

**CENTER FOR EDUCATION AND CAREER  
INNOVATION Demand and Supply Analysis:  
Works Council Region 9**

**PHASE 1 – NOVEMBER 2014**



**Project Overview**

**Section 1: Overview of Demand • Page 6**

**Section 2: Overview of Supply • Page 21**

**Section 2A: Overview of Graduating CTE Seniors by Pathway**

**Section 2B: Overview of CTE Enrollments and Concentrators by Pathway and District**

**Section 2C: Overview of Postsecondary Supply**

**Section 3: Overview of Demand Supply Alignment • Page 53**

## INTRODUCTION

The Center for Education and Career Innovation commissioned an analysis of regional labor market demand and talent supply in Indiana. This is the report of that analysis and a presentation of the data.

The purpose of the report is to provide information to the state's eleven Works Councils to help them understand the characteristics of employment demand by key economic sectors in their regions and their regional capacity of supply to meet that demand. The report shows data on the scale of demand, or job openings, by key occupational areas tied to the sectors. The report also shows data on educational credential production at the secondary and postsecondary level. These supply-side data provide a comprehensive picture of the scale and type of program completions from major educational institutions within a region.

These data are intended to support a discussion among members of the Councils and their regional partners. Council members and their partners should use local knowledge to describe, embellish, and understand the data in their context. For example, industry groups and businesses will be able to help describe and provide insights on the skills in demand in the economy. For their part, educators will be able to help describe the nature of educational programs and the outcomes.

Our hope is that these discussions, with the data, will help the Councils plan and identify priorities in their regions. If needed, CECI may be able to offer technical assistance to help each region interpret and form its own conclusions and recommendations from the data.

## INTRODUCTION, Cont.

There are three major sections to the report. The first section describes demand for talent in the regional economy. The second section describes the production of credentials, or degrees, in career and technical education secondary systems as well as postsecondary colleges and universities. The final section of the report presents side-by-side data on the demand in key sectors and occupations with data on the supply of talent from secondary and postsecondary institutions. This side-by-side look at the alignment between demand and supply is a quantitative approach to display what others have remarked on anecdotally that it is hard for employers to fill open jobs and find the right skill sets to match requirements.

Like all data reports, this one includes a number of caveats:

All demand-side data are a combination of forecasts for job openings and real-time job postings in each occupational group. While these are some of the best and most readily available data in the market, they are not comprehensive and readers should not take them as exact measures of demand. That is, they are good measures of the scale of demand but may not capture all sources and variances of demand in the economy. Whenever possible, we have noted these qualifications in the narrative.

For their part, the supply-side data obtained from state and federal sources also contain some anomalies. For example, in secondary CTE there is variation between state-level organization and accounting of the data and district level use of the data. That may lead to some differences in program identification and categorization. Nonetheless, the data as a whole accurately reflect overall program emphasis and concentration in a region. Whenever possible, we have noted where possible anomalies in the data may occur.

## INTRODUCTION, Cont.

Finally, the labor market is complex and there are many ways students and workers gain skills and find jobs. Our approach focuses on the path to skill attainment and employment that involves the secondary and postsecondary educational system. These are the systems upon which the Works Councils have been asked to focus. They also are the biggest areas of public investment and produce the largest numbers of talent supply for a region. However, there are other sources of skill and talent development that feed the labor market, such as apprenticeships and non-academic professional development and industry training programs. Our report does not attempt to quantify these other sources of talent development, in part because these sources lack standardized and comparable data. So, while this analysis neither fully captures the complexity of the labor market nor all the different sources of talent supply, it focuses on those sources most relevant to the policy focus of the Works Councils and arguably provide the biggest supply of talent to a region.

The Center for Education and Career Innovation commissioned FutureWorks, a national firm focused on research and policy development, to compile the data and lead the research for this report. CECI and FutureWorks would like to acknowledge the contributions of the Works Councils and the feedback, observations and assistance they gave in earlier iterations of these data. We would also like to acknowledge the assistance, cooperation and collaboration in providing data and advice from the following organizations: Indiana Department of Education, Office of Career and Technical Education; Indiana Commission for Higher Education; Indiana Department of Workforce Development; Ivy Tech Community College, Department of Institutional Research; Indiana Economic Development Corporation; Indiana Association of Career and Technical Education Directors; Central Indiana Corporate Partnership and Bio-Crossroads, Conexus, and TechPoint; and, regional workforce and economic development organizations across the state.

A black and white, long-exposure photograph of a multi-lane highway with heavy traffic. The cars are blurred into streaks, creating a sense of rapid movement and congestion. The perspective is from an elevated position looking down the road towards a city skyline in the distance.

SECTION 1

Overview of Demand

## SECTION OVERVIEW

This section presents labor market demand estimates for major occupational groups in the regional economy. These data help give a picture of demand for key occupational groups that are important to business, individuals and the regional economy.

The demand data on occupational groups are organized first by those tied to targeted industry sectors in the regional economy (see next page for list of targeted sectors). A second additional list of all “other” occupational groups, some of them with substantial demand and some emerging in the economy, are presented after the occupational groups organized by targeted industry sector.

The data are presented in tables that include estimates of demand, earning potential, number of total jobs, and education typically required for each occupational group. The Works Council and its partners can use these data elements to identify priority occupational groups, answering questions such as:

- » *which occupational groups are most important to current and future wealth creation in the economy,*
- » *which have substantial demand,*
- » *which have career earning potential, and*
- » *what kind of education is required.*

## TARGETED REGIONAL INDUSTRY SECTOR LIST

Industry sector targets identified in the region include:

- Healthcare,
- Manufacturing,
- Business and professional services,
- Food preparation,
- Education, and
- Transportation, distribution and logistics

Occupations not closely tied to these industry targets are included in “Other” occupation group tables.

**WHAT'S INCLUDED IN THE DEMAND DATA**

Counties in the region include Bartholomew, Dearborn, Decatur, Franklin, Jackson, Jefferson, Jennings, Ohio, Ripley, and Switzerland counties.

Data on 96 occupational groups organized by regional industry clusters.

Data elements include:

- » **Demand 2013.** Regional job openings due to growth, retirements, and job postings.
- » **Average Hourly Wage 2012.** Occupational group wages in the region.
- » **Total Jobs 2013.** Total number of jobs in the regional economy.
- » **Postsecondary Education Required 2012.** National proportion of the occupation that requires some type of postsecondary education (some college, two-year degree, four-year degree, or higher).

