May 2017

The Aerospace Industry Cluster in U.S. Metros
Service & Manufacturing of Air Transportation

The U.S. is a global leader in the aerospace industry and since the beginning of flight on the shore of North Carolina, Americans have been enthralled with the experience and business of aviation. The three primary employment sectors that comprise the Aviation Cluster for this review include Aerospace Product and Parts Manufacturing (NAICS 3364); Air Transportation (NAICS 481); and Support Activities for Air Transportation (NAICS 4881).

Cyndi Dancy, Research Director | email cyndi@garnereconomics.com I web www.garnereconomics.com

AEROSPACE EMPLOYMENT & CHANGE IN THE US

The Aerospace Industry Cluster provides employment in a variety of operations from aircraft manufacturing, commercial airline travel, air cargo, private and charter flights, to maintenance, repair and overhaul (MRO) facilities. With nearly 490,000 people in the U.S. engaged in the Aerospace Product and Parts Manufacturing process (NAICS 3364), this is the largest employment sector of the cluster representing 42 percent of the total 1.16 million U.S. aerospace workforce.
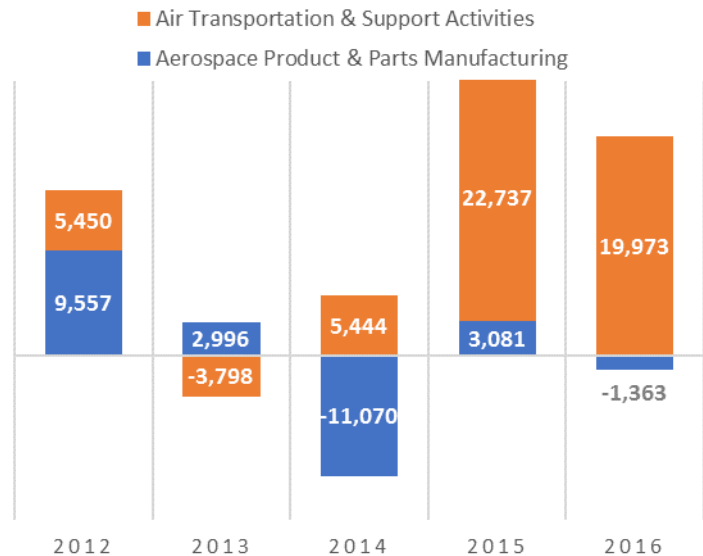
A close second is the business of Scheduled Air Transportation (NAICS 4811) including those that provide air transport to passengers or cargo on regular routes and timetables. This sector employs nearly 430,000 across the nation. The third largest sector employs nearly 200,000 involved in Support Activities for Air Transportation (NAICS 4881) which, in general, include services such as airport operations, aircraft service, repair, maintenance, as well as storage and ferrying aircraft. The final and smallest sector is Non-Scheduled Air Transportation (NAICS 4812) employs roughly 44,000 covering charter flights for passengers or cargo. This division of employment can be viewed in the pie chart below.

2016 AEROSPACE JOBS

Support Activities for Air Transportation 17%
Nonscheduled Air Transportation 4%
Scheduled Air Transportation 37%
Aerospace Product & Parts Manufacturing 42%
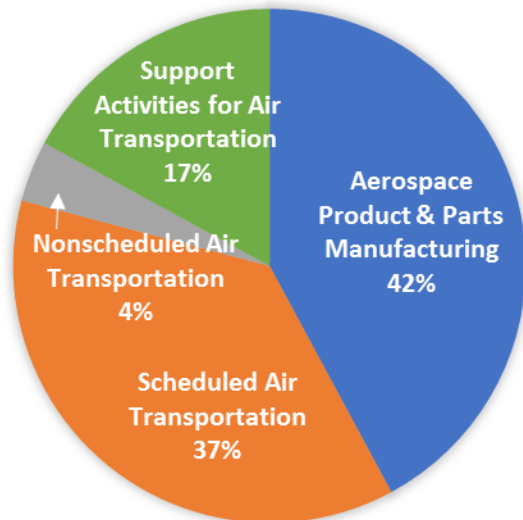
Employment in the U.S.
Source: EMSI 2016, Garner Economics

ANNUAL EMPLOYMENT CHANGE

- Air Transportation & Support Activities
- Aerospace Product & Parts Manufacturing

Year	Air Transportation & Support Activities	Aerospace Product & Parts Manufacturing
2012	5,450	9,557
2013	-3,798	2,996
2014	5,444	-11,070
2015	22,737	3,081
2016	19,973	-1,363

Annual Employment in the U.S.
Source: EMSI 2012-2016, Garner Economics

For this review, the functions of Scheduled Air Transportation, Non-Scheduled Air Transportation, and Support Activities for Air Transportation will be grouped into one category for comparison to the Aerospace Product and Parts Manufacturing sector. Both of these groups have experienced cyclical employment trends over the past five years with the service side of the industry growing over the past three years. Aerospace manufacturing has weathered a sizable employment loss in 2014 and a milder loss comparing 2015 to 2016. This trend can be seen in the Annual Employment Change chart above.

Overall, the Aerospace Industry Cluster has a net growth of 18,600 jobs and the 1.16 million employment level is about same amount as 2008 according to statistics from EMSI which includes Bureau of Labor Statstics covered emlpoyment, non-covered employment and self-employment. The NAICS mentioned above were used to otain an equal comparison across metro areas in the U.S.

10 Top Metro Markets for Aerospace Employment
NAICS 3364 + 481 + 4881 Employment for 2016, Ranked by Employment

Metro	2016 Employment	Employment Location Quotient	Number of Establishments
Seattle-Tacoma-Bellevue, WA	105,560	6.77	319
Los Angeles-Long Beach-Anaheim, CA	86,482	1.75	755
Dallas-Fort Worth-Arlington, TX	76,123	2.80	486
New York-Newark-Jersey City, NY-NJ-PA	67,053	0.91	609
Atlanta-Sandy Springs-Roswell, GA	49,133	2.43	301
Chicago-Naperville-Elgin, IL-IN-WI	41,925	1.18	345
Miami-Fort Lauderdale-West Palm Beach, FL	40,418	1.98	898
Phoenix-Mesa-Scottsdale, AZ	32,318	2.08	292
Wichita, KS	29,098	12.25	204
Houston-The Woodlands-Sugar Land, TX	26,313	1.12	251

Source: EMSI, Garner Economics

The top metro areas for aerospace employment reflect more populous metro areas with large airport operations or sizable manufacturing facilities located within the metro. Some of these metro areas may also have a high concentration of aerospace employment as measured by location quotients (LQ). An LQ is a comparison of a given region's share of employment in a sector relative to national averages. For example, Seattle-Tacoma-Bellevue WA has an LQ of 6.77 showing that the aerospace sector employment of 5 percent of total employment in that region is nearly 7 times more concentrated than .7 percent aerospace employment compared to total employment for the entire nation.

