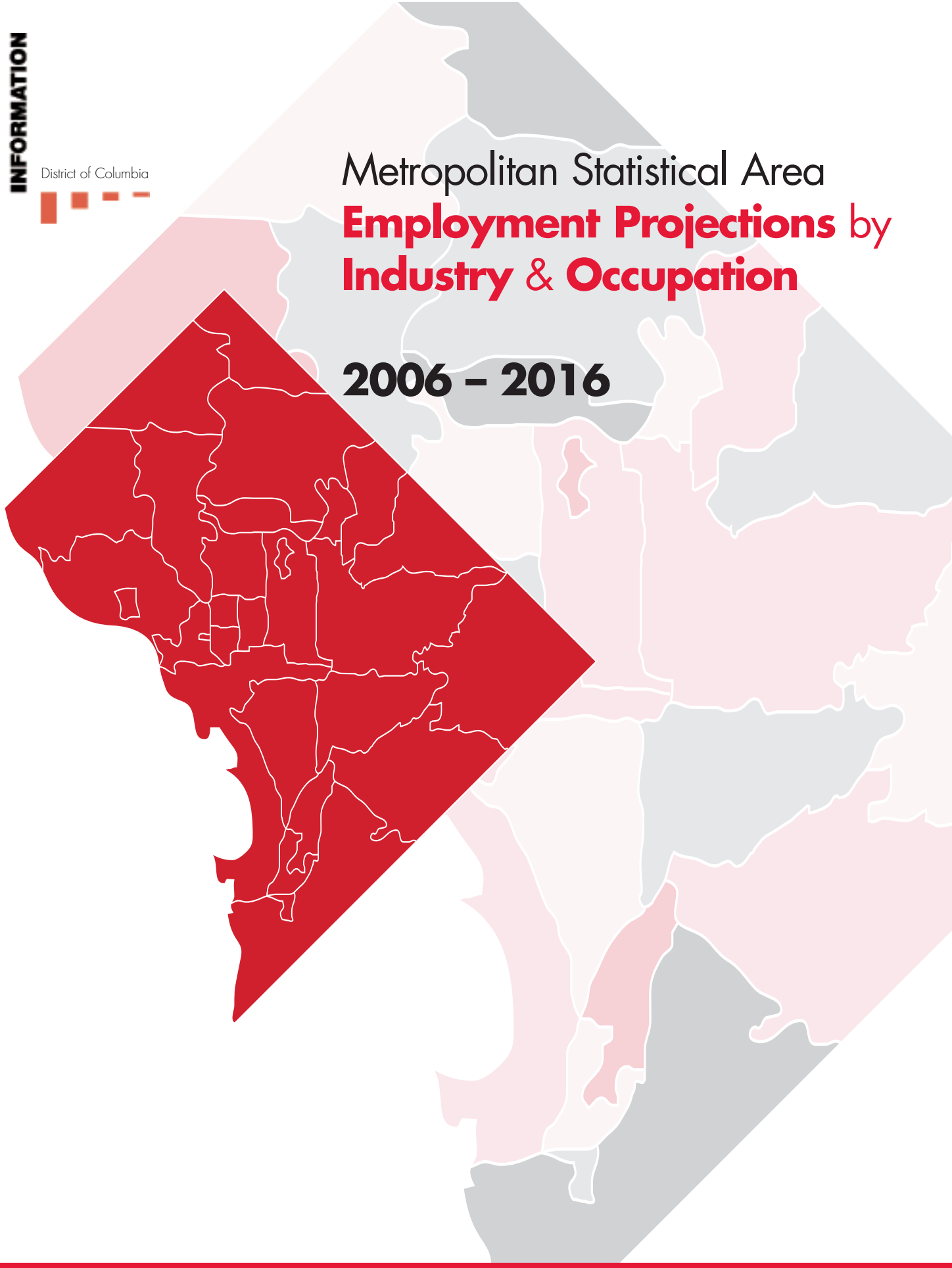
LABOR MARKET RESEARCH INFORMATION

District of Columbia

Metropolitan Statistical Area **Employment Projections** by **Industry** & **Occupation**

2006 – 2016



Government of the District of Columbia
Adrian M. Fenty, Mayor

Department of Employment Services
Joseph P. Walsh, Jr., Director

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EXECUTIVE SUMMARY

Employment in the Washington Metropolitan Statistical Area, or MSA, is projected to increase by 439,200, or 1.26 percent per year from 2006 to 2016. This is roughly 44,000 jobs per year, slightly below the 45,000 annual average growth from 1990 through 2006. Employment stood at 3,280,200 jobs in 2006. It is projected to reach 3,719,300 jobs by 2016. These figures include wage and salary workers and the self-employed, who make up about 10 percent of the total.

Currently, the nation is in the midst of the most severe recession since the Great Depression. Over six million jobs have been lost. Though job losses appear to be slowing at latest report, economists expect losses to continue into 2010. The Washington area has always enjoyed a measure of protection from national recessions, but it has never been immune from them. The national recession officially began in December 2007. Employment in the Washington area (seasonally adjusted, non-farm) declined in July 2008. Job losses here have been moderate so far and may continue to be moderate. Still, the trend is likely to be negative to flat through much of the year and into 2010. As in the last two recessions, the job recovery is likely to be slow.

The Washington area employment is heavily influenced by the presence of the federal government, which provided nearly 11 percent of area jobs in 2006, and is also important indirectly through its contracting activities. Federal employment, for many years stable or declining in Washington, began growing significantly again after 2000, probably a consequence of the terrorist attack on September 11, 2001. This growth is projected to continue as a result of the recession and the expansionary policies of the new Administration and Congress. Local government is projected to grow even faster than the federal government. Hence, government jobs are a mainstay of the Washington economy and will remain so.

Industries providing services had about three jobs to every four nationally in 2006 while those providing goods and self-employed had the rest. Service industries in Washington had an even higher share of jobs, over 82 percent.

Government is one of those service industries; the professional and business services cluster is another, and one that will lead the way in job growth in the coming decade. In this group are professional services such as law, accounting, computer design and research, and business services such as management, office support, services to buildings and waste management. The fastest growing service industry is health care and social assistance with jobs in the Washington area projected to grow even faster than in the nation as a whole. Leisure and hospitality services will also be a significant source of jobs in the decade ahead.

Goods providing industries, only 16 percent of jobs nationally, are half that in the Washington area with self-employed workers making up the remaining ten percent. Only two goods producing industries are significant in Washington: manufacturing with a two percent job share that is declining, and construction with nearly six percent. Because Washington is a growing metropolitan area, construction, though currently under duress because of the housing crisis, will regain strength and add jobs at about the same rate as the area in its entirety in the decade to 2016.

The Washington area has a concentration of professional occupations with more than a quarter of area jobs, the highest share of the occupational groups. Computer specialists, lawyers, doctors, nurses, engineers, and architects are among more than 250 occupations in this group. More than a third of new jobs will be in professional occupations with computer specialists of various kinds, lawyers, teachers and nurses among those in high demand and significant growth.

Service occupations are second in importance and growing. Nearly one in five area jobs are in this group and over a quarter of new jobs. Home health aides, police officers, security guards, food preparation workers, waiters, and maids are among the high growth occupations in this group of about 100 occupations.

Management, business and financial occupations claim about one in six area jobs. While this group of over 50 occupations is growing at rates below the area average, accountants and auditors are among the forty highest occupations in demand (job openings) and growth. Office and administrative support is about the same size but slower growing. Still, bookkeepers, customer service representatives, receptionists and executive secretaries, all from this group, are among the top forty occupations in demand and growth.

When classified by skill level, the fastest growing occupations are those requiring an associate's, a bachelor's or a master's, degree. They account for nearly a third of Washington area jobs as compared with about 20 percent nationally. Hence, there is a significant need for post-secondary education. Also growing at above average rates are jobs requiring post-secondary vocational training. Among high-growth jobs in this last group are nurse's aides, pre-school teachers, hair stylists, automotive service technicians, legal secretaries, and fitness instructors.

INTRODUCTION

This report presents summary data and discussion of the 2006-2016 projections for the Washington Metropolitan Statistical Area (MSA) for industry and occupational employment. These projections are part of the regular cycle of state and regional projections sponsored by the Employment and Training Administration and the DC Department of Employment Services as part of the American Labor Market Information System (ALMIS) consortium. The Washington Metropolitan area includes the District of Columbia, 15 city and county jurisdictions in Virginia, five counties in Maryland and one county in West Virginia with a total 2006 population of 5,995,596.

Currently, the nation is in the midst of the most severe recession since the Great Depression. Over six million jobs have been lost. Though job losses appear to be slowing at latest report and some economic indicators suggest that the downturn may end soon, economists still expect job losses to continue in 2009 and into 2010. The Washington area has always enjoyed a measure of protection from national recessions, but it has never been immune from them. The national recession officially began in December 2007. Employment in the Washington area (seasonally adjusted, non-farm) declined in July 2008. Job losses here have been moderate so far and may continue to be moderate. Still, the trend is likely to be negative to flat through much of the year and into 2010. As in the last two recessions, the job recovery is likely to be slow.

METHODS

ALMIS consortium projections follow established methods and procedures using the consortium's Projections Suite software. The Projections Suite includes the Long Term Projections (LTP) software, which is used to project employment by industry, and the MicroMatrix software, which is used to project employment by occupation. The Long Term Projections software uses statistical routines for projecting industry employment from a base year to a projected year. These include shift-share analysis, time series estimation and regression analysis. The model uses past trends in employment, unemployment, income, population, gross state product, and other data series to project employment for detailed industry categories. When it uses regression analysis, it must project each of the independent variables like income or gross state product in order to project the dependent variable, industry employment. Thus, a number of projections external to the model go into projecting employment.

The MicroMatrix program uses the detailed industry projections produced by LTP as inputs to generate occupational projections that distribute each of the industry totals among occupational groups and detailed occupations. In addition, MicroMatrix uses occupational survey data to determine the percentage of an industry's employment in specific occupations. For example, if accounting firms need 10 percent of staff in accounting occupations, then 10 percent of accounting firm employment growth can be projected in accounting occupations. In this way, industry employment projections generate projected occupational changes over the coming years. The result for these projections is employment for 103 NAICS (North American Industry Classification System) industries and 775 SOC (standard occupational classifications) occupations.

INDUSTRY EMPLOYMENT PROJECTIONS

The projection for employment in the Washington MSA for 2006-2016 is for an increase of 439,152 jobs to 3,719,306 from 3,280,154. The projected increase in jobs annually is 43,915 or 1.26 percent average annual compound rate of growth. Table 1 breaks these jobs down into three broad groups, Goods Producing, Services Providing, and Self-Employed and Unpaid Family Workers, then into by 20 major industry sectors (two-digit NAICS industries) plus one for Self-employed and Unpaid Family Workers. Besides employment in 2006 and 2016, Table 1 shows the percent share of each broad group and each major sector in total employment, the job growth projected for each group and sector, and the average annual projected growth rate of jobs in each sector.

Appendix Table 1 shows those 21 major sectors plus an additional 92 sub-sectors, some of which we discuss below. Chart 1 presents graphically the percent share in both 2006 and 2016 of each of the major industry sectors in total employment. The largest sectors in 2006 appear at the top of the chart and the smallest at the bottom. For example, the government appears at the top of the chart with a 15.5 percent of total employment in 2006; the chart also shows that the government share is projected to decline to about 15 percent by 2016. Finally, Table 2 presents the top forty industry sub-sectors by job growth and growth rate. (Three sectors, wholesale trade, management of companies and enterprises, and real estate and leasing services, are treated as sub-sectors because sub-sector detail is unimportant and/or unavailable.) For example, we find in Table 2 that the federal government is projected to add over 20,000 jobs during the ten-year period, and that local government is expected to add even more, over 28,000 jobs.

Goods Producing Sectors

The goods producing sectors - agriculture, forestry, fishing and hunting; mining; construction; and manufacturing – provided only 255,000 jobs in 2006, or 7.8 percent of the total in the Washington MSA. By comparison, about 20 percent of the nation's jobs are in these sectors. Construction is by far the most important of these in the Washington MSA with 4.7 percent of the MSA total, quite similar to the national share of 5.1 percent. Manufacturing is second nearly 2 percent of the total. Manufacturing is much more important nationally with 9.4 percent of total jobs.

Construction

Construction employed 187,600 in 2006. Almost two thirds of the jobs were in the sub-industry, specialty trade contractors, reflecting the large amount of home remodeling that occurs in the metro area. Construction work is expected to add 24,800 jobs across the metro area by 2016.

Manufacturing

Manufacturing has 63,600 jobs or 1.9 percent of area jobs, nearly 8 percentage points below the national average. Printing remains a significant source of jobs, about 10,500 in 2006, but it is projected to decline by about 1,300 over the projection period. Manufacturing will decrease to about 58,600 jobs by 2016.

Services Producing Sectors

Government

Federal, State and Local government make up the top two-digit industry in Chart 1 with about 15 percent of area jobs. The most important of these is the federal government, which is the keystone to the resilience of the Washington MSA in the face of a major recession. Washington has by far the largest share of federal jobs of any metropolitan area. Federal employment provided 10.4 percent of Washington MSA jobs in 2006 as shown in Table 1. The share of federal employment in the nation was only 2.1 percent in 2006. State and local government jobs in the metropolitan economy totaled

167,300 jobs in 2006 even after excluding education. We predict growth of about 31,000 state and local jobs at an average growth rate of 1.7 percent, which is above the average for the MSA. Since some of the surrounding jurisdictions in Virginia and Maryland have undeveloped land, there is room for more growth farther out. High-rise development for mixed-use office and residential apartments close to metro stops assures more local government jobs as well as construction employment.

Professional and Business Services

Professional and Business Services include three major two-digit industries shown in Table 1: Professional, Scientific and Technical Services, Management of Companies and Enterprises, and Administrative Support/Waste Management/Remediation Services. This group of industries accounted for 665,000 jobs in 2006, 20.3 percent of all jobs in the MSA - three componentsappear separately in Chart 1 and are represented among the forty high growth industries shown in Table 2. Overall growth of this group is expected to be 2.3 percent per year.

Professional, scientific and technical services sub-sector has a bigger share of metropolitan area jobs than the federal government with 13.3 percent of metro area employment in 2006. It is much bigger in Washington than it is in the nation as a whole, where it is 5.2 percent of jobs. We expect it to grow in importance, as revealed in Chart 1, to nearly 15 percent of jobs, rivaling government. With employment at 435,000 in 2006, we project the sector to grow to 546,000 in 2016. From Table 2 we see that computer services had the largest projected growth among the top sub-industries with nearly 46,000 new jobs by 2016; management consulting comes in second with 24,200, scientific research and development services third with 13,100, architectural and engineering services fourth at 9,600 and legal services fifth at 8,400. Other services in this group are accounting, tax preparation, bookkeeping and payroll services, advertising and other professional, scientific and technical services.

Administrative, support and waste management services had 190,000 jobs in 2006, 5.7 percent of metropolitan area jobs. Administrative and support services jobs in both the national economy and the metropolitan area are expected to grow at double the rate of employment overall. This group will add about 50,500 or 5000 jobs a year, reaching 240,500 jobs in 2016. Table 2 includes five industries from this group among the top forty. The top three are Services to buildings with 17,400 jobs, investigation and security services with 12,400 jobs, and employment services with nearly 45,000 jobs.

Wholesale and Retail Trade

Wholesale and retail trade had about 10 percent of area jobs in 2006. Retail trade appears third in importance among the major industry sectors (excluding selfemployed) in 2006. Retail trade had a base of 270,200 jobs, an 8.2 percent share. The national average share for retail is 11.2 percent. Retail jobs are growing slowly around the country and in Washington than overall employment. We expect retail to decline in job share to 7.3 percent by 2016. Wholesale trade had a smaller share of jobs than retail, 2.1 percent in 2006, and we expect its share to decline marginally to 2.0 percent. Four percent of jobs are in wholesale nationally. These projections may prove to be too optimistic if the current retrenchment in consumer spending, brought on by the drastic reversal in consumer income and wealth from the recession, proves to be long-lived.

Health Care and Social Assistance

Health care, roughly as important as retail trade in the overall share of jobs shown in Chart 1, is expected to grow in importance during the decade ahead. Jobs are projected to grow 68,300, but the share of MSA health care share of jobs in total jobs remains far below the national share, seven percent compared to 10.6 for the

national economy. The MSA had 232,000 health care jobs in 2006 and a projection of 300,500 for 2016. All four health care sub-industries appear among the top forty industries for job growth as shown in Table 2: ambulatory health care with 25,000 new jobs projected, hospitals with 9,600 jobs projected, nursing and residential care facilities with 18,400 jobs, and finally social assistance with 15,400 projected.

Leisure and Hospitality

Leisure and hospitality contains two industries shown in italics in Table 1 with about 7.5 percent of area jobs: accommodation and food services, and arts, entertainment and recreation. Hotel accommodations and food services follows health care in importance as shown on Chart 1 with 213,600 jobs or 6.5 percent of metropolitan employment. We project growth at 1.3 percent per year through 2016, which is down from 2.15 percent for recent years from 2000 to 2008. A slower rate of growth will mean an increase of 3,000 jobs a year. The local share in accommodations and food remains about 1.5 percent below the national average and virtually all of the short fall comes in restaurant jobs.

Arts, entertainment and recreation had 35,800 jobs in 2006. It has only about 1.1 percent of employment, slightly lower than the national average of 1.3 percent in spite of the many federal museums in the District and the Washington Metropolitan Area. The recreation part of the trio has 25,100 jobs. We expect 700 new jobs a year through 2016 in this industry.

Educational Services

Education encompasses both public and private education. It includes three subindustries in the top-forty list shown in Table 2: elementary and secondary schools, colleges, universities and professional schools and other schools and instruction. Education had 212,000 jobs in Metropolitan Washington in 2006. As the population grows, education employment goes up with it. We expect slightly over 22,100 new jobs by 2016, a continuation of recent trends.

Information

Information services had 97,000 jobs in 2006, about three percent of total jobs in the MSA. The two-digit industry includes the following sub-industries: publishing, motion picture and sound recording, broadcasting, telecommunications, and Internet and data services. Only the catchall category, other information services, appears in the top forty growth-industries list. All of the sub-industries in information are expected to lose jobs between 2006 and 2016 except broadcasting and the all other category. Telecommunications, with 33,000 jobs in 2006, was the largest of the information service sub-industries. The decrease in telecommunications in the MSA is consistent with trends projected for the national economy where expanded use of digital technology and mergers will be mostly responsible for the loss of jobs rather than any decline in the use of services. Given the importance of the federal government, broadcasting jobs are projected to increase but very little and too slowly to maintain their share of metropolitan employment. Information services should lose about 5,900 jobs in the decade.

Other Services

The residual category, other services, is relatively large (about the middle of Chart 1) and will have substantial growth during the decade. Most of the growth will be in non-profit organizations (the sub-industry, religious, grant making, civic, professional, and similar organizations). The size and growth of this industry reflects the presence of the federal government in the area, which is home to many non-profit organizations like the Chamber of Commerce, national professional associations, trade associations, international labor unions and political organizations. These organizations, which make up two percent of national employment, are 3.1 percent of jobs in the local metropolitan area. Non-profit organizations averaged 103,300 jobs in 2006. Given job

trends, we expect 133,000 jobs by 2016. The other three sub-industries in this catchall industry also appear in the top 40 high-employment industry growth list in Table 2: repair and maintenance, personal and laundry services and private households.

Finance, Insurance and Real Estate

Finance, insurance and real estate had about five percent of area jobs in 2006. Two of the four sub-industries under finance and insurance appear in the top forty: credit intermediation and securities. Finance and insurance had a base of 105,800 jobs and a projected increase of about 300 jobs a year for 2006 – 2016. Real estate, rental and leasing services also appear in the list of top forty shown in Table 2. It had about 55,700, 1.7 percent of the total. One industry in this group, insurance carriers, is projected to decline in the 2006 – 2016 decade. Over all, this is a slow growing sector with a growth rate of 0.36 percent per year.

Transportation and Warehousing

Transportation and warehousing had 59,400 jobs in Washington Metropolitan Area, which represents only 1.8 percent of jobs 2006. Growth in transportation employment is projected to be 5,700 new jobs, mostly in public transit and ground passenger transport, which are expected to be up 3,000 through 2016. Air transportation jobs were down from over 15,000 in 2004 and 2005 to 12,800 in 2006. Transit including public transit had fewer jobs than air transportation in 2004, but that has changed and the outlook for new jobs is better in pubic transit than air transport. Support activities for transportation, including airport operations at two airports, have 7,400 jobs and growth here should add 1,100 more. Couriers and messengers have 10,700 jobs and small growth should add 100 to 200 more.

Utilities

Utilities had 8,800 jobs in 2006, but these jobs are declining and are expected to decline by 800 to 1000 jobs in the 2006 – 2016 decade. The decline is due to productivity gains rather than a decline in demand for service, a trend that is national as well as local.