Definitions and technical notes describing the data are in the page following the tables.



| MANUFACTURING  |             |                          |                            |                                       |
|--|-------------|--------------------------|----------------------------|---------------------------------------|
| Occupational Group   | Demand 2013 | Average Hourly Wage 2012 | Total Jobs in Economy 2013 | Postsecondary Education Required 2012 |
| Engineers  | 540         | \$37.04                  | 3,302                      | 96%                                   |
| Metal Workers and Plastic Workers  | 253         | \$16.99                  | 8,248                      | 34%                                   |
| Other Installation, Maintenance, and Repair Occupations                  | 233         | \$20.01                  | 3,522                      | 44%                                   |
| Other Production Occupations   | 232         | \$14.17                  | 5,228                      | 34%                                   |
| Assemblers and Fabricators   | 205         | \$14.56                  | 6,803                      | 33%                                   |
| Sales Representatives, Wholesale and Manufacturing                       | 172         | \$30.17                  | 1,262                      | 79%                                   |
| Supervisors of Production Workers  | 86          | \$24.44                  | 1,437                      | 51%                                   |
| Vehicle and Mobile Equipment Mechanics, Installers, and Repairers        | 67          | \$16.21                  | 1,592                      | 38%                                   |
| Drafters, Engineering Technicians, and Mapping Technicians               | 64          | \$24.13                  | 1,259                      | 77%                                   |
| Electrical and Electronic Equipment Mechanics, Installers, and Repairers | 31          | \$23.49                  | 559                        | 67%                                   |
| Supervisors of Installation, Maintenance, and Repair Workers             | 26          | \$27.15                  | 510                        | 58%                                   |
| Textile, Apparel, and Furnishings Workers                                | 26          | \$10.98                  | 552                        | 23%                                   |
| Printing Workers and Related   | 11          | \$12.82                  | 306                        | 41%                                   |



| BUSINESS AND PROFESSIONAL SERVICES                                       |             |                          |                            |                                       |
|--|-------------|--------------------------|----------------------------|---------------------------------------|
| Occupational Group   | Demand 2013 | Average Hourly Wage 2012 | Total Jobs in Economy 2013 | Postsecondary Education Required 2012 |
| Computer Occupations   | 587         | \$31.80                  | 1,738                      | 94%                                   |
| Other Management Occupations   | 379         | \$27.93                  | 3,662                      | 84%                                   |
| Business Operations Specialists  | 341         | \$28.37                  | 2,750                      | 87%                                   |
| Information and Record Clerks  | 320         | \$13.66                  | 3,222                      | 68%                                   |
| Operations Specialties Managers  | 194         | \$44.32                  | 2,010                      | 86%                                   |
| Financial Specialists  | 191         | \$28.25                  | 1,569                      | 92%                                   |
| Financial Clerks   | 141         | \$14.36                  | 3,406                      | 66%                                   |
| Other Office and Administrative Support Workers                          | 140         | \$13.59                  | 3,690                      | 66%                                   |
| Secretaries and Administrative Assistants                                | 114         | \$15.44                  | 2,522                      | 68%                                   |
| Art and Design Workers   | 109         | \$18.72                  | 400                        | 87%                                   |
| Sales Representatives, Services  | 92          | \$25.79                  | 1,095                      | 84%                                   |
| Advertising, Marketing, Promotions, Public Relations, and Sales Managers | 90          | \$50.43                  | 527                        | 92%                                   |
| Supervisors of Office and Administrative Support Workers                 | 57          | \$25.14                  | 1,166                      | 74%                                   |

| BUSINESS AND PROFESSIONAL SERVICES        |             |                          |                            |                                       |
|---|-------------|--------------------------|----------------------------|---------------------------------------|
| Occupational Group                        | Demand 2013 | Average Hourly Wage 2012 | Total Jobs in Economy 2013 | Postsecondary Education Required 2012 |
| Lawyers, Judges, and Related Workers      | 30          | \$45.18                  | 295                        | 99%                                   |
| Media and Communication Workers           | 29          | \$23.53                  | 310                        | 93%                                   |
| Social Scientists and Related Workers     | 18          | \$43.16                  | 91                         | 100%                                  |
| Media and Communication Equipment Workers | 15          | \$18.53                  | 77                         | 83%                                   |
| Architects, Surveyors, and Cartographers  | 11          | \$45.14                  | 84                         | 99%                                   |
| Legal Support Workers                     | 10          | \$19.83                  | 195                        | 86%                                   |
| Mathematical Science Occupations          | 4           | \$41.58                  | 39                         | 96%                                   |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |





| TRANSPORTATION, DISTRIBUTION AND LOGISTICS                            |             |                          |                            |                                       |
|---|-------------|--------------------------|----------------------------|---------------------------------------|
| Occupational Group  | Demand 2013 | Average Hourly Wage 2012 | Total Jobs in Economy 2013 | Postsecondary Education Required 2012 |
| Motor Vehicle Operators   | 360         | \$16.45                  | 4,739                      | 35%                                   |
| Material Moving Workers   | 297         | \$13.19                  | 6,598                      | 28%                                   |
| Material Recording, Scheduling, Dispatching, and Distributing Workers | 213         | \$16.00                  | 4,135                      | 49%                                   |
| Supervisors of Transportation and Material Moving Workers             | 24          | \$23.58                  | 478                        | 56%                                   |
| Other Transportation Workers  | 19          | \$12.95                  | 353                        | 45%                                   |
| Rail Transportation Workers   | 2           | \$25.79                  | 71                         | 55%                                   |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |
|   |             |                          |                            |                                       |

| OTHER OCCUPATIONAL GROUPS                               |             |                          |                            |                                       |
|---|-------------|--------------------------|----------------------------|---------------------------------------|
| Occupational Group                                      | Demand 2013 | Average Hourly Wage 2012 | Total Jobs in Economy 2013 | Postsecondary Education Required 2012 |
| Retail Sales Workers                                    | 499         | \$12.21                  | 7,592                      | 54%                                   |
| Supervisors of Sales Workers                            | 291         | \$17.86                  | 1,748                      | 65%                                   |
| Other Personal Care and Service Workers                 | 216         | \$9.58                   | 2,063                      | 57%                                   |
| Construction Trades Workers                             | 148         | \$18.38                  | 5,049                      | 32%                                   |
| Building Cleaning and Pest Control Workers              | 146         | \$12.08                  | 3,334                      | 27%                                   |
| Other Protective Service Workers                        | 79          | \$17.03                  | 719                        | 58%                                   |
| Top Executives  | 69          | \$56.38                  | 1,530                      | 83%                                   |
| Entertainment Attendants and Related Workers            | 62          | \$12.91                  | 1,016                      | 60%                                   |
| Personal Appearance Workers                             | 56          | \$10.71                  | 603                        | 45%                                   |
| Entertainers and Performers, Sports and Related Workers | 51          | \$27.01                  | 432                        | 86%                                   |
| Other Sales and Related Workers                         | 39          | \$13.27                  | 609                        | 73%                                   |
| Grounds Maintenance Workers                             | 39          | \$11.98                  | 1,139                      | 25%                                   |
| Supervisors of Personal Care and Service Workers        | 34          | \$26.60                  | 259                        | 66%                                   |