Top 10 Metros for Aerospace Manufacturing
NAICS 3364 Employment for 2016, Ranked by Employment

Metro	2016 Employment	Employment Location Quotient	Number of Establishments
Seattle-Tacoma-Bellevue, WA	89,351	13.60	142
Los Angeles-Long Beach-Anaheim, CA	48,384	2.33	342
Dallas-Fort Worth-Arlington, TX	30,005	2.62	104
Wichita, KS	27,892	27.88	131
Hartford-West Hartford-East Hartford, CT	18,146	8.74	101
St. Louis, MO-IL	15,133	3.37	31
Phoenix-Mesa-Scottsdale, AZ	14,230	2.18	91
Cincinnati, OH-KY-IN	11,639	3.38	45
San Diego-Carlsbad, CA	11,546	2.24	71
Tucson, AZ	11,025	8.62	16

Source: EMSI, Garner Economics

For **Aerospace Product and Parts Manufacturing**, California and Arizona each contain two of the top ten metros with Seattle-Tacoma-Bellevue, WA MSA topping the list with almost twice the employment of the second and third Metro on the list. The total employment of the top ten metros within this sector (NAICS 3364) is over half of the entire nation's employment in the same sector. For three of the top ten manufacturing metros, the employment location quotient is very high –Wichita KS MSA has the highest LQ of any metro in the nation with an LQ of 27.88; Seattle MSA has an LQ of 13.6; and Tucson, AZ MSA has an LQ of 8.62. Not on the top ten list for employment volume is Savannah, GA MSA with a high LQ of 16.99, home to the headquarters and production facility for Gulfstream.

Top 10 Metros for Air Transportation & Support Activities

NAICS 481 + 4881 Employment for 2016, Ranked by Employment

Metro	2016 Employment	Employment Location Quotient	Number of Establishments
New York-Newark-Jersey City, NY-NJ-PA	62,333	1.47	529
Dallas-Fort Worth-Arlington, TX	46,118	2.93	382
Atlanta-Sandy Springs-Roswell, GA	42,460	3.63	238
Chicago-Naperville-Elgin, IL-IN-WI	41,253	2.01	323
Los Angeles-Long Beach-Anaheim, CA	38,098	1.33	413
Miami-Fort Lauderdale-West Palm Beach, FL	34,305	2.90	761
Houston-The Woodlands-Sugar Land, TX	25,094	1.84	234
San Francisco-Oakland-Hayward, CA	23,472	2.13	129
Phoenix-Mesa-Scottsdale, AZ	18,089	2.01	201
Denver-Aurora-Lakewood, CO	16,377	2.47	151

Source: EMSI, Garner Economics

For **Air Transportation and Support Activity for Air Transportation,** the top metros are geographically diverse however line up closely with the nation's busiest airports. With commercial airlines and air cargo operations making up a larger portion of this combined sector, this alignment is quite logical as illustrated in the map of the top U.S. airports based on aircraft movements and top metros for Air Transportation and Support Activities. The New York-Newark-Jersey City, NY-NJ-PA MSA is ranked as the top metro in this category and is home to three major airports. Several metros are not aligned within the top ten of busiest airport and top employment centers – Charlotte, NC and Las Vegas, NV are top airports but rank 16th and 18th respectively for Air Transportation & Support Activities.

TOP AIRPORTS & TOP METROS FOR AIR TRANSPORTATION & SUPPORT ACTIVITIES

Sources: Airports Council International 2015 Aircraft Movements, EMSI, Garner Economics

Summary

The Aerospace Industry Cluster, although cyclical, still proves to be a growing sector since 2014 overall. From the chart below, the increase brings total employment to 2008 levels. Both the Aerospace Product and Parts Manufacturing and Air Transportation and Support Activities provide growth opportunity for many metros across the U.S. Although, more populous areas sustain the Air Transportation and Support Activities via busy airports, some metros find a specialization in that sector such as Anchorage, AK serving a widespread area through air travel.

Aerospace Manufacturing is a coveted sector for economic development agencies, with a handful of metro areas employing a majority of its workers. There are some metros that are not yet on this radar that the NAICS code presents. NAICS codes are self-assigned by companies and therefore aerospace suppliers or possibly a newer aircraft production facility may not be reflected accurately in the NAICS code system. Several metros are emerging in the aerospace market including Greensboro-High Point NC MSA, home to Honda Aircraft Company producing the new HondaJet, and Mobile AL MSA, home to a new Airbus facility making the A320 family passenger jets.

TOTAL AEROSPACE EMPLOYMENT FOR THE U.S. 2006-2016
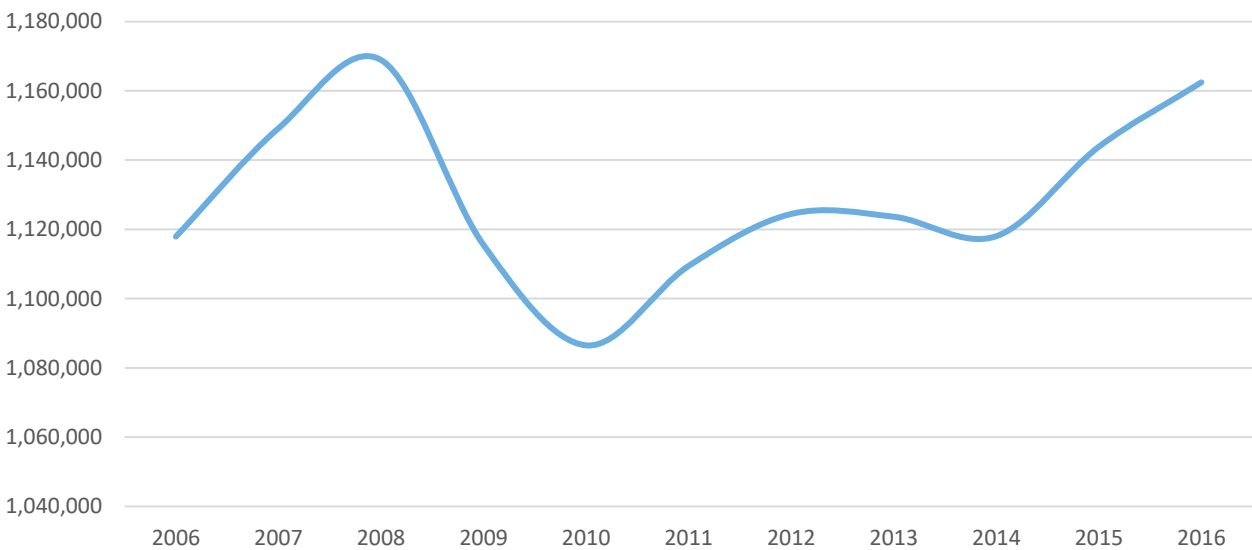
Source: EMSI, Garner Economics

In the following section, each metro area is listed with data covered in this study including employment, and the number of establishments.

