



Workforce Demands in Professional, Scientific, and Technical Services

Prepared January 2016

Data Source(s):

Bureau of Labor Statistics: Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW)

Census Bureau: Quarterly Workforce Indicators (QWI)

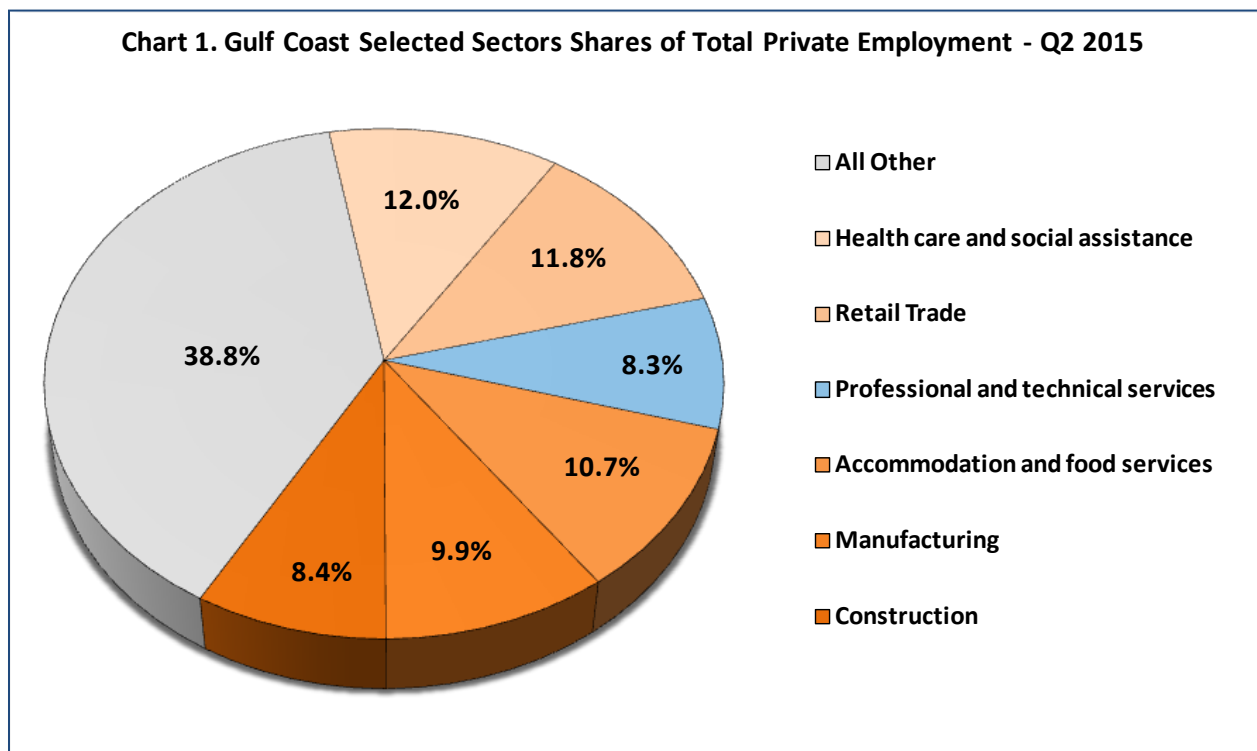
Workforce Solutions is an affiliate of the Gulf Coast Workforce Board, which manages a regional system that helps employers solve their workforce problems and residents build careers so both can compete in the global economy. The workforce system serves the City of Houston and the surrounding 13 Texas Gulf Coast counties including: Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller, and Wharton.

Overview

Professional, Scientific, and Technical Services, often referred to as simply Professional and Technical Services, is one of 20 major economic sectors that includes a range of high value-added services such as legal services, accounting, architecture and engineering, computer systems design, advertising, and others. With few exceptions businesses and organizations that fall within this sector specialize in activities that require a high degree expertise and training. As a result, workers often have relatively high levels of education including but not limited to specialized degrees as well as licenses issued by regulatory entities. This frequently translates into strong growth prospects and high wages making it a long targeted sector by the Gulf Coast Workforce Board. This report examines past, present, and future trends among the industries and occupations within this sector of the Gulf Coast regional economy.

Contribution of Professional, Scientific, and Technical Services to Local Employment

As of the second quarter of 2015, there were 212, 935 jobs in Professional, Scientific and Technical Services comprising 8.3 percent of total private employment in the Gulf Coast region. The share of these jobs rose from 7.8 percent a decade earlier indicating that this sector continues to grow in importance as a source of jobs. Relative to other sectors, Professional and Technical Services was the sixth-largest in terms of employment making it comparable in size to Construction. (See Chart 1.)



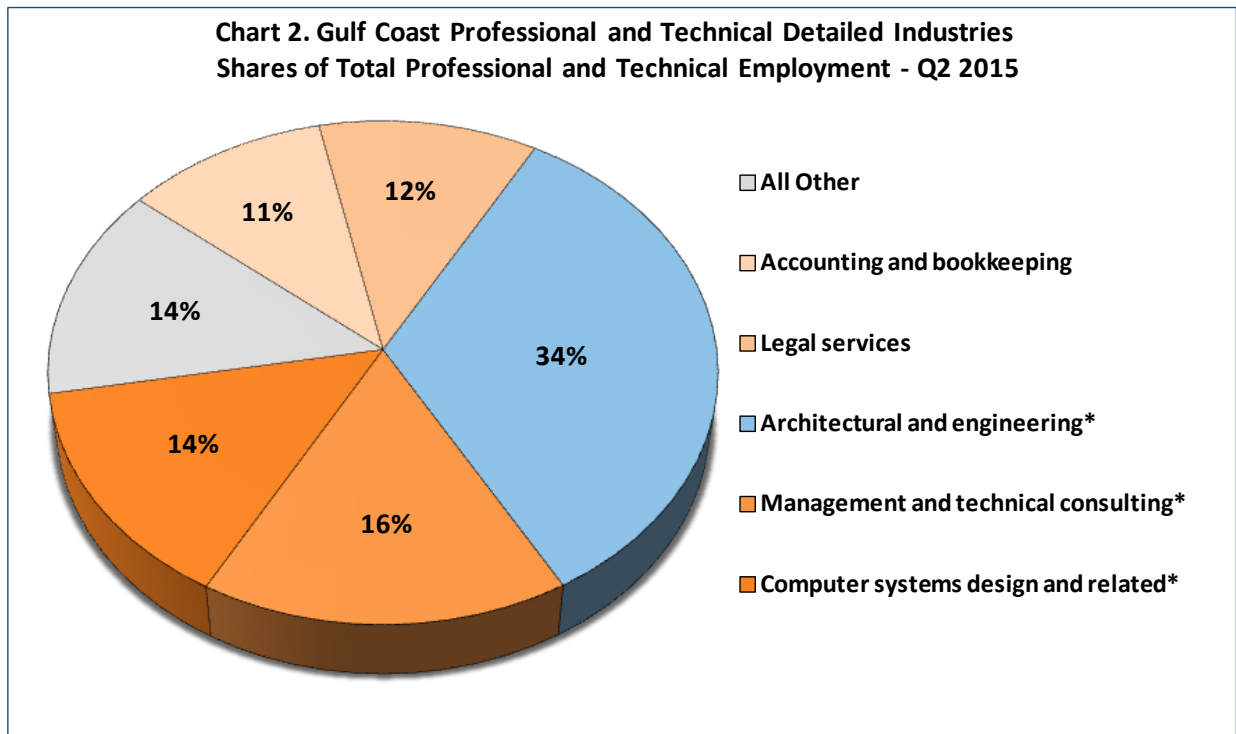
Major Industries within Professional, Scientific, and Technical Services

