



# GOVERNOR'S COUNCIL FOR WORKFORCE AND ECONOMIC DEVELOPMENT

EDUCATION

ECONOMIC DEVELOPMENT

EMPLOYMENT

STATE OF OKLAHOMA

## 2005 AEROSPACE CLUSTER ANALYSIS

### DEFINITION OF INDUSTRY

The Aerospace Cluster consists of sectors specializing in all aspects of designing, manufacturing, operating and maintaining civil and military aircraft, spacecraft and aircraft parts. The cluster definition of this study is limited to ten sub-industries consisting of national defense, aircraft overhaul and rebuilding services, aircraft parts and auxiliary equipment, other guided missile and space vehicle parts and auxiliary equipment manufacturing, research and development in the physical and engineering sciences, flight training, air traffic control, aircraft engine and engine parts manufacturing, computer systems design services, and aeronautical system and instrument manufacturing.

### SIGNIFICANCE AND HIGHLIGHTS

The Aerospace Cluster in Oklahoma consists of 134 establishments, directly involved in the industry, with total employment exceeding 42,000 people. The industry cluster is dominated by a large number of small-sized establishments (less than 50 employees) totaling 75% of the number of establishments, but less than 2% of total employment. Medium-sized establishments (50-500 employees) account for 19% of the total number of establishments and 8% of total employment. Large-sized establishments (500-plus employees) account for 6% of the total number of establishments, but 90% of total employment. Oklahoma has a significant concentration in the following areas of aerospace: flight training, national security, aircraft parts manufacturing and air traffic control. Only twenty-six counties have establishments in the aerospace industry. The State's location quotient in 2004 for the aerospace cluster was 4.3, an increase of more than 19% from 2002.

### DATA SOURCES

Data used for this analysis was obtained from the Oklahoma Employment Security Commission and included filings of Oklahoma employers as of March 2004.

### CLUSTER STATISTICS

Employer Units	134
Number of Jobs	42,458
Percent of Total Oklahoma Employment	3.0%
Net Employment Change between 2002 and 2004	-1,736
Average Annual Wages	\$54,419
Location Quotient	4.3
Change in Location Quotient 2002-2004	+19.4%

## TOP SIX INDUSTRIES IN THE AEROSPACE CLUSTER

The top six industry segments employ 37,416 or 88% of a total of 42,458 employees in the industry.

NAICS	Industry	Employment	Percent of Cluster
928110	National Security	28,131	66.3%
336411	Aircraft Overhaul and Rebuilding	9,285	21.9%
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	2,154	5.1%
611512	Flight Training	925	2.2%
488111	Air Traffic Control	599	1.4%
336412	Aircraft Engine and Parts Manufacturing	596	1.4%

(D) = Data suppressed for disclosure reasons.

## TOP EMPLOYERS IN THE AEROSPACE CLUSTER

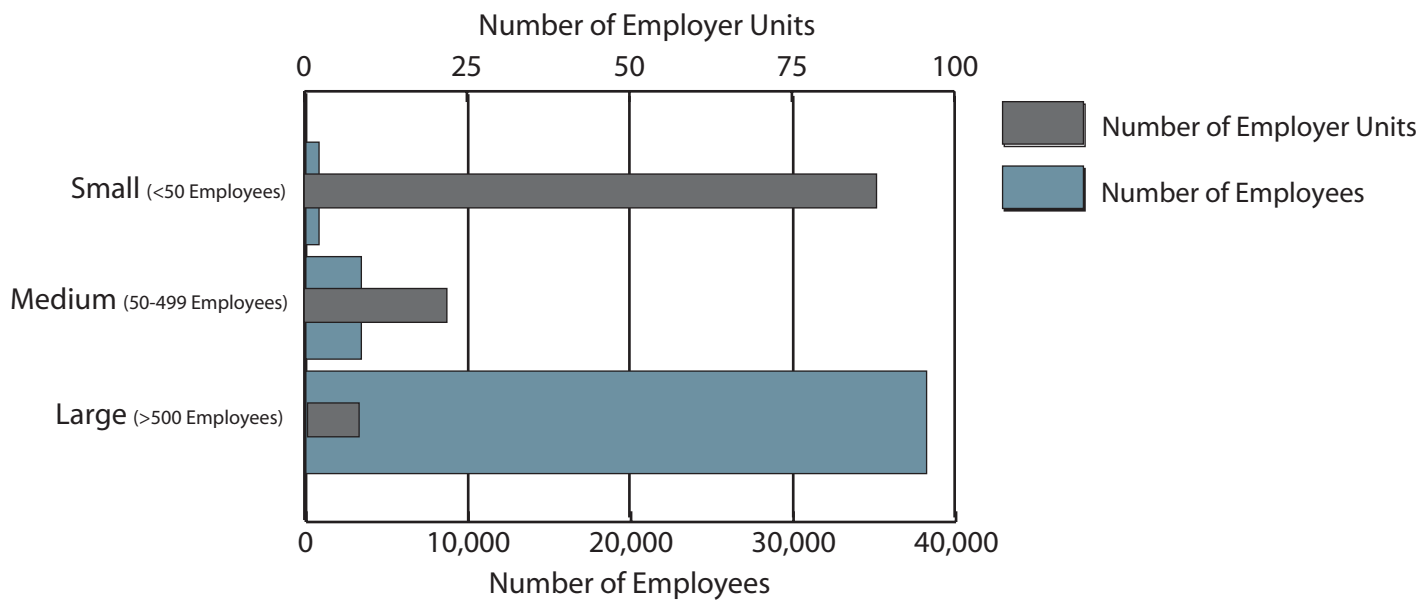
Company Name	Employee Range
Tinker Air Force Base	5,000+
American Airlines, Inc.	5,000+
Altus Air Force Base	1,000 - 5,000
The Nordam Group, Inc.	1,000 - 5,000
Vance Air Force Base	1,000 - 5,000
Spirit Aerosystems	500 - 1,500
The Boeing Company	500 - 1,500