All U.S. Metro Areas: Aviation Industry Cluster

The table below lists U.S. Metro Areas with 2016 employment, employment concentration (LQ), and number of establishments for Aerospace Product and Parts Manufacturing (NAICS 3364) and the combined sector of Air Transportation & Support Activities (NAICS 481 + 4881).

As covered above, a location quotient is an excellent tool to quantify how concentrated an industry or occupation is in a region as compared to the nation. A location quotient of 1.2 or higher indicates a concentration or specialization of the industry or occupation.

No data were reported for 2016 for three metro areas (Kokomo, IN; Bay City, MI; and Weirton-Steubenville, WV-OH).

MSA Name	Aerospace Product & Parts Manufacturing (NAICS 3364)			Air Transportation & Support Activities (NAICS 481 + 4881)			Total Aerospace Industry Cluster		
	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations
Abilene, TX	134	0.55	2	192	0.57	10	325	0.56	12
Akron, OH	932	0.85	10	417	0.28	17	1,349	0.52	27
Albany, GA	180	0.88	2	46	0.16	1	226	0.47	3
Albany, OR	0	0.00	0	<10	0.02	3	<10	0.01	3
Albany-Schenectady-Troy, NY	<10	0.00	1	471	0.23	14	472	0.14	15
Albuquerque, NM	572	0.45	11	1,519	0.86	47	2,091	0.69	57
Alexandria, LA	0	0.00	0	127	0.43	7	127	0.25	7
Allentown-Bethlehem-Easton, PA-NJ	67	0.06	2	374	0.23	18	442	0.16	20
Altoona, PA	0	0.00	0	24	0.09	3	24	0.05	3
Amarillo, TX	1,487	3.73	5	387	0.71	15	1,874	1.98	20
Ames, IA	0	0.00	0	12	0.06	2	12	0.03	2
Anchorage, AK	43	0.07	5	4,424	5.07	111	4,466	2.96	116
Ann Arbor, MI	36	0.05	3	859	0.86	10	894	0.52	13
Anniston-Oxford-Jacksonville, AL	520	3.46	2	36	0.17	1	556	1.56	3
Appleton, WI	540	1.33	1	373	0.67	8	914	0.95	9
Asheville, NC	392	0.60	4	444	0.50	10	836	0.54	14
Athens-Clarke County, GA	113	0.37	1	60	0.14	5	173	0.24	6
Atlanta-Sandy Springs-Roswell, GA	6,674	0.78	63	42,460	3.63	238	49,133	2.43	301
Atlantic City-Hammonton, NJ	0	0.00	0	282	0.49	4	282	0.28	4
Auburn-Opelika, AL	0	0.00	0	<10	0.01	0	<10	0.01	0
Augusta-Richmond County, GA-SC	55	0.07	11	356	0.33	8	412	0.22	19
Austin-Round Rock, TX	1,102	0.34	8	1,549	0.35	60	2,651	0.35	67
Bakersfield, CA	683	0.63	13	361	0.24	21	1,044	0.41	33
Baltimore-Columbia-Towson, MD	1,193	0.26	10	5,499	0.87	56	6,691	0.62	66
Bangor, ME	<10	0.04	1	233	0.70	15	242	0.42	16
Barnstable Town, MA	14	0.04	1	423	0.89	17	436	0.53	18
Baton Rouge, LA	0	0.00	0	248	0.14	23	248	0.08	23
Battle Creek, MI	29	0.15	2	642	2.48	3	671	1.50	5
Beaumont-Port Arthur, TX	0	0.00	0	70	0.09	9	70	0.05	9
Beckley, WV	0	0.00	0	<10	0.05	2	<10	0.03	2
Bellingham, WA	741	2.39	2	267	0.63	13	1,007	1.37	15

