Ex-Im Bank) to facilitate export financing with working capital guarantees, credit insurance and foreign buyer financing.

Tax Exemption

- **Technology Transfer Income Tax Exemption:** This incentive is available to Oklahoma corporations that transfer technology to qualified Oklahoma small businesses.
- **New Products Development Income Tax Exemption:** Royalties earned by an inventor on products developed and manufactured in Oklahoma are exempt from State income tax for seven years, when registered with the Oklahoma Center for the Advancement of Science and Technology (OCAST). OCAST, through the Oklahoma Inventors Assistance Service, provides seminars regarding patent searches, market analysis, and product research and development.
- **Manufacturers Tax Exemption:** Oklahoma has a comprehensive sales tax exemption for manufacturers who obtain a Manufacturer's Sales Tax Exemption Permit from the Oklahoma Tax Commission. The permit must be renewed every three years.
- **Aircraft Maintenance Facilities Tax Exemption:** Sales of aircraft and aircraft parts, provided the sales occur at an aircraft maintenance facility operated by common air carrier that employs at least 2,000 full-time employees, are exempt from sales tax.
- **Aircraft Maintenance or Manufacturing Facility Tax Refund:** In addition, Oklahoma also offers a sales tax refund for sales of computers, data processing equipment and related telecommunications equipment for use in an aircraft maintenance or manufacturing facility.
- **Spaceport Exemption:** Sales of any tangible property to a spaceport user, as determined by the Oklahoma Space Industry Development Authority, are exempt from sales tax.
- **Five Year Ad Valorem Tax Exemption:** Oklahoma offers a five-year ad valorem (property) tax exemption for manufacturing, research and development, certain computer/data services, and certain distribution services.
- **Freeport Exemption:** Oklahoma's Freeport Law exempts from taxation goods, wares and merchandise that come from outside the State and leave the State within nine months.

Tax Refund

- **Computer Services / Data Processing / Telecommunications Equipment Tax Refund:** This incentive is available for the purchase of computer services, data processing, and telecommunications equipment.
- **Construction Materials Tax Refund:** Oklahoma refunds sales taxes paid on construction materials for certain new or expanding manufacturing facilities.

South Carolina Business Incentives

Bond

- **JEDA Bond Program**: The JEDA bond program is designed to provide opportunities for businesses to create new and better jobs. JEDA is designed to provide an alternate funding source to facilitate economic development in South Carolina.

Grant

- **South Carolina Accelerated Technology Training Program**: The Center for Accelerated Technology Training focuses on the training needs of new and existing business and industry in South Carolina. It provides recruiting, assessment, training development, management and implementation services to customers who are creating new jobs competitive wages and benefits. These services are provided through state funds at minimal or no cost, and training is developed to meet the specific requirements of each customer. Training may be delivered in pre- or post-employment settings, depending on the time frames and individual needs of the company.

Tax Credit

- **Job Tax Credit**: South Carolina Code §12-6-3360 provides a tax credit against South Carolina income tax, bank tax or insurance premium tax for a business creating new jobs in the State.
- **The Job Development Credit**: The job development credit, contained in South Carolina Code §§12-10-80 (general provision) and 12-10-81 (provision for tire manufacturers), is available to approved new or expanding businesses making a qualifying investment and creating a minimum number of new jobs in South Carolina.
- **Job Development Credit for Retraining:** The job retraining credit, contained in South Carolina Code §12-10-95, is available to approved existing businesses retraining qualifying employees in order for the business to remain competitive, introduce new technologies, export products, or provide apprenticeship programs.
- **Credit for Investing in an Economic Impact Zone**: South Carolina Code §12-14-60 allows a taxpayer an "economic impact zone investment tax credit" for qualified manufacturing and productive equipment properties placed in service during the taxable year in the economic impact zone.
- **Corporate Headquarters Credit**: South Carolina Code §12-6-3410 allows a corporation a credit against corporate income tax imposed under South Carolina Code §12-6-530, corporate license fees imposed under South Carolina Code §§12-10-50 or 12-20-100, or bank taxes imposed under South Carolina Code §12-11-20, equal to 20 percent of the qualifying costs of establishing a corporate headquarters in South Carolina, or expanding or adding to an existing corporate headquarters. The credit is made up of two parts: Part I – the real property costs and Part II – the personal property costs. A taxpayer may qualify for only Part I of the credit or may qualify for both Parts I and II of the credit.
- **Credit for Hiring Family Independence Recipient:** South Carolina Code §12-6-3470 allows a tax credit to employers who employ persons who received family independence payments within the State for three months immediately before becoming employed.

- **Credit for Child Care Programs:** South Carolina Code §12-6-3440 provides that an employer may claim as a credit against its income tax, bank tax, or premium tax liability an amount equal to (a) 50 percent of its capital expenditures in South Carolina, but no more than $100,000, for costs incurred in establishing a child care program for its employees' children and (b) 50 percent of the child care payments made, not to exceed $3,000, for each participating employee per year.