| OTHER OCCUPATIONAL GROUPS                          |             |                          |                            |                                       |
|--|-------------|--------------------------|----------------------------|---------------------------------------|
| Occupational Group                                 | Demand 2013 | Average Hourly Wage 2012 | Total Jobs in Economy 2013 | Postsecondary Education Required 2012 |
| Agricultural Workers                               | 26          | \$12.19                  | 949                        | 19%                                   |
| Law Enforcement Workers                            | 26          | \$18.01                  | 836                        | 79%                                   |
| Other Construction and Related Workers             | 16          | \$16.48                  | 496                        | 43%                                   |
| Animal Care and Service Workers                    | 16          | \$11.08                  | 152                        | 54%                                   |
| Life, Physical, and Social Science Technicians     | 15          | \$24.43                  | 132                        | 79%                                   |
| Physical Scientists                                | 14          | \$34.29                  | 152                        | 100%                                  |
| Supervisors of Construction and Extraction Workers | 13          | \$26.75                  | 538                        | 44%                                   |
| Life Scientists                                    | 13          | \$44.82                  | 81                         | 100%                                  |
|  |             |                          |                            |                                       |
|  |             |                          |                            |                                       |
|  |             |                          |                            |                                       |
|  |             |                          |                            |                                       |
|  |             |                          |                            |                                       |
|  |             |                          |                            |                                       |
|  |             |                          |                            |                                       |

## DEFINITIONS AND TECHNICAL NOTES

The occupational groups in the tables are a category of worker and profession identified as part of the Standard Occupational Classification (SOC) system at the 3-digit level used by federal statistical agencies. A list of the occupations that make up the 3-digit SOC occupations can be found at [http://www.bls.gov/oes/current/oes\\_stru.htm](http://www.bls.gov/oes/current/oes_stru.htm).

The demand data for each occupational group includes the following variables:

- » **Demand 2013.** Demand is a calculation of projected annual job openings (Bureau of Labor Statistics) and real-time job postings (Burning Glass Labor Insight) for occupations in the Economic Growth Region (EGR).
- » **Average Hourly Wage 2012.** This the average hourly wage for the occupation in the EGR from the U.S. Bureau of Labor Statistics.
- » **Total Jobs 2013.** This is the total number of jobs in the region in 2013 from the U.S. Bureau of Labor Statistics using data from the Quarterly Census on Employment and Wages (QCEW).
- » **Postsecondary Education Required 2012.** This is a national proportion of the occupation that requires some type of postsecondary education (some college, two-year degree, four-year degree, or higher) in 2012 from the U.S. Bureau of Labor Statistics.

FutureWorks included data on all 3-digit occupations tied to the targeted industry cluster in the tables. In the “Other Occupations” tables, FutureWorks only included data on those 3-digit occupations that had a Total Demand 2013 that was greater than 25 jobs.

A black and white, long-exposure photograph of a multi-lane highway with heavy traffic. The cars are blurred into streaks, creating a sense of rapid movement and speed. The perspective is from an elevated position looking down the road towards a city skyline in the distance.

SECTION 2

Overview of Supply

## SECTION OVERVIEW

In this section, we present data on enrollments and outcomes of educational institutions. The focus is on: secondary Career and Technical Education (CTE) districts, and on postsecondary institutions at the sub-baccalaureate and baccalaureate levels. In general, these comprise the core of the talent supply pipeline (see chart below) and are the major sources of talent development for individual who will enter the labor market.

Secondary CTE Data: Secondary CTE data are presented for enrollments and concentrators in charts and tables. The charts and tables are organized by the CTE Districts assigned to the region. We follow the definitions and terms used by DOE and DWD and their conventions used to collect the data (see terminology page).” All data is supplied by DWD.

First we present CTE data on ‘graduating seniors who are concentrators in a CTE pathway.’ This gives a sense of the completions and total output of CTE systems in the regions. Then, as supplemental information, we present information on the total enrollments and completions for CTE programs in districts. This gives a sense of the scale of CTE programming in the regions. Together these provide a picture of the scale and output of CTE programming.

All the data are presented for the Works Council region. In some cases the secondary CTE districts span regional boundaries. If that occurs, we have included these districts in multiple regions. While this introduces some duplication among regions, it may also represent potential sources of talent within a region. Showing the potential breadth of talent supply in the region is the intention of the analysis.

*It is important to note that the data include CTE courses offered at the career centers (dedicated CTE facilities) and CTE courses offered in other high schools within the CTE districts. This will have a significant impact on the total enrollments and concentrators reported for a CTE district.*

## SECTION OVERVIEW, Cont.

**Postsecondary Education:** Postsecondary education outcome data are shown for Indiana colleges and the major academic credentials awarded: short-term certificates, certificates between one- and two-years of study, associate, Bachelor's and Master's degrees. All postsecondary data are from the federal Integrated Postsecondary Education Data System (IPEDS).

Assessing the contributions of colleges and universities to the talent supply is complex. In part, that is because many colleges serve regional, statewide, national and international markets. We have made the following decisions about which colleges to include in our analysis:

- All colleges and universities located in a region are included in the analysis of the regional supply of talent;
- State flagship institutions (Purdue, Indiana University) and an additional group of colleges that are either large or have a clear statewide and national focus are reported separately from any region because it is not possible to accurately allocate the potential supply of talent from those institutions to a specific region.
- Vincennes University and Rose-Hulman Institute of Technology are included for each region because of their contributions to the talent supply in each region.

These criteria mean that some postsecondary credentials from some colleges are over-represented or under-represented in a given region. However, we believe the general approach offers the Works Councils a reasonable picture of the supply of talent in or available to their region from Indiana colleges and universities.

**TALENT SUPPLY PIPELINE** – The very large majority of new employees and re-skilled workers enter careers and employment through educational institutions at the secondary and postsecondary levels.



**WHAT'S INCLUDED IN THE TALENT SUPPLY**

**Region Nine Counties: Bartholomew, Dearborn, Decatur, Franklin, Jackson, Jefferson, Jennings, Ohio, Ripley, and Switzerland counties**

**CTE Districts: 41. C4 Columbus Area Career Connection, 42. Southeastern Career Center, 34. Whitewater Technical Career Center**

**Public and Private Colleges:**

»IUPU Columbus

»Hanover College

»Ivy Tech CC Columbus

»Purdue College of Technology

»Ivy Tech Lawrenceburg

»IU-East

»Ivy Tech Madison

## IMPORTANT EDUCATION TERMINOLOGY

A number of definitions of commonly used educational terminology will help the Works Council understand the data presented in this section. The terminology includes:

## Secondary Career and Technical Education:

-Secondary CTE *Enrollment*: Any student who takes a CTE course.

-Secondary CTE *Concentrator*: Any student who has completed at least 6 credits of coursework in a CTE pathway.

-Secondary CTE *Pathway*: A group of courses related to a technology or occupational field that is approved by the US Department of Education and also by states and: An occupation labeled as High Wage and Moderate/High Demand in Indiana, or 2) An occupation within the eight emerging career areas identified in the Indiana Strategic Skills Initiative, or 3) An occupation approved by the Indiana Department of Education.