MSA Name	Aerospace Product & Parts Manufacturing (NAICS 3364)			Air Transportation & Support Activities (NAICS 481 + 4881)			Total Aerospace Industry Cluster		
	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations
Bend-Redmond, OR	294	1.10	14	138	0.38	10	432	0.68	24
Billings, MT	0	0.00	0	364	0.92	18	364	0.53	18
Binghamton, NY	18	0.05	2	60	0.13	7	78	0.10	9
Birmingham-Hoover, AL	10	0.01	3	551	0.24	46	561	0.14	49
Bismarck, ND	0	0.00	0	127	0.36	10	127	0.21	10
Blacksburg-Christiansburg-Radford, VA	0	0.00	0	<10	0.00	0	<10	0.00	0
Bloomington, IL	0	0.00	0	13	0.03	2	13	0.02	2
Bloomington, IN	78	0.32	1	20	0.06	3	98	0.17	4
Bloomsburg-Berwick, PA	0	0.00	0	<10	0.01	1	<10	0.00	1
Boise City, ID	14	0.01	8	1,043	0.74	41	1,057	0.44	48
Boston-Cambridge-Newton, MA-NH	9,728	1.09	23	9,989	0.81	146	19,717	0.93	168
Boulder, CO	83	0.14	6	21	0.03	9	104	0.07	15
Bowling Green, KY	37	0.15	2	<10	0.02	1	42	0.07	3
Bremerton-Silverdale, WA	53	0.16	4	15	0.03	4	68	0.09	7
Bridgeport-Stamford-Norwalk, CT	7,818	5.27	18	375	0.18	38	8,193	2.33	56
Brownsville-Harlingen, TX	148	0.31	1	209	0.31	17	356	0.31	18
Brunswick, GA	<10	0.01	1	196	1.01	5	197	0.59	6
Buffalo-Cheektowaga-Niagara Falls, NY	685	0.39	3	527	0.22	22	1,212	0.29	25
Burlington, NC	42	0.20	2	66	0.23	8	108	0.22	10
Burlington-South Burlington, VT	92	0.22	3	286	0.49	24	378	0.37	27
California-Lexington Park, MD	17	0.11	2	1,399	6.71	12	1,416	3.93	14
Canton-Massillon, OH	43	0.08	2	52	0.07	4	95	0.07	6
Cape Coral-Fort Myers, FL	55	0.06	5	1,050	0.90	30	1,105	0.55	35
Cape Girardeau, MO-IL	0	0.00	0	91	0.44	1	91	0.26	1
Carbondale-Marion, IL	0	0.00	0	20	0.08	2	20	0.05	2
Carson City, NV	216	2.28	6	22	0.17	8	238	1.06	13
Casper, WY	0	0.00	0	75	0.41	8	75	0.24	9
Cedar Rapids, IA	0	0.00	0	144	0.22	10	144	0.13	10
Chambersburg-Waynesboro, PA	601	2.99	1	<10	0.00	1	601	1.26	2
Champaign-Urbana, IL	24	0.07	1	117	0.25	3	141	0.18	4
Charleston, WV	<10	0.00	0	112	0.23	6	113	0.13	6
Charleston-North Charleston, SC	6,482	5.69	7	489	0.31	35	6,971	2.58	42
Charlotte-Concord-Gastonia, NC-SC	465	0.12	11	11,839	2.26	65	12,304	1.36	76
Charlottesville, VA	0	0.00	0	169	0.31	6	169	0.18	6
Chattanooga, TN-GA	10	0.01	2	41	0.04	6	51	0.03	7
Cheyenne, WY	0	0.00	0	220	0.95	6	220	0.55	6
Chicago-Naperville-Elgin, IL-IN-WI	672	0.05	22	41,253	2.01	323	41,925	1.18	345
Chico, CA	<10	0.04	1	32	0.08	4	42	0.06	5
Cincinnati, OH-KY-IN	11,639	3.38	45	4,526	0.96	87	16,165	1.98	132
Clarksville, TN-KY	120	0.31	1	54	0.10	6	174	0.19	7
Cleveland, TN	0	0.00	0	<10	0.02	2	<10	0.01	2
Cleveland-Elyria, OH	3,385	0.99	34	4,129	0.88	78	7,514	0.93	112
Coeur d'Alene, ID	17	0.08	3	161	0.58	9	178	0.37	12
College Station-Bryan, TX	0	0.00	0	44	0.09	4	44	0.05	4

MSA Name	Aerospace Product & Parts Manufacturing (NAICS 3364)			Air Transportation & Support Activities (NAICS 481 + 4881)			Total Aerospace Industry Cluster		
	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations
Colorado Springs, CO	194	0.18	8	629	0.43	32	823	0.32	40
Columbia, MO	0	0.00	0	21	0.05	3	21	0.03	3
Columbia, SC	<10	0.01	1	493	0.28	19	502	0.16	20
Columbus, GA-AL	1,180	2.60	7	68	0.11	8	1,248	1.16	15
Columbus, IN	0	0.00	0	<10	0.01	2	<10	0.01	2
Columbus, OH	55	0.02	4	6,187	1.32	67	6,242	0.77	71
Corpus Christi, TX	<10	0.01	3	1,045	1.18	29	1,052	0.69	31
Corvallis, OR	0	0.00	0	16	0.09	2	16	0.05	2
Crestview-Fort Walton Beach-Destin, FL	1,548	3.78	20	258	0.46	21	1,806	1.86	41
Cumberland, MD-WV	999	7.96	1	0	0.00	0	999	3.35	1
Dallas-Fort Worth-Arlington, TX	30,005	2.62	104	46,118	2.93	382	76,123	2.80	486
Dalton, GA	0	0.00	0	<10	0.00	0	<10	0.00	0
Danville, IL	270	2.87	1	34	0.27	1	304	1.36	2
Daphne-Fairhope-Foley, AL	727	2.97	5	313	0.93	15	1,041	1.79	20
Davenport-Moline-Rock Island, IA-IL	668	1.09	2	57	0.07	9	725	0.50	11
Dayton, OH	1,879	1.50	22	1,556	0.90	30	3,435	1.15	52
Decatur, AL	783	4.42	1	<10	0.02	2	788	1.88	3
Decatur, IL	0	0.00	0	<10	0.01	0	<10	0.01	0
Deltona-Daytona Beach-Ormond Beach, FL	160	0.24	11	357	0.40	36	517	0.33	48
Denver-Aurora-Lakewood, CO	6,696	1.39	19	16,377	2.47	151	23,073	2.02	170
Des Moines-West Des Moines, IA	378	0.32	3	396	0.24	24	774	0.27	27
Detroit-Warren-Dearborn, MI	2,011	0.32	30	12,980	1.51	109	14,991	1.01	139
Dothan, AL	0	0.00	0	45	0.17	9	45	0.10	9
Dover, DE	<10	0.01	1	49	0.15	13	52	0.09	14
Dubuque, IA	0	0.00	0	27	0.10	4	27	0.06	4
Duluth, MN-WI	610	1.40	4	440	0.74	9	1,050	1.02	13
Durham-Chapel Hill, NC	641	0.63	1	48	0.03	6	688	0.29	7
East Stroudsburg, PA	26	0.14	2	12	0.05	2	38	0.08	4
Eau Claire, WI	0	0.00	0	18	0.05	3	18	0.03	3
El Centro, CA	17	0.08	1	31	0.10	2	48	0.09	3
Elizabethtown-Fort Knox, KY	0	0.00	0	<10	0.02	3	<10	0.01	3
Elkhart-Goshen, IN	144	0.35	1	126	0.22	7	270	0.27	8
Elmira, NY	0	0.00	0	121	0.75	8	121	0.43	8
El Paso, TX	344	0.31	3	851	0.56	35	1,195	0.46	38
Erie, PA	169	0.40	2	44	0.08	5	213	0.21	7
Eugene, OR	89	0.17	5	169	0.24	16	258	0.21	21
Evansville, IN-KY	24	0.05	1	103	0.15	9	126	0.11	10
Fairbanks, AK	0	0.00	0	623	2.96	23	623	1.71	23
Fargo, ND-MN	22	0.05	2	208	0.32	17	230	0.21	19
Farmington, NM	0	0.00	0	61	0.27	5	61	0.16	5
Fayetteville, NC	194	0.33	1	609	0.76	14	803	0.58	15
Fayetteville-Springdale-Rogers, AR-MO	210	0.27	4	433	0.41	22	643	0.35	26
Flagstaff, AZ	18	0.08	1	186	0.63	5	205	0.40	6