Within Professional and Technical Services there are nine major industries:

- Legal
- Accounting and Bookkeeping
- Architectural and Engineering*
- Specialized Design
- Computer Systems Design and Related*
- Management, Scientific, and Technical Consulting*
- Scientific Research and Development
- Advertising, PR, and Related
- Other Professional and Technical Services

*Denotes high-skill, high-growth industry targeted by the Gulf Coast Workforce Board

Among these nine industries, Architectural and Engineering Services make up the plurality of jobs in Professional and Technical Services in the Gulf Coast with 34 percent (71,739 jobs) followed by Management and Technical Consulting (16 percent) and Computer Systems Design and Related Services (14 percent). Engineering Services account for 70 percent of jobs in the Architectural and Engineering category and the largest employers in this category are overwhelmingly providers of services to energy companies in the region. (See Chart 2.)

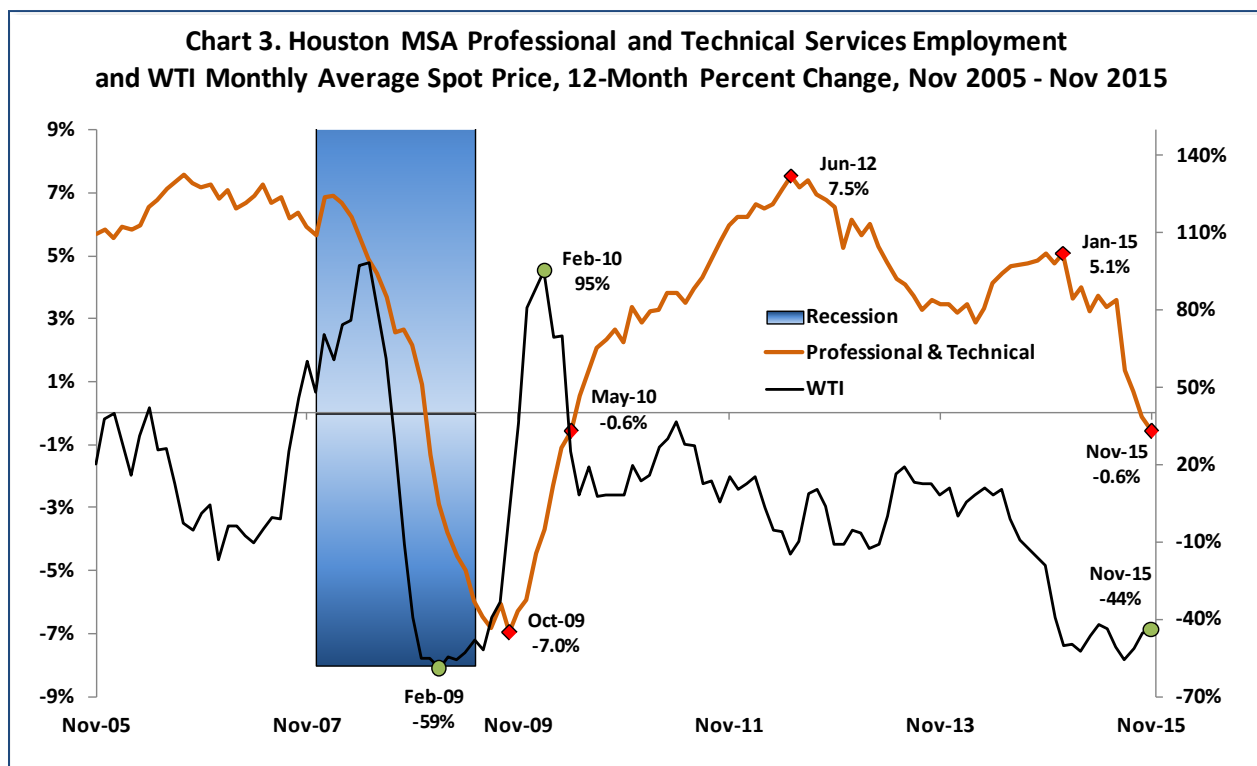


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Recent Employment Trends in Professional and Technical Services vis-à-vis Oil Prices

As a result of its relationship to the oil and gas industry by way of Architectural and Engineering Services and to a lesser extent Management and Technical Consulting, the fortunes of the overall Professional and Technical Services sector have followed the trajectory of oil prices since early 2015. This has been reflected in the dramatic rate of change in job growth, which was as high as 5.1 percent as recently as January 2015. By October of that same year growth turned negative and as of November 2015 registered a decline of -0.6 percent. Note that the price of West Texas Intermediate oil began posting year over year declines as early as July 2014 and by November 2015 was down nearly 44 percent from the previous year.

