

CUNY Kingsborough Community College

Economic Overview and Program Demand Gap Analysis

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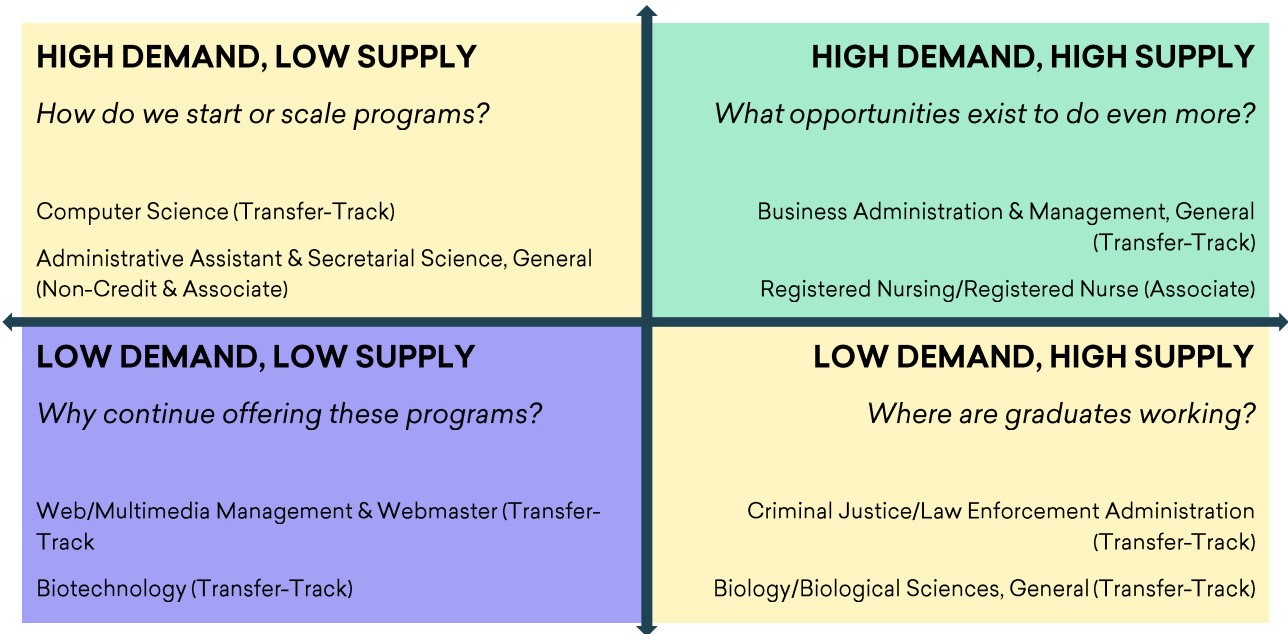
Acknowledgements

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Executive Summary

CUNY Kingsborough Community College (KCC) is a public, two-year postsecondary educational institution in New York. To further its goal of providing the region with well-trained and well-educated residents, KCC continually pursues improvement in various forms. An up-to-date understanding of the regional economy and the demand for skilled labor is vital to the planning efforts of the college as it seeks to adapt its program offerings to the requirements of an ever-changing workforce. KCC partnered with Emsi, a leading provider of labor market data, to complete a program demand gap analysis, which assesses regional job openings against educational program completions.

RECOMMENDATIONS



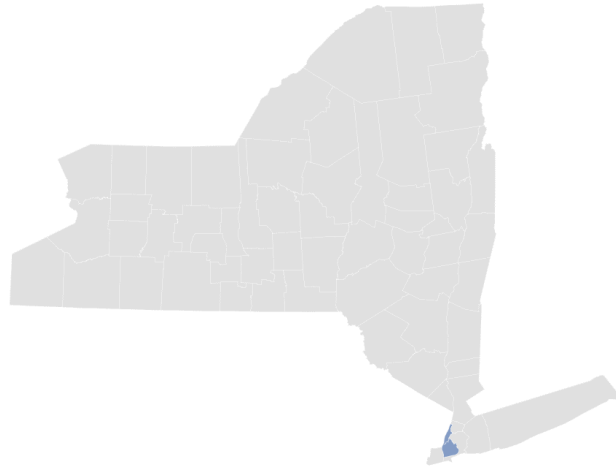
“Strong community colleges assess trends in job growth and salaries to determine what programs will be needed for high-demand jobs. They then structure their programs and enrollment in accordance with those demands.”

Josh Wyner in What Excellent Community Colleges Do: Preparing All Students for Success

INTRODUCTION

For purposes of the program demand gap analysis, KCC serves a larger region beyond its main campus in Brooklyn, New York. This region, called the Kingsborough Service Region, is comprised of two counties in New York: Kings County and New York County. This region was chosen as it best represents the labor market region KCC’s students are most likely to enter. This report outlines the region’s economy and uses the region’s average annual projected job openings between 2018 and 2028 as a measurement of labor market demand. When job openings are compared to the region’s supply of educational program completions, the analysis determines how well KCC’s program offerings satisfy regional workforce demand. In addition, this report offers recommendations for new program development. In its entirety, the PDGA is a starting point for KCC as the college continues to develop programs using data-based decision-making strategies. The following figures and table display key findings of the analyses.

Figure 1: Map of the Kingsborough Service Region

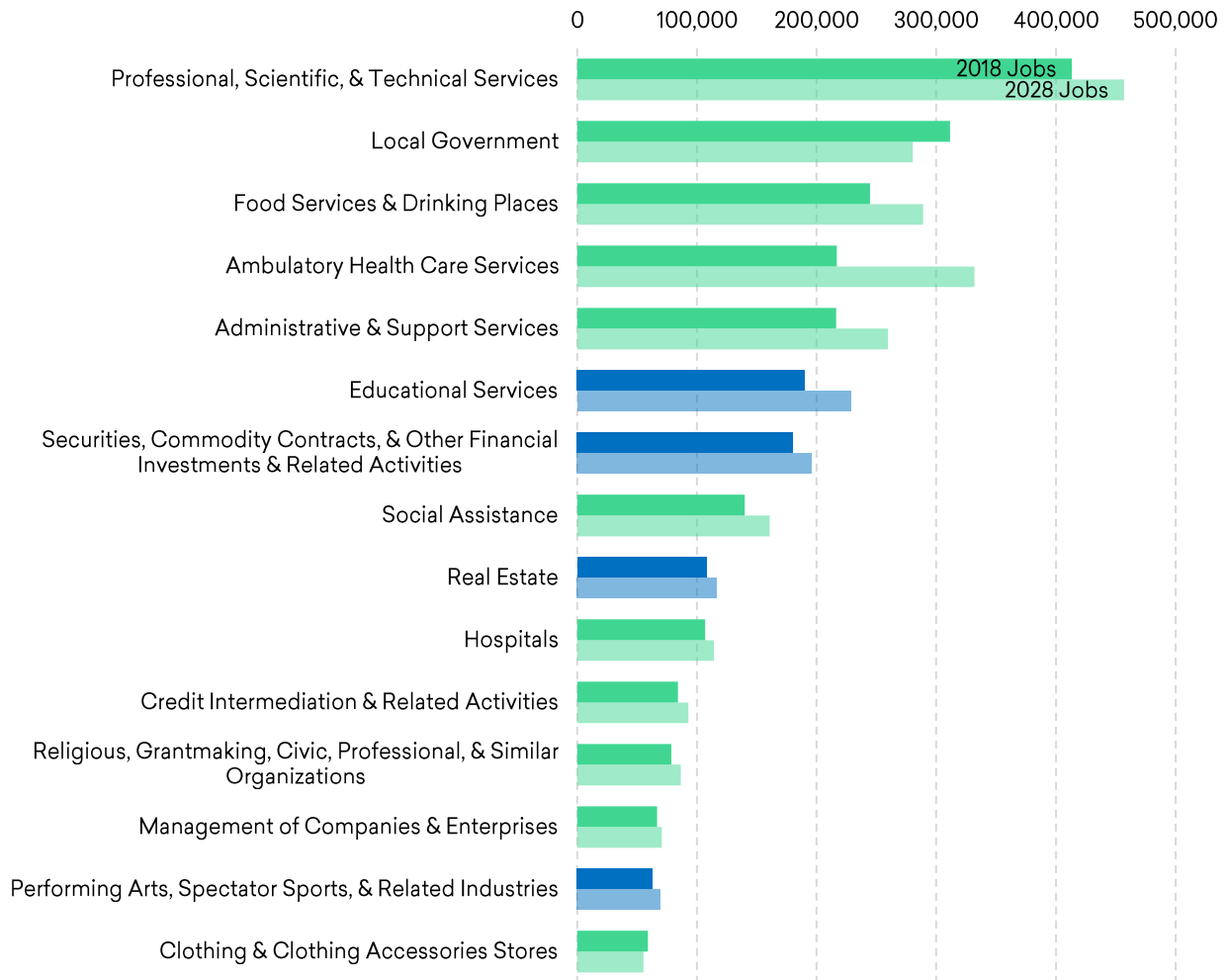


Source: Emsi Analyst. Region provided by KCC.

ECONOMIC OVERVIEW

Figure 2 displays the top industry subsectors in terms of employment in the Kingsborough Service Region, and Figure 3 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or potentially to other regions.

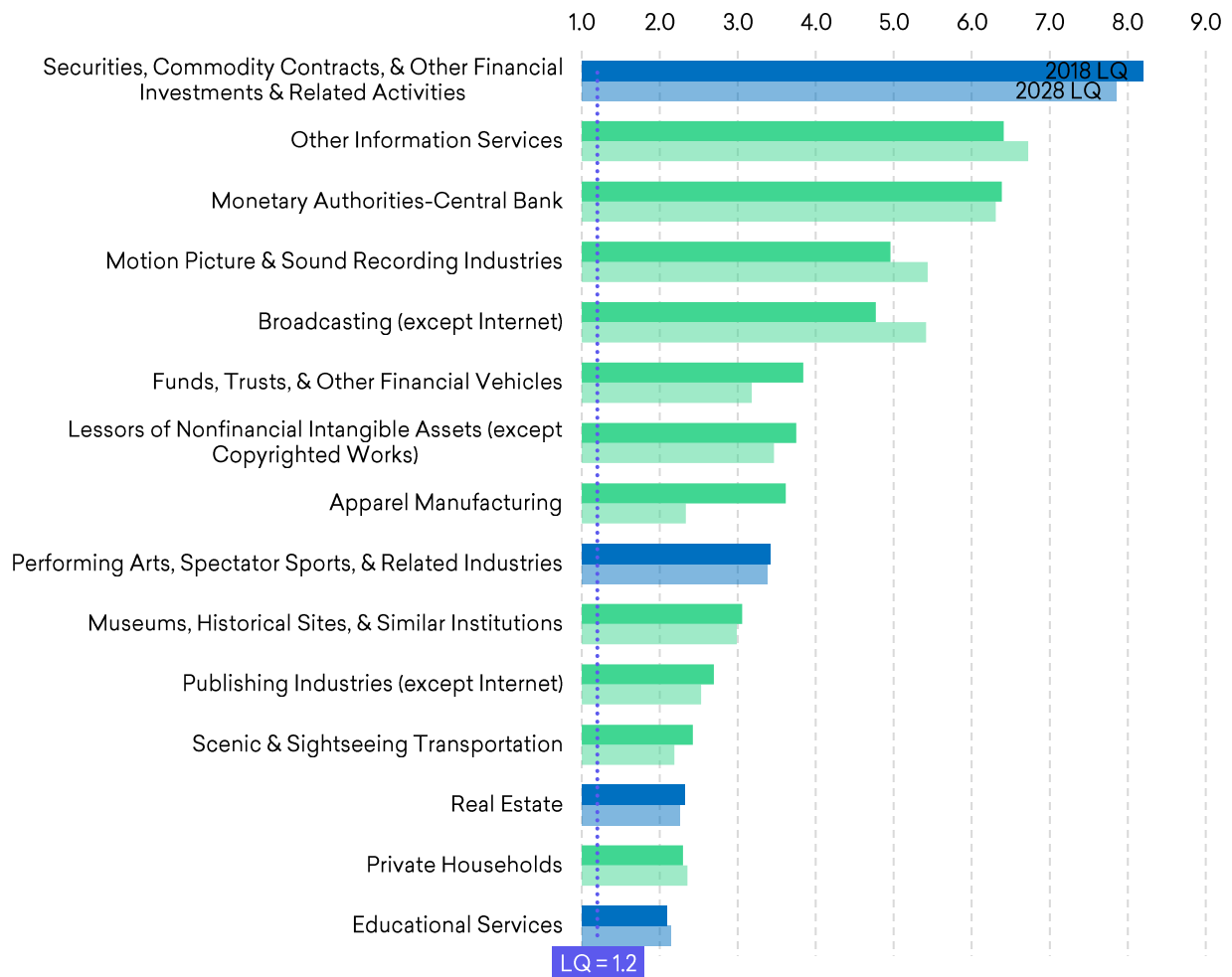
Figure 2: Top Industry Subsectors in the Kingsborough Service Region by Jobs



Source: Employees & Self-Employed 2019.4.



Figure 3: Top Industry Subsectors in the Kingsborough Service Region by Employment Concentration (LQ)



Source: Employees & Self-Employed 2019.4.

Note the dark blue colored bars in the figures. Across all of the Kingsborough Service Region's industry subsectors, four are within the top 15 in terms of jobs with relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers the college insight into potential employment opportunities for its students. These industry subsectors, ranked by 2018 jobs, are:

- Educational Services
- Securities, Commodity Contracts, & Other Financial Investments & Related Activities
- Real Estate
- Performing Arts, Spectator Sports, & Related Industries

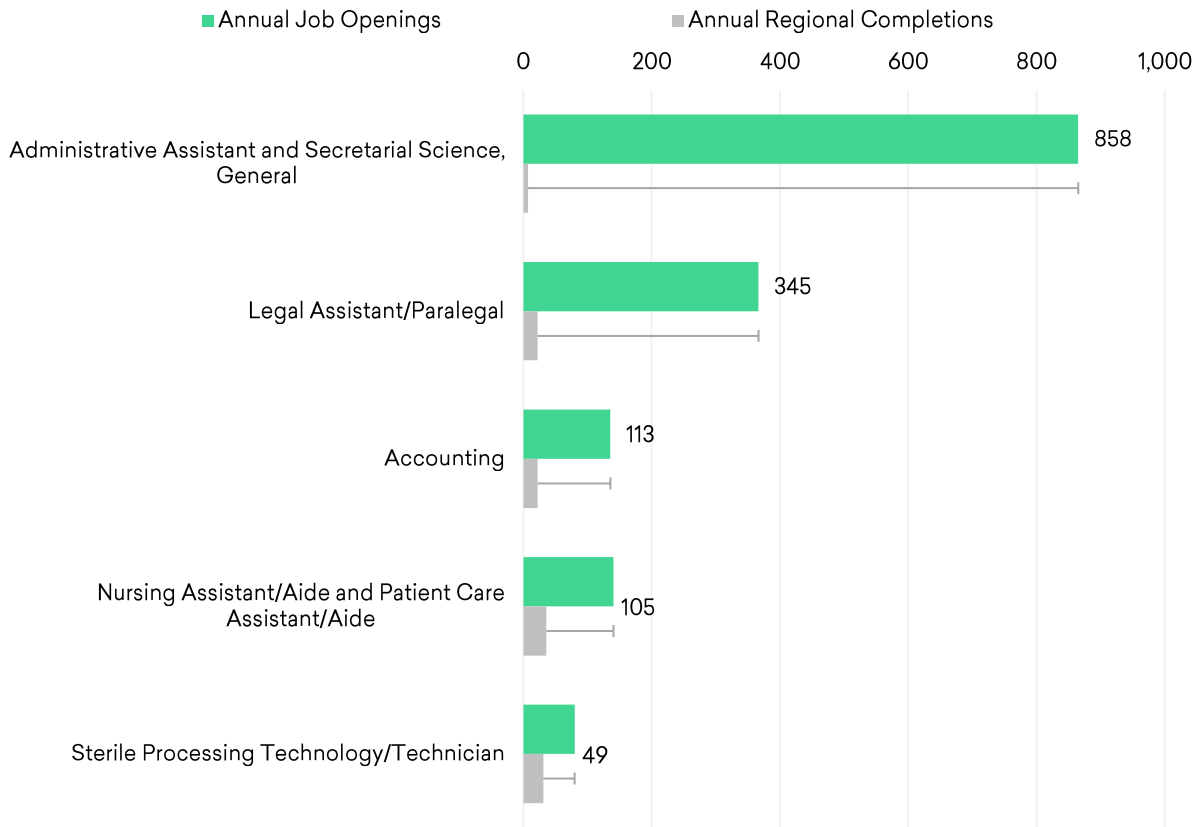
PROGRAM DEMAND GAP ANALYSIS

The program demand gap analysis provides results across all of KCC's non-credit, certificate, and degree level programs, which have been classified by their formal CIP code.¹ The analysis connects the college's program completers with the availability of regional job openings. For KCC's non-credit programs, the analysis is similar in that it connects the college's completers with the availability of regional job openings but without the additional reference to non-credit program completions from other postsecondary educational institutions in the Kingsborough Service Region. Furthermore, the analysis focuses on the gaps and surpluses in the programs by award level. A gap or surplus larger than 100 is considered beyond normal labor market fluctuations and therefore an area of consideration for program development.

KCC offers 13 non-credit programs, when grouped by their six-digit CIP codes. The non-credit programs can be designed for self-enrichment; however, KCC offers them with workforce skills in mind. Using a customized non-credit program-to-occupation map, the programs are analyzed using similar methods to the program demand gap analysis. Four non-credit programs have a significant gap (Figure 4). However, the Kingsborough Service Region is quite large, and completion of any one of the non-credit programs could lead to successful regional employment. The non-credit program analysis provides KCC administrators with opportunities for local student recruiting and curriculum re-alignment.

1 CIP refers to the Classification of Instructional Program and was originally developed by the U.S. Department of Education's National Center for Education Statistics (NCES).

Figure 4: Top 5 Gaps for Non-Credit Programs

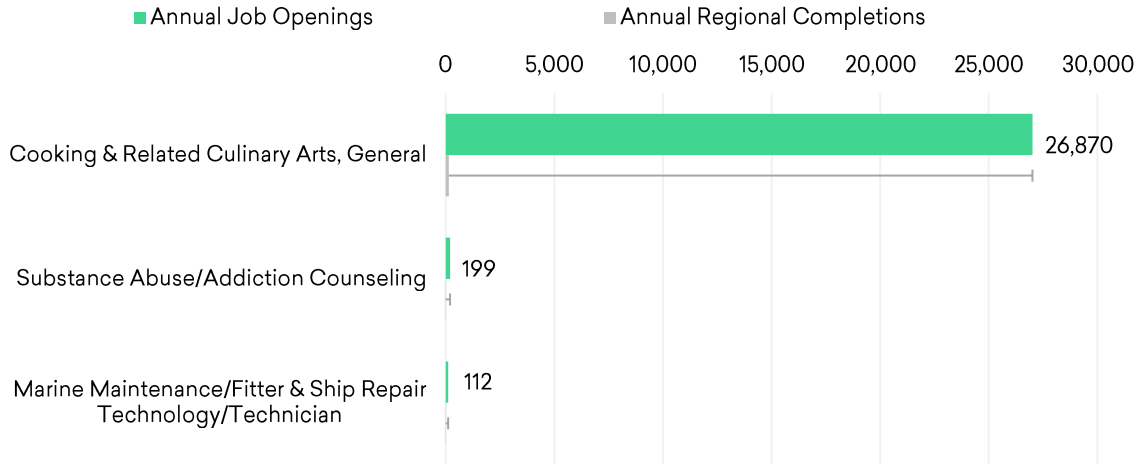


Non-credit programs are grouped by their six-digit CIP code.
 Source: Emsi program demand gap model.

KCC offers three certificate level programs, all of which have a significant gap above the 100-openings level of significance, as shown in Figure 5. All should be considered for expansion at the certificate level, considering the industries and occupations of the Kingsborough Service Region. No programs at this award level have a significant surplus.



Figure 5: Certificate Level Programs

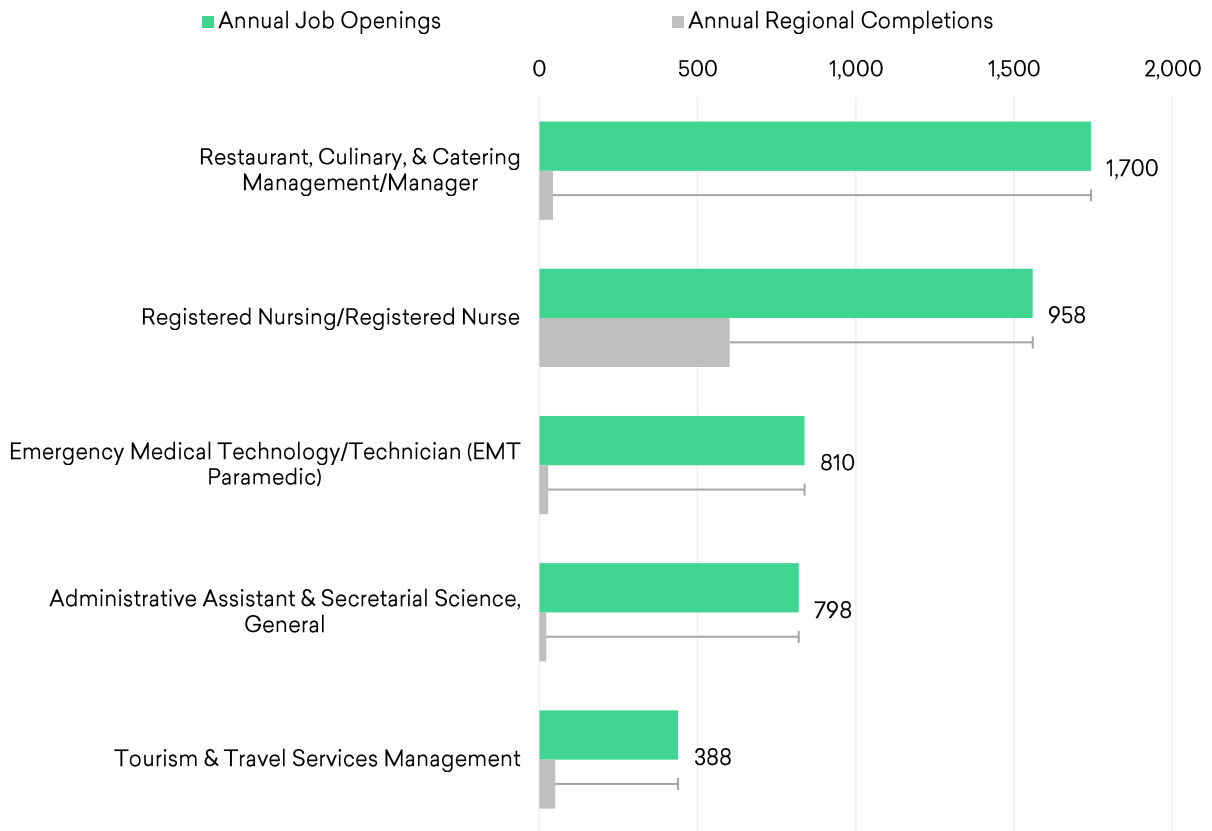


Source: Emsi program demand gap model.

At the associate degree level, six programs have a significant gap (Figure 6). Several should be considered for a college-wide expansion, many of which are related to other associate degree level programs without a significant 100-openings gap. Furthermore, if the associate degree level program is associated with a formal industry-specific certificate, permit, or license required for employment, it is also recommended for expansion.



Figure 6: Top 5 Associate Degree Level Gaps

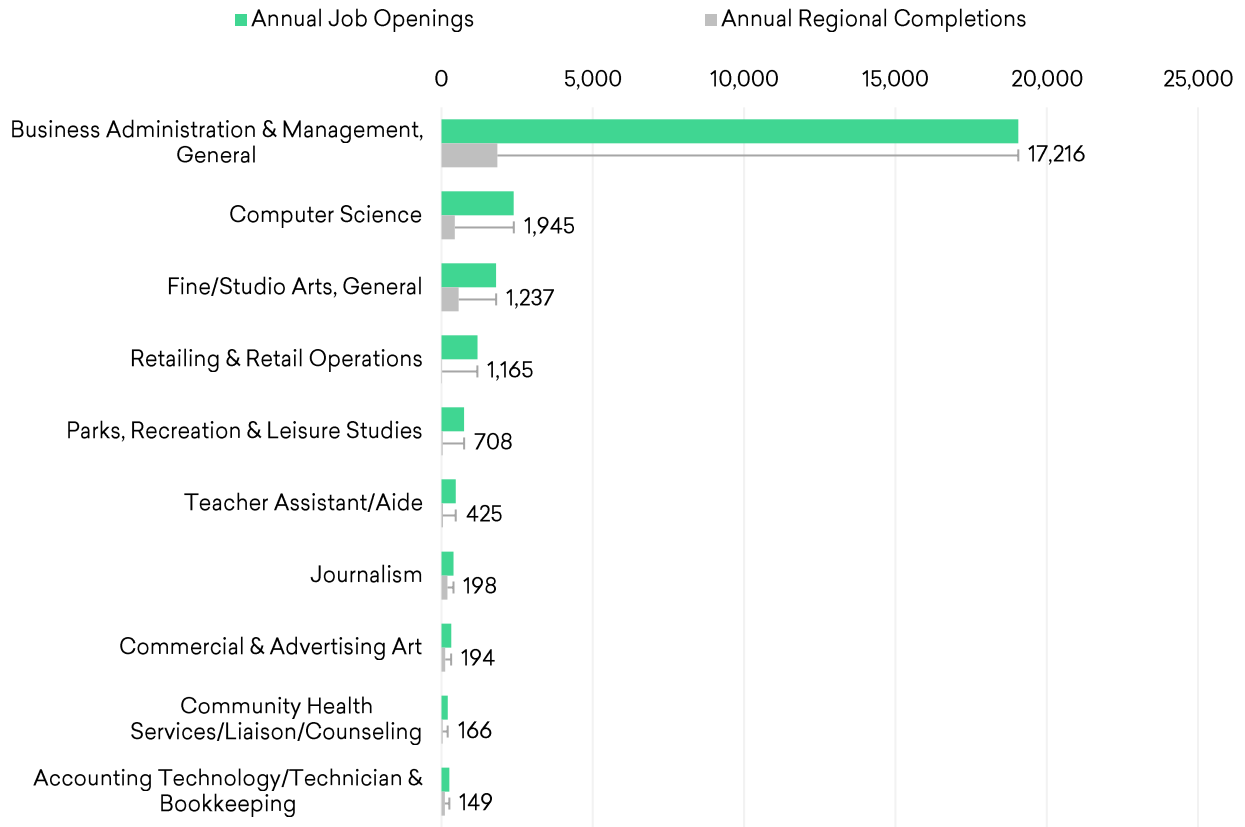


Source: Emsi program demand gap model.

KCC offers 26 transfer-track degree programs. In other words, a program completer could readily transfer into a similar bachelor’s degree level program at another postsecondary educational institution in the state. Of these programs, 11 have a significant gap above the 100-openings level of significance, as shown in Figure 7. These programs should be considered for expansion. A program expansion should consider the process by which KCC’s students transfer into regional bachelor’s degree level programs. Administrative and academic support measures at KCC would enable student success. No programs at this award level have a significant surplus.



Figure 7: Top 10 Transfer-Track Degree Level Gaps



Source: Emsi program demand gap model.

A liberal arts program expansion is not recommended at this time, but KCC administrators should be aware that students can find success in a variety of business-related occupations. Using Emsi's Profile Analytics database, many liberal arts program completers are currently employed as retail salespersons, administrative assistants, and customer service representatives, as well as a variety of managers and supervisors. These occupations have a considerable number of job openings in the Kingsborough Service Region. The college's liberal arts program, therefore, serves as a starting point to students' career goals beyond an associate degree level of education.



PROGRAM ADDITIONS

Twenty certificate level programmatic areas of opportunity have been identified in the program demand gap analysis, many of which are related to personal care & service occupations. At the associate degree level, there are fewer opportunities for new programs, considering the college's current offerings. Nonetheless, KCC should consider new programs related to architecture & engineering occupations, whether focus is on job openings in the Kingsborough Service Region or New York. Another 20 programmatic areas of opportunity were identified at the transfer-track degree level, many of which are related to business & financial operations occupations, a demand which KCC could establish or adjust existing transfer-track degrees to meet. Many program additions are related to the college's current program offerings, which indicates an opportunity for a curriculum adjustment to better align with the region's current and projected labor market demand. A selection of these occupations, which have the most regional job openings by award level, appear in 1.

Table 1: Program Additions by Education Level

SOC TITLE	2018 JOBS	ANNUAL OPENINGS	ANNUAL COMPLETIONS	GAP	MEDIAN HOURLY WAGE	ED. LEVEL
Home Health Aides	93,169	12,591	255	12,336	\$12.25	CERT
Personal Care Aides	79,542	11,534	195	11,338	\$12.84	CERT
Security Guards	58,445	6,302	0	6,302	\$16.74	CERT
Childcare Workers	33,999	3,451	46	3,405	\$13.24	CERT
Licensed Practical & Licensed Vocational Nurses	10,720	1,079	15	1,065	\$26.35	CERT
Billing & Posting Clerks	12,152	870	11	859	\$22.71	CERT
Preschool Teachers, Except Special Education	11,035	629	30	598	\$20.24	CERT
Manicurists & Pedicurists	9,658	792	262	530	\$12.86	CERT
Substitute Teachers	6,478	492	0	492	\$19.03	CERT
Legal Secretaries	8,167	450	1	450	\$30.21	CERT
Architectural & Civil Drafters	2,842	172	75	97	\$32.16	ASSOC
Respiratory Therapists	1,672	94	0	94	\$39.47	ASSOC
Occupational Therapy Assistants	633	106	12	94	\$32.44	ASSOC
Securities, Commodities, & Financial Services Sales Agents	53,988	3,537	218	3,318	\$72.46	TRANS TRACK
Postsecondary Teachers, General	53,386	2,123	0	2,123	\$45.91	TRANS TRACK
Financial Analysts	37,643	2,300	341	1,959	\$57.72	TRANS TRACK

SOC TITLE	2018 JOBS	ANNUAL OPENINGS	ANNUAL COMPLETIONS	GAP	MEDIAN HOURLY WAGE	ED. LEVEL
Personal Financial Advisors	23,839	1,477	61	1,416	\$69.09	TRANS TRACK
Production, Planning, & Expediting Clerks	13,973	701	0	701	\$26.28	TRANS TRACK

SOC refers to the Standard Occupational Classification system used to classify occupations. Average annual job openings represent regional data from 2018 to 2028. Numbers may not sum due to rounding.

Source: Emsi program demand gap model.



CHAPTER 1:

Introduction

An efficient labor market requires a seamless flow of skilled workers, the postsecondary educational institutions that educate and train them, and the employers that hire them. One factor behind workforce misalignment stems from when the needs of the employers evolve differently than the programs that train their workers. These misalignments may happen at different times and for different reasons:

- Employer training becomes more tailored and comprehensive;
- Businesses come and go, and certain educational programs become more or less pertinent to a specific region;
- Rapid advances in technology and business create curriculum needs that few educational institutions possess; and
- As economic conditions shift, businesses have different hiring requirements of their employees.

In light of these dynamics, an up-to-date understanding of the regional economy and the demand for skilled labor is vital to the planning efforts of colleges and universities seeking to adapt their program offerings to the requirements of an ever-changing workforce.

To gain better insight into economic conditions and workforce trends, CUNY Kingsborough Community College (KCC) partnered with Emsi, a labor market analytics firm serving higher education, economic and workforce development, talent acquisition, and site selection. In this report, Emsi conducts an overview of the region's economy, provides a program demand gap analysis of KCC program offerings, and makes recommendations for new program development.

The program demand gap analysis is performed by assessing the supply and demand of skilled workers and identifying the educational programs that need to be adapted in order to fill any existing or future gaps. The analysis weighs the educational output of KCC and other postsecondary educational institutions in the region against the number of job openings related to the college's program offerings to determine whether a deficit or an oversupply of skilled workers exists. The goal of the analysis is to provide KCC with relevant data and information that it can use when solving problems and making decisions about current and future program development.

IMPORTANT NOTE

This analysis is intended to serve as a starting point for KCC as the college discusses regional workforce needs. A deficit (gap) or oversupply (surplus) of workers in a particular occupation category represents a potential problem for the region, making it important for each program and occupation group to be evaluated by the college on a case-by-case basis. The purpose of this analysis is, therefore, to initiate the conversation on evaluating program effectiveness. Once evaluated internally within the college, specific implications may be considered for programs with substantial gaps or surpluses.

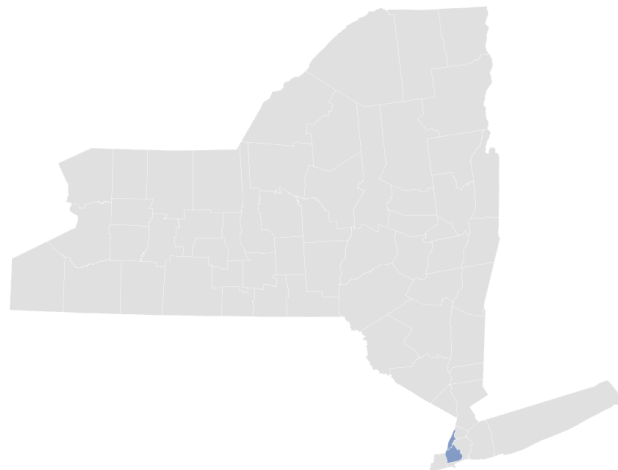
It must be noted that our analysis does have its limitations in that only the education supply pipeline is considered. This is due to data availability at the region and institutional levels. However, other sources—unemployed workers, industry trained pipelines, workers migrating to the region, and job changers from other occupational categories—can also be a source of skilled workers. These types of considerations are useful when evaluating specific types of occupations. Publicly available data sources are limited in accounting for this, and consequently these labor sources are unavailable for Emsi analysis. Primary data collection methods (i.e., interviews and surveys) are among the only ways to obtain information on the other sources for skilled workers.

CHAPTER 2:

Economic Overview

Before looking at the results of the program demand gap analysis, KCC should first consider the economic structure of its region, referred to in this report as the Kingsborough Service Region and defined as Kings County and New York County in New York (Figure 2.1). This region was chosen as it best represents the labor market region KCC's students are most likely to enter. Identifying the driving industries within the region is an important first step for three reasons: 1) it helps KCC understand where the college should logically target its efforts, 2) it helps to reveal whether there are industries that may be overlooked as a result of recent economic growth, and 3) it helps identify the top occupations within those key driving industries.

Figure 2.1: Map of the Kingsborough Service Region



Source: Emsi Analyst. Region provided by KCC.

In addition to knowing the industry structure of the region, it is important to have an understanding of the workforce—how connected the region's workers are to the surrounding community and the educational attainment of workers in the region. To these ends, this chapter provides an overview of the Kingsborough Service Region's industry composition,

shows common occupations in the region's key industries, illustrates worker commuting patterns, and discusses the highest educational attainments of the region's adult residents. Supporting data tables are found in Appendix 3.

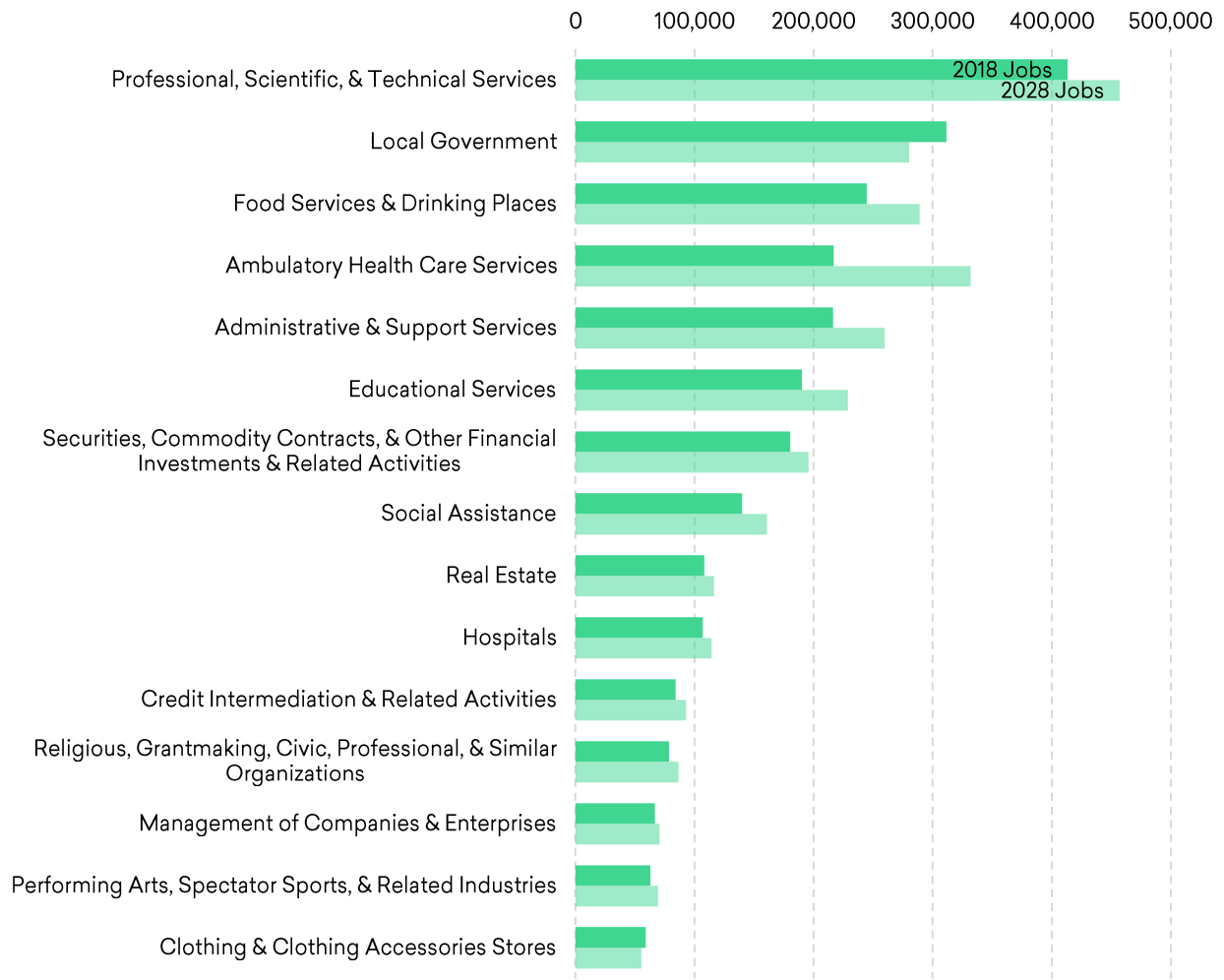
INDUSTRY COMPOSITION

Evaluating current and future employment by industry provides information on the region's economic diversity. Understanding the industry mix is important for drawing connections to the occupations and companies that are in-demand, and students are likely to find employment in the largest regional industries. The North American Industry Classification System (NAICS) is the structure used by federal agencies to classify business establishments based on their production process (although the final product or service is usually similar for the firms in a given industry). NAICS applies a six-digit hierarchical coding system to organize nearly 1,000 detailed industries in the U.S. For the analysis in this section, Emsi has aggregated industries into their three-digit NAICS codes, referred to as industry subsectors.²

Figure 2.2 presents the 15 largest industry subsectors in the Kingsborough Service Region, by their 2018 job counts, and also shows the industry subsectors' projected change over the next decade. The region supported 3.5 million jobs in 2018, and by 2028, it is projected to add 407,150 new jobs for a 11.5% job increase. As shown in the figure, Professional, Scientific, & Technical Services is the largest employer, with 413,380 jobs in 2018, and is expected to remain the top regional employer. The Local Government and Food Services & Drinking Places industry subsectors are the next largest, with 311,480 and 244,750 jobs in 2018, respectively. As for growth, Ambulatory Health Care Services is projected to add the most jobs of the top 15 industry subsectors, with a 10-year increase of 115,040 new jobs for a 53% job growth. On the other hand, two of the top 15 industry subsectors are expected to contract between 2018 and 2028. They are Local Government and Clothing & Clothing Accessories Stores.

2 In Emsi data, all establishments in the main NAICS hierarchy are private-sector only. Jobs in Educational Services and Ambulatory Health Care Services, for example, are not associated with local, state, or federal government jobs. Jobs for public school teachers and city firefighters are in Local Government, whereas college professors and forest firefighters are commonly employed by State Government. Mail carriers and transportation security screeners are examples of jobs in Federal Government.

Figure 2.2: Jobs by Industry Subsector in the Kingsborough Service Region, 2018 and 2028

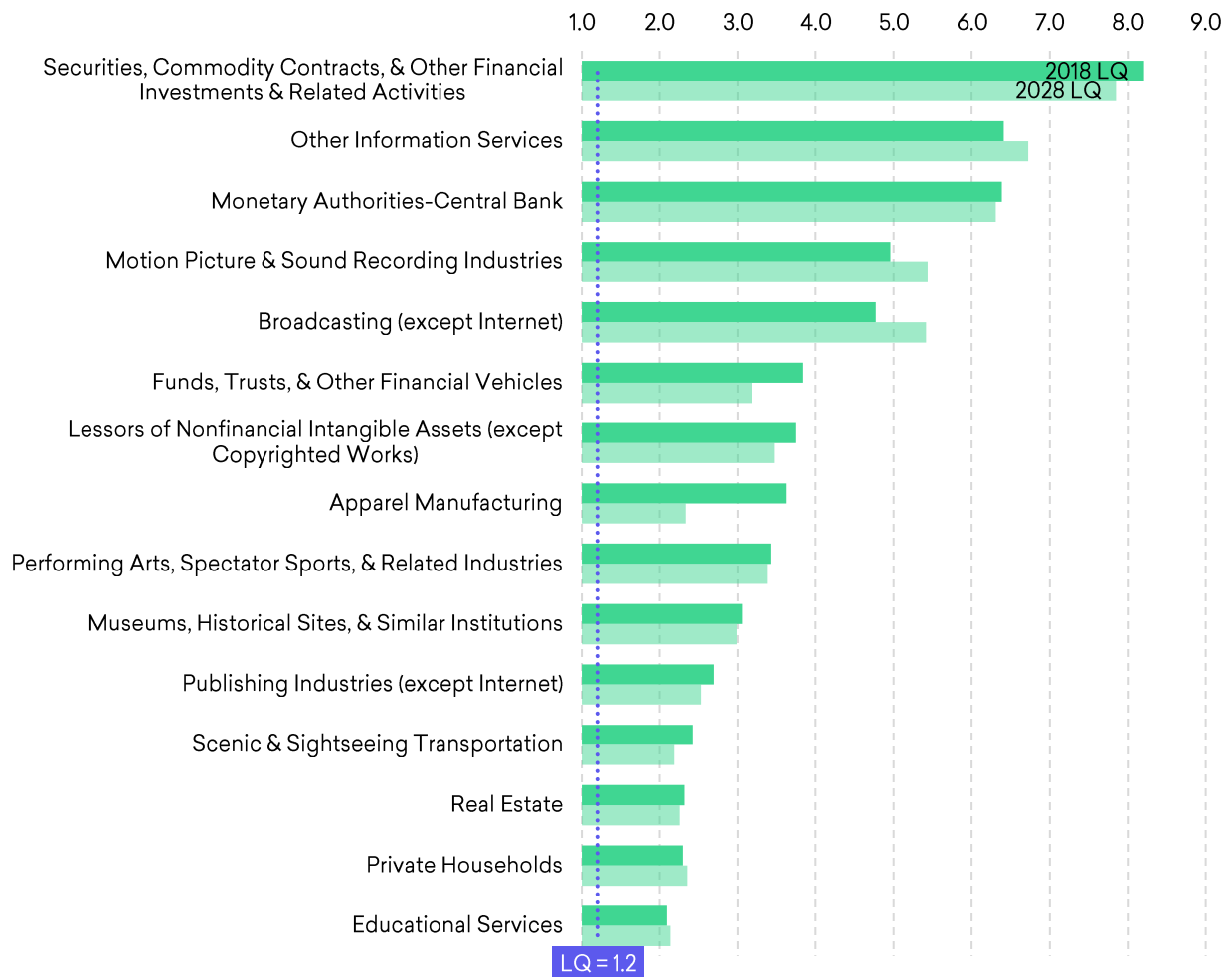


Source: Employees & Self-Employed 2019.4.

The employment concentration of the Kingsborough Service Region’s industry subsectors is measured by a location quotient (LQ). LQs are used to assess competitiveness by comparing the concentration of employment in an industry in the region against the employment concentration for that same industry in the U.S. An LQ equal to 1.0 means that the percentage of total employment comprised by an industry in the Kingsborough Service Region matches the percentage of total employment of that industry in the U.S. An LQ greater than 1.0 means that the industry has a greater employment share relative to that of the U.S. High LQs, which are typically greater than 1.2, are an indication that the region has a comparative advantage or specialization in an industry.



Figure 2.3: Employment Concentration (LQ) by Industry Subsector in the Kingsborough Service Region, 2018 and 2028



Source: Employees & Self-Employed 2019.4.

The industry subsectors with the 15 highest LQs in the Kingsborough Service Region are shown in Figure 2.3. The Securities, Commodity Contracts, & Other Financial Investments & Related Activities industry subsector had the highest LQ in 2018 at 8.2. The industry subsector is expected to decrease in employment concentration between 2018 and 2028 but still remain the top industry subsector with the largest LQ. The Other Information Services, Monetary Authorities-Central Bank, and Motion Picture & Sound Recording industry subsectors also have relatively large employment concentrations, with LQs of 6.4, 6.4, and 5.0 in 2018, respectively. As for 10-year growth, the Broadcasting (except Internet) industry subsector is projected to increase in LQ by 14% from an LQ of 4.8 to an LQ of 5.4, which is the largest percent increase among the top 15 industry subsectors in the figure. On

the other hand, ten industry subsectors are expected to drop in LQ between 2018 and 2028. Apparel Manufacturing has the largest percent decrease (35%). Despite the declines, the region's top 15 industry subsectors will remain above the 1.2 high-LQ threshold.

OCCUPATIONS WITHIN KEY INDUSTRY SUBSECTORS

Four industry subsectors are found in both Figures 2.2 and 2.3 because they are large employers and have high LQs. Altogether, the industry subsectors represent 15.4% of the Kingsborough Service Region's jobs. These industry subsectors, in descending order of 2018 jobs, are:

- Educational Services
- Securities, Commodity Contracts, & Other Financial Investments & Related Activities
- Real Estate
- Performing Arts, Spectator Sports, & Related Industries

Their appearance in the figures provides an indication of their relative strength in the Kingsborough Service Region, and thus, we identify the most common occupations within the four industry subsectors, called a staffing pattern.³ The industry subsectors' staffing patterns provide insight into not only the region's labor market demand, but by extension, the demand for the college's program offerings.

The **Educational Services** industry subsector in the region supported 190,305 jobs in 2018 and has an LQ of 2.1. It is comprised of 17 industries at the six-digit NAICS code level. The largest industry is the Colleges, Universities, & Professional Schools industry, with 8% of jobs in the industry subsector. The top occupation employed by the Educational Services industry subsector is postsecondary teachers, which constitutes 19% of the industry subsector's jobs. It is followed by secretaries & administrative assistants, except legal, medical, & executive (5%) and self-enrichment education teachers (5%). Out of the top 25 occupations within the industry subsector, the top five highest paying occupations that require an associate degree or below, in terms of median hourly earnings, are:

- Executive secretaries & executive administrative assistants (\$78,252)
- First-line supervisors of office & administrative support workers (\$73,930)

3 The top occupations, in terms of the percent of total jobs in an industry, are identified using data from the National Occupational Employment Statistics program, projections from the National Industry-Occupation Employment Matrix, and Emsi's proprietary employment data.

- Self-enrichment education teachers (\$52,941)
- Bookkeeping, accounting, & auditing clerks (\$50,446)
- Maintenance & repair workers, general (\$48,531)

The top three highest paying occupations that require a bachelor's degree are:

- General & operations managers (\$149,319)
- Education administrators, elementary & secondary school (\$135,070)
- Education administrators, postsecondary (\$116,943)

The **Securities, Commodity Contracts, & Other Financial Investments & Related Activities** industry subsector in the region supported 180,311 jobs in 2018 and has an LQ of 8.2. It is comprised of 10 industries at the six-digit NAICS code level. The largest industry is the Securities Brokerage industry, with 30% of jobs in the industry subsector. The top occupation employed by the Securities, Commodity Contracts, & Other Financial Investments & Related Activities industry subsector is securities, commodities, & financial services sales agents, which constitutes 23% of the industry subsector's jobs. It is followed by personal financial advisors (12%) and financial analysts (12%). Out of the top 25 occupations within the industry subsector, the top five highest paying occupations that require an associate degree or below, in terms of median hourly earnings, are:

- Executive secretaries & executive administrative assistants (\$78,253)
- First-line supervisors of office & administrative support workers (\$73,930)
- Bookkeeping, accounting, & auditing clerks (\$50,446)
- Secretaries & administrative assistants, except legal, medical, & executive (\$43,194)
- Customer service representatives (\$43,020)

The top three highest paying occupations that require a bachelor's degree are:

- Financial managers (\$221,584)
- Sales managers (\$202,865)
- Computer & information systems managers (\$199,839)

The **Real Estate** industry subsector in the region supported 108,144 jobs in 2018 and has an LQ of 2.3. It is comprised of nine industries at the six-digit NAICS code level. The largest industry is the Lessors of Residential Buildings & Dwellings industry, with 38% of jobs in the industry subsector. The top occupation employed by the Real Estate industry subsector is maintenance & repair workers, general, which constitutes 20% of the industry subsector's jobs. It is followed by real estate sales agents (7%) and janitors & cleaners, except maids & housekeeping cleaners (7%). Out of the top 25 occupations within the industry subsector, the top five highest paying occupations that require an associate degree or below, in terms of median hourly earnings, are:

- First-line supervisors of mechanics, installers, & repairers (\$86,585)
- Executive secretaries & executive administrative assistants (\$78,253)
- First-line supervisors of office & administrative support workers (\$73,930)
- Bookkeeping, accounting, & auditing clerks (\$50,446)
- Maintenance & repair workers, general (\$48,531)

The top three highest paying occupations that require a bachelor's degree are:

- Financial managers (\$221,584)
- General & operations managers (\$149,319)
- Financial analysts (\$120,062)

The **Performing Arts, Spectator Sports, & Related Industries** subsector in the region supported 62,996 jobs in 2018 and has an LQ of 3.4. It is comprised of 11 industries at the six-digit NAICS code level. The largest industry is the Independent Artists, Writers, & Performers industry, with 33% of jobs in the industry subsector. The top occupation employed by the Performing Arts, Spectator Sports, & Related Industries subsector is musicians & singers, which constitutes 10% of the industry subsector's jobs. It is followed by ushers, lobby attendants, & ticket takers (7%) and writers & authors (7%). Out of the top 25 occupations within the industry subsector, the top five highest paying occupations that require an associate degree or below, in terms of median hourly earnings, are:

- Audio & video equipment technicians (\$56,944)
- Self-enrichment education teachers (\$52,941)
- Entertainers & performers, sports & related workers, all other (\$49,050)
- Secretaries & administrative assistants, except legal, medical, & executive (\$43,194)
- Dancers (\$40,007)

The top three highest paying occupations that require a bachelor's degree are:

- General & operations managers (\$149,319)
- Art directors (\$108,029)
- Producers & directors (\$99,346)

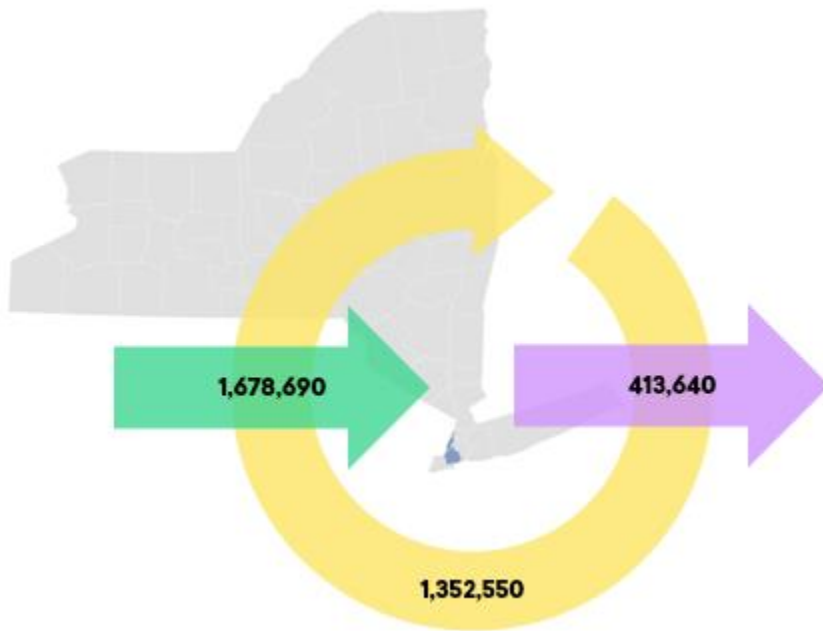
WORKFORCE COMMUTING PATTERNS

The Longitudinal Employer-Household Dynamics (LEHD) program⁴ at the U.S. Census Bureau provides information on the residential and employment locations of workers. Such data shows the commuting patterns of regional employees. More specifically, the LEHD data demonstrate the extent to which employees commute to the Kingsborough Service Region for work and how many residents commute to surrounding communities for work. Workers from outside the region could be filling current employment gaps, or the region's residents could be out-commuting when there is a surplus of available jobs. The concepts of a "gap" and "surplus" are discussed in greater detail in the first section of Chapter 3.

Figure 2.4 presents the inflow and outflow of jobs to and from the Kingsborough Service Region. LEHD data identify 3 million jobs in the region, with 1.4 million jobs filled by residents and 1.7 million jobs filled by people living outside the region. In addition, 413,640 jobs are held by the region's residents outside the Kingsborough Service Region. In other words, 413,640 residents commute outside the region for work. The job counts represent primary jobs, as opposed to all jobs, and differ slightly from job counts in the previous sections, which use Emsi's complete employment data (see industry data in Appendix 2). As shown in the figure, about one-quarter fewer workers out-commute than in-commute.

4 LEHD is an innovative program that uses modern statistical and computing techniques to combine federal and state administrative data on employers and employees with core Census Bureau censuses and surveys while protecting the confidentiality of people and firms that provide the data.

Figure 2.4: Kingsborough Service Region Job Inflow and Outflow



1,678,690	Employed in the Kingsborough Service Region but living outside
1,352,550	Living and employed in the Kingsborough Service Region
413,640	Living in the Kingsborough Service Region but employed outside

Source: Census Bureau, Center for Economic Studies.

Table 2.1 provides further insight into the places where the region’s residents work. As shown in the table, some of the region’s residents are out-commuting to neighboring counties, such as Queens and Bronx Counties, for work, but the greatest number of residents work in New York County (54% of all jobs). Table 2.2 also shows commuting patterns, except the data highlight the counties in which the region’s workers reside.

Table 2.1: Counties where Kingsborough Service Region Residents Work

COUNTY OF EMPLOYMENT	JOBS	% JOBS
New York, NY	953,011	54%
Kings, NY	399,537	23%
Queens, NY	133,876	8%
Bronx, NY	51,740	3%
Nassau, NY	37,605	2%
Westchester, NY	24,155	1%

COUNTY OF EMPLOYMENT	JOBS	% JOBS
Hudson, NJ	21,813	1%
Suffolk, NY	20,377	1%
Richmond, NY	15,424	1%
Bergen, NJ	11,771	1%
All Other Counties	96,879	5%
Total Primary Jobs, Kingsborough Service Region Residents	1,766,189	100%

Source: Census Bureau, Center for Economic Studies.

Table 2.2: Counties where Kingsborough Service Region Workers Live

COUNTY OF RESIDENCE	JOBS	% JOBS
Kings, NY	792,703	26%
New York, NY	559,845	18%
Queens, NY	462,231	15%
Bronx, NY	246,644	8%
Nassau, NY	147,700	5%
Westchester, NY	100,667	3%
Hudson, NJ	94,923	3%
Richmond, NY	92,563	3%
Suffolk, NY	81,116	3%
Bergen, NJ	78,480	3%
All Other Locations	374,370	12%
Total Primary Jobs, Kingsborough Service Region Workers	3,031,242	100%

Source: Census Bureau, Center for Economic Studies.

EDUCATIONAL ATTAINMENT

Educational attainment data are useful for targeting specific population groups with low education levels. The population and educational attainment numbers in this section are based on Emsi's demographic data and publicly available sources from state and federal agencies. Sources include annual population estimates and population projections from the U.S. Census Bureau and birth and mortality rates from the U.S. Health Department. In addition, demographic information relies on the annual results of the American Community

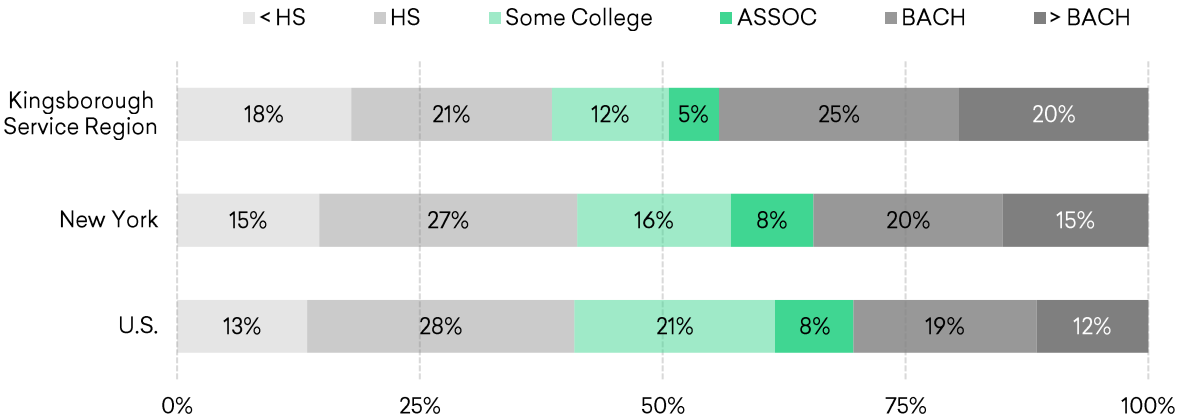
Survey. Educational attainment data cover the population in the Kingsborough Service Region aged 25 years or more, referred to as adults, and indicate the highest award level achieved.

Demographic information is presented by gender and the major race and ethnic groups, and educational attainment data are broken out according to the following award categories:

- Less than a high school diploma (<HS);
- High school diploma or equivalent (HS);
- Some college;⁵
- Associate degree (Assoc);
- Bachelor’s degree (Bach);
- Greater than a bachelor’s degree (>Bach).

About 3 million adults live in the Kingsborough Service Region, and Figure 2.5 displays their educational attainments, without reference to gender and the major race and ethnic groups. State and national data are also presented for context. In the region, 39% of adults have a high school diploma or less, which is less than the state and national average (41%). Out of all the award categories in the figure, the people who are most likely to seek education and training from KCC are those in the “Less than High School Diploma,” “High School Diploma,” and “Some College” categories. Together, these categories total 1.5 million people, or 51% of the region’s adults.

Figure 2.5: Highest Educational Attainments of Adults in the Kingsborough Service Region, New York, and the U.S.



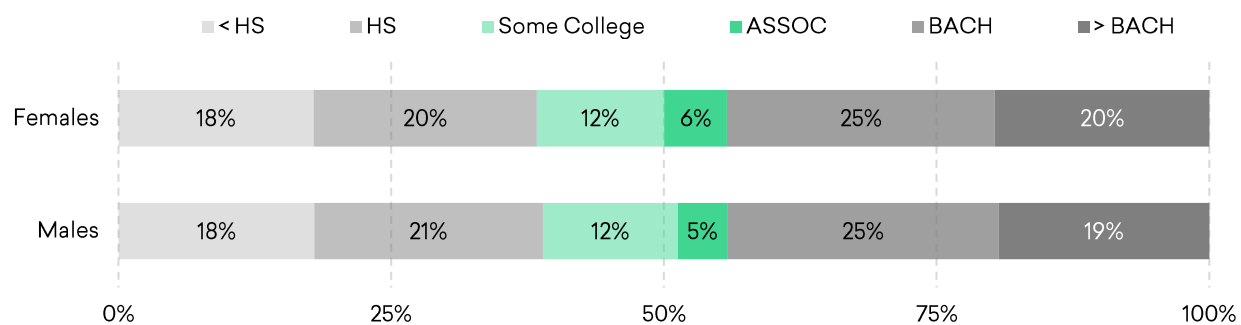
5 The “Some College” category includes individuals who attended college but did not successfully obtain a degree and individuals who have received a postsecondary vocational award or professional certification but did not receive an associate or bachelor’s degree.

Numbers may not sum due to rounding.

Source: Emsi demographics data and U.S. Census Bureau, 2017 American Community Survey.

Between female and male adults in the Kingsborough Service Region, there is little variation in the distribution of their award categories. Twelve percent of the region’s female adults and male adults have some college education but no degree, which represent 190,250 females and 175,050 males. Six percent of female adults and five percent of male adults in the region have an associate degree as their highest award level. This information appears in Figure 2.6.

Figure 2.6: Highest Educational Attainments of Adults in the Kingsborough Service Region by Gender



Numbers may not sum due to rounding.

Source: Emsi demographics data and U.S. Census Bureau, 2017 American Community Survey.

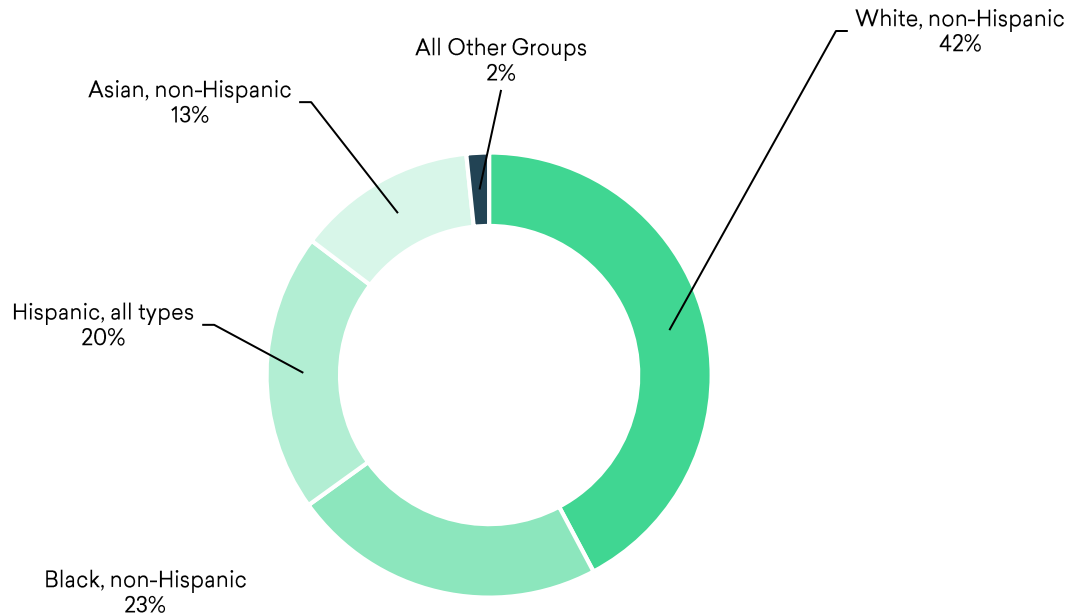
Table 2.3 and Figure 2.7 show the adults in the Kingsborough Service Region by the major race and ethnic groups. As shown, 42% of the region’s adults are White, non-Hispanic. Another 23% of adults are Black, non-Hispanic, and 20% are Hispanic, all types, the next largest groups. Altogether, less than two percent of the region’s adults are Two or more races, non-Hispanic; American Indian or Alaskan Native, non-Hispanic; and Native Hawaiian or Pacific Islander, non-Hispanic.

Table 2.3: Adults in the Kingsborough Service Region by Major Race and Ethnic Groups

GROUP	POPULATION	% POPULATION
White, non-Hispanic	1,284,630	42.2%
Black, non-Hispanic	694,909	22.8%
Hispanic, all types	615,895	20.2%
Asian, non-Hispanic	396,920	13.0%
Two or more races, non-Hispanic	43,993	1.4%
American Indian or Alaskan Native, non-Hispanic	4,869	0.2%
Native Hawaiian or Pacific Islander, non-Hispanic	1,042	<0.1%
Total	3,042,256	100.0%

Source: Emsi demographics data and U.S. Census Bureau, 2017 American Community Survey.

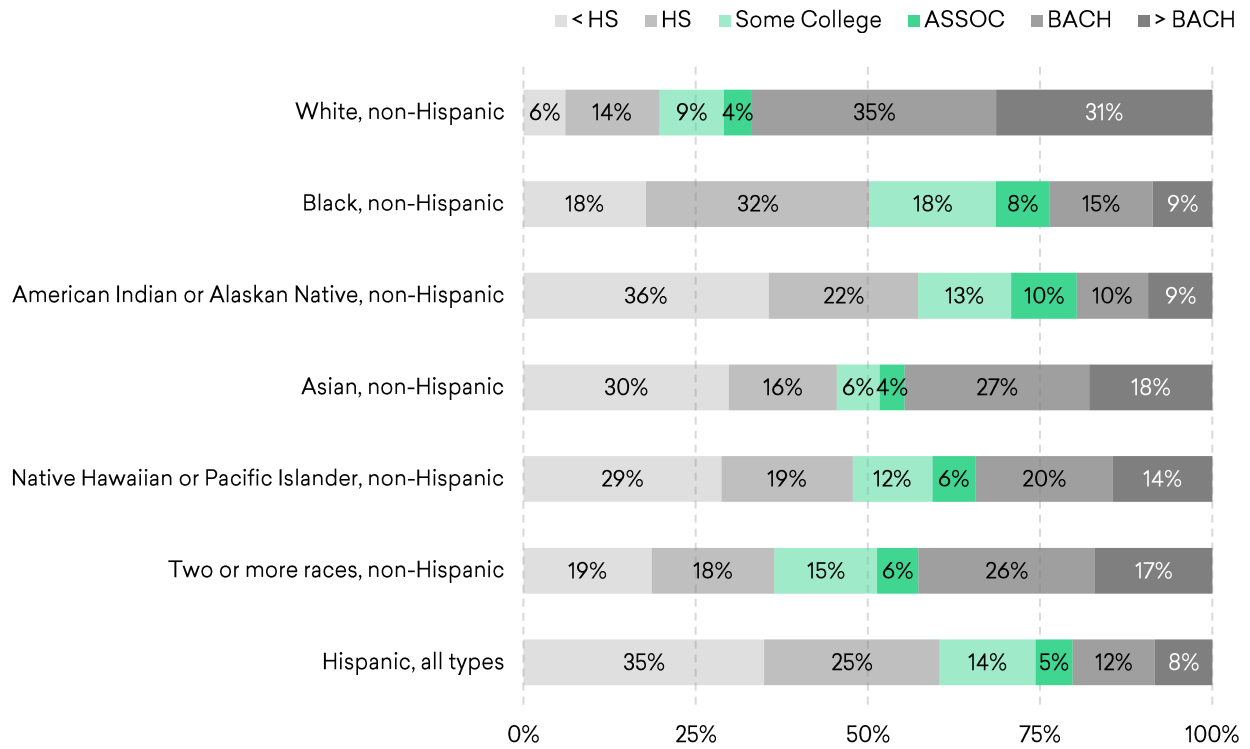
Figure 2.7: Adults in the Kingsborough Service Region by Major Race and Ethnic Groups



Source: Emsi demographics data and U.S. Census Bureau, 2017 American Community Survey.

Figure 2.8 displays the highest educational attainment of the Kingsborough Service Region's adults by their major race and ethnic groups. White, non-Hispanic adults have the highest percentage of adults with a postsecondary education (80%) among all the groups. The Two or more races, non-Hispanic group follows with 64%. Hispanic, all types adults and American Indian or Alaskan Native, non-Hispanic adults have the lowest levels of educational attainment in the region. For these groups, only 40% and 43%, respectively, of the adults in the groups have had education beyond high school. Across all groups, these data suggest that there are many opportunities to increase the educational attainments of the region's adults, whether such actions involve outreach to local high schools or supporting KCC students who plan to transfer into a bachelor's degree level program.

Figure 2.8: Highest Educational Attainments of Adults in the Kingsborough Service Region by Major Race and Ethnic Groups



Numbers may not sum due to rounding.

Source: Emsi demographics data and U.S. Census Bureau, 2017 American Community Survey.

CHAPTER 3:

Program Demand Gap Analysis

With the region's top industry subsectors and workforce in mind, the program demand gap analysis can now be conducted, answering the following question:

Where are there misalignments between the workforce demand and the supply of college completers?

This chapter outlines the deficit of KCC's program completers to the workforce (gap), as well as the oversupply of completions to the workforce (surplus). The occupations directly related or mapped to the significant gaps are also displayed. Before providing and discussing the results, we will go over the interpretation of the results.

INTERPRETATION

The terms used in the analysis are as follows:

Gap Represents a deficit, or when there are more job openings in an occupation than there are completions. If left unaddressed, a gap may lead to missed opportunities for economic growth and put stress on local businesses to find the necessary talent elsewhere. Significant gaps translate into higher human resources costs and decreased efficiencies in the economic system. They also provide an opportunity for postsecondary educational institutions to develop new programs and/or strengthen their current programs.

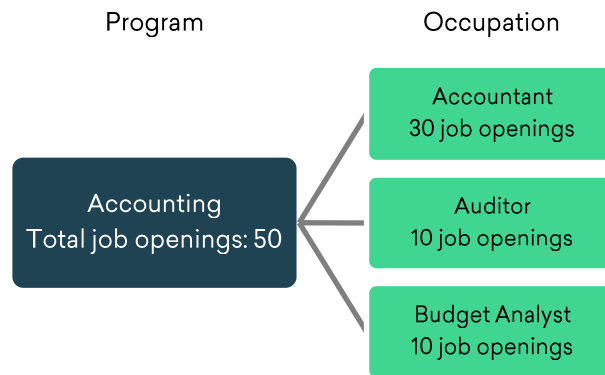
Surplus Represents an oversupply, or when there are more completions than there are job openings in an occupation. If left unaddressed, significant surpluses may lead to higher unemployment rates or higher attrition rates—the college could be educating a workforce that is leaving the region after program completion because of a lack of job opportunities.

When reviewing the results of the analysis, consider that not all gaps or surpluses indicate necessary program adjustments. Due to labor market inefficiencies, it is common for most programs to face a certain level of gap or surplus. This means only significant gaps or surpluses should be reviewed or further developed. Given the size and characteristics of the Kingsborough Service Region, any gap or surplus within 100 jobs either above or below zero should be considered within the normal range of labor market fluctuations. In the following

sections, the program gaps and surpluses are discussed by award level and presented as figures and tables.

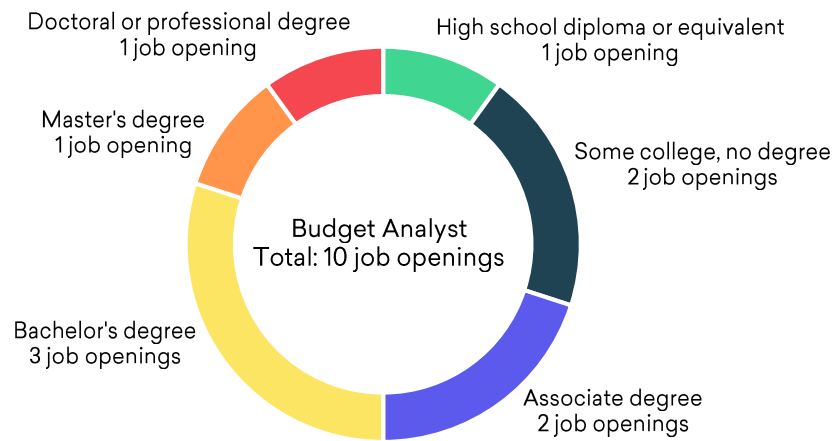
The figures show the gap between job demand and the supply of program completions. An explanation of job demand is warranted here, and a more detailed description can be found in Appendix 5. A program's job demand is measured as its total number of annual job openings, on average, from 2018 to 2028. The total is calculated as the sum of the regional job openings for each occupation mapped to the program, as illustrated in Figure 3.1.

Figure 3.1: Example of One Program Mapped to Three Occupations



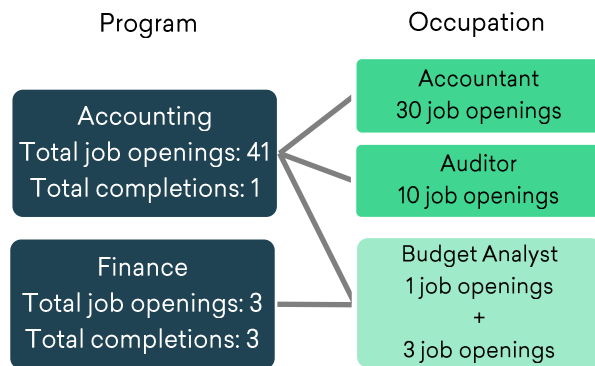
Furthermore, an occupation's job openings are not a gross measure of job openings available in the region. For every occupation, job openings have been weighted by the program's award level and one level below and account for the highest educational attainments of those employed in the position. The educational attainments in this chapter (and the following) are for adults less than 34 years, which differ from the previous chapter but better reflect the college's student population. Figure 3.2 illustrates how this methodology applies to an occupation's total job openings. For example, four job openings or 40% of total job openings are available to budget analysts at the associate degree level, seeing that there are a total of 10 job openings, 20% of those working in the occupation have an associate degree level of education, and another 20% have some college education and no degree.

Figure 3.2: Example of an Occupation's Weighted Job Openings by Award Level



Finally, job openings are de-duplicated and scaled across programs, when an occupation is mapped to more than one program. As illustrated in Figure 3.3, budget analysts, which have four total job openings, are mapped to two programs. However, the Finance program is three-times the size of the Accounting program, measured in terms of completions. Thus, one job opening is portioned to the Accounting program and three job openings to the Finance program.

Figure 3.3: Example of Two Programs with One Shared Occupation



Supply is shown as the average number of program completions in the region, by award level, between 2016 and 2018. KCC is not the only postsecondary educational institution in

the Kingsborough Service Region reporting to IPEDS,⁶ the source of the completions data. The gap, then, is the difference between job openings and program completions. Appendix 4 has KCC's program to occupation map with adjusted employment.

A great amount of data is presented in the tables. The first set shows the gaps and surpluses across all the programs offered at KCC by award level. The tables include the Classification of Instructional Program (CIP) code and title, the average annual number of job openings associated with the program (which have been de-duplicated using the process outlined in Appendix 5), the average annual program completions from KCC, and the gap or surplus for the Kingsborough Service Region. The programs' median hourly wage rates are specific to the Kingsborough Service Region.

The second set of tables identify the occupations mapped to the programs with a significant gap or surplus, by award level, and show detailed occupational data. The tables include the CIP code, CIP title, and occupations mapped to the program, by their Standard Occupational Classification (SOC) codes and titles. The regional job counts, by occupation, are shown for 2018 and 2028 with the change in jobs and average annual job openings for those years. The occupations' median hourly wage rates are specific to the Kingsborough Service Region. See Appendix 6 for a complete list of job projections and Appendix 7 for unemployment information by industry and occupation.

NON-CREDIT PROGRAM ANALYSIS

The results that appear in this section present a view of the non-credit programs projected to have a gap or surplus in the Kingsborough Service Region. The methodology and interpretation for non-credit programs differ somewhat from the certificate and associate degree analyses discussed in following sections.

Emsi, with approval from the college, created a crosswalk between the non-credit programs and the types of occupations non-credit program completers are likely to enter. In general, non-credit programs can be designed for self-enrichment, rather than higher education and the development of employable skills. However, KCC confirmed that the non-credit programs they offered were designed with workforce skills in mind. Using the customized

6 IPEDS refers to the Integrated Postsecondary Education Data System, which gathers information from every college, university, and technical and vocational institution that participates in the federal student financial aid program.

program-to-occupation map, the non-credit programs were analyzed using the program demand gap analysis methods, detailed in Appendix 4.

The non-credit program analysis requires further discussion, which affect how its results are interpreted. First, students who take non-credit programs may complete more than one program over an academic year seeing that, typically, non-credit programs require less credit hours than the college's credit programs. Thus, completions data for the non-credit programs may contain duplication, which inflates the number of non-credit program's supply.

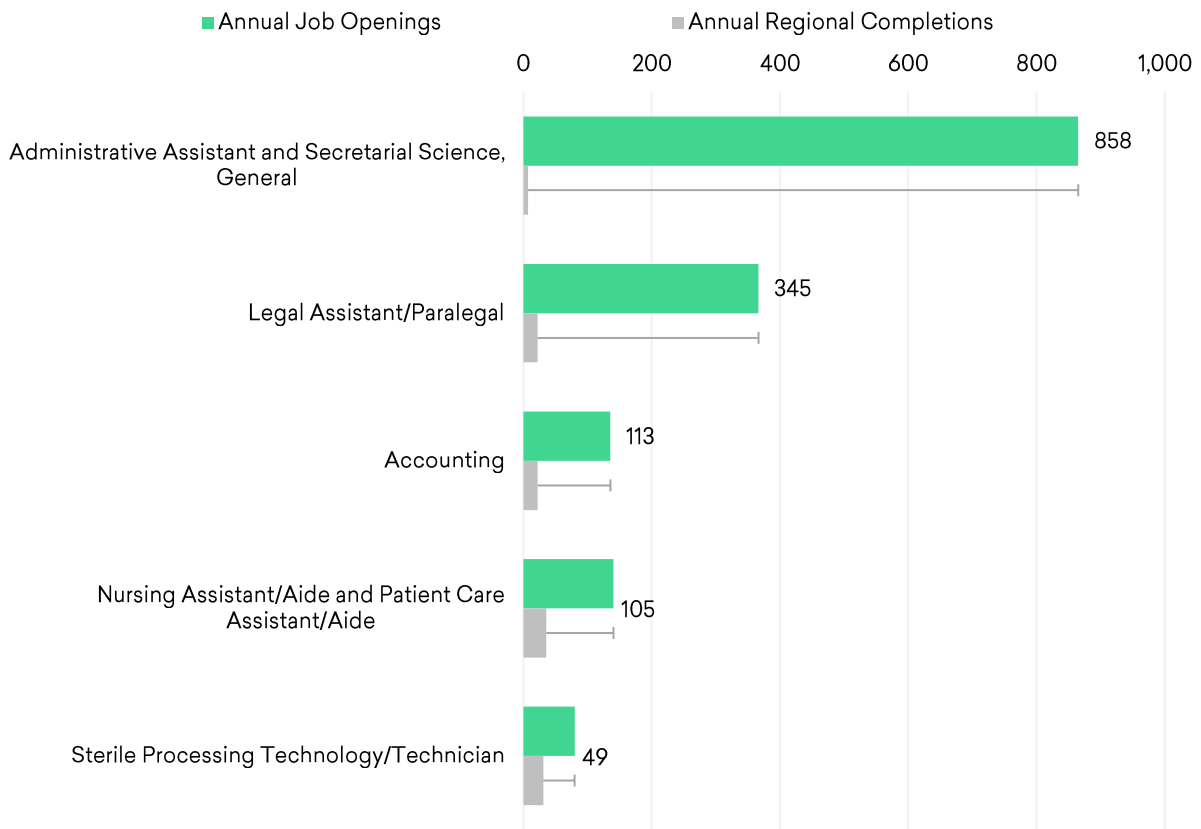
Second, the completions can fluctuate annually. Emsi uses a three-year average in the program demand gap analysis to normalize the fluctuations, but there could be a gap or surplus between years. In this analysis, non-credit program completions are from academic years 2016 to 2018.

Third, completers of non-credit programs may already be employed (i.e., their employer requires continuing education to keep certain licenses up-to-date). It is up to the college to determine whether a program has a gap or surplus that is worth taking action to correct, based on a variety of sources of information beyond the scope of this report.

Fourth, it is important to contrast the results of the credit program analysis with those of the non-credit program analysis. While the non-credit program-to-occupation map is unique, occupations may be shared between the credit and non-credit programs. In these instances, completions of both the credit and non-credit programs are used to scale job openings. In other words, it is important to compare a credit program's demand with its supply of non-credit program completions.

Finally, there may be other institutions or organizations in the region, on-line colleges in particular, that offer non-credit programs not analyzed in this report. The gaps and surpluses shown assume there are no other non-credit programs offered in the Kingsborough Service Region.

Figure 3.4: KCC's Top 5 Non-Credit Programs with a Gap



Source: Emsi gap model.

Thirteen non-credit programs are evaluated in this section, when the programs are classified by their six-digit CIP codes. KCC offers more than 13 non-credit programs, but the programs in the analysis are specific to the education and training needed for employment, as opposed to leisure or self-enrichment programs. Furthermore, the programs are aggregated by their six-digit CIP codes for the purposes of mapping occupations. The programs' job openings consider someone with a high school diploma level of education and some college education but no degree. Job openings have been weighted and scaled according to the mapped occupations and relative number of completions, respectively.

Of these programs, four have a significant gap above the 100-openings level of significance, as shown in Figure 3.4, and zero non-credit programs have a significant surplus, as shown in Table 3.1. The Administrative Assistant & Secretarial Science, General non-credit program has the largest gap, with a gap of 858, while the Medical Insurance Coding Specialist/Coder non-credit program has the largest surplus at 52. Programs with a significant gap have been highlighted in Table 3.1.

Table 3.1: Gaps and Surpluses for KCC's Non-Credit Programs

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL KCC COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
520401	Administrative Assistant and Secretarial Science, General	865	7	858	\$25.30
220302	Legal Assistant/Paralegal	367	22	345	\$29.93
520301	Accounting	136	22	113	\$46.63
51.3902	Nursing Assistant/Aide and Patient Care Assistant/Aide	140	36	105	\$19.87
51.1012	Sterile Processing Technology/Technician	80	31	49	\$27.92
51.0808	Veterinary/Animal Health Technology/Technician and Veterinary Assistant	47	10	37	\$23.52
51.0805	Pharmacy Technician/Assistant	48	21	26	\$16.06
51.0810	Emergency Care Attendant (EMT Ambulance)	41	17	24	\$21.26
51.0801	Medical/Clinical Assistant	10	14	(5)	\$18.76
51.1011	Renal/Dialysis Technologist/Technician	3	13	(10)	\$33.80
51.1009	Phlebotomy Technician/Phlebotomist	9	27	(18)	\$22.01
51.0902	Electrocardiograph Technology/Technician	2	19	(18)	\$31.82
51.0713	Medical Insurance Coding Specialist/Coder	20	73	(52)	\$23.16

Numbers may not sum due to rounding.

Source: Emsi program demand gap model.

The next step in the program demand gap analysis is to assess the occupations mapped to a non-credit program with a significant gap, focusing on the occupations' job openings, job counts, and median wage rates. As shown in Table 3.2, only two occupations are mapped to the Administrative Assistant & Secretarial Science, General program, the non-credit program with the largest gap. These occupations are secretaries & administrative assistants, except legal, medical, & executive and executive secretaries & executive administrative assistants. The median hourly wage rate of executive secretaries & executive administrative assistants is \$37.62, or \$78,250 annually.⁷ For context, New York's City's minimum wage is \$15.00⁸ per hour, and the city's living wage is \$17.46 per hour for a household with one working adult and no children.⁹ Program expansion looks promising, despite the expected decline of total jobs

7 Annual wages in this report consider 2,080 working hours in a year.

8 New York city's minimum wage as of January 1, 2020 is \$11.80 per hour. Source: New York State Labor Department.

9 Living wage calculations provided by Dr. Amy K. Glasmeier and the Massachusetts Institute of Technology. See Appendix 8.



for these occupations in the region. The data suggest that an expansion of the program is in the best interest of program completers at this time.¹⁰

While the gaps are important for building or expanding KCC's programs, the surpluses are equally important. An analysis of the surplus programs ensures that the college is educating and training students with the skills the region's workforce requires. Zero non-credit programs have a significant surplus beyond the 100-openings level of significance. The Medical Insurance Coding Specialist/Coder program has the largest, with a surplus of 52. The Electrocardiograph Technology/Technician program also has a small surplus, with a surplus of 18, followed by the Phlebotomy Technician/Phlebotomist program, which also has a surplus of 18. It is likely that KCC completers of the surplus programs are finding employment outside the Kingsborough Service Region.

This step-by-step analysis of evaluating a program by its occupational job openings, job counts, and wage rates can be applied to the other programs in Table 3.2. In general, occupations with high wages are more noteworthy than those with low wages. Also, if occupational forecasts are not positive, program development may not be a priority at this time. Keep in mind that there could be other sources of skilled workers filling the gaps, such as unemployed workers or workers from outside of the Kingsborough Service Region. On the other hand, KCC students completing programs with a surplus may be finding employment opportunities outside the region.

Table 3.2: Occupations Mapped to KCC's Non-Credit Programs with a Significant Gap

SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
ADMINISTRATIVE ASSISTANT AND SECRETARIAL SCIENCE, GENERAL (CIP CODE 52.0401)						
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	71,817	70,640	(1,177)	633	\$20.77
43-6011	Executive Secretaries and Executive Administrative Assistants	44,677	39,175	(5,502)	233	\$37.62
LEGAL ASSISTANT/PARALEGAL (CIP CODE 22.0302)						
23-2011	Paralegals and Legal Assistants	14,454	16,109	1,655	367	\$29.93
ACCOUNTING (CIP CODE 520301)						
13-2011	Accountants and Auditors	57,519	62,485	4,966	136	\$46.63

¹⁰ Further research must be conducted before making a final determination, such as top employer identification within the region; business surveys to verify the data; resume and job postings analysis to determine trending skills for individuals with similar educations; industry recommendations on curriculum development; and analysis of the strengths, weaknesses, and capacities of similar programs at other regional higher education institutions. Emsi is available to conduct this research; see your Emsi contact for details.



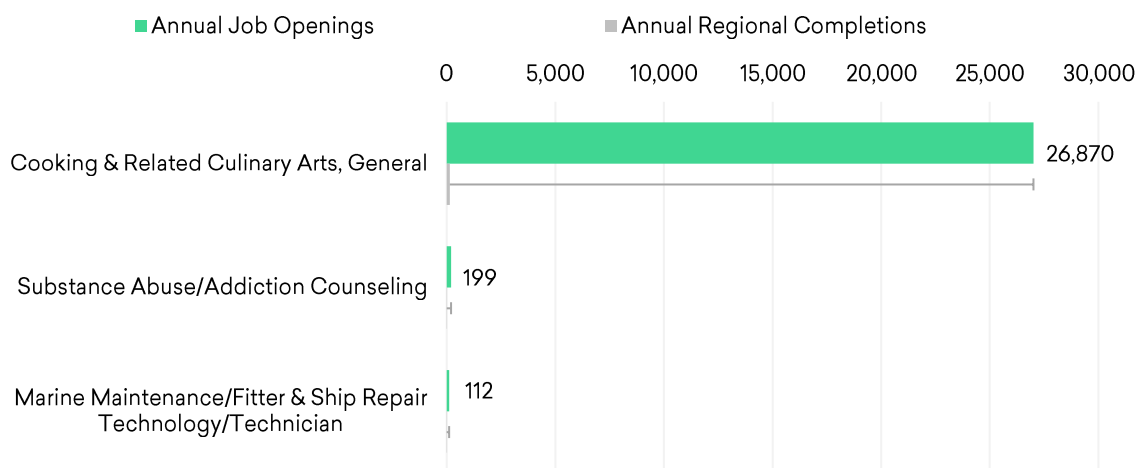
SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
NURSING ASSISTANT/AIDE AND PATIENT CARE ASSISTANT/AIDE (CIP CODE 51.3902)						
31-1014	Nursing Assistants	22,245	27,541	5,297	140	\$19.87

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

CERTIFICATE LEVEL ANALYSIS

Certificates are reported to IPEDS as awards of less than one academic year and awards of at least one but less than two academic years. In this section, KCC's unique certificate level programs aggregate into three programs, when they are classified by their six-digit CIP codes. Average projected annual job openings consider someone with a high school diploma level of education and some college education but no degree. Furthermore, an occupation's job openings are weighted by the number of other programs mapped to an occupation and scaled according to a program's completions.

Figure 3.5: KCC's Certificate Level Programs



Source: Emsi program demand gap model.

The largest certificate level gap, at 26,870 job openings, is in the Cooking & Related Culinary Arts, General program (Figure 3.5). Within the program, KCC has one average annual completion and is not the only institution with completers in this program. Table 3.3 shows all the award level's program gaps and surpluses. All of the programs have a significant gap of program completions above the 100-openings level of significance and as such have been highlighted in Table 3.3.

Table 3.3: Gaps for KCC's Certificate Level Programs

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
				KCC		
12.0500	Cooking & Related Culinary Arts, General	27,009	139	1	26,870	\$14.56
51.1501	Substance Abuse/Addiction Counseling	201	1	1	199	\$25.63
47.0616	Marine Maintenance/Fitter & Ship Repair Technology/Technician	113	0	0	112	\$16.04

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Several occupations mapped to the Cooking & Related Culinary Arts, General program, such as waiters & waitresses, food preparation workers, and bartenders (Table 3.4). The median hourly wage of food service managers, the highest paid occupation mapped to the program, is \$36.78. Program expansion looks promising although it must also be noted that many of the jobs in the region are relatively low-wage. However, if the program were aimed at chef, managerial, or supervisory positions, then the data suggest that an expansion of the program could be in the best interest of program completers.¹¹

This step-by-step analysis of evaluating a program by its occupational job openings, job counts, and wage rates can be applied to the other programs in Table 3.4. In general, occupations with high wages are more noteworthy than those with low wages. Also, if occupational forecasts are not positive, program development may not be a priority at this time. Keep in mind that there could be other sources of skilled workers filling the gaps, such as unemployed workers or workers from outside the Kingsborough Service Region.

Table 3.4: Occupations Mapped to KCC's Certificate Level Programs with a Significant Gap

SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
COOKING & RELATED CULINARY ARTS, GENERAL (CIP CODE 12.0500)						
35-3031	Waiters & Waitresses	65,995	74,612	8,617	9,890	\$15.27
35-3021	Combined Food Preparation & Serving Workers, Including Fast Food	50,839	66,163	15,324	8,998	\$12.94
35-2021	Food Preparation Workers	20,869	23,675	2,806	2,423	\$14.24
35-3011	Bartenders	16,671	19,000	2,329	2,047	\$16.88
35-3022	Counter Attendants, Cafeteria, Food Concession, & Coffee Shop	8,437	9,867	1,430	1,347	\$12.53

11 As stated previously, further research must be conducted before making a final determination. Emsi is available to conduct this research; see your Emsi contact for details.



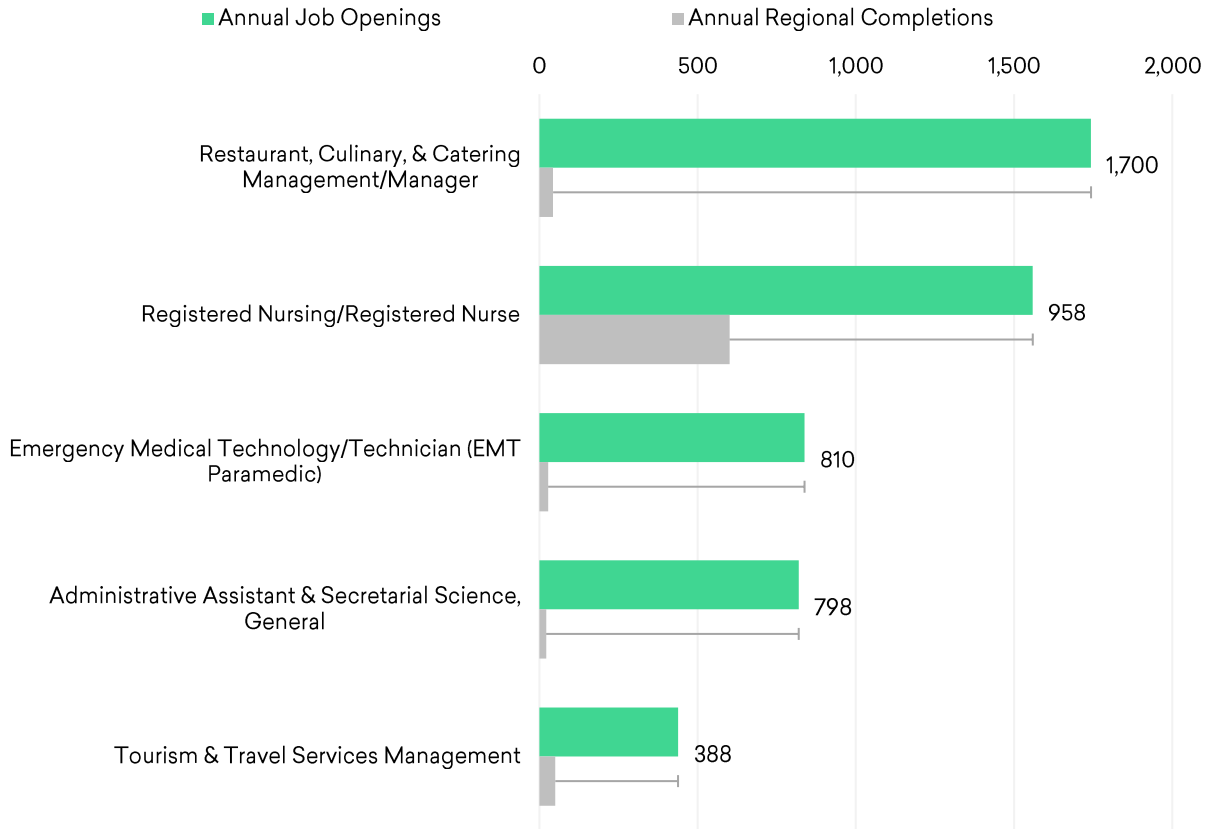
SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
35-3041	Food Servers, Nonrestaurant	4,711	5,233	522	577	\$17.65
35-2014	Cooks, Restaurant	28,496	33,593	5,097	571	\$15.24
35-2011	Cooks, Fast Food	3,078	3,772	694	324	\$13.49
35-1012	First-Line Supervisors of Food Preparation & Serving Workers	15,232	18,291	3,059	294	\$20.96
51-3021	Butchers & Meat Cutters	2,123	2,345	222	179	\$16.75
51-3011	Bakers	3,304	3,575	271	103	\$15.05
35-2012	Cooks, Institution & Cafeteria	4,342	5,221	879	87	\$17.96
35-1011	Chefs & Head Cooks	6,679	7,399	720	62	\$27.22
11-9051	Food Service Managers	4,510	4,924	414	49	\$36.78
35-2015	Cooks, Short Order	2,565	2,807	242	47	\$13.96
35-2019	Cooks, All Other	456	536	80	9	\$15.19
35-2013	Cooks, Private Household	25	30	5	0	\$25.77
SUBSTANCE ABUSE/ADDICTION COUNSELING (CIP CODE 51.1501)						
21-1018	Substance Abuse, Behavioral Disorder, & Mental Health Counselors	5,264	6,420	1,156	159	\$25.24
21-1023	Mental Health & Substance Abuse Social Workers	3,711	4,048	337	29	\$31.13
21-1093	Social & Human Service Assistants	12,452	14,010	1,558	13	\$18.33
MARINE MAINTENANCE/FITTER & SHIP REPAIR TECHNOLOGY/TECHNICIAN (CIP CODE 47.0616)						
53-6031	Automotive & Watercraft Service Attendants	661	733	72	89	\$12.76
49-3051	Motorboat Mechanics & Service Technicians	175	159	(16)	11	\$21.64
49-2093	Electrical & Electronics Installers & Repairers, Transportation Equipment	111	112	1	9	\$36.98
51-2031	Engine & Other Machine Assemblers	42	48	7	4	\$26.88

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

ASSOCIATE DEGREE LEVEL ANALYSIS

KCC offers 11 associate degree level programs, when the programs are classified by their six-digit CIP codes. Like the previous section, job openings consider this award level and one below – an associate degree and some college education in this section. An occupation’s job openings are weighted by the number of other programs mapped to the occupation and scaled according to a program’s completions.

Figure 3.6: KCC's Top 5 Associate Degree Level Programs with a Gap



Source: Emsi program demand gap model.

As shown in Figure 3.6, six programs have a significant gap above the 100-openings level of significance, and as shown in Table 3.5, one program has a significant surplus. The Restaurant, Culinary, & Catering Management/Manager program has the largest, followed by the Registered Nursing/Registered Nurse and Emergency Medical Technology/Technician (EMT Paramedic) programs. As shown in Table 3.5, the Restaurant, Culinary, & Catering Management/Manager program has 1,743 average annual job openings, considering the region’s labor market. On average, the college has 43 annual completions, and combined with the other postsecondary educational institutions in the region, there are a total of 43 annual completions. Programs with a significant gap or surplus have been highlighted in Table 3.5.

Table 3.5: Gaps and Surpluses for KCC's Associate Degree Level Programs

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	KCC		
12.0504	Restaurant, Culinary, & Catering Management/Manager	1,743	43	43	1,700	\$23.27
51.3801	Registered Nursing/Registered Nurse	1,559	601	101	958	\$47.99
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	838	28	13	810	\$28.72
52.0401	Administrative Assistant & Secretarial Science, General	819	21	17	798	\$22.50
52.0903	Tourism & Travel Services Management	438	50	41	388	\$18.51
51.0806	Physical Therapy Technician/Assistant	186	20	20	166	\$27.12
51.0909	Surgical Technology/Technologist	189	121	13	68	\$25.75
47.0616	Marine Maintenance/Fitter & Ship Repair Technology/Technician	56	16	16	40	\$15.46
51.0917	Polysomnography	30	5	5	25	\$34.01
11.0301	Data Processing & Data Processing Technology/Technician	33	41	41	(7)	\$27.07
50.0407	Fashion/Apparel Design	48	593	32	(545)	\$40.74

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Since the food industry was examined at the certificate level, we'll look at the Registered Nursing/Registered Nurse program here. Several occupations mapped to Registered Nursing/Registered Nurse, such as registered nurses, nurse practitioners, and nurse anesthetists (Table 3.6). Program expansion looks promising, though primarily just for registered nurses and medical health services managers at this award level; other mapped occupations have nearly zero associate degree level annual job openings. Considering this, the data suggest that an expansion of the program is in the best interest of program completers if aimed at training registered nurses and medical & health services managers.¹²

While the gaps are important to keep in mind for building or expanding programs, the surpluses are equally important to ensure the college is training students with skills the regional workforce requires. There is one program at KCC with a significant surplus – Fashion/Apparel Design – with a surplus of 545. This surplus may be connected to the declining LQ of the Apparel Manufacturing industry in the region. The Data Processing &

¹² As stated previously, further research must be conducted before making a final determination. Emsi is available to conduct this research; see your Emsi contact for details.



Data Processing Technology/Technician program also has a small surplus, with a surplus of seven.

Using Table 3.6, this step-by-step process of evaluating occupational gaps by their job openings, job counts, and median hourly wage rates can be applied to the other KCC associate degree level programs with a significant gap. In general, occupations with high wages should be considered more noteworthy than those with low wages. If an occupation's job projections are not positive, then it may not be worth further consideration, in terms of its mapped programs. Also, there could be other sources of skilled workers filling the gaps, such as unemployed workers or workers from outside the region.

Table 3.6: Occupations Mapped to the Top 5 KCC's Associate Degree Level Programs with a Significant Gap

SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
RESTAURANT, CULINARY, & CATERING MANAGEMENT/MANAGER (CIP CODE 12.0504)						
35-1012	First-Line Supervisors of Food Preparation & Serving Workers	15,232	18,291	3,059	1,219	\$20.96
35-1011	Chefs & Head Cooks	6,679	7,399	720	445	\$27.22
11-9051	Food Service Managers	4,510	4,924	414	79	\$36.78
35-2013	Cooks, Private Household	25	30	5	1	\$25.77
REGISTERED NURSING/REGISTERED NURSE (CIP CODE 51.3801)						
29-1141	Registered Nurses	52,405	66,033	13,629	1,353	\$45.40
11-9111	Medical & Health Services Managers	8,474	10,381	1,907	205	\$64.91
29-1171	Nurse Practitioners	3,786	4,814	1,028	1	\$60.56
29-1151	Nurse Anesthetists	458	533	75	1	\$89.66
29-1161	Nurse Midwives	130	144	14	0	\$55.57
EMERGENCY MEDICAL TECHNOLOGY/TECHNICIAN (EMT PARAMEDIC) (CIP CODE 51.0904)						
33-9092	Lifeguards, Ski Patrol, & Other Recreational Protective Service Workers	2,888	3,019	132	305	\$13.32
33-2011	Firefighters	4,765	4,064	(701)	280	\$41.65
29-2041	Emergency Medical Technicians & Paramedics	3,954	3,210	(744)	150	\$21.26
33-1021	First-Line Supervisors of Fire Fighting & Prevention Workers	1,533	1,247	(287)	81	\$58.27
53-3011	Ambulance Drivers & Attendants, Except Emergency Medical Technicians	305	263	(42)	22	\$19.77
ADMINISTRATIVE ASSISTANT & SECRETARIAL SCIENCE, GENERAL (CIP CODE 52.0401)						
43-9061	Office Clerks, General	79,512	82,561	3,049	250	\$17.32
43-9022	Word Processors & Typists	4,635	3,170	(1,465)	180	\$25.24

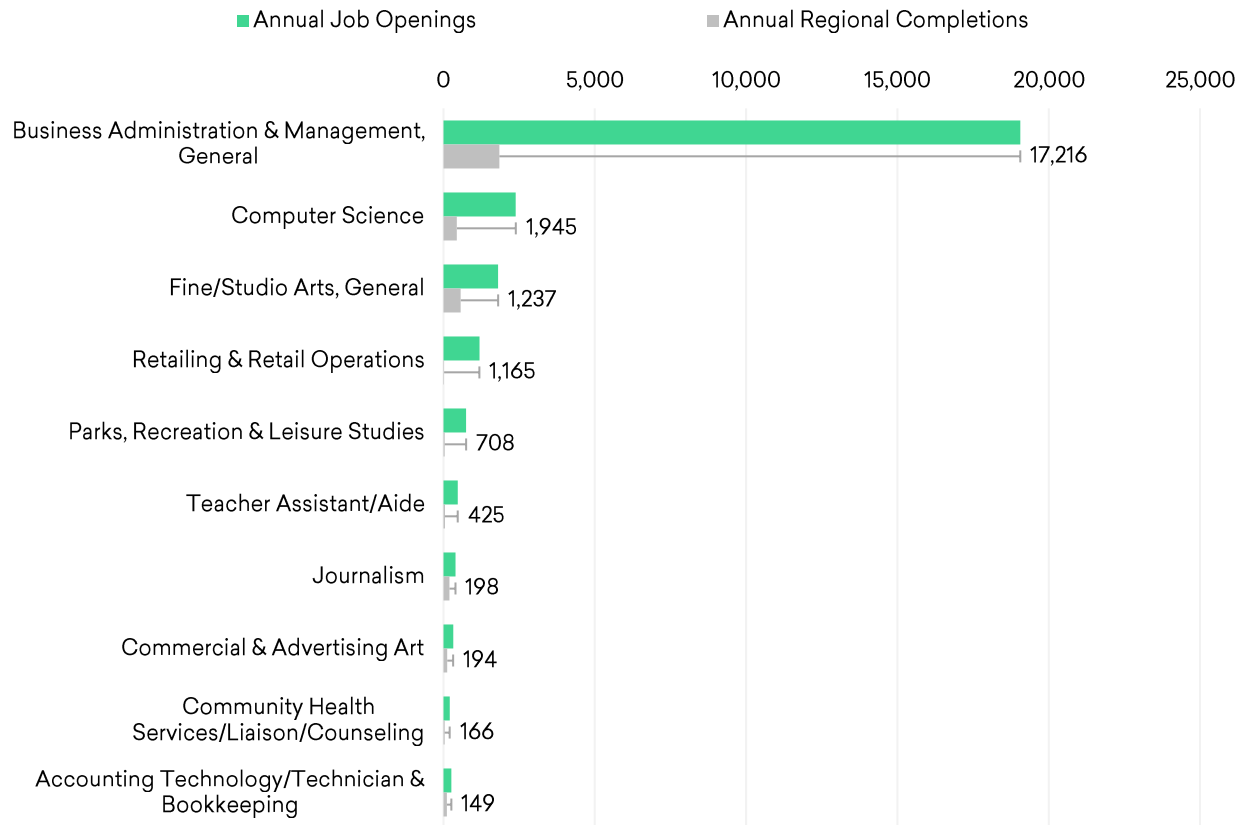
SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
43-4171	Receptionists & Information Clerks	31,476	33,770	2,294	129	\$17.61
43-6011	Executive Secretaries & Executive Administrative Assistants	44,677	39,175	(5,502)	119	\$37.62
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	71,817	70,640	(1,177)	100	\$20.77
43-4071	File Clerks	3,156	2,962	(194)	30	\$16.72
43-9021	Data Entry Keyers	5,187	4,591	(596)	12	\$20.44
TOURISM & TRAVEL SERVICES MANAGEMENT (CIP CODE 52.0903)						
41-3041	Travel Agents	3,624	3,350	(273)	154	\$19.85
43-4081	Hotel, Motel, & Resort Desk Clerks	4,691	5,214	523	146	\$16.25
43-4181	Reservation & Transportation Ticket Agents & Travel Clerks	1,360	1,393	33	71	\$20.28
39-7018	Tour & Travel Guides	1,589	1,887	297	61	\$15.47
11-9199	Managers, All Other	13,214	14,800	1,586	7	\$45.38
PHYSICAL THERAPY TECHNICIAN/ASSISTANT (CIP CODE 51.0806)						
31-2021	Physical Therapist Assistants	1,291	2,214	923	170	\$28.29
31-2022	Physical Therapist Aides	1,046	1,447	401	16	\$14.27

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

TRANSFER-TRACK DEGREE LEVEL ANALYSIS

The analysis in this section evaluates KCC's associate degree level programs whose completers are intended to transfer on to a bachelor's degree level. The programs are referred to as transfer-track degree level programs because a program completer could readily transfer into a similar bachelor's degree level program. As such, the programs here are analyzed at the bachelor's degree level. At KCC, there are 27 such transfer-track degree level programs, when the programs are classified by their six-digit CIP codes. KCC is one of many postsecondary educational institutions in the region, and several other institutions offer bachelor's degree level programs. Job openings at this award level consider someone with a bachelor's degree or associate degree level of education. An occupation's job openings are weighted by the number of other programs mapped to the occupation and scaled according to a program's completions.

Figure 3.7: KCC's Top 10 Transfer-Track Degree Level Programs with a Significant Gap



KCC's programs award completers with an associate degree, but the demand for jobs considers a bachelor's degree level of education.

Source: Emsi program demand gap model.

Figure 3.7 shows the top 10 programs with a significant gap. The Business Administration & Management, General program has the largest, followed by the Computer Science and Fine/Studio Arts, General programs. As shown in Table 3.7, there are 19,061 average annual job openings in the region for occupations related to the Business Administration & Management, General program. On average, the college graduates 245 annual completers, and combined with the other postsecondary educational institutions in the region, there are a total of 1,846 annual completers. The result is a program gap of 17,216. Programs with a significant gap or surplus have been highlighted in Table 3.7.



Table 3.7: Gaps and Surpluses for KCC's Transfer-Track Degree Level Programs

CIP CODE	CIP TITLE	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS		GAP OR SURPLUS	MEDIAN HOURLY WAGE
			REGION	KCC		
52.0201	Business Administration & Management, General	19,061	1,846	245	17,216	\$39.84
11.0701	Computer Science	2,389	445	29	1,945	\$56.27
50.0702	Fine/Studio Arts, General	1,806	570	16	1,237	\$31.75
52.1803	Retailing & Retail Operations	1,186	21	21	1,165	\$28.00
31.0101	Parks, Recreation & Leisure Studies	748	39	39	708	\$15.62
13.1501	Teacher Assistant/Aide	470	45	45	425	\$19.68
09.0401	Journalism	396	198	21	198	\$39.03
50.0402	Commercial & Advertising Art	319	125	60	194	\$40.71
51.1504	Community Health Services/Liaison/Counseling	204	38	38	166	\$29.96
52.0302	Accounting Technology/Technician & Bookkeeping	260	111	111	149	\$35.54
10.0202	Radio & Television Broadcasting Technology/Technician	147	43	43	103	\$32.95
14.0101	Engineering, General	99	20	17	78	\$52.12
40.0601	Geology/Earth Science, General	122	55	2	67	\$35.94
31.0505	Kinesiology & Exercise Science	123	63	1	60	\$31.87
50.0101	Visual & Performing Arts, General	42	16	16	26	\$34.10
26.1201	Biotechnology	11	5	2	6	\$32.14
51.1501	Substance Abuse/Addiction Counseling	13	14	14	(1)	\$19.95
11.1004	Web/Multimedia Management & Webmaster	2	3	3	(2)	\$43.54
23.1304	Rhetoric & Composition	29	48	21	(19)	\$37.12
43.0106	Forensic Science & Technology	28	76	1	(48)	\$38.14
40.0801	Physics, General	36	101	6	(65)	\$52.84
51.1502	Psychiatric/Mental Health Services Technician	18	109	109	(91)	\$22.02
27.0101	Mathematics, General	250	359	7	(110)	\$46.52
40.0501	Chemistry, General	169	312	8	(143)	\$40.33
43.0103	Criminal Justice/Law Enforcement Administration	1,585	1,739	228	(154)	\$43.27
26.0101	Biology/Biological Sciences, General	428	1,199	121	(771)	\$39.51

KCC's programs award completers with an associate degree, but the demand for jobs considers a bachelor's degree level of education. Numbers may not sum due to rounding.

Source: Emsi program demand gap model.



Several occupations mapped to the Business Administration & Management, General program, such as accountants & auditors, retail salespersons, and customer service representatives (Table 3.8). The median hourly wage of chief executives, the highest paid occupation mapped to the program, is \$114.81 although there are relatively fewer job openings for the occupation than others mapped to the program. Program expansion looks promising, with the data suggesting that an expansion of the program is in the best interest of program completers if aimed at supervisory and managerial occupations.¹³

While the gaps are important to keep in mind for building or expanding programs, the surpluses are equally important to ensure the college is training students with skills the regional workforce requires. There are four transfer-track degree programs at KCC with a significant surplus. Biology/Biological Sciences, General has the largest, with a surplus of 771. Criminal Justice/Law Enforcement Administration also has a significant surplus, with a surplus of 154, followed by Chemistry, General, with a surplus of 143, and Mathematics, General, with a surplus of 110.

Using Table 3.8, this step-by-step process of evaluating occupational gaps by their median hourly wage rates can be applied to the other KCC transfer-track degree programs with a significant gap. In general, gaps around occupations with high wages should be considered more noteworthy than gaps around occupations with low wages. Also, if the occupational forecasts around a certain gap are not positive, the gap may not be worth further consideration. Keep in mind that there could be other sources of skilled workers filling the gaps, such as unemployed workers or workers from outside the region.

Table 3.8: Occupations Mapped to the Top 5 KCC Transfer-Track Degree Level Programs with a Significant Gap

SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
BUSINESS ADMINISTRATION & MANAGEMENT, GENERAL (CIP CODE 52.0201)						
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	71,817	70,640	(1,177)	2,822	\$20.77
13-2011	Accountants & Auditors	57,519	62,485	4,966	2,001	\$46.63
41-2031	Retail Salespersons	93,110	93,195	85	1,986	\$13.59
43-4051	Customer Service Representatives	56,907	60,762	3,855	1,974	\$20.68
43-1011	First-Line Supervisors of Office & Administrative Support Workers	41,960	43,916	1,956	1,465	\$35.54

¹³ As stated previously, further research must be conducted before making a final determination. Emsi is available to conduct this research; see your Emsi contact for details.

SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
13-1071	Human Resources Specialists	19,393	23,098	3,705	1,289	\$36.72
11-1021	General & Operations Managers	65,801	73,452	7,651	1,256	\$71.79
13-1161	Market Research Analysts & Marketing Specialists	37,627	45,535	7,908	1,194	\$38.15
13-1111	Management Analysts	28,070	31,204	3,134	1,030	\$52.84
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	25,086	24,642	(445)	769	\$30.17
15-1151	Computer User Support Specialists	21,340	24,633	3,293	600	\$30.60
11-3031	Financial Managers	24,153	28,690	4,537	503	\$106.53
41-1011	First-Line Supervisors of Retail Sales Workers	21,009	21,508	499	430	\$22.54
11-3021	Computer & Information Systems Managers	14,225	16,527	2,301	426	\$96.08
11-2022	Sales Managers	10,807	11,950	1,143	368	\$97.53
11-2021	Marketing Managers	10,197	11,590	1,393	318	\$93.06
13-1199	Business Operations Specialists, All Other	13,337	16,156	2,819	272	\$41.56
11-3121	Human Resources Managers	4,898	5,497	598	210	\$71.75
11-1011	Chief Executives	4,858	4,970	113	84	\$114.81
11-9199	Managers, All Other	13,214	14,800	1,586	67	\$45.38
COMPUTER SCIENCE (CIP CODE 11.0701)						
15-1132	Software Developers, Applications	29,803	40,222	10,419	817	\$62.00
15-1121	Computer Systems Analysts	21,127	23,339	2,212	407	\$55.30
15-1142	Network & Computer Systems Administrators	11,487	12,536	1,049	203	\$49.76
15-1133	Software Developers, Systems Software	8,678	10,644	1,966	146	\$62.36
15-1151	Computer User Support Specialists	21,340	24,633	3,293	145	\$30.60
15-1134	Web Developers	8,116	9,582	1,466	115	\$37.71
11-3021	Computer & Information Systems Managers	14,225	16,527	2,301	103	\$96.08
15-1152	Computer Network Support Specialists	5,632	6,248	615	101	\$42.07
15-1131	Computer Programmers	6,599	6,706	108	93	\$47.33
15-1141	Database Administrators	3,471	3,970	498	70	\$52.28
15-1143	Computer Network Architects	3,930	4,405	475	67	\$62.34
15-1122	Information Security Analysts	3,587	4,451	864	57	\$64.85
43-9011	Computer Operators	1,287	1,140	(147)	20	\$26.03
17-2061	Computer Hardware Engineers	347	482	135	18	\$65.21



SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
15-1199	Computer Occupations, All Other	1,952	3,178	1,225	16	\$47.46
15-1111	Computer & Information Research Scientists	589	760	171	9	\$74.32
15-2041	Statisticians	530	741	211	5	\$53.57
FINE/STUDIO ARTS, GENERAL (CIP CODE 50.0702)						
25-3021	Self-Enrichment Education Teachers	15,240	17,485	2,245	508	\$25.45
25-2021	Elementary School Teachers, Except Special Education	17,919	20,853	2,934	287	\$40.28
27-1024	Graphic Designers	15,774	16,241	467	205	\$31.05
27-1011	Art Directors	7,663	8,167	504	123	\$51.94
25-2022	Middle School Teachers, Except Special & Career/Technical Education	8,877	10,227	1,351	116	\$40.23
25-2031	Secondary School Teachers, Except Special & Career/Technical Education	15,143	17,490	2,347	110	\$41.20
51-9071	Jewelers & Precious Stone & Metal Workers	2,743	1,856	(887)	75	\$21.28
27-1013	Fine Artists, Including Painters, Sculptors, & Illustrators	3,219	3,414	195	71	\$18.47
27-4021	Photographers	5,292	5,131	(161)	66	\$23.38
27-1012	Craft Artists	1,353	1,450	97	62	\$8.97
27-1021	Commercial & Industrial Designers	1,326	1,362	36	46	\$35.23
27-1014	Multimedia Artists & Animators	2,356	2,839	483	38	\$33.91
27-1027	Set & Exhibit Designers	1,592	1,881	289	33	\$34.18
29-1125	Recreational Therapists	432	474	42	17	\$26.47
25-4012	Curators	827	954	128	16	\$36.04
25-4011	Archivists	718	860	142	16	\$25.43
25-4013	Museum Technicians & Conservators	802	933	131	11	\$29.76
27-1019	Artists & Related Workers, All Other	197	192	(5)	4	\$24.98
51-9194	Etchers & Engravers	77	93	17	3	\$12.73
RETAILING & RETAIL OPERATIONS (CIP CODE 52.1803)						
41-3099	Sales Representatives, Services, All Other	35,172	41,153	5,981	660	\$35.34
41-9011	Demonstrators & Product Promoters	4,046	4,380	333	158	\$17.78
43-5071	Shipping, Receiving, & Traffic Clerks	7,541	7,710	169	111	\$18.35
43-4151	Order Clerks	2,416	2,710	294	85	\$16.58
33-9099	Protective Service Workers, All Other	6,159	6,538	379	63	\$14.42
41-9099	Sales & Related Workers, All Other	1,090	1,313	223	40	\$21.00



SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
41-2031	Retail Salespersons	93,110	93,195	85	23	\$13.59
41-1012	First-Line Supervisors of Non-Retail Sales Workers	11,249	11,772	523	22	\$48.24
43-5081	Stock Clerks & Order Fillers	28,502	30,776	2,274	13	\$13.29
13-1028	Buyers & Purchasing Agents	7,097	6,976	(120)	6	\$36.60
41-1011	First-Line Supervisors of Retail Sales Workers	21,009	21,508	499	5	\$22.54
PARKS, RECREATION & LEISURE STUDIES (CIP CODE 31.0101)						
39-9032	Recreation Workers	9,738	9,701	(37)	482	\$15.95
39-3091	Amusement & Recreation Attendants	5,526	6,197	671	165	\$13.39
33-9092	Lifeguards, Ski Patrol, & Other Recreational Protective Service Workers	2,888	3,019	132	64	\$13.32
25-3021	Self-Enrichment Education Teachers	15,240	17,485	2,245	35	\$25.45
29-1125	Recreational Therapists	432	474	42	1	\$26.47

Programs award completers with an associate degree, but the demand for jobs considers a bachelor's degree level of education. Numbers may not sum due to rounding.

Source: Emsi program demand gap model.

LIBERAL ARTS AND GENERAL STUDIES TRANSFER STUDENTS

A number of students attend KCC with the intention of transferring to a four-year institution to receive a bachelor's degree. Over the past three years, 1,057 students, on average, have completed such a program, which accounts for 56% of KCC's annual production of certificates, including non-credit awards, and degrees.

Once liberal arts students leave KCC, their educational and career track is difficult to predict. They could attend a nearby four-year institution, and they could study any number of different programs that will ultimately determine their future careers. What can be shown is that over the next 10 years, jobs that require a bachelor's degree are projected to be in high demand. In any given year between 2018 and 2028, 94,250 job openings will require a bachelor's degree level of education.

This section shows the top occupations mapped to liberal arts programs, using Emsi's Profile Analytics database, which contains more than 120.9 million profiles of people in the U.S. from all the major professional social media websites. To identify the top occupations, the Profile Analytics database is filtered in several ways. First, profiles include people who have an associate degree or a bachelor's degree level of education. Second, the profiles list liberal arts as the person's program of study. Liberal arts programs are classified as CIP codes 24.01,

30.00, and 30.99 at the four-digit level. Finally, the database includes profiles most recently updated, from as early as 2010. Using these search parameters, 263,200 profiles are found in the database, and the occupations in Table 3.9 represent the most common jobs of the liberal arts alumni.

As shown in the table, a considerable number of job openings are for retail salespersons, customer service representatives, and secretaries & administrative assistants. Together, the three occupations account for 44% of all the liberal arts program's job openings. The profiles data also include various kinds of managers and supervisors, which are occupations with relatively higher wage rates. A liberal arts program expansion is not warranted at this time, but KCC administrators should be aware that liberal arts graduates can find success in a variety of business-related occupations beyond retail sales and customer service.

Table 3.9: Occupations Related to Liberal Arts Programs

SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
41-2031	Retail Salespersons	93,110	93,195	85	13,517	\$13.59
43-4051	Customer Service Representatives	56,907	60,762	3,855	7,825	\$20.68
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	71,817	70,640	(1,177)	7,778	\$20.77
11-1021	General & Operations Managers	65,801	73,452	7,651	6,365	\$71.79
43-6011	Executive Secretaries & Executive Administrative Assistants	44,677	39,175	(5,502)	4,452	\$37.62
43-1011	First-Line Supervisors of Office & Administrative Support Workers	41,960	43,916	1,956	4,371	\$35.54
13-1111	Management Analysts	28,070	31,204	3,134	2,812	\$52.84
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	25,086	24,642	(445)	2,507	\$30.17
13-1071	Human Resources Specialists	19,393	23,098	3,705	2,411	\$36.72
11-3031	Financial Managers	24,153	28,690	4,537	2,368	\$106.53
15-1151	Computer User Support Specialists	21,340	24,633	3,293	1,992	\$30.60
21-1093	Social & Human Service Assistants	12,452	14,010	1,558	1,696	\$18.33
27-3031	Public Relations Specialists	14,679	16,171	1,492	1,636	\$36.13
13-1199	Business Operations Specialists, All Other	13,337	16,156	2,819	1,601	\$41.56
25-3097	Teachers & Instructors, All Other	8,347	10,023	1,676	1,163	\$22.43
11-9199	Managers, All Other	13,214	14,800	1,586	1,128	\$45.38
11-2022	Sales Managers	10,807	11,950	1,143	1,063	\$97.53
11-2021	Marketing Managers	10,197	11,590	1,393	1,048	\$93.06
41-9022	Real Estate Sales Agents	7,686	8,399	713	806	\$38.86



SOC CODE	SOC TITLE	2018 JOBS	2028 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
11-1011	Chief Executives	4,858	4,970	113	367	\$114.81

* See Appendix 2 for job postings related to this occupation.

Source: Emsi gap model.

SUMMARY

Between the non-credit, certificate, associate degree, and transfer-track degree levels, there are a total of 24 programs associated with significant workforce gaps. One program, Administrative Assistant & Secretarial Science, General, has a gap at both the non-credit and the associate degree levels.

At the non-credit level, four programs have a gap above the 100-job level of significance, and zero have a significant surplus. Notably, not receiving a KCC Certificate of Completion in one of the various non-credit programs at the college with a significant gap does not preclude someone from employment. Industry-specific employment credentials can be obtained during on-the-job training. However, the results of the analysis are an indication of the potential labor market demand for KCC's non-credit programs, whether those programs are for people seeking employment or looking to learn new skills. The non-credit level programs with the top three largest gaps are:

- Administrative Assistant & Secretarial Science, General (gap of 858; median hourly wage \$25.30)
- Legal Assistant/Paralegal (gap of 345; median hourly wage \$29.93)
- Accounting (gap of 113; median hourly wage \$46.63)

At the certificate level, all three programs have a gap above the 100-job level of significance. Program expansions are recommended at this award level if the program awards completers with a KCC certificate and a certification, license, or industry-specific credential required for employment in an occupation. The certificate level programs and their gaps are:

- Cooking & Related Culinary Arts, General (gap of 26,870; median hourly wage \$14.56)
- Substance Abuse/Addiction Counseling (gap of 199; median hourly wage \$25.63)
- Marine Maintenance/Fitter & Ship Repair Technology/Technician (gap of 112; median hourly wage \$16.04)

At the associate degree level, six programs have a significant gap above the 100-job level of significance, and some are recommended for further program development. Specifically, the region's labor market has the most opportunity for occupations related to culinary and medical professionals. For KCC administrators, it is crucial for the college to engage with the local community on behalf of its students. The associate degree programs with the top three largest gaps are:

- Restaurant, Culinary, & Catering Management/Manager (gap of 1,700; median hourly wage \$23.27)
- Registered Nursing/Registered Nurse (gap of 958; median hourly wage \$47.99)
- Emergency Medical Technology/Technician (EMT Paramedic) (gap of 810; median hourly wage \$28.72)

The transfer-track degree level program analysis identifies job opportunities within KCC's associate degree level programs but with job openings at the bachelor's degree level. Eleven programs have a significant gap above the 100-job level of significance, and four programs have a significant surplus of program completions. The transfer-track degree level programs with the three largest gaps are:

- Business Administration & Management, General (gap of 17,216; median hourly wage \$39.84)
- Computer Science (gap of 1,945; median hourly wage \$56.27)
- Fine/Studio Arts, General (gap of 1,237; median hourly wage \$31.75)

A liberal arts program expansion is not recommended at this time, but KCC administrators should be aware that students can find success in a variety of business-related occupations. Using the Profile Analytics database, many liberal arts program completers are currently employed as administrative assistants and customer service representatives, as well as a variety of managers and supervisors. These occupations have a considerable number of job openings in the Kingsborough Service Region, and the college's liberal arts program serves as a starting point to students' future career goals.

CHAPTER 4:

New Program Additions

Thus far, the analysis has centered around programs offered by KCC. This chapter looks at workforce gaps that exist within occupations that the college does not currently train for and provides new program recommendations. For each award level, a table shows the occupations' current employment, projected percentage growth over the next decade, average annual projected job openings, average annual completers, gap, and median hourly wage rates. In addition, the figure in the certificate level section details the current annual wage rates for those employed in a selection of occupations.

Recommendations are based solely on the gap and whether or not the occupation looks promising (job growth, wages, etc.). These are initial findings and should serve as a starting point for further research. KCC's administration will still need to undergo steps before deciding whether these programs would be a good fit for the college and the region. This future work could include surveying local employers, analyzing skills and similar programs offered elsewhere, calculating program specific economic impacts, and looking at capacity and capital requirements for building these programs.

ADDITIONS AT THE CERTIFICATE LEVEL

Twenty occupations have been identified as certificate level programmatic areas of opportunity, as shown in Table 4.1. The select occupations present unmet annual job openings within the Kingsborough Service Region (i.e. they have a gap), their median hourly wage rates are greater than \$12.00, and the occupations typically require some college education but no degree for entry-level positions.

As shown, there is diversity in the types of occupations in the table, with a limited number of job openings in the region for some. The most represented occupational group in the table are personal care & service occupations (SOC 39-0000), with four occupations and 16,254 annual job openings in the region.

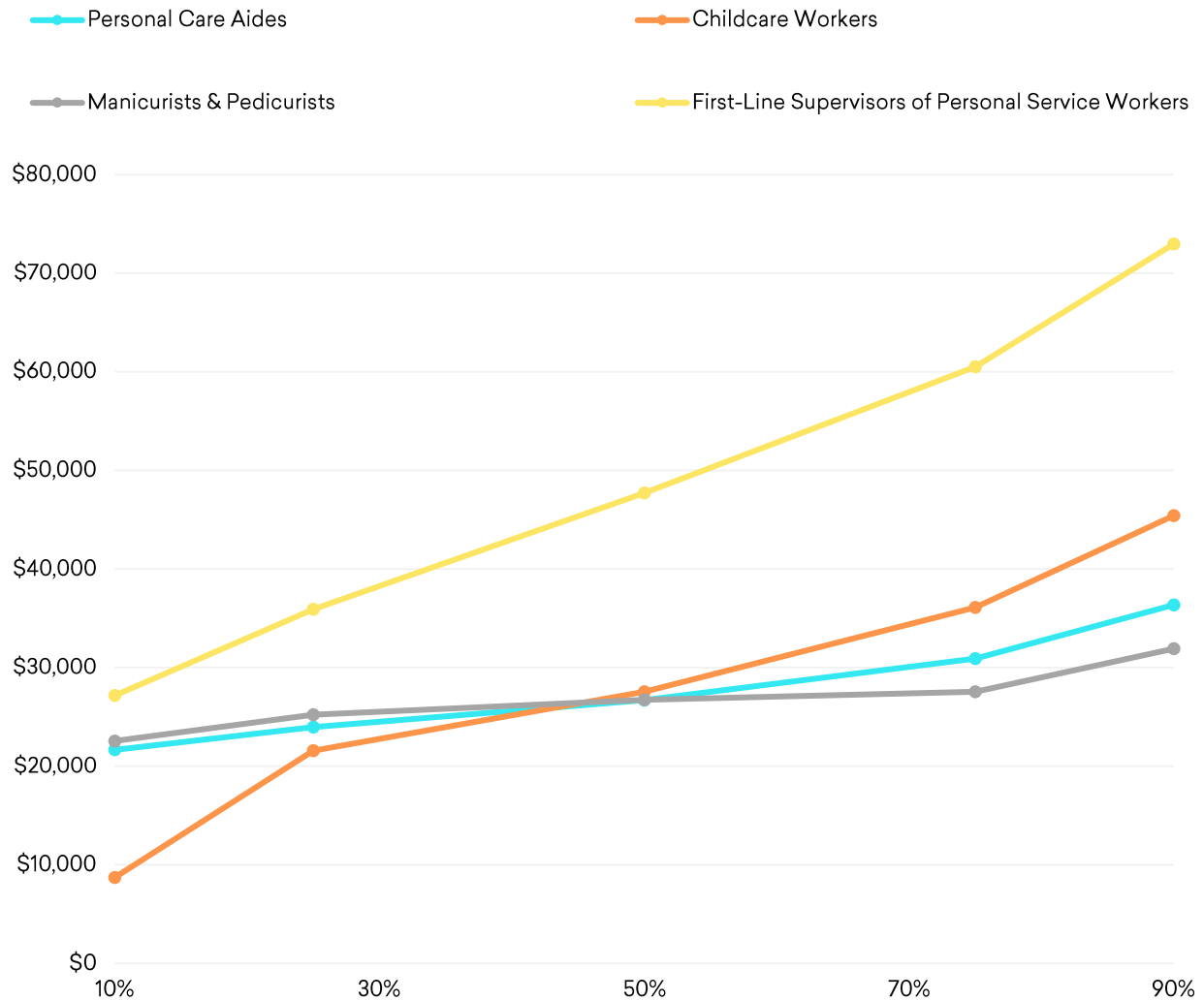
Table 4.1: KCC's Programmatic Areas of Opportunity at the Certificate Level

SOC TITLE	2018 JOBS	% JOB CHANGE	ANNUAL OPENINGS	ANNUAL COMPLETIONS	GAP	MEDIAN HOURLY WAGE
Home Health Aides	93,169	48.9%	12,591	255	12,336	\$12.25
Personal Care Aides	79,542	42.5%	11,534	195	11,338	\$12.84
Security Guards	58,445	12.2%	6,302	0	6,302	\$16.74
Childcare Workers	33,999	5.5%	3,451	46	3,405	\$13.24
Licensed Practical & Licensed Vocational Nurses	10,720	46.5%	1,079	15	1,065	\$26.35
Billing & Posting Clerks	12,152	12.5%	870	11	859	\$22.71
Preschool Teachers, Except Special Education	11,035	19.6%	629	30	598	\$20.24
Manicurists & Pedicurists	9,658	14.4%	792	262	530	\$12.86
Substitute Teachers	6,478	15.4%	492	0	492	\$19.03
Legal Secretaries	8,167	(14.6%)	450	1	450	\$30.21
Correctional Officers & Jailers	7,536	(22.0%)	444	0	444	\$35.01
Dental Assistants	5,042	18.3%	475	31	444	\$19.01
Library Technicians	4,024	6.6%	439	8	432	\$16.78
First-Line Supervisors of Transportation & Material Moving Workers, Except Aircraft Cargo Handling Supervisors	5,505	3.9%	382	0	382	\$31.35
First-Line Supervisors of Mechanics, Installers, & Repairers	6,605	6.2%	377	0	377	\$41.63
Library Assistants, Clerical	2,977	10.8%	314	0	314	\$16.83
First-Line Supervisors of Personal Service Workers	7,167	14.8%	476	180	296	\$22.93
Telecommunications Equipment Installers & Repairers, Except Line Installers	3,469	(7.4%)	261	8	252	\$39.02
Loan Interviewers & Clerks	3,191	29.1%	244	0	244	\$25.47
First-Line Supervisors of Protective Service Workers, All Other	3,843	9.0%	240	0	240	\$30.27

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.



Figure 4.1: Percentile Wage Rates of Personal Care & Service Occupations Identified as New Program Opportunities



Source: Employees & Self-Employed 2019.4

The annual wage rates of the personal care & service occupations from Table 4.1 are shown in Figure 4.1, with an emphasis on low and high wage-earners. For those people in the Kingsborough Service Region employed as first-line supervisors of personal service workers, annual wage rates are the highest. Notably, the difference between the lowest wage earners in the occupation (10th percentile) and the highest (90th percentile) is about \$40,000. Data on percentile wage rates highlight the occupations that should be incorporated into a new or

existing KCC program, for the benefit of students first coming into the region's labor market or those looking to change career paths.

ADDITIONS AT THE ASSOCIATE DEGREE LEVEL

Fewer occupations, compared to the previous section, have been identified as associate degree level programmatic areas of opportunity (Table 4.2). There are not as many occupations that specifically require such an education, and most have been considered in the previous chapter's analysis. Of the 10 occupations in the table, four are related to architecture & engineering occupations (SOC 17-0000), with 244 annual job openings in the region.

Table 4.2: KCC's Programmatic Areas of Opportunity at the Associate Degree Level

SOC TITLE	2018 JOBS	% JOB CHANGE	ANNUAL OPENINGS	ANNUAL COMPLETIONS	GAP	MEDIAN HOURLY WAGE
Architectural & Civil Drafters	2,842	14.3%	172	75	97	\$32.16
Respiratory Therapists	1,672	31.8%	94	0	94	\$39.47
Occupational Therapy Assistants	633	54.9%	106	12	94	\$32.44
Magnetic Resonance Imaging Technologists	714	11.8%	29	0	29	\$42.21
Mechanical Drafters	578	11.4%	34	8	25	\$32.30
Radiologic Technologists	3,361	9.0%	129	104	25	\$36.05
Electrical & Electronics Drafters	376	14.6%	23	4	19	\$40.13
Drafters, All Other	277	10.1%	16	0	16	\$32.90
Occupational Therapy Aides	71	61.2%	12	2	11	\$20.24
Nuclear Medicine Technologists	262	8.2%	10	4	6	\$44.96

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

ADDITIONS AT THE TRANSFER TRACK DEGREE LEVEL

As shown in Table 4.3, 20 occupations have been identified as transfer-track degree level programmatic areas of opportunity. The select occupations present unmet annual job openings within the Kingsborough Service Region (i.e. they have a gap), their median hourly

wage rates are greater than \$18.00, and the occupations typically require a bachelor's degree level of education for entry-level positions.

The table shows a diverse set of occupations, with a limited number of job openings in the region for some. The most represented occupational group in the table are business & financial operations occupations (SOC 13-0000), with nine occupations and 21,282 annual job openings in the region.

Table 4.3: KCC's Programmatic Areas of Opportunity at the Transfer-Track Degree Level

SOC TITLE	2018 JOBS	% JOB CHANGE	ANNUAL OPENINGS	ANNUAL COMPLETIONS	GAP	MEDIAN HOURLY WAGE
Securities, Commodities, & Financial Services Sales Agents	53,988	10.0%	3,537	218	3,318	\$72.46
Postsecondary Teachers, General	53,386	21.4%	2,123	0	2,123	\$45.91
Financial Analysts	37,643	6.4%	2,300	341	1,959	\$57.72
Personal Financial Advisors	23,839	12.5%	1,477	61	1,416	\$69.09
Production, Planning, & Expediting Clerks	13,973	6.7%	701	0	701	\$26.28
Insurance Sales Agents	14,417	1.3%	711	35	675	\$33.94
Training & Development Specialists	8,988	11.9%	475	2	472	\$35.65
Meeting, Convention, & Event Planners	5,735	13.7%	465	52	413	\$33.17
Community & Social Service Specialists, All Other	6,636	2.2%	425	25	401	\$26.87
Loan Officers	6,302	22.7%	386	27	359	\$46.72
Real Estate Sales Agents	7,686	9.3%	419	94	325	\$38.86
Financial Examiners	6,115	8.2%	352	41	311	\$56.18
Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products	5,307	13.2%	329	19	311	\$48.79
Fundraisers	4,461	17.2%	304	23	281	\$33.43
Claims Adjusters, Examiners, & Investigators	6,329	(2.5%)	299	32	267	\$38.92
Property, Real Estate, & Community Association Managers	6,464	13.1%	275	26	249	\$47.74
Architects, Except Landscape & Naval	7,538	9.9%	352	114	239	\$48.64
Credit Analysts	4,410	6.4%	266	32	235	\$55.59
Social & Community Service Managers	5,189	9.0%	289	75	214	\$44.63
Instructional Coordinators	4,680	14.6%	215	4	211	\$35.10

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

SUMMARY

Twenty certificate level programmatic areas of opportunity have been identified in the program demand gap analysis, many of which are related to personal care & service occupations. At the associate degree level, there are fewer opportunities for new programs, considering the college's current offerings. Nonetheless, KCC should consider new programs related to architecture & engineering occupations, whether focus is on job openings in the Kingsborough Service Region or New York. Twenty transfer-track degree level programmatic areas of opportunity were identified in the program demand gap analysis, many of which are related to business & financial operations occupations. For all award levels, many program additions are related to the college's current program offerings, which indicates an opportunity for a curriculum adjustment to better align with the region's current and projected labor market demand.

APPENDIX 1: Glossary of Terms

Associate Degree A degree granted for the successful completion of a sub-baccalaureate program of study, usually requiring at least two years (or equivalent) of full-time college-level study. This includes degrees granted in a cooperative or work-study program. For the program demand gap analysis, degrees of greater than two years but less than four, as defined by IPEDS, are included in the associate degree category.

Certificate A formal award certifying the satisfactory completion of a postsecondary education program. Certificates can be awarded at any level of postsecondary education and include awards below the associate degree level. For the program demand gap analysis, this includes awards of less than one year and greater than one year but less than two, as defined by IPEDS.

Gap represents a deficit, or when there are more job openings in a particular occupation than there are completions from higher education institutions in the county, region, state, etc. If left unaddressed, a gap may lead to missed opportunities for economic growth and put stress on local businesses to find the necessary talent elsewhere. Significant gaps translate into higher human resources costs and decreased efficiencies in the economic system. They also provide an opportunity for educational institutions to develop new programs and/or strengthen their current programs.

Industry Jobs Emsi industry data have various sources depending on the class of worker. Emsi primarily uses the QCEW (Quarterly Census of Employment and Wages), with supplemental estimates from County Business Patterns. Non-QCEW employees data are based on a number of sources including QCEW, Current Employment Statistics, County Business Patterns, Bureau of Economic Analysis (BEA) State and Local Personal Income reports, the National Industry-Occupation Employment Matrix (NIOEM), the American Community Survey, and Railroad Retirement Board statistics. Self-Employed class of worker data are primarily based on the American Community Survey, Nonemployer Statistics, and BEA State and Local Personal Income Reports. The Extended Proprietor class of worker is not included in the analysis. Projections for QCEW and non-QCEW Employees are informed by NIOEM and long-term industry projections published by individual states.

IPEDS The Integrated Postsecondary Education Data System (IPEDS) aggregates interrelated surveys conducted annually by the U.S. Department of Education's National Center for Education Statistics (NCES). IPEDS gathers information from every educational institution in the U.S. that participates in the federal student financial aid programs authorized by Title IV of the Higher Education Act of 1965. These educational institutions include research universities, state colleges and universities, private religious and liberal arts

colleges, for-profit institutions, community and technical colleges, non-degree-granting institutions such as beauty colleges, and others.

Job Openings Job openings are a combination of job growth, which occurs when an employer experiences greater demand for its products and hires new employees to increase production, and replacement needs, which occurs when employees leave the workforce or change occupations. Throughout the program demand gap analysis, they represent the average number of projected openings between 2018 and 2028. Job openings are calculated for each occupation mapped to a program and are de-duplicated across programs mapped to the same occupation using Emsi's weighting methodology. For each award level, the number of openings is reported for that educational level and one education level below it.

Location Quotient (LQ) A comparative statistic used to calculate the relative employment concentration of an industry or occupation against the employment of the industry in a larger geographic region (i.e. a region's LQ relative to the U.S.). Industries with a higher location quotient (usually greater than 1.2) indicate that the smaller geographic region has a comparative advantage or specialization in the production of that good or service or has a high degree of specialization within its workforce.

NAICS The North American Industry Classification System (NAICS) organizes North American business establishments to better collect, analyze, and publish statistical data related to the business economy. NAICS is intended to classify an establishment's activity regardless of its ownership (public or private sector) or legal form of organization (proprietorship, partnership, corporation, for-profit, nonprofit, etc.). However, due to the realities of available data, Emsi treats establishments with public and private sector ownership differently. In Emsi data, all establishments in the main NAICS hierarchy are private sector only. Jobs in Educational Services and Ambulatory Health Care Service, for example, are not associated with local, state, or federal government jobs. Jobs for public school teachers and city firefighters are in Local Government, whereas college professors and forest firefighters are commonly employed by State Government. Mail carriers and transportation security screeners are examples of jobs in Federal Government. Thus, Emsi does not use the standard NAICS classification, which is similar to Current Employment Statistics (CES), Occupational Employment Statistics (OES), and BEA data sources.

New Program Additions New program additions are workforce gaps that exist for occupations the institution does not currently train for, based on the mapping of the institution's current programs. The award level recommended for the occupations is determined based by the level of education of workers currently employed in the occupation.

Program Completions For the program demand gap analysis, program completions are the average number of students, over a three-year period, who receive an award or degree for a program of study, as reported to IPEDS. An average over three years is used to control for upward or downward spikes in completions in any one year.

SOC The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of about 775 detailed occupations according to their occupational definition. To facilitate classification, detailed occupations are combined to form about 450 broad occupations, about 95 minor groups, and 23 major groups. Detailed occupations in the SOC with similar job duties, and in some cases skills, education, and/or training, are grouped together. There are a few minor differences between Emsi and standard SOC codes. Primarily, Emsi does not use detailed SOC codes for military occupations due to lack of good data and aggregates the occupations into one code, 55-9999. And, Emsi uses a single aggregate code (25-1099) for all postsecondary teachers due to lack of solid data and to remain consistent with the NIOEM, which uses a similar code. Emsi currently uses the OES's SOC 2017.

Staffing Patterns show the occupational makeup of an industry in percentages. For example, a simplified staffing pattern of the Hospitals industry subsector might show that 20% of its jobs are occupied by nurses, 15% by nursing assistants, 10% by general practitioners, 10% by surgeons, five percent by information technology support staff, five percent by janitors, one percent by chief executives, etc. Data are compiled from several sources, including Occupational Employment Statistics, NIOEM, and the American Community Survey. For the Self-Employed class of worker, the primary source is the American Community Survey with a small amount of information from Occupational Employment Statistics.

Surplus Represents an oversupply, or when there are more completers from regional educational institutions than there are job openings in a particular occupation. If left unaddressed, significant surpluses may lead to higher unemployment rates or higher attrition rates—the institution could be educating a workforce that is leaving the region after program completion because of a lack of job opportunities. In the tables, values in parentheses represent a surplus.

Transfer-Track degrees are not a formal award level according to IPEDS. They are associate degrees, as defined by IPEDS, that prepare students to pursue a baccalaureate degree, as opposed to a two-year terminal degree. Transfer-track degrees are usually awarded as Associate of Arts (AA) or Associate of Science (AS) degrees, compared to terminal associate

degrees, usually awarded as Associate of Applied Science (AAS) or Associate of Applied Arts (AAA) degrees.



APPENDIX 2: **About Emsi Data**

LABOR MARKET INFORMATION

Traditional labor market information (LMI) helps us to identify those occupations with good jobs and projected growth in the coming decade. This provides a robust, market-driven foundation upon which to build out programmatic recommendations. Emsi's data then allows us to map these occupations back to programs that train for them, and to extrapolate other occupational outcomes for potential graduates. Emsi data are used to calculate the projected number of annual job openings from 2018 to 2028. These projections account for openings due to job growth and openings due to replacement needs, such as when an employee retires or leaves the position. To capture a complete picture of industry employment, Emsi gathers and integrates economic, labor market, demographic, and educational data from over 40 government and private-sector sources. In doing so, Emsi creates a comprehensive and current database that includes both published data and detailed estimates, with full coverage of the U.S.

More specifically, Emsi combines covered employment data from the Quarterly Census of Employment and Wages (QCEW-produced by the Department of Labor) with total employment data in Regional Economic Information System (REIS-published by the BEA). The data are augmented with County Business Patterns (CBP) and Non-Employer Statistics (NES) published by the Census Bureau. Job projections are based on the latest-available Emsi industry data, 15-year past local trends in each industry, growth rates in statewide and, where available, sub-state area industry projections published by individual state agencies and, in part, growth rates in national projections from the Bureau of Labor Statistics (BLS).

Through this combination of data sources, Emsi is able to fill gaps in individual sources (such as suppressions), yielding a composite database that leverages the strengths of all its sources. Finally, Emsi's database is updated quarterly, providing the most up-to-date integrated information possible.

JOB POSTING ANALYTICS

Job postings are online advertisements for jobs, posted by companies trying to attract applicants. Analyzing job postings for information on the labor market can yield valuable insight, such as skills that employers are requesting, the companies that are posting jobs,

where those jobs are located, and greater specificity in job titles. In addition, job postings also have virtually no lag time, as they can be collected from sites soon after being posted. However, not all jobs are posted online, and in some cases, companies post far more positions than they intend to hire in an effort to cast a broad net for talent. Many factors can influence the number of postings that appear on the web for a particular job or company, including:

- Fluctuating prices of job postings;
- Building waiting lists of potential hires should positions become vacant;
- The hiring of new employees immediately or in six months;
- Postings left online after positions have been filled; and
- Duplicate postings for a given position.

It can be helpful to think of LMI as measuring the actions of all employers, whereas job postings analyses measure the intentions of those who post jobs. For postsecondary educational institutions, job postings indicate what is currently in demand across county or regional employers, including emerging needs. As such, job postings information can be used to help tailor program curricula so that graduates will be competitive in the job market. The sources collect about 100 million job postings per month from more than 90,000 companies. Emsi de-duplicates these postings down to approximately 8 million unique job postings per month. In the process, geographies are assigned to the postings as well as company names, job locations, skills, and so on.

Tables A2.1 to A2.3 show job postings for three occupations found throughout this report, selected because the occupations' titles are not helpful in a program's development. Note that the tables identify job postings using the SOC-O*NET¹⁴ system. LMI data are not available at the SOC-O*NET level, but Emsi's job posting database has the ability for such searches. The tables also include data on unique job postings and posting intensity. Posting intensity is the ratio between total and unique job postings and can be seen as an indication of the intensity or effort by the poster to advertise and fill the position in question. The largest job poster is also identified (for non-staffing companies), as well as the number of total and unique job postings by the company for the O*NET occupation. Job postings include advertisements in the Kingsborough Service Region from January 2019 to December 2019 using Emsi's Employees & Self-Employed 2019.4 data run.

14 O*NET refers to Occupational Information Network. Based on the SOC, the O*NET-SOC taxonomy currently includes 974 occupations, developed under the sponsorship of the U.S. Department of Labor's Employment & Training Administration through a grant to the North Carolina Department of Commerce.

Table A2.1: Job Postings in the U.S. for Computer Occupations, All Other

O*NET CODE	O*NET TITLE	UNIQUE POSTINGS	% TOTAL	POSTING INTENSITY	TOP COMPANY (TOTAL/UNIQUE)
15-1199.09	Information Technology Project Managers	5,289	39.9%	6:1	Kpmg LLP (1851/152)
15-1199.02	Computer Systems Engineers/Architects	4,713	35.6%	6:1	Amazon.com, Inc. (1567/233)
15-1199.01	Software Quality Assurance Engineers and Testers	2,429	18.3%	5:1	Kforce Inc. (519/62)
15-1199.08	Business Intelligence Analysts	338	2.6%	5:1	Verizon Communications Inc. (61/12)
15-1199.10	Search Marketing Strategists	321	2.4%	4:1	Freelancer (34/31)
15-1199.06	Database Architects	45	0.3%	7:1	Comrise Technology Inc. (9/2)
15-1199.12	Document Management Specialists	41	0.3%	3:1	Pacific Architects and Engineers Incorporated (10/6)
15-1199.05	Geographic Information Systems Technicians	32	0.2%	6:1	National Audubon Society, Inc. (53/4)
15-1199.03	Web Administrators	23	0.2%	2:1	It's Your Option Corp. (4/3)
15-1199.04	Geospatial Information Scientists and Technologists	15	0.1%	6:1	Army National Guard (56/6)
15-1199.11	Video Game Designers	4	<0.1%	2:1	Two95 International Inc. (3/2)
15-1199.00	Computer Occupations, All Other	1	<0.1%	2:1	Human Edge Inc (3/1)

Source: Emsi Job Posting Analytics January 2019 to December 2019. National Center for O*NET Development, O*NET OnLine.

Table A2.2: Job Postings in the U.S. for Managers, All Other

O*NET CODE	O*NET TITLE	UNIQUE POSTINGS	% TOTAL	POSTING INTENSITY	TOP COMPANY (TOTAL/UNIQUE)
11-9199.00	Managers, All Other	7,417	80.3%	4:1	Creative Circle LLC (872/140)
11-9199.02	Compliance Managers	998	10.8%	6:1	Goldman Sachs (221/42)
11-9199.04	Supply Chain Managers	432	4.7%	5:1	Deloitte LLP (530/40)
11-9199.01	Regulatory Affairs Managers	226	2.4%	3:1	Sterling Life Sciences LLC (90/39)
11-9199.03	Investment Fund Managers	60	0.6%	6:1	Jennings (29/7)
11-9199.07	Security Managers	55	0.6%	4:1	NewYork-Presbyterian Hospital (22/5)
11-9199.08	Loss Prevention Managers	29	0.3%	3:1	Gap Inc. (12/5)
11-9199.10	Wind Energy Project Managers	20	0.2%	2:1	Simi Energy Corp. (11/5)

Source: Emsi Job Posting Analytics January 2019 to December 2019. National Center for O*NET Development, O*NET OnLine.

Table A2.3: Job Postings in the U.S. for Business Operations Specialists, All Other

O*NET CODE	O*NET TITLE	UNIQUE POSTINGS	% TOTAL	POSTING INTENSITY	TOP COMPANY (TOTAL/UNIQUE)
13-1199.00	Business Operations Specialists, All Other	5,225	94.9%	4:1	United Nations (528/295)
13-1199.06	Online Merchants	80	1.5%	3:1	Kpmg LLP (39/4)
13-1199.04	Business Continuity Planners	78	1.4%	7:1	The Bank of New York Mellon Corporation (136/12)
13-1199.01	Energy Auditors	43	0.8%	4:1	TRC Companies, Inc. (9/5)
13-1199.03	Customs Brokers	37	0.7%	3:1	Livingston International, Inc. (7/3)
13-1199.05	Sustainability Specialists	36	0.7%	4:1	Tetra Tech, Inc. (22/4)
13-1199.02	Security Management Specialists	8	0.1%	4:1	The Home Depot (2/2)

Source: Emsi Job Posting Analytics January 2019 to December 2019. National Center for O*NET Development, O*NET OnLine.



APPENDIX 3: Economic Overview Tables

INDUSTRY COMPOSITION

Table A3.1: Current and Projected Jobs by Industry Subsector in the Kingsborough Service Region, 2018 and 2028

NAICS CODE	NAICS TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE
541	Professional, Scientific, & Technical Services	413,377	456,976	43,599	10.5%
903	Local Government	311,482	280,348	(31,134)	(10.0%)
722	Food Services & Drinking Places	244,748	289,116	44,368	18.1%
621	Ambulatory Health Care Services	216,856	331,893	115,037	53.0%
561	Administrative & Support Services	216,364	259,696	43,333	20.0%
611	Educational Services	190,305	228,662	38,357	20.2%
523	Securities, Commodity Contracts, & Other Financial Investments & Related Activities	180,311	195,799	15,488	8.6%
624	Social Assistance	139,846	160,749	20,903	14.9%
531	Real Estate	108,144	116,516	8,372	7.7%
622	Hospitals	106,899	114,357	7,458	7.0%
522	Credit Intermediation & Related Activities	84,127	93,002	8,875	10.5%
813	Religious, Grantmaking, Civic, Professional, & Similar Organizations	78,600	86,568	7,968	10.1%
551	Management of Companies & Enterprises	66,712	70,718	4,006	6.0%
711	Performing Arts, Spectator Sports, & Related Industries	62,996	69,417	6,421	10.2%
448	Clothing & Clothing Accessories Stores	59,117	55,303	(3,815)	(6.5%)
238	Specialty Trade Contractors	55,894	64,521	8,627	15.4%
524	Insurance Carriers & Related Activities	55,502	53,830	(1,672)	(3.0%)
512	Motion Picture & Sound Recording Industries	54,637	69,396	14,759	27.0%
424	Merchant Wholesalers, Nondurable Goods	52,532	50,414	(2,119)	(4.0%)
812	Personal & Laundry Services	51,326	59,084	7,758	15.1%
445	Food & Beverage Stores	50,813	54,841	4,028	7.9%
721	Accommodation	48,351	52,242	3,890	8.0%
519	Other Information Services	45,837	69,359	23,521	51.3%
511	Publishing Industries (except Internet)	44,559	43,379	(1,180)	(2.6%)

NAICS CODE	NAICS TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE
814	Private Households	43,266	46,629	3,363	7.8%
423	Merchant Wholesalers, Durable Goods	39,320	38,934	(385)	(1.0%)
901	Federal Government	36,882	35,143	(1,739)	(4.7%)
623	Nursing & Residential Care Facilities	34,731	36,943	2,212	6.4%
236	Construction of Buildings	33,876	40,258	6,383	18.8%
446	Health & Personal Care Stores	30,320	34,852	4,531	14.9%
485	Transit & Ground Passenger Transportation	30,304	35,100	4,796	15.8%
515	Broadcasting (except Internet)	28,500	31,123	2,623	9.2%
713	Amusement, Gambling, & Recreation Industries	27,600	32,640	5,040	18.3%
452	General Merchandise Stores	27,144	30,728	3,584	13.2%
902	State Government	25,363	22,676	(2,687)	(10.6%)
453	Miscellaneous Store Retailers	17,782	18,677	896	5.0%
454	Nonstore Retailers	14,439	18,430	3,991	27.6%
443	Electronics & Appliance Stores	12,904	11,748	(1,156)	(9.0%)
517	Telecommunications	12,792	9,799	(2,993)	(23.4%)
492	Couriers & Messengers	11,648	11,244	(404)	(3.5%)
712	Museums, Historical Sites, & Similar Institutions	11,439	13,470	2,031	17.8%
311	Food Manufacturing	11,073	10,778	(295)	(2.7%)
221	Utilities	9,972	11,154	1,182	11.9%
315	Apparel Manufacturing	9,814	4,840	(4,974)	(50.7%)
518	Data Processing, Hosting, & Related Services	9,734	12,891	3,157	32.4%
442	Furniture & Home Furnishings Stores	8,182	8,064	(118)	(1.4%)
444	Building Material & Garden Equipment & Supplies Dealers	8,012	8,408	396	4.9%
811	Repair & Maintenance	7,851	6,896	(955)	(12.2%)
451	Sporting Goods, Hobby, Musical Instrument, & Book Stores	7,541	6,711	(831)	(11.0%)
425	Wholesale Electronic Markets & Agents & Brokers	6,970	4,323	(2,647)	(38.0%)
339	Miscellaneous Manufacturing	5,971	3,892	(2,079)	(34.8%)
532	Rental & Leasing Services	4,942	5,332	390	7.9%
441	Motor Vehicle & Parts Dealers	4,888	5,418	530	10.9%
484	Truck Transportation	4,721	4,599	(122)	(2.6%)
488	Support Activities for Transportation	4,187	4,330	143	3.4%



NAICS CODE	NAICS TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE
237	Heavy & Civil Engineering Construction	3,885	4,563	678	17.5%
323	Printing & Related Support Activities	3,636	2,046	(1,590)	(43.7%)
334	Computer & Electronic Product Manufacturing	3,086	4,142	1,056	34.2%
521	Monetary Authorities-Central Bank	2,703	2,481	-221	0
332	Fabricated Metal Product Manufacturing	2,688	2,481	(207)	(7.7%)
493	Warehousing & Storage	2,138	2,817	679	31.7%
487	Scenic & Sightseeing Transportation	1,936	2,104	168	8.7%
562	Waste Management & Remediation Services	1,893	1,921	27	1.4%
533	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	1,879	1,836	(43)	(2.3%)
337	Furniture & Related Product Manufacturing	1,875	1,759	(116)	(6.2%)
447	Gasoline Stations	1,370	1,446	76	5.6%
482	Rail Transportation	1,298	1,472	174	13.4%
525	Funds, Trusts, & Other Financial Vehicles	1,254	1,260	6	0.5%
325	Chemical Manufacturing	1,132	1,112	(19)	(1.7%)
481	Air Transportation	1,086	882	(204)	(18.8%)
312	Beverage & Tobacco Product Manufacturing	813	978	165	20.3%
327	Nonmetallic Mineral Product Manufacturing	758	852	94	12.4%
335	Electrical Equipment, Appliance, & Component Manufacturing	714	833	119	16.7%
313	Textile Mills	677	160	(516)	(76.3%)
322	Paper Manufacturing	672	565	(107)	(15.9%)
314	Textile Product Mills	615	393	(222)	(36.2%)
326	Plastics & Rubber Products Manufacturing	605	506	(99)	(16.4%)
321	Wood Product Manufacturing	441	350	(91)	(20.6%)
333	Machinery Manufacturing	414	486	72	17.4%
483	Water Transportation	320	342	22	0
111	Crop Production	274	440	165	60.3%
316	Leather & Allied Product Manufacturing	270	82	(188)	(69.7%)
331	Primary Metal Manufacturing	210	227	17	8.0%
115	Support Activities for Agriculture & Forestry	171	200	29	17.2%
336	Transportation Equipment Manufacturing	137	155	18	13.3%
213	Support Activities for Mining	29	52	23	78.7%



NAICS CODE	NAICS TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE
114	Fishing, Hunting & Trapping	28	33	5	17.5%
112	Animal Production & Aquaculture	26	15	(10)	(39.7%)
113	Forestry & Logging	23	26	3	14.5%
486	Pipeline Transportation	17	26	9	50.8%
491	Postal Service	11	14	3	26.6%
211	Oil & Gas Extraction	5	3	-3	0
212	Mining (except Oil & Gas)	4	2	(2)	(55.1%)
324	Petroleum & Coal Products Manufacturing	1	2	0	17.3%
Total		3,520,597	3,931,280	410,682	3.6%

Source: Employees & Self-Employed 2019.4.

Table A3.2: Employment Concentration (LQ) by Industry Subsector in the Kingsborough Service Region, 2018 and 2028

NAICS CODE	NAICS TITLE	2018 LQ	2028 LQ
523	Securities, Commodity Contracts, & Other Financial Investments & Related Activities	8.20	7.85
519	Other Information Services	6.41	6.72
521	Monetary Authorities-Central Bank	6.38	6.31
512	Motion Picture & Sound Recording Industries	4.96	5.44
515	Broadcasting (except Internet)	4.77	5.41
525	Funds, Trusts, & Other Financial Vehicles	3.84	3.18
533	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	3.75	3.46
315	Apparel Manufacturing	3.62	2.34
711	Performing Arts, Spectator Sports, & Related Industries	3.42	3.37
712	Museums, Historical Sites, & Similar Institutions	3.06	2.99
511	Publishing Industries (except Internet)	2.70	2.53
487	Scenic & Sightseeing Transportation	2.42	2.19
531	Real Estate	2.32	2.26
814	Private Households	2.30	2.36
611	Educational Services	2.10	2.14
485	Transit & Ground Passenger Transportation	2.01	1.97
448	Clothing & Clothing Accessories Stores	1.94	1.90

NAICS CODE	NAICS TITLE	2018 LQ	2028 LQ
541	Professional, Scientific, & Technical Services	1.78	1.69
522	Credit Intermediation & Related Activities	1.47	1.52
624	Social Assistance	1.46	1.34
518	Data Processing, Hosting, & Related Services	1.32	1.47
551	Management of Companies & Enterprises	1.31	1.24
446	Health & Personal Care Stores	1.30	1.35
621	Ambulatory Health Care Services	1.27	1.51
813	Religious, Grantmaking, Civic, Professional, & Similar Organizations	1.23	1.23
443	Electronics & Appliance Stores	1.18	1.17
721	Accommodation	1.10	1.10
424	Merchant Wholesalers, Nondurable Goods	1.10	0.97
812	Personal & Laundry Services	1.08	1.09
561	Administrative & Support Services	1.03	1.09
903	Local Government	1.01	0.84
622	Hospitals	0.98	0.94
722	Food Services & Drinking Places	0.94	0.98
454	Nonstore Retailers	0.92	1.02
524	Insurance Carriers & Related Activities	0.90	0.79
453	Miscellaneous Store Retailers	0.85	0.85
221	Utilities	0.83	0.86
517	Telecommunications	0.79	0.66
445	Food & Beverage Stores	0.75	0.78
442	Furniture & Home Furnishings Stores	0.75	0.73
236	Construction of Buildings	0.73	0.76
713	Amusement, Gambling, & Recreation Industries	0.70	0.73
492	Couriers & Messengers	0.69	0.58
451	Sporting Goods, Hobby, Musical Instrument, & Book Stores	0.58	0.47
425	Wholesale Electronic Markets & Agents & Brokers	0.58	0.37
423	Merchant Wholesalers, Durable Goods	0.56	0.51
623	Nursing & Residential Care Facilities	0.48	0.44
238	Specialty Trade Contractors	0.44	0.45



NAICS CODE	NAICS TITLE	2018 LQ	2028 LQ
339	Miscellaneous Manufacturing	0.42	0.26
452	General Merchandise Stores	0.41	0.44
316	Leather & Allied Product Manufacturing	0.41	0.12
532	Rental & Leasing Services	0.40	0.39
323	Printing & Related Support Activities	0.38	0.24
901	Federal Government	0.36	0.33
311	Food Manufacturing	0.31	0.28
444	Building Material & Garden Equipment & Supplies Dealers	0.28	0.27
313	Textile Mills	0.28	0.07
482	Rail Transportation	0.27	0.30
488	Support Activities for Transportation	0.25	0.22
314	Textile Product Mills	0.23	0.16
483	Water Transportation	0.22	0.21
902	State Government	0.22	0.18
337	Furniture & Related Product Manufacturing	0.21	0.19
811	Repair & Maintenance	0.21	0.17
562	Waste Management & Remediation Services	0.19	0.16
237	Heavy & Civil Engineering Construction	0.16	0.16
334	Computer & Electronic Product Manufacturing	0.13	0.18
312	Beverage & Tobacco Product Manufacturing	0.13	0.14
484	Truck Transportation	0.13	0.11
441	Motor Vehicle & Parts Dealers	0.11	0.11
481	Air Transportation	0.10	0.07
493	Warehousing & Storage	0.09	0.09
322	Paper Manufacturing	0.09	0.07
327	Nonmetallic Mineral Product Manufacturing	0.08	0.09
335	Electrical Equipment, Appliance, & Component Manufacturing	0.08	0.09
332	Fabricated Metal Product Manufacturing	0.08	0.07
447	Gasoline Stations	0.07	0.07
325	Chemical Manufacturing	0.06	0.06
321	Wood Product Manufacturing	0.05	0.04



NAICS CODE	NAICS TITLE	2018 LQ	2028 LQ
114	Fishing, Hunting & Trapping	0.04	0.05
491	Postal Service	0.04	0.04
326	Plastics & Rubber Products Manufacturing	0.04	0.03
331	Primary Metal Manufacturing	0.03	0.03
111	Crop Production	0.02	0.02
333	Machinery Manufacturing	0.02	0.02
486	Pipeline Transportation	0.02	0.02
113	Forestry & Logging	0.01	0.02
115	Support Activities for Agriculture & Forestry	0.01	0.01
213	Support Activities for Mining	0.00	0.01
112	Animal Production & Aquaculture	0.00	0.00
211	Oil & Gas Extraction	0.00	0.00
212	Mining (except Oil & Gas)	0.00	0.00
324	Petroleum & Coal Products Manufacturing	0.00	0.00
336	Transportation Equipment Manufacturing	0.00	0.00

Source: Employees & Self-Employed 2019.4.

INDUSTRY STAFFING PATTERNS

The following tables show the staffing patterns of the industry subsectors discussed in Chapter 2. The Entry Ed Level Column describes the typical award level required for an entry level position in the occupation. “None” or “<HS/GED” indicates that the occupation typically requires no formal educational credential; “HS/GED” refers to a high school diploma or its equivalent, a General Equivalency Development or General Equivalency Diploma test; “Cert” refers to a postsecondary nondegree award or some college education with no degree; and “Doctoral” refers to a doctoral or professional degree level of education. The other education classifications are straightforward.

Table A3.3: Employment Projections in the Kingsborough Service Region for the Top 25 Occupations Related to the Educational Services Industry Subsector

SOC TITLE	2018 JOBS	2028 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Postsecondary Teachers	36,858	46,417	5,579	19.4%	\$45.91	BACH

SOC TITLE	2018 JOBS	2028 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	9,644	9,909	7,778	5.1%	\$20.77	CERT
Self-Enrichment Education Teachers	9,612	11,422	2,000	5.1%	\$25.45	CERT
Office Clerks, General	8,625	9,259	9,775	4.5%	\$17.32	CERT
Teacher Assistants	7,632	9,352	3,792	4.0%	\$16.18	CERT
Elementary School Teachers, Except Special Education	6,803	8,636	1,934	3.6%	\$40.28	BACH
Secondary School Teachers, Except Special and Career/Technical Education	6,091	7,662	1,571	3.2%	\$41.20	BACH
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	5,705	6,631	9,791	3.0%	\$17.13	HS/GED
Teachers and Instructors, All Other	5,315	6,636	1,163	2.8%	\$22.43	CERT
Education Administrators, Postsecondary	3,806	4,689	481	2.0%	\$56.22	BACH
Middle School Teachers, Except Special and Career/Technical Education	3,527	4,433	943	1.9%	\$40.23	BACH
Educational, Guidance, School, and Vocational Counselors	3,476	4,507	967	1.8%	\$33.54	MAST
Executive Secretaries and Executive Administrative Assistants	3,294	3,108	4,452	1.7%	\$37.62	CERT
Security Guards	2,339	2,579	8,825	1.2%	\$16.74	CERT
Education Administrators, Elementary and Secondary School	2,250	2,794	536	1.2%	\$64.94	BACH
Coaches and Scouts	2,217	3,041	703	1.2%	\$23.20	CERT
Maintenance and Repair Workers, General	2,137	2,511	4,848	1.1%	\$23.33	HS/GED
Instructional Coordinators	1,969	2,461	511	1.0%	\$35.10	BACH
Computer User Support Specialists	1,966	2,261	1,992	1.0%	\$30.60	BACH
General and Operations Managers	1,721	2,089	6,365	0.9%	\$71.79	BACH
Bookkeeping, Accounting, and Auditing Clerks	1,700	1,843	4,590	0.9%	\$24.25	CERT
Receptionists and Information Clerks	1,657	1,786	4,450	0.9%	\$17.61	CERT
Substitute Teachers	1,654	2,092	946	0.9%	\$19.03	CERT
First-Line Supervisors of Office and Administrative Support Workers	1,481	1,728	4,371	0.8%	\$35.54	CERT
Office and Administrative Support Workers, All Other	1,388	1,587	1,054	0.7%	\$13.93	BACH

Source: Employees & Self-Employed 2019.4.



Table A3.4: Employment Projections in the Kingsborough Service Region for the Top 25 Occupations Related to the Securities, Commodity Contracts, & Other Financial Investments and Related Activities Industry Subsector

SOC TITLE	2018 JOBS	2028 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Securities, Commodities, and Financial Services Sales Agents	42,122	46,223	5,792	23.4%	\$72.46	BACH
Personal Financial Advisors	22,265	25,018	2,181	12.3%	\$69.09	BACH
Financial Analysts	22,014	23,413	3,470	12.2%	\$57.72	BACH
Executive Secretaries and Executive Administrative Assistants	9,745	9,130	4,452	5.4%	\$37.62	CERT
Financial Managers	6,245	7,410	2,368	3.5%	\$106.53	BACH
Accountants and Auditors	6,111	6,521	5,733	3.4%	\$46.63	BACH
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	6,003	6,107	7,778	3.3%	\$20.77	CERT
Office Clerks, General	5,912	6,210	9,775	3.3%	\$17.32	CERT
General and Operations Managers	4,710	5,574	6,365	2.6%	\$71.79	BACH
Customer Service Representatives	4,566	4,817	7,825	2.5%	\$20.68	CERT
Brokerage Clerks	3,951	4,368	485	2.2%	\$33.15	BACH
Market Research Analysts and Marketing Specialists	3,227	3,827	4,765	1.8%	\$38.15	BACH
First-Line Supervisors of Office and Administrative Support Workers	3,007	3,130	4,371	1.7%	\$35.54	CERT
Financial Examiners	2,622	2,887	524	1.5%	\$56.18	BACH
Management Analysts	2,451	2,439	2,812	1.4%	\$52.84	BACH
Bookkeeping, Accounting, and Auditing Clerks	2,415	2,524	4,590	1.3%	\$24.25	CERT
Software Developers, Applications	2,363	2,591	3,263	1.3%	\$62.00	BACH
First-Line Supervisors of Non-Retail Sales Workers	1,862	2,041	1,083	1.0%	\$48.24	BACH
Computer Systems Analysts	1,518	1,620	1,629	0.8%	\$55.30	BACH
Lawyers	1,340	1,522	2,275	0.7%	\$79.10	PHD
Compliance Officers	1,282	1,473	705	0.7%	\$40.29	BACH
Sales Managers	1,274	1,406	1,063	0.7%	\$97.53	BACH
Credit Analysts	1,230	1,339	393	0.7%	\$55.59	BACH
Computer and Information Systems Managers	1,065	1,211	1,344	0.6%	\$96.08	BACH
Receptionists and Information Clerks	1,035	1,078	4,450	0.6%	\$17.61	CERT

Source: Employees & Self-Employed 2019.4.

Table A3.5: Employment Projections in the Kingsborough Service Region for the Top 25 Occupations Related to the Real Estate Industry Subsector

SOC TITLE	2018 JOBS	2028 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Maintenance and Repair Workers, General	21,813	23,978	4,848	20.2%	\$23.33	HS/GED
Real Estate Sales Agents	7,367	7,992	806	6.8%	\$38.86	BACH
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	7,219	7,869	9,791	6.7%	\$17.13	HS/GED
Office Clerks, General	6,819	6,993	9,775	6.3%	\$17.32	CERT
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	6,649	6,513	7,778	6.1%	\$20.77	CERT
Property, Real Estate, and Community Association Managers	5,743	6,478	606	5.3%	\$47.74	BACH
Counter and Rental Clerks	4,721	5,289	1,035	4.4%	\$14.32	CERT
Bookkeeping, Accounting, and Auditing Clerks	3,486	3,559	4,590	3.2%	\$24.25	CERT
General and Operations Managers	3,244	3,560	6,365	3.0%	\$71.79	BACH
Accountants and Auditors	2,933	3,214	5,733	2.7%	\$46.63	BACH
Security Guards	2,797	2,917	8,825	2.6%	\$16.74	CERT
Receptionists and Information Clerks	2,297	2,342	4,450	2.1%	\$17.61	CERT
Real Estate Brokers	2,248	2,452	243	2.1%	\$37.22	BACH
First-Line Supervisors of Mechanics, Installers, and Repairers	1,894	2,090	616	1.8%	\$41.63	CERT
Executive Secretaries and Executive Administrative Assistants	1,723	1,515	4,452	1.6%	\$37.62	CERT
Market Research Analysts and Marketing Specialists	1,637	1,911	4,765	1.5%	\$38.15	BACH
Landscaping and Groundskeeping Workers	1,544	1,724	1,194	1.4%	\$17.38	NONE
First-Line Supervisors of Office and Administrative Support Workers	1,516	1,544	4,371	1.4%	\$35.54	CERT
Maids and Housekeeping Cleaners	1,454	1,607	5,701	1.3%	\$15.47	HS/GED
Concierges	1,221	1,313	532	1.1%	\$22.95	CERT
Customer Service Representatives	1,169	1,267	7,825	1.1%	\$20.68	CERT
Financial Analysts	893	959	3,470	0.8%	\$57.72	BACH
Appraisers and Assessors of Real Estate	870	924	96	0.8%	\$34.59	BACH
Financial Managers	785	921	2,368	0.7%	\$106.53	BACH
Sales Representatives, Services, All Other	626	687	5,124	0.6%	\$35.34	BACH

Source: Employees & Self-Employed 2019.4.

Table A3.6: Employment Projections in the Kingsborough Service Region for the Top 25 Occupations Related to the Performing Arts, Spectator Sports, & Related Industries Industry Subsector

SOC TITLE	2018 JOBS	2028 JOBS	JOB OPENINGS	% JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	ENTRY ED LEVEL
Musicians and Singers	6,304	6,088	848	10.0%	\$31.73	BACH
Ushers, Lobby Attendants, and Ticket Takers	4,653	5,591	2,144	7.4%	\$13.77	CERT
Writers and Authors	4,488	4,774	1,030	7.1%	\$35.49	BACH
Agents and Business Managers of Artists, Performers, and Athletes	2,994	3,055	414	4.8%	\$37.98	BACH
Actors	2,759	3,230	845	4.4%	\$25.97	BACH
Fine Artists, Including Painters, Sculptors, and Illustrators	2,463	2,550	287	3.9%	\$18.47	BACH
Laborers and Freight, Stock, and Material Movers, Hand	2,105	2,596	6,284	3.3%	\$15.88	HS/GED
Producers and Directors	2,076	2,304	2,667	3.3%	\$47.76	BACH
Security Guards	1,999	2,304	8,825	3.2%	\$16.74	CERT
Self-Enrichment Education Teachers	1,351	1,451	2,000	2.1%	\$25.45	CERT
Craft Artists	1,241	1,321	122	2.0%	\$8.97	BACH
General and Operations Managers	1,106	1,274	6,365	1.8%	\$71.79	BACH
Audio and Video Equipment Technicians	1,088	1,324	678	1.7%	\$27.38	CERT
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	1,083	1,285	9,791	1.7%	\$17.13	HS/GED
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1,024	1,008	7,778	1.6%	\$20.77	CERT
Art Directors	991	1,116	670	1.6%	\$51.94	BACH
Entertainers and Performers, Sports and Related Workers, All Other	916	949	182	1.5%	\$23.58	CERT
Music Directors and Composers	863	868	198	1.4%	\$27.29	BACH
Cashiers	787	929	9,660	1.2%	\$13.91	HS/GED
Office Clerks, General	786	821	9,775	1.2%	\$17.32	CERT
Photographers	769	708	434	1.2%	\$23.38	BACH
Meeting, Convention, and Event Planners	757	931	775	1.2%	\$33.17	BACH
Waiters and Waitresses	756	943	14,090	1.2%	\$15.27	CERT
Dancers	736	578	149	1.2%	\$19.23	HS/GED
Market Research Analysts and Marketing Specialists	724	895	4,765	1.1%	\$38.15	BACH

Source: Employees & Self-Employed 2019.4.

WORKFORCE COMMUTING PATTERNS

Table A3.7: Kingsborough Service Region Job Inflow and Outflow

COMMUTING PATTERN	JOBS	COMMUTE SHARE
EMPLOYMENT PATTERNS		
Employed in the Kingsborough Service Region	3,031,242	100%
Employed in the Kingsborough Service Region but living outside	1,678,694	55%
Employed and living in the Kingsborough Service Region	1,352,548	45%
RESIDENTIAL PATTERNS		
Living in the Kingsborough Service Region	1,766,189	100%
Living in the Kingsborough Service Region but employed outside	413,641	23%
Living and employed in the Kingsborough Service Region	1,352,548	77%

Source: Census Bureau, Center for Economic Studies.

EDUCATIONAL ATTAINMENT

Table A3.8: Highest Educational Attainments of Adults in the Kingsborough Service Region

EDUCATION LEVEL	2013 ADULTS	2013 % ADULTS	2018 ADULTS	2018 % ADULTS	CHANGE
Less than high school diploma or equivalent	515,568	17%	545,727	18%	30,159
High school diploma or equivalent	615,627	21%	628,597	21%	12,970
Some college	368,993	12%	365,307	12%	(3,686)
Associate degree	156,169	5%	157,643	5%	1,473
Bachelor's degree	750,052	25%	751,423	25%	1,371
Graduate degree or higher	588,239	20%	593,561	20%	5,322
Total	2,994,649	100%	3,042,256	100%	47,608

Source: Emsi demographics data and U.S. Census Bureau, 2017 American Community Survey.

Table A3.9: Highest Educational Attainments of Adults in the Kingsborough Service Region by Gender

EDUCATION LEVEL	ADULT MALES	% ADULT MALES	ADULT FEMALES	% ADULT FEMALES
Less than high school diploma or equivalent	254,182	18%	291,545	18%
High school diploma or equivalent	296,151	21%	332,446	20%
Some college	175,053	12%	190,254	12%

Associate degree	64,043	5%	93,600	6%
Bachelor's degree	352,090	25%	399,333	25%
Graduate degree and higher	273,237	19%	320,324	20%
Total	1,414,756	100%	1,627,501	100%

Source: Emsi demographics data and U.S. Census Bureau, 2017 American Community Survey.

Table A3.10: Highest Educational Attainments of Adults in the Kingsborough Service Region by Major Race and Ethnic Groups

GROUP		<HS	HS	SOME COLLEGE	ASSOC	BACH	>BACH
White, non-Hispanic	Adults	78,252	175,232	120,013	52,985	455,080	403,069
	% Adults	6%	14%	9%	4%	35%	31%
Black, non-Hispanic	Adults	123,560	225,533	127,513	53,788	104,342	60,173
	% Adults	18%	32%	18%	8%	15%	9%
American Indian or Alaskan native, non-Hispanic	Adults	1,735	1,054	657	464	506	453
	% Adults	36%	22%	13%	10%	10%	9%
Asian, non-Hispanic	Adults	118,420	62,099	24,700	14,434	106,426	70,841
	% Adults	30%	16%	6%	4%	27%	18%
Native Hawaiian or Pacific Islander, non-Hispanic	Adults	300	198	120	66	207	150
	% Adults	29%	19%	12%	6%	20%	14%
Two or more races, non-Hispanic	Adults	8,195	7,830	6,554	2,641	11,283	7,489
	% Adults	19%	18%	15%	6%	26%	17%
Hispanic, all types	Adults	215,265	156,652	85,750	33,265	73,579	51,384
	% Adults	35%	25%	14%	5%	12%	8%

Source: Emsi demographics data and U.S. Census Bureau, 2017 American Community Survey.



APPENDIX 4: Program to Occupation Map

Table A4.1 displays the crosswalk between educational programs (CIP codes) and occupations (SOC codes) that Emsi uses to complete the program demand gap analysis. Also listed are the adjustment factors which are applied to the annual job openings for each occupation in each program, described in Appendix 5. Table A4.2 follows, which is the non-credit program to occupation map.

Table A4.1: Program to Occupation Map with Employment Adjustment Factors

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
09.0401	Journalism	27-2012	Producers & Directors	19	18	71
		27-3011	Radio & Television Announcers	54	45	37
		27-3021	Broadcast News Analysts	16	16	68
		27-3022	Reporters & Correspondents	16	16	68
		27-3041	Editors	18	18	66
		27-3042	Technical Writers	18	19	62
		27-3043	Writers & Authors	17	17	60
		27-4013	Radio Operators	56	47	40
		27-4021	Photographers	46	40	47
		27-4032	Film & Video Editors	31	30	62
10.0202	Radio & Television Broadcasting Technology/Technician	25-9011	Audio-Visual & Multimedia Collections Specialists	31	28	42
		27-2012	Producers & Directors	19	18	71
		27-4011	Audio & Video Equipment Technicians	56	47	40
		27-4012	Broadcast Technicians	56	47	40
		27-4013	Radio Operators	56	47	40
		27-4031	Camera Operators, Television, Video, & Motion Picture	31	30	62
11.0301	Data Processing & Data Processing Technology/Technician	15-1141	Database Administrators	15	16	59
		15-1199	Computer Occupations, All Other	36	41	52

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		43-9011	Computer Operators	55	47	38
		43-9021	Data Entry Keyers	62	50	33
11.0701	Computer Science	11-3021	Computer & Information Systems Managers	20	22	60
		15-1111	Computer & Information Research Scientists	11	6	46
		15-1121	Computer Systems Analysts	13	15	64
		15-1122	Information Security Analysts	25	29	56
		15-1131	Computer Programmers	20	22	61
		15-1132	Software Developers, Applications	9	11	60
		15-1133	Software Developers, Systems Software	9	11	60
		15-1134	Web Developers	25	27	65
		15-1141	Database Administrators	15	16	59
		15-1142	Network & Computer Systems Administrators	30	37	59
		15-1143	Computer Network Architects	26	36	59
		15-1151	Computer User Support Specialists	45	47	48
		15-1152	Computer Network Support Specialists	45	47	48
		15-1199	Computer Occupations, All Other	36	41	52
		15-2041	Statisticians	7	8	46
		17-2061	Computer Hardware Engineers	16	17	56
		43-9011	Computer Operators	55	47	38
11.1004	Web/Multimedia Management & Webmaster	15-1134	Web Developers	25	27	65
		15-1141	Database Administrators	15	16	59
		15-1199	Computer Occupations, All Other	36	41	52
12.0500	Cooking & Related Culinary Arts, General	11-9051	Food Service Managers	64	44	25
		35-1011	Chefs & Head Cooks	56	47	29

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		35-1012	First-Line Supervisors of Food Preparation & Serving Workers	70	46	18
		35-2011	Cooks, Fast Food	64	31	8
		35-2012	Cooks, Institution & Cafeteria	64	31	8
		35-2013	Cooks, Private Household	64	31	8
		35-2014	Cooks, Restaurant	64	31	8
		35-2015	Cooks, Short Order	64	31	8
		35-2019	Cooks, All Other	64	31	8
		35-2021	Food Preparation Workers	67	40	11
		35-3011	Bartenders	65	54	29
		35-3021	Combined Food Preparation & Serving Workers, Including Fast Food	74	37	8
		35-3022	Counter Attendants, Cafeteria, Food Concession, & Coffee Shop	70	31	6
		35-3031	Waiters & Waitresses	70	49	18
		35-3041	Food Servers, Nonrestaurant	74	45	13
		51-3011	Bakers	63	41	19
		51-3021	Butchers & Meat Cutters	61	29	8
12.0504	Restaurant, Culinary, & Catering Management/Manager	11-9051	Food Service Managers	64	44	25
		35-1011	Chefs & Head Cooks	56	47	29
		35-1012	First-Line Supervisors of Food Preparation & Serving Workers	70	46	18
		35-2013	Cooks, Private Household	64	31	8
13.1501	Teacher Assistant/Aide	25-3097	Teachers & Instructors, All Other	52	43	36
		25-9041	Teacher Assistants	60	45	32
14.0101	Engineering, General	11-9041	Architectural & Engineering Managers	7	7	57
		17-2011	Aerospace Engineers	8	8	61



CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		17-2021	Agricultural Engineers	4	8	64
		17-2031	Biomedical Engineers	4	8	64
		17-2041	Chemical Engineers	11	10	68
		17-2051	Civil Engineers	11	11	66
		17-2061	Computer Hardware Engineers	16	17	56
		17-2071	Electrical Engineers	10	12	59
		17-2072	Electronics Engineers, Except Computer	10	12	59
		17-2081	Environmental Engineers	10	8	62
		17-2111	Health & Safety Engineers, Except Mining Safety Engineers & Inspectors	13	13	70
		17-2112	Industrial Engineers	13	13	70
		17-2121	Marine Engineers & Naval Architects	13	14	70
		17-2131	Materials Engineers	10	11	67
		17-2141	Mechanical Engineers	11	13	69
		17-2151	Mining & Geological Engineers, Including Mining Safety Engineers	9	7	68
		17-2161	Nuclear Engineers	10	11	62
		17-2171	Petroleum Engineers	9	7	68
		17-2199	Engineers, All Other	10	11	62
23.1304	Rhetoric & Composition	27-3041	Editors	18	18	66
		27-3043	Writers & Authors	17	17	60
26.0101	Biology/Biological Sciences, General	11-9121	Natural Sciences Managers	2	3	52
		15-2041	Statisticians	7	8	46
		19-1011	Animal Scientists	9	12	62
		19-1013	Soil & Plant Scientists	9	12	62
		19-1021	Biochemists & Biophysicists	1	2	61
		19-1022	Microbiologists	1	2	61
		19-1023	Zoologists & Wildlife	1	2	61

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Biologists			
		19-1029	Biological Scientists, All Other	1	2	61
		19-1041	Epidemiologists	1	2	20
		19-1042	Medical Scientists, Except Epidemiologists	1	2	20
		19-1099	Life Scientists, All Other	1	2	20
		19-4021	Biological Technicians	33	32	54
		19-4091	Environmental Science & Protection Technicians, Including Health	45	41	44
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	57
26.1201	Biotechnology	11-3051	Industrial Production Managers	38	28	48
		11-9041	Architectural & Engineering Managers	7	7	57
		11-9121	Natural Sciences Managers	2	3	52
		15-2041	Statisticians	7	8	46
		17-2031	Biomedical Engineers	4	8	64
		17-2199	Engineers, All Other	10	11	62
		19-1021	Biochemists & Biophysicists	1	2	61
		19-1022	Microbiologists	1	2	61
		19-1023	Zoologists & Wildlife Biologists	1	2	61
		19-1029	Biological Scientists, All Other	1	2	61
		19-1042	Medical Scientists, Except Epidemiologists	1	2	20
		19-4011	Agricultural & Food Science Technicians	47	46	43
		19-4021	Biological Technicians	33	32	54
		29-2018	Clinical Laboratory Technologists & Technicians	35	40	58

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		43-9111	Statistical Assistants	52	43	37
		51-8099	Plant & System Operators, All Other	64	47	30
27.0101	Mathematics, General	11-9121	Natural Sciences Managers	2	3	52
		15-2021	Mathematicians	7	8	46
		15-2031	Operations Research Analysts	16	16	51
		15-2041	Statisticians	7	8	46
		15-2098	Miscellaneous Mathematical Science Occupations	7	8	46
		25-2022	Middle School Teachers, Except Special & Career/Technical Education	4	6	58
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	57
		43-9111	Statistical Assistants	52	43	37
31.0101	Parks, Recreation & Leisure Studies	25-3021	Self-Enrichment Education Teachers	52	43	36
		29-1125	Recreational Therapists	16	14	74
		33-9092	Lifeguards, Ski Patrol, & Other Recreational Protective Service Workers	80	40	11
		39-3091	Amusement & Recreation Attendants	73	49	16
		39-9032	Recreation Workers	54	43	39
31.0505	Kinesiology & Exercise Science	11-9039	Education Administrators, All Other	21	22	41
		15-2041	Statisticians	7	8	46
		19-1021	Biochemists & Biophysicists	1	2	61
		29-1128	Exercise Physiologists	8	13	42
		29-9091	Athletic Trainers	26	22	48
		39-9031	Fitness Trainers & Aerobics Instructors	54	43	39

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
40.0501	Chemistry, General	11-9121	Natural Sciences Managers	2	3	52
		17-2041	Chemical Engineers	11	10	68
		17-2199	Engineers, All Other	10	11	62
		19-1012	Food Scientists & Technologists	9	12	62
		19-1013	Soil & Plant Scientists	9	12	62
		19-1021	Biochemists & Biophysicists	1	2	61
		19-2031	Chemists	3	3	71
		19-2032	Materials Scientists	3	3	71
		19-2041	Environmental Scientists & Specialists, Including Health	3	3	65
		19-4031	Chemical Technicians	41	35	49
		19-4041	Geological & Petroleum Technicians	47	35	45
		19-4092	Forensic Science Technicians	45	41	44
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	57
		25-4013	Museum Technicians & Conservators	20	17	42
		40.0601	Geology/Earth Science, General	11-3051	Industrial Production Managers	38
11-9121	Natural Sciences Managers			2	3	52
15-1199	Computer Occupations, All Other			36	41	52
17-1022	Surveyors			18	21	70
17-2081	Environmental Engineers			10	8	62
17-2151	Mining & Geological Engineers, Including Mining Safety Engineers			9	7	68
17-2171	Petroleum Engineers			9	7	68
19-1013	Soil & Plant Scientists			9	12	62
19-1031	Conservation Scientists			4	5	77

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		19-2021	Atmospheric & Space Scientists	21	25	54
		19-2042	Geoscientists, Except Hydrologists & Geographers	3	3	65
		19-2043	Hydrologists	3	3	65
		19-4041	Geological & Petroleum Technicians	47	35	45
		49-9099	Installation, Maintenance, & Repair Workers, All Other	71	39	15
40.0801	Physics, General	11-9121	Natural Sciences Managers	2	3	52
		17-2161	Nuclear Engineers	10	11	62
		19-1021	Biochemists & Biophysicists	1	2	61
		19-2011	Astronomers	3	3	34
		19-2012	Physicists	3	3	34
		19-2021	Atmospheric & Space Scientists	21	25	54
		19-2032	Materials Scientists	3	3	71
		19-4051	Nuclear Technicians	47	35	45
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	57
43.0103	Criminal Justice/Law Enforcement Administration	11-9161	Emergency Management Directors	32	34	52
		11-9199	Managers, All Other	32	26	50
		13-1075	Labor Relations Specialists	26	25	59
		13-1199	Business Operations Specialists, All Other	26	23	54
		33-1012	First-Line Supervisors of Police & Detectives	52	54	39
		33-3021	Detectives & Criminal Investigators	24	29	59
		33-3051	Police & Sheriff's Patrol Officers	46	49	49
		43-5031	Police, Fire, & Ambulance Dispatchers	67	52	28

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
43.0106	Forensic Science & Technology	13-1041	Compliance Officers	23	23	55
		19-4092	Forensic Science Technicians	45	41	44
		33-2021	Fire Inspectors & Investigators	60	50	35
		33-3021	Detectives & Criminal Investigators	24	29	59
47.0616	Marine Maintenance/Fitter & Ship Repair Technology/Technician	49-2093	Electrical & Electronics Installers & Repairers, Transportation Equipment	78	52	17
		49-3051	Motorboat Mechanics & Service Technicians	67	40	16
		51-2031	Engine & Other Machine Assemblers	70	36	18
		53-6031	Automotive & Watercraft Service Attendants	73	37	9
50.0101	Visual & Performing Arts, General	27-1011	Art Directors	31	27	59
		27-1012	Craft Artists	31	27	59
		27-1013	Fine Artists, Including Painters, Sculptors, & Illustrators	31	27	59
		27-1014	Multimedia Artists & Animators	31	27	59
		27-1019	Artists & Related Workers, All Other	31	27	59
		27-1021	Commercial & Industrial Designers	23	26	67
		27-1024	Graphic Designers	23	26	67
		27-2011	Actors	39	28	50
		27-2012	Producers & Directors	19	18	71
		27-2031	Dancers	65	36	22
		27-2032	Choreographers	65	36	22
50.0402	Commercial & Advertising Art	11-2011	Advertising & Promotions Managers	9	11	81
		27-1011	Art Directors	31	27	59
		27-2041	Music Directors & Composers	46	34	36
		27-2042	Musicians & Singers	46	34	36
		27-4021	Photographers	46	40	47



CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		27-1013	Fine Artists, Including Painters, Sculptors, & Illustrators	31	27	59
		27-1014	Multimedia Artists & Animators	31	27	59
		27-1019	Artists & Related Workers, All Other	31	27	59
		27-1021	Commercial & Industrial Designers	23	26	67
		27-1024	Graphic Designers	23	26	67
		27-1027	Set & Exhibit Designers	23	26	67
		27-4021	Photographers	46	40	47
		41-3011	Advertising Sales Agents	28	23	63
		43-9031	Desktop Publishers	45	40	46
50.0407	Fashion/Apparel Design	27-1022	Fashion Designers	23	26	67
50.0702	Fine/Studio Arts, General	25-2021	Elementary School Teachers, Except Special Education	4	6	58
		25-2022	Middle School Teachers, Except Special & Career/Technical Education	4	6	58
		25-2031	Secondary School Teachers, Except Special & Career/Technical Education	6	7	57
		25-3021	Self-Enrichment Education Teachers	52	43	36
		25-4011	Archivists	20	17	42
		25-4012	Curators	20	17	42
		25-4013	Museum Technicians & Conservators	20	17	42
		27-1011	Art Directors	31	27	59
		27-1012	Craft Artists	31	27	59
		27-1013	Fine Artists, Including Painters, Sculptors, & Illustrators	31	27	59
		27-1014	Multimedia Artists & Animators	31	27	59
		27-1019	Artists & Related Workers, All Other	31	27	59

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		27-1021	Commercial & Industrial Designers	23	26	67
		27-1024	Graphic Designers	23	26	67
		27-1027	Set & Exhibit Designers	23	26	67
		27-4021	Photographers	46	40	47
		29-1125	Recreational Therapists	16	14	74
		51-9071	Jewelers & Precious Stone & Metal Workers	52	39	33
		51-9194	Etchers & Engravers	62	35	26
51.0806	Physical Therapy Technician/Assistant	31-2021	Physical Therapist Assistants	27	57	69
		31-2022	Physical Therapist Aides	27	57	69
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	29-2041	Emergency Medical Technicians & Paramedics	61	68	36
		33-1021	First-Line Supervisors of Fire Fighting & Prevention Workers	63	60	31
		33-2011	Firefighters	59	65	38
		33-9092	Lifeguards, Ski Patrol, & Other Recreational Protective Service Workers	80	40	11
		53-3011	Ambulance Drivers & Attendants, Except Emergency Medical Technicians	78	56	15
51.0909	Surgical Technology/Technologist	29-2055	Surgical Technologists	57	60	40
		29-2099	Health Technologists & Technicians, All Other	51	55	41
		31-9093	Medical Equipment Preparers	72	45	18
51.0917	Polysomnography	29-2018	Clinical Laboratory Technologists & Technicians	35	40	58
		29-2032	Diagnostic Medical Sonographers	24	61	72
		29-2099	Health Technologists & Technicians, All Other	51	55	41
51.1501	Substance Abuse/Addiction Counseling	21-1018	Substance Abuse, Behavioral Disorder, &	22	20	38

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Mental Health Counselors			
		21-1023	Mental Health & Substance Abuse Social Workers	13	12	55
		21-1093	Social & Human Service Assistants	39	36	48
51.1502	Psychiatric/Mental Health Services Technician	29-2053	Psychiatric Technicians	57	60	40
		31-1013	Psychiatric Aides	72	55	17
51.1504	Community Health Services/Liaison/Counseling	11-2031	Public Relations & Fundraising Managers	9	10	70
		11-3011	Administrative Services Managers	43	40	48
		11-9039	Education Administrators, All Other	21	22	41
		21-1022	Healthcare Social Workers	13	12	55
		21-1091	Health Educators	31	32	49
		21-1093	Social & Human Service Assistants	39	36	48
		21-1094	Community Health Workers	31	32	49
		27-3031	Public Relations Specialists	13	14	69
		43-4051	Customer Service Representatives	67	47	27
		43-4061	Eligibility Interviewers, Government Programs	35	35	55
		43-4111	Interviewers, Except Eligibility & Loan	60	56	33
51.3801	Registered Nursing/Registered Nurse	11-9111	Medical & Health Services Managers	25	30	50
		29-1141	Registered Nurses	5	33	88
		29-1151	Nurse Anesthetists	3	2	15
		29-1161	Nurse Midwives	1	0	6
		29-1171	Nurse Practitioners	1	0	6
52.0201	Business Administration & Management, General	11-2021	Marketing Managers	21	20	65
		11-2022	Sales Managers	21	20	65
		11-3021	Computer & Information Systems Managers	20	22	60

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		11-3031	Financial Managers	32	30	52
		11-3121	Human Resources Managers	33	30	50
		11-9199	Managers, All Other	32	26	50
		11-1011	Chief Executives	24	22	55
		11-1021	General & Operations Managers	42	36	47
		13-1071	Human Resources Specialists	26	25	59
		13-1111	Management Analysts	15	14	56
		13-1161	Market Research Analysts & Marketing Specialists	14	14	68
		13-1199	Business Operations Specialists, All Other	26	23	54
		13-2011	Accountants & Auditors	9	12	66
		15-1151	Computer User Support Specialists	45	47	48
		41-1011	First-Line Supervisors of Retail Sales Workers	61	45	31
		41-2031	Retail Salespersons	70	50	22
		41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	40	31	51
		43-1011	First-Line Supervisors of Office & Administrative Support Workers	50	42	41
		43-4051	Customer Service Representatives	67	47	27
		43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	56	49	39
52.0302	Accounting Technology/Technician & Bookkeeping	13-2011	Accountants & Auditors	9	12	66
		13-2082	Tax Preparers	40	33	41
		43-3031	Bookkeeping, Accounting, & Auditing Clerks	63	51	32
		43-3051	Payroll & Timekeeping	55	50	41

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
			Clerks			
		43-4011	Brokerage Clerks	19	20	73
		43-9111	Statistical Assistants	52	43	37
52.0401	Administrative Assistant & Secretarial Science, General	43-4071	File Clerks	67	49	27
		43-4171	Receptionists & Information Clerks	71	54	24
		43-6011	Executive Secretaries & Executive Administrative Assistants	56	49	39
		43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	56	49	39
		43-9021	Data Entry Keyers	62	50	33
		43-9022	Word Processors & Typists	59	51	36
		43-9061	Office Clerks, General	66	53	28
52.0903	Tourism & Travel Services Management	11-9199	Managers, All Other	32	26	50
		39-7018	Tour & Travel Guides	68	55	25
		41-3041	Travel Agents	38	38	58
		43-4081	Hotel, Motel, & Resort Desk Clerks	69	50	24
		43-4181	Reservation & Transportation Ticket Agents & Travel Clerks	63	48	33
52.1803	Retailing & Retail Operations	13-1028	Buyers & Purchasing Agents	35	30	55
		33-9099	Protective Service Workers, All Other	80	40	11
		41-1011	First-Line Supervisors of Retail Sales Workers	61	45	31
		41-1012	First-Line Supervisors of Non-Retail Sales Workers	46	33	43
		41-2031	Retail Salespersons	70	50	22
		41-3099	Sales Representatives, Services, All Other	45	35	47
		41-9011	Demonstrators & Product Promoters	69	42	21
		41-9099	Sales & Related Workers, All Other	46	34	45

CIP CODE	CIP TITLE	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
		43-4151	Order Clerks	63	43	27
		43-5071	Shipping, Receiving, & Traffic Clerks	74	40	14
		43-5081	Stock Clerks & Order Fillers	75	41	12

Source: Emsi program demand gap model.

Table A4.2: Non-Credit Program to Occupation Map with Employment Adjustment Factors

CIP CODE	PROGRAM	SOC CODE	SOC TITLE	% WORKFORCE WITH EDUCATION LEVEL AND ONE LEVEL BELOW		
				CERT	ASSOC	BACH
22.030 2	Legal Assistant/Paralegal	23-2011	Paralegals and Legal Assistants	27	34	64
51.0713	Medical Insurance Coding Specialist/Coder	29-2071	Medical Records and Health Information Technicians	58	57	37
51.0801	Medical/Clinical Assistant	31-9092	Medical Assistants	66	67	31
51.0805	Pharmacy Technician/Assistant	29- 2052	Pharmacy Technician	57	60	40
51.0808	Veterinary/Animal Health Technology/Technician and Veterinary Assistant	29- 2056	Veterinary Technologists and Technicians	57	60	40
51.0810	Emergency Care Attendant (EMT Ambulance)	29-2041	Emergency Medical Technicians and Paramedics	61	68	36
51.0902	Electrocardiograph Technology/Technician	29-2031	Cardiovascular Technologists and Technicians	24	61	72
51.1009	Phlebotomy Technician/Phlebotomist	31-9097	Phlebotomists	71	68	27
51.1011	Renal/Dialysis Technologist/Technician	29-2018	Clinical Laboratory Technologists and Technicians	35	40	58
51.1012	Sterile Processing Technology/Technician	29- 2055	Surgical Technologists	57	60	40
51.3902	Nursing Assistant/Aide and Patient Care Assistant/Aide	31-1014	Nursing Assistants	72	55	17
52.0301	Accounting	13-2011	Accountants and Auditors	9	12	66
52.0401	Administrative Assistant and Secretarial Science, General	43- 6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	56	49	39
		43-6011	Executive Secretaries and Executive Administrative Assistants	56	49	39

Source: Emsi program demand gap model.

APPENDIX 5: Program Demand Gap Analysis

Methodology

This appendix focuses on describing and understanding the methodology used in the program demand gap analysis. This requires data on both occupation demand (e.g., annual job openings) and education supply (e.g., number of postsecondary degree completions). These are then compared through an education “gap” analysis to determine whether an education program is potentially producing a surplus or shortage of workforce talent relative to the number of job openings. In this way, it is possible to see how the institution’s current programs are satisfying the region’s workforce needs.

SUPPLY AND DEMAND MODEL

Emsi builds a model using demand-side data (average annual projected job openings) and supply-side data (postsecondary education output) to compare workforce demand with education supply. The purpose of this analysis is to find the difference or “gap” between the annual job openings for an occupation and the number of people completing postsecondary degrees for that occupation, whether at KCC or at another postsecondary institution in the region, making it possible to identify talent shortages or surpluses.

The first step involves the link between annual job openings for a SOC code and the number of completions for an education program, defined by its CIP code. The BLS provides information on the occupations that completers of specific CIP codes are more likely to enter. Specific connections have been refined through previous engagements with postsecondary institutions and state departments of labor. Some programs have direct occupational ties. For example, a physical therapist assistant is a specific occupation that requires specialized postsecondary training. In this case, one CIP code (Physical Therapy Technician/Assistant) maps to only one SOC code (physical therapist assistants). This provides an easy comparison of annual job openings for physical therapist assistants to the number of people completing the relevant program to see whether a talent shortage or surplus exists.

Unfortunately, this one-to-one mapping of a CIP code to a SOC code is not always the case. More often than not, an educational program maps to multiple occupations and an occupation maps to multiple educational programs at multiple award levels. For this reason, Emsi has pioneered a method of de-duplicating job openings, such that the potential

sources of demand are not double-represented for any occupation. The details of this process are outlined in this chapter, under “De-duplication of Annual Openings.”

OCCUPATION DEMAND

Educational Level Adjustments

To capture occupation demand, Emsi uses a proprietary employment dataset that reflects total employment. Emsi uses the QCEW data source, which measures employment covered by unemployment insurance (UI). According to the BLS, “employment covered by these UI programs represents about 97% of all wage and salary civilian employment in the country.” Through a proprietary process, Emsi removes BLS local area employment suppressions to yield the best employment data available at local levels, using Emsi’s Employees & Self-Employed 2019.4 datarun.

In the datarun, Emsi calculates the number of regional job openings for the occupations that require different levels of education for entry-level positions.¹⁵ The BLS also provides educational attainment data of current workers, ages 16 years to 34 years, for each SOC code, broken out by their highest level of education attained. The data are presented as the percentage of workers in the SOC code with educational attainment ranging from less than a high school diploma to a doctoral degree level of education. Using these data, Emsi adjusts the annual job opening estimates for each SOC code to only incorporate the percentage of workers that correspond with KCC’s program offerings.

For example, as shown in Table A5.1, three occupations are mapped to Accounting: accountants, auditors, and budget analysts. Among accountants, the majority of job openings (80%) are available to program completers with a master’s degree or bachelor’s degree level of education, less so for auditors. The weighted average of job openings, in the last row of the table, is calculated for each program and at each award level where KCC has produced completions over the past three years. Not accounting for these dynamics in educational attainments would bias the programs’ demands by over-counting potential job opportunities for the completers.¹⁶

15 See Appendix 1 for a description of the sources and processes of Emsi data.

16 Given the changing dynamics and need for more education in the existing workforce (i.e., skills-biased technology change in many occupations and industry sectors), this assumption is considered conservative.

Table A5.1: Example of Educational Level Adjustments for a Program

PROGRAM	OCCUPATION	ASSOC AND ONE LEVEL BELOW	BACH AND ONE LEVEL BELOW	MAST AND ONE LEVEL BELOW	PHD AND ONE LEVEL BELOW
Accounting	Accountant	10%	65%	80%	25%
	Auditor	5%	70%	75%	20%
	Budget analyst	15%	70%	80%	30%
Weighted average		10%	68%	78%	25%

De-Duplication of Annual Openings

Most programs are designed to train people for multiple occupational types, many of which are simultaneously linked with other educational programs. This presents a complexity when comparing supply and demand for any one program. For instance, the Accounting program is mapped to three different occupations: accountants, auditors, and budget analysts. If we focus on one of the occupations for this list—accountants—it is also mapped to three different educational programs, for example, Business, Medical Office Administration, and Commerce.

To ensure that double-counting does not occur, it is necessary to either realign the program groupings to eliminate the mapping of occupations to multiple programs or to determine what proportion of job openings should be compared with program completions. Emsi takes the second approach in this analysis, which has the advantage of maintaining program titles and descriptions in roughly the same format of the completion data originally delivered to Emsi. Emsi also uses a formula that favors programs with the largest completions, attributing a greater proportion of job openings to programs with a large number of completions by award level. This method utilizes the assumption that the higher output programs are likely feeding a higher degree of demand in the Kingsborough Service Region.¹⁷ Appendix 4 contains the detailed mapping of each CIP code to all relevant occupations, by their six-digit SOC codes. A result of de-duplication is that in a region where a unique program, Commercial & Advertising Art for example, is larger than Graphic Design, it is assumed that

17 Note this adjustment is performed on a program-by-program basis without consideration of individual colleges or training providers. Therefore, a single program offered at one large institution has no advantage over a group of similar programs offered at several smaller educational providers given that the aggregate output of the smaller schools is near the output of the single larger school.

completers of the Commercial & Advertising Art program will be offered a proportional, therefore larger number of job openings than students from the Graphic Design program.

Emsi also provides an alternative program demand gap analysis, which does not de-duplicate the average number of projected annual job openings based on the size of each program. Rather, the total number of job openings available for completers at each award level for each program is provided without further modification. Due to this modification, these numbers have not been de-duplicated, unlike the job openings shown in Chapter 3. As a result, job openings overstate the occupational demand for all postsecondary program completers. While these figures have not been provided in this analysis, they are available upon request.

EDUCATION OUTPUT

There are several educational institutions in the Kingsborough Service Region, some of which have programs similar to those offered at KCC. Hence, completers at KCC will be competing for some jobs with completers from other regional institutions. Emsi determined education output by CIP codes and identified the number of completers for every award level within those CIP codes. To find the output for all public and private educational institutions in the Kingsborough Service Region, Emsi uses data from the Integrated Postsecondary Educational System (IPEDS).¹⁸ These data are publicly available through the National Center for Educational Statistics. Completions data are averaged for a three-year period, 2016 through 2018, to smooth out any bumps in enrollment that may be unique to a particular academic year. Data gathered for KCC from IPEDS were reviewed for accuracy by KCC.

Tables A5.2, A5.3, and A5.4 display the completion breakdown by institution in the Kingsborough Service Region at the certificate, associate, and bachelor's degree levels, respectively. KCC is one of several institutions in the region.

18 These data come with inherent weaknesses. Primarily, numbers are only available for institutions that participate in or are applicants for any federal financial assistance program authorized by the Higher Education Act (HEA). Also, IPEDS does not collect data on non-credit courses and programs. Nevertheless, this system is the best source for collecting information on a broad range of educational institutions.

Table A5.2: Certificate Level Completions in the Kingsborough Service Region by Postsecondary Institution

INSTITUTION	3-YEAR AVERAGE	% TOTAL
Manhattan Institute	1,455	19.2%
Institute of Culinary Education	562	7.4%
The International Culinary Center	539	7.1%
Christine Valmy International School for Esthetics, Skin Care & Makeup	413	5.5%
Allen School-Brooklyn	320	4.2%
Empire Beauty School-Manhattan	306	4.0%
Gemological Institute of America-New York	290	3.8%
Manhattan School of Computer Technology	252	3.3%
New Age Training	251	3.3%
SAE Institute of Technology-New York	184	2.4%
Aveda Institute-New York	176	2.3%
Seminar L'moros Bais Yaakov	161	2.1%
Culinary Tech Center	159	2.1%
Atelier Esthetique Institute of Esthetics	155	2.0%
Institute of Audio Research	148	2.0%
Brittany Beauty Academy	131	1.7%
Associated Beth Rivkah Schools	116	1.5%
ASA College	112	1.5%
EDP School	107	1.4%
Ace Institute of Technology	107	1.4%
Star Career Academy-New York	106	1.4%
Studio Jewelers	101	1.3%
Relay Graduate School of Education	95	1.3%
Franklin Career Institute	90	1.2%
CUNY Graduate School and University Center	87	1.2%
Digital Film Academy	81	1.1%
Empire Beauty School-Brooklyn	81	1.1%
Arrojo Cosmetology School	76	1.0%
Focus Personal Training Institute	75	1.0%



INSTITUTION	3-YEAR AVERAGE	% TOTAL
American Academy of Personal Training	73	1.0%
AMG School of Licensed Practical Nursing	69	0.9%
Carsten Institute of Cosmetology	65	0.9%
Mildred Elley-New York Campus	57	0.8%
CUNY Kingsborough Community College	53	0.7%
Fashion Institute of Technology	46	0.6%
Mandl School-The College of Allied Health	41	0.5%
Center for Allied Health Education	39	0.5%
The Ailey School	39	0.5%
Wood Tobe-Coburn School	37	0.5%
St. Joseph's College-New York	34	0.4%
New York School of Interior Design	31	0.4%
Pace University	30	0.4%
Swedish Institute a College of Health Sciences	27	0.4%
Charles Stuart School of Diamond Setting	27	0.4%
Lia Schorr Institute of Cosmetic Skin Care Training	24	0.3%
New York University	19	0.3%
CUNY John Jay College of Criminal Justice	17	0.2%
CUNY Medgar Evers College	16	0.2%
New York Career Institute	15	0.2%
CUNY Hunter College	13	0.2%
American Academy of Dramatic Arts-New York	13	0.2%
Merkaz Bnos-Business School	10	0.1%
New York Conservatory for Dramatic Arts	9	0.1%
CUNY New York City College of Technology	6	0.1%
The Collective School Of Music	5	0.1%
CUNY Borough of Manhattan Community College	4	0.1%
Pacific College of Oriental Medicine-New York	3	0.0%
Touro College	2	0.0%
Technical Career Institutes	2	0.0%
CUNY City College	1	0.0%



INSTITUTION	3-YEAR AVERAGE	% TOTAL
Total	7,563	100%

Source: IPEDS.

Table A5.3: Associate Degree Level Completions in the Kingsborough Service Region by Postsecondary Institution

INSTITUTION	3-YEAR AVERAGE	% TOTAL
CUNY Borough of Manhattan Community College	3,896	27.7%
Fashion Institute of Technology	2,043	14.5%
CUNY New York City College of Technology	1,382	9.8%
ASA College	1,168	8.3%
CUNY Medgar Evers College	531	3.8%
Touro College	526	3.7%
Yeshiva University	414	2.9%
American Musical and Dramatic Academy	403	2.9%
CUNY Kingsborough Community College	343	2.4%
The New School	337	2.4%
Berkeley College-New York	310	2.2%
Swedish Institute a College of Health Sciences	266	1.9%
Mandl School-The College of Allied Health	244	1.7%
Technical Career Institutes	239	1.7%
Mildred Elley-New York Campus	234	1.7%
Stella and Charles Guttman Community College	193	1.4%
Helene Fuld College of Nursing	156	1.1%
Boricua College	122	0.9%
American Academy of Dramatic Arts-New York	122	0.9%
New York Conservatory for Dramatic Arts	119	0.8%
The Art Institute of New York City	113	0.8%
American Academy McAllister Institute of Funeral Service	90	0.6%
Center for Allied Health Education	89	0.6%
New York University	77	0.5%
Wood Tobe-Coburn School	74	0.5%
Phillips School of Nursing at Mount Sinai Beth Israel	69	0.5%



INSTITUTION	3-YEAR AVERAGE	% TOTAL
Metropolitan College of New York	61	0.4%
Pratt Institute-Main	40	0.3%
Merkaz Bnos-Business School	38	0.3%
Pacific College of Oriental Medicine-New York	38	0.3%
Pace University	38	0.3%
The Ailey School	34	0.2%
Neighborhood Playhouse School of the Theater	29	0.2%
Circle in the Square Theatre School	25	0.2%
New York School of Interior Design	21	0.2%
New York Career Institute	21	0.1%
Talmudical Seminary Oholei Torah	19	0.1%
DeVry College of New York	18	0.1%
Seminar L'moros Bais Yaakov	17	0.1%
Joffrey Ballet School	17	0.1%
St Francis College	15	0.1%
St Francis College	15	0.1%
Yeshiva Sholom Shachna	12	0.1%
LIM College	11	0.1%
Elyon College	10	0.1%
Marymount Manhattan College	9	0.1%
Manhattan School of Music	8	0.1%
Memorial Hospital School of Radiation Therapy Technology	7	0.0%
The Collective School Of Music	7	0.0%
Mesivta of Eastern Parkway-Yeshiva Zichron Meilech	5	0.0%
Beth Hatalmud Rabbinical College	2	0.0%
LIU Brooklyn	2	0.0%
The Juilliard School	1	0.0%
Central Yeshiva Beth Joseph	1	0.0%
Total	14,081	100%

Source: IPEDS.



Table A5.4: Bachelor's Degree Level Completions in the Kingsborough Service Region by Postsecondary Institution

INSTITUTION	3-YEAR AVERAGE	% TOTAL
New York University	6,537	15.5%
CUNY Bernard M Baruch College	3,548	8.4%
CUNY Hunter College	3,309	7.8%
CUNY John Jay College of Criminal Justice	2,983	7.1%
CUNY Brooklyn College	2,750	6.5%
Columbia University in the City of New York	2,583	6.1%
CUNY City College	2,479	5.9%
Pace University	1,754	4.1%
Fashion Institute of Technology	1,642	3.9%
Touro College	1,408	3.3%
The New School	1,402	3.3%
CUNY New York City College of Technology*	1,306	3.1%
CUNY Kingsborough Community College	1,226	2.9%
School of Visual Arts	822	1.9%
Berkeley College-New York	781	1.8%
Barnard College	704	1.7%
Pratt Institute-Main	677	1.6%
LIU Brooklyn	625	1.5%
Yeshiva University	608	1.4%
CUNY Medgar Evers College	551	1.3%
St Francis College	506	1.2%
St. Joseph's College-New York	482	1.1%
CUNY Graduate School and University Center	417	1.0%
Marymount Manhattan College	413	1.0%
LIM College	304	0.7%
United Talmudical Seminary	295	0.7%
DeVry College of New York	226	0.5%
SUNY Downstate Medical Center	205	0.5%
American Musical and Dramatic Academy	204	0.5%



INSTITUTION	3-YEAR AVERAGE	% TOTAL
Cooper Union for the Advancement of Science and Art	193	0.5%
Metropolitan College of New York	186	0.4%
Boricua College	127	0.3%
The Juilliard School	117	0.3%
Central Yeshiva Tomchei Tmimim Lubavitz	113	0.3%
The King's College	99	0.2%
Talmudical Seminary of Bobov	84	0.2%
Manhattan School of Music	80	0.2%
Rabbinical College Bobover Yeshiva Bnei Zion	61	0.1%
Yeshiva of Machzikai Hadas	50	0.1%
Mesivta Torah Vodaath Rabbinical Seminary	40	0.1%
Rabbinical College of Ohr Shimon Yisroel	37	0.1%
New York School of Interior Design	35	0.1%
Jewish Theological Seminary of America	33	0.1%
Rabbinical Academy Mesivta Rabbi Chaim Berlin	27	0.1%
Yeshiva Gedolah Imrei Yosef D'spinka	20	0.0%
Talmudical Seminary Oholei Torah	20	0.0%
Phillips School of Nursing at Mount Sinai Beth Israel	18	0.0%
Bet Medrash Gadol Ateret Torah	17	0.0%
Helene Fuld College of Nursing	17	0.0%
Yeshiva Karlin Stolin	17	0.0%
Torah Temimah Talmudical Seminary	16	0.0%
Yeshiva Kollel Tifereth Elizer	16	0.0%
Central Yeshiva Beth Joseph	15	0.0%
Rabbinical College Ohr Yisroel	15	0.0%
Yeshiva Derech Chaim	14	0.0%
Mirrer Yeshiva Cent Institute	13	0.0%
Machzikei Hadath Rabbinical College	12	0.0%
Yeshiva Gedola Ohr Yisrael	10	0.0%
Pacific College of Oriental Medicine-New York	9	0.0%
Beth Hamedrash Shaarei Yosher Institute	5	0.0%



INSTITUTION	3-YEAR AVERAGE	% TOTAL
Mesivtha Tifereth Jerusalem of America	3	0.0%
Beth Hatalmud Rabbinical College	2	0.0%
Mesivta of Eastern Parkway-Yeshiva Zichron Meilech	2	0.0%
Yeshiva Sholom Shachna	1	0.0%
Yeshivat Mikdash Melech	1	0.0%
Total	42,276	100%

* Since KCC's transfer-track completions are considered at the bachelor's level, they have been included here rather than at the associate degree level.
Source: IPEDS.



APPENDIX 6: Employment Projections

Table A6.1: Employment Projections in the Kingsborough Service Region by Occupation, 2018 and 2028

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Home Health Aides	93,169	138,736	45,567	48.9%	17,535	\$12.25
Personal Care Aides	79,542	113,320	33,779	42.5%	16,941	\$12.84
Waiters & Waitresses	65,995	74,612	8,617	13.1%	14,090	\$15.27
Retail Salespersons	93,110	93,195	85	0.1%	13,517	\$13.59
Combined Food Preparation & Serving Workers, Including Fast Food	50,839	66,163	15,324	30.1%	12,206	\$12.94
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	68,664	74,726	6,062	8.8%	9,791	\$17.13
Office Clerks, General	79,512	82,561	3,049	3.8%	9,775	\$17.32
Cashiers	48,480	51,590	3,110	6.4%	9,660	\$13.91
Security Guards	58,445	65,602	7,158	12.2%	8,825	\$16.74
Customer Service Representatives	56,907	60,762	3,855	6.8%	7,825	\$20.68
Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	71,817	70,640	(1,177)	(1.6%)	7,778	\$20.77
General & Operations Managers	65,801	73,452	7,651	11.6%	6,365	\$71.79
Laborers & Freight, Stock, & Material Movers, Hand	40,213	45,057	4,844	12.0%	6,284	\$15.88
Securities, Commodities, & Financial Services Sales Agents	53,988	59,395	5,406	10.0%	5,792	\$72.46
Accountants & Auditors	57,519	62,485	4,966	8.6%	5,733	\$46.63
Maids & Housekeeping Cleaners	39,959	42,916	2,957	7.4%	5,701	\$15.47
Postsecondary Teachers, General	53,386	64,803	11,418	21.4%	5,579	\$45.91
Childcare Workers	33,999	35,878	1,879	5.5%	5,325	\$13.24
Sales Representatives, Services, All Other	35,172	41,153	5,981	17.0%	5,124	\$35.34
Cooks, Restaurant	28,496	33,593	5,097	17.9%	4,849	\$15.24
Maintenance & Repair Workers, General	44,713	48,352	3,639	8.1%	4,848	\$23.33
Market Research Analysts & Marketing Specialists	37,627	45,535	7,908	21.0%	4,765	\$38.15
Bookkeeping, Accounting, & Auditing Clerks	40,194	40,968	774	1.9%	4,590	\$24.25
Executive Secretaries & Executive Administrative Assistants	44,677	39,175	(5,502)	(12.3%)	4,452	\$37.62
Receptionists & Information Clerks	31,476	33,770	2,294	7.3%	4,450	\$17.61

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
First-Line Supervisors of Office & Administrative Support Workers	41,960	43,916	1,956	4.7%	4,371	\$35.54
Registered Nurses	52,405	66,033	13,629	26.0%	4,325	\$45.40
Food Preparation Workers	20,869	23,675	2,806	13.4%	4,025	\$14.24
Stock Clerks & Order Fillers	28,502	30,776	2,274	8.0%	3,974	\$13.29
Teacher Assistants	29,010	32,834	3,824	13.2%	3,792	\$16.18
Financial Analysts	37,643	40,046	2,403	6.4%	3,470	\$57.72
Nursing Assistants	22,245	27,541	5,297	23.8%	3,292	\$19.87
Software Developers, Applications	29,803	40,222	10,419	35.0%	3,263	\$62.00
Bartenders	16,671	19,000	2,329	14.0%	3,166	\$16.88
Dining Room & Cafeteria Attendants & Bartender Helpers	16,344	18,188	1,844	11.3%	3,101	\$13.48
Management Analysts	28,070	31,204	3,134	11.2%	2,812	\$52.84
First-Line Supervisors of Food Preparation & Serving Workers	15,232	18,291	3,059	20.1%	2,674	\$20.96
Producers & Directors	22,891	27,520	4,629	20.2%	2,667	\$47.76
Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	25,086	24,642	(445)	(1.8%)	2,507	\$30.17
Taxi Drivers & Chauffeurs	19,372	22,651	3,278	16.9%	2,494	\$14.67
Human Resources Specialists	19,393	23,098	3,705	19.1%	2,411	\$36.72
Financial Managers	24,153	28,690	4,537	18.8%	2,368	\$106.53
Advertising Sales Agents	16,996	18,397	1,401	8.2%	2,349	\$35.96
First-Line Supervisors of Retail Sales Workers	21,009	21,508	499	2.4%	2,313	\$22.54
Lawyers	48,325	50,392	2,068	4.3%	2,275	\$79.10
Personal Financial Advisors	23,839	26,825	2,986	12.5%	2,181	\$69.09
Ushers, Lobby Attendants, & Ticket Takers	7,502	8,835	1,333	17.8%	2,144	\$13.77
Counter Attendants, Cafeteria, Food Concession, & Coffee Shop	8,437	9,867	1,430	17.0%	2,130	\$12.53
Fitness Trainers & Aerobics Instructors	10,784	12,584	1,800	16.7%	2,123	\$31.23
Construction Laborers	16,965	19,383	2,418	14.3%	2,092	\$21.67
Dishwashers	11,743	13,011	1,268	10.8%	2,046	\$13.41
Hosts & Hostesses, Restaurant, Lounge, & Coffee Shop	7,820	8,969	1,150	14.7%	2,015	\$14.36
Self-Enrichment Education Teachers	15,240	17,485	2,245	14.7%	2,000	\$25.45

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Computer User Support Specialists	21,340	24,633	3,293	15.4%	1,992	\$30.60
Elementary School Teachers, Except Special Education	17,919	20,853	2,934	16.4%	1,934	\$40.28
Police & Sheriff's Patrol Officers	21,959	17,845	(4,114)	(18.7%)	1,813	\$41.76
Recreation Workers	9,738	9,701	(37)	(0.4%)	1,741	\$15.95
Social & Human Service Assistants	12,452	14,010	1,558	12.5%	1,696	\$18.33
Paralegals & Legal Assistants	14,454	16,109	1,655	11.5%	1,694	\$29.93
Public Relations Specialists	14,679	16,171	1,492	10.2%	1,636	\$36.13
Computer Systems Analysts	21,127	23,339	2,212	10.5%	1,629	\$55.30
Carpenters	14,960	16,651	1,691	11.3%	1,628	\$26.71
Protective Service Workers, All Other	6,159	6,538	379	6.2%	1,613	\$14.42
Business Operations Specialists, All Other	13,337	16,156	2,819	21.1%	1,601	\$41.56
Secondary School Teachers, Except Special & Career/Technical Education	15,143	17,490	2,347	15.5%	1,571	\$41.20
Tellers	11,499	12,965	1,466	12.7%	1,559	\$16.76
Hairdressers, Hairstylists, & Cosmetologists	10,534	12,274	1,740	16.5%	1,556	\$13.76
Graphic Designers	15,774	16,241	467	3.0%	1,542	\$31.05
Production, Planning, & Expediting Clerks	13,973	14,907	934	6.7%	1,541	\$26.28
Electricians	10,972	12,601	1,629	14.8%	1,455	\$37.03
Editors	14,896	14,640	(256)	(1.7%)	1,425	\$37.84
Licensed Practical & Licensed Vocational Nurses	10,720	15,710	4,990	46.5%	1,425	\$26.35
Billing & Posting Clerks	12,152	13,665	1,513	12.5%	1,419	\$22.71
Light Truck Or Delivery Services Drivers	12,002	12,934	932	7.8%	1,409	\$17.80
Insurance Sales Agents	14,417	14,606	189	1.3%	1,407	\$33.94
Amusement & Recreation Attendants	5,526	6,197	671	12.1%	1,388	\$13.39
Preschool Teachers, Except Special Education	11,035	13,203	2,168	19.6%	1,386	\$20.24
Computer & Information Systems Managers	14,225	16,527	2,301	16.2%	1,344	\$96.08
Manicurists & Pedicurists	9,658	11,053	1,395	14.4%	1,294	\$12.86
Bus Drivers, School Or Special Client	9,281	10,228	947	10.2%	1,263	\$21.38
Heavy & Tractor-Trailer Truck Drivers	10,695	11,572	877	8.2%	1,262	\$25.74
Parking Lot Attendants	8,018	8,313	295	3.7%	1,242	\$12.81



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Child, Family, & School Social Workers	10,307	11,072	766	7.4%	1,210	\$27.52
Packers & Packagers, Hand	7,094	7,861	768	10.8%	1,198	\$13.55
Landscaping & Groundskeeping Workers	8,860	9,656	796	9.0%	1,194	\$17.38
Teachers & Instructors, All Other	8,347	10,023	1,676	20.1%	1,163	\$22.43
Managers, All Other	13,214	14,800	1,586	12.0%	1,128	\$45.38
Nonfarm Animal Caretakers	5,756	7,220	1,464	25.4%	1,118	\$14.43
Medical Assistants	7,824	9,577	1,753	22.4%	1,088	\$18.76
First-Line Supervisors of Non-Retail Sales Workers	11,249	11,772	523	4.7%	1,083	\$48.24
Sales Managers	10,807	11,950	1,143	10.6%	1,063	\$97.53
Office & Administrative Support Workers, All Other	8,900	9,443	543	6.1%	1,054	\$13.93
Marketing Managers	10,197	11,590	1,393	13.7%	1,048	\$93.06
Counter & Rental Clerks	7,084	7,914	830	11.7%	1,035	\$14.32
Writers & Authors	10,564	11,391	827	7.8%	1,030	\$35.49
Training & Development Specialists	8,988	10,057	1,070	11.9%	1,016	\$35.65
Educational, Guidance, School, & Vocational Counselors	7,469	8,832	1,363	18.2%	967	\$33.54
Substitute Teachers	6,478	7,475	998	15.4%	946	\$19.03
Chefs & Head Cooks	6,679	7,399	720	10.8%	944	\$27.22
Middle School Teachers, Except Special & Career/Technical Education	8,877	10,227	1,351	15.2%	943	\$40.23
Bus Drivers, Transit & Intercity	7,092	6,764	(328)	(4.6%)	932	\$30.63
Medical & Health Services Managers	8,474	10,381	1,907	22.5%	908	\$64.91
Plumbers, Pipefitters, & Steamfitters	6,795	8,076	1,281	18.9%	901	\$32.23
Community & Social Service Specialists, All Other	6,636	6,782	146	2.2%	872	\$26.87
First-Line Supervisors of Construction Trades & Extraction Workers	7,276	8,223	947	13.0%	853	\$43.55
Musicians & Singers	8,475	8,486	11	0.1%	848	\$31.73
Actors	6,246	7,789	1,543	24.7%	845	\$25.97
Network & Computer Systems Administrators	11,487	12,536	1,049	9.1%	842	\$49.76
Interviewers, Except Eligibility & Loan	6,376	6,986	610	9.6%	840	\$21.98
First-Line Supervisors of Personal Service Workers	7,167	8,227	1,060	14.8%	831	\$22.93



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Hotel, Motel, & Resort Desk Clerks	4,691	5,214	523	11.2%	819	\$16.25
Software Developers, Systems Software	8,678	10,644	1,966	22.7%	810	\$62.36
Legal Secretaries	8,167	6,974	(1,194)	(14.6%)	808	\$30.21
Real Estate Sales Agents	7,686	8,399	713	9.3%	806	\$38.86
Food Servers, Nonrestaurant	4,711	5,233	522	11.1%	782	\$17.65
Shipping, Receiving, & Traffic Clerks	7,541	7,710	169	2.2%	778	\$18.35
Meeting, Convention, & Event Planners	5,735	6,522	787	13.7%	775	\$33.17
Assemblers & Fabricators, All Other, Including Team Assemblers	6,474	6,464	(10)	(0.2%)	766	\$16.08
Lifeguards, Ski Patrol, & Other Recreational Protective Service Workers	2,888	3,019	132	4.6%	762	\$13.32
Web Developers	8,116	9,582	1,466	18.1%	761	\$37.71
Cooks, Institution & Cafeteria	4,342	5,221	879	20.2%	753	\$17.96
Demonstrators & Product Promoters	4,046	4,380	333	8.2%	753	\$17.78
Administrative Services Managers	7,996	8,769	774	9.7%	741	\$68.73
Crossing Guards	3,938	3,413	(526)	(13.4%)	736	\$18.76
Substance Abuse, Behavioral Disorder, & Mental Health Counselors	5,264	6,420	1,156	22.0%	715	\$25.24
Loan Officers	6,302	7,732	1,430	22.7%	708	\$46.72
Compliance Officers	7,800	8,484	683	8.8%	705	\$40.29
Coaches & Scouts	3,881	5,039	1,158	29.8%	703	\$23.20
Healthcare Social Workers	4,688	6,119	1,432	30.5%	688	\$31.96
Dental Assistants	5,042	5,962	920	18.3%	687	\$19.01
Audio & Video Equipment Technicians	5,493	6,737	1,244	22.7%	678	\$27.38
Art Directors	7,663	8,167	504	6.6%	670	\$51.94
Buyers & Purchasing Agents	7,097	6,976	(120)	(1.7%)	667	\$36.60
Film & Video Editors	4,800	6,295	1,495	31.1%	666	\$36.76
Correctional Officers & Jailers	7,536	5,876	(1,660)	(22.0%)	655	\$35.01
Driver/Sales Workers	5,689	5,990	301	5.3%	650	\$12.25
Pharmacy Technicians	5,375	7,081	1,706	31.7%	649	\$16.06
Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products	5,307	6,006	699	13.2%	641	\$48.79

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Architects, Except Landscape & Naval	7,538	8,288	750	9.9%	636	\$48.64
Laundry & Dry-Cleaning Workers	4,543	4,655	111	2.4%	634	\$13.06
First-Line Supervisors of Mechanics, Installers, & Repairers	6,605	7,013	408	6.2%	616	\$41.63
Property, Real Estate, & Community Association Managers	6,464	7,310	845	13.1%	606	\$47.74
First-Line Supervisors of Transportation & Material Moving Workers, Except Aircraft Cargo Handling Supervisors	5,505	5,721	216	3.9%	603	\$31.35
Bill & Account Collectors	5,904	5,644	(260)	(4.4%)	602	\$22.35
Library Technicians	4,024	4,291	267	6.6%	600	\$16.78
Data Entry Keyers	5,187	4,591	(596)	(11.5%)	574	\$20.44
Residential Advisors	3,029	3,425	396	13.1%	573	\$17.39
First-Line Supervisors of Housekeeping & Janitorial Workers	4,587	4,961	374	8.2%	569	\$28.73
Food Service Managers	4,510	4,924	414	9.2%	564	\$36.78
Cooks, Fast Food	3,078	3,772	694	22.6%	557	\$13.49
Medical Secretaries	2,877	4,480	1,603	55.7%	548	\$20.53
Fundraisers	4,461	5,228	767	17.2%	547	\$33.43
Inspectors, Testers, Sorters, Samplers, & Weighers	4,403	4,484	81	1.8%	539	\$19.08
Education Administrators, Elementary & Secondary School	5,037	5,745	707	14.0%	536	\$64.94
Concierges	3,494	3,819	325	9.3%	532	\$22.95
Civil Engineers	6,343	6,914	570	9.0%	529	\$50.73
Advertising & Promotions Managers	4,836	5,086	249	5.2%	528	\$81.57
Fashion Designers	5,901	5,530	(371)	(6.3%)	527	\$40.74
Social & Community Service Managers	5,189	5,655	466	9.0%	525	\$44.63
Mail Clerks & Mail Machine Operators, Except Postal Service	4,772	4,718	(54)	(1.1%)	525	\$18.75
Financial Examiners	6,115	6,620	504	8.2%	524	\$56.18
Librarians	4,752	5,133	381	8.0%	519	\$35.16
Physical Therapists	5,200	7,761	2,562	49.3%	516	\$42.68
Instructional Coordinators	4,680	5,362	682	14.6%	511	\$35.10
Claims Adjusters, Examiners, & Investigators	6,329	6,168	(161)	(2.5%)	510	\$38.92
Bakers	3,304	3,575	271	8.2%	508	\$15.05

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	4,035	4,835	800	19.8%	505	\$29.62
Computer Network Support Specialists	5,632	6,248	615	10.9%	491	\$42.07
Library Assistants, Clerical	2,977	3,298	320	10.8%	486	\$16.83
Brokerage Clerks	4,147	4,584	437	10.5%	485	\$33.15
Clergy	3,402	4,172	770	22.6%	482	\$25.14
Education Administrators, Postsecondary	4,685	5,658	973	20.8%	481	\$56.22
Sewing Machine Operators	5,766	3,497	(2,269)	(39.4%)	477	\$14.40
Interior Designers	4,775	4,922	147	3.1%	472	\$31.07
Broadcast Technicians	4,435	4,891	456	10.3%	469	\$27.71
Human Resources Managers	4,898	5,497	598	12.2%	467	\$71.75
Painters, Construction & Maintenance	4,864	5,096	232	4.8%	454	\$19.79
Physicians & Surgeons, All Other	14,632	15,184	552	3.8%	452	\$70.43
Human Resources Assistants, Except Payroll & Timekeeping	3,759	4,006	247	6.6%	451	\$23.66
Word Processors & Typists	4,635	3,170	(1,465)	(31.6%)	445	\$25.24
Loan Interviewers & Clerks	3,191	4,120	929	29.1%	438	\$25.47
Computer Programmers	6,599	6,706	108	1.6%	434	\$47.33
Photographers	5,292	5,131	(161)	(3.0%)	434	\$23.38
Firefighters	4,765	4,064	(701)	(14.7%)	432	\$41.65
Mental Health & Substance Abuse Social Workers	3,711	4,048	337	9.1%	432	\$31.13
First-Line Supervisors of Production & Operating Workers	4,449	4,227	(222)	(5.0%)	429	\$36.29
Military occupations	3,619	3,849	229	6.3%	428	\$17.22
First-Line Supervisors of Protective Service Workers, All Other	3,843	4,189	346	9.0%	422	\$30.27
Agents & Business Managers of Artists, Performers, & Athletes	3,453	3,542	90	2.6%	414	\$37.98
Helpers--Production Workers	1,982	2,626	644	32.5%	412	\$12.36
Couriers & Messengers	4,300	4,394	94	2.2%	410	\$15.75
Cleaners of Vehicles & Equipment	2,817	2,912	94	3.3%	407	\$14.17
Industrial Truck & Tractor Operators	3,081	3,494	412	13.4%	406	\$21.14
Automotive Service Technicians & Mechanics	4,330	4,232	(98)	(2.3%)	404	\$20.13
Travel Agents	3,624	3,350	(273)	(7.5%)	404	\$19.85

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Refuse & Recyclable Material Collectors	3,049	2,618	(430)	(14.1%)	403	\$30.26
Cooks, Short Order	2,565	2,807	242	9.4%	402	\$13.96
Reporters & Correspondents	3,421	3,823	402	11.8%	398	\$34.01
Construction Managers	4,559	5,122	563	12.4%	395	\$53.41
Credit Analysts	4,410	4,694	284	6.4%	393	\$55.59
Clinical, Counseling, & School Psychologists	5,060	5,566	506	10.0%	392	\$44.85
First-Line Supervisors of Police & Detectives	5,003	3,964	(1,039)	(20.8%)	388	\$60.28
Packaging & Filling Machine Operators & Tenders	3,052	3,279	227	7.4%	386	\$12.02
File Clerks	3,156	2,962	(194)	(6.1%)	385	\$16.72
Special Education Teachers, Kindergarten & Elementary School	3,665	3,953	288	7.8%	378	\$34.62
Clinical Laboratory Technologists & Technicians	4,795	5,425	630	13.1%	375	\$33.80
Construction & Building Inspectors	3,125	3,112	(14)	(0.4%)	375	\$36.41
Pharmacists	5,826	6,865	1,038	17.8%	371	\$60.31
Chief Executives	4,858	4,970	113	2.3%	367	\$114.81
Eligibility Interviewers, Government Programs	3,722	3,344	(378)	(10.2%)	365	\$26.36
Telecommunications Equipment Installers & Repairers, Except Line Installers	3,469	3,212	(257)	(7.4%)	362	\$39.02
Information Security Analysts	3,587	4,451	864	24.1%	353	\$64.85
Merchandise Displayers & Window Trimmers	3,329	3,603	274	8.2%	348	\$15.34
Payroll & Timekeeping Clerks	3,093	3,374	280	9.1%	347	\$25.83
Public Relations & Fundraising Managers	3,533	3,982	449	12.7%	343	\$81.17
Insurance Claims & Policy Processing Clerks	3,148	3,349	201	6.4%	342	\$27.22
Compensation, Benefits, & Job Analysis Specialists	3,777	4,049	272	7.2%	341	\$40.35
Special Education Teachers, Secondary School	3,352	3,600	248	7.4%	339	\$38.46
Dispatchers, Except Police, Fire, & Ambulance	3,625	3,609	(17)	(0.5%)	334	\$21.72
Directors, Religious Activities & Education	2,391	2,672	280	11.7%	332	\$20.46
Labor Relations Specialists	3,483	3,399	(84)	(2.4%)	329	\$42.31
Community Health Workers	2,416	2,654	239	9.9%	329	\$20.80

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Massage Therapists	2,208	2,903	695	31.5%	329	\$22.11
Tour & Travel Guides	1,589	1,887	297	18.7%	328	\$15.47
Postal Service Mail Carriers	5,152	4,308	(845)	(16.4%)	320	\$31.03
Order Clerks	2,416	2,710	294	12.2%	318	\$16.58
Speech-Language Pathologists	3,742	4,796	1,054	28.2%	315	\$43.72
Telemarketers	2,055	2,003	(53)	(2.6%)	314	\$14.33
Life, Physical, & Social Science Technicians, All Other	2,394	2,623	229	9.6%	313	\$29.01
Computer Network Architects	3,930	4,405	475	12.1%	312	\$62.34
Tax Preparers	2,607	2,871	264	10.1%	312	\$33.17
Nurse Practitioners	3,786	4,814	1,028	27.1%	309	\$60.56
Social Science Research Assistants	2,614	2,607	(7)	(0.3%)	309	\$28.26
Rehabilitation Counselors	2,599	2,768	170	6.5%	301	\$18.03
Architectural & Civil Drafters	2,842	3,249	407	14.3%	299	\$32.16
Interpreters & Translators	2,410	2,985	575	23.9%	299	\$36.47
Physical Therapist Assistants	1,291	2,214	923	71.5%	299	\$28.29
Occupational Therapists	2,968	4,192	1,224	41.2%	295	\$44.07
Operating Engineers & Other Construction Equipment Operators	2,333	2,412	79	3.4%	295	\$40.98
Butchers & Meat Cutters	2,123	2,345	222	10.4%	294	\$16.75
Computer Occupations, All Other	1,952	3,178	1,225	62.8%	294	\$47.46
Skincare Specialists	2,149	2,486	336	15.7%	292	\$17.83
Telecommunications Line Installers & Repairers	3,109	2,718	(391)	(12.6%)	291	\$41.34
Medical Scientists, Except Epidemiologists	2,945	3,293	349	11.8%	291	\$43.81
Fine Artists, Including Painters, Sculptors, & Illustrators	3,219	3,414	195	6.1%	287	\$18.47
Database Administrators	3,471	3,970	498	14.4%	285	\$52.28
Information & Record Clerks, All Other	2,052	2,400	348	17.0%	282	\$24.11
Personal Care & Service Workers, All Other	1,537	1,870	333	21.7%	280	\$15.64
Printing Press Operators	2,822	2,547	(274)	(9.7%)	279	\$22.93
Camera Operators, Television, Video, & Motion Picture	2,180	2,688	508	23.3%	278	\$37.41
Operations Research Analysts	3,064	3,820	756	24.7%	277	\$54.05



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Financial Specialists, All Other	2,621	3,031	410	15.6%	274	\$46.39
Food Batchmakers	1,891	1,939	48	2.5%	271	\$13.05
Insurance Underwriters	3,484	3,127	(358)	(10.3%)	262	\$43.63
Cost Estimators	2,162	2,511	350	16.2%	261	\$36.77
Physician Assistants	3,332	3,983	651	19.6%	260	\$59.56
Installation, Maintenance, & Repair Workers, All Other	2,504	2,660	157	6.3%	259	\$18.94
Baggage Porters & Bellhops	1,687	1,856	169	10.0%	259	\$15.51
Multimedia Artists & Animators	2,356	2,839	483	20.5%	257	\$33.91
Costume Attendants	969	1,151	182	18.8%	257	\$30.56
Medical Records & Health Information Technicians	2,989	3,583	594	19.9%	253	\$23.16
Real Estate Brokers	2,315	2,539	223	9.6%	243	\$37.22
Structural Iron & Steel Workers	1,684	2,070	386	22.9%	235	\$45.34
Jewelers & Precious Stone & Metal Workers	2,743	1,856	(887)	(32.3%)	234	\$21.28
Food Preparation & Serving Related Workers, All Other	1,179	1,365	186	15.8%	233	\$15.07
Court, Municipal, & License Clerks	2,210	1,849	(361)	(16.3%)	232	\$29.87
Bus & Truck Mechanics & Diesel Engine Specialists	2,297	2,318	21	0.9%	230	\$28.88
Electrical Engineers	2,717	3,135	418	15.4%	227	\$53.38
Special Education Teachers, Middle School	2,199	2,318	119	5.4%	225	\$37.05
Highway Maintenance Workers	1,834	1,564	(270)	(14.7%)	223	\$28.17
Emergency Medical Technicians & Paramedics	3,954	3,210	(744)	(18.8%)	222	\$21.26
Healthcare Support Workers, All Other	1,541	1,751	210	13.6%	222	\$19.51
Phlebotomists	1,610	1,971	361	22.4%	217	\$22.01
Computer, Automated Teller, & Office Machine Repairers	2,229	2,193	(35)	(1.6%)	214	\$23.34
Detectives & Criminal Investigators	2,838	2,375	(463)	(16.3%)	213	\$47.50
Health Educators	1,556	1,732	176	11.3%	213	\$28.23
Production Workers, All Other	1,548	1,780	232	15.0%	212	\$15.56
Radiologic Technologists	3,361	3,664	303	9.0%	210	\$36.05
Dental Hygienists	2,357	2,840	483	20.5%	203	\$42.05

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Locker Room, Coatroom, & Dressing Room Attendants	789	900	110	14.0%	201	\$13.60
Music Directors & Composers	1,889	2,008	118	6.2%	198	\$27.29
Social Workers, All Other	1,786	1,726	(60)	(3.4%)	196	\$36.22
Sheet Metal Workers	1,485	1,744	259	17.4%	194	\$29.87
Motor Vehicle Operators, All Other	1,067	1,126	59	5.5%	194	\$14.75
Helpers--Electricians	1,174	1,343	169	14.4%	193	\$20.59
Set & Exhibit Designers	1,592	1,881	289	18.1%	190	\$34.18
Cement Masons & Concrete Finishers	1,279	1,616	338	26.4%	189	\$37.51
Police, Fire, & Ambulance Dispatchers	1,730	1,473	(257)	(14.8%)	188	\$23.95
Physical Therapist Aides	1,046	1,447	401	38.3%	188	\$14.27
Entertainers & Performers, Sports & Related Workers, All Other	1,387	1,590	203	14.6%	182	\$23.58
Brickmasons & Blockmasons	1,312	1,791	479	36.5%	182	\$39.62
Mechanical Engineers	2,058	2,462	405	19.7%	181	\$48.54
Grounds Maintenance Workers, All Other	1,457	1,385	(72)	(4.9%)	181	\$15.17
Architectural & Engineering Managers	2,020	2,326	306	15.1%	179	\$86.72
Sales & Related Workers, All Other	1,090	1,313	223	20.5%	179	\$21.00
Subway & Streetcar Operators	1,706	1,345	(361)	(21.2%)	175	\$37.66
Welders, Cutters, Solderers, & Brazers	1,358	1,535	177	13.1%	171	\$23.64
Kindergarten Teachers, Except Special Education	1,202	1,499	296	24.7%	171	\$37.28
Office Machine Operators, Except Computer	1,562	1,489	(73)	(4.6%)	169	\$18.82
Training & Development Managers	1,617	1,806	189	11.7%	168	\$79.86
Environmental Scientists & Specialists, Including Health	1,606	1,756	150	9.4%	167	\$42.96
Elevator Installers & Repairers	1,361	1,411	50	3.7%	163	\$42.08
Veterinary Assistants & Laboratory Animal Caretakers	845	1,037	191	22.6%	162	\$16.15
Education Administrators, Preschool & Childcare Center/Program	1,620	1,884	264	16.3%	159	\$35.82
Logisticians	1,259	1,512	253	20.1%	158	\$37.66
Helpers--Pipelayers, Plumbers, Pipefitters, & Steamfitters	857	1,081	224	26.2%	158	\$19.08
Helpers--Installation, Maintenance, & Repair Workers	1,121	1,218	97	8.7%	156	\$19.20



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Drywall & Ceiling Tile Installers	1,476	1,637	161	10.9%	154	\$20.52
Technical Writers	1,342	1,540	198	14.8%	154	\$40.30
Machinists	1,285	1,449	164	12.8%	154	\$24.35
Sound Engineering Technicians	1,413	1,543	130	9.2%	153	\$35.65
Switchboard Operators, Including Answering Service	1,280	1,082	(198)	(15.5%)	153	\$18.95
Farmworkers & Laborers, Crop, Nursery, & Greenhouse	910	991	81	8.9%	153	\$15.95
Dancers	1,155	1,039	(115)	(10.0%)	149	\$19.23
Postal Service Mail Sorters, Processors, & Processing Machine Operators	2,349	1,830	(518)	(22.1%)	147	\$30.23
Reservation & Transportation Ticket Agents & Travel Clerks	1,360	1,393	33	2.5%	147	\$20.28
Electrical Power-Line Installers & Repairers	1,343	1,631	288	21.5%	146	\$41.32
Radio & Television Announcers	1,123	1,346	223	19.8%	144	\$25.29
Respiratory Therapists	1,672	2,205	532	31.8%	142	\$39.47
Surgical Technologists	1,570	1,712	142	9.1%	141	\$27.92
Adult Basic & Secondary Education & Literacy Teachers & Instructors	1,219	1,218	(1)	(0.1%)	141	\$40.20
Medical Equipment Preparers	1,026	1,120	94	9.1%	140	\$23.52
Proofreaders & Copy Markers	885	920	35	4.0%	139	\$26.06
Electrical & Electronics Engineering Technicians	1,343	1,500	157	11.7%	137	\$36.54
Credit Counselors	1,236	1,507	271	22.0%	137	\$30.93
Psychiatric Aides	1,165	1,161	(4)	(0.3%)	136	\$23.07
Electrical, Electronic, & Electromechanical Assemblers, Except Coil Winders, Tapers, & Finishers	1,075	1,116	40	3.8%	135	\$19.64
First-Line Supervisors of Fire Fighting & Prevention Workers	1,533	1,247	(287)	(18.7%)	134	\$58.27
Occupational Therapy Assistants	633	981	348	54.9%	133	\$32.44
Industrial Engineers	1,544	1,789	245	15.9%	132	\$49.62
Procurement Clerks	1,185	1,197	12	1.0%	131	\$23.44
Commercial & Industrial Designers	1,326	1,362	36	2.7%	130	\$35.23
Transportation Inspectors	1,288	1,219	(69)	(5.3%)	130	\$39.37
Health Technologists & Technicians, All Other	1,533	1,792	258	16.9%	127	\$24.76
Security & Fire Alarm Systems Installers	1,063	1,125	61	5.8%	126	\$29.11

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Engineers, All Other	1,584	1,766	183	11.5%	125	\$48.83
Bailiffs	1,396	1,023	(373)	(26.7%)	125	\$37.78
Computer Operators	1,287	1,140	(147)	(11.4%)	124	\$26.03
Dietitians & Nutritionists	1,583	1,796	213	13.5%	123	\$36.20
Barbers	1,186	1,253	67	5.7%	123	\$12.16
Purchasing Managers	1,381	1,484	103	7.5%	122	\$75.78
Craft Artists	1,353	1,450	97	7.2%	122	\$8.97
Education, Training, & Library Workers, All Other	805	1,153	348	43.2%	121	\$21.90
Automotive & Watercraft Service Attendants	661	733	72	11.0%	121	\$12.76
Stationary Engineers & Boiler Operators	1,095	1,112	17	1.6%	120	\$42.20
Financial Clerks, All Other	969	1,096	127	13.1%	120	\$27.06
Dentists, General	3,115	3,236	121	3.9%	119	\$68.53
Transportation Security Screeners	1,367	1,344	(23)	(1.7%)	119	\$18.55
Orderlies	1,025	1,058	34	3.3%	119	\$18.70
Industrial Machinery Mechanics	1,305	1,314	9	0.7%	118	\$30.48
Environmental Science & Protection Technicians, Including Health	923	981	58	6.3%	118	\$28.13
Sales Engineers	869	1,077	208	23.9%	118	\$60.71
Pest Control Workers	788	828	40	5.1%	114	\$20.20
Special Education Teachers, Preschool	1,219	1,329	110	9.1%	112	\$34.90
Media & Communication Workers, All Other	682	1,035	353	51.8%	112	\$29.76
Glaziers	715	905	190	26.5%	111	\$28.61
Probation Officers & Correctional Treatment Specialists	1,092	954	(138)	(12.6%)	110	\$38.80
Education Administrators, All Other	1,088	1,298	210	19.3%	110	\$44.36
First-Line Supervisors of Landscaping, Lawn Service, & Groundskeeping Workers	1,007	1,044	36	3.6%	108	\$29.89
Biological Technicians	893	1,056	163	18.2%	108	\$26.91
Social Scientists & Related Workers, All Other	1,140	1,159	19	1.7%	107	\$43.75
Broadcast News Analysts	916	1,020	104	11.3%	105	\$35.05
Water & Wastewater Treatment Plant & System Operators	969	829	(140)	(14.4%)	102	\$33.56



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Photographic Process Workers & Processing Machine Operators	654	640	(14)	(2.1%)	102	\$18.73
Curators	827	954	128	15.4%	101	\$36.04
Parts Salespersons	800	800	0	0.0%	101	\$19.12
Animal Trainers	741	845	104	14.1%	100	\$17.34
Diagnostic Medical Sonographers	1,439	1,642	203	14.1%	99	\$36.40
Museum Technicians & Conservators	802	933	131	16.4%	99	\$29.76
Transportation, Storage, & Distribution Managers	1,132	1,226	93	8.3%	98	\$60.79
Cargo & Freight Agents	1,169	1,154	(15)	(1.3%)	97	\$22.18
Surveying & Mapping Technicians	687	843	156	22.7%	97	\$28.23
Appraisers & Assessors of Real Estate	1,228	1,325	97	7.9%	96	\$34.59
Title Examiners, Abstractors, & Searchers	1,104	1,135	32	2.9%	96	\$33.24
Health Diagnosing & Treating Practitioners, All Other	1,481	1,648	167	11.2%	95	\$32.23
Legal Support Workers, All Other	1,106	1,119	13	1.1%	95	\$31.08
Roofers	795	886	91	11.5%	95	\$24.58
Actuaries	1,339	1,438	99	7.4%	93	\$71.22
Budget Analysts	1,145	1,201	56	4.9%	93	\$43.17
Archivists	718	860	142	19.8%	93	\$25.43
Religious Workers, All Other	566	669	103	18.2%	92	\$13.35
Helpers, Construction Trades, All Other	555	640	85	15.3%	92	\$17.43
Media & Communication Equipment Workers, All Other	471	804	333	70.8%	91	\$31.74
Ophthalmic Laboratory Technicians	741	792	51	6.9%	90	\$16.64
Control & Valve Installers & Repairers, Except Mechanical Door	1,162	1,115	(47)	(4.1%)	88	\$38.46
Door-To-Door Sales Workers, News & Street Vendors, & Related Workers	919	748	(171)	(18.6%)	88	\$15.61
Tailors, Dressmakers, & Custom Sewers	750	650	(100)	(13.3%)	88	\$18.84
Public Address System & Other Announcers	798	862	63	7.9%	87	\$22.12
Marriage & Family Therapists	449	715	267	59.4%	87	\$29.27
Tax Examiners & Collectors, & Revenue Agents	1,146	970	(176)	(15.3%)	86	\$39.04
Electrical & Electronics Repairers, Powerhouse, Substation, & Relay	861	929	68	7.9%	84	\$41.55

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Veterinary Technologists & Technicians	718	919	201	28.0%	84	\$23.52
Postal Service Clerks	1,153	966	(187)	(16.2%)	83	\$30.69
Mixing & Blending Machine Setters, Operators, & Tenders	726	738	12	1.6%	83	\$15.59
Cabinetmakers & Bench Carpenters	803	789	(14)	(1.8%)	82	\$19.03
Opticians, Dispensing	904	1,031	128	14.1%	81	\$28.29
Private Detectives & Investigators	675	793	118	17.5%	81	\$29.48
Pharmacy Aides	511	583	72	14.1%	81	\$14.00
Cooks, All Other	456	536	80	17.6%	78	\$15.19
Makeup Artists, Theatrical & Performance	506	632	126	24.9%	76	\$32.30
Surveyors	746	909	163	21.8%	75	\$41.34
Umpires, Referees, & Other Sports Officials	492	509	17	3.5%	73	\$13.56
Industrial Production Managers	939	994	55	5.8%	72	\$67.92
Helpers--Brickmasons, Blockmasons, Stonemasons, & Tile & Marble Setters	342	483	141	41.2%	72	\$23.00
Floral Designers	707	739	32	4.5%	71	\$15.38
Models	373	420	46	12.4%	71	\$16.60
Civil Engineering Technicians	704	768	63	9.0%	70	\$32.69
Shampooers	481	576	95	19.8%	70	\$11.58
Captains, Mates, & Pilots of Water Vessels	632	668	36	5.8%	69	\$43.72
Hazardous Materials Removal Workers	575	558	(18)	(3.1%)	69	\$35.01
Weighers, Measurers, Checkers, & Samplers, Recordkeeping	661	675	15	2.3%	68	\$17.72
Traffic Technicians	549	471	(77)	(14.1%)	68	\$34.51
Statisticians	530	741	211	39.8%	68	\$53.57
Environmental Engineers	850	935	85	10.0%	66	\$47.51
Landscape Architects	793	863	70	8.8%	66	\$41.43
Credit Authorizers, Checkers, & Clerks	630	650	19	3.1%	66	\$24.84
Therapists, All Other	853	992	138	16.2%	65	\$30.87
Medical Equipment Repairers	646	717	71	10.9%	65	\$31.11
Multiple Machine Tool Setters, Operators, & Tenders, Metal & Plastic	466	564	98	21.1%	65	\$16.95



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Electronics Engineers, Except Computer	815	908	94	11.5%	64	\$50.51
Electronic Home Entertainment Equipment Installers & Repairers	618	580	(37)	(6.0%)	63	\$22.06
Lodging Managers	522	595	73	14.0%	63	\$39.45
Tile & Marble Setters	660	674	14	2.1%	62	\$21.94
Computer & Information Research Scientists	589	760	171	29.1%	62	\$74.32
Home Appliance Repairers	691	628	(63)	(9.1%)	61	\$16.25
Prepress Technicians & Workers	555	487	(68)	(12.2%)	61	\$26.87
Transportation Attendants, Except Flight Attendants	428	458	30	7.0%	61	\$12.23
Gaming Change Persons & Booth Cashiers	300	281	(18)	(6.1%)	61	\$19.05
First-Line Supervisors of Correctional Officers	831	641	(189)	(22.8%)	59	\$53.74
Occupational Health & Safety Specialists	898	1,005	107	11.9%	58	\$42.25
Automotive Body & Related Repairers	628	611	(17)	(2.7%)	58	\$21.29
Fabric & Apparel Patternmakers	604	391	(213)	(35.2%)	58	\$33.51
Mechanical Drafters	578	644	66	11.4%	58	\$32.30
Athletes & Sports Competitors	428	424	(4)	(1.0%)	58	\$44.74
Medical Transcriptionists	399	461	63	15.7%	57	\$21.38
Court Reporters	653	570	(83)	(12.6%)	56	\$46.62
Urban & Regional Planners	528	511	(17)	(3.3%)	56	\$37.81
Compensation & Benefits Managers	688	735	47	6.9%	55	\$79.60
New Accounts Clerks	460	506	46	10.0%	55	\$22.74
Cardiovascular Technologists & Technicians	890	959	70	7.8%	54	\$31.82
Chemists	530	580	50	9.5%	54	\$45.78
Legislators	534	479	(54)	(10.2%)	53	\$32.26
Grinding & Polishing Workers, Hand	518	434	(84)	(16.3%)	53	\$16.69
Engineering Technicians, Except Drafters, All Other	503	570	67	13.2%	53	\$35.94
Pressers, Textile, Garment, & Related Materials	425	409	(17)	(3.9%)	53	\$13.94
Sailors & Marine Oilers	416	441	24	5.8%	53	\$22.83

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Cutting, Punching, & Press Machine Setters, Operators, & Tenders, Metal & Plastic	440	452	13	2.8%	52	\$19.18
Ophthalmic Medical Technicians	486	583	96	19.8%	51	\$16.64
Coin, Vending, & Amusement Machine Servicers & Repairers	444	431	(13)	(2.9%)	51	\$20.75
Gaming Cage Workers	285	299	14	5.0%	51	\$17.67
Solar Photovoltaic Installers	209	400	191	91.8%	51	\$24.06
Maintenance Workers, Machinery	472	473	2	0.4%	50	\$26.35
Excavating & Loading Machine & Dragline Operators	421	442	21	4.9%	50	\$35.44
Career/Technical Education Teachers, Secondary School	411	515	104	25.4%	50	\$33.47
Entertainment Attendants & Related Workers, All Other	212	221	9	4.2%	50	\$14.31
Special Education Teachers, All Other	458	584	125	27.4%	49	\$32.16
Chemical Technicians	453	503	50	10.9%	49	\$24.18
Aircraft Mechanics & Service Technicians	525	586	61	11.6%	48	\$33.48
Rail-Track Laying & Maintenance Equipment Operators	453	391	(62)	(13.7%)	48	\$38.34
Print Binding & Finishing Workers	383	348	(35)	(9.1%)	48	\$20.21
Machine Feeders & Offbearers	372	353	(19)	(5.1%)	48	\$14.64
Magnetic Resonance Imaging Technologists	714	797	84	11.8%	47	\$42.21
Transit & Railroad Police	586	494	(92)	(15.7%)	47	\$40.92
Mobile Heavy Equipment Mechanics, Except Engines	422	465	43	10.3%	47	\$31.25
Meat, Poultry, & Fish Cutters & Trimmers	368	383	15	4.0%	47	\$12.68
Designers, All Other	410	464	54	13.1%	46	\$28.68
Reinforcing Iron & Rebar Workers	342	408	67	19.6%	46	\$39.12
Gaming Dealers	254	268	13	5.2%	46	\$15.34
Helpers--Carpenters	243	311	69	28.3%	46	\$16.60
Natural Sciences Managers	422	506	84	20.0%	45	\$73.56
Family & General Practitioners	980	1,076	97	9.9%	44	\$90.84
Paving, Surfacing, & Tamping Equipment Operators	370	373	4	1.0%	44	\$28.28
Air Traffic Controllers	470	464	(7)	(1.4%)	43	\$73.33



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Psychiatric Technicians	425	500	76	17.8%	43	\$21.97
Telephone Operators	343	290	(53)	(15.4%)	43	\$24.72
Dental Laboratory Technicians	332	363	31	9.4%	43	\$20.71
Forensic Science Technicians	316	291	(25)	(7.9%)	43	\$31.98
Fire Inspectors & Investigators	366	302	(64)	(17.4%)	42	\$32.95
Survey Researchers	361	422	61	17.0%	42	\$33.34
Veterinarians	675	811	136	20.2%	41	\$56.62
Desktop Publishers	393	359	(34)	(8.6%)	41	\$31.73
Electrical & Electronics Drafters	376	431	55	14.6%	40	\$40.13
Computer Hardware Engineers	347	482	135	38.7%	40	\$65.21
Ambulance Drivers & Attendants, Except Emergency Medical Technicians	305	263	(42)	(13.8%)	40	\$19.77
Airline Pilots, Copilots, & Flight Engineers	429	411	(17)	(4.0%)	39	\$56.74
Athletic Trainers	403	552	149	37.1%	39	\$25.37
Sewers, Hand	372	254	(118)	(31.7%)	39	\$14.58
Plasterers & Stucco Masons	305	372	67	21.9%	39	\$38.66
Psychiatrists	1,228	1,262	34	2.7%	38	\$97.93
Septic Tank Servicers & Sewer Pipe Cleaners	282	253	(30)	(10.5%)	38	\$25.18
Optometrists	770	888	118	15.3%	37	\$62.32
Railroad Conductors & Yardmasters	331	337	6	1.9%	37	\$29.09
Counselors, All Other	205	304	99	48.3%	37	\$23.04
Health & Safety Engineers, Except Mining Safety Engineers & Inspectors	490	524	33	6.8%	36	\$50.47
Economists	437	478	41	9.3%	36	\$56.13
Computer-Controlled Machine Tool Operators, Metal & Plastic	325	347	22	6.8%	36	\$20.35
Flight Attendants	355	312	(44)	(12.3%)	35	\$21.81
Judges, Magistrate Judges, & Magistrates	562	459	(103)	(18.4%)	34	\$85.73
Carpet Installers	390	382	(8)	(1.9%)	34	\$18.85
Power Plant Operators	385	358	(27)	(7.0%)	34	\$44.39
Molding, Coremaking, & Casting Machine Setters, Operators, & Tenders, Metal & Plastic	297	289	(8)	(2.7%)	34	\$18.63

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Crane & Tower Operators	277	309	33	11.8%	34	\$62.52
Stonemasons	264	341	76	28.9%	34	\$17.46
Meter Readers, Utilities	376	356	(20)	(5.3%)	33	\$30.36
Commercial Pilots	333	345	12	3.7%	33	\$35.40
Material Moving Workers, All Other	261	274	14	5.2%	33	\$24.42
Riggers	239	303	64	26.8%	33	\$39.70
Farmworkers, Farm, Ranch, & Aquacultural Animals	164	207	43	26.4%	33	\$14.16
Paper Goods Machine Setters, Operators, & Tenders	344	288	(55)	(16.1%)	32	\$13.54
Geoscientists, Except Hydrologists & Geographers	252	311	60	23.8%	32	\$45.77
Nurse Anesthetists	458	533	75	16.3%	31	\$89.66
Industrial Engineering Technicians	281	329	48	17.0%	31	\$29.61
Miscellaneous Construction & Related Workers	236	280	43	18.2%	31	\$24.52
Tree Trimmers & Pruners	232	238	7	2.9%	31	\$29.50
Internists, General	848	881	34	4.0%	30	\$95.11
Mechanical Engineering Technicians	262	318	56	21.3%	30	\$31.03
Recreational Therapists	432	474	42	9.7%	29	\$26.47
Physicists	291	331	39	13.5%	28	\$72.91
Cutting & Slicing Machine Setters, Operators, & Tenders	262	244	(17)	(6.6%)	28	\$14.63
Tire Repairers & Changers	228	225	(3)	(1.3%)	28	\$13.82
Graders & Sorters, Agricultural Products	189	205	15	8.0%	28	\$13.61
Dietetic Technicians	278	320	43	15.4%	27	\$20.32
Drafters, All Other	277	305	28	10.1%	27	\$32.90
Textile Cutting Machine Setters, Operators, & Tenders	243	165	(78)	(32.2%)	27	\$18.94
Psychologists, All Other	326	370	44	13.4%	26	\$51.21
Upholsterers	278	236	(42)	(15.0%)	26	\$19.04
Electrical & Electronics Repairers, Commercial & Industrial Equipment	251	282	31	12.5%	26	\$30.09
Biological Scientists, All Other	201	262	61	30.3%	26	\$46.24
Separating, Filtering, Clarifying, Precipitating, & Still Machine Setters, Operators, & Tenders	194	229	35	18.2%	26	\$21.41



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Statistical Assistants	174	205	31	17.7%	26	\$31.56
Textile Knitting & Weaving Machine Setters, Operators, & Tenders	232	171	(61)	(26.3%)	25	\$16.30
Structural Metal Fabricators & Fitters	220	221	1	0.5%	25	\$24.36
Pipelayers	200	207	7	3.4%	25	\$31.19
Medical Appliance Technicians	191	213	21	11.2%	25	\$17.81
Petroleum Engineers	313	345	32	10.4%	24	\$72.37
Agricultural Workers, All Other	130	153	23	17.7%	24	\$15.81
Administrative Law Judges, Adjudicators, & Hearing Officers	478	423	(56)	(11.7%)	23	\$56.45
Healthcare Practitioners & Technical Workers, All Other	263	342	78	29.8%	23	\$40.39
Tapers	225	240	15	6.6%	23	\$29.50
Outdoor Power Equipment & Other Small Engine Mechanics	210	214	3	1.6%	23	\$22.65
Molders, Shapers, & Casters, Except Metal & Plastic	206	218	12	5.7%	23	\$15.86
Millwrights	168	225	56	33.5%	23	\$36.51
Locksmiths & Safe Repairers	239	226	(13)	(5.4%)	22	\$25.21
Physical Scientists, All Other	217	257	40	18.4%	22	\$47.64
Textile, Apparel, & Furnishings Workers, All Other	189	171	(18)	(9.7%)	22	\$19.62
Food Cooking Machine Operators & Tenders	145	159	13	9.1%	22	\$15.36
Pediatricians, General	662	675	14	2.1%	21	\$82.54
Podiatrists	408	393	(15)	(3.7%)	21	\$65.79
Insurance Appraisers, Auto Damage	248	252	4	1.8%	21	\$35.84
Locomotive Engineers	213	234	21	10.0%	21	\$46.58
Coating, Painting, & Spraying Machine Setters, Operators, & Tenders	184	198	14	7.6%	21	\$15.18
Surgeons	591	586	(4)	(0.7%)	20	\$122.13
Emergency Management Directors	230	209	(22)	(9.4%)	20	\$50.49
Crushing, Grinding, & Polishing Machine Setters, Operators, & Tenders	175	180	5	2.7%	20	\$15.02
Transportation Workers, All Other	162	175	13	8.3%	20	\$20.09
Anesthesiologists	550	565	15	2.7%	19	\$127.88
Radiation Therapists	317	352	36	11.3%	19	\$54.11



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Judicial Law Clerks	277	233	(44)	(15.9%)	19	\$36.40
Audiologists	262	321	58	22.3%	19	\$39.17
Parking Enforcement Workers	240	143	(97)	(40.3%)	19	\$19.29
Cutters & Trimmers, Hand	202	132	(70)	(34.5%)	19	\$13.28
Extruding, Forming, Pressing, & Compacting Machine Setters, Operators, & Tenders	165	147	(19)	(11.3%)	19	\$14.56
Fence Erectors	142	159	17	12.1%	19	\$17.04
Insulation Workers, Mechanical	127	163	35	27.8%	19	\$54.52
Gaming & Sports Book Writers & Runners	116	113	(3)	(2.2%)	19	\$14.98
Choreographers	104	134	30	28.8%	19	\$32.43
Chiropractors	564	574	10	1.8%	18	\$41.60
Furniture Finishers	205	187	(18)	(8.7%)	18	\$16.03
Atmospheric & Space Scientists	183	220	36	19.8%	18	\$56.94
Farmers, Ranchers, & Other Agricultural Managers	172	207	35	20.6%	18	\$29.21
Painters, Transportation Equipment	170	171	1	0.8%	18	\$19.92
Career/Technical Education Teachers, Middle School	164	183	19	11.5%	18	\$43.52
Biochemists & Biophysicists	150	188	37	24.8%	18	\$56.04
Agricultural Equipment Operators	119	118	(1)	(0.6%)	18	\$18.66
Occupational Health & Safety Technicians	284	309	25	8.9%	17	\$33.12
Exercise Physiologists	227	265	37	16.5%	17	\$26.30
Artists & Related Workers, All Other	197	192	(5)	(2.3%)	17	\$24.98
Paperhangers	190	195	5	2.8%	17	\$22.17
Motorboat Mechanics & Service Technicians	175	159	(16)	(9.1%)	17	\$21.64
Pesticide Handlers, Sprayers, & Applicators, Vegetation	128	133	5	4.2%	17	\$20.35
Nuclear Medicine Technologists	262	284	21	8.2%	16	\$44.96
Painting, Coating, & Decorating Workers	149	148	(1)	(0.6%)	16	\$13.63
Ship Engineers	133	130	(3)	(2.2%)	16	\$53.69
Environmental Engineering Technicians	132	162	30	22.7%	16	\$31.11
Occupational Therapy Aides	71	114	43	61.2%	16	\$20.24

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Shoe & Leather Workers & Repairers	189	134	(54)	(28.8%)	15	\$14.27
Floor Layers, Except Carpet, Wood, & Hard Tiles	166	168	2	1.2%	15	\$26.43
Electronic Equipment Installers & Repairers, Motor Vehicles	165	136	(30)	(17.9%)	15	\$17.41
Mechanical Door Repairers	161	184	24	14.6%	15	\$22.72
Grinding, Lapping, Polishing, & Buffing Machine Tool Setters, Operators, & Tenders, Metal & Plastic	151	138	(13)	(8.3%)	15	\$20.65
Woodworking Machine Setters, Operators, & Tenders, Except Sawing	135	135	0	0.0%	15	\$15.41
Morticians, Undertakers, & Funeral Directors	129	117	(11)	(8.8%)	15	\$33.51
Audio-Visual & Multimedia Collections Specialists	126	153	28	22.0%	15	\$30.66
Food & Tobacco Roasting, Baking, & Drying Machine Operators & Tenders	124	129	6	4.7%	15	\$16.95
Agricultural & Food Science Technicians	105	135	30	29.0%	15	\$26.96
First-Line Supervisors of Gaming Workers	77	83	6	7.6%	15	\$22.98
Orthotists & Prosthetists	169	196	26	15.6%	14	\$41.57
Materials Engineers	163	185	22	13.2%	14	\$54.99
Aerospace Engineers	144	187	43	30.0%	14	\$60.55
Chemical Equipment Operators & Tenders	128	126	(1)	(1.1%)	14	\$18.42
Explosives Workers, Ordnance Handling Experts, & Blasters	102	112	9	9.1%	14	\$33.74
First-Line Supervisors of Farming, Fishing, & Forestry Workers	87	99	12	14.3%	14	\$29.10
Insulation Workers, Floor, Ceiling, & Wall	82	114	32	39.2%	14	\$21.73
Nuclear Engineers	144	161	17	11.9%	13	\$71.00
Tool & Die Makers	143	135	(8)	(5.8%)	13	\$30.01
Rail Car Repairers	103	123	20	19.2%	13	\$38.37
Bicycle Repairers	98	103	5	5.2%	13	\$15.70
Building Cleaning Workers, All Other	71	97	26	36.4%	13	\$22.17
Watch Repairers	170	123	(47)	(27.5%)	12	\$15.82
Musical Instrument Repairers & Tuners	146	130	(16)	(11.1%)	12	\$18.16
Marine Engineers & Naval Architects	128	158	30	23.5%	12	\$57.59
Microbiologists	113	132	18	16.3%	12	\$35.28

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Conservation Scientists	110	132	22	20.0%	12	\$12.98
Correspondence Clerks	96	102	6	6.5%	12	\$24.85
Funeral Attendants	83	77	(6)	(6.7%)	12	\$12.92
Etchers & Engravers	77	93	17	21.7%	12	\$12.73
Obstetricians & Gynecologists	332	334	2	0.7%	11	\$113.05
Avionics Technicians	123	134	11	9.1%	11	\$33.09
Electric Motor, Power Tool, & Related Repairers	123	122	(1)	(0.5%)	11	\$23.68
Sociologists	122	121	(1)	(1.2%)	11	\$30.36
Electrical & Electronics Installers & Repairers, Transportation Equipment	111	112	1	0.5%	11	\$36.98
Airfield Operations Specialists	104	94	(10)	(9.5%)	11	\$28.05
Computer Numerically Controlled Machine Tool Programmers, Metal & Plastic	86	100	14	16.4%	11	\$29.96
Boilermakers	85	102	17	19.4%	11	\$35.57
Animal Control Workers	71	78	6	8.7%	11	\$18.30
Motion Picture Projectionists	70	80	10	14.6%	11	\$17.08
Forest & Conservation Workers	68	67	(0)	0.0%	11	\$19.64
Food Processing Workers, All Other	65	89	24	37.0%	11	\$13.92
Plating & Coating Machine Setters, Operators, & Tenders, Metal & Plastic	108	93	(15)	(14.2%)	10	\$16.84
Radio, Cellular, & Tower Equipment Installers & Repairs	83	90	7	8.7%	10	\$36.47
Bridge & Lock Tenders	83	74	(9)	(10.6%)	10	\$24.72
Agricultural Inspectors	73	78	6	7.8%	10	\$36.40
Wind Turbine Service Technicians	56	87	31	54.9%	10	\$18.22
Arbitrators, Mediators, & Conciliators	179	195	17	9.2%	9	\$50.01
Chemical Engineers	99	121	22	21.8%	9	\$50.01
Railroad Brake, Signal, & Switch Operators	85	92	7	8.4%	9	\$34.49
Metal Workers & Plastic Workers, All Other	81	85	4	5.1%	9	\$21.02
Woodworkers, All Other	79	83	4	4.6%	9	\$15.06
Signal & Track Switch Repairers	79	78	(1)	(1.5%)	9	\$40.43
Anthropologists & Archeologists	77	90	13	17.0%	9	\$31.94

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Extruding & Drawing Machine Setters, Operators, & Tenders, Metal & Plastic	76	82	5	6.8%	9	\$19.43
Zoologists & Wildlife Biologists	73	93	20	27.4%	9	\$35.66
Geological & Petroleum Technicians	72	87	15	21.0%	9	\$23.78
Power Distributors & Dispatchers	65	85	20	31.1%	9	\$55.33
Forest & Conservation Technicians	55	71	16	29.0%	9	\$20.66
Soil & Plant Scientists	53	74	21	40.2%	9	\$33.06
Nurse Midwives	130	144	14	10.4%	8	\$55.57
Postmasters & Mail Superintendents	121	99	(22)	(18.3%)	8	\$43.12
Cartographers & Photogrammetrists	67	93	26	38.2%	8	\$47.58
Political Scientists	64	79	15	23.0%	8	\$66.06
Welding, Soldering, & Brazing Machine Setters, Operators, & Tenders	62	72	10	15.7%	8	\$18.65
Earth Drillers, Except Oil & Gas	61	73	12	20.6%	8	\$32.53
Food Scientists & Technologists	61	71	11	17.4%	8	\$39.82
Service Unit Operators, Oil, Gas, & Mining	61	67	6	9.4%	8	\$75.33
Semiconductor Processors	47	62	15	31.9%	8	\$16.36
Automotive Glass Installers & Repairers	76	76	0	0.0%	7	\$13.09
Gas Plant Operators	76	72	(4)	(5.7%)	7	\$37.21
Gaming Managers	58	48	(10)	(17.9%)	7	\$50.07
Cleaning, Washing, & Metal Pickling Equipment Operators & Tenders	55	56	1	2.5%	7	\$13.23
Roustabouts, Oil & Gas	46	57	11	23.4%	7	\$41.64
Hearing Aid Specialists	65	76	11	17.6%	6	\$19.43
Textile Winding, Twisting, & Drawing Out Machine Setters, Operators, & Tenders	65	50	(15)	(23.0%)	6	\$14.32
Lathe & Turning Machine Tool Setters, Operators, & Tenders, Metal & Plastic	62	58	(4)	(6.6%)	6	\$19.18
Precision Instrument & Equipment Repairers, All Other	61	66	5	8.0%	6	\$24.80
Historians	57	64	8	13.5%	6	\$24.08
Fishers & Related Fishing Workers	51	54	3	6.1%	6	\$20.68
Farm & Home Management Advisors	47	60	13	28.0%	6	\$30.14
Sawing Machine Setters, Operators, & Tenders, Wood	46	47	2	3.9%	6	\$15.75



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Aerospace Engineering & Operations Technicians	45	60	14	32.0%	6	\$32.79
Drilling & Boring Machine Tool Setters, Operators, & Tenders, Metal & Plastic	43	52	9	21.5%	6	\$11.72
Gaming Service Workers, All Other	33	42	9	26.6%	6	\$12.93
Helpers--Painters, Paperhangers, Plasterers, & Stucco Masons	32	41	9	29.6%	6	\$23.75
Oral & Maxillofacial Surgeons	144	144	0	0.0%	5	\$113.80
Respiratory Therapy Technicians	70	51	(18)	(26.3%)	5	\$31.85
Funeral Service Managers	65	63	(1)	(2.0%)	5	\$49.96
Textile Bleaching & Dyeing Machine Operators & Tenders	55	26	(29)	(53.1%)	5	\$16.97
Motorcycle Mechanics	54	44	(11)	(19.6%)	5	\$18.12
Aircraft Cargo Handling Supervisors	53	50	(3)	(5.3%)	5	\$23.01
Commercial Divers	51	53	1	2.7%	5	\$25.09
Camera & Photographic Equipment Repairers	51	53	3	5.0%	5	\$22.32
Aircraft Structure, Surfaces, Rigging, & Systems Assemblers	50	49	(1)	(2.5%)	5	\$24.26
Heat Treating Equipment Setters, Operators, & Tenders, Metal & Plastic	50	47	(4)	(7.2%)	5	\$19.06
Mining & Geological Engineers, Including Mining Safety Engineers	49	63	14	28.0%	5	\$43.96
Epidemiologists	48	55	7	15.5%	5	\$38.45
Plant & System Operators, All Other	48	49	1	1.5%	5	\$27.92
Hydrologists	46	54	8	17.8%	5	\$46.64
Communications Equipment Operators, All Other	46	48	3	6.3%	5	\$23.73
Engine & Other Machine Assemblers	42	48	7	16.3%	5	\$26.88
Pump Operators, Except Wellhead Pumpers	42	42	0	0.0%	5	\$22.61
Tank Car, Truck, & Ship Loaders	41	43	2	4.2%	5	\$19.20
Electro-Mechanical Technicians	40	52	12	29.3%	5	\$35.73
Forest Fire Inspectors & Prevention Specialists	36	35	(1)	(2.4%)	5	\$21.14
Biomedical Engineers	35	52	16	46.4%	5	\$48.71
Slaughterers & Meat Packers	33	36	3	8.2%	5	\$14.88
Conveyor Operators & Tenders	32	36	4	11.4%	5	\$17.91
Dentists, All Other Specialists	133	135	2	1.7%	4	\$72.96



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Industrial-Organizational Psychologists	58	55	(3)	(5.2%)	4	\$50.27
Genetic Counselors	56	69	13	23.0%	4	\$48.08
Petroleum Pump System Operators, Refinery Operators, & Gaugers	42	43	1	2.2%	4	\$31.44
Fish & Game Wardens	42	37	(5)	(11.7%)	4	\$32.46
Rolling Machine Setters, Operators, & Tenders, Metal & Plastic	37	35	(2)	(4.8%)	4	\$21.52
Adhesive Bonding Machine Operators & Tenders	36	31	(5)	(14.4%)	4	\$15.24
Materials Scientists	35	44	9	24.5%	4	\$66.11
Mathematicians	35	44	9	25.3%	4	\$42.97
Motorboat Operators	35	38	3	7.9%	4	\$32.85
Milling & Planing Machine Setters, Operators, & Tenders, Metal & Plastic	32	35	2	7.6%	4	\$28.06
Mining Machine Operators, All Other	30	34	4	14.5%	4	\$39.34
Fiberglass Laminators & Fabricators	30	31	1	4.4%	4	\$19.59
Cooks, Private Household	25	30	5	17.7%	4	\$25.77
Life Scientists, All Other	23	39	15	66.5%	4	\$43.47
Gaming Surveillance Officers & Gaming Investigators	23	28	5	22.8%	4	\$11.81
Orthodontists	85	81	(5)	(5.6%)	3	\$117.86
Miscellaneous Mathematical Science Occupations	32	36	4	13.1%	3	\$60.17
Nuclear Power Reactor Operators	28	31	4	13.9%	3	\$32.70
Floor Sanders & Finishers	28	26	(2)	(8.0%)	3	\$17.22
Animal Scientists	27	30	3	11.0%	3	\$31.03
Model Makers, Metal & Plastic	27	29	2	6.6%	3	\$27.18
Metal-Refining Furnace Operators & Tenders	27	27	0	0.0%	3	\$21.25
Foresters	26	31	5	17.8%	3	\$34.63
Tool Grinders, Filers, & Sharpeners	25	25	0	0.0%	3	\$12.74
Foundry Mold & Coremakers	23	26	3	10.9%	3	\$17.82
Furnace, Kiln, Oven, Drier, & Kettle Operators & Tenders	22	26	4	19.9%	3	\$17.85
Logging Equipment Operators	22	21	(1)	(6.2%)	3	\$21.08
Embalmers	22	20	(3)	(12.0%)	3	\$45.27
Hunters & Trappers	19	24	5	25.1%	3	\$16.29

SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Rotary Drill Operators, Oil & Gas	18	22	4	21.7%	3	\$25.53
Cooling & Freezing Equipment Operators & Tenders	18	21	3	14.6%	3	\$13.80
Helpers--Extraction Workers	15	19	4	26.1%	3	\$22.75
Nuclear Technicians	14	21	7	46.3%	3	\$57.15
Radio Operators	22	24	2	8.0%	2	\$37.77
Rail Yard Engineers, Dinkey Operators, & Hostlers	21	23	2	11.6%	2	\$32.21
Astronomers	20	22	2	9.7%	2	\$56.46
Forging Machine Setters, Operators, & Tenders, Metal & Plastic	18	20	2	10.6%	2	\$22.93
Layout Workers, Metal & Plastic	18	18	0	0.0%	2	\$22.37
Patternmakers, Wood	18	17	(1)	(6.3%)	2	\$18.41
Terrazzo Workers & Finishers	17	19	2	12.5%	2	\$42.44
Pile-Driver Operators	17	18	0	0.0%	2	\$22.78
Rail Transportation Workers, All Other	17	17	0	0.0%	2	\$26.98
Hoist & Winch Operators	15	15	0	0.0%	2	\$11.34
Extraction Workers, All Other	14	12	(1)	(8.9%)	2	\$65.81
Derrick Operators, Oil & Gas	13	17	4	27.5%	2	\$69.97
Farm Equipment Mechanics & Service Technicians	13	16	3	25.2%	2	\$23.57
Animal Breeders	13	15	2	14.4%	2	\$34.17
Gas Compressor & Gas Pumping Station Operators	12	13	1	5.2%	2	\$29.51
Patternmakers, Metal & Plastic	11	15	4	40.3%	2	\$25.29
Agricultural Engineers	19	21	2	10.4%	1	\$41.15
Prosthodontists	16	18	2	9.3%	1	\$101.08
Manufactured Building & Mobile Home Installers	14	14	0	0.0%	1	\$11.81
Coil Winders, Tapers, & Finishers	12	11	(0)	0.0%	1	\$18.51
Extruding & Forming Machine Setters, Operators, & Tenders, Synthetic & Glass Fibers	11	11	0	0.0%	1	\$27.06
Refractory Materials Repairers, Except Brickmasons	10	11	1	11.9%	1	\$31.06
Chemical Plant & System Operators	9	10	1	12.4%	1	\$27.18
Logging Workers, All Other	9	10	1	6.0%	1	\$13.33



SOC TITLE	2018 JOBS	2028 JOBS	CHANGE	% CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Geographers	8	10	2	22.3%	1	\$31.60
Log Graders & Scalers	8	9	1	8.2%	1	\$19.11
Recreational Vehicle Service Technicians	8	8	0	0.0%	1	\$21.77
Model Makers, Wood	8	8	0	0.0%	1	\$19.04
Tire Builders	7	7	0	0.0%	1	\$13.86
Dredge Operators	7	6	(1)	(12.6%)	1	\$23.61
Helpers--Roofers	6	8	2	32.0%	1	\$14.71
Wellhead Pumpers	6	7	1	8.7%	1	\$26.49
Pourers & Casters, Metal	6	7	2	27.9%	1	\$16.50
Shoe Machine Operators & Tenders	6	5	(1)	(11.5%)	1	\$12.63
Fallers	5	5	0	0.0%	1	\$18.22
Fabric Menders, Except Garment	4	3	(0)	0.0%	0	\$14.30
Loading Machine Operators, Underground Mining	3	3	0	0.0%	0	\$24.88
Roof Bolters, Mining	2	2	0	0.0%	0	\$72.92
Locomotive Firers	2	2	0	0.0%	0	\$29.39
Rock Splitters, Quarry	1	2	0	0.0%	0	\$17.01
Continuous Mining Machine Operators	1	1	0	0.0%	0	\$24.01
Mine Cutting & Channeling Machine Operators	0	0	0	0.0%	0	\$48.18
Mine Shuttle Car Operators	0	0	0	0.0%	0	\$26.29
Timing Device Assemblers & Adjusters	0	0	0	0.0%	0	\$14.89
Farm Labor Contractors	0	0	0	0.0%	0	\$0.00

Source: Employees & Self-Employed 2019.4.



APPENDIX 7: Unemployment

Data on unemployment give researchers an idea of where skills mismatches may exist in the region. Unemployment data can also provide important context when identifying the training programs that are best suited to transitioning unemployed workers into in-demand occupations.

The tables and figures present the number of people unemployed by two-digit industry sector and by two-digit occupational group¹⁹ in the Kingsborough Service Region. Data reflect July 2019 and follow the same methodology used by federal statistical agencies to determine the number of workers in an industry or occupation who are not currently employed. The unemployment rate is not provided because it is difficult to accurately determine the size of the labor force in an industry or occupation every month. Rather than the unemployment rate, the percent of all unemployed workers in the region, state, and U.S. are provided.

Table A7.1: Unemployed Workers by Industry Sector in the Kingsborough Service Region with State and National Comparisons

NAICS CODE	NAICS TITLE	REGIONAL UNEMPLOYED	REGIONAL % UNEMPLOYED	STATE % UNEMPLOYED	U.S. % UNEMPLOYED
62	Health Care & Social Assistance	14,594	16%	14%	10%
56	Administrative & Support & Waste Management & Remediation Services	11,577	13%	11%	10%
72	Accommodation & Food Services	9,042	10%	10%	7%
48	Transportation & Warehousing	7,042	8%	13%	6%
44	Retail Trade	6,584	7%	9%	8%
23	Construction	6,557	7%	10%	9%
54	Professional, Scientific, & Technical Services	6,103	7%	4%	5%
51	Information	4,775	5%	3%	2%
61	Educational Services	4,396	5%	4%	3%
52	Finance & Insurance	3,669	4%	2%	3%
99	No Previous Work Experience/Unspecified	3,265	4%	2%	7%
42	Wholesale Trade	2,842	3%	3%	3%

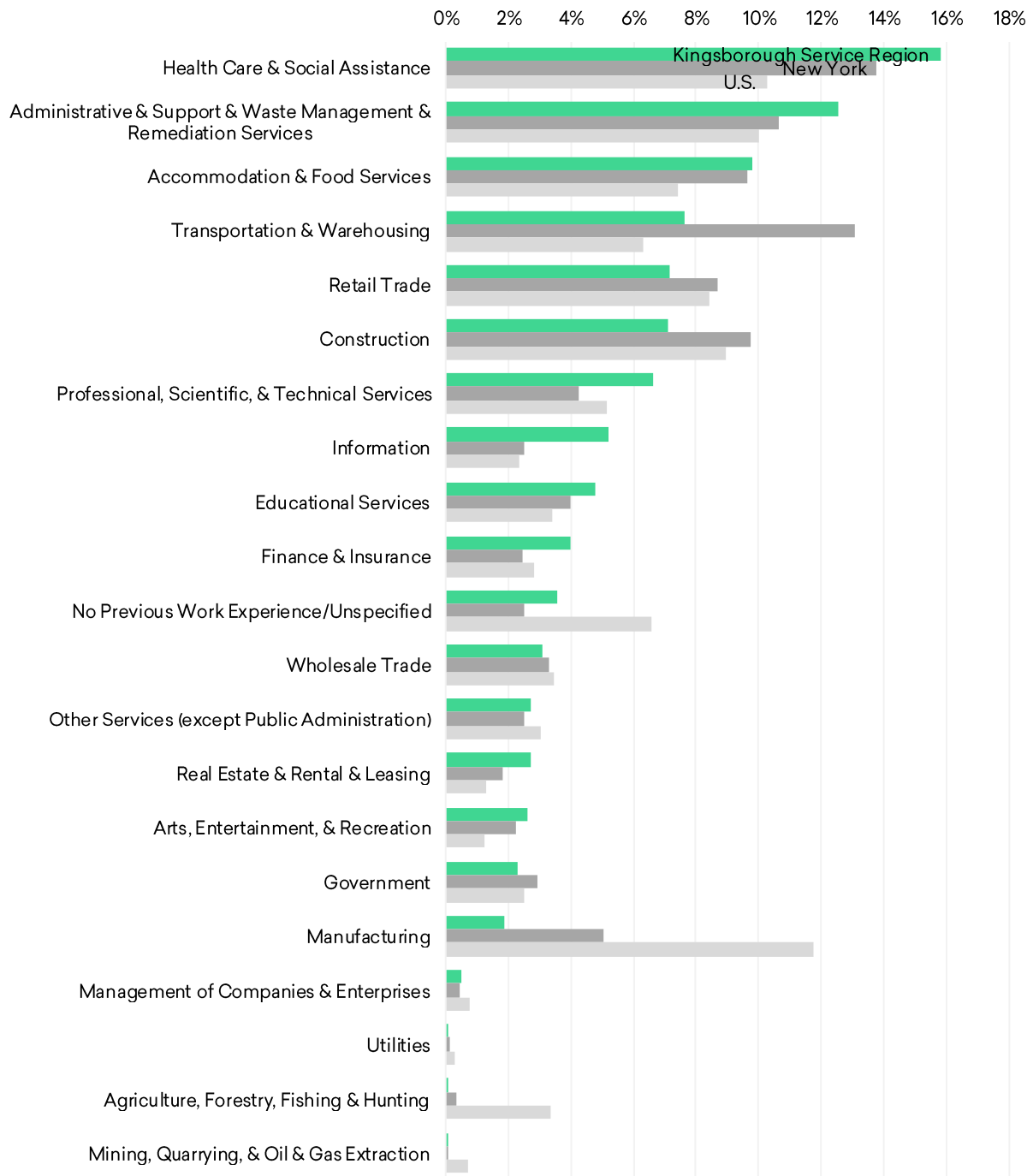
¹⁹ Unemployment by industry data is only available at the two-digit level whereas the industry data reported elsewhere in this analysis is at the three-digit level.

NAICS CODE	NAICS TITLE	REGIONAL UNEMPLOYED	REGIONAL % UNEMPLOYED	STATE % UNEMPLOYED	U.S. % UNEMPLOYED
81	Other Services (except Public Administration)	2,521	3%	2%	3%
53	Real Estate & Rental & Leasing	2,497	3%	2%	1%
71	Arts, Entertainment, & Recreation	2,413	3%	2%	1%
90	Government	2,094	2%	3%	2%
31	Manufacturing	1,712	2%	5%	12%
55	Management of Companies & Enterprises	456	0%	0%	1%
22	Utilities	89	0%	0%	0%
11	Agriculture, Forestry, Fishing & Hunting	11	0%	0%	3%
21	Mining, Quarrying, & Oil & Gas Extraction	1	0%	0%	1%

Source: Emsi Total Unemployment (July 2019).



Figure A7.1: Unemployed Workers by Industry Sector in the Kingsborough Service Region with State and National Comparisons



Source: Emsi Total Unemployment (July 2019).

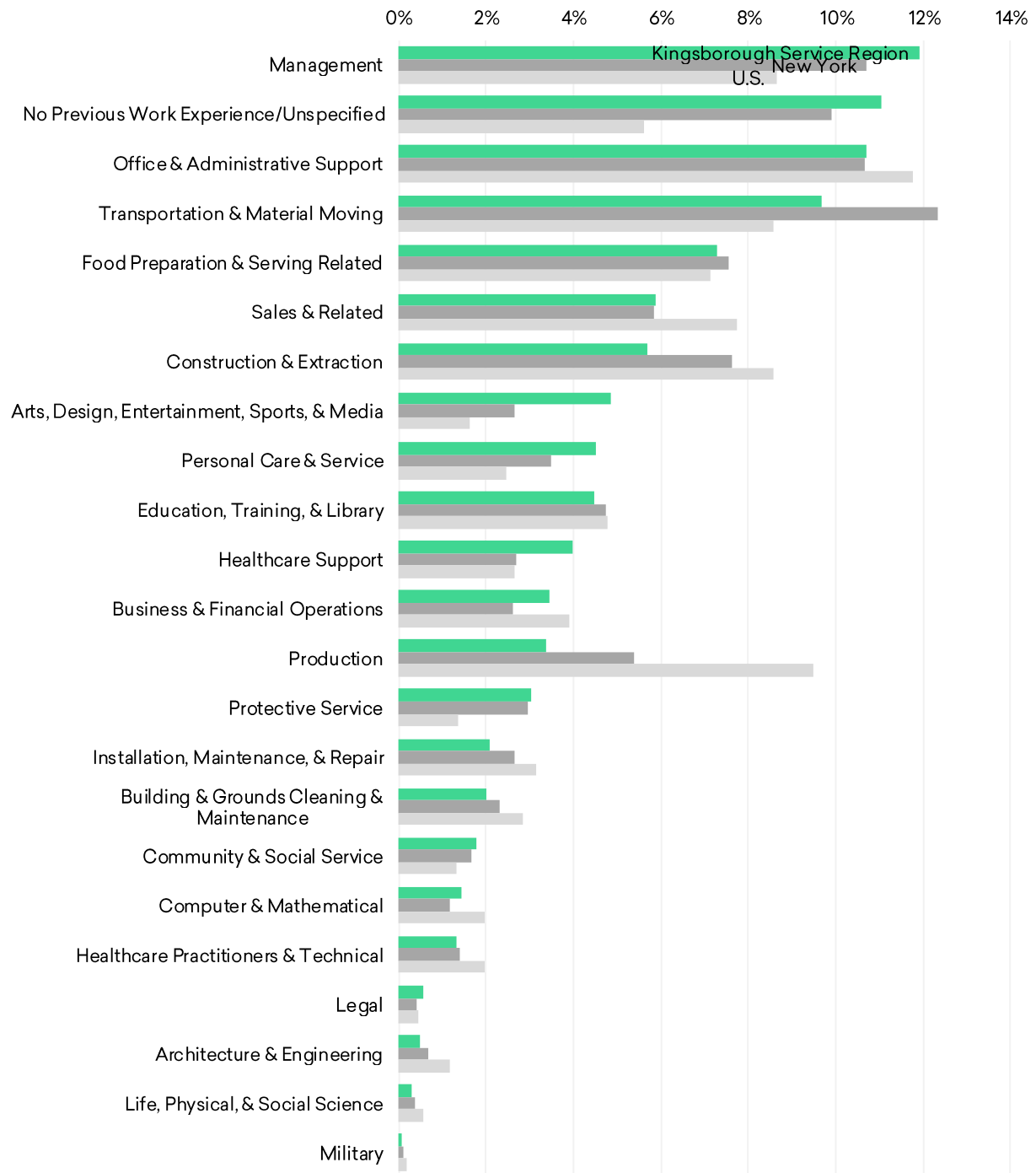


Table A7.2: Unemployed Workers by Occupational Group in the Kingsborough Service Region with State and National Comparisons

SOC CODE	SOC TITLE	REGIONAL UNEMPLOYED	REGIONAL % UNEMPLOYED	STATE % UNEMPLOYED	U.S. % UNEMPLOYED
11-0000	Management	11,006	12%	11%	9%
99-0000	No Previous Work Experience/Unspecified	10,185	11%	10%	6%
43-0000	Office & Administrative Support	9,885	11%	11%	12%
53-0000	Transportation & Material Moving	8,919	10%	12%	9%
35-0000	Food Preparation & Serving Related	6,705	7%	8%	7%
41-0000	Sales & Related	5,421	6%	6%	8%
47-0000	Construction & Extraction	5,265	6%	8%	9%
27-0000	Arts, Design, Entertainment, Sports, & Media	4,480	5%	3%	2%
39-0000	Personal Care & Service	4,148	4%	4%	2%
25-0000	Education, Training, & Library	4,114	4%	5%	5%
31-0000	Healthcare Support	3,670	4%	3%	3%
13-0000	Business & Financial Operations	3,200	3%	3%	4%
51-0000	Production	3,099	3%	5%	9%
33-0000	Protective Service	2,795	3%	3%	1%
49-0000	Installation, Maintenance, & Repair	1,929	2%	3%	3%
37-0000	Building & Grounds Cleaning & Maintenance	1,866	2%	2%	3%
21-0000	Community & Social Service	1,659	2%	2%	1%
15-0000	Computer & Mathematical	1,345	1%	1%	2%
29-0000	Healthcare Practitioners & Technical	1,208	1%	1%	2%
23-0000	Legal	525	1%	0%	0%
17-0000	Architecture & Engineering	457	0%	1%	1%
19-0000	Life, Physical, & Social Science	282	0%	0%	1%
55-0000	Military	50	0%	0%	0%

Source: Emsi Total Unemployment (July 2019).

Figure A7.2: Unemployed Workers by Occupational Group in the Kingsborough Service Region with State and National Comparisons



Source: Emsi Total Unemployment (July 2019).



APPENDIX 8: Living Wage

As shown in the following tables, the living wage is the hourly rate that an individual must earn to support his or her family as a sole income provider working full-time or 2,080 hours annually. Part-time is defined as less than 35 hours per week of work. State minimum wage rates are the same for all individuals, regardless of the number of dependents in the household. Values are reported per adult in the household. The poverty rate is typically reported as gross annual income and has been adjusted to an hourly wage rate.

Table A8.1: Living Wage Calculations for the Kingsborough Service Region

ADULTS IN HOUSEHOLD	CHILDREN IN HOUSEHOLD	LIVING WAGE	POVERTY WAGE	MINIMUM WAGE
One adult	No children	\$17.46	\$5.84	\$15.00
	One child	\$31.99	\$7.91	\$15.00
	Two children	\$41.54	\$9.99	\$15.00
	Three children	\$54.98	\$12.07	\$15.00
Two adults, one working	No children	\$24.19	\$7.91	\$15.00
	One child	\$28.23	\$9.99	\$15.00
	Two children	\$30.85	\$12.07	\$15.00
	Three children	\$35.23	\$14.14	\$15.00
Two adults	No children	\$12.10	\$3.96	\$15.00
	One child	\$17.19	\$5.00	\$15.00
	Two children	\$22.15	\$6.03	\$15.00
	Three children	\$27.99	\$7.07	\$15.00

Source: Dr. Amy K. Glasmeier and the Massachusetts Institute of Technology, <http://livingwage.mit.edu>. Minimum wage provided by the U.S. Department of Labor.

Table A8.2: Living Wage Calculations for New York

ADULTS IN HOUSEHOLD	CHILDREN IN HOUSEHOLD	LIVING WAGE	POVERTY WAGE	MINIMUM WAGE
One adult	No children	\$15.09	\$5.84	\$11.10
	One child	\$30.03	\$7.91	\$11.10
	Two children	\$39.59	\$9.99	\$11.10
	Three children	\$52.52	\$12.07	\$11.10
Two adults, one working	No children	\$22.22	\$7.91	\$11.10
	One child	\$26.28	\$9.99	\$11.10
	Two children	\$28.90	\$12.07	\$11.10
	Three children	\$32.77	\$14.14	\$11.10
Two adults	No children	\$11.11	\$3.96	\$11.10
	One child	\$16.21	\$5.00	\$11.10
	Two children	\$21.17	\$6.03	\$11.10
	Three children	\$26.76	\$7.07	\$11.10

Source: Dr. Amy K. Glasmeier and the Massachusetts Institute of Technology, <http://livingwage.mit.edu>. Minimum wage provided by the U.S. Department of Labor.