## INDUSTRY LOCATION QUOTIENTS

NAICS	Industry	Location Quotient	2002-2004 LQ % Change
928110	National Security	5.9	25.5%
611512	Flight Training	5.4	42.1%
336411	Aircraft Overhaul and Rebuilding	4.5	7.2%
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	3.1	72.2%
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	2.6	-13.3%
488111	Air Traffic Control	1.6	33.3%
336412	Aircraft Engine and Engine Parts Manufacturing	0.8	-20.0%
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	0.3	0%

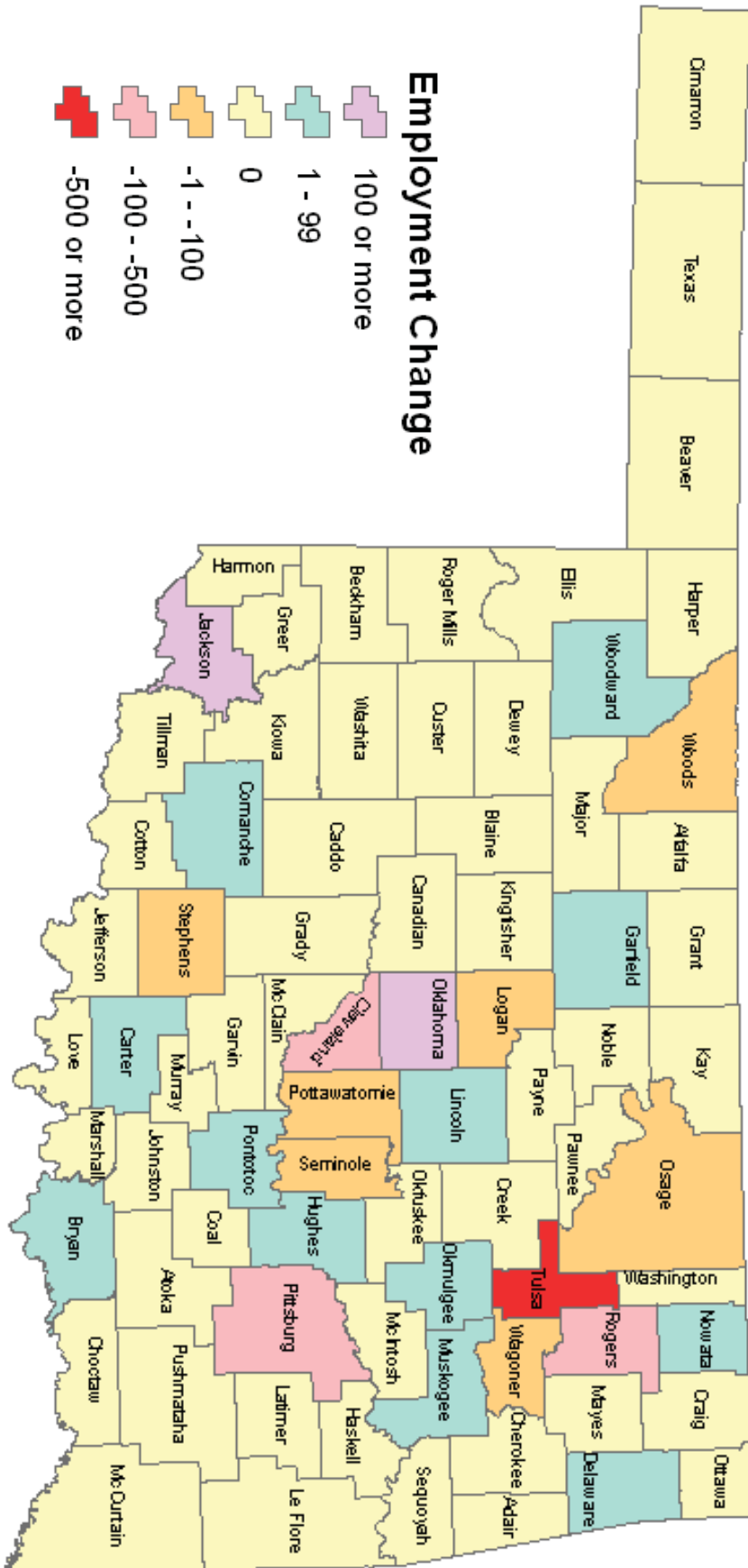
## DISTRIBUTION OF EMPLOYER UNITS & JOBS BY EMPLOYER SIZE (MARCH 2004)