Tax Exemption

- **Manufacturing Tax Exemption:** Article X, §3 of the South Carolina Constitution and South Carolina Code §12-37-220(A)(7) provide for a five year exemption from county property taxes (the exemption does not apply to school or municipal taxes) for all new manufacturing establishments and all additions costing $50,000 or more to existing manufacturing facilities located in South Carolina.
- **Research and Development Property Tax Exemption**: South Carolina Code §12-37-220(B)(34) provides a five year exemption from county property taxes (the exemption does not apply to school or municipal taxes) for the facilities of all new enterprises and additions, valued at $50,000 or more, to existing facilities of enterprises that are engaged in research and development activities.
- **Corporate Headquarters, Corporate Office Facility, and Distribution Facility Exemptions:** South Carolina Code §12-37-220(B)(32) provides a five year exemption from county property taxes (the exemption does not apply to school and municipal property taxes) for new corporate headquarters, corporate office facilities, distribution facilities, and all additions to existing corporate headquarters, corporate office facilities, or distribution facilities if: The cost of the new construction or addition is $50,000 or more, and 75 or more new full-time jobs, or 150 or more substantially equivalent jobs, are created in South Carolina.
- **Tax Exemptions for Inventory and Intangibles:** South Carolina Code §§12-37-220(B)(30) and 12-37-220(A)(6) exempt all inventories from property taxes. Further, there is no local tax on inventories.
- **Tax Exemption for Personal Property in Transit:** South Carolina Code §12-37-220(B)(17) exempts from property taxation personal property in transit with "no situs" status, as defined in South Carolina Code §12-37-1110.
- **Pollution Control Exemption:** South Carolina Code §12-37-220(A)(8) exempts from property taxation all facilities or equipment of industrial plants, which are designed for the elimination, mitigation, prevention, treatment, abatement, or control of internal or external water, air, or noise pollution required by the state or federal government and used in the conduct of their business.
- **Environmental Cleanup Exemption:** South Carolina Code §12-37-220(B)(44) provides a five year exemption from county property taxes (the exemption does not apply to school and municipal property taxes) for property and improvements subject to a non-responsible party voluntary cleanup contract for which a certificate of completion has been issued by the South Carolina Department of Health and Environmental Control pursuant to Article 7, Chapter 56, Title 44 (The Brownfields Voluntary Cleanup Program.)

- **Air Carrier Hub Exemption:** South Carolina Code §12-37-220(B)(33) exempts from property taxation all personal property, including aircraft of an air carrier that operates an air carrier hub terminal facility in South Carolina for 10 consecutive years from the date of qualification. An air carrier hub terminal facility is defined in South Carolina Code §55-11-500.
- **Local Property Tax Exemption (state code):** Article X, §3 of the South Carolina Constitution and South Carolina Code §12-37-220(A)(7) provide for a five year exemption from county property taxes (the exemption does not apply to school or municipal taxes) for all new manufacturing establishments and all additions, costing $50,000 or more, to existing manufacturing facilities located in South Carolina. The exemption applies to land, buildings, and additional machinery and equipment installed in the facility. Further, Article X, §3 of the South Carolina Constitution provides that a municipality may, by ordinance, also exempt this property from municipal property taxes for not more than five years.
- **Machines Used in Recycling:** South Carolina Code §12-36-2120(17) exempts machines used in recycling tangible personal property for sale. "Recycling" is defined to mean any process by which materials that would otherwise become solid waste are collected, separated, or processed and reused, or returned to use in the form of raw materials or products, including composting, for sale.
- **Research and Development Machinery Sales Tax Exemption**: South Carolina Code §12-36-2120(56) provides an exemption from sales or use tax for machines used in research and development (i.e., machines used directly and primarily in research and development, in the experimental or laboratory sense, of new products, new uses for existing products, or improvement of existing products.) Machines include machines and parts of machines, attachments, and replacements used or manufactured for use on or in the operation of the machines, which are necessary to the operation of the machines, and are customarily so used.

Preferential Rate

- **Little Fee:** For projects investing up to $2.5 million (or $1 million for counties with unemployment rates of more than twice the state average during the past 24 months, or a brownfields site), the community can negotiate an assessment ratio of no lower than 6 percent; the millage rate used must be no lower than the cumulative property tax millage rate legally levied by, or on behalf of, all taxing entities within which the subject property is to be located, that is applicable either on: (a) June 30 of the previous year or (b) June 30 of the year in which the millage rate agreement is executed.
- **Big Fee:** For projects investing up to $45 million (or $1 million for counties with unemployment rates of more than twice the state average during the past 24 months, or a brownfields site), the community can negotiate an assessment ratio of no lower than 6 percent; the millage rate used must be no lower than the cumulative property tax millage rate legally levied by, or on behalf of, all taxing entities within which the subject property is to be located, that is applicable either on: (a) June 30 of the previous year or (b) June 30 of the year in which the millage rate agreement is executed.
- **Simplified Fee:** For projects investing up to $2.5 million (or $1 million for counties with unemployment rates of more than twice the state average during the past 24 months, or a

brownfields site), the community can negotiate an assessment ratio of no lower than 6 percent; the millage rate used must be no lower than the cumulative property tax millage rate legally levied by, or on behalf of, all taxing entities within which the subject property is to be located that is applicable either on: (a) June 30 of the previous year or (b) June 30 of the year in which the millage rate agreement is executed.