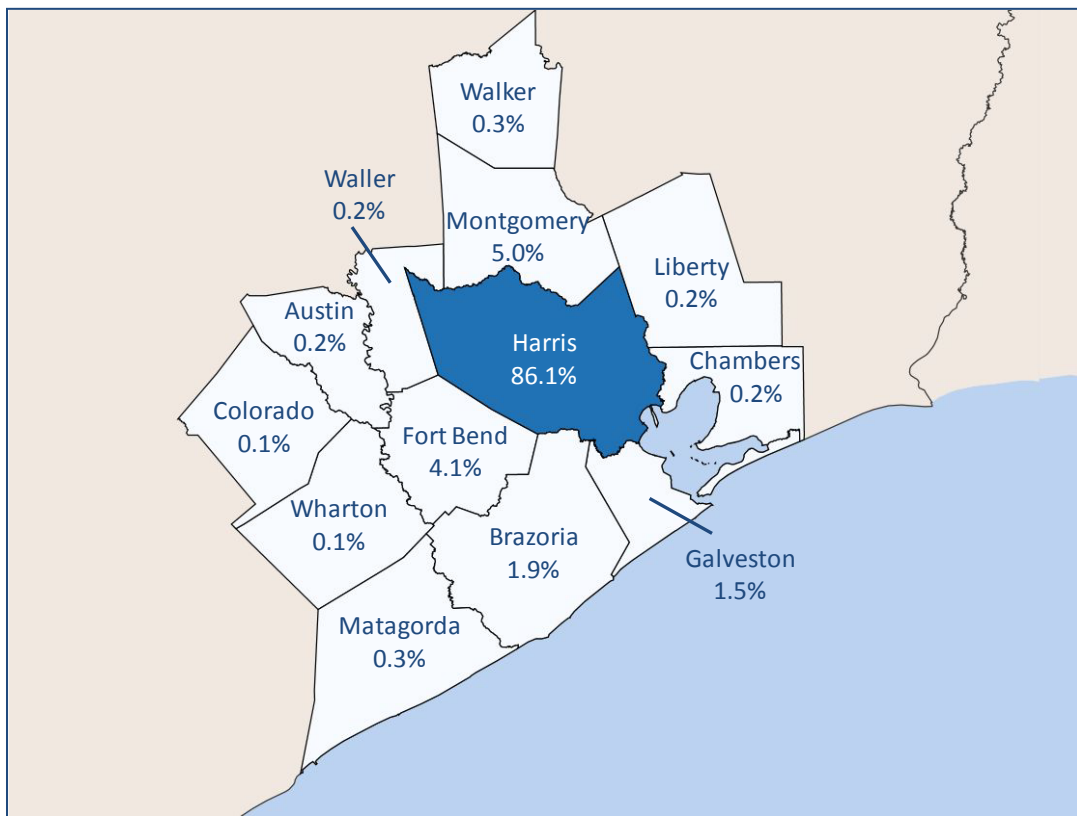
The last time Professional and Technical Services saw a comparable rate of negative growth was May 2010 however that was after reaching a trough of -7.0 percent during the depths of the recession. While it is impossible to predict the point at which oil prices and subsequently employment begin recover, extrapolating from the trend observed during the recession implies that there will be continued job losses in Professional and Technical Services, among other sectors, well into 2016. (See Chart 3.)



The Geography of Professional and Technical Services Employment across the Region

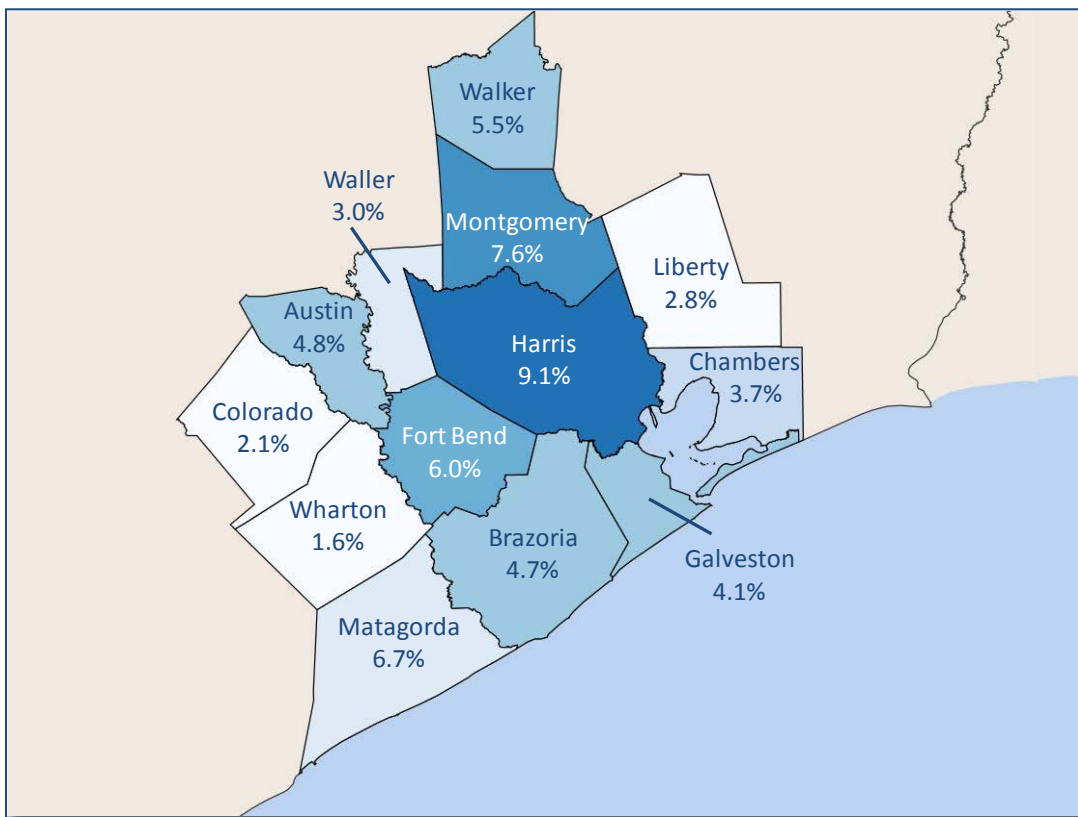
Of the approximately 213,000 Professional and Technical Services jobs across the 13-county region, the overwhelming majority (86.1 percent) are found within Harris County compared to 80.0 percent of total private employment and only two-thirds of the region's population. The next highest shares of Professional and Technical jobs were found in Montgomery County (5.0 percent) and Fort Bend (4.1 percent). Brazoria (1.9 percent) and Galveston (1.5 percent) were the only other counties to comprise 1 percent or more of total Professional and Technical Services employment in the region. (See Exhibit 1.)

Exhibit 1. County Share of Gulf Coast Region Employment in Professional, Scientific, and Technical Services, Q2 2015



As noted, the vast majority of Professional and Technical Services employment was found within the geographic core of the 13-county region. However shares of this sector's employment *within* each county demonstrated comparatively more balance. At the upper end was Harris County with the highest concentration of Professional and Technical Services employment as a percentage of the county's total private employment at 9.1 percent. This was followed by Montgomery and Matagorda Counties with 7.6 percent and 6.7 percent, respectively. At the other end of the range were Liberty (2.8 percent), Colorado (2.1 percent), and Wharton (1.6 percent). Lastly, it is worth highlighting that some counties on the periphery of the region, such as Walker (5.5 percent) and Austin (4.8 percent) also had relatively high proportions of Professional and Technical employment given their small populations. (See Exhibit 2.)