## Postsecondary Education:

-Post Secondary *Certificate Less than One Year of Study*): An academic certificate of less than 30 credits.

-Post Secondary *Certificate of One to Two Years Study*): An academic certificate of more than 30 credits but less than an Associate Degree.

Associate Degree: An academic degree of approximately 60 to 68 credits of coursework.

A black and white, long-exposure photograph of a multi-lane highway with heavy traffic. The cars are blurred into streaks, creating a sense of rapid movement. In the background, city buildings are visible under a bright sky.

**SECTION 2A**

**Overview of Graduating CTE Seniors by  
Pathway**



## GRADUATING SENIORS WITH A CTE CONCENTRATION

In the following table and charts we describe CTE senior concentrators in the Works Council region. In a subsequent section, we will describe the alignment of these graduating senior concentrators by pathway with demand in the regional labor market.

DWD identifies ‘would be seniors’ as students who are preparing to graduate at the end of an academic year. These are students who will graduate and then enter employment, postsecondary education, or some other status.

*Senior concentrators* are students in their final year of high school who have a concentration in a CTE pathway. A senior concentrator will almost always be counted in one pathway. The most important purpose of the data is to describe the pathways in which graduating students are concentrating and the relative scale of their choices. Therefore, we focus on the concentrations of seniors as measures of institutional outcomes. In aggregate, graduating senior concentrators represent the annual total CTE output of the districts, region, and the state’s CTE system. This is a measure of the supply of talent into the labor market.

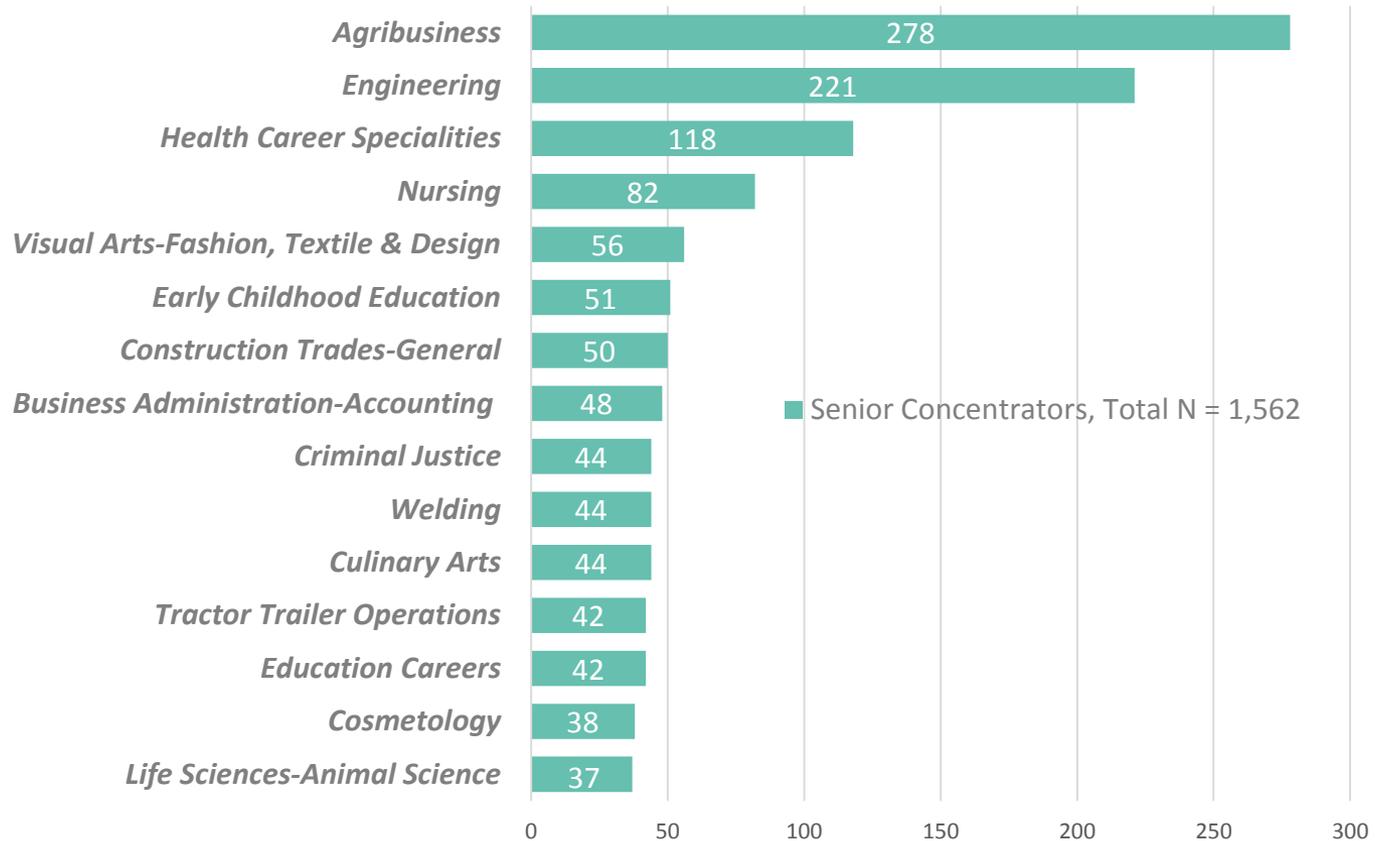
DOE and DWD identify about 50 pathways in several occupational clusters for concentrators. The next page shows the current configuration of clusters and their respective pathways.

*Use in the supply demand analysis:* Because these data are for 2013, records of employment or entry into postsecondary data are not yet available. Our use of the data intend to display the numbers of students in a pathway (or cluster) who are completing twelfth grade and graduating.

*Note: These data include CTE courses offered at the CTE career centers (dedicated CTE facilities) and comprehensive high schools within the respective CTE districts. This will have an impact on the total numbers of enrollments and concentrators reported for each CTE district.*