- **Super and Enhanced Investment Fee:** For projects investing at least $400 million and creating 200 jobs, or investing $150 million and creating 125 jobs, where the company has an additional $150 million invested, the community can negotiate an assessment ratio of no lower than 4 percent. In certain other limited investment situations, a 4 percent assessment ratio can be negotiated as well.

Texas Business incentives

Bonds

- **Industrial Revenue Bond Program**: The State of Texas Industrial Revenue Bond Program is designed to provide tax-exempt financing to purchase land and depreciable property for eligible industrial or manufacturing projects. The Development Corporation Act allows cities, counties, conservation and reclamation districts to form non-profit industrial development corporations or authorities on their behalf.

Loan

- **Texas Leverage Fund:** The Texas Leverage Fund (TLF) is an "economic development bank" offering an alternative source of capital with favorable terms for Texas cities that have passed the local option sales and use tax for economic development. It allows communities to leverage future sales tax revenues to support job retention or creation and can be used to provide financing to local businesses for industry expansion or recruitment, industrial parks establishment, or certain community project financing.

Grant

- **Skills Development Fund:** The Skills Development Fund is an innovative program created to assist Texas public community and technical colleges to finance customized job training for their local businesses. The Fund was established by the Legislature in 1995 and is administered by the Texas Workforce Commission.

Indirect Business Financing

- **Small Business Loan Fund:** The Small Business Loan Fund was created to provide a tool for rural communities to help their small businesses access capital. These funds are a part of the United States Department of Housing and Urban Development's (HUD) Community Development Block Grant (CDBG) program and known as the Texas Community Development Program (TCDP). The Texas Community Development Program (TCDP) is the largest in the nation. For 2005, the Small Business Loan Fund had $1,000,000 to award to non-entitlement communities. These communities consist of approximately 1,017 eligible cities and 245 counties. Of the 1,017 cities eligible for TCDP funds, 740 have a population of less than 3,000, and 424 have a population of

less than 1,000. 2005 allocation: $1 million. Awards ranged from $50,000 to $100,000 per contract award. Awards are made through annual statewide competitions.

Tax Deduction

- **Texas Economic Development Act**: This Act allows school districts to attract new taxable property and create jobs by offering a tax credit and an eight-year limitation on the appraised value of a property for the maintenance and operations portion of the school district property tax. The property remains fully taxable for the purposes of any school district debt service tax.

Tax Refund

- **Refund for Economic Development**: The Texas Tax Code provides for state tax refunds for economic development. Some Texas property owners may be eligible to receive refunds of state sales and use taxes and franchise taxes for paying local school property taxes.

Tax Abatement

- **Reinvestment Zones**: The designation of specified areas as "reinvestment zones" is a local economic development tool used by municipalities and counties throughout the state of Texas.

Tax Exemption

- **Freeport Exemption**: A community may choose to offer the Freeport exemption for various types of goods that are detained in Texas for a short period of time.
- **State Sales and Use Tax Exemptions:** Sales and Use Tax Exemptions for Texas businesses.

Utah Business Incentives

Grant

- **Technology Commercialization and Innovation Program (TCIP):** The Technology Commercialization and Innovation Program (formerly the Centers of Excellence Program) is a State funded grant and mentoring program developed by the Utah Legislature in 1986 to help accelerate the process of taking cutting-edge technologies, developed at Utah's colleges and universities, to market, thereby driving economic development and job creation for Utah citizens.
- **Industrial Assistance Fund:** The Industrial Assistance Fund is a job-creation incentive fund available to a) companies seeking relocation to the State of Utah and b) existing Utah companies seeking to expand operations within the state. The IAF provides grants for the creation of jobs paying higher than prevailing wages within the community. Grant disbursements are made on a post-performance basis, after jobs have been created and retained.

Tax Credit

- **Utah Enterprise Zone Program:** Under the program, certain types of businesses locating to, or expanding in, a designated zone may claim job training tax credits and credits for contributing to non-profit economic development enterprises, rehabilitating businesses, and investing in fixed assets.

- **Recycling Market Development Zone Program:** The Act passed by the Utah State Legislature provides tax credits for companies residing in the zone that collect, process, handle recycled content material or use them in their manufacturing processes, or compost. Credits include: 5 percent state income tax credit for investment in machinery and equipment; 20 percent state income tax credit (up to $2,000) on eligible operating expenses; and various local incentives.
- **Tax Credit for Machinery and Equipment Used to Conduct Research**: The credit amounts to 6 percent of the purchase price of machinery and equipment (including computers, computer equipment and software) purchased during the taxable year and primarily used to conduct qualified research in Utah. The credit also applies to installation costs. The credit is available only if the equipment or machinery is not exempt from the payment of sales or use taxes in Utah or another state.
- **Research Tax Credit:** The credit amounts to: 5 percent of qualified expenses for increasing research activities in Utah above a base amount in the taxable year, 5 percent of certain payments made to a qualified organization increasing basic research in Utah above a base amount in the taxable year, and 6.3 percent of qualified research expenses for the taxable year, beginning 2009.