TABLE 1 – EMPLOYMENT BY INDUSTRY

INDUSTRY	2006	2016	2006 share	2016 share	Growth	Growth Rate %
Total, All Industries	3,280,154	3,719,306	100%	100%	439,152	1.26%
Goods Providing Industries	255,148	275,804	7.78%	7.42%	20,656	0.78%
Agriculture, Forestry, Fishing, & Hunting	2,613	2,639	0.08%	0.07%	26	0.10%
Mining	1,266	1,098	0.04%	0.03%	-168	-1.41%
Construction	187,613	212,449	5.72%	5.71%	24,836	1.25%
Manufacturing	63,656	59,618	1.94%	1.60%	-4,038	-0.65%
Services Providing Industries	2,711,327	3,110,021	82.66%	83.62%	398,694	1.38%
Wholesale and Retail Trade	340,294	346,944	10.37%	9.33%	6,650	0.19%
Wholesale Trade	70,125	73,985	2.14%	1.99%	3,860	0.54%
Retail Trade	270,169	272,959	8.24%	7.34%	2,790	0.10%
Transportation and Warehousing	59,381	65,114	1.81%	1.75%	5,733	0.93%
Information	96,926	91,047	2.95%	2.45%	-5,879	-0.62%
Finance, Insurance & Real Estate	161,500	167,420	4.92%	4.50%	5,920	0.36%
Finance and Insurance	105,775	108,684	3.22%	2.92%	2,909	0.27%
Real Estate and Rental Leasing	55,725	58,736	1.70%	1.58%	3,011	0.53%
Professional and Business Services	664,533	829,207	20.26%	22.29%	164,674	2.24%
Professional, Scientific and Technical Services	435,242	545,895	13.27%	14.68%	110,653	2.29%
Management of Companies and Enterprises	39,283	42,836	1.20%	1.15%	3,553	0.87%
Administrative Support & Waste Mgmt. Services	190,008	240,476	5.79%	6.47%	50,468	2.38%
Educational and Health Services	444,252	534,686	13.54%	14.38%	90,434	1.87%
Educational Services (including state & local government education)	212,111	234,199	6.47%	6.30%	22,088	1.00%
Health Care and Social Assistance	232,141	300,487	7.08%	8.08%	68,346	2.61%
Leisure and Hospitality	249,417	288,293	7.60%	7.75%	38,876	1.46%
Arts, Entertainment & Recreation	35,792	44,512	1.09%	1.20%	8,720	2.20%
Accommodation and Food Services	213,625	243,781	6.51%	6.55%	30,156	1.33%
Other Services	176,733	219,121	5.39%	5.89%	42,388	2.17%
Utilities	8,827	7,944	0.27%	0.21%	-883	-1.05%
Government (excl. State & Local Education)	509,464	560,245	15.53%	15.06%	50,781	0.95%
Self Employed/Unpaid Family Workers	313,679	333,481	9.56%	8.97%	19,802	0.61%

CHART 1: PERCENT SHARE BY TWO-DIGIT INDUSTRY, 2006 & 2016

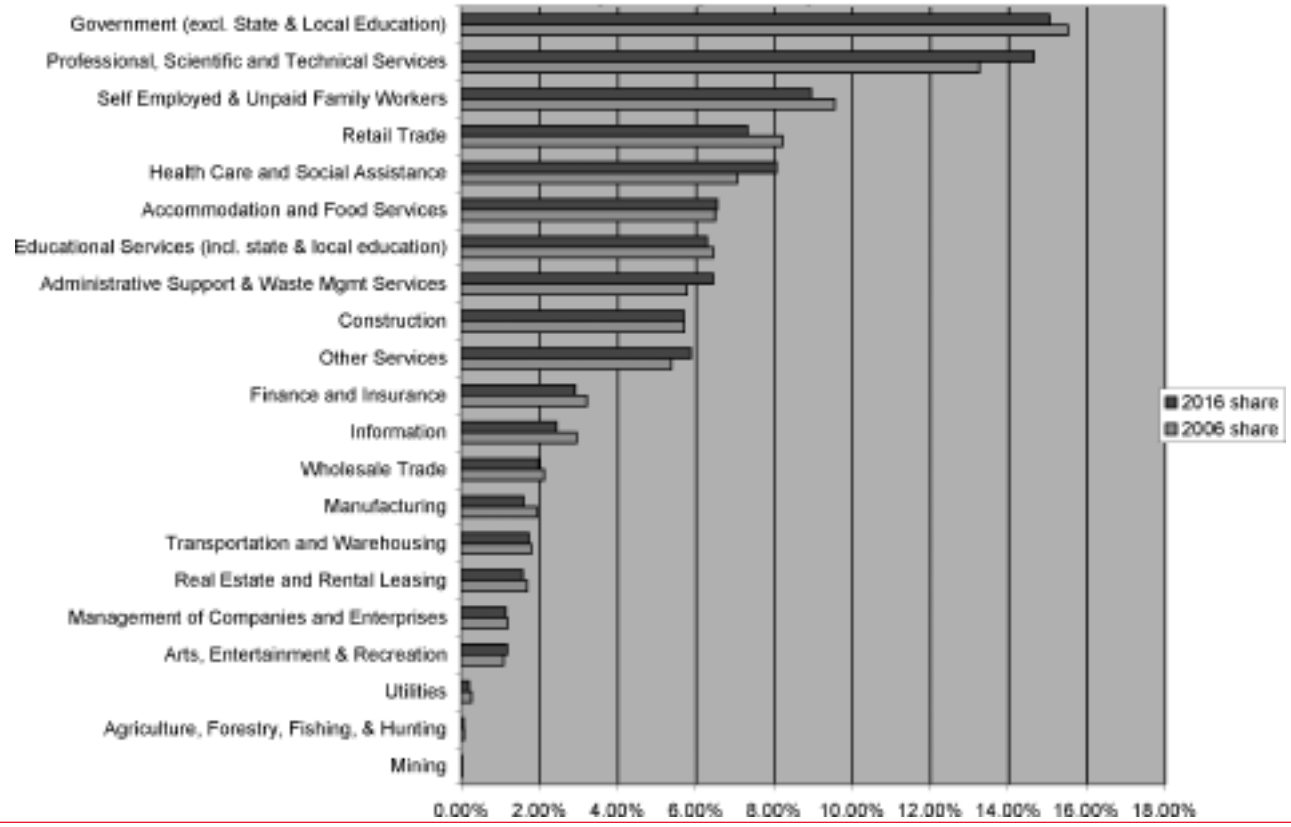


TABLE 2 – TOP FORTY HIGH EMPLOYMENT GROWTH INDUSTRIES 2006-2016

NAICS CODE	INDUSTRY TITLE	GROWTH	GROWTH RATE
230000	**Construction**		
236000	Construction of Buildings	2,421	0.49%
237000	Heavy and Civil Engineering Construction	2,083	0.95%
238000	Specialty Trade Contractors	20,332	1.60%
420000	**Wholesale Trade**	**3,860**	**0.54%**
44-45	**Retail Trade**		
452000	General Merchandise Stores	3,935	0.83%
48-49	**Transporation & Warehousing**		
485000	Transit and Ground Passenger Transport	2,956	2.42%
510000	**Information**		
519000	Other Information Services	2,202	5.96%
520000	**Finance & Insurance**		
522000	Credit Intermediation and Related Activities	2,993	0.50%
523000	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	1,620	1.09%
530000	**Real Estate, Rental and Leasing Services**	**3,011**	**0.53%**
540000	**Professional, Scientific and Technical Services**		
541100	Legal Services	8,399	1.48%
541200	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	5,132	1.94%
541300	Architectural, Engineering, and Related Services	9,625	1.51%
541500	Computer Systems Design and Related Services	45,797	2.81%
541600	Management, Scientific, and Technical Consulting Services	24,244	2.89%
541700	Scientific Research and Development Services	13,142	2.29%
541900	Other Professional, Scientific, and Technical Services	1,920	1.43%
550000	**Management of Companies and Enterprises**	**3,553**	**0.87%**
560000	**Administrative & Support & Waste Mgmt. & Remediation Services**		
561100	Office Administrative Services	4,396	2.99%
561200	Facilities Support Services	2,089	2.21%
561300	Employment Services	10,495	2.12%
561600	Investigation and Security Services	12,406	3.57%
561700	Services to Buildings and Dwellings	17,386	2.33%
610000	**Education Services**		
611100	Elementary and Secondary Schools	12,932	0.83%
611300	Colleges, Universities, and Professional Schools	4,065	1.02%
611600	Other Schools and Instruction	2,502	2.27%
620000	**Health Care & Social Assistance**		
621000	Ambulatory Health Care Services	25,030	2.62%
622000	Hospitals	9,555	1.34%
623000	Nursing and Residential Care Facilities	18,397	3.83%
624000	Social Assistance	15,364	3.30%
710000	**Arts, Entertainment, and Recreation**		
713000	Amusement, Gambling, and Recreation Industries	7,117	2.52%
720000	**Accommodation & Food Services**		
721000	Accommodation	4,187	1.02%
722000	Food Services and Drinking Places	25,969	1.40%
810000	**Other Services (except Public Administration)**		
811000	Repair and Maintenance	3,809	1.62%
812000	Personal and Laundry Services	5,582	1.52%
813000	Religious, Grantmaking, Civic, Professional, and Similar Organizations	29,622	2.55%
814000	Private Households	3,375	1.79%
900000	**Government**		
910000	Total Federal Government Employment	20,021	0.57%
999200	State Government, Excluding Education and Hospitals	2,340	0.30%
999300	Local Government, Excluding Education and Hospitals	28,420	2.80%

OCCUPATIONAL EMPLOYMENT PROJECTIONS

The Washington Metropolitan Area occupational projections give base and projected year job totals, projected growth, growth rate and annual openings for 775 individual occupations in ten major occupational groups. Table 3 summarizes occupational totals and percentages for the 10 major occupational groups and 15 subgroups. One of these, management, business and financial has two subgroups. The second major group, professional and related occupations has eight subgroups, and the third, service occupations, has five subgroups. Chart 2 illustrates the relative importance of the major occupational groups with respect to share of employment in 2006. Individual occupations appear in Appendix 2 under their group or sub-group headings with base and projected year employment, job growth, the average annual rate of job growth and projected annual openings. Tables 4, 5 and 6 show the top 40 of three different categories: demand, growth and growth rate. High demand occupations are those with the highest number of projected openings. High growth occupations are those with the highest projected increase in the number of jobs. High growth rate occupations have the highest projected percentage rate of growth. These three categories are discussed in detail below. Occupations with growth rates higher than 1.26 percent, the overall growth rate for the MSA, are expected to increase their share of Washington Metropolitan Area employment in the coming decade, and vice versa.

Major Occupational Groups

Professional and Related Occupations

Professional and related occupations have 26.6 percent in Washington area jobs, compared to the national average of 19.9 percent. Jobs in this group are growing at an average rate of 1.7 percent per year, and will generate 156,000 jobs in the decade from 2006 to 2016. This is one of only two major occupational groups with a growth rate above the metropolitan area growth rate. Among the professional occupations subgroups shown in Table 3, computer and mathematical occupations have 216,400 jobs; education and related occupations hold second place with 157,200 jobs and healthcare occupations have third place with 123,700 jobs. In the national economy, it is just the reverse with healthcare occupations having more jobs than education occupations and computer occupations a distant third.

Among the professional occupations, computer specialties are projected to have the highest growth, growth rate and openings. The growth is highest even though computing started from the largest base of employment. We expect 53,000 new jobs in computing. Counselors, social workers and social service specialists have a higher growth rate at 2.53 percent, but much smaller total employment with only 10,500 new jobs. Health care is third in jobs and third in growth and growth rate compared to the other professional occupations. We expect 24,800 new jobs in health care. Legal occupations have nearly 91,000 jobs, and the majority of legal jobs are in the District rather than the outlying jurisdictions.

Service Occupations

Service occupations are the second largest occupation by percent share of jobs as shown in Chart 2 and the second occupational group with a growth rate above the metropolitan average. It is also the fastest growing of the occupational groups with a growth rate of 1.9 percent per year. Service occupations make up 17.8 percent of metropolitan area jobs while the national share equals nearly 19.1 percent. Service occupations have 583,600 jobs with 202,000 of those jobs in food service occupations and 136,000 jobs in building and grounds cleaning and maintenance. The projection calls for an increase of 121,400 jobs by 2016.

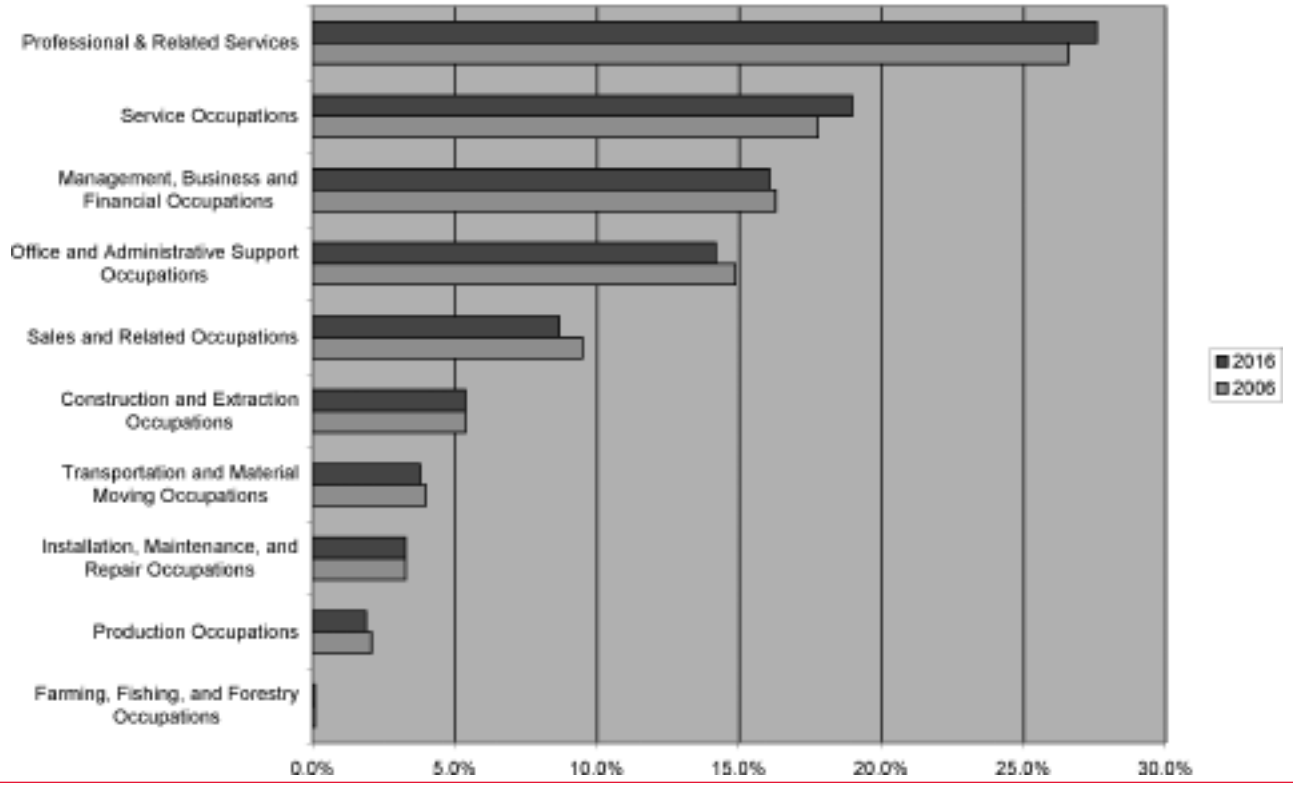
Management, Business, and Financial Occupations

Management, business and financial occupations have 16.3 percent of Metropolitan Washington employment compared to a 9.0 percent share for the US economy. This

TABLE 3 – EMPLOYMENT PROJECTIONS BY MAJOR OCCUPATIONAL GROUP AND SUBGROUP 2006-2016

OCCUPATION	2006	2016	2006 share	2016 share	Growth	Growth Rate %
Total, All Occupations	3,280,154	3,719,306	100.00%	100.00%	439,152	1.26%
Management, Business and Financial	535,565	597,458	16.3%	16.1%	61,893	1.10%
Management Occupations	248,306	269,936	7.6%	7.3%	21,630	0.84%
Business and Financial Occupations	287,259	327,522	8.8%	8.8%	40,263	1.32%
Professional & Related Occupations	870,932	1,026,495	26.6%	27.6%	155,563	1.66%
Computer and Mathematical Occupations	216,411	270,086	6.6%	7.3%	53,675	2.24%
Architecture and Engineering Occupations	77,509	87,045	2.4%	2.3%	9,536	1.17%
Life, Physical, and Social Science Occupations	72,694	83,490	2.2%	2.2%	10,796	1.39%
Counselors Social Workers, & Other Community & Social Service Specialists	37,030	47,533	1.1%	1.3%	10,503	2.53%
Legal Occupations	90,671	102,024	2.8%	2.7%	11,353	1.19%
Education, Training, & Library Occupations	157,246	179,506	4.8%	4.8%	22,260	1.33%
Arts, Design, Entertainment, Sports, and Media Occupations	95,666	108,278	2.9%	2.9%	12,612	1.25%
Healthcare Practitioners & Technical Occupations	123,705	148,533	3.8%	4.0%	24,828	1.85%
Service Occupations	583,638	705,072	17.8%	19.0%	121,434	1.91%
Healthcare Support Occupations	49,042	65,319	1.5%	1.8%	16,277	2.91%
Protective Service Occupations	92,829	115,180	2.8%	3.1%	22,351	2.18%
Food Preparation and Serving Related Occupations	202,127	235,165	6.2%	6.3%	33,038	1.53%
Building & Grounds Cleaning & Maintenance Occupations	136,073	163,781	4.1%	4.4%	27,708	1.87%
Personal Care & Service Occupations	103,567	125,627	3.2%	3.4%	22,060	1.95%
Sales & Related Occupations	312,312	325,270	9.5%	8.7%	12,958	0.41%
Office and Administrative Support	488,378	528,137	14.9%	14.2%	39,759	0.79%
Farming, Fishing, and Forestry	3,173	3,405	0.1%	0.1%	232	0.71%
Construction and Extraction	177,897	201,172	5.4%	5.4%	23,275	1.24%
Installation, Maintenance, and Repair	108,669	121,181	3.3%	3.3%	12,512	1.10%
Production	67,341	69,030	2.1%	1.9%	1,689	0.25%
Transportation and Material Moving	132,249	142,086	4.0%	3.8%	9,837	0.72%

CHART 2: PERCENT SHARE BY OCCUPATION, 2006 & 2016



group is third in percent share in Chart 2. Growth in managerial, business, financial occupations will be 61,900 jobs in the decade from 2006 to 2016. Managerial jobs are growing slowly in the Washington area as they are in the national economy. Business operations occupations in human resources and business operations specialists will have the biggest increases but management analysts and accounting will also have large gains. Business operations specialist is an especially important occupation in the federal government. Financial occupations will add fewer jobs. Combined these groups have a projected growth rate of 1.1 percent per year, which is slower than the area wide average.

Office and Administrative Support Occupations

Office support occupations are fourth largest in jobs, as shown in Chart 2, with 488,300, a 14.9 percent share, but growth will be at a much lower rate, about 0.8 percent. The projection calls for only 39,800 new jobs. This group has 17.3 percent of jobs in the national economy. Office automation limits the growth of these jobs and reduces the share of new office jobs in both the local as well as the national economy.

Sales and Related Occupations

Sales and related occupations had 312,300 jobs in 2006, and the projection calls for a slow growth of 12,900 new jobs in the next decade with most of the new jobs in retail sales.

Construction and Extraction Occupations

The Metropolitan Washington Area had 177,900 jobs in construction occupations in 2006, which is 5.4 percent of its jobs. The national average is five percent. Construction occupations in the District of Columbia, however, are far below the national average. Assuming continuing population and job growth and the derived growing need for housing, the construction jobs should grow by 23,300 new jobs, which would maintain construction as a share of metropolitan jobs. Transportation and Materials Moving Transportation has 132,200 jobs, but a growth rate of 0.72 percent will limit the increase of new jobs to 9,800. Most are driving jobs, especially bus drivers.

Installation, Maintenance and Repair Occupations

Installation, maintenance and repair occupations have 108,700 jobs, but only 3.3 percent share of jobs. The national economy has just over four percent in these occupations. Car and vehicle maintenance and repair occupations have most jobs, but computer and telecommunications repair have almost 9,000 jobs. Jobs in this group will grow at 1.1 percent per year, below the area wide average.

Production Occupations

Production occupations are a diverse group of occupations that are not especially important in the Washington area. Just 67,000 jobs fall into this group. Only 1,700 new jobs will be added with a growth rate of 0.25 percent a year. Printing occupations and some food processing occupations like baker, butcher and meat cutter have several thousand jobs; also machinist workers and welders, cutters, solderers, and braziers have a significant number of jobs.

Farming, Fishing and Forestry Occupations

This is the least important of the major occupational groups in the Washington area with only 31 hundred jobs. Washington is a highly urbanized area, but there are some nursery jobs. We expect growth of a few hundred jobs in this group, at a growth rate of 0.7 percent.