MSA Name	Aerospace Product & Parts Manufacturing (NAICS 3364)			Air Transportation & Support Activities (NAICS 481 + 4881)			Total Aerospace Industry Cluster		
	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations
Flint, MI	31	0.07	2	100	0.16	6	131	0.12	8
Florence, SC	0	0.00	0	182	0.47	3	182	0.27	3
Florence-Muscle Shoals, AL	18	0.10	1	35	0.14	5	54	0.12	6
Fond du Lac, WI	0	0.00	0	21	0.09	1	21	0.05	1
Fort Collins, CO	48	0.09	3	124	0.17	11	172	0.13	13
Fort Smith, AR-OK	0	0.00	0	41	0.08	8	41	0.05	8
Fort Wayne, IN	<10	0.00	1	132	0.14	11	133	0.08	12
Fresno, CA	<10	0.00	1	704	0.40	27	708	0.23	28
Gadsden, AL	0	0.00	0	15	0.09	4	15	0.05	4
Gainesville, FL	54	0.12	2	108	0.18	8	162	0.15	10
Gainesville, GA	0	0.00	0	43	0.11	5	43	0.07	5
Gettysburg, PA	0	0.00	0	<10	0.02	1	<10	0.01	1
Glens Falls, NY	0	0.00	0	<10	0.03	1	<10	0.02	1
Goldsboro, NC	0	0.00	0	46	0.21	6	46	0.12	6
Grand Forks, ND-MN	208	1.05	1	116	0.43	11	324	0.69	12
Grand Island, NE	0	0.00	0	80	0.40	4	80	0.23	4
Grand Junction, CO	51	0.25	1	525	1.85	9	576	1.17	10
Grand Rapids-Wyoming, MI	600	0.33	6	472	0.19	16	1,073	0.25	22
Grants Pass, OR	<10	0.02	0	18	0.14	4	20	0.09	4
Great Falls, MT	0	0.00	0	241	1.33	10	241	0.77	10
Greeley, CO	<10	0.02	2	86	0.18	10	95	0.11	12
Green Bay, WI	<10	0.00	1	127	0.16	8	128	0.09	9
Greensboro-High Point, NC	414	0.35	6	2,040	1.25	33	2,454	0.87	38
Greenville, NC	0	0.00	0	15	0.04	3	15	0.03	3
Greenville-Anderson-Mauldin, SC	788	0.60	6	880	0.49	37	1,668	0.53	43
Gulfport-Biloxi-Pascagoula, MS	96	0.18	3	489	0.68	23	586	0.47	26
Hagerstown-Martinsburg, MD-WV	264	0.79	9	116	0.25	15	380	0.48	24
Hammond, LA	0	0.00	0	32	0.16	5	32	0.09	5
Hanford-Corcoran, CA	<10	0.01	1	52	0.22	5	53	0.13	6
Harrisburg-Carlisle, PA	<10	0.00	4	416	0.28	13	419	0.16	18
Harrisonburg, VA	0	0.00	0	465	1.60	1	465	0.93	1
Hartford-West Hartford-East Hartford, CT	18,146	8.74	101	1,213	0.43	42	19,359	3.93	142
Hattiesburg, MS	0	0.00	0	27	0.10	5	27	0.06	5
Hickory-Lenoir-Morganton, NC	122	0.24	1	21	0.03	2	144	0.12	3
Hilton Head Island-Bluffton-Beaufort, SC	42	0.15	1	76	0.20	15	118	0.18	16
Hinesville, GA	<10	0.02	3	26	0.16	2	28	0.10	5
Homosassa Springs, FL	0	0.00	0	60	0.39	3	60	0.22	3
Hot Springs, AR	505	3.97	5	46	0.26	4	551	1.82	9
Houma-Thibodaux, LA	0	0.00	0	658	1.60	17	658	0.93	17
Houston-The Woodlands-Sugar Land, TX	1,219	0.12	17	25,094	1.84	234	26,313	1.12	251
Huntington-Ashland, WV-KY-OH	0	0.00	0	22	0.04	1	22	0.02	1
Huntsville, AL	4,963	6.85	22	632	0.64	30	5,596	3.25	51
Idaho Falls, ID	<10	0.01	2	103	0.35	11	104	0.20	13

MSA Name	Aerospace Product & Parts Manufacturing (NAICS 3364)			Air Transportation & Support Activities (NAICS 481 + 4881)			Total Aerospace Industry Cluster		
	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations
Indianapolis-Carmel-Anderson, IN	4,542	1.36	22	4,410	0.96	74	8,952	1.13	96
Iowa City, IA	<10	0.00	1	<10	0.00	1	<10	0.00	2
Ithaca, NY	298	1.63	2	48	0.19	3	345	0.80	5
Jackson, MI	131	0.68	2	16	0.06	3	147	0.32	5
Jackson, MS	0	0.00	0	328	0.27	26	328	0.15	26
Jackson, TN	0	0.00	0	<10	0.01	2	<10	0.01	2
Jacksonville, FL	1,947	0.90	26	3,114	1.05	63	5,061	0.99	89
Jacksonville, NC	0	0.00	0	94	0.23	6	94	0.13	6
Janesville-Beloit, WI	22	0.10	1	21	0.07	3	43	0.08	4
Jefferson City, MO	0	0.00	0	71	0.20	4	71	0.12	4
Johnson City, TN	0	0.00	0	<10	0.01	1	<10	0.01	1
Johnstown, PA	354	1.96	3	23	0.09	5	377	0.88	8
Jonesboro, AR	0	0.00	0	26	0.10	4	26	0.06	4
Joplin, MO	46	0.18	2	22	0.06	2	68	0.11	4
Kahului-Wailuku-Lahaina, HI	0	0.00	0	1,382	3.78	22	1,382	2.19	22
Kalamazoo-Portage, MI	<10	0.01	1	71	0.11	9	76	0.07	10
Kankakee, IL	0	0.00	0	16	0.08	3	16	0.05	3
Kansas City, MO-KS	657	0.19	15	1,743	0.37	73	2,399	0.29	88
Kennewick-Richland, WA	35	0.09	2	116	0.21	6	151	0.16	8
Killeen-Temple, TX	208	0.35	2	1,336	1.64	21	1,544	1.09	23
Kingsport-Bristol-Bristol, TN-VA	416	1.05	2	119	0.22	10	536	0.57	12
Kingston, NY	<10	0.01	1	26	0.09	2	28	0.06	3
Knoxville, TN	200	0.16	9	551	0.31	22	751	0.24	31
La Crosse-Onalaska, WI-MN	0	0.00	0	11	0.03	4	11	0.02	4
Lafayette, LA	194	0.28	6	806	0.85	36	1,000	0.61	42
Lafayette-West Lafayette, IN	43	0.13	1	0	0.00	0	43	0.06	1
Lake Charles, LA	763	2.18	4	517	1.07	22	1,279	1.54	26
Lake Havasu City-Kingman, AZ	77	0.46	5	257	1.11	13	334	0.84	18
Lakeland-Winter Haven, FL	21	0.03	4	155	0.16	22	177	0.10	26
Lancaster, PA	14	0.02	2	134	0.12	13	148	0.08	15
Lansing-East Lansing, MI	285	0.40	5	73	0.07	11	357	0.21	15
Laredo, TX	<10	0.00	0	129	0.27	16	130	0.16	16
Las Cruces, NM	289	1.12	6	117	0.33	7	406	0.67	13
Las Vegas-Henderson-Paradise, NV	144	0.05	4	10,229	2.37	163	10,373	1.39	167
Lawrence, KS	47	0.27	3	29	0.12	3	76	0.18	6
Lawton, OK	31	0.17	1	407	1.62	7	437	1.01	8
Lebanon, PA	0	0.00	0	30	0.13	4	30	0.07	4
Lewiston, ID-WA	0	0.00	0	110	0.86	7	110	0.50	7
Lewiston-Auburn, ME	<10	0.05	2	37	0.16	5	46	0.11	7
Lexington-Fayette, KY	1,005	1.10	5	153	0.12	21	1,158	0.54	26
Lima, OH	0	0.00	0	14	0.06	1	14	0.04	1
Lincoln, NE	0	0.00	0	1,371	1.67	10	1,371	0.97	10
Little Rock-North Little Rock-Conway, AR	1,842	1.60	5	659	0.42	40	2,500	0.91	45
Logan, UT-ID	12	0.06	3	51	0.19	2	63	0.14	5
Longview, TX	0	0.00	0	126	0.28	12	126	0.16	12