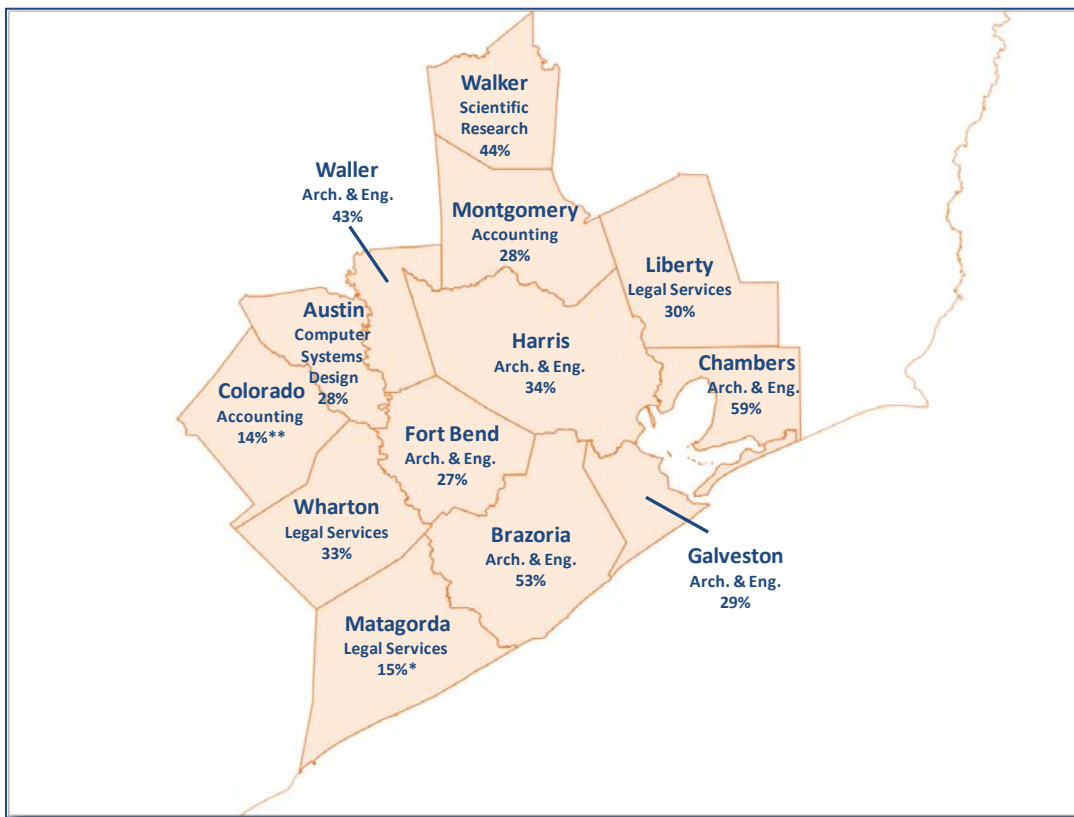
Exhibit 2. Professional, Scientific, and Technical Services Share of County Total Private Employment, Q2 2015



Another method of analyzing the geographic distribution of Professional and Technical jobs across the region involved identifying which of the nine major Professional and Technical industries were the largest within each county. Given region’s specialization in energy, it was not surprising that Architecture, Engineering, and Related Services was the most frequently encountered industry, proving to be the largest in 6 out of 13 counties. In two of these counties, Chambers (59 percent) and Brazoria (53 percent), a majority of Professional and Technical jobs were in Architecture and Engineering.

In contrast, Legal Services were the largest industry in Wharton, Liberty, and Matagorda Counties. Accounting was the largest in Montgomery and Colorado Counties while Computer Systems Design was the largest in Austin County, possibly the result of several small computer systems design and custom programming firms in the area. Lastly, Scientific Research was the largest Professional and Technical industry in Walker County and presumably related to the presence of Carnegie designated doctoral research institution Sam Houston State University. (See Exhibit 3.)

Exhibit 3. Largest Professional and Technical Industry as a Percentage of County Total Professional and Technical Services Employment, Q2 2015

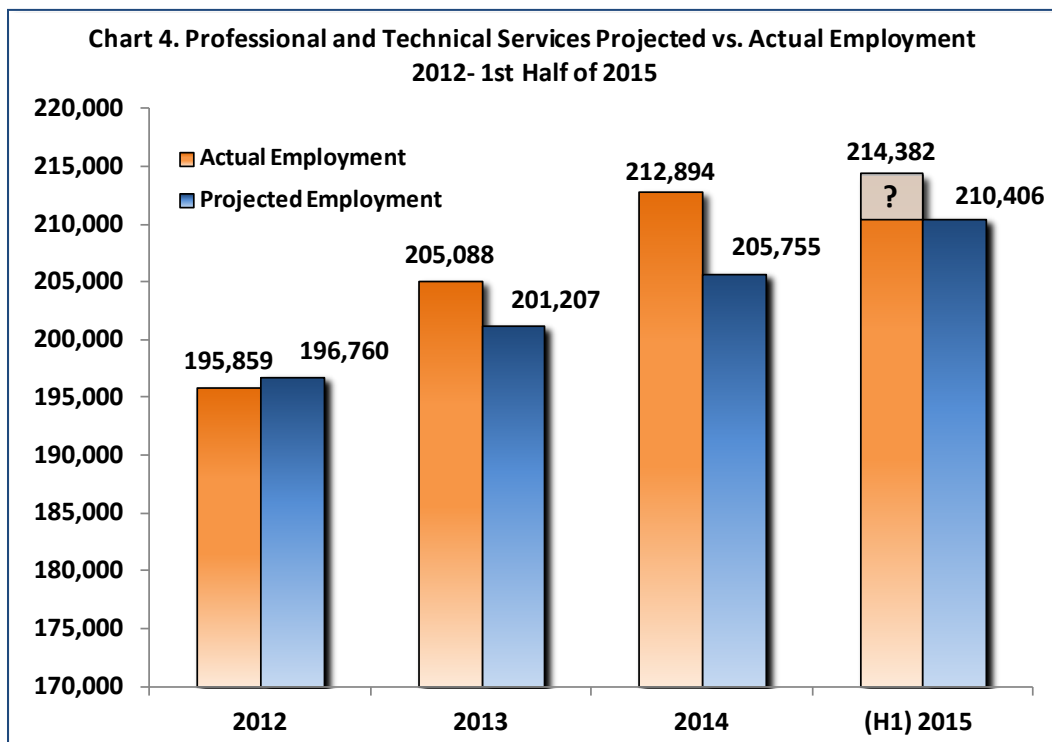


Professional and Technical Services Sector - Employment Projections vs. Actual Job Growth

As noted Professional and Technical Services employment is projected to grow 25 percent between 2012 and 2022. This translates to an average annual projected growth rate of 2.3 percent each year. Armed with this knowledge it was possible to determine whether Professional and Technical Services has been growing at the pace needed to reach the projected target of 246,040 jobs by 2022.