High Demand Occupations

Table 4 has the annual openings for the top 40 occupations. Openings have two components: job growth and net replacements. Job growth is the easiest to count because jobs for an occupation this year subtracted from jobs last year equals growth. Job growth is the annual increase in new jobs by occupation, where negative numbers mean fewer jobs, or just loss. However, job growth does not equal openings. If people leave an occupation they must be replaced before there can be more jobs. If we know there are 5,000 more bartenders this year than last, but a net of 5000 bartenders left bartending then there are 10,000 openings defined as 5,000 of growth and 5,000 net replacements. Net replacements are jobs created by people leaving an occupation from retirement, promotion or other causes. Openings are the sum of job growth and net replacements.

Annual openings in Metropolitan Washington due to growth and replacements total 117,546. The top 40 occupations account for 49 percent of these openings. Almost 53 percent of the top 40 high demand occupations are in two occupational groups: professional occupations, and service occupations. Together they have over 30,000 projected annual openings. Notice that skilled professional computer employment has the largest number of openings by individual occupations. Management analysts, lawyers, nursing, and accounting are professional jobs in high demand with business operations specialist, primarily a government professional job, also included among high demand occupations. Office and administrative support occupations have annual openings projected at slightly below 9,000. Metropolitan Washington is already a center for office occupations and current trends are projected to continue in that direction.

High Growth Occupations

Table 5 shows the 40 top high growth occupations. Growth is the projected increase in the number of jobs. The top 40 are projected to have over 57 percent of the total job growth. Again, professional and related occupations lead the way for job growth with service occupations second. Table 5 contains a list of occupations similar to Table 4, including computing, operations managers, business operations specialists, management analyst, and accountants. Thirty one occupations of the top 40 growth occupations are also in the top 40 high demand occupations.

Combining the five top computer occupations comes to 46,800 new jobs. Legal services have two occupations in the top 40: lawyers and paralegals, with 10,400 new jobs projected. Management analysts and registered nurses are among the top gainers as they have been in previous projections. Service occupations that go with an office-based economy are also projected to be gainers: janitors and cleaners, security guards, receptionists and several food service occupations. Professional and service employment will increase with about the same number of new jobs: 77,000 to 78,000.

High Growth Rate Occupations

Table 6 has the top 40 growth rate occupations for occupations that have at least 100 jobs. Occupations with a small number of base year jobs may have a high growth rate but still generate a small number of jobs. To eliminate this tendency, the table includes the top 40 with 2006 employment over 100.

High growth rate occupations have a different mix than high growth occupations from Table 5. Managerial occupations are not among the high growth rate occupations. Managerial jobs are barely growing in the national economy. Instead, professional and related occupations dominate high growth rate occupations. Service occupations take second place with 38 percent of the high growth rate occupations compared to 31.5 percent for high growth occupations. Computer software engineers, applications and computer system analyst, database administrator, and network systems and data communications analysts are four computer occupations that are in high growth rate occupations. Computer occupations have at least four occupations in all of Tables 4, 5 and 6. Computing occupations just mentioned account for 36,500 of the 81,700 new jobs in high growth rate occupations with over 100 jobs.

TABLE 4 – HIGHEST DEMAND OCCUPATIONS

SOC CODE	OCCUPATIONAL TITLE	AVERAGE ANNUAL OPENINGS
	Management, Business & Financial Occupations	**8,448**
11-1021	General and Operations Managers	1,836
11-9199	Managers, All Other	1,575
13-1111	Management Analysts	1,882
13-1199	Business Operations Specialists, All Other	1,650
13-2011	Accountants and Auditors	1,505
	Professional & Related Occupations	**1,3954**
15-1031	Computer Software Engineers, Applications	1,842
15-1032	Computer Software Engineers, Systems Software	1,243
15-1041	Computer Support Specialists	811
15-1051	Computer Systems Analysts	1,935
15-1071	Network and Computer Systems Administrators	1,054
15-1081	Network Systems and Data Communications Analysts	1,249
15-1099	Computer Specialists, All Other	829
23-1011	Lawyers	1,856
25-2021	Elementary School Teachers, Except Special Education	910
25-2031	Secondary School Teachers, Except Special and Vocational Education	665
29-1111	Registered Nurses	1,560
	Service Occupations	**16,455**
31-1012	Nursing Aides, Orderlies, and Attendants	731
33-3051	Police and Sheriff's Patrol Officers	973
33-9032	Security Guards	1,792
35-2014	Cooks, Restaurant	684
35-2021	Food Preparation Workers	859
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	1,796
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1,068
35-3031	Waiters and Waitresses	2,801
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2,500
37-2012	Maids and Housekeeping Cleaners	1,058
37-3011	Landscaping and Groundskeeping Workers	1,001
39-9011	Child Care Workers	1,192
	Sales & Related Occupations	**8,798**
41-1011	First-Line Supervisors/Managers of Retail Sales Workers	721
41-2011	Cashiers	3,214
41-2031	Retail Salespersons	3,459
41-3099	Sales Representatives, Services, All Other	724
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	680
	Office and Administrative Support Occupations	**8,961**
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	789
43-3031	Bookkeeping, Accounting, and Auditing Clerks	1,046
43-4051	Customer Service Representatives	2,095
43-4171	Receptionists and Information Clerks	1,212
43-6011	Executive Secretaries and Administrative Assistants	1,085
43-9061	Office Clerks, General	2,734
	Transportation and Materials Moving Occupations	**943**
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	943

TABLE 5 – HIGHEST GROWTH OCCUPATIONS

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate
	Management, Business & Financial Occupations	**312,525**	**350,125**	**37,600**	**1.14%**
11-1021	General and Operations Managers	59,683	63,650	3,967	0.65%
11-9199	Managers, All Other	62,649	65,937	3,288	0.51%
13-1079	Human Resources, Training, and Labor Relations Specialists, All Other	12,734	15,270	2,536	1.83%
13-1111	Management Analysts	68,028	75,239	7,211	1.01%
13-1199	Business Operations Specialists, All Other	55,741	66,268	10,527	1.74%
13-2011	Accountants and Auditors	43,911	51,232	7,321	1.55%
13-2051	Financial Analysts	9,779	12,529	2,750	2.51%
	Professional & Related Occupations	**299,526**	**377,028**	**77,502**	**2.33%**
15-1031	Computer Software Engineers, Applications	33,234	46,803	13,569	3.48%
15-1032	Computer Software Engineers, Systems Software	29,249	37,415	8,166	2.49%
15-1051	Computer Systems Analysts	34,364	44,599	10,235	2.64%
15-1071	Network and Computer Systems Administrators	20,773	26,569	5,796	2.49%
15-1081	Network Systems and Data Communications Analysts	16,966	25,993	9,027	4.36%
23-1011	Lawyers	60,822	67,852	7,030	1.10%
23-2011	Paralegals and Legal Assistants	12,787	16,130	3,343	2.35%
25-2011	Preschool Teachers, Except Special Education	10,528	13,299	2,771	2.36%
25-2021	Elementary School Teachers, Except Special Education	25,327	28,899	3,572	1.33%
27-3031	Public Relations Specialists	19,449	23,795	4,346	2.04%
29-1111	Registered Nurses	36,027	45,674	9,647	2.40%
	Service Occupations	**348,026**	**426,978**	**78,952**	**2.07%**
31-1011	Home Health Aides	7,960	12,625	4,665	4.72%
31-1012	Nursing Aides, Orderlies, and Attendants	17,767	23,484	5,717	2.83%
33-3051	Police and Sheriff's Patrol Officers	22,065	25,892	3,827	1.61%
33-9032	Security Guards	35,024	45,829	10,805	2.73%
35-2021	Food Preparation Workers	15,801	18,906	3,105	1.81%
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	44,186	53,768	9,582	1.98%
35-3031	Waiters and Waitresses	40,941	46,714	5,773	1.33%
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	63,125	76,039	12,914	1.88%
37-2012	Maids and Housekeeping Cleaners	28,466	33,688	5,222	1.70%
37-3011	Landscaping and Groundskeeping Workers	26,966	33,416	6,450	2.17%
39-5012	Hairdressers, Hairstylists, and Cosmetologists	15,300	17,926	2,626	1.60%
39-9011	Child Care Workers	23,511	28,682	5,171	2.01%
39-9021	Personal and Home Care Aides	6,914	10,009	3,095	3.77%
	Sales Occupations	**104,292**	**115,165**	**10,873**	**1.00%**
41-2031	Retail Salespersons	88,306	95,703	7,397	0.81%
41-3099	Sales Representatives, Services, All Other	15,986	19,462	3,476	1.99%
	Office and Administrative Support Occupations	**219,708**	**257,180**	**37,472**	**1.59%**
43-3031	Bookkeeping, Accounting, and Auditing Clerks	34,878	39,875	4,997	1.35%
43-4051	Customer Service Representatives	41,695	51,036	9,341	2.04%
43-4171	Receptionists and Information Clerks	28,228	33,452	5,224	1.71%
43-6011	Executive Secretaries and Administrative Assistants	33,353	38,892	5,539	1.55%
43-9061	Office Clerks, General	81,554	93,925	12,371	1.42%
	Construction Occupations	**31,966**	**35,968**	**4,002**	**1.19%**
47-2061	Construction Laborers	31,966	35,968	4,002	1.19%
	Installation, Maintenance, and Repair Occupations	28,431	329,29 4	498	1.48%
49-9042	Maintenance and Repair Workers, General	28,431	32,929	4,498	1.48%

TABLE 6 – HIGHEST GROWTH RATES OCCUPATIONS WITH OVER 100 JOBS

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate
	Professional & Related Occupations	**127,900**	**175,325**	**47,245**	**3.20%**
15-1031	Computer Software Engineers, Applications	33,234	46,803	13,569	3.48%
15-1051	Computer Systems Analysts	34,364	44,599	10,235	2.64%
15-1061	Database Administrators	6,743	8,822	2,079	2.72%
15-1081	Network Systems and Data Communications Analysts	16,966	25,993	9,027	4.36%
17-2112	Industrial Engineers	3,901	5,532	1,631	3.55%
19-4092	Forensic Science Technicians	342	495	153	3.77%
21-1011	Substance Abuse and Behavioral Disorder Counselors	1,471	2,037	566	3.31%
21-1013	Marriage and Family Therapists	393	555	162	3.51%
21-1014	Mental Health Counselors	2,065	2,768	703	2.97%
21-1015	Rehabilitation Counselors	3,549	4,642	1,093	2.72%
21-1021	Child, Family, and School Social Workers	4,083	5,366	1,283	2.77%
21-1023	Mental Health and Substance Abuse Social Workers	3,062	4,042	980	2.82%
21-1029	Social Workers, All Other	819	1,062	243	2.63%
21-1093	Social and Human Service Assistants	6,096	8,474	2,378	3.35%
21-1099	Community and Social Service Specialists, All Other	1,742	2,284	542	2.75%
27-3091	Interpreters and Translators	1,573	2,040	467	2.63%
29-1123	Physical Therapists	2,841	3,685	844	2.64%
29-1131	Veterinarians	1,275	1,649	374	2.61%
29-2021	Dental Hygienists	2,341	3,066	725	2.73%
29-2056	Veterinary Technologists and Technicians	1,040	1,411	371	3.10%
	Service Occupations	**87,418**	**118,411**	**30,993**	**3.08%**
31-1011	Home Health Aides	7,960	12,625	4,665	4.72%
31-1012	Nursing Aides, Orderlies, and Attendants	17,767	23,484	5,717	2.83%
31-2021	Physical Therapist Assistants	762	1,036	274	3.12%
31-2022	Physical Therapist Aides	546	703	157	2.56%
31-9091	Dental Assistants	5,389	7,018	1,629	2.68%
31-9092	Medical Assistants	5,829	7,978	2,149	3.19%
33-9032	Security Guards	35,024	45,829	10,805	2.73%
39-2011	Animal Trainers	857	1,184	327	3.28%
39-5092	Manicurists and Pedicurists	2,754	3,690	936	2.97%
39-5094	Skin Care Specialists	1,022	1,470	448	3.70%
39-9021	Personal and Home Care Aides	6,914	10,009	3,095	3.77%
39-9041	Residential Advisors	2,594	3,385	791	2.70%
	Installation, Maintenance and Repair Occupations	**3,151**	**4,207**	**1,056**	**2.93%**
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	484	632	148	2.70%
49-2098	Security and Fire Alarm Systems Installers	1,797	2,351	554	2.72%
49-9094	Locksmiths and Safe Repairers	870	1,224	354	3.47%
	Production Occupations	**2,557**	**3,362**	**805**	**2.77%**
51-4051	Metal-Refining Furnace Operators and Tenders	332	439	107	2.83%
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	276	380	104	3.25%
51-8031	Water and Liquid Waste Treatment Plant and System Operators	1,949	2,543	594	2.70%
	Transportation and Materials Moving Occupations	5,430	7,088	1,658	2.70%
53-3021	Bus Drivers, Transit and Intercity	5,040	6,569	1,529	2.68%
53-4041	Subway and Streetcar Operators	390	519	129	2.90%

OCCUPATIONAL EMPLOYMENT BY SKILL LEVEL

The Bureau of Labor Statistics has developed a skills taxonomy that reflects the training and qualifications associated with labor data reported within its occupational categories. This taxonomy appears in Table 7 below. Table 8 gives a summary of DC employment and growth by skill category and Chart 3 summarizes the skill mix for Metropolitan Washington. The skills taxonomy makes it possible to reorganize industry and occupational projections by skill category.

The Metropolitan Washington job mix has 32.7 percent of its employment in the first five skill categories, which are the categories requiring at least a BA degree, but often an advanced degree, or professional degree. Jobs requiring college degree training make up only 20 to 22 percent of jobs in the national economy.

Despite the relatively high percentage of jobs requiring college degree training, there are more than 142,800 jobs in technical areas that require associate's degree training, and these jobs are growing at faster than the metropolitan average. Projected growth in these occupations exceeds 25,000. Many of these positions are nurse, medical records and health information technicians, therapy in allied health, but also some computer support positions and legal services occupations.

Jobs requiring post-secondary training are even more numerous, but slightly lower growth than jobs requiring AA (associate degree) degree skills. Jobs requiring post secondary training are will grow at 2,300 per year while AA degree jobs are projected at 2,519. Post secondary jobs with the highest projected growth are nurses' aides and licensed practical nurse. Among those projected to have a large high number of new jobs are pre-school teachers, hair stylists, automotive service technicians, legal secretaries, fitness instructors, and aerobics instructors. Because Washington supports physical and life science research, it has many assistant and technician positions that require AA degree and other technical training.

CHART 3: PERCENT SHARE BY SKILL, 2006 & 2016

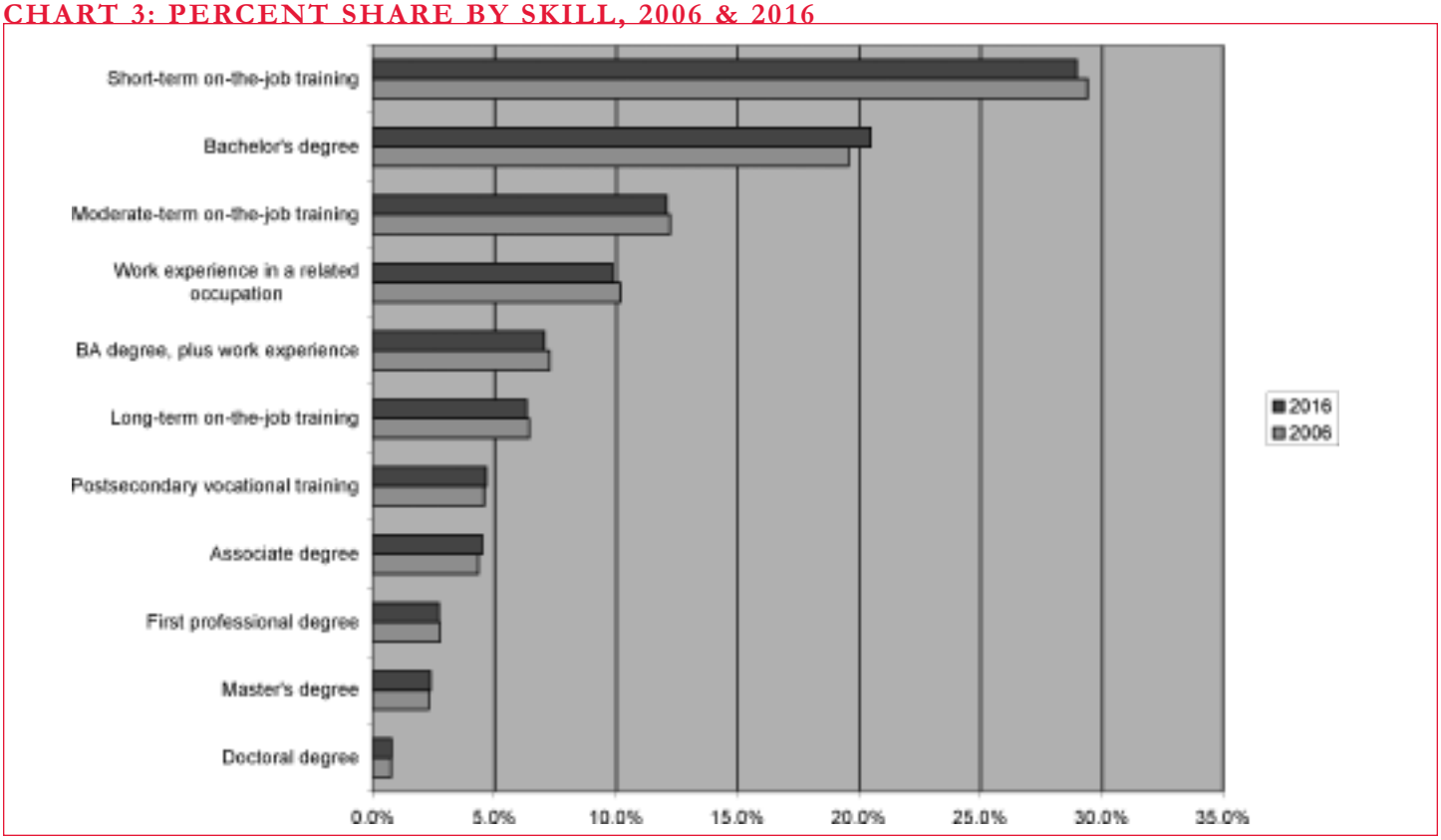


TABLE 7 – O*NET EDUCATIONAL TRAINING AND SKILLS CATEGORIES

1. First Professional Degree
Entry into a job in this skill category requires 2 to 4 years of degree study beyond a baccalaureate degree. Almost all professionals must pass state licensing exams or private board certification exams to enter practice. Physicians, veterinarians, dentists, lawyers, pharmacists are all examples. Ministers are generally included here although there is not ordinarily board or state certification.

2. Doctorate Degree
Entry into a job in this skill category requires a doctorate following completion of a baccalaureate degree as minimum education for entry. College teaching at four year colleges is an example. A doctorate is also required for many science and medical research positions. Many require licenses and board exams. Medical and biological researchers, physicists, and astronomers are other examples because employment is mostly in research and these require doctorates.

3. Master's Degree
Entry into a job in this skill category typically requires license, certification, credentials or registry in a specialized skill area that requires work beyond a BA degree, leading to a master's degree. Health care professions such as physical therapists, speech-language audiology or pathology, counseling are examples. Librarians are now also included.

4. Master's or Bachelor's degree combined with previous experience
Entry into a job in this skill category requires formal education, but these jobs are usually not accessible without experienced practice in the field at an entry job. Health Services managers usually have experience working in health care in addition to degrees and credentials. Some businesses now require work experience and an MBA before jobs are accessible for entry. Almost all of these jobs have manager in the SOC title.

5. Bachelor's Degree
Entry into a job in this skill category requires a BA or BS degree. In some cases a BA degree in any field is satisfactory to establish reading and computational skills necessary to begin a job. Other jobs need a BA in a particular major to establish skills, credentials or obtain a license.

6. Associate Degree
Entry into a job in this skill category usually requires some formal education such as an educational internship, or co-op program, but leading to an associate's degree. Some employers require graduation from an accredited two year community or junior college program in order to take required licensing exams. Health technician occupations are examples. Some skill types have professional associations with certification or accreditation to help establish skill levels for job entrants. Dental hygienists, licensed practical nursing are examples.

7. Post-secondary vocational training
Entry into a job in this skill category requires pre-employment skill training and often a license from a state agency. Barbers, hairstylists, office machine repairers, computer repair specialists and technicians are examples. Employers may provide some on-the-training but entrants must arrive with the skills and certification to do their job.

8. Work Experience in a Related Occupation
Entry into these jobs usually requires that applicants show a high level of skills. These skills can be acquired through degree training, but long term practice, and specialized talents acquired as part of a career in the field are necessary. It is a separate category because degrees and training do not assure entry into these occupations. First line supervisors, police detectives and investigators, adult education instructors are examples.

9. Long-term on the Job Training
Entry into a job in this skill category typically requires skills acquired from work experience that takes longer than one year. The additional skills needed for the job are taught on the job, through an apprenticeship or employer sponsored classroom instruction or training, and the skills required take a long time or a lot of effort to learn with training of over a year. Actors, athletes, dancers, electricians, carpenters and mechanics are examples. Entry into these jobs is not open to those leaving a degree program or skills training. Prior job relevant skills are necessary for advancement into these positions. For many of these positions a high school degree maybe sufficient but entry is not available to high school graduates. Entry skills are high school plus on the job skills and experience.