MSA Name	Aerospace Product & Parts Manufacturing (NAICS 3364)			Air Transportation & Support Activities (NAICS 481 + 4881)			Total Aerospace Industry Cluster		
	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations
Longview, WA	278	2.17	1	14	0.08	3	293	0.96	4
Los Angeles-Long Beach-Anaheim, CA	48,384	2.33	342	38,098	1.33	413	86,482	1.75	755
Louisville/Jefferson County, KY-IN	271	0.13	2	1,182	0.41	60	1,453	0.29	62
Lubbock, TX	0	0.00	0	198	0.30	7	198	0.17	7
Lynchburg, VA	78	0.22	1	63	0.13	8	141	0.16	9
Macon-Bibb County, GA	339	1.01	2	372	0.81	9	711	0.90	11
Madera, CA	0	0.00	0	22	0.10	2	22	0.06	2
Madison, WI	<10	0.01	2	400	0.23	14	408	0.13	16
Manchester-Nashua, NH	26	0.04	2	391	0.42	27	417	0.26	29
Manhattan, KS	39	0.30	1	16	0.09	3	55	0.18	4
Mankato-North Mankato, MN	0	0.00	0	14	0.06	1	14	0.03	1
Mansfield, OH	0	0.00	0	<10	0.00	0	<10	0.00	0
McAllen-Edinburg-Mission, TX	450	0.51	1	383	0.31	15	833	0.40	16
Medford, OR	486	1.62	2	339	0.82	17	825	1.16	19
Memphis, TN-MS-AR	172	0.08	5	1,192	0.41	61	1,365	0.27	67
Merced, CA	<10	0.00	1	40	0.11	5	41	0.07	6
Miami-Fort Lauderdale-West Palm Beach, FL	6,114	0.71	137	34,305	2.90	761	40,418	1.98	898
Michigan City-La Porte, IN	0	0.00	0	<10	0.02	3	<10	0.01	3
Midland, MI	0	0.00	0	<10	0.01	0	<10	0.01	0
Midland, TX	219	0.74	1	231	0.57	20	451	0.64	21
Milwaukee-Waukesha-West Allis, WI	311	0.11	8	1,656	0.44	53	1,968	0.30	61
Minneapolis-St. Paul-Bloomington, MN-WI	337	0.05	20	14,974	1.72	86	15,311	1.02	106
Missoula, MT	<10	0.00	1	41	0.15	6	42	0.09	7
Mobile, AL	778	1.32	6	968	1.19	19	1,746	1.24	25
Modesto, CA	18	0.03	0	107	0.12	6	126	0.08	6
Monroe, LA	0	0.00	0	18	0.05	3	18	0.03	3
Monroe, MI	0	0.00	0	<10	0.01	0	<10	0.00	0
Montgomery, AL	840	1.49	6	150	0.19	12	990	0.74	18
Morgantown, WV	0	0.00	0	21	0.07	3	21	0.04	3
Morristown, TN	634	4.23	2	40	0.20	1	674	1.90	3
Mount Vernon-Anacortes, WA	18	0.10	2	196	0.84	8	214	0.53	10
Muncie, IN	26	0.16	1	22	0.10	1	48	0.13	2
Muskegon, MI	624	3.03	3	<10	0.01	2	628	1.28	5
Myrtle Beach-Conway-North Myrtle Beach, SC-NC	48	0.09	1	221	0.31	15	269	0.22	16
Napa, CA	0	0.00	0	<10	0.02	2	<10	0.01	2
Naples-Immokalee-Marco Island, FL	238	0.50	2	74	0.11	15	312	0.27	17
Nashville-Davidson--Murfreesboro--Franklin, TN	788	0.26	5	2,041	0.48	62	2,829	0.39	67
New Bern, NC	0	0.00	0	159	0.65	5	159	0.38	5
New Haven-Milford, CT	905	0.71	19	378	0.22	24	1,282	0.43	43
New Orleans-Metairie, LA	390	0.20	5	1,504	0.57	51	1,894	0.42	56
New York-Newark-Jersey City, NY-NJ-PA	4,720	0.15	81	62,333	1.47	529	67,053	0.91	609
Niles-Benton Harbor, MI	245	1.15	1	16	0.05	3	261	0.51	4