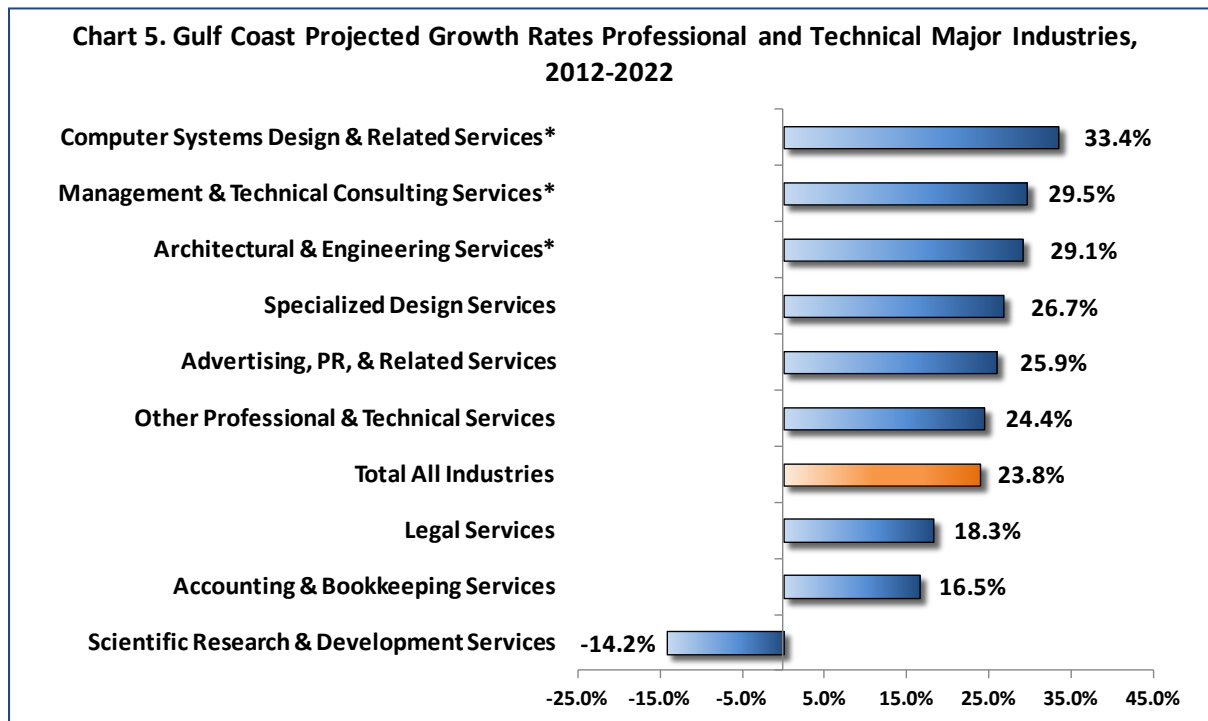
During the first two years from 2012 to 2013 and 2013 to 2014, this sector managed to grow 4.7 percent and 3.8 percent year over year, respectively, which was faster than minimum 2.3 percent needed. While data for the third and fourth quarters of 2015 are not yet available, the absolute number of Professional and Technical Services jobs as of the first half of 2015 was higher than the average for all of 2014 by only 1,488 or 0.7 percent. To compare, the first half of 2014 compared to the average of 2013 was higher by 5,086 jobs or 2.5 percent.

Put simply, job growth in the first half 2015 slowed compared to previous years and is likely to have continued to do so in the second half of the year. However, if the Gulf Coast manages to at least match the projected level of jobs for 2015 of 210,406, the region can still meet the projected target of 246,040 jobs by 2022. Note that this assumes a growth rate of 2.3 percent each year for the remaining five and a half years. At the same time, a protracted period of low oil prices continuing to adversely affect employment in the region may jeopardize the ability of Professional and Technical Services to reach this target. (See Chart 4.)



Professional and Technical Services Major Industries - Employment Projections

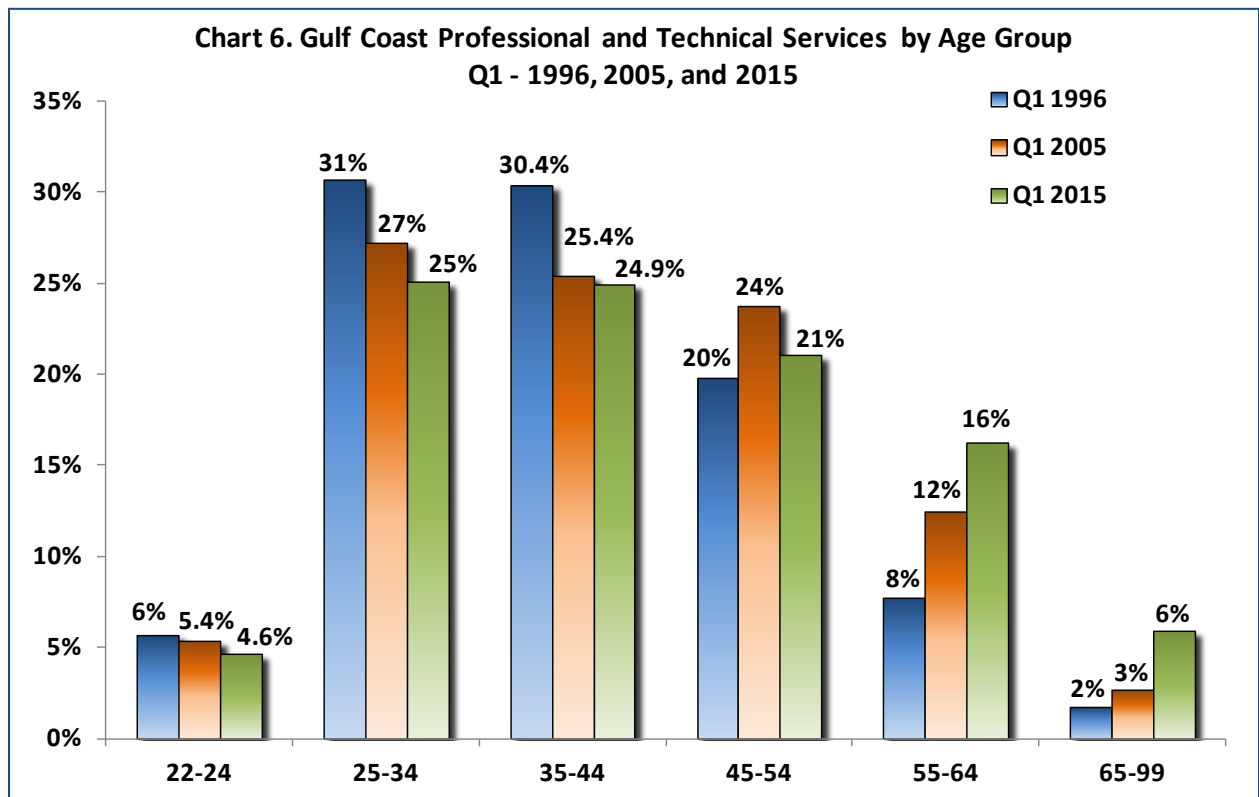
Among the nine major Professional and Technical Services Industries highlighted earlier, six are projected to grow faster than the average for all industries/occupations of 23.8 percent. Computer Systems Design and Related Services are projected to grow the fastest at 33.5 percent over the 10-year period. This is followed by Management and Technical Consulting Services (29.5 percent) and Architectural and Engineering Services (29.1 percent). Two industries, Legal Services (18.3 percent) and Accounting and Bookkeeping (16.5 percent) are projected to grow slower than average over this same period. Only Scientific Research and Development Services is expected to decline in absolute terms, contracting 14.2 percent by 2022. (See Chart 5.)



*Denotes high-skill, high-growth industry targeted by the Gulf Coast Workforce Board

Professional and Technical Services Demographic Trends – Workers by Age Group

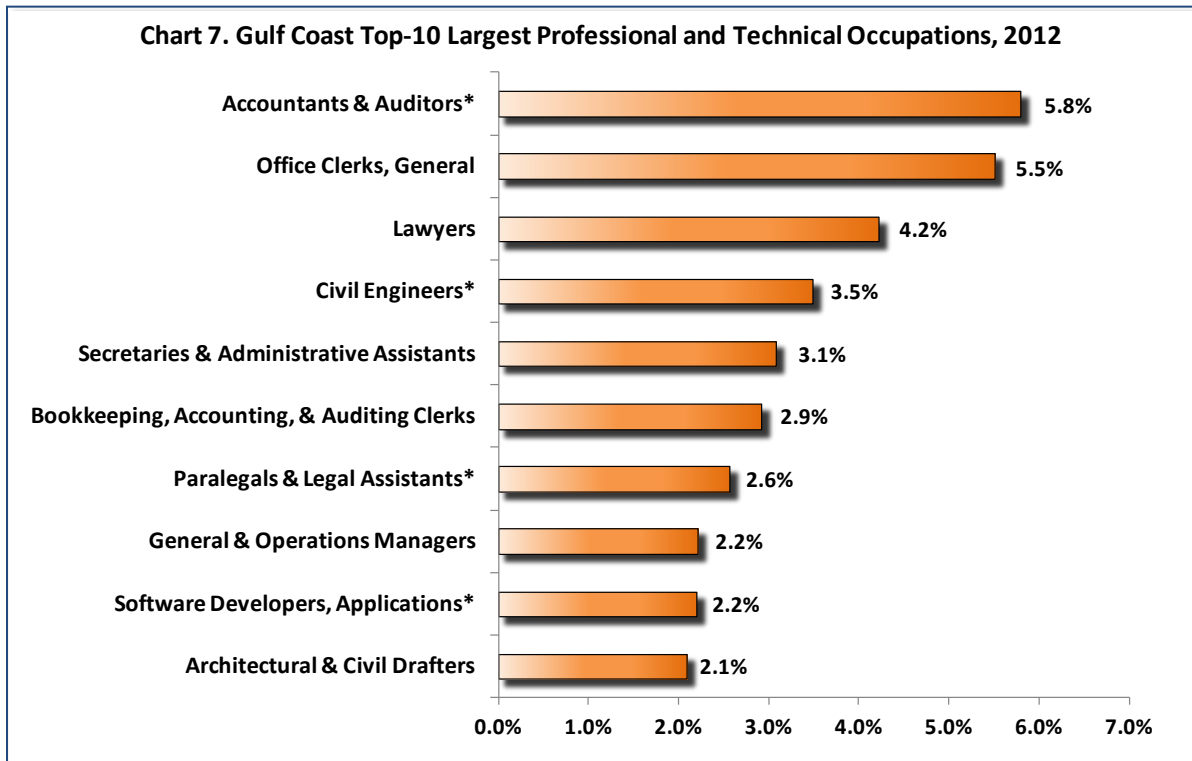
As is the case for nearly all of the Gulf Coast’s sectors, Professional and Technical Services demonstrated signs of an aging workforce as well. Five age groups* from 14-18 to 35-44 saw their shares of the sector’s workers decline over the first quarters of 1996, 2005, and 2015. The 25-34 age group saw the largest percentage point decline at 5.6 followed by the 35-44 group (-5.5). The two remaining age groups, 55-64 and 65-99, saw their shares of workers increase over the 19-year period with the 55-64 group experiencing the largest share increase from 8 percent to 16 percent. In short, the share of workers in the 25-44 range fell from around 60 percent of the total in the first quarter of 1996 to 50 percent by first quarter of 2015 while the share of workers 55-99 grew from approximately 10 percent to 22 percent. (See Chart 6.)



* Age groups 14-18 and 19-21 not shown.

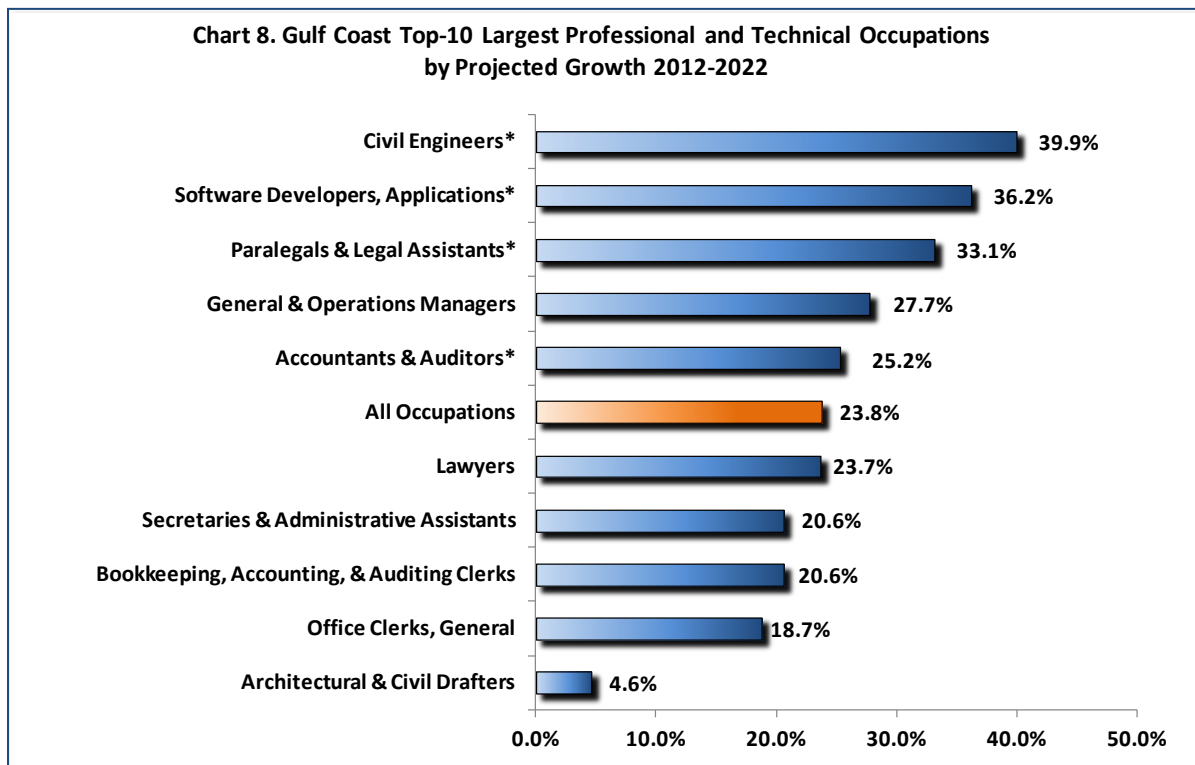
Top-10 Largest Professional and Technical Services Occupations – Relative Size, Education, Projected Growth, and Wages

While roughly one-third of all Professional and Technical employment could be found among Architecture and Engineering firms, the largest occupations in this sector reflected a wider range of functions than just engineering. Accountants and Auditors proved to be the most common Professional and Technical occupation comprising 5.8 percent of employment. Overall, the top-10 largest occupations could be divided into those requiring extensive education, training, and experience (e.g. Lawyers, Accountants, Civil Engineers, Managers etc.) and those requiring comparatively less education, in many cases just a high school diploma and on-the-job-training (e.g. Office Clerks, Bookkeepers, Secretaries). Among the top 10, only Architectural and Civil Drafters and Paralegals and Legal Assistants could be considered “middle-skills” occupations given that they typically require an Associate’s degree however their projected growth rates were substantially different as will be seen below. (See Chart 7.)



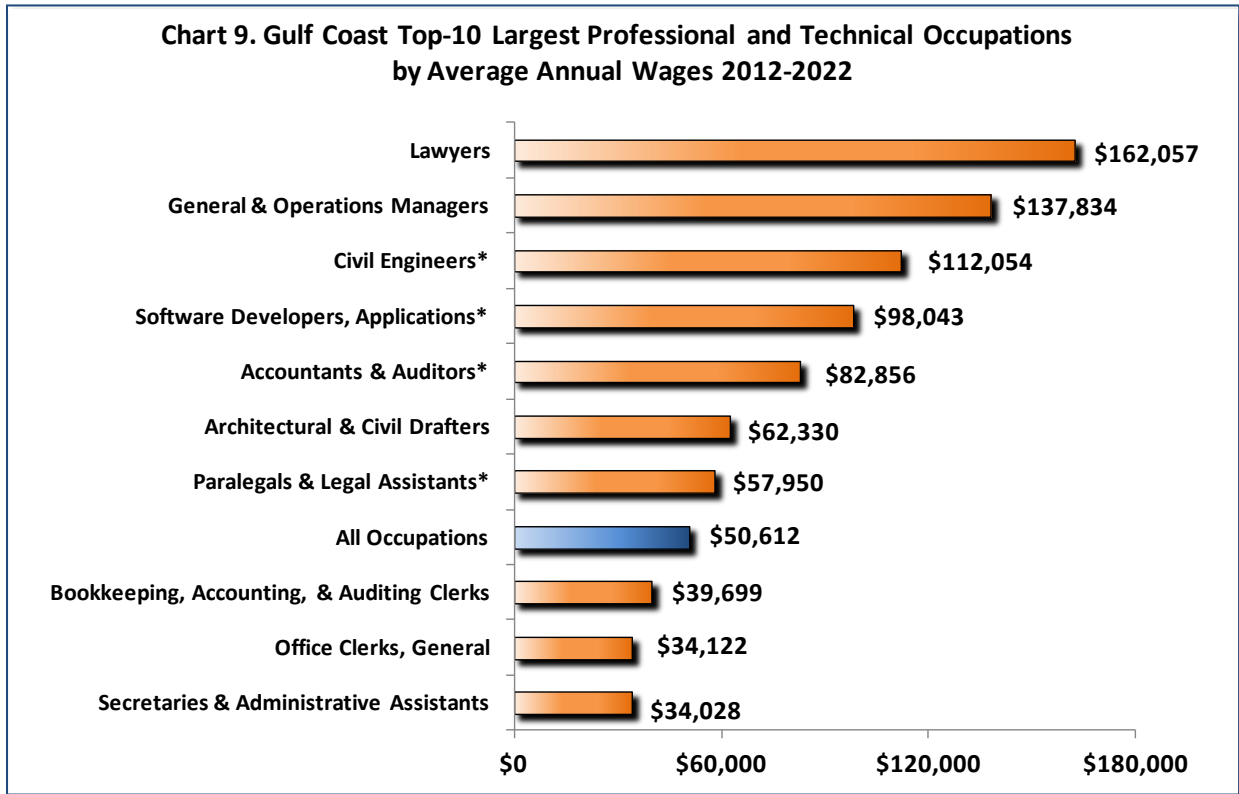
*Denotes high-skill, high-growth occupation targeted by the Gulf Coast Workforce Board

Among the top-10 largest Professional and Technical occupations, long-term projected growth generally reflected the educational attainment dynamics noted above. Overall, the occupations requiring relatively more education were projected to grow the fastest with Civil Engineers poised to increase by 39.9 percent between 2012 and 2022. Lawyers were the only occupation requiring a significantly higher than average level of education while posting a projected growth rate virtually identical to the average for all occupations. The three clerical occupations noted previously are predicted to have slower than average yet respectable growth rates of roughly 19 percent to 21 percent. Of the top-10 largest occupations only Architectural and Civil Drafters were projected to grow substantially slower than average at 4.6 percent compared to an overall average of 23.8 percent over the 10-year period. (See Chart 9.)