10. Moderate-term on the job Training
Entry into these jobs usually requires basic reading and language skills learned in high school or a GED program, but additional on-the-job training is usually necessary. Additional skills can be learned quickly, but 1 to 12 months can be needed to acquire additional skills. Medical assistants, dental assistants, social and human resource assistants are examples.

11. Short-term on the job Training
Entry into these jobs usually requires basic reading and language skills learned in high school or a GED program. Work that can be learned from written or verbal instructions, or carried out successfully after a demonstration are classified as high school skills. Additional skills can be learned quickly, typically a month or less of on-the-job experience or instruction. High school degree skills can also be thought of as general workforce skills.

TABLE 8 – EMPLOYMENT AND GROWTH BY EDUCATIONAL SKILL CATEGORY

EDUCATION CATEGORY	2006	2006 share	2016	2016 share	Growth	Growth Rate
First professional degree	90,453	2.8%	101,537	2.7%	11,084	1.16%
Doctoral degree	25,003	0.8%	28,914	0.8%	3,911	1.46%
Master's degree	75,542	2.3%	88,615	2.4%	13,073	1.61%
BA degree, plus work experience	239,197	7.3%	263,503	7.1%	24,306	0.97%
Bachelor's degree	643,107	19.6%	762,994	20.5%	119,887	1.72%
Associate degree	142,795	4.4%	167,985	4.5%	25,190	1.64%
Postsecondary vocational training	150,816	4.6%	173,822	4.7%	23,006	1.43%
Work experience in a related occupation	334,554	10.2%	367,591	9.9%	33,037	0.95%
Long-term on-the-job training	211,867	6.5%	235,950	6.3%	24,083	1.08%
Moderate-term on-the-job training	401,278	12.2%	450,439	12.1%	49,161	1.16%
Short-term on-the-job training	965,542	29.4%	1,077,956	29.0%	112,414	1.11%

WAGES IN OCCUPATIONAL GROUPS

Wages for occupations in Metropolitan Washington and 21 summary occupational groups are reported in Table 9. The median wage is $42,670, the median annual wage being in the middle with half the wage earners above and half below the median. The median annual wage reported for Metropolitan Washington is part of a distribution of wages for its standard occupational classifications: the 10th percentile, 25th percentile, median, 75th percentile and 90th percentile, which is a regular part of the published data released under BLS direction. The table includes the 10th and 90th percentiles where the 10th percentile wage of $18,370.00 means that 10 percent of the wage earners earn annual wages less than and 90 percent earn annual wages greater than $18,370.00. At the upper end of the distribution, the 90th percentile wage is $106,790.00. The 90th percentile wage assures 90 percent earn annual wages less than $106,790.00, and 10 percent earn more.

The wage distribution that is available for Metropolitan Washington is also available for the national economy. However, wages tend to be higher in the Washington Metropolitan Area than in the national economy. The national median wage is as $31,410, compared to $42,670 in the Washington area. Both the 10th and 90th percentile wages are higher as well; $16,060 compared to $18,370 in the Washington area and $75,910 compared to $106,790 for Washington. Comparing the Washington wage distribution to America's wage distribution suggests that the region's economy is generating "good" jobs. However, Washington has a higher percentage of professional jobs that tend to have higher wages and will raise reported wages for all occupations combined than the nation.

In Metropolitan Washington, managerial occupations have the highest median annual wages at $108,010. Business operations and financial occupations with median wages of $70,720 lag behind the highest paid of the professional occupations. Legal occupations have the highest professional wages with a median reported as $101,530, just below managerial occupations. Computer and mathematical occupations are second among in the professions with median wages of $83,540 followed by architecture, engineering and life, physical science and social science occupations. The lowest paid with median wages below $50,000 include community and social service occupations and education, training and library occupations.

All of the managerial and professional occupations have higher 10th percentile, median, and 90th percentile wages than the national wages reported in these same occupational groups. Even though the 10th percentile and 90th percentile wages are higher in

Metropolitan Washington, the spread or difference between the 90th and 10th percentile wages is higher for managerial and professional occupations. A higher difference between the 10th and 90th percent wages in these occupational groups suggests more possibility for advancement, at least for wages, in the metropolitan area than the larger national economy.

Service occupations all have median wages under $40,000. Food preparation and serving related occupations have the lowest median wage of any occupational group at $19,070.00, less than half the area median for all occupations. Protective service occupations, which include police officers, detectives, investigators, and security guards, have the highest median annual wages among service occupations at $39,720.00. As with managerial and professional occupations, service occupations in the Washington Metropolitan Area all have higher median wages than the national economy.

The remaining occupational groups show similar tendencies as service occupations with the exception of construction occupations. Sales and Office and Administrative occupations have median wages in the same ranges as the service occupations, and with wages that are higher than the wages in the national economy. However, construction occupations with a reported median wage of $25,540 are below the national average. The 10th percentile and 90th percentile wages are also below those reported for the national economy with the 90th percentile wage for Washington area construction is $45,160 compared to $67,180 in the national economy. The spread of the 10th and 90th percentile wage is also lower with only $29,150 higher wages in the 90th percentile for Washington, but $45,900 higher in the national economy.

Just fewer than 864,000 of Metropolitan Washington's jobs have median wages below $30,000. Metropolitan Washington does have a number of low wage jobs, but that is not typical of Metropolitan Washington's jobs. Notice that the 90th percentile wage is 3 to 4 times the 10th percentile annual wage for a number of occupational groups. Office and administrative support occupations have nearly 15 percent of Metropolitan Washington's employment and the 90th percentile wage is more than two and half times the 10th percentile annual wage.

TABLE 9 - WASHINGTON METROPOLITAN AREA ANNUAL WAGES BY OCCUPATIONAL GROUP: 2006

SOC CODE	OCCUPATIONAL TITLE	10th Percentile Annual Wage	Median Annual Wage	90th percentile Annual Wage
00-0000	All Occupations	$17,730	$41,210	$104,070
	Management, Busines & Financial Occupations			
11-0000	Management occupations	$53,400	$105,370	$145,600
13-0000	Business & financial operations occupations	$38,020	$67,860	$113,750
	Professional & Related Occupations			
15-0000	Computer and mathematical occupations	$44,510	$79,530	$122,040
17-0000	Architecture and engineering occupations	$40,560	$77,120	$124,580
19-0000	Life, physical, and social science occupations	$37,140	$77,310	$130,640
21-0000	Community and social services occupations	$24,500	$45,420	$80,690
23-0000	Legal occupations	$39,430	$101,370	$145,600
25-0000	Education, training, and library occupations	$22,770	$48,490	$90,770
27-0000	Arts, design, entertainment, sports, & media occupations	$25,810	$55,260	$101,210
29-0000	Healthcare practitioners & technical occupations	$32,900	$63,630	$126,600
	Service Occupations			
31-0000	Healthcare support occupations	$18,470	$26,570	$41,850
33-0000	Protective service occupations	$19,140	$37,710	$78,080
35-0000	Food preparation & serving related occupations	$13,170	$18,170	$31,440
37-0000	Building and grounds cleaning & maintenance occupations	$15,100	$21,910	$34,920
39-0000	Personal care and service occupations	$14,370	$22,650	$49,540
	Sales & Related Occupations			
41-0000	Sales and related occupations	$14,960	$25,110	$76,410
	Office and Administrative Support Occupations			
43-0000	Office and administrative support occupations	$19,800	$33,820	$55,170
	Construction Occupations			
47-0000	Construction and extraction occupations	$23,820	$37,520	$64,750
	Installation, Maintenance & Repair Occupations			
49-0000	Installation, maintenance, and repair occupations	$22,880	$41,260	$66,800
	Production Occupations			
51-0000	Production occupations	$17,530	$30,630	$58,000
	Transportation and Materials Moving Occupations			
53-0000	Transportation and material moving occupations	$16,130	$27,500	$49,940

WASHINGTON MSA COMPARED TO MAJOR METROPOLITAN AREAS

Table 10 below shows America's largest metropolitan areas ordered by 2008 establishment employment in the first column, then Census population, with new jobs since 1990 in the last column. These metropolitan areas have 80.4 million people and a little over 38 million establishment jobs, which is between 27 and 28 percent of America's total establishment employment. The Dallas metropolitan area takes first place in job growth despite being fifth place in employment and fourth place in population. The Washington Metropolitan Area takes fourth place in employment and second place in employment growth since 1990, even though it holds seventh place in population. The Washington area has the highest ratio of establishment employment to population at 56.7 percent.

Nearly 2.94 million manufacturing jobs are in these metropolitan areas, but only 61,000 of them are in Washington, which is just two percent of Washington metropolitan establishment jobs for 2008. The Los Angeles area has the most jobs in manufacturing with 608,000 and Detroit has the highest percentage of manufacturing employment with 12.4 percent, but Washington is lowest of all the major metropolitan areas in both of these categories. Washington makes up for its lack of manufacturing through federal employment, which is 348,000 jobs and 11.6 percent of establishment employment and 10.4 percent of all employment including the self employed. The New York metropolitan area has 124,000 federal jobs, but that is only 1.4 percent of employment. No other metropolitan area has more than 63,000 federal jobs and no other metropolitan area has more than a 2.1 percent share.

However, all of the metropolitan areas have declining manufacturing employment and all of them have lost manufacturing employment as a percentage share of their total employment. This is true starting in 1990, but also from almost any year since 1990. The major metropolitan areas need to make up for lost manufacturing with jobs in other sectors. Federal employment also has been a declining percentage of jobs in all 11 metro areas with 10 of the 11 metro areas also showing a decrease in the number of federal jobs with a net loss of 154,000 jobs since 1990. However, we project that federal employment will begin increasing more rapidly because of the recession and the shift to Democratic control of both houses on Congress and the Presidency. Federal jobs, however, are likely to continue declining as a percent of total jobs.

TABLE 10 - EMPLOYMENT AND POPULATION IN WASHINGTON AND OTHER MAJOR MSAS IN 2008

Rank	MSA	Establishment Employment 2008	Population	Employment Growth from 1990
1	NY-North New Jersey-Long Island NY-NJ-PA	8,160,400	18,815,988	717,600
2	Los Angeles-Long Beach-Santa Ana, CA	5,553,900	12,875,587	245,800
3	Chicago-Naperville-Joilet, IL-IN-WI	4,528,800	9,524,673	517,600
4	Wash-Arlington-Alexandria, DC-VA-MD-WV	3,006,800	5,306,565	756,700
5	Dallas-Fort Worth-Arlington, TX	2,986,300	6,145,037	985,000
6	Phil-Camden-Wilmington, PA-NJ-DE-MD	2,809,700	5,827,962	310,900
7	Boston-Cambridge-Quincy, MA-NH	2,493,600	4,482,857	268,100
8	Miami-Fort Lauderdale-Miami Beach, FL	2,365,600	5,413,212	615,600
9	San Francisco-Oakland-Fremont, CA	2,024,900	4,203,898	198,400
10	Detroit-Warren-Livonia, MI	1,898,800	4,467,592	-13,300
11	Seattle-Tacoma-Bellevue, WA	1,757,500	3,309,347	455,700

Combined job losses in manufacturing and federal employment come to a little over 1.9 million so that any increase must be net of these job losses. Total employment in all 11 metropolitan areas continues to grow with almost 5.1 million new jobs since 1990, but with manufacturing down and federal employment falling, 7.0 million new jobs are necessary for the net increase of 5.1 million jobs just mentioned. If we break down the 7.0 million new jobs for the 11 metropolitan areas by industry sector and sub-sector some common changes emerge. The largest increase in jobs for the 11 metropolitan areas comes in professional and business services, 1.95 million more jobs, or 27.8 percent of the total increase. Washington has the largest increase of the 11 with 315,000 new jobs. Washington is one of six of the eleven metropolitan areas where the increase of professional and business service jobs was greater than the loss of manufacturing. It is one of three where the percentage gain is greater than the percentage loss of manufacturing. The others were Miami and San Francisco.

Business and professional jobs are divided between professional services like legal services, architectural, engineering, computer, and consulting services and a variety of support services like office administration, facilities support, employment agencies, grounds maintenance and others. It is in the professional services part of business and professional services where Washington stands out compared to the other metro areas. Washington has 219,000 new professional jobs which is a 4.6 percentage share increase from 1990. Washington is far above the other metro areas in numbers and percent change for professional services. In the support services all the metro areas have an increase and an increase in percentage share. Dallas reports the biggest increase in support services employment with 125,000 new support jobs.

Health care and education are up in the national economy, and in the major metropolitan areas. Health care has more job growth than education with 3 metropolitan areas reporting small job declines in education. Washington health care has 246,000 jobs in 2008 but eight of the metro areas have more health care jobs and a higher percentage in health care jobs than Washington. New York has 1.2 million health care jobs, or 13.9 percent of total employment compared to Washington with only 8.2 percent of its jobs in health care.

Professional and business employment and health care employment in the eleven biggest metro areas have higher growth rates than the metropolitan average rate of employment growth; government including education about equals the metropolitan averages. In this way professional and business services and health care replaces manufacturing employment as well as other areas of employment that are growing at slower rates than the metropolitan average. These changes are generally true in all the metro areas and especially true in Washington where professional and business services are becoming much more important relative to other sectors of employment. New jobs in state and local government in the eleven metro areas offset the loss of federal jobs mentioned above with a net increase of 647,000 jobs, which is about 12.8 percent of new jobs since 1990. In the Washington Metropolitan Area the small decline in federal employment is offset with growth in state and local government jobs, which are up by 81,000 since 1990. The percentage share of government jobs in Washington area employment is down 3.42 percent.

Several other sectors and sub-sectors have growth rates of employment high enough to replace other jobs in decline: construction and the leisure-hospitality sector. The broadly named sector called leisure and hospitality includes arts, entertainment, recreation, hotels and restaurants. The leisure and hospitality sector has 946,000 new jobs combined for all the metropolitan areas since 1990. The Washington Metropolitan Area has 82000 of these new jobs with 66,000 of them in restaurants. Restaurants jobs continue to grow at two to three times growth rates for metro-wide employment.

New construction jobs since added 364,000 new jobs to the 11 metropolitan areas. Detroit was the only one of the eleven with a loss of construction jobs, down 4,200 jobs, but Detroit started 1990 with the smallest construction employment of the eleven big metro areas. Washington has the fifth highest growth rate in construction employment in 2008.

Construction jobs are usually four to seven percent of employment and this is true among the biggest metro areas. Washington has 173,000 construction jobs in 2008 with 5.3 percent of employment and 34,000 more jobs than the total for 1990, but down 12,000 from 2007. Growth in jobs for the specialty trade contractors that do home remodeling plays an important role in many of the metro areas and Washington growth here is typical.

Washington has the second highest number of new jobs in the sector that includes non-profit organizations that has religious, grant making, civic, professional and similar organizations. These new jobs had a little above a 1.16 percent increase in share of Washington metropolitan jobs since 1990, more than the other 10 metropolitan areas, three of which have a declining share of their respective employment. Other sectors and sub-sectors are gaining some new jobs but their growth rates are low and they are losing share. Information services has publishing, including Internet publishing, broadcasting, communications and also motion picture and sound recording. New York and Los Angeles have more jobs in these sectors than any other metro area. Washington is third with 91,000 but New York has three times that number and Los Angeles more than twice the Washington total. However, job growth in information services lags behind other sectors in the national economy. Eight of the eleven metro areas show a declining share of jobs in information services. The Washington Metro Area has only 9,000 more information jobs now in 2008 than 1990, which is so few new jobs that information services continues in decline as a share of Washington jobs. In information services though, the Washington metro area is typical of national trends.

Washington has the lowest share of its employment in finance and real estate of any of the 11 metropolitan areas: 154,000 jobs with 5.1 percent of jobs. By contrast New York has the largest number with 787,000 jobs and 9.1 percent of employment. However, even New York is losing jobs in these areas and ten of the eleven metro areas including Washington have a declining share of their jobs in finance and real estate.

Only trade, both wholesale and retail and transportation, warehousing, utilities remain as potential employment sectors. Trade jobs generally grow at a predictable pace, which is at or slightly below the growth rate of population and local employment. Retail trade in the national economy is now 11.2 percent and eight of the eleven metropolitan areas have retail employment between 10 and 11 percent. The highest is Miami with 12.7 percent of jobs in retail; Washington, DC is the lowest with 8.8 percent.

Transportation, warehousing, and utilities added 90,000 jobs since 1990 with eight of the eleven metropolitan areas reporting an increase. Three have a decline in employment and two others have only a few thousand additional jobs. Washington has the lowest share of all at just 2.1 percent of employment reported in these jobs. New York has the highest job total with 320,000 jobs but Dallas has the highest share at 4.8 percent. All but one have a declining share of their respective metro employment. Philadelphia is up slightly in percentage share with almost 15,000 new jobs in these sectors.

The comparison presented here shows common changes in employment by sector for eleven large metropolitan areas. All eleven metro areas had growth rates in professional and business employment two to four times their respective metro average growth rate. In contrast, nine of eleven metro areas had growth rates in retail trade below their respective metro wide average growth rates. With a net increase of 5.1 million jobs over the 18 year period, jobs in sectors with growth rates above average replace jobs in

sectors with growth rates below average, or with job losses such as manufacturing and the federal government. Therefore, jobs in professional and business employment, health care, leisure-hospitality, and construction with growth rates above average are tending to replace jobs in manufacturing and federal government, trade, information services, finance and real estate, transportation, warehousing, and utilities in metropolitan areas. Government and education have growth rates close to their respective metro averages and so they are holding steady as a share of total employment.

Even though Washington has little manufacturing employment and only lost a few thousand federal jobs between 1990 and 2008, jobs in professional and business services, health care, leisure-hospitality, especially restaurants, and construction have replaced jobs in trade, transportation, warehousing and utilities, information services, finance–real estate in the 1990-2008 period. Washington does have the federal government instead of manufacturing but has many of the same tendencies as other major metropolitan areas.