MSA Name	Aerospace Product & Parts Manufacturing (NAICS 3364)			Air Transportation & Support Activities (NAICS 481 + 4881)			Total Aerospace Industry Cluster		
	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations
North Port-Sarasota-Bradenton, FL	350	0.36	10	498	0.38	28	849	0.37	38
Norwich-New London, CT	201	0.47	3	142	0.24	10	343	0.34	13
Ocala, FL	<10	0.00	1	70	0.15	6	71	0.09	7
Ocean City, NJ	0	0.00	0	<10	0.05	5	<10	0.03	5
Odessa, TX	0	0.00	0	42	0.13	6	42	0.08	6
Ogden-Clearfield, UT	3,507	4.24	22	226	0.20	27	3,733	1.90	49
Oklahoma City, OK	2,507	1.21	17	2,253	0.79	81	4,760	0.97	98
Olympia-Tumwater, WA	43	0.11	3	99	0.19	9	142	0.16	12
Omaha-Council Bluffs, NE-IA	16	0.01	2	875	0.39	42	891	0.23	44
Orlando-Kissimmee-Sanford, FL	4,310	1.11	28	11,739	2.20	132	16,049	1.74	160
Oshkosh-Neenah, WI	88	0.29	3	41	0.10	5	129	0.18	8
Owensboro, KY	36	0.20	1	51	0.21	9	86	0.20	10
Oxnard-Thousand Oaks-Ventura, CA	750	0.66	19	360	0.23	27	1,110	0.41	46
Palm Bay-Melbourne-Titusville, FL	2,473	3.62	30	1,084	1.15	21	3,557	2.19	50
Panama City, FL	13	0.05	1	654	1.68	15	667	0.99	16
Parkersburg-Vienna, WV	0	0.00	0	<10	0.01	1	<10	0.00	1
Pensacola-Ferry Pass-Brent, FL	79	0.13	5	807	0.97	29	886	0.62	34
Peoria, IL	0	0.00	0	443	0.57	12	443	0.33	12
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	7,316	0.79	33	12,421	0.97	167	19,737	0.89	200
Phoenix-Mesa-Scottsdale, AZ	14,230	2.18	91	18,089	2.01	201	32,318	2.08	292
Pine Bluff, AR	0	0.00	0	<10	0.02	1	<10	0.01	1
Pittsburgh, PA	175	0.05	7	3,300	0.64	57	3,475	0.39	64
Pittsfield, MA	0	0.00	0	24	0.08	4	24	0.05	4
Pocatello, ID	0	0.00	0	13	0.08	2	13	0.05	2
Portland-South Portland, ME	1,562	1.67	4	430	0.34	30	1,992	0.90	34
Portland-Vancouver-Hillsboro, OR-WA	2,390	0.61	17	5,216	0.98	92	7,605	0.82	109
Port St. Lucie, FL	771	1.62	4	538	0.82	36	1,309	1.16	40
Prescott, AZ	157	0.70	3	209	0.68	9	366	0.69	13
Providence-Warwick, RI-MA	0	0.00	0	642	0.20	40	642	0.11	40
Provo-Orem, UT	273	0.34	3	125	0.11	13	398	0.21	16
Pueblo, CO	198	0.97	1	<10	0.02	2	204	0.42	3
Punta Gorda, FL	0	0.00	0	270	1.24	13	270	0.72	13
Racine, WI	86	0.34	4	64	0.18	9	149	0.25	13
Raleigh, NC	100	0.05	6	1,556	0.57	47	1,657	0.35	53
Rapid City, SD	0	0.00	0	140	0.43	14	140	0.25	14
Reading, PA	<10	0.01	1	96	0.12	11	99	0.07	12
Redding, CA	0	0.00	0	173	0.55	12	173	0.32	12
Reno, NV	22	0.03	3	699	0.71	39	721	0.42	42
Richmond, VA	25	0.01	2	770	0.26	31	795	0.16	33
Riverside-San Bernardino-Ontario, CA	2,690	0.54	51	3,278	0.48	107	5,969	0.51	158
Roanoke, VA	0	0.00	0	492	0.70	5	492	0.40	5
Rochester, MN	0	0.00	0	53	0.10	4	53	0.06	4
Rochester, NY	19	0.01	1	400	0.17	22	419	0.10	23
Rockford, IL	1,710	3.50	4	369	0.55	15	2,079	1.79	19

MSA Name	Aerospace Product & Parts Manufacturing (NAICS 3364)			Air Transportation & Support Activities (NAICS 481 + 4881)			Total Aerospace Industry Cluster		
	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations
Rocky Mount, NC	0	0.00	0	<10	0.02	1	<10	0.01	1
Rome, GA	0	0.00	0	27	0.14	3	27	0.08	3
Sacramento--Roseville--Arden-Arcade, CA	1,666	0.51	7	1,903	0.42	70	3,569	0.46	77
Saginaw, MI	0	0.00	0	54	0.14	2	54	0.08	2
St. Cloud, MN	<10	0.02	1	11	0.02	2	17	0.02	3
St. George, UT	15	0.08	2	742	2.69	9	758	1.59	11
St. Joseph, MO-KS	0	0.00	0	<10	0.00	0	<10	0.00	0
St. Louis, MO-IL	15,133	3.37	31	5,437	0.88	88	20,569	1.93	120
Salem, OR	43	0.07	2	155	0.20	18	199	0.14	20
Salinas, CA	11	0.02	1	326	0.36	17	337	0.22	18
Salisbury, MD-DE	664	1.28	2	498	0.70	7	1,162	0.94	9
Salt Lake City, UT	2,267	0.98	28	6,531	2.05	70	8,798	1.60	98
San Angelo, TX	0	0.00	0	127	0.53	9	127	0.31	9
San Antonio-New Braunfels, TX	2,874	0.84	32	2,257	0.48	97	5,131	0.63	129
San Diego-Carlsbad, CA	11,546	2.24	71	3,455	0.49	113	15,000	1.23	184
San Francisco-Oakland-Hayward, CA	445	0.06	16	23,472	2.13	129	23,917	1.25	145
San Jose-Sunnyvale-Santa Clara, CA	5,454	1.52	10	1,538	0.31	52	6,992	0.82	62
San Luis Obispo-Paso Robles-Arroyo Grande, CA	35	0.09	2	170	0.30	12	205	0.21	14
Santa Cruz-Watsonville, CA	142	0.38	3	49	0.10	1	192	0.21	4
Santa Fe, NM	0	0.00	0	79	0.26	9	79	0.15	9
Santa Maria-Santa Barbara, CA	1,984	2.85	12	293	0.31	26	2,276	1.38	38
Santa Rosa, CA	18	0.02	1	282	0.29	10	299	0.18	11
Savannah, GA	9,748	16.99	18	223	0.28	22	9,972	7.32	40
Scranton--Wilkes-Barre--Hazleton, PA	326	0.39	7	233	0.20	12	559	0.28	19
Seattle-Tacoma-Bellevue, WA	89,351	13.60	142	16,209	1.80	176	105,560	6.77	319
Sebastian-Vero Beach, FL	693	3.99	9	68	0.29	9	761	1.84	18
Sebring, FL	22	0.23	3	26	0.20	4	48	0.21	7
Sheboygan, WI	<10	0.02	0	15	0.06	1	20	0.04	1
Sherman-Denison, TX	0	0.00	0	38	0.17	4	38	0.10	4
Shreveport-Bossier City, LA	92	0.15	7	485	0.56	25	578	0.39	32
Sierra Vista-Douglas, AZ	28	0.21	1	129	0.70	5	156	0.50	6
Sioux City, IA-NE-SD	0	0.00	0	35	0.08	8	35	0.05	8
Sioux Falls, SD	68	0.13	3	338	0.49	18	405	0.34	21
South Bend-Mishawaka, IN-MI	871	1.88	9	246	0.39	14	1,117	1.02	23
Spartanburg, SC	81	0.17	4	218	0.34	7	298	0.27	11
Spokane-Spokane Valley, WA	840	1.05	9	842	0.77	20	1,682	0.89	29
Springfield, IL	0	0.00	0	250	0.42	6	250	0.25	6
Springfield, MA	519	0.55	10	398	0.31	11	916	0.41	21
Springfield, MO	<10	0.00	2	244	0.26	14	247	0.15	16
Springfield, OH	28	0.17	2	34	0.15	3	62	0.16	5
State College, PA	0	0.00	0	60	0.17	4	60	0.10	4
Staunton-Waynesboro, VA	0	0.00	0	15	0.07	5	15	0.04	5
Stockton-Lodi, CA	327	0.40	3	115	0.10	11	442	0.23	14
Sumter, SC	<10	0.05	1	19	0.10	6	26	0.08	7