Range	Employer Units	Employees
Small (<50 employees)	88	842
Medium (50-500 employees)	22	3,441
Large (>500 employees)	9	38,174

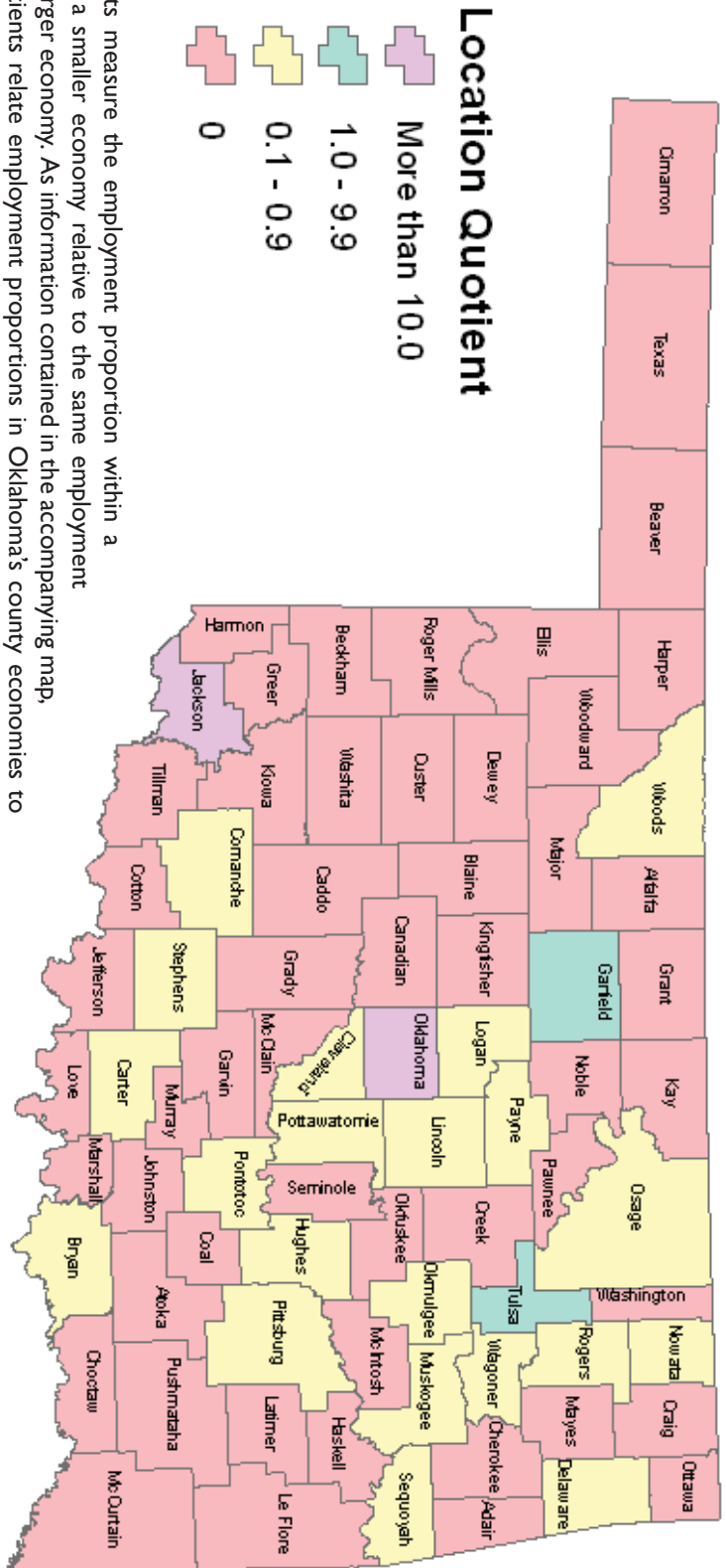




AEROSPACE CLUSTER EMPLOYMENT CHANGE 2002-2004



**AEROSPACE CLUSTER COUNTY LOCATION QUOTIENTS**



Location quotients measure the employment proportion within a given industry in a smaller economy relative to the same employment proportion in a larger economy. As information contained in the accompanying map, the location quotients relate employment proportions in Oklahoma's county economies to the same employment proportion in the state economy. As information contained in the "Industry Location Quotients" table, total Oklahoma industry employment information was compared to total national industry employment data.

Location quotients greater than 1.0 indicate that employment in a given industry is more concentrated in the county economy when compared to the state economy. Conversely, location quotients less than 1.0 indicate that industry employment is less concentrated in the county economy when compared to the state economy. Location quotients equal to 1.0 indicate that the employment proportions within a given industry are equal in the county and the state economies.

In the Aerospace cluster, Oklahoma County's location quotient equals 1.21. This indicates that the proportion of people employed in the Aerospace cluster in Oklahoma county is 121% of the Aerospace employment proportion in the state as a whole. Conversely, Comanche County's location quotient equals 0.79, which indicates that the proportion of people employed in the Aerospace cluster in Comanche County is 79% of the Aerospace employment proportion in the state as a whole.