APPENDIX TABLE 1: DC METROPOLITAN INDUSTRY DETAIL

NAICS	INDUSTRY TITLE	2006	2016	Percent of 2006	Growth	Growth Rate
00-000	**Total, All Industries**	**3,280,154**	**3,719,306**		**439,152**	**1.26%**
110000	**Agriculture, Forestry, Fishing and Hunting**	**2,613**	**2,639**	**0.08%**	**26**	**0.10%**
210000	**Mining**	**1,266**	**1,098**	**0.04%**	**-168**	**-1.41%**
220000	**Utilities**	**8,827**	**7,944**	**0.27%**	**-883**	**-1.05%**
221000	Utilities	8,827	7,944	0.27%	-883	-1.05%
230000	**Construction**	187,613	212,449	5.72%	24,836	1.25%
236000	Construction of Buildings	48,285	50,706	1.47%	2,421	0.49%
237000	Heavy and Civil Engineering Construction	20,965	23,048	0.64%	2,083	0.95%
238000	Specialty Trade Contractors	118,363	138,695	3.61%	20,332	1.60%
31-33	**Manufacturing**	63,656	59,618	1.94%	-4,038	-0.65%
311000	Food Manufacturing	5,257	4,649	0.16%	-608	-1.22%
312000	Beverage and Tobacco Product Manufacturing	1,606	1,671	0.05%	65	0.40%
313000	Textile Mills	325	546	0.01%	221	5.32%
314000	Textile Product Mills	669	620	0.02%	-49	-0.76%
315000	Apparel Manufacturing	154	216	0.00%	62	3.44%
316000	Leather and Allied Product Manufacturing	***	***	***	***	***
321000	Wood Product Manufacturing	1,163	1,458	0.04%	295	2.29%
322000	Paper Manufacturing	622	645	0.02%	23	0.36%
323000	Printing and Related Support Activities	10,478	9,148	0.32%	-1,330	-1.35%
324000	Petroleum and Coal Products Manufacturing	509	337	0.02%	-172	-4.04%
325000	Chemical Manufacturing	4,566	4,593	0.14%	27	0.06%
326000	Plastics and Rubber Products Manufacturing	462	1,562	0.01%	1,100	12.95%
327000	Nonmetallic Mineral Product Manufacturing	3,500	3,068	0.11%	-432	-1.31%
331000	Primary Metal Manufacturing	***	***	***	***	***
332000	Fabricated Metal Product Manufacturing	3,382	3,522	0.10%	140	0.41%
333000	Machinery Manufacturing	***	***	***	***	***
334000	Computer and Electronic Product Manufacturing	***	***	***	***	***
335000	Electrical Equipment, Appliance, and Component Manufacturing	***	***	***	***	***
336000	Transportation Equipment Manufacturing	2,894	2,702	0.09%	-192	-0.68%
337000	Furniture and Related Product Manufacturing	2,683	2,388	0.08%	-295	-1.16%
339000	Miscellaneous Manufacturing	2,281	2,040	0.07%	-241	-1.11%
420000	**Wholesale Trade**	**70,125**	**73,985**	**2.14%**	**3,860**	**0.54%**
44-45	**Retail Trade**	**270,169**	**272,959**	**8.24%**	**2,790**	**0.10%**
441000	Motor Vehicle and Parts Dealers	33,833	34,375	1.03%	542	0.16%
442000	Furniture and Home Furnishings Stores	14,194	13,949	0.43%	-245	-0.17%
443000	Electronics and Appliance Stores	13,206	14,288	0.40%	1,082	0.79%
444000	Building Material & Garden Equipment & Supplies Dealers	22,529	23,421	0.69%	892	0.39%
445000	Food and Beverage Stores	50,362	49,374	1.54%	-988	-0.20%
446000	Health and Personal Care Stores	14,100	14,357	0.43%	257	0.18%
447000	Gasoline Stations	13,233	11,922	0.40%	-1,311	-1.04%
448000	Clothing and Clothing Accessories Stores	29,254	30,782	0.89%	1,528	0.51%
451000	Sporting Goods, Hobby, Book, and Music Stores	14,652	13,345	0.45%	-1,307	-0.93%
452000	General Merchandise Stores	45,714	49,649	1.39%	3,935	0.83%
453000	Miscellaneous Store Retailers	15,571	14,377	0.47%	-1,194	-0.79%
454000	Nonstore Retailers	3,521	3,120	0.11%	-401	-1.20%
48-49	**Transportation and Warehousing**	**59,381**	**65,114**	**1.81%**	**5,733**	**0.93%**
481000	Air Transportation	12,776	13,069	0.39%	293	0.23%
483000	Water Transportation	***	***	***	***	***
484000	Truck Transportation	10,548	11,156	0.32%	608	0.56%
485000	Transit and Ground Passenger Transport	10,955	13,911	0.33%	2,956	2.42%
486000	Pipeline Transportation	***	***	***	***	***
488000	Support Activities for Transportation	7,382	8,473	0.23%	1,091	1.39%
492000	Couriers and Messengers	10,689	10,836	0.33%	147	0.14%
493000	Warehousing and Storage	6,540	7,173	0.20%	633	0.93%
510000	**Information**	**96,926**	**91,047**	**2.95%**	**-5,879**	**-0.62%**
511000	Publishing Industries	24,626	21,342	0.75%	-3,284	-1.42%
512000	Motion Picture and Sound Recording Industries	4,944	4,909	0.15%	-35	-0.07%
515000	Broadcasting (except Internet)	10,246	11,355	0.31%	1,109	1.03%
516000	Internet Publishing and Broadcasting	212	180	0.01%	-32	-1.62%
517000	Telecommunications	33,324	31,566	1.02%	-1,758	-0.54%
518000	Internet Service Providers, Web Search Portals, and Data Processing Services	20,767	16,686	0.63%	-4,081	-2.16%

APPENDIX TABLE 1: DC METROPOLITAN INDUSTRY DETAIL *(CONTINUED)*

NAICS	INDUSTRY TITLE	2006	2016	Percent of 2006	Growth	Growth Rate
519000	Other Information Services	2,807	5,009	0.09%	2,202	5.96%
520000	**Finance and Insurance**	**105,775**	**108,684**	**3.22%**	**2,909**	**0.27%**
522000	Credit Intermediation and Related Activities	58,550	61,543	1.78%	2,993	0.50%
523000	Securities, Commodity Contracts, & Other Financial Investments & Related Activities	14,196	15,816	0.43%	1,620	1.09%
524000	Insurance Carriers and Related Activities	27,804	24,709	0.85%	-3,095	-1.17%
525000	Funds, Trusts, and Other Financial Vehicles	5,225	6,616	0.16%	1,391	2.39%
530000	**Real Estate, Rental and Leasing Services**	**55,725**	**58,736**	**1.70%**	**3,011**	**0.53%**
540000	**Professional, Scientific and Technical Services**	**435,242**	**545,895**	**13.27%**	**110,653**	**2.29%**
541100	Legal Services	53,068	61,467	1.62%	8,399	1.48%
541200	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	24,250	29,382	0.74%	5,132	1.94%
541300	Architectural, Engineering, and Related Services	59,386	69,011	1.81%	9,625	1.51%
541400	Specialized Design Services	3,726	4,711	0.11%	985	2.37%
541500	Computer Systems Design and Related Services	143,225	189,022	4.37%	45,797	2.81%
541600	Management, Scientific, and Technical Consulting Services	73,566	97,810	2.24%	24,244	2.89%
541700	Scientific Research and Development Services	51,749	64,891	1.58%	13,142	2.29%
541800	Advertising and Related Services	13,726	15,135	0.42%	1,409	0.98%
541900	Other Professional, Scientific, and Technical Services	12,546	14,466	0.38%	1,920	1.43%
550000	**Management of Companies and Enterprises**	**39,283**	**42,836**	**1.20%**	**3,553**	**0.87%**
560000	**Administrative & Support & Waste Management & Remediation Services**	**190,008**	**240,476**	**5.79%**	**50,468**	**2.38%**
561100	Office Administrative Services	12,813	17,209	0.39%	4,396	2.99%
561200	Facilities Support Services	8,555	10,644	0.26%	2,089	2.21%
561300	Employment Services	44,983	55,478	1.37%	10,495	2.12%
561400	Business Support Services	11,730	12,845	0.36%	1,115	0.91%
561500	Travel Arrangement and Reservation Services	4,172	4,424	0.13%	252	0.59%
561600	Investigation and Security Services	29,496	41,902	0.90%	12,406	3.57%
561700	Services to Buildings and Dwellings	66,974	84,360	2.04%	17,386	2.33%
561900	Other Support Services	5,152	6,564	0.16%	1,412	2.45%
562000	Waste Management and Remediation Service	6,133	7,050	0.19%	917	1.40%
610000	**Educational Services**	**212,111**	**234,199**	**6.47%**	**22,088**	**1.00%**
611100	Elementary and Secondary Schools	150,821	163,753	4.60%	12,932	0.83%
611300	Colleges, Universities, and Professional Schools	38,231	42,296	1.17%	4,065	1.02%
611400	Business Schools & Computer & Management Training	5,815	7,116	0.18%	1,301	2.04%
611500	Technical and Trade Schools	2,227	2,484	0.07%	257	1.10%
611600	Other Schools and Instruction	9,943	12,445	0.30%	2,502	2.27%
611700	Educational Support Services	5,074	6,105	0.15%	1,031	1.87%
620000	**Health Care and Social Assistance**	**232,141**	**300,487**	**7.08%**	**68,346**	**2.61%**
621000	Ambulatory Health Care Services	84,808	109,838	2.59%	25,030	2.62%
622000	Hospitals	67,033	76,588	2.04%	9,555	1.34%
623000	Nursing and Residential Care Facilities	40,269	58,666	1.23%	18,397	3.83%
624000	Social Assistance	40,031	55,395	1.22%	15,364	3.30%
710000	**Arts, Entertainment, and Recreation**	**35,792**	**44,512**	**1.09%**	**8,720**	**2.20%**
711000	Performing Arts, Spectator Sports, and Related Industries	8,779	10,007	0.27%	1,228	1.32%
712000	Museums, Historical Sites, and Similar Institution	1,868	2,243	0.06%	375	1.85%
713000	Amusement, Gambling, and Recreation Industries	25,145	32,262	0.77%	7,117	2.52%
720000	**Accommodation and Food Services**	**213,625**	**243,781**	**6.51%**	**30,156**	**1.33%**
721000	Accommodation	39,092	43,279	1.19%	4,187	1.02%
722000	Food Services and Drinking Places	174,533	200,502	5.32%	25,969	1.40%
810000	**Other Services (except Public Administration)**	**176,733**	**219,121**	**5.39%**	**42,388**	**2.17%**
811000	Repair and Maintenance	21,864	25,673	0.67%	3,809	1.62%
812000	Personal and Laundry Services	34,226	39,808	1.04%	5,582	1.52%
813000	Religious, Grantmaking, Civic, Professional, and Similar Organizations	103,293	132,915	3.15%	29,622	2.55%
814000	Private Households	17,350	20,725	0.53%	3,375	1.79%
900000	**Government (excluding state & local education & hospitals)**	**509,464**	**560,245**	**15.53%**	**50,781**	**0.95%**
910000	Federal Government	342,208	362,229	10.43%	20,021	0.57%
999200	State Government, Excluding Education and Hospitals	78,039	80,379	2.38%	2,340	0.30%
999300	Local Government, Excluding Education and Hospitals	89,217	117,637	2.72%	28,420	2.80%
	State & Local Government, Excluding Education and Hospitals	167,256	198,016	5.10%	30,760	1.70%
601-701	**Self-Employed & Unpaid Family Workers**	**313,679**	**333,481**	**9.56%**	**19,802**	**0.61%**
601000	Self-Employed Workers, Primary Job	311401	331638	0.09493	20237	0.63%
701000	Unpaid Family Workers, Primary Job	2278	1843	0.00069	-435	-2.10%

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
00-0000	**Total, All Occupations**	**3,280,154**	**3,719,306**	**439,152**	**1.26%**	**117,546**
11-0000	**Management Occupations**	**248,306**	**269,936**	**21,630**	**0.84%**	**7,432**
11-1011	Chief Executives	8,184	8,722	538	0.64%	278
11-1021	General and Operations Managers	59,683	63,650	3,967	0.65%	1,836
11-1031	Legislators	217	255	38	1.63%	8
11-2011	Advertising and Promotions Managers	881	958	77	0.84%	28
11-2021	Marketing Managers	4,023	4,584	561	1.31%	145
11-2022	Sales Managers	5,327	5,768	441	0.80%	162
11-2031	Public Relations Managers	2,533	3,051	518	1.88%	111
11-3011	Administrative Services Managers	9,807	10,996	1,189	1.15%	378
11-3021	Computer and Information Systems Managers	14,033	16,046	2,013	1.35%	428
11-3031	Financial Managers	15,036	16,485	1,449	0.92%	364
11-3041	Compensation and Benefits Managers	1,400	1,643	243	1.61%	50
11-3042	Training and Development Managers	978	1,104	126	1.22%	31
11-3049	Human Resources Managers, All Other	1,826	2,024	198	1.03%	54
11-3051	Industrial Production Managers	844	842	-2	-0.02%	29
11-3061	Purchasing Managers	3,276	3,295	19	0.06%	96
11-3071	Transportation, Storage, and Distribution Managers	1,628	1,750	122	0.73%	60
11-9011	Farm, Ranch, and Other Agricultural Managers	***	***	***	***	***
11-9021	Construction Managers	13,862	15,789	1,927	1.31%	408
11-9031	Education Administrators, Preschool and Child Care Center/Program	1,707	2,143	436	2.30%	92
11-9032	Education Administrators, Elementary and Secondary School	3,972	4,277	305	0.74%	142
11-9033	Education Administrators, Postsecondary	1,785	1,998	213	1.13%	71
11-9039	Education Administrators, All Other	1,707	1,971	264	1.45%	74
11-9041	Engineering Managers	6,148	6,798	650	1.01%	190
11-9051	Food Service Managers	5,944	6,397	453	0.74%	185
11-9061	Funeral Directors	183	216	33	1.67%	7
11-9071	Gaming Managers	***	***	***	***	***
11-9081	Lodging Managers	1,255	1,382	127	0.97%	41
11-9111	Medical and Health Services Managers	5,872	6,749	877	1.40%	198
11-9121	Natural Sciences Managers	3,956	4,421	465	1.12%	134
11-9131	Postmasters and Mail Superintendents	208	229	21	0.97%	7
11-9141	Property, Real Estate, and Community Association Managers	6,865	7,273	408	0.58%	136
11-9151	Social and Community Service Managers	2,499	3,161	662	2.38%	114
11-9199	Managers, All Other	62,649	65,937	3,288	0.51%	1,575
13-0000	**Business and Financial Operations Occupations**	**287,259**	**327,522**	**40,263**	**1.32%**	**8,817**
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	651	765	114	1.63%	29
13-1021	Purchasing Agents and Buyers, Farm Products	174	180	6	0.34%	3
13-1022	Wholesale and Retail Buyers, Except Farm Products	2,225	2,132	-93	-0.43%	50
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	12,013	12,268	255	0.21%	283
13-1031	Claims Adjusters, Examiners, and Investigators	5,138	5,021	-117	-0.23%	131
13-1032	Insurance Appraisers, Auto Damage	209	200	-9	-0.44%	5
13-1041	Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	9,024	9,923	899	0.95%	195
13-1051	Cost Estimators	5,624	6,827	1,203	1.96%	235
13-1061	Emergency Management Specialists	444	517	73	1.53%	12
13-1071	Employment, Recruitment, and Placement Specialists	6,321	7,338	1,017	1.50%	238
13-1072	Compensation, Benefits, and Job Analysis Specialists	3,200	3,906	706	2.01%	140
13-1073	Training and Development Specialists	8,206	9,872	1,666	1.87%	344
13-1079	Human Resources, Training, and Labor Relations Specialists, All Other	12,734	15,270	2,536	1.83%	528
13-1081	Logisticians	4,185	5,093	908	1.98%	153
13-1111	Management Analysts	68,028	75,239	7,211	1.01%	1,882
13-1121	Meeting and Convention Planners	4,041	5,103	1,062	2.36%	187
13-1199	Business Operations Specialists, All Other	55,741	66,268	10,527	1.74%	1,650
13-2011	Accountants and Auditors	43,911	51,232	7,321	1.55%	1,505
13-2021	Appraisers and Assessors of Real Estate	1,727	1,883	156	0.87%	51
13-2031	Budget Analysts	5,444	5,913	469	0.83%	173

*** *Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
13-2041	Credit Analysts	1,423	1,412	-11	-0.08%	54
13-2051	Financial Analysts	9,779	12,529	2,750	2.51%	331
13-2052	Personal Financial Advisors	4,802	5,576	774	1.51%	120
13-2053	Insurance Underwriters	1,582	1,435	-147	-0.97%	42
13-2061	Financial Examiners	***	***	***	***	***
13-2071	Loan Counselors	1,065	1,075	10	0.09%	13
13-2072	Loan Officers	9,446	10,183	737	0.75%	176
13-2081	Tax Examiners, Collectors, and Revenue Agents	***	***	***	***	***
13-2082	Tax Preparers	2,983	2,711	-272	-0.95%	53
13-2099	Financial Specialists, All Other	5,586	5,942	356	0.62%	185
15-0000	**Computer and Mathematical Occupations**	**216,411**	**270,086**	**53,675**	**2.24%**	**10,122**
15-1011	Computer and Information Scientists, Research	3,457	3,948	491	1.34%	141
15-1021	Computer Programmers	17,175	16,494	-681	-0.40%	359
15-1031	Computer Software Engineers, Applications	33,234	46,803	13,569	3.48%	1,842
15-1032	Computer Software Engineers, Systems Software	29,249	37,415	8,166	2.49%	1,243
15-1041	Computer Support Specialists	19,176	21,361	2,185	1.08%	811
15-1051	Computer Systems Analysts	34,364	44,599	10,235	2.64%	1,935
15-1061	Database Administrators	6,743	8,822	2,079	2.72%	280
15-1071	Network and Computer Systems Administrators	20,773	26,569	5,796	2.49%	1,054
15-1081	Network Systems and Data Communications Analysts	16,966	25,993	9,027	4.36%	1,249
15-1099	Computer Specialists, All Other	24,606	26,370	1,764	0.69%	829
15-2011	Actuaries	427	485	58	1.28%	21
15-2021	Mathematicians	631	735	104	1.54%	26
15-2031	Operations Research Analysts	5,086	5,553	467	0.88%	149
15-2041	Statisticians	4,377	4,755	378	0.83%	175
15-2091	Mathematical Technicians	***	***	***	***	***
15-2099	Mathematical Science Occupations, All Other	***	***	***	***	***
17-0000	**Architecture and Engineering Occupations**	**77,509**	**87,045**	**9,536**	**1.17%**	**2,683**
17-1011	Architects, Except Landscape and Naval	5,798	6,277	479	0.80%	158
17-1012	Landscape Architects	683	734	51	0.72%	18
17-1021	Cartographers and Photogrammetrists	867	981	114	1.24%	38
17-1022	Surveyors	1,393	1,609	216	1.45%	65
17-2011	Aerospace Engineers	3,142	3,793	651	1.90%	127
17-2021	Agricultural Engineers	***	***	***	***	***
17-2031	Biomedical Engineers	566	701	135	2.16%	27
17-2041	Chemical Engineers	769	935	166	1.97%	37
17-2051	Civil Engineers	8,079	9,279	1,200	1.39%	333
17-2061	Computer Hardware Engineers	3,412	3,726	314	0.88%	136
17-2071	Electrical Engineers	5,955	6,667	712	1.14%	209
17-2072	Electronics Engineers, Except Computer	5,207	5,616	409	0.76%	162
17-2081	Environmental Engineers	2,205	2,637	432	1.81%	108
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	537	595	58	1.03%	19
17-2112	Industrial Engineers	3,901	5,532	1,631	3.55%	257
17-2121	Marine Engineers and Naval Architects	1,209	1,306	97	0.77%	42
17-2131	Materials Engineers	584	673	89	1.43%	23
17-2141	Mechanical Engineers	5,644	6,174	530	0.90%	175
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	***	***	***	***	***
17-2161	Nuclear Engineers	486	558	72	1.39%	18
17-2171	Petroleum Engineers	101	110	9	0.86%	4
17-2199	Engineers, All Other	8,607	9,332	725	0.81%	174
17-3011	Architectural and Civil Drafters	2,721	2,653	-68	-0.25%	78
17-3012	Electrical and Electronics Drafters	672	742	70	1.00%	26
17-3013	Mechanical Drafters	733	788	55	0.73%	27
17-3019	Drafters, All Other	207	222	15	0.70%	8
17-3021	Aerospace Engineering and Operations Technicians	271	326	55	1.86%	11
17-3022	Civil Engineering Technicians	2,757	3,014	257	0.90%	80
17-3023	Electrical and Electronic Engineering Technicians	3,952	4,267	315	0.77%	109
17-3024	Electro-Mechanical Technicians	650	635	-15	-0.23%	13
17-3025	Environmental Engineering Technicians	527	651	124	2.14%	22
17-3026	Industrial Engineering Technicians	1,091	1,210	119	1.04%	33
17-3027	Mechanical Engineering Technicians	741	862	121	1.52%	27

*** *Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
17-3029	Engineering Technicians, Except Drafters, All Other	2,421	2,586	165	0.66%	64
17-3031	Surveying and Mapping Technicians	1,477	1,677	200	1.28%	48
19-0000	**Life, Physical, and Social Science Occupations**	**72,694**	**83,490**	**10,796**	**1.39%**	**2,759**
19-1011	Animal Scientists	66	71	5	0.73%	3
19-1012	Food Scientists and Technologists	137	171	34	2.24%	7
19-1013	Soil and Plant Scientists	475	529	54	1.08%	20
19-1021	Biochemists and Biophysicists	576	737	161	2.50%	28
19-1022	Microbiologists	1,557	1,751	194	1.18%	51
19-1023	Zoologists and Wildlife Biologists	498	558	60	1.14%	16
19-1029	Biological Scientists, All Other	3,589	3,805	216	0.59%	95
19-1031	Conservation Scientists	577	688	111	1.78%	28
19-1032	Foresters	89	102	13	1.37%	4
19-1041	Epidemiologists	109	127	18	1.54%	5
19-1042	Medical Scientists, Except Epidemiologists	2,250	2,749	499	2.02%	120
19-1099	Life Scientists, All Other	949	1,193	244	2.31%	53
19-2011	Astronomers	416	458	42	0.97%	14
19-2012	Physicists	1,630	1,742	112	0.67%	51
19-2021	Atmospheric and Space Scientists	591	647	56	0.91%	20
19-2031	Chemists	3,548	3,836	288	0.78%	123
19-2032	Materials Scientists	122	149	27	2.02%	6
19-2041	Environmental Scientists and Specialists, Including Health	4,798	5,570	772	1.50%	201
19-2042	Geoscientists, Except Hydrologists and Geographers	749	856	107	1.34%	30
19-2043	Hydrologists	195	235	40	1.88%	9
19-2099	Physical Scientists, All Other	3,215	3,498	283	0.85%	89
19-3011	Economists	5,424	5,910	486	0.86%	208
19-3021	Market Research Analysts	12,771	15,008	2,237	1.63%	311
19-3022	Survey Researchers	2,409	2,905	496	1.89%	66
19-3031	Clinical, Counseling, and School Psychologists	3,417	4,035	618	1.68%	114
19-3032	Industrial-Organizational Psychologists	251	291	40	1.49%	8
19-3039	Psychologists, All Other	551	593	42	0.74%	12
19-3041	Sociologists	787	984	197	2.26%	33
19-3051	Urban and Regional Planners	1,188	1,491	303	2.30%	65
19-3091	Anthropologists and Archeologists	366	431	65	1.65%	19
19-3092	Geographers	257	269	12	0.46%	9
19-3093	Historians	568	624	56	0.94%	24
19-3094	Political Scientists	3,577	3,921	344	0.92%	148
19-3099	Social Scientists and Related Workers, All Other	7,262	8,190	928	1.21%	325
19-4011	Agricultural and Food Science Technicians	305	349	44	1.36%	9
19-4021	Biological Technicians	1,643	2,021	378	2.09%	97
19-4031	Chemical Technicians	755	883	128	1.58%	38
19-4041	Geological and Petroleum Technicians	***	***	***	***	***
19-4051	Nuclear Technicians	***	***	***	***	***
19-4061	Social Science Research Assistants	1,946	2,376	430	2.02%	117
19-4091	Environmental Science and Protection Technicians, Including Health	639	818	179	2.50%	42
19-4092	Forensic Science Technicians	342	495	153	3.77%	28
19-4093	Forest and Conservation Technicians	33	39	6	1.68%	2
19-4099	Life, Physical, and Social Science Technicians, All Other	1,987	2,294	307	1.45%	107
21-0000	**Counselors, Social Workers, and Other Community and Social Service Specialists**	**37,030**	**47,533**	**10,503**	**2.53%**	**1,689**
21-1011	Substance Abuse and Behavioral Disorder Counselors	1,471	2,037	566	3.31%	86
21-1012	Educational, Vocational, and School Counselors	4,312	4,770	458	1.01%	131
21-1013	Marriage and Family Therapists	393	555	162	3.51%	24
21-1014	Mental Health Counselors	2,065	2,768	703	2.97%	111
21-1015	Rehabilitation Counselors	3,549	4,642	1,093	2.72%	179
21-1019	Counselors, All Other	272	349	77	2.52%	13
21-1021	Child, Family, and School Social Workers	4,083	5,366	1,283	2.77%	214
21-1022	Medical and Public Health Social Workers	3,354	3,994	640	1.76%	135
21-1023	Mental Health and Substance Abuse Social Workers	3,062	4,042	980	2.82%	163
21-1029	Social Workers, All Other	819	1,062	243	2.63%	41
21-1091	Health Educators	2,860	3,411	551	1.78%	88
21-1092	Probation Officers and Correctional Treatment Specialists	1,919	2,407	488	2.29%	71
21-1093	Social and Human Service Assistants	6,096	8,474	2,378	3.35%	309

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APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
21-1099	Community and Social Service Specialists, All Other	1,742	2,284	542	2.75%	74
21-2011	Clergy	677	900	223	2.89%	31
21-2021	Directors, Religious Activities and Education	***	***	***	***	***
21-2099	Religious Workers, All Other	***	***	***	***	***
23-0000	**Legal Occupations**	**90,671**	**102,024**	**11,353**	**1.19%**	**2,743**
23-1011	Lawyers	60,822	67,852	7,030	1.10%	1,856
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	564	587	23	0.40%	13
23-1022	Arbitrators, Mediators, and Conciliators	***	***	***	***	***
23-1023	Judges, Magistrate Judges, and Magistrates	***	***	***	***	***
23-2011	Paralegals and Legal Assistants	12,787	16,130	3,343	2.35%	502
23-2091	Court Reporters	1,576	1,762	186	1.12%	45
23-2092	Law Clerks	1,649	1,705	56	0.33%	33
23-2093	Title Examiners, Abstractors, and Searchers	1,976	1,990	14	0.07%	34
23-2099	Legal Support Workers, All Other	11,020	11,678	658	0.58%	249
25-0000	**Education, Training, and Library Occupations**	**157,246**	**179,506**	**22,260**	**1.33%**	**5,416**
25-1011	Business Teachers, Postsecondary	1,731	2,080	349	1.85%	64
25-1021	Computer Science Teachers, Postsecondary	648	788	140	1.98%	25
25-1022	Mathematical Science Teachers, Postsecondary	520	618	98	1.74%	19
25-1031	Architecture Teachers, Postsecondary	259	310	51	1.81%	9
25-1032	Engineering Teachers, Postsecondary	703	834	131	1.72%	25
25-1041	Agricultural Sciences Teachers, Postsecondary	143	170	27	1.74%	5
25-1042	Biological Science Teachers, Postsecondary	350	415	65	1.72%	13
25-1043	Forestry and Conservation Science Teachers, Postsecondary	8	10	2	2.26%	0
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	105	125	20	1.76%	4
25-1052	Chemistry Teachers, Postsecondary	226	268	42	1.72%	8
25-1053	Environmental Science Teachers, Postsecondary	56	67	11	1.81%	2
25-1054	Physics Teachers, Postsecondary	287	340	53	1.71%	10
25-1061	Anthropology and Archeology Teachers, Postsecondary	136	161	25	1.70%	5
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	112	134	22	1.81%	4
25-1063	Economics Teachers, Postsecondary	304	361	57	1.73%	11
25-1064	Geography Teachers, Postsecondary	63	75	12	1.76%	2
25-1065	Political Science Teachers, Postsecondary	536	636	100	1.73%	19
25-1066	Psychology Teachers, Postsecondary	488	580	92	1.74%	17
25-1067	Sociology Teachers, Postsecondary	189	224	35	1.71%	7
25-1069	Social Sciences Teachers, Postsecondary, All Other	12	14	2	1.55%	0
25-1071	Health Specialties Teachers, Postsecondary	1,385	1,681	296	1.96%	53
25-1072	Nursing Instructors and Teachers, Postsecondary	591	712	121	1.88%	22
25-1081	Education Teachers, Postsecondary	683	814	131	1.77%	24
25-1082	Library Science Teachers, Postsecondary	64	76	12	1.73%	2
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	163	194	31	1.76%	6
25-1112	Law Teachers, Postsecondary	783	930	147	1.74%	28
25-1113	Social Work Teachers, Postsecondary	205	243	38	1.72%	7
25-1121	Art, Drama, and Music Teachers, Postsecondary	1,271	1,619	348	2.45%	56
25-1122	Communications Teachers, Postsecondary	324	384	60	1.71%	11
25-1123	English Language and Literature Teachers, Postsecondary	1,029	1,228	199	1.78%	37
25-1124	Foreign Language and Literature Teachers, Postsecondary	527	662	135	2.31%	23
25-1125	History Teachers, Postsecondary	344	408	64	1.72%	12
25-1126	Philosophy and Religion Teachers, Postsecondary	267	317	50	1.73%	10
25-1191	Graduate Teaching Assistants	466	553	87	1.73%	17
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	303	360	57	1.74%	11
25-1194	Vocational Education Teachers, Postsecondary	647	824	177	2.45%	29
25-1199	Postsecondary Teachers, All Other	862	1,082	220	2.30%	36
25-2011	Preschool Teachers, Except Special Education	10,528	13,299	2,771	2.36%	451
25-2012	Kindergarten Teachers, Except Special Education	3,642	4,271	629	1.61%	123
25-2021	Elementary School Teachers, Except Special Education	25,327	28,899	3,572	1.33%	910
25-2022	Middle School Teachers, Except Special and Vocational Education	10,856	12,085	1,229	1.08%	360
25-2023	Vocational Education Teachers, Middle School	***	***	***	***	***
25-2031	Secondary School Teachers, Except Special and Vocational Education	18,654	19,741	1,087	0.57%	665

*** *Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
25-2032	Vocational Education Teachers, Secondary School	***	***	***	***	***
25-2041	Special Education Teachers, Preschool, Kindergarten, and Elementary School	4,870	5,821	951	1.80%	203
25-2042	Special Education Teachers, Middle School	2,642	3,071	429	1.52%	102
25-2043	Special Education Teachers, Secondary School	3,416	3,700	284	0.80%	104
25-3011	Adult Literacy, Remedial Education, and GED Teachers and Instructors	1,437	1,693	256	1.65%	41
25-3021	Self-Enrichment Education Teachers	5,746	6,964	1,218	1.94%	183
25-3099	Teachers and Instructors, All Other	15,780	17,496	1,716	1.04%	341
25-4011	Archivists	447	566	119	2.39%	31
25-4012	Curators	288	329	41	1.34%	16
25-4013	Museum Technicians and Conservators	1,145	1,218	73	0.62%	57
25-4021	Librarians	5,376	6,062	686	1.21%	214
25-4031	Library Technicians	2,961	3,448	487	1.53%	193
25-9011	Audio-Visual Collections Specialists	71	62	-9	-1.35%	1
25-9021	Farm and Home Management Advisors	142	142	0	0.00%	2
25-9031	Instructional Coordinators	4,227	5,116	889	1.93%	147
25-9041	Teacher Assistants	19,724	22,055	2,331	1.12%	554
25-9099	Education, Training, and Library Workers, All Other	1,010	1,097	87	0.83%	23
27-0000	**Arts, Design, Entertainment, Sports, and Media Occupations**	**95,666**	**108,278**	**12,612**	**1.25%**	**3,392**
27-1011	Art Directors	1,512	1,610	98	0.63%	45
27-1012	Craft Artists	85	75	-10	-1.24%	2
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	468	494	26	0.54%	14
27-1014	Multi-Media Artists and Animators	2,932	3,496	564	1.77%	125
27-1019	Artists and Related Workers, All Other	2,914	3,010	96	0.32%	78
27-1021	Commercial and Industrial Designers	428	487	59	1.30%	17
27-1022	Fashion Designers	97	128	31	2.81%	6
27-1023	Floral Designers	1,656	1,644	-12	-0.07%	44
27-1024	Graphic Designers	7,915	8,811	896	1.08%	300
27-1025	Interior Designers	2,658	2,957	299	1.07%	101
27-1026	Merchandise Displayers and Window Trimmers	1,214	1,290	76	0.61%	40
27-1027	Set and Exhibit Designers	580	596	16	0.27%	17
27-1029	Designers, All Other	209	221	12	0.56%	7
27-2011	Actors	837	863	26	0.31%	20
27-2012	Producers and Directors	3,821	4,182	361	0.91%	150
27-2021	Athletes and Sports Competitors	382	439	57	1.40%	16
27-2022	Coaches and Scouts	4,871	5,699	828	1.58%	208
27-2023	Umpires, Referees, and Other Sports Officials	341	406	65	1.76%	16
27-2031	Dancers	290	287	-3	-0.10%	16
27-2032	Choreographers	339	323	-16	-0.48%	19
27-2041	Music Directors and Composers	229	264	35	1.43%	9
27-2042	Musicians and Singers	2,863	3,038	175	0.60%	76
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	214	253	39	1.69%	11
27-3011	Radio and Television Announcers	1,741	1,633	-108	-0.64%	59
27-3012	Public Address System and Other Announcers	124	125	1	0.08%	4
27-3021	Broadcast News Analysts	310	336	26	0.81%	13
27-3022	Reporters and Correspondents	2,853	2,759	-94	-0.33%	90
27-3031	Public Relations Specialists	19,449	23,795	4,346	2.04%	581
27-3041	Editors	7,310	7,795	485	0.64%	267
27-3042	Technical Writers	3,562	4,239	677	1.76%	175
27-3043	Writers and Authors	12,412	14,565	2,153	1.61%	438
27-3091	Interpreters and Translators	1,573	2,040	467	2.63%	84
27-3099	Media and Communication Workers, All Other	823	957	134	1.52%	33
27-4011	Audio and Video Equipment Technicians	1,628	1,886	258	1.48%	79
27-4012	Broadcast Technicians	1,462	1,657	195	1.26%	68
27-4013	Radio Operators	27	23	-4	-1.59%	1
27-4014	Sound Engineering Technicians	409	431	22	0.53%	15
27-4021	Photographers	2,419	2,529	110	0.45%	64
27-4031	Camera Operators, Television, Video, and Motion Picture	940	1,015	75	0.77%	26
27-4032	Film and Video Editors	356	430	74	1.91%	14
27-4099	Media and Communication Equipment Workers, All Other	1,413	1,490	77	0.53%	44

**** Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
29-0000	**Healthcare Practitioners and Technical Occupations**	**123,705**	**148,533**	**24,828**	**1.85%**	**4,788**
29-1011	Chiropractors	1,152	1,331	179	1.45%	31
29-1021	Dentists, General	2,997	3,292	295	0.94%	89
29-1022	Oral and Maxillofacial Surgeons	***	***	***	***	***
29-1023	Orthodontists	258	284	26	0.96%	8
29-1024	Prosthodontists	76	87	11	1.36%	3
29-1029	Dentists, All Other Specialists	374	409	35	0.90%	11
29-1031	Dietitians and Nutritionists	958	1,097	139	1.36%	38
29-1041	Optometrists	646	726	80	1.17%	19
29-1051	Pharmacists	3,545	4,225	680	1.77%	129
29-1061	Anesthesiologists	899	1,109	210	2.12%	37
29-1062	Family and General Practitioners	3,403	3,817	414	1.15%	102
29-1063	Internists, General	1,105	1,256	151	1.29%	35
29-1064	Obstetricians and Gynecologists	1,062	1,287	225	1.94%	42
29-1065	Pediatricians, General	664	737	73	1.05%	19
29-1066	Psychiatrists	1,030	1,154	124	1.14%	31
29-1067	Surgeons	1,060	1,183	123	1.10%	31
29-1069	Physicians and Surgeons, All Other	8,703	9,551	848	0.93%	242
29-1071	Physician Assistants	1,267	1,591	324	2.30%	50
29-1081	Podiatrists	238	265	27	1.08%	11
29-1111	Registered Nurses	36,027	45,674	9,647	2.40%	1,560
29-1121	Audiologists	302	329	27	0.86%	7
29-1122	Occupational Therapists	1,455	1,807	352	2.19%	56
29-1123	Physical Therapists	2,841	3,685	844	2.64%	118
29-1124	Radiation Therapists	***	***	***	***	***
29-1125	Recreational Therapists	404	438	34	0.81%	9
29-1126	Respiratory Therapists	1,306	1,616	310	2.15%	50
29-1127	Speech-Language Pathologists	2,205	2,413	208	0.91%	64
29-1129	Therapists, All Other	470	573	103	2.00%	16
29-1131	Veterinarians	1,275	1,649	374	2.61%	62
29-1199	Health Diagnosing and Treating Practitioners, All Other	4,491	4,754	263	0.57%	103
29-2011	Medical and Clinical Laboratory Technologists	3,341	3,928	587	1.63%	110
29-2012	Medical and Clinical Laboratory Technicians	2,349	2,748	399	1.58%	76
29-2021	Dental Hygienists	2,341	3,066	725	2.73%	118
29-2031	Cardiovascular Technologists and Technicians	686	865	179	2.35%	27
29-2032	Diagnostic Medical Sonographers	764	923	159	1.91%	26
29-2033	Nuclear Medicine Technologists	463	536	73	1.47%	13
29-2034	Radiologic Technologists and Technicians	3,032	3,562	530	1.62%	94
29-2041	Emergency Medical Technicians and Paramedics	4,321	5,035	714	1.54%	120
29-2051	Dietetic Technicians	623	714	91	1.37%	28
29-2052	Pharmacy Technicians	3,808	4,895	1,087	2.54%	225
29-2053	Psychiatric Technicians	1,875	1,893	18	0.10%	59
29-2054	Respiratory Therapy Technicians	284	287	3	0.11%	9
29-2055	Surgical Technologists	1,029	1,294	265	2.32%	58
29-2056	Veterinary Technologists and Technicians	1,040	1,411	371	3.10%	69
29-2061	Licensed Practical and Licensed Vocational Nurses	8,833	11,185	2,352	2.39%	476
29-2071	Medical Records and Health Information Technicians	2,396	2,845	449	1.73%	110
29-2081	Opticians, Dispensing	1,563	1,575	12	0.08%	51
29-2091	Orthotists and Prosthetists	59	63	4	0.66%	1
29-2099	Health Technologists and Technicians, All Other	1,034	1,209	175	1.58%	26
29-9011	Occupational Health and Safety Specialists	1,370	1,516	146	1.02%	41
29-9012	Occupational Health and Safety Technicians	144	158	14	0.93%	4
29-9091	Athletic Trainers	211	263	52	2.23%	9
29-9099	Healthcare Practitioners and Technical Workers, All Other	1,597	1,815	218	1.29%	52
31-0000	**Healthcare Support Occupations**	**49,042**	**65,319**	**16,277**	**2.91%**	**2,182**
31-1011	Home Health Aides	7,960	12,625	4,665	4.72%	538
31-1012	Nursing Aides, Orderlies, and Attendants	17,767	23,484	5,717	2.83%	731
31-1013	Psychiatric Aides	801	928	127	1.48%	20
31-2011	Occupational Therapist Assistants	203	264	61	2.66%	9
31-2012	Occupational Therapist Aides	185	241	56	2.68%	9
31-2021	Physical Therapist Assistants	762	1,036	274	3.12%	37
31-2022	Physical Therapist Aides	546	703	157	2.56%	23
31-9011	Massage Therapists	1,994	2,393	399	1.84%	63

*** *Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
31-9091	Dental Assistants	5,389	7,018	1,629	2.68%	257
31-9092	Medical Assistants	5,829	7,978	2,149	3.19%	287
31-9093	Medical Equipment Preparers	749	853	104	1.31%	19
31-9094	Medical Transcriptionists	910	1,034	124	1.29%	23
31-9095	Pharmacy Aides	829	719	-110	-1.41%	10
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	2,179	2,460	281	1.22%	55
31-9099	Healthcare Support Workers, All Other	2,939	3,583	644	2.00%	101
33-0000	**Protective Service Occupations**	**92,829**	**115,180**	**22,351**	**2.18%**	**4,649**
33-1011	First-Line Supervisors/Managers of Correctional Officers	727	934	207	2.54%	41
33-1012	First-Line Supervisors/Managers of Police and Detectives	1,884	2,138	254	1.27%	84
33-1021	First-Line Supervisors/Managers of Fire Fighting and Prevention Workers	1,479	1,865	386	2.35%	85
33-1099	First-Line Supervisors/Managers, Protective Service Workers, All Other	1,331	1,672	341	2.31%	56
33-2011	Fire Fighters	7,283	8,785	1,502	1.89%	415
33-2021	Fire Inspectors and Investigators	***	***	***	***	***
33-2022	Forest Fire Inspectors and Prevention Specialists	***	***	***	***	***
33-3011	Bailiffs	119	158	39	2.88%	7
33-3012	Correctional Officers and Jailers	5,371	6,905	1,534	2.54%	276
33-3021	Detectives and Criminal Investigators	6,007	7,421	1,414	2.14%	273
33-3031	Fish and Game Wardens	***	***	***	***	***
33-3041	Parking Enforcement Workers	875	946	71	0.78%	29
33-3051	Police and Sheriff's Patrol Officers	22,065	25,892	3,827	1.61%	973
33-3052	Transit and Railroad Police	***	***	***	***	***
33-9011	Animal Control Workers	266	350	84	2.78%	14
33-9021	Private Detectives and Investigators	5,495	6,217	722	1.24%	179
33-9031	Gaming Surveillance Officers and Gaming Investigators	7	13	6	6.39%	1
33-9032	Security Guards	35,024	45,829	10,805	2.73%	1,792
33-9091	Crossing Guards	726	851	125	1.60%	34
33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	2,408	3,061	653	2.43%	243
33-9099	Protective Service Workers, All Other	1,335	1,662	327	2.22%	132
35-0000	**Food Preparation and Serving Related Occupations**	**202,127**	**235,165**	**33,038**	**1.53%**	**10,484**
35-1011	Chefs and Head Cooks	2,749	3,023	274	0.95%	62
35-1012	First-Line Supervisors/Managers of Food Preparation and Serving Workers	14,705	16,884	2,179	1.39%	329
35-2011	Cooks, Fast Food	8,127	9,106	979	1.14%	318
35-2012	Cooks, Institution and Cafeteria	4,510	5,538	1,028	2.07%	225
35-2013	Cooks, Private Household	71	86	15	1.94%	4
35-2014	Cooks, Restaurant	16,357	18,770	2,413	1.39%	684
35-2015	Cooks, Short Order	3,865	4,156	291	0.73%	134
35-2019	Cooks, All Other	255	261	6	0.23%	8
35-2021	Food Preparation Workers	15,801	18,906	3,105	1.81%	859
35-3011	Bartenders	6,850	7,884	1,034	1.42%	352
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	44,186	53,768	9,582	1.98%	1,796
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	13,040	14,668	1,628	1.18%	1,068
35-3031	Waiters and Waitresses	40,941	46,714	5,773	1.33%	2,801
35-3041	Food Servers, Non-restaurant	3,024	3,756	732	2.19%	119
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	9,403	10,788	1,385	1.38%	533
35-9021	Dishwashers	11,012	12,563	1,551	1.33%	604
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	***	***	***	***	***
35-9099	Food Preparation and Serving Related Workers, All Other	***	***	***	***	***
37-0000	**Building and Grounds Cleaning and Maintenance Occupations**	**136,073**	**163,781**	**27,708**	**1.87%**	**5,100**
37-1011	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	9,494	11,039	1,545	1.52%	295
37-1012	First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers	5,403	6,488	1,085	1.85%	146

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APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	63,125	76,039	12,914	1.88%	2,500
37-2012	Maids and Housekeeping Cleaners	28,466	33,688	5,222	1.70%	1,058
37-2019	Building Cleaning Workers, All Other	48	57	9	1.73%	2
37-2021	Pest Control Workers	1,307	1,555	248	1.75%	57
37-3011	Landscaping and Groundskeeping Workers	26,966	33,416	6,450	2.17%	1,001
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	517	616	99	1.77%	17
37-3013	Tree Trimmers and Pruners	613	728	115	1.73%	20
37-3019	Grounds Maintenance Workers, All Other	134	155	21	1.47%	4
39-0000	**Personal Care and Service Occupations**	**103,567**	**125,627**	**22,060**	**1.95%**	**4,560**
39-1011	Gaming Supervisors	44	64	20	3.82%	3
39-1012	Slot Key Persons	1	1	0	0.00%	0
39-1021	First-Line Supervisors/Managers of Personal Service Workers	4,620	5,382	762	1.54%	176
39-2011	Animal Trainers	857	1,184	327	3.28%	48
39-2021	Nonfarm Animal Caretakers	4,481	5,418	937	1.92%	166
39-3011	Gaming Dealers	12	15	3	2.26%	0
39-3012	Gaming and Sports Book Writers and Runners	44	60	16	3.15%	3
39-3021	Motion Picture Projectionists	175	148	-27	-1.66%	8
39-3031	Ushers, Lobby Attendants, and Ticket Takers	2,853	3,246	393	1.30%	239
39-3091	Amusement and Recreation Attendants	4,412	5,617	1,205	2.44%	339
39-3092	Costume Attendants	19	19	0	0.00%	1
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	550	644	94	1.59%	36
39-3099	Entertainment Attendants and Related Workers, All Other	298	375	77	2.32%	23
39-4011	Embalmers	98	116	18	1.70%	4
39-4021	Funeral Attendants	322	386	64	1.83%	14
39-5011	Barbers	2,665	2,791	126	0.46%	62
39-5012	Hairdressers, Hairstylists, and Cosmetologists	15,300	17,926	2,626	1.60%	446
39-5091	Makeup Artists, Theatrical and Performance	12	16	4	2.92%	0
39-5092	Manicurists and Pedicurists	2,754	3,690	936	2.97%	123
39-5093	Shampooers	2,924	3,470	546	1.73%	85
39-5094	Skin Care Specialists	1,022	1,470	448	3.70%	56
39-6011	Baggage Porters and Bellhops	1,670	1,709	39	0.23%	25
39-6012	Concierges	1,246	1,424	178	1.34%	34
39-6021	Tour Guides and Escorts	793	926	133	1.56%	45
39-6022	Travel Guides	***	***	***	***	***
39-6031	Flight Attendants	***	***	***	***	***
39-6032	Transportation Attendants, Except Flight Attendants and Baggage Porters	2,352	2,441	89	0.37%	50
39-9011	Child Care Workers	23,511	28,682	5,171	2.01%	1,192
39-9021	Personal and Home Care Aides	6,914	10,009	3,095	3.77%	427
39-9031	Fitness Trainers and Aerobics Instructors	6,168	7,753	1,585	2.31%	275
39-9032	Recreation Workers	10,271	12,567	2,296	2.04%	422
39-9041	Residential Advisors	2,594	3,385	791	2.70%	153
39-9099	Personal Care and Service Workers, All Other	1,195	1,139	-56	-0.48%	26
41-0000	**Sales and Related Occupations**	**312,312**	**325,270**	**12,958**	**0.41%**	**10,998**
41-1011	First-Line Supervisors/Managers of Retail Sales Workers	32,668	33,030	362	0.11%	721
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	9,865	9,754	-111	-0.11%	142
41-2011	Cashiers	67,584	64,870	-2,714	-0.41%	3,214
41-2012	Gaming Change Persons and Booth Cashiers	151	176	25	1.54%	10
41-2021	Counter and Rental Clerks	9,408	10,754	1,346	1.35%	494
41-2022	Parts Salespersons	3,254	2,982	-272	-0.87%	37
41-2031	Retail Salespersons	88,306	95,703	7,397	0.81%	3,459
41-3011	Advertising Sales Agents	2,977	3,547	570	1.77%	109
41-3021	Insurance Sales Agents	8,013	7,493	-520	-0.67%	174
41-3031	Securities, Commodities, and Financial Services Sales Agents	5,782	6,029	247	0.42%	173
41-3041	Travel Agents	2,546	2,667	121	0.47%	30
41-3099	Sales Representatives, Services, All Other	15,986	19,462	3,476	1.99%	724
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	7,212	7,982	770	1.02%	236

*** *Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	22,277	24,158	1,881	0.81%	680
41-9011	Demonstrators and Product Promoters	2,707	3,079	372	1.30%	114
41-9012	Models	9	10	1	1.06%	0
41-9021	Real Estate Brokers	4,407	4,382	-25	-0.06%	71
41-9022	Real Estate Sales Agents	20,559	20,757	198	0.10%	349
41-9031	Sales Engineers	1,266	1,331	65	0.50%	39
41-9041	Telemarketers	4,148	3,524	-624	-1.62%	146
41-9091	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers	370	310	-60	-1.75%	5
41-9099	Sales and Related Workers, All Other	2,817	3,270	453	1.50%	71
43-0000	**Office and Administrative Support Occupations**	**488,378**	**528,137**	**39,759**	**0.79%**	**15,382**
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	28,774	30,725	1,951	0.66%	789
43-2011	Switchboard Operators, Including Answering Service	3,993	3,618	-375	-0.98%	83
43-2021	Telephone Operators	141	86	-55	-4.82%	2
43-2099	Communications Equipment Operators, All Other	165	180	15	0.87%	5
43-3011	Bill and Account Collectors	8,561	10,040	1,479	1.61%	278
43-3021	Billing and Posting Clerks and Machine Operators	8,538	8,920	382	0.44%	147
43-3031	Bookkeeping, Accounting, and Auditing Clerks	34,878	39,875	4,997	1.35%	1,046
43-3041	Gaming Cage Workers	***	***	***	***	***
43-3051	Payroll and Timekeeping Clerks	4,438	4,710	272	0.60%	139
43-3061	Procurement Clerks	***	***	***	***	***
43-3071	Tellers	10,550	11,562	1,012	0.92%	562
43-4011	Brokerage Clerks	***	***	***	***	***
43-4021	Correspondence Clerks	***	***	***	***	***
43-4031	Court, Municipal, and License Clerks	1,170	1,251	81	0.67%	35
43-4041	Credit Authorizers, Checkers, and Clerks	1,081	930	-151	-1.49%	33
43-4051	Customer Service Representatives	41,695	51,036	9,341	2.04%	2,095
43-4061	Eligibility Interviewers, Government Programs	1,350	1,562	212	1.47%	45
43-4071	File Clerks	3,585	2,118	-1,467	-5.13%	95
43-4081	Hotel, Motel, and Resort Desk Clerks	3,811	4,399	588	1.45%	213
43-4111	Interviewers, Except Eligibility and Loan	4,010	4,353	343	0.82%	139
43-4121	Library Assistants, Clerical	2,799	3,573	774	2.47%	166
43-4131	Loan Interviewers and Clerks	6,348	6,036	-312	-0.50%	110
43-4141	New Accounts Clerks	1,413	1,132	-281	-2.19%	42
43-4151	Order Clerks	3,434	2,354	-1,080	-3.71%	72
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	5,453	6,258	805	1.39%	121
43-4171	Receptionists and Information Clerks	28,228	33,452	5,224	1.71%	1,212
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	3,203	3,165	-38	-0.12%	70
43-4199	Information and Record Clerks, All Other	14,485	12,536	-1,949	-1.43%	231
43-5011	Cargo and Freight Agents	423	473	50	1.12%	17
43-5021	Couriers and Messengers	1,976	1,984	8	0.04%	55
43-5031	Police, Fire, and Ambulance Dispatchers	1,402	1,762	360	2.31%	71
43-5032	Dispatchers, Except Police, Fire, and Ambulance	3,190	3,281	91	0.28%	90
43-5041	Meter Readers, Utilities	666	661	-5	-0.08%	21
43-5051	Postal Service Clerks	2,252	2,527	275	1.16%	79
43-5052	Postal Service Mail Carriers	8,015	8,989	974	1.15%	332
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	6,225	6,331	106	0.17%	77
43-5061	Production, Planning, and Expediting Clerks	3,899	4,326	427	1.04%	149
43-5071	Shipping, Receiving, and Traffic Clerks	9,064	9,499	435	0.47%	261
43-5081	Stock Clerks and Order Fillers	26,627	24,251	-2,376	-0.93%	632
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	462	416	-46	-1.04%	12
43-6011	Executive Secretaries and Administrative Assistants	33,353	38,892	5,539	1.55%	1,085
43-6012	Legal Secretaries	10,457	12,239	1,782	1.59%	345
43-6013	Medical Secretaries	5,530	6,596	1,066	1.78%	195
43-6014	Secretaries, Except Legal, Medical, and Executive	33,673	34,708	1,035	0.30%	640
43-9011	Computer Operators	3,807	2,869	-938	-2.79%	61
43-9021	Data Entry Keyers	6,436	5,992	-444	-0.71%	158

**** Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
43-9022	Word Processors and Typists	6,214	5,441	-773	-1.32%	118
43-9031	Desktop Publishers	704	751	47	0.65%	19
43-9041	Insurance Claims and Policy Processing Clerks	2,905	2,451	-454	-1.69%	35
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	5,945	4,822	-1,123	-2.07%	157
43-9061	Office Clerks, General	81,554	93,925	12,371	1.42%	2,734
43-9071	Office Machine Operators, Except Computer	2,896	2,793	-103	-0.36%	96
43-9081	Proofreaders and Copy Markers	314	327	13	0.41%	7
43-9111	Statistical Assistants	455	505	50	1.05%	25
43-9199	Office and Administrative Support Workers, All Other	4,608	4,235	-373	-0.84%	102
45-0000	**Farming, Fishing, and Forestry Occupations**	**3,173**	**3,405**	**232**	**0.71%**	**101**
45-1011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	306	337	31	0.97%	9
45-2011	Agricultural Inspectors	***	***	***	***	***
45-2021	Animal Breeders	299	331	32	1.02%	10
45-2041	Graders and Sorters, Agricultural Products	***	***	***	***	***
45-2091	Agricultural Equipment Operators	23	23	0	0.00%	1
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	590	655	65	1.05%	22
45-2093	Farmworkers, Farm and Ranch Animals	1,523	1,635	112	0.71%	49
45-2099	Agricultural Workers, All Other	20	20	0	0.00%	1
45-3011	Fishers and Related Fishing Workers	3	3	0	0.00%	0
45-4011	Forest and Conservation Workers	5	5	0	0.00%	0
45-4021	Fallers	180	168	-12	-0.69%	4
45-4022	Logging Equipment Operators	153	148	-5	-0.33%	3
45-4023	Log Graders and Scalers	6	8	2	2.92%	0
45-4029	Logging Workers, All Other	4	4	0	0.00%	0
47-0000	**Construction and Extraction Occupations**	**177,897**	**201,172**	**23,275**	**1.24%**	**5,376**
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,307	22,472	2,165	1.02%	501
47-2011	Boilermakers	257	307	50	1.79%	14
47-2021	Brickmasons and Blockmasons	4,706	5,348	642	1.29%	162
47-2022	Stonemasons	1,164	1,343	179	1.44%	42
47-2031	Carpenters	27,615	29,992	2,377	0.83%	612
47-2041	Carpet Installers	1,308	1,316	8	0.06%	20
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	382	343	-39	-1.07%	6
47-2043	Floor Sanders and Finishers	823	859	36	0.43%	16
47-2044	Tile and Marble Setters	1,790	2,175	385	1.97%	65
47-2051	Cement Masons and Concrete Finishers	4,423	5,130	707	1.49%	199
47-2053	Terrazzo Workers and Finishers	132	150	18	1.29%	6
47-2061	Construction Laborers	31,966	35,968	4,002	1.19%	641
47-2071	Paving, Surfacing, and Tamping Equipment Operators	976	1,137	161	1.54%	36
47-2072	Pile-Driver Operators	124	135	11	0.85%	3
47-2073	Operating Engineers and Other Construction Equipment Operators	6,910	7,915	1,005	1.37%	235
47-2081	Drywall and Ceiling Tile Installers	4,195	4,712	517	1.17%	110
47-2082	Tapers	690	777	87	1.19%	19
47-2111	Electricians	14,141	16,400	2,259	1.49%	590
47-2121	Glaziers	1,252	1,446	194	1.45%	40
47-2131	Insulation Workers, Floor, Ceiling, and Wall	390	446	56	1.35%	15
47-2132	Insulation Workers, Mechanical	902	1,041	139	1.44%	35
47-2141	Painters, Construction and Maintenance	10,676	12,475	1,799	1.57%	370
47-2142	Paperhangers	***	***	***	***	***
47-2151	Pipelayers	1,392	1,569	177	1.20%	47
47-2152	Plumbers, Pipefitters, and Steamfitters	11,632	13,651	2,019	1.61%	442
47-2161	Plasterers and Stucco Masons	541	605	64	1.12%	19
47-2171	Reinforcing Iron and Rebar Workers	***	***	***	***	***
47-2181	Roofers	2,718	3,274	556	1.88%	118
47-2211	Sheet Metal Workers	3,472	4,041	569	1.53%	141
47-2221	Structural Iron and Steel Workers	1,051	1,159	108	0.98%	45
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	2,562	2,939	377	1.38%	103
47-3012	Helpers--Carpenters	2,736	3,007	271	0.95%	96
47-3013	Helpers--Electricians	3,467	3,921	454	1.24%	133

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APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	259	273	14	0.53%	8
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	2,270	2,681	411	1.68%	98
47-3016	Helpers--Roofers	688	780	92	1.26%	26
47-3019	Helpers, Construction Trades, All Other	762	865	103	1.28%	29
47-4011	Construction and Building Inspectors	3,653	4,312	659	1.67%	134
47-4021	Elevator Installers and Repairers	426	478	52	1.16%	16
47-4031	Fence Erectors	361	420	59	1.53%	13
47-4041	Hazardous Materials Removal Workers	416	444	28	0.65%	12
47-4051	Highway Maintenance Workers	1,530	1,649	119	0.75%	40
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	144	162	18	1.18%	5
47-4091	Segmental Pavers	88	103	15	1.59%	4
47-4099	Construction and Related Workers, All Other	184	203	19	0.99%	7
47-5012	Rotary Drill Operators, Oil and Gas	9	7	-2	-2.48%	0
47-5013	Service Unit Operators, Oil, Gas, and Mining	2	1	-1	-6.70%	0
47-5021	Earth Drillers, Except Oil and Gas	370	416	46	1.18%	17
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	***	***	***	***	***
47-5042	Mine Cutting and Channeling Machine Operators	61	54	-7	-1.21%	2
47-5049	Mining Machine Operators, All Other	18	17	-1	-0.57%	1
47-5051	Rock Splitters, Quarry	110	129	19	1.61%	5
47-5081	Helpers--Extraction Workers	***	***	***	***	***
47-5099	Extraction Workers, All Other	62	56	-6	-1.01%	2
49-0000	**Installation, Maintenance, and Repair Occupations**	**108,669**	**121,181**	**12,512**	**1.10%**	**2,995**
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8,563	9,435	872	0.97%	288
49-2011	Computer, Automated Teller, and Office Machine Repairers	5,046	5,272	226	0.44%	82
49-2021	Radio Mechanics	***	***	***	***	***
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	3,752	3,534	-218	-0.60%	92
49-2091	Avionics Technicians	***	***	***	***	***
49-2092	Electric Motor, Power Tool, and Related Repairers	179	181	2	0.11%	7
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	484	632	148	2.70%	25
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	1,387	1,657	270	1.79%	74
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	335	305	-30	-0.93%	11
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	452	486	34	0.73%	18
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	1,042	1,080	38	0.36%	14
49-2098	Security and Fire Alarm Systems Installers	1,797	2,351	554	2.72%	79
49-3011	Aircraft Mechanics and Service Technicians	1,664	1,818	154	0.89%	32
49-3021	Automotive Body and Related Repairers	3,045	3,365	320	1.00%	104
49-3022	Automotive Glass Installers and Repairers	672	806	134	1.83%	38
49-3023	Automotive Service Technicians and Mechanics	15,930	17,534	1,604	0.96%	480
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	3,461	3,937	476	1.30%	123
49-3041	Farm Equipment Mechanics	88	87	-1	-0.11%	2
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	1,607	1,777	170	1.01%	48
49-3043	Rail Car Repairers	317	346	29	0.88%	9
49-3051	Motorboat Mechanics	175	208	33	1.74%	7
49-3052	Motorcycle Mechanics	246	258	12	0.48%	6
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	572	547	-25	-0.45%	12
49-3091	Bicycle Repairers	208	208	0	0.00%	4
49-3092	Recreational Vehicle Service Technicians	24	26	2	0.80%	1
49-3093	Tire Repairers and Changers	1,555	1,749	194	1.18%	50
49-9011	Mechanical Door Repairers	425	502	77	1.68%	16
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	804	844	40	0.49%	18
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	7,393	8,512	1,119	1.42%	242
49-9031	Home Appliance Repairers	622	660	38	0.59%	18

**** Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
49-9041	Industrial Machinery Mechanics	1,251	1,489	238	1.76%	45
49-9042	Maintenance and Repair Workers, General	28,431	32,929	4,498	1.48%	520
49-9043	Maintenance Workers, Machinery	618	694	76	1.17%	18
49-9044	Millwrights	204	249	45	2.01%	8
49-9045	Refractory Materials Repairers, Except Brickmasons	21	23	2	0.91%	0
49-9051	Electrical Power-Line Installers and Repairers	1,226	1,337	111	0.87%	50
49-9052	Telecommunications Line Installers and Repairers	5,585	5,596	11	0.02%	146
49-9061	Camera and Photographic Equipment Repairers	114	119	5	0.43%	4
49-9062	Medical Equipment Repairers	569	701	132	2.11%	29
49-9063	Musical Instrument Repairers and Tuners	138	132	-6	-0.44%	4
49-9064	Watch Repairers	9	8	-1	-1.17%	0
49-9069	Precision Instrument and Equipment Repairers, All Other	291	321	30	0.99%	11
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	578	594	16	0.27%	18
49-9092	Commercial Divers	58	64	6	0.99%	1
49-9093	Fabric Menders, Except Garment	7	7	0	0.00%	0
49-9094	Locksmiths and Safe Repairers	870	1,224	354	3.47%	52
49-9095	Manufactured Building and Mobile Home Installers	241	253	12	0.49%	6
49-9096	Riggers	196	194	-2	-0.10%	1
49-9098	Helpers--Installation, Maintenance, and Repair Workers	3,861	4,326	465	1.14%	138
49-9099	Installation, Maintenance, and Repair Workers, All Other	2,440	2,685	245	0.96%	41
51-0000	**Production Occupations**	**67,341**	**69,030**	**1,689**	**0.25%**	**1,795**
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	5,062	5,261	199	0.39%	105
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	***	***	***	***	***
51-2021	Coil Winders, Tapers, and Finishers	75	62	-13	-1.89%	1
51-2022	Electrical and Electronic Equipment Assemblers	1,700	1,327	-373	-2.45%	29
51-2023	Electromechanical Equipment Assemblers	154	155	1	0.06%	3
51-2031	Engine and Other Machine Assemblers	***	***	***	***	***
51-2041	Structural Metal Fabricators and Fitters	789	895	106	1.27%	25
51-2091	Fiberglass Laminators and Fabricators	103	107	4	0.38%	2
51-2092	Team Assemblers	3,134	3,317	183	0.57%	83
51-2099	Assemblers and Fabricators, All Other	1,623	1,543	-80	-0.50%	34
51-3011	Bakers	2,845	3,062	217	0.74%	82
51-3021	Butchers and Meat Cutters	1,596	1,612	16	0.10%	53
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	501	526	25	0.49%	19
51-3023	Slaughterers and Meat Packers	***	***	***	***	***
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	***	***	***	***	***
51-3092	Food Batchmakers	480	502	22	0.45%	14
51-3093	Food Cooking Machine Operators and Tenders	188	186	-2	-0.11%	7
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	***	***	***	***	***
51-4012	Numerical Tool and Process Control Programmers	***	***	***	***	***
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	20	32	12	4.81%	2
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	***	***	***	***	***
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	68	63	-5	-0.76%	1
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	533	528	-5	-0.09%	13
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	***	***	***	***	***
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	40	35	-5	-1.33%	0
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	36	31	-5	-1.48%	1
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	***	***	***	***	***
51-4041	Machinists	1,248	1,303	55	0.43%	25
51-4051	Metal-Refining Furnace Operators and Tenders	***	***	***	***	***

**** Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
51-4052	Pourers and Casters, Metal	***	***	***	***	***
51-4061	Model Makers, Metal and Plastic	105	125	20	1.76%	5
51-4071	Foundry Mold and Coremakers	2	1	-1	-6.70%	0
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	276	380	104	3.25%	17
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	***	***	***	***	***
51-4111	Tool and Die Makers	86	75	-11	-1.36%	1
51-4121	Welders, Cutters, Solderers, and Brazers	1,903	2,270	367	1.78%	77
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	51	55	4	0.76%	1
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	***	***	***	***	***
51-4192	Lay-Out Workers, Metal and Plastic	***	***	***	***	***
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	22	21	-1	-0.46%	1
51-4194	Tool Grinders, Filers, and Sharpeners	25	24	-1	-0.41%	0
51-4199	Metal Workers and Plastic Workers, All Other	41	35	-6	-1.57%	1
51-5011	Bindery Workers	1,630	1,368	-262	-1.74%	23
51-5012	Bookbinders	242	227	-15	-0.64%	3
51-5021	Job Printers	1,220	1,166	-54	-0.45%	12
51-5022	Prepress Technicians and Workers	1,460	1,198	-262	-1.96%	23
51-5023	Printing Machine Operators	3,727	3,764	37	0.10%	86
51-6011	Laundry and Dry-Cleaning Workers	4,464	5,040	576	1.22%	158
51-6021	Pressers, Textile, Garment, and Related Materials	905	924	19	0.21%	9
51-6031	Sewing Machine Operators	780	818	38	0.48%	12
51-6041	Shoe and Leather Workers and Repairers	417	529	112	2.41%	20
51-6042	Shoe Machine Operators and Tenders	***	***	***	***	***
51-6051	Sewers, Hand	12	13	1	0.80%	0
51-6052	Tailors, Dressmakers, and Custom Sewers	1,413	1,583	170	1.14%	41
51-6061	Textile Bleaching and Dyeing Machine Operators and Tenders	***	***	***	***	***
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	***	***	***	***	***
51-6092	Fabric and Apparel Patternmakers	15	15	0	0.00%	0
51-6093	Upholsterers	349	335	-14	-0.41%	5
51-6099	Textile, Apparel, and Furnishings Workers, All Other	462	535	73	1.48%	18
51-7011	Cabinetmakers and Bench Carpenters	1,192	1,214	22	0.18%	37
51-7021	Furniture Finishers	263	250	-13	-0.51%	5
51-7031	Model Makers, Wood	***	***	***	***	***
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	***	***	***	***	***
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	561	633	72	1.21%	21
51-7099	Woodworkers, All Other	250	268	18	0.70%	7
51-8011	Nuclear Power Reactor Operators	***	***	***	***	***
51-8012	Power Distributors and Dispatchers	***	***	***	***	***
51-8013	Power Plant Operators	349	341	-8	-0.23%	12
51-8021	Stationary Engineers and Boiler Operators	1,804	1,968	164	0.87%	47
51-8031	Water and Liquid Waste Treatment Plant and System Operators	1,949	2,543	594	2.70%	93
51-8091	Chemical Plant and System Operators	68	60	-8	-1.24%	2
51-8092	Gas Plant Operators	376	342	-34	-0.94%	10
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	32	25	-7	-2.44%	1
51-8099	Plant and System Operators, All Other	368	388	20	0.53%	12
51-9011	Chemical Equipment Operators and Tenders	93	95	2	0.21%	2
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	65	68	3	0.45%	2
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	290	231	-59	-2.25%	5
51-9022	Grinding and Polishing Workers, Hand	43	48	5	1.11%	2
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	534	527	-7	-0.13%	9
51-9031	Cutters and Trimmers, Hand	84	102	18	1.96%	3

*** *Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	419	411	-8	-0.19%	6
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	329	304	-25	-0.79%	6
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	33	33	0	0.00%	1
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3,872	4,193	321	0.80%	89
51-9071	Jewelers and Precious Stone and Metal Workers	190	201	11	0.56%	4
51-9081	Dental Laboratory Technicians	598	610	12	0.20%	12
51-9082	Medical Appliance Technicians	90	93	3	0.33%	2
51-9083	Ophthalmic Laboratory Technicians	445	464	19	0.42%	10
51-9111	Packaging and Filling Machine Operators and Tenders	1,939	1,882	-57	-0.30%	36
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	193	197	4	0.21%	4
51-9122	Painters, Transportation Equipment	817	918	101	1.17%	26
51-9123	Painting, Coating, and Decorating Workers	238	250	12	0.49%	6
51-9131	Photographic Process Workers	751	446	-305	-5.08%	26
51-9132	Photographic Processing Machine Operators	1,719	896	-823	-6.31%	60
51-9141	Semiconductor Processors	***	***	***	***	***
51-9191	Cementing and Gluing Machine Operators and Tenders	***	***	***	***	***
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	***	***	***	***	***
51-9193	Cooling and Freezing Equipment Operators and Tenders	***	***	***	***	***
51-9194	Etchers and Engravers	179	185	6	0.33%	4
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	687	744	57	0.80%	21
51-9196	Paper Goods Machine Setters, Operators, and Tenders	432	393	-39	-0.94%	11
51-9198	Helpers--Production Workers	2,297	2,363	66	0.28%	63
51-9199	Production Workers, All Other	1,397	1,548	151	1.03%	44
53-0000	**Transportation and Material Moving Occupations**	**132,249**	**142,086**	**9,837**	**0.72%**	**4,083**
53-1011	Aircraft Cargo Handling Supervisors	107	125	18	1.57%	4
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	2,428	2,722	294	1.15%	79
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	3,786	4,345	559	1.39%	133
53-2011	Airline Pilots, Copilots, and Flight Engineers	2,669	2,860	191	0.69%	97
53-2012	Commercial Pilots	380	425	45	1.13%	16
53-2021	Air Traffic Controllers	***	***	***	***	***
53-2022	Airfield Operations Specialists	***	***	***	***	***
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	66	83	17	2.32%	3
53-3021	Bus Drivers, Transit and Intercity	5,040	6,569	1,529	2.68%	219
53-3022	Bus Drivers, School	8,303	9,336	1,033	1.18%	212
53-3031	Driver/Sales Workers	4,994	4,733	-261	-0.54%	89
53-3032	Truck Drivers, Heavy and Tractor-Trailer	17,506	18,874	1,368	0.76%	448
53-3033	Truck Drivers, Light or Delivery Services	17,916	18,997	1,081	0.59%	426
53-3041	Taxi Drivers and Chauffeurs	6,810	8,308	1,498	2.01%	238
53-3099	Motor Vehicle Operators, All Other	1,218	1,313	95	0.75%	29
53-4031	Railroad Conductors and Yardmasters	***	***	***	***	***
53-4041	Subway and Streetcar Operators	***	***	***	***	***
53-5011	Sailors and Marine Oilers	145	149	4	0.27%	5
53-5021	Captains, Mates, and Pilots of Water Vessels	98	103	5	0.50%	4
53-5022	Motorboat Operators	***	***	***	***	***
53-5031	Ship Engineers	***	***	***	***	***
53-6011	Bridge and Lock Tenders	***	***	***	***	***
53-6021	Parking Lot Attendants	4,459	5,244	785	1.63%	201
53-6031	Service Station Attendants	1,272	1,480	208	1.53%	79
53-6041	Traffic Technicians	***	***	***	***	***
53-6051	Transportation Inspectors	500	619	119	2.16%	29
53-6099	Transportation Workers, All Other	1,463	1,591	128	0.84%	40
53-7011	Conveyor Operators and Tenders	***	***	***	***	***
53-7021	Crane and Tower Operators	479	545	66	1.30%	16
53-7031	Dredge Operators	154	166	12	0.75%	3
53-7032	Excavating and Loading Machine and Dragline Operators	1,417	1,605	188	1.25%	42
53-7041	Hoist and Winch Operators	***	***	***	***	***
53-7051	Industrial Truck and Tractor Operators	5,129	5,116	-13	-0.03%	129

*** *Data suppressed to maintain confidentiality*

APPENDIX TABLE 2: DC METROPOLITAN OCCUPATIONAL DETAIL *(CONTINUED)*

SOC CODE	OCCUPATIONAL TITLE	2006	2016	Growth	Growth Rate	Annual Openings
53-7061	Cleaners of Vehicles and Equipment	5,962	6,663	701	1.12%	298
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,691	28,937	246	0.09%	943
53-7063	Machine Feeders and Offbearers	785	624	-161	-2.27%	14
53-7064	Packers and Packagers, Hand	4,277	3,702	-575	-1.43%	52
53-7071	Gas Compressor and Gas Pumping Station Operators	36	34	-2	-0.57%	1
53-7072	Pump Operators, Except Wellhead Pumpers	12	13	1	0.80%	1
53-7081	Refuse and Recyclable Material Collectors	3,316	3,471	155	0.46%	106
53-7121	Tank Car, Truck, and Ship Loaders	***	***	***	***	***
53-7199	Material Moving Workers, All Other	258	254	-4	-0.16%	5

**** Data suppressed to maintain confidentiality*

APPENDIX

Standard Occupational Classifications

The 2000 Standard Occupational Classification (SOC) System was developed in response to a growing need for a universal occupational classification system. Such a classification system allows government agencies and private industry to produce comparable data. Users of occupational data include government program managers, industrial and labor relations practitioners, students considering career training, job seekers, vocational training schools, and employers wishing to set salary scales or locate a new plant. It is used by federal agencies collecting occupational data, providing a means to compare occupational data across agencies. It is designed to cover all occupations in which work is performed for pay or profit, reflecting the current occupational structure in the United States. The 2000 SOC is the result of a cooperative effort of all federal agencies that use occupational classification systems to maximize the usefulness of occupational information collected by the Federal Government.

SOC Classification and Coding Structure

The 2000 SOC classifies workers at four levels of aggregation: 1) major group; 2) minor group; 3) broad occupation; and 4) detailed occupation. All occupations are clustered into one of the following 23 major groups:

11-0000 Management Occupations
13-0000 Business and Financial Operations Occupations
15-0000 Computer and Mathematical Occupations
17-0000 Architecture and Engineering Occupations
19-0000 Life, Physical, and Social Science Occupations
21-0000 Community and Social Services Occupations
23-0000 Legal Occupations
25-0000 Education, Training, and Library Occupations
27-0000 Arts, Design, Entertainment, Sports, and Media Occupations
29-0000 Healthcare Practitioners and Technical Occupations
31-0000 Healthcare Support Occupations
33-0000 Protective Service Occupations
35-0000 Food Preparation and Serving Related Occupations
37-0000 Building and Grounds Cleaning and Maintenance Occupations
39-0000 Personal Care and Service Occupations
41-0000 Sales and Related Occupations
43-0000 Office and Administrative Support Occupations
45-0000 Farming, Fishing, and Forestry Occupations
47-0000 Construction and Extraction Occupations
49-0000 Installation, Maintenance, and Repair Occupations
51-0000 Production Occupations
53-0000 Transportation and Material Moving Occupations

Within these major groups are 96 minor groups, 449 broad occupations, and 821 detailed occupations. Occupations with similar skills or work activities are grouped at each of the four levels of hierarchy to facilitate comparisons. For example, "Life, Physical and Social Science Occupations" (19-0000) is divided into four minor groups, "Life Scientists" (19-1000), "Physical Scientists" (19-2000),

"Social Scientists and Related Workers" (19-3000), and "Life, Physical and Social Science Technicians" (19-4000). The Life Scientist group contains broad occupations such as "Agriculture and Food Scientists" (19-1010), and "Biological Scientists" (19-1020). The broad occupation Biological Scientists includes detailed occupations such as "Biochemists and Biophysicists" (19-1021), and "Microbiologists" (19-1022).

Occupational Coding

Each item in the hierarchy is designated by a six-digit code. The hyphen between the second and third digit is used only for presentation clarity. The first two digits of the SOC code represent the major group; the third digit represents the minor group; the fourth and fifth digits represent the broad occupation; and the detailed occupation is represented by the sixth digit. Major group codes end with 0000 (e.g., 33-0000, Protective Service Occupations), minor groups end with 000 (e.g., 33-2000, Fire Fighting Workers), and broad occupations end with 0 (e.g., 33-2020, Fire Inspectors). All residuals ("Other," "Miscellaneous," or "All Other"), whether at the detailed or broad occupation or minor group level, contain a 9 at the level of the residual. Detailed residual occupations end in 9 (e.g., 33-9199, Protective Service Workers, All Other); broad occupations which are minor group residuals end in 90 (e.g., 33-9190, Miscellaneous Protective Service Workers); and minor groups which are major group residuals end in 9000 (e.g., 33-9000, Other Protective Service Workers):

33-0000	Protective Services
33-9000	Other Protective Service Workers
33-9190	Miscellaneous Protective Service Workers
33-9199	Protective Service Workers, All Other

Classification Principles

In order to ensure that all users of occupational data classify workers the same way, the following classification principles should be followed. The Classification covers all occupations in which work is performed for pay or profit, including work performed in family-operated enterprises by family members who are not directly compensated. It excludes occupations unique to volunteers. Each occupation is assigned to only one occupation at the lowest level of the classification.

i Notes on methodology for industry employment projections

The industry employment projections were prepared using the Long Term Projections (LTP) model, a product of the ALMIS Long-term Industry Projections Tools Consortium and the Utah Department of Workforce Services. The LTP model offers the forecaster a set of methodologies that have proven to be the most useful in making industry employment projections. It contains three basic types of models: shift share, time series and regression.

Shift share models decompose economic activity into three factors that explain differences in growth rates between different geographic areas. One is the influence of general economic conditions in a larger area of which the region is a part. A second factor is the competitive position that an area enjoys with respect to certain industries. A third factor is the industry mix in an area's economy. Usually an area's economy is compared with a larger area of which it is a part. The LTP model incorporates eight types of shift share models including Constant Share, Constant Regional Rate, Implicit Shift Share and Classical Shift Share. These different models produce a range of outcomes, a useful attribute.

Time series analysis includes a range of techniques, only some of which are used in the LTP model. Not included in LTP are exponential smoothing, ARIMA, vector auto regression (VAR) and state space models, all of which are more appropriate for short-run projections using monthly data. Long term projections including the ones we present here are generally done using annual data. The model focuses on four types of trends: linear, logarithmic, exponential and polynomial. These models describe regular patterns of growth or decline in employment at a constant, increasing or decreasing rate. More complex patterns cannot be modeled in LTP using time series models.

Regression models explain statistically the variations in employment over time using explanatory variables. The models are fitted to a base period for which the values of the explanatory variables are known, and then projected using the base period equation and projected values. The LTP model contains two sets of regression models: customized and predefined. The customized models enable the analyst to select a unique set of explanatory variables from those available that fits the data optimally. The predefined models provide the analyst with a more limited set of variables but include variables that have proved to be useful in projecting employment. They enable the analyst to fit a regression model quickly and well, a useful feature when nearly 100 industries have to be forecast. Because regression models require explanatory variables for the base period to which the model is fitted and for the forecast period, some method of projecting explanatory variables is needed. We have chosen to use Global Insight, formerly DRI-WEFA, as our source for explanatory variable forecasts. Global Insight has large macroeconomic models for the nation, states and metropolitan area. Though no forecasting model is perfect, Global Insight has a good track record in its forecasts of the Washington area and is an excellent source for projections of this kind. Variables from Global Insight include the labor force, the unemployment rate, population, gross regional product, personal income, and total employment.

The authors generated a variety of employment projections for each industry using mostly shift share and time share models on LTP. Regression models proved less useful than in the past because the conversions to NAICS greatly reduced the number of years for which data is available. We selected a single projection that we deemed the best of the lot. Criteria included model diagnostics, the relation of the projection to the historical series, as well as recent developments in the industry and the economy. In this way we generated employment projections for 85 industry groups at the two and three and four-digit NAICS levels.

ii Notes on methodology for employment by occupation

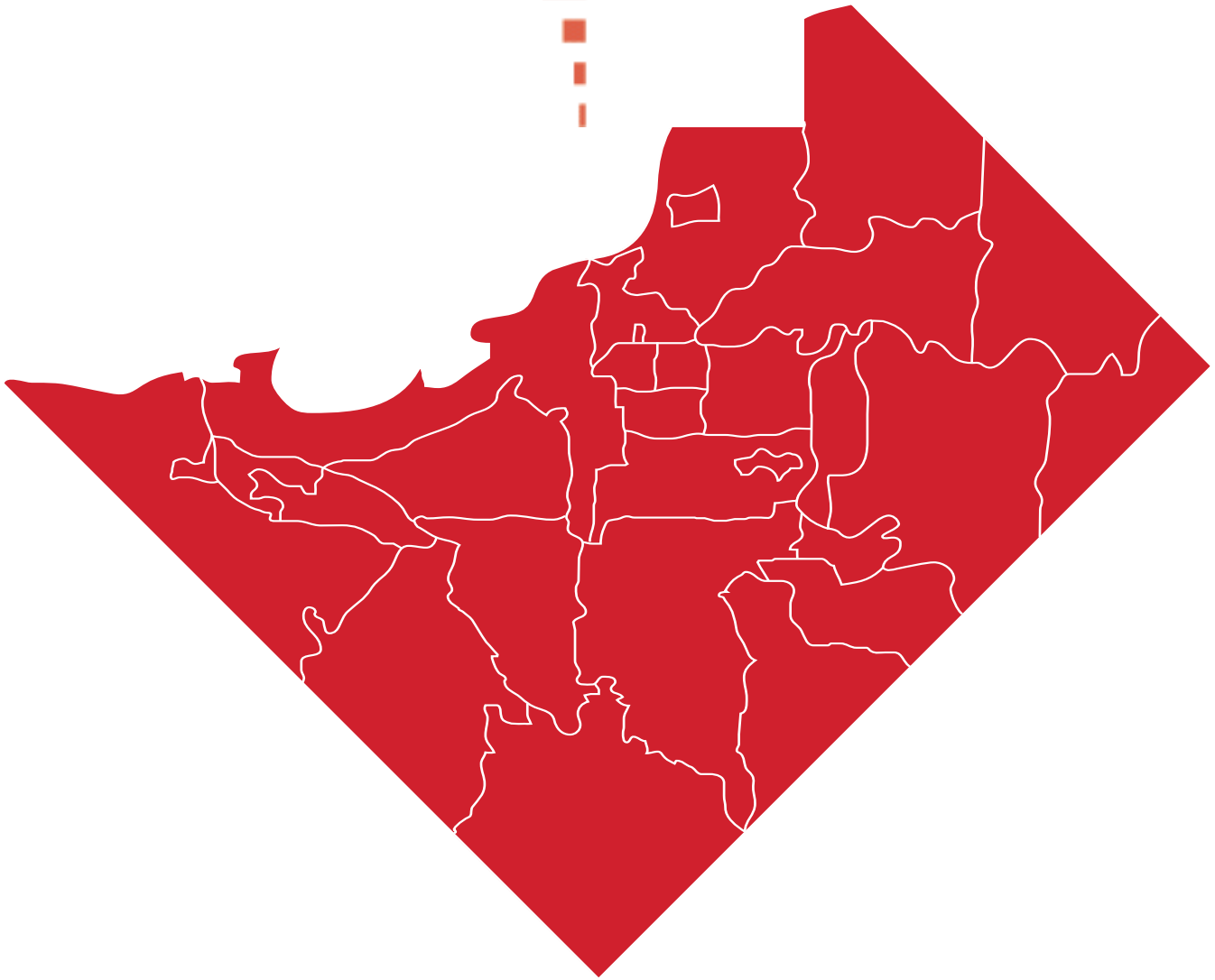
Employment by occupation is determined by the distribution of employment by industry. The authors prepared the occupational projections using the MicroMatrix Occupational Projections System developed by the Utah Department of Workforce Services.

The MicroMatrix program projects occupational employment from the projections of industry employment that procedes it. MicroMatrix combines industry employment projections with Occupational Employment Survey (OES) data produced by each state annually. The D.C. 2006-2016 projections use 2004, 2005 and 2006 survey data. MicroMatrix processing begins with loading the industry projections and OES data into the program. The OES data provide staffing patterns which show the distribution of jobs by occupation within an industry. For example, the legal services industry is staffed with several occupations: lawyers, court reporters, law clerks, paralegals, and legal secretaries, to name a few. If the legal services industry is expanding, then legal services employment will expand across the whole range of occupations employed in the industry. MicroMatrix allows users to create their own staffing patterns if they choose or to use national staffing patterns for industries included in the projections but not included in the OES survey.

Past Staffing patterns are used to forecast occupational employment, but the program adjusts for projected changes in staffing patterns by using industry specific occupational change factors. For example: the base period staffing pattern in office and administrative support occupations in the federal government might change due to wider use of office automation technologies. In such a case past staffing patterns would need to be adjusted. The Bureau of Labor Statistics produces change factors for each occupation in each industry using national data. If the change factor for secretaries were less than one, the percentage of secretaries would decline in the occupational projections. The analyst can adjust national change factors to local conditions if that information is available to him. In another step, MicroMatrix estimates self-employed, unpaid family workers and employees in private households from national patterns and local employment totals.

Using each state's industry projections, the program projects employment by occupation for each industry and aggregates them across industries to arrive at total projected employment by occupation. The end result is a comprehensive set of employment projections covering approximately 600 occupations.

iii Notes on growth rates

The fastest growing occupations are those with the highest growth rates. Growth rate measures the forecasted annual percentage change from the base year 2006 to the projected year 2016. The rates reported in the tables are compound growth rates for the 10 year period. Since occupations with low employment totals start from a low base total, a small increase in an occupation's employment can result in a high growth rate. Conversely, an occupation with a high total for the base year 2006 could have a large increase in forecasted employment, but a small growth rate. Restricting the table to occupations with over 100 jobs reduces, but does not eliminate, this effect.

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