Tax Exemption

- **Sales and Use Tax Exemptions:** An exemption of sales and use taxes is available for the purchase or lease of new or replacement equipment or machinery for manufacturing facilities.

Loan

- **Tax Increment Financing (TIF):** Tax Increment Financing (TIF) is utilized in areas that have been targeted for economic development.

Washington Business Incentives

Loan

- **Rural Washington Loan Fund:** The Washington State Rural Washington Loan Fund (RWLF) provides gap financing to businesses that will create new jobs or retain existing jobs, particularly for lower-income persons. Only businesses in non-entitlement areas of the state are eligible for these loans. Priority is given to timber-dependent and distressed area projects.
- **Washington State Department of Community, Trade and Economic Development:** Community Development Block Grant (CDBG) Float Loans are available to businesses from the Washington State Department of Community, Trade and Economic Development (CTED) through cities and counties that are eligible to receive Washington State Small Cities Community Development Block Grant Program assistance.

Grant

- **Entrepreneur's Access:** The Entrepreneur's Access (EA) program provides specially tailored technology assistance to Washington state entrepreneurs, small companies and start-up enterprises with 15 or fewer employees.

- **Research and Technology Development Program (RTD):** The Washington Technology Center (WTC) competitively awards $1 million annually to applied research projects that show strong potential for generating long-term economic impact in Washington State. Funding through this grant program helps move innovative ideas out of the laboratory and into the commercial marketplace.
- **Community Economic Revitalization Board (CERB) Program:** CERB provides low-interest loans or, in unique circumstances, grants to local governments to help finance the construction of public facility projects required by private sector expansions and job creations.

Project Overview

Year	State	Company	Jobs	Investment	Incentives
2000	Alabama	WestWind, Inc.	38	NA	NA
2001	Alabama	WestWind Technologies, Inc.	25	$125,000	NA
2002	Alabama	The Boeing Company	NA	$ 2 Million	NA
2002	Alabama	Williams International	700	$ 268 Million	NA
2003	Alabama	A/C Inc.	20	NA	NA
2003	Alabama	Aerojet	3	$50,000	NA
2003	Alabama	Campbell Engineering Inc.	10	$500,000	NA
2003	Alabama	SEI Manufacturing	2	$150,000	NA
2004	Alabama	Huntsville International Airport Runway	NA	$31,123,560	NA
2004	Alabama	Huntsville International Airport Improvements	NA	$ 87 Million	NA
2004	Alabama	Independence Air	NA	NA	NA
2005	Alabama	SEI Manufacturing	4	$600,000	NA
2005	Alabama	APT Research	15	$425,000	NA
2005	Alabama	DESE Research Inc	25	$ 3 Million	NA
2005	Alabama	Global Military Aircraft Systems	7	NA	NA
2005	Alabama	Gray Research Inc	20	NA	NA
2005	Alabama	Premier Professional Systems	20	NA	NA
2005	Alabama	Radiance Technologies	30	NA	NA
2005	Alabama	Westar Aerospace & Defense Group	200	$10,908,435	NA
2005	Alabama	2nd Recruiting Brigade	136	$6,400,000	NA
2005	Alabama	Army Materiel Command	1,410	$103,718,000	NA
2005	Alabama	Aviation Technical Test Center	323	$74,400,000	NA
2005	Alabama	Missile Defense Agency	2,248	$ 199 Million	NA
2005	Alabama	Rotary Wing Air Platform	50	$ 3 Million	NA
2005	Alabama	Security Assistance Command	367	$18,300,000	NA
2005	Alabama	Space & Missile Defense Command	180	$ 33 Million	NA
2005	Alabama	Northrop Grumman	1200	$ 80 Million	NA
2006	Alabama	Information Systems Laboratories	5	$135,000	NA
2006	Alabama	PPG Industries	12	Leasing	NA