MSA Name	Aerospace Product & Parts Manufacturing (NAICS 3364)			Air Transportation & Support Activities (NAICS 481 + 4881)			Total Aerospace Industry Cluster		
	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations	2016 Jobs	LQ	Locations
Syracuse, NY	11	0.01	3	217	0.16	9	227	0.10	12
Tallahassee, FL	0	0.00	0	145	0.19	10	145	0.11	10
Tampa-St. Petersburg-Clearwater, FL	906	0.22	18	4,893	0.85	91	5,799	0.59	109
Terre Haute, IN	360	1.58	2	34	0.11	5	394	0.73	7
Texarkana, TX-AR	0	0.00	0	606	2.20	13	606	1.27	13
The Villages, FL	0	0.00	0	<10	0.01	1	<10	0.01	1
Toledo, OH	211	0.21	8	224	0.16	15	435	0.18	23
Topeka, KS	<10	0.01	0	79	0.15	10	83	0.09	10
Trenton, NJ	<10	0.01	1	275	0.25	15	279	0.14	16
Tucson, AZ	11,025	8.62	16	1,755	1.00	49	12,780	4.21	65
Tulsa, OK	3,672	2.51	27	7,218	3.60	91	10,890	3.14	118
Tuscaloosa, AL	0	0.00	0	43	0.09	3	43	0.05	3
Tyler, TX	0	0.00	0	182	0.37	9	182	0.22	9
Urban Honolulu, HI	<10	0.00	2	8,878	3.65	97	8,879	2.11	99
Utica-Rome, NY	124	0.30	3	202	0.36	7	326	0.34	10
Valdosta, GA	38	0.19	2	24	0.09	3	62	0.13	5
Vallejo-Fairfield, CA	236	0.49	3	55	0.08	3	292	0.25	6
Victoria, TX	0	0.00	0	12	0.06	3	12	0.04	3
Vineland-Bridgeton, NJ	<10	0.01	1	27	0.10	1	28	0.06	2
Virginia Beach-Norfolk-Newport News, VA-NC	107	0.04	7	2,440	0.65	61	2,546	0.39	68
Visalia-Porterville, CA	31	0.06	2	99	0.13	9	130	0.10	11
Waco, TX	3,011	7.55	7	92	0.17	8	3,103	3.28	15
Walla Walla, WA	0	0.00	0	22	0.16	3	22	0.09	3
Warner Robins, GA	271	1.09	20	217	0.63	6	488	0.82	26
Washington-Arlington-Alexandria, DC-VA-MD-WV	515	0.05	27	15,415	1.06	225	15,930	0.63	252
Waterloo-Cedar Falls, IA	0	0.00	0	41	0.10	4	41	0.06	4
Watertown-Fort Drum, NY	0	0.00	0	26	0.10	2	26	0.06	2
Wausau, WI	0	0.00	0	48	0.15	5	48	0.09	5
Wenatchee, WA	46	0.24	2	44	0.17	8	89	0.20	10
Wheeling, WV-OH	0	0.00	0	56	0.19	3	56	0.11	3
Wichita, KS	27,892	27.88	131	1,206	0.88	73	29,098	12.25	204
Wichita Falls, TX	1,344	6.51	5	692	2.44	11	2,036	4.15	16
Williamsport, PA	519	2.96	1	23	0.09	3	542	1.30	4
Wilmington, NC	1,596	3.86	3	89	0.16	8	1,685	1.72	11
Winchester, VA-WV	<10	0.02	0	31	0.11	6	35	0.07	6
Winston-Salem, NC	1,389	1.59	4	1,739	1.45	22	3,128	1.51	26
Worcester, MA-CT	382	0.29	4	40	0.02	9	423	0.14	13
Yakima, WA	399	1.06	4	76	0.15	6	475	0.53	10
York-Hanover, PA	<10	0.00	2	42	0.05	7	45	0.03	9
Youngstown-Warren-Boardman, OH-PA	0	0.00	0	142	0.14	11	142	0.08	11
Yuba City, CA	66	0.37	4	97	0.40	7	163	0.38	11
Yuma, AZ	<10	0.00	0	91	0.28	6	91	0.16	6

Source: EMSI

About Garner Economics: We are data driven strategists helping companies, communities and organizations, large and small, urban and rural, achieve success.

We offer location advisory services, analytical research, industry targeting, strategic planning, and organizational assessments with a wealth of expertise to companies, communities, and organizations globally. We are based in Atlanta, GA with representative offices in Europe (Berlin), Asia (Seoul), and North Carolina.

Garner Economics LLC

715 Birkdale Drive | Atlanta, GA 30215
770-716-9544 (office)
http://www.garnereconomics.com| info@garnereconomics.com

Jay Garner is a member of the