From the "Industry Location Quotients" table, the location quotient for the Aircraft Overhaul & Rebuilding (NAICS 336411) equaled 4.5, which indicates that the proportion of people employed in this industry in Oklahoma is 450% of the same national proportion.

The most current national data available to compute location quotients is from the U.S. Bureau of Labor Statistics for 2004.

AEROSPACE CLUSTER COUNTY STATE LOCATIONS



**AEROSPACE INDUSTRIES**

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- 332116 METAL STAMPING, INCLUDING MANUFACTURING OF UNFINISHED METAL STAMPINGS AND SPINNING UNFINISHED METAL PRODUCTS**
- 334511 SEARCH, DETECTION, NAVIGATION, GUIDANCE, AERONAUTICAL, AND NAUTICAL SYSTEM AND INSTRUMENT MANUFACTURING. EXAMPLES INCLUDE AIRCRAFT INSTRUMENTS, FLIGHT RECORDERS, NAVIGATIONAL INSTRUMENTS AND SYSTEMS AND RADAR SYSTEMS**
- 336411 AIRCRAFT MANUFACTURING, INCLUDING MANUFACTURING OR ASSEMBLING COMPLETE AIRCRAFTS, AIRCRAFT CONVERSION AND COMPLETE AIRCRAFT OVERHAUL AND REBUILDING**
- 336412 AIRCRAFT ENGINE AND ENGINE PARTS MANUFACTURING, INCLUDING DEVELOPING AND MAKING PROTOTYPES OF AIRCRAFT ENGINE AND ENGINE PARTS, AIRCRAFT PROPULSION SYSTEM CONVERSION, OVERHAUL AND REBUILDING**
- 336413 OTHER AIRCRAFT PARTS AND AUXILIARY EQUIPMENT. THIS INCLUDES CROP DUSTING APPARATUS, GARMAMENT RACKS, IN-FLIGHT REFUELING EQUIPMENT, AND EXTERNAL FUEL TANKS**
- 488111 AIR TRAFFIC CONTROL. THIS INDUSTRY COMPRISE ESTABLISHMENTS PRIMARILY ENGAGED IN PROVIDING AIR TRAFFIC CONTROL SERVICES TO REGULATE THE FLOW OF AIR TRAFFIC**
- 541512 COMPUTER SYSTEMS DESIGN SERVICES**
- 541710 RESEARCH AND DEVELOPMENT IN THE PHYSICAL, ENGINEERING, AND LIFE SCIENCES**
- 611512 FLIGHT TRAINING, INCLUDING VOCATIONAL AND RECREATIONAL TRAINING**
- 928110 NATIONAL SECURITY (U. S. AIR FORCE)**