Year	State	Company	Jobs	Investment	Incentives
2006	Alabama	West Wind Technologies	80	$ 3 Million	NA
2006	Alabama	Yulista Management Services	15	Lease	NA
2006	Alabama	Battelle Huntsville Operations	55	Lease	NA
2006	Alabama	CNI-All Points Logistics	60	Lease	NA
2006	Alabama	Colsa Corporation	124	$ 23 Million	NA
2006	Alabama	Digital Fusion, Inc.	75	Lease	NA
2006	Alabama	Dynetics, Inc.	50	NA	NA
2006	Alabama	EADS North America Defense	100	Lease	NA
2006	Alabama	Gray Research, Inc.	10	Lease	NA
2007	Alabama	The Boeing Company	30	NA	NA
2007	Alabama	Bosch Aerospace	15	$ 6 Million	NA
2007	Alabama	SES, Inc.	250	$ 3 Million	NA
2007	Alabama	WestWind Technologies, Inc.	60	NA	NA
2007	Alabama	Yulista Aviation	40	NA	NA
2007	Alabama	Alliant Techsystems (ATK)	85	NA	NA
2007	Alabama	Applied Geo Technologies, Inc.	10	NA	NA
2007	Alabama	Ball Aerospace & Technologies Corp.	20	NA	NA
2007	Alabama	The Boeing Company	400	NA	NA
2007	Alabama	Booz Allen Hamilton	415	NA	NA
2007	Alabama	Rockwell Collins	77	$ 4 Million	NA
2007	Alabama	Sikorsky Aircraft Corporation	120	NA	NA
2007	Alabama	Whitney, Bradley & Brown, Inc.	2	NA	NA
2007	Alabama	EADS	150	NA	NA
2007	Alabama	GKN Aerospace	NA	$ 250 Million	State: $ 1.5 Million City: $ 250,000
2008	Alabama	Griffon Aerospace	4	$200,000	NA
2008	Alabama	The Aerospace Corporation	14	NA	NA
2008	Alabama	Aviation & Missile Solutions	4	NA	NA
2008	Alabama	PPG Industries	30	$ 4,05,000	NA

Year	State	Company	Jobs	Investment	Incentives
2009	Alabama	Birmingham -Shuttlesworth International Airport	NA	$ 193 Million	NA
2009	Alabama	AeroVironment, Inc. (AVInc)	40	NA	NA
2009	Alabama	The Boeing Company	110	NA	NA
2009	Alabama	Northrop Grumman	240	NA	NA
2009	Alabama	SES Inc	200	NA	NA
2009	Alabama	United Space Alliance	20	NA	NA
2010	Alabama	GE Aviation	4	NA	NA
2010	Alabama	Lockheed Martin Corporation	200	$ 1 Million	NA
2010	Alabama	SES Inc	70	$ 1 Million	NA
2010	Alabama	Thales USA Defense & Security Inc	3	NA	NA
2010	Alabama	Vector Aerospace	2	NA	NA
2010	Alabama	Aerojet	25	NA	NA
2010	Alabama	Cummings Aerospace	8	NA	NA
2010	Alabama	Northrop Grumman	300	NA	NA
2010	Alabama	Wyle Aerospace Group	27	$ 1 Million	NA
2010	Alabama	Yulista Management Services, Inc.	100	NA	NA
2011	Alabama	Huntsman Corporation	35	$ 40 Million	NA
2011	Alabama	GE Aviation	300 to 400	$ 50 Million	NA
2011	Alabama	United Technologies Corporation	750	$ 18.4 Billion	NA
2005	Alabama	Aerospace Integration Corporation	25	NA	NA
2006	Arizona	Timken Company	NA	> $ 12 Million	NA
2006	Arizona	Michigan Aerospace Corporation	NA	NA	NA
2010	Arizona	Sargent Aerospace & Defense	NA	NA	NA
2010	Arizona	Sargent Aerospace & Defense	NA	$ 1 Million	$ 1 Million
2011	Arizona	Bombardier Aerospace	116	NA	NA
2011	Arizona	Goodrich Corporation	> 150	NA	NA
2011	Arizona	B/E Aerospace	NA	NA	NA
2012	Arizona	Phoenix Mesa-Gateway Airport	NA	$ 1.4 Billion	NA
2012	Arizona	Chandler Air Service	NA	NA	NA

Year	State	Company	Jobs	Investment	Incentives
2005	California	Michigan Aerospace Corporation	NA	NA	NA
2011	California	Kaiser Aluminum Corporation	NA	$ 11 Million	NA
2012	California	C&L Aerospace	40	$ 3 Million	NA
2009	Colorado	Nevada Based Company	200	NA	HB 1001
2010	Colorado	Denver International Airport	NA	$ 650 Million	NA
2011	Colorado	Ball Aerospace	170	$ 14.6 Million	NA
2012	Colorado	Frontier Airlines	NA	NA	NA
2009	Connecticut	Whitcraft Group	NA	NA	NA
2006	Connecticut	EastFord Aerospace	NA	NA	NA
2007	Connecticut	Sikorsky Memorial Airport	NA	NA	NA
2008	Connecticut	Aero Gear Incorporation	24	$ 3.5 Million	NA
2009	Connecticut	EDAC Technologies	NA	NA	NA
2012	Connecticut	Newington Manufacturer	130	NA	NA
2012	Connecticut	GKN Aerospace	60	NA	$ 2 Million Loan
2012	Florida	Air Technology Engines	NA	NA	NA
2011	Florida	BBA aviation	NA	NA	NA
2012	Florida	Radiant Power	26	NA	$26,000 in performance-based incentives and $1,343 in transportation impact fee incentives
2012	Florida	Private Jet Charter	NA	$200,000	NA
2012	Florida	Rocket Crafters	1300	$ 72 Million	State of Florida Qualified Target Industry Tax Refund (QTI) and workforce incentives to offset the costs of location, production equipment, and infrastructure
2012	Florida	Prioria Robotics	w and 31 ret	NA	NA
2012	Florida	Fort Lauderdale-Hollywood International Airport	NA	$ 1.5 Billion	NA
2012	Florida	Pratt & Whitney	230	$ 63 Million	$ 4.79 Million
2012	Florida	Ge Aviation	Retain 40	$ 20 Million	NA
2012	Florida	Embraer Engineering and Technology Center	w, at least 40	$ 24 Million	NA
2012	Florida	CTS Engine	l 125 to 250	NA	NA