| CTE Cluster                           | CTE Pathway - Focus                           | CTE Cluster                  | CTE Pathway - Focus                 |
|---------------------------------------|---|------------------------------|-------------------------------------|
| Agriculture                           | Agribusiness                                  | Health Science               | Biomedical                          |
|                                       | Horticulture & Landscape                      |                              | Biotechnology                       |
|                                       | Life Sciences-Animal Science                  |                              | Dental                              |
|                                       | Life Sciences-Food Science                    |                              | Dietetics & Nutrition Science       |
|                                       | Life Sciences-Natural Resources               |                              | Health Career Specialties           |
|                                       | Life Sciences                                 |                              | Nursing                             |
| Architecture & Construction           | Facilities-Building and Facilities Management | Hospitality & Human Services | Veterinary                          |
|                                       | Facilities-Facility Maintenance               |                              | Cosmetology                         |
|                                       | Facilities-Facilities Management              |                              | Culinary Arts                       |
|                                       | Construction Trades-General                   |                              | Hospitality Management              |
|                                       | Construction Trades-Electrical                | Information Technology       | Human & Social Services             |
|                                       | Construction Trades-Heavy Equipment           |                              | PC Networking & Support-Networking  |
|                                       | Construction Trades-HVAC                      |                              | PC Networking & Support-PC Support  |
|                                       | Drafting and Design-Architectural             |                              | PC Programming                      |
|                                       | Drafting and Design-Mechanical                |                              | Advanced Manufacturing              |
|                                       | Visual Arts-Photography                       |                              | Electronics                         |
| Arts, AV Technology and Communication | Visual Arts-Fashion, Textile & Design         | Manufacturing & Logistics    | Engineering                         |
|                                       | Visual Arts-Visual Communication              |                              | Logistics & Supply Chain Management |
|                                       | Web & Digital Communication-Media             |                              | Machine Tool                        |
|                                       | Web & Digital Communication-Radio/TV          |                              | Welding                             |
| Business and Marketing                | Business Administration-Accounting            | Public Safety                | Criminal Justice                    |
|                                       | Business Administration-Management            |                              | EMT/Paramedic                       |
|                                       | Business Administration-Entrepreneurship      |                              | Fire & Rescue                       |
|                                       | Business Administration-Hospitality           |                              | Automotive Collision Repair         |
|                                       | Business Administration-Marketing             |                              | Automotive Technology               |
| Education and Training                | Business Administration-Sports/Entertainment  | Transportation               | Aviation                            |
|                                       | Early Childhood Education                     |                              | Diesel Services Technology          |
|                                       | Education Careers                             |                              | Recreation & Mobile Equipment       |
|                                       |   |                              | Tractor Trailer Operations          |

REGION 9, TOP 15 CTE CAREER PATHWAYS BY NUMBER OF GRADUATING SENIOR CONCENTRATORS, 2013

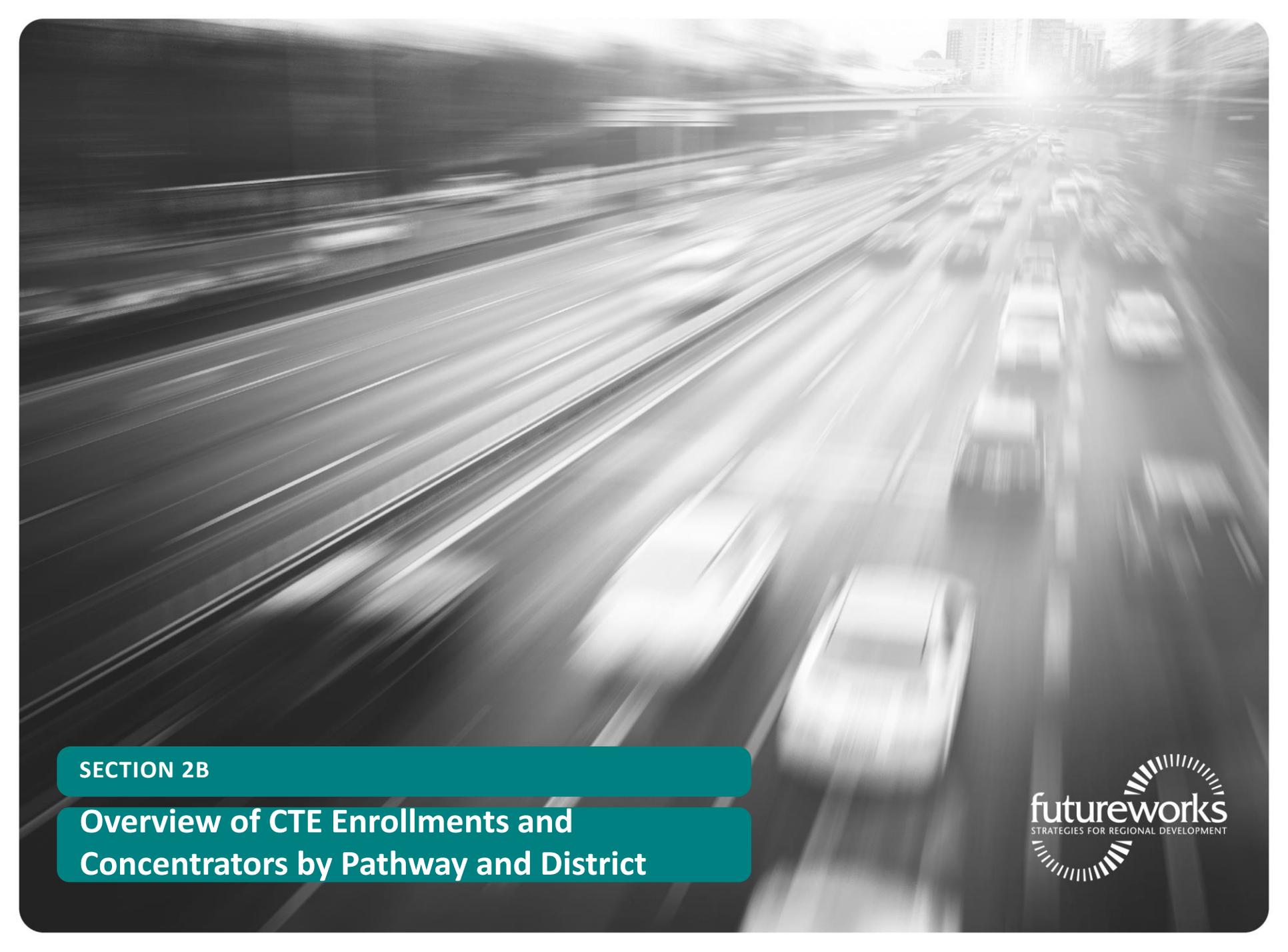


Source: Indiana Department of Workforce Development, Data Provided, 2014. \*Chart does not include 'Unspecified Pathway' concentrators.

## REGION 9 CTE GRADUATING SENIOR CONCENTRATORS BY PATHWAY, 2013

| Pathway                               | Seniors | Pathway                              | Seniors | Pathway                            | Seniors | Pathway                            | Seniors |
|---------------------------------------|---------|--------------------------------------|---------|------------------------------------|---------|------------------------------------|---------|
| Agribusiness                          | 278     | Tractor Trailer Operations           | 42      | Automotive Collision Repair        | 13      | Veterinary                         | 6       |
| Engineering                           | 221     | Cosmetology                          | 38      | Automotive Technology              | 12      | Fire & Rescue                      | 6       |
| Health Career Specialities            | 118     | Life Sciences-Animal Science         | 37      | EMT/Paramedic                      | 11      | Diesel Services Technology         | 6       |
| Nursing                               | 82      | Horticulture & Landscape             | 34      | Construction Trades-Electrical     | 10      | Life Sciences                      | 4       |
| Visual Arts-Fashion, Textile & Design | 56      | Life Sciences-Natural Resources      | 34      | Drafting and Design-Mechanical     | 10      | PC Networking & Support-Networking | 4       |
| Early Childhood Education             | 51      | Machine Tool                         | 30      | Electronics                        | 10      | PC Networking & Support-PC Support | 3       |
| Construction Trades-General           | 50      | Web & Digital Communication-Media    | 29      | Recreation & Mobile Equipment      | 10      | Aviation                           | 3       |
| Business Administration-Accounting    | 48      | Web & Digital Communication-Radio/TV | 19      | Business Administration-Management | 9       |                                    |         |
| Culinary Arts                         | 44      | Dental                               | 19      | Life Sciences-Food Science         | 8       |                                    |         |
| Welding                               | 44      | Facilities-Facilities Management     | 18      | Drafting and Design-Architectural  | 8       |                                    |         |
| Criminal Justice                      | 44      | Human & Social Services              | 18      | Advanced Manufacturing             | 8       |                                    |         |
| Education Careers                     | 42      | PC Programming                       | 16      | Hospitality Management             | 7       |                                    |         |

Source: Indiana Department of Workforce Development, Data Provided, 2014. \*Chart does not include 'Unspecified Pathway' concentrators.

A black and white, long-exposure photograph of a multi-lane highway with heavy traffic. The cars are blurred into streaks, creating a sense of rapid movement. In the background, city buildings are visible under a bright sky.

**SECTION 2B**

**Overview of CTE Enrollments and  
Concentrators by Pathway and District**



## CTE DISTRICT ENROLLMENTS AND CONCENTRATORS

In this section, we describe total enrollments and concentrators in CTE districts and in regions. Although, different in definition that the graduating senior concentrators as an outcome measure, these data do provide an additional view of CTE within Indiana and within regions. The tables here show enrollments and concentrations by pathways in districts and by regions.

DOE and DWD identify an enrollment as a CTE course taken by student. In a CTE district, enrollments present a picture of the overall scale and volume of CTE courses offered and taken by students. Because state and federal funds are distributed to districts based on enrollments, this is an important statistic to gauge the scale of public investment in CTE in districts.

Concentrators are simply students who have taken enough credits in a cluster of CTE courses to qualify as a concentrator. In these tables concentrators are likely to be Juniors and Seniors.

Both enrollments and concentrators, in these data, include duplication (one student may be enrolled in two or more courses and will thus count as two enrollments). In addition, students may be assigned to a concentration simply by virtue of having taken a related group of courses whether or not they had intentions of concentrating in a CTE field. Moreover, the relationship between the number of enrollments and number of concentrators cannot be strictly interpreted as a percentage of concentrators to enrollments.

*Note: These data include CTE courses offered at the CTE career centers (dedicated CTE facilities) and comprehensive high schools within the respective CTE districts. This will have an significant impact on the total numbers of enrollments and concentrators reported for each CTE district.*

---

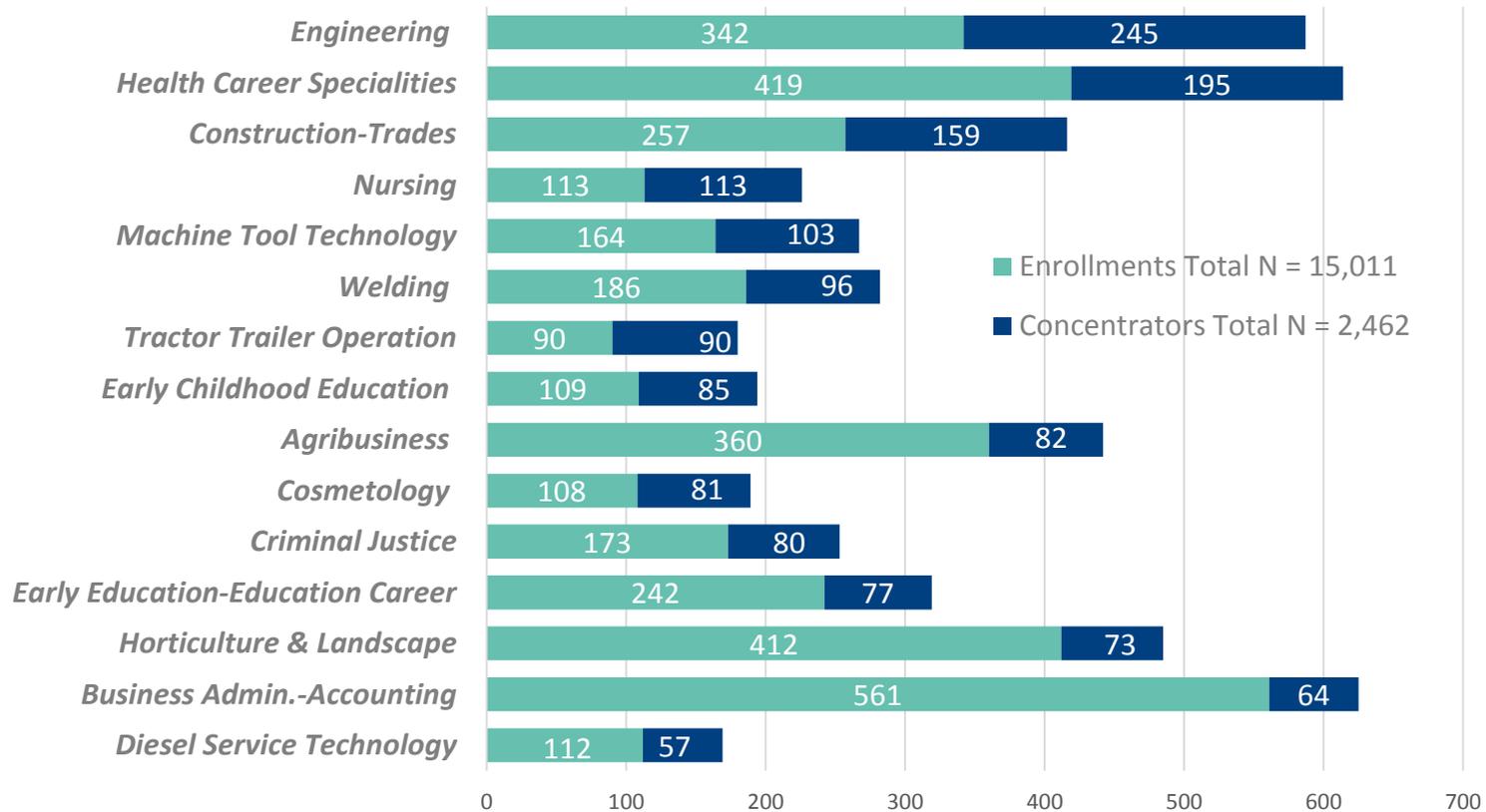
 REGION NINE SECONDARY CTE COURSE ENROLLMENTS AND CONCENTRATORS BY DISTRICT, 2013

| <i>District</i>                          | <i>Total CTE Enrollments</i> | <i>Total Enrollments in CTE Pathways</i> | <i>Total Concentrators in CTE Pathways</i> |
|--|------------------------------|--|--|
| #41- Columbus Area Career Connection     | 5451                         | 1637                                     | 723  |
| #42 - Southeastern Career Center         | 5993                         | 2395                                     | 1035                                       |
| #34 – Whitewater Technical Career Center | 3477                         | 1696                                     | 683  |

Source: Department of Workforce Development, Data Provided, 2014

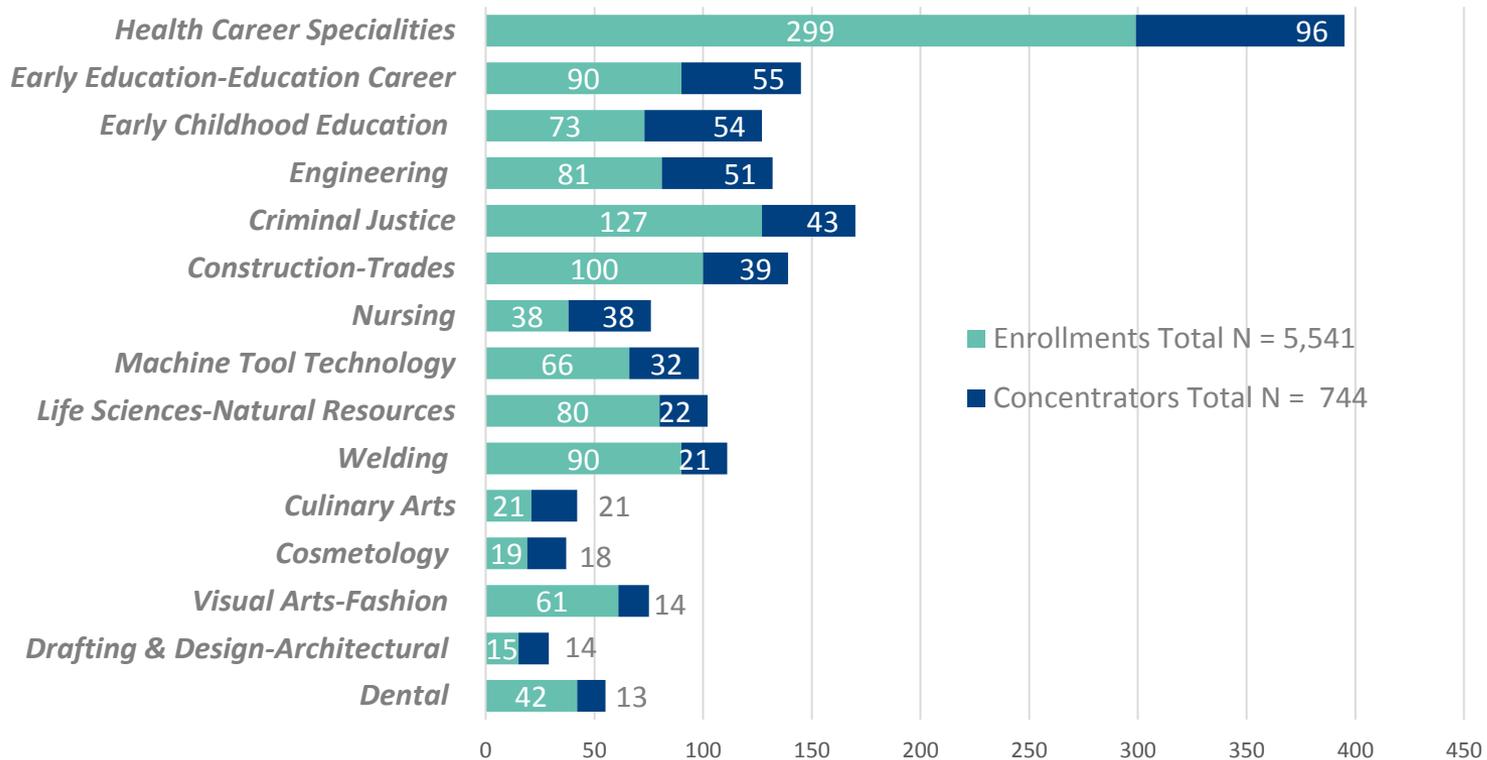
---

REGION 9, TOP 15 SECONDARY CTE CAREER PATHWAYS BY CONCENTRATORS AND ENROLLMENTS, ALL DISTRICTS, 2013

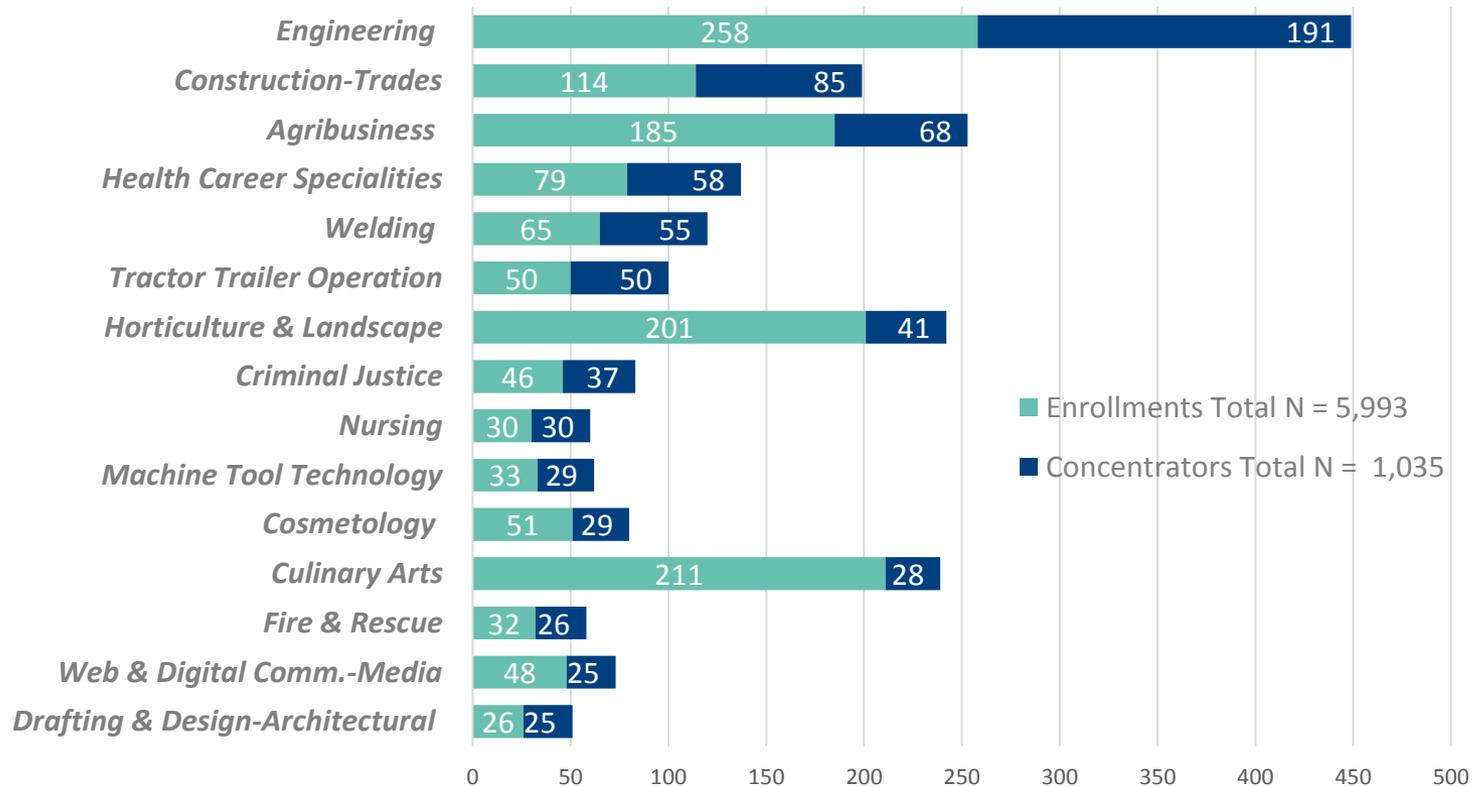


Source: Indiana Department of Workforce Development, Data Provided, 2014. \*Chart does not include 'Unspecified Pathway' enrollments.

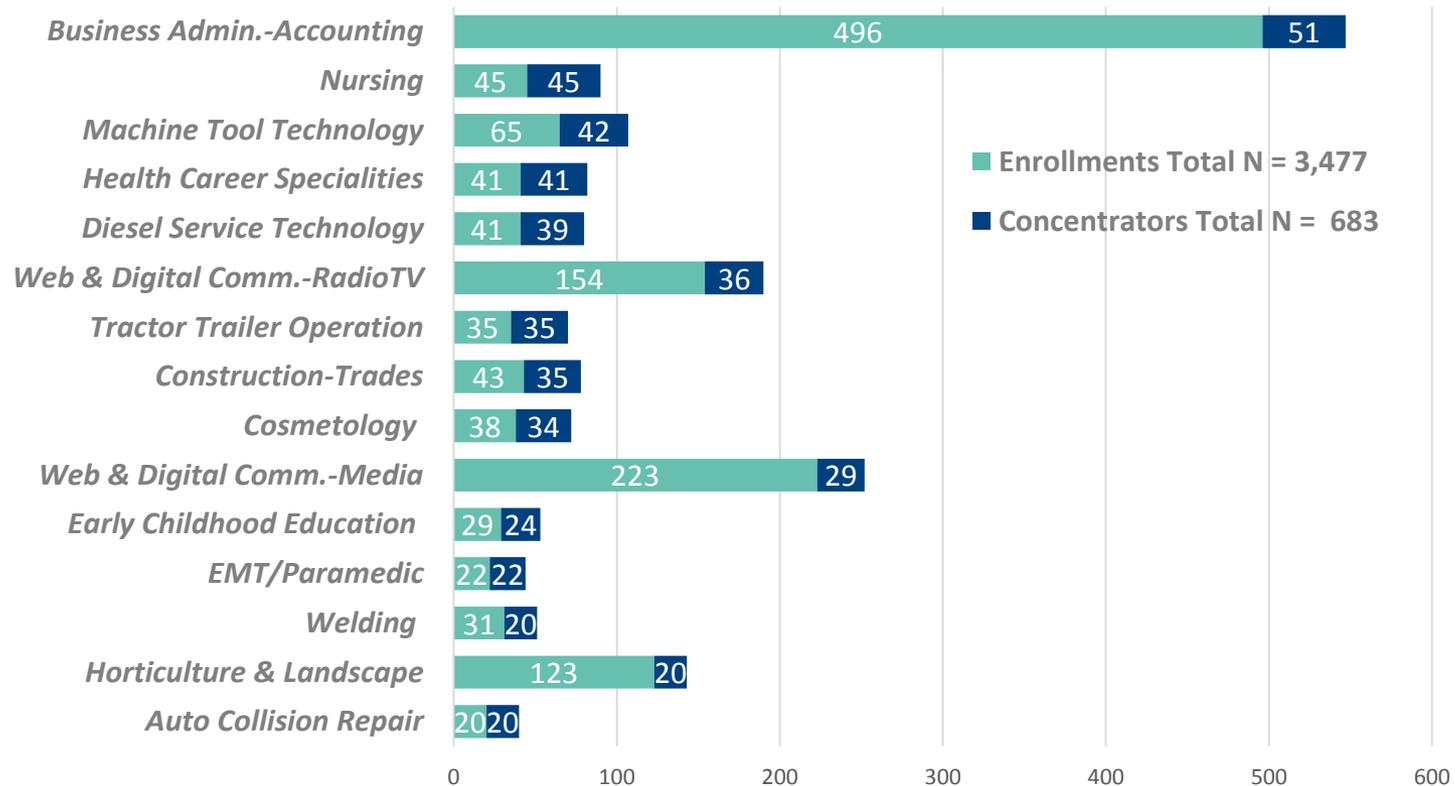
REGION 9, TOP 15 CAREER PATHWAYS BY CONCENTRATORS AND ENROLLMENTS, #41-COLUMBUS AREA CAREER CONNECTION, 2013



REGION 5, TOP 15 CAREER PATHWAYS BY CONCENTRATORS AND ENROLLMENTS, #42 - SOUTHEASTERN CAREER CENTER, 2013



REGION 9, TOP 15 CAREER PATHWAYS BY CONCENTRATORS AND ENROLLMENTS, #34  
 WHITEWATER TECHNICAL CAREER CENTER, 2013



Source: Indiana Department of Workforce Development, Data Provided, 2014. \*Chart does not include 'Unspecified Pathway' enrollments. The large enrollment in the business administration-accounting pathway may be an anomaly, all the enrollments are in one course titled 'financial services'.

A black and white, long-exposure photograph of a multi-lane highway with heavy traffic. The cars are blurred into streaks, creating a sense of rapid movement. In the background, city buildings are visible under a bright sky.

SECTION 2C

Overview of Postsecondary Supply

## SECTION OVERVIEW

In this section, we present data on student completions for select public and private postsecondary educational institutions located in the Works Council region. The charts that follow show the number of graduates and type of credentials awarded by certificate and degrees in the top programs of study for the region as a whole and each institution.

The Works Councils can use these data to identify program areas that produce the most graduates, identify the type of credentials being awarded, and compare student output (completions) to regional and statewide demand in the economy.

The following colleges and universities are included in the analysis for this region:

- » *Hanover College*
- » *IUPU-Columbus\**
- » *Ivy Tech Community College-Southeast and Columbus Area*
- » *Rose-Hulman Institute of Technology*
- » *Vincennes University*

\*At the present time, degree awards for IUPU-Columbus are included in Indiana University and Purdue University degree awards and are not available separately.

## Overview of Postsecondary Supply

### SECTION OVERVIEW, Cont.