*Denotes high-skill, high-growth occupation targeted by the Gulf Coast Workforce Board

Regarding wages among the top-10 largest Professional and Technical occupations, this dimension showed the strongest direct relationship to educational attainment of those examined thus far. As the only occupation of the group requiring a doctoral or professional degree, Lawyers had the highest average annual wage at \$162,057. The wage-education dynamic continued with the two occupations requiring Associate’s degrees (Architectural and Civil Drafters and Paralegals) both earning more than the average for all occupations at \$50,612 per year while the three clerical roles earned wages significantly below the average. (See Chart 9.)



*Denotes high-skill, high-growth occupation targeted by the Gulf Coast Workforce Board

Table 1. Top-50 Largest Professional and Technical Services Occupations – Employment Projections 2012-2022, Annual Wages 2014

SOC	Occupational Title	Employment 2012	Projected Employment 2022	Projected Net Change 2012-2022	Projected Percent Change 2012-2022	Average Annual Wage 2014
-	All Professional and Technical Occupations	176,600	221,350	44,750	25.3%	-
13-2011	Accountants & Auditors*	10,220	12,800	2,580	25.2%	\$82,856
43-9061	Office Clerks, General	9,720	11,540	1,820	18.7%	\$34,122
23-1011	Lawyers	7,440	9,200	1,760	23.7%	\$162,057
17-2051	Civil Engineers*	6,160	8,620	2,460	39.9%	\$112,054
43-6014	Secretaries & Administrative Assistants	5,430	6,550	1,120	20.6%	\$34,028
43-3031	Bookkeeping, Accounting, & Auditing Clerks	5,140	6,200	1,060	20.6%	\$39,699
23-2011	Paralegals & Legal Assistants*	4,530	6,030	1,500	33.1%	\$57,950
11-1021	General & Operations Managers	3,900	4,980	1,080	27.7%	\$137,834
15-1132	Software Developers, Applications*	3,870	5,270	1,400	36.2%	\$98,043
17-3011	Architectural & Civil Drafters	3,690	3,860	170	4.6%	\$62,330
43-6012	Legal Secretaries	3,680	3,860	180	4.9%	\$50,237
15-1133	Software Developers, Systems Software*	3,590	4,830	1,240	34.5%	\$106,069
15-1121	Computer Systems Analysts*	3,550	4,680	1,130	31.8%	\$102,745
43-4051	Customer Service Representatives	3,460	4,380	920	26.6%	\$33,000
15-1151	Computer User Support Specialists	3,220	4,540	1,320	41.0%	\$57,448
51-9061	Inspectors, Testers, Sorters, Samplers	3,100	4,060	960	31.0%	\$42,181
13-1111	Management Analysts	2,960	3,810	850	28.7%	\$108,341
17-1011	Architects, Ex. Landscape & Naval	2,890	3,760	870	30.1%	\$85,101
43-1011	First-Line Supervisors of Office Workers	2,810	3,480	670	23.8%	\$59,012
43-4171	Receptionists & Information Clerks	2,540	2,730	190	7.5%	\$26,886
15-1131	Computer Programmers	2,370	2,790	420	17.7%	\$78,404
17-3031	Surveying & Mapping Technicians	2,310	3,010	700	30.3%	\$46,349
17-2141	Mechanical Engineers*	2,180	2,820	640	29.4%	\$106,532
15-1142	Network & Computer Systems Administrators*	2,100	2,660	560	26.7%	\$94,462
17-2071	Electrical Engineers*	2,020	2,600	580	28.7%	\$107,753
13-1161	Market Research Analysts & Marketing Specialists	1,800	2,690	890	49.4%	\$70,856
17-1022	Surveyors	1,680	2,000	320	19.0%	\$58,172
17-3023	Electrical & Electronics Engineering Technicians*	1,440	1,840	400	27.8%	\$64,896
43-3021	Billing & Posting Clerks	1,440	1,730	290	20.1%	\$37,981
11-3021	Computer & Information Systems Managers	1,350	1,740	390	28.9%	\$145,904
11-9041	Architectural & Engineering Managers	1,330	1,720	390	29.3%	\$180,672
17-3022	Civil Engineering Technicians	1,210	1,420	210	17.4%	\$48,919
13-2082	Tax Preparers	1,210	1,370	160	13.2%	\$42,739
17-2072	Electronics Engineers, Ex. Computer*	1,200	1,550	350	29.2%	\$99,867
15-1152	Computer Network Support Specialists	1,200	1,510	310	25.8%	\$72,503
29-1131	Veterinarians	1,200	1,370	170	14.2%	\$106,603
13-1071	Human Resources Specialists	1,160	1,360	200	17.2%	\$66,993
41-4011	Sales Representatives, Wholesale & Mfg, Technical	1,070	1,390	320	29.9%	\$95,613
19-2041	Environmental Scientists & Specialists, Inc. Health	1,070	1,360	290	27.1%	\$87,633
17-3029	Engineering Technicians, Ex. Drafters, All Other	1,070	1,250	180	16.8%	\$73,385
17-2171	Petroleum Engineers*	980	1,210	230	23.5%	\$168,282
53-7062	Laborers and Freight, Stock, and Material Movers	950	1,220	270	28.4%	\$27,689
27-1025	Interior Designers	930	1,200	270	29.0%	\$67,378
39-2021	Nonfarm Animal Caretakers	910	1,080	170	18.7%	\$19,884
27-1024	Graphic Designers	900	1,150	250	27.8%	\$44,887
17-3012	Electrical & Electronics Drafters	890	1,160	270	30.3%	\$81,821
23-2093	Title Examiners, Abstractors, & Searchers	880	1,070	190	21.6%	\$74,924
43-4071	File Clerks	860	880	20	2.3%	\$32,720
47-4011	Construction & Building Inspectors	840	1,100	260	31.0%	\$66,254
43-9021	Data Entry Keyers	840	680	-160	-19.0%	\$29,053

*Denotes high-skill high-growth occupation currently targeted by the Gulf Coast Workforce Board