Year	State	Company	Jobs	Investment	Incentives
2005	Georgia	Hartsfield Jackson Atlanta International Airport	NA	$ 6 Billion	$ 5.4 Billion
2009	Georgia	Gulfstream Aerospace	1100	$ 300 Million	NA
2010	Georgia	Gulfstream Aerospace	1000	$ 500 Million	NA
2012	Georgia	Precision Aviation Group	NA	NA	NA
2012	Georgia	TIMCO Aviation Services	130	NA	NA
2004	Kansas	Aircraft Seal and Gasket	105	$ 1.8 Million	NA
2004	Kansas	Aircraft Seal and Gasket	120	NA	NA
2004	Kansas	Cessna	500	$ 13 Million	NA
2004	Kansas	Torotel Products	14	$ 2.78 Million	NA
2004	Kansas	IPECO	12	$ 0.5 Million	NA
2005	Kansas	Honeywell	194	$7.4 Million	NA
2005	Kansas	Airight	12	$0.17 Million	NA
2007	Kansas	Swift-Cor Aerospace	200	$ 2 Million	NA
2007	Kansas	Diversified Services	68	$ 2.10 Million	NA
2007	Kansas	The Triumph Group	242	$11.80 Million	NA
2008	Kansas	Jet Airworks Inc.	35	$0.35 Million	NA
2008	Kansas	Hawkeye Material Management	10	$0.45 Million	NA
2008	Kansas	Park Electrochemical	80	$15 Million	NA
2008	Kansas	APPH-Wichita	38	$2.70Million	NA
2008	Kansas	GE Aviation	254	$22.86Million	NA
2009	Kansas	Flight Safety International	253	$147.800 Million	NA
2009	Kansas	Spirit AeroSystems, Inc.	700	$300 Million	NA
2010	Kansas	Park Aircraft Technologies Corporation	114	$5.170Million	NA
2010	Kansas	Volvo Aero Services	6	$1.671Million	NA
2011	Kansas	Mid-Continent Instrument Co Inc	24	$2.700Million	NA
2011	Kansas	Triumph Accessory Services	34	$732.00	NA
2011	Kansas	Bombardier/Learjet	600	$49.250 Million	NA
2011	Kansas	Hawker Beechcraft	4000	$0	NA

Year	State	Company	Jobs	Investment	Incentives
2012	Mississippi	Pioneer Aerospace	50	$500,000	NA
2009	Mississippi	GE Aviation	350	$ 85 Million	The Mississippi Development Authority provided $8.6 million, Panola County provided $4 million
2012	Mississippi	Airbus	1000	$ 600 Million	NA
2012	Mississippi	Aurora Flight Sciences	NA	$ 15 Million	NA
2012	Mississippi	Indianola Municipal	NA	$132,363	$132,363
2012	Mississippi	Holly Springs-Marshall County Municipal	NA	$288,282	$288,282
2012	Mississippi	Hollandale Municipal	NA	$444,963	$444,963
2012	Mississippi	Stennis International Airport	NA	$263,266	$263,266
2012	Mississippi	Poplarville-Pearl River County Municipal	NA	$197,362	$197,362
2012	Mississippi	Belzoni Municipal	NA	$148,960	$148,960
2012	Mississippi	Brookhaven-Lincoln County	NA	$289,670	$289,670
2012	Mississippi	Copiah County Airport	NA	$92,250	$92,250
2012	Mississippi	Hardy-Anders Field Natchez-Adams County	NA	$111,240	$111,240
2012	Mississippi	Bruce Campbell Field	NA	$256,500	$256,500
2012	Mississippi	Paul Pittman Memorial	NA	$162,089	$162,089
2012	Mississippi	Crosby Municipal	NA	$139,175	$139,175
2012	Mississippi	C.A. More Airport in Lexington	NA	$197,600	$197,600
2012	Mississippi	Ruleville-Drew Airport	NA	$120,764	$120,764
2012	Mississippi	Fletcher Field	NA	$111,240	$111,240
2012	Mississippi	Hattiesburg-Laurel Regional	NA	$546,250	$546,250
2012	Mississippi	Hattiesburg Bobby L Chain Municipal	NA	$58,900	$58,900
2012	Mississippi	Prentiss-Jefferson Davis County Airport	NA	$296,465	$296,465
2012	Mississippi	Tunica Municipal	NA	$741,606	$741,606
2012	Mississippi	Golden Triangle Regional	NA	$741,606	$741,606
2012	Mississippi	General Atomic Electromagnetic Systems	25	$ 12 Million	NA
2008	New Mexico	UP Aerospace	NA	$ 220 Million	NA
2009	New Mexico	Air Force Research	177	$ 85 Million	NA
2005	New Mexico	Utilicraft Aerospace	1000	$ 34 Million	NA

Year	State	Company	Jobs	Investment	Incentives
2012	North Carolina	Longtime Monroe	125	$ 210 Million	15 acres (land valued at $594,000) from Monroe city council and $ 300,000 grant
2012	North Carolina	United Technologies Corporation	325	at least $ 4 Million	$ 2.5 Million from the state, grant equal to 75 % of the state personal income withholding taxes, $ 5.5 Million state's utility fund
2011	North Carolina	Honda Aircraft	419	$ 78.7 Million	$ 1 Million grant
2006	North Carolina	Kidde Aerospace & Defense	131	$ 3.4 Million	$ 150,000 grant
2010	North Carolina	Ge Aviation	40	$ 8 Million	NA
2011	North Carolina	Spirit Aerosystems	200	NA	NA
2012	North Carolina	TIMCO Aviation Services	NA	NA	NA
2012	Ohio	Ge Aviation	5000	$ 100 Million	Job Retention Tax Credit ($ 100 Million) , $ 1 Million grant
2012	Ohio	Warren County Airport	NA	$ 1.7 Million	NA
2012	Ohio	Nextant Aerospace	NA	NA	NA
2012	Oklahoma	ARINC Engineering Services LLC	200	NA	NA
2012	Oklahoma	Lufthansa Technik Component Services	170	NA	NA
2012	Oklahoma	Boeing	550	NA	federal prime contractors a cash rebate of up to 2% of OK labor cost, tax credit equal to 5% of the engineers' compensation,10% tax credit if the engineers graduated from Oklahoma colleges or universities. costs
2012	Oklahoma	Oklahoma City's Will Rogers World Airport	NA	NA	NA
2012	Oklahoma	ASCO Aerospace	250 to 350	$ 60 Million Initially, The second phase could include $30 million to $40 million in capital investments	NA

Year	State	Company	Jobs	Investment	Incentives
2012	South Carolina	Charleston International Airport	NA	$ 200 Million	$ 200 Million
2010	South Carolina	Spartanburg International Airport	NA	$ 80 to $ 100 Million	NA
2012	South Carolina	Boeing	3800	$ 750 Million	NA
2012	South Carolina	Ge Aviation	100	$ 580 Million	NA
2011	South Carolina	GKN Aerospace	250	$ 38 Million	$ 2 Million grant, preemployment training
2012	South Carolina	Intertech Group	300 to 350	$ 14.5 Million	discount on property taxes 20 years, training employees ($ 600,000), job development tax credits of up to $3,250 per employee per year for 10 years
2008	Texas	Rockwell Collins	334	> $ 6.7 Million	$ 1.67 Fund
2012	Texas	XCOR Aerospace	NA	NA	$10 million to establish headquarters,$2 million for moving,$3 million for upgrades to the hangars, "performance incentives" for reaching a payroll of $12 million within five years
2011	Texas	Bell Helicopter	NA	$ 240 Million	NA
2008	Texas	Jet Works Air	NA	NA	NA
2012	Texas	Novaria Group	NA	NA	NA
2012	Texas	Hobby Airport	NA	$ 100 Million	NA

Year	State	Company	Jobs	Investment	Incentives
2007	Utah	Salt Lake City Airport	NA	NA	NA
2012	Utah	ITT Corporation	2700	$ 120 Million	taxpayer economic development tax ($33,656,000), post-performance refundable tax credit incentive that will represent 30% of new state revenue
2006	Utah	Adam Aircraft	430	NA	NA
2012	Utah	L-3 Communications	500	$ 6 Million	post-performance EDTIF refundable tax credit of $5,526,682 over the 10-year life of the project
2010	Utah	Bombardier Aerospace	NA	NA	NA
2011	Utah	ATK Corporation	d 700 over n	NA	NA
2011	Utah	Hexcel Corporation	600	$ 650 Million	post-performance EDTIF refundable tax credit of $7,767,961 over the 10-year life of the project,
2012	Washington	Washington Aerospace Training Center	NA	NA	NA
2012	Washington	Umbra Group	100	NA	NA
2012	Washington	Fokker Aerostructures	80	NA	NA
2012	Washington	Dulles	NA	NA	NA
2012	Washington	Aerojet	450	NA	NA
2012	Washington	Renton Washington Aerospace Training , Research Center and the Inland Northwest Aerospace Technology Center	NA	NA	$300,000

Appendix III: Aggregate Multipliers by State

Type I Final Demand Multipliers
Aircraft Manufacturing (NAICS 336411)

	Output (dollars)	Earnings (dollars)	Employment (number of jobs)	Value-added (dollars)
Ohio	1.6434	0.3674	5.9491	0.6688
Connecticut	1.6231	0.3504	4.4787	0.665
California	1.6203	0.3812	4.8959	0.6672
Utah	1.601	0.3693	7.7582	0.6567
Texas	1.5938	0.3618	5.3056	0.6456
Arizona	1.5764	0.3599	5.314	0.6387
Kansas	1.4937	0.3081	5.2318	0.5883
Florida	1.4872	0.3366	5.9159	0.5979
North Carolina	1.4761	0.3223	5.4298	0.5886
Alabama	1.4618	0.3125	5.8868	0.5705
Washington	1.4451	0.3246	4.474	0.5812
Georgia	1.4448	0.314	4.8455	0.5814
Oklahoma	1.4262	0.3096	5.7557	0.5596
South Carolina	1.3763	0.2875	4.1048	0.5356

Source: Bureau of Economic Analysis

Ranked by Final-demand Output

Type I Final Demand Multipliers
Aircraft Engine and Engine Parts Manufacturing (NAICS 336412)

	Output (dollars)	Earnings (dollars)	Employment (number of jobs)	Value-added (dollars)
Ohio	1.7383	0.424	6.5487	0.7482
Connecticut	1.6966	0.3986	5.3878	0.7351
North Carolina	1.6216	0.3965	6.149	0.6925
Utah	1.6036	0.4031	8.2187	0.6952
Arizona	1.5823	0.3919	5.9736	0.6769
Florida	1.5399	0.3835	6.6077	0.6596
Texas	1.5349	0.3808	7.3706	0.6594
Kansas	1.5207	0.3429	6.2481	0.6339
Georgia	1.5138	0.3711	7.5104	0.6573
California	1.5061	0.3827	5.771	0.6547
Alabama	1.4231	0.3367	5.9611	0.5919
Oklahoma	1.4214	0.3417	7.8224	0.5964
South Carolina	1.3854	0.3266	6.1035	0.5794
Washington	1.3345	0.3282	5.9254	0.569

Source: Bureau of Economic Analysis

Ranked by Final-demand Output

Type I Final Demand Multipliers

Other Aircraft Parts and Auxiliary Equipment Manufacturing (NAICS 336413)

	Output (dollars)	Earnings (dollars)	Employment (number of jobs)	Value-added (dollars)
Ohio	1.7585	0.522	8.9112	0.82
Texas	1.6569	0.5037	8.1918	0.7728
Utah	1.6412	0.5088	10.1911	0.7781
Connecticut	1.6284	0.4725	6.7655	0.7688
California	1.622	0.5075	8.5095	0.7668
Georgia	1.6104	0.4878	10.429	0.7632
Alabama	1.5809	0.4664	9.6012	0.7177
North Carolina	1.5755	0.4809	7.9908	0.7363
South Carolina	1.5754	0.4626	9.5297	0.7197
Washington	1.5354	0.4725	8.8822	0.7182
Arizona	1.4966	0.4646	8.4405	0.7024
Oklahoma	1.4891	0.4533	10.4421	0.6864
Kansas	1.4576	0.4181	9.2402	0.67
Florida	1.433	0.451	9.303	0.6747

Source: Bureau of Economic Analysis

Ranked by Final-demand Output

Type I Final Demand Multipliers
Guided Missile and Space Vehicle Manufacturing (NAICS 336414)

	Output (dollars)	Earnings (dollars)	Employment (number of jobs)	Value-added (dollars)
California	1.812	0.554	7.7528	0.839
Florida	1.6904	0.515	8.8868	0.776
Utah	1.6719	0.5053	9.2904	0.7716
Arizona	1.6695	0.5016	8.2048	0.7616
Texas	1.6445	0.4855	7.8506	0.7455
Alabama	1.6068	0.4661	7.9621	0.7043
Georgia	1.5635	0.4602	8.8169	0.7191
Oklahoma	1.4312	0.4187	8.3408	0.6332
Connecticut	1	0	0	0
Kansas	1	0	0	0
North Carolina	1	0	0	0
Ohio	1	0	0	0
South Carolina	1	0	0	0
Washington	1	0	0	0

Source: Bureau of Economic Analysis

Ranked by Final-demand Output

Type I Final Demand Multipliers
Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manfuacturing (NAICS 33641A)

	Output (dollars)	Earnings (dollars)	Employment (number of jobs)	Value-added (dollars)
California	1.6109	0.636	8.5745	0.8721
Utah	1.494	0.5947	9.476	0.8182
Florida	1.4827	0.5926	9.6679	0.8026
Alabama	1.4725	0.5661	9.4087	0.777
Arizona	1.4645	0.5822	10.7011	0.7919
Texas	1.454	0.5687	10.6301	0.7843
Washington	1.4125	0.5701	7.9773	0.7745
Ohio	1.4049	0.5413	11.7327	0.7578
Georgia	1.404	0.5481	8.8591	0.7687
Oklahoma	1.2788	0.5136	11.5283	0.6919
Connecticut	1	0	0	0
Kansas	1	0	0	0
North Carolina	1	0	0	0
South Carolina	1	0	0	0

Source: Bureau of Economic Analysis

Ranked by Final-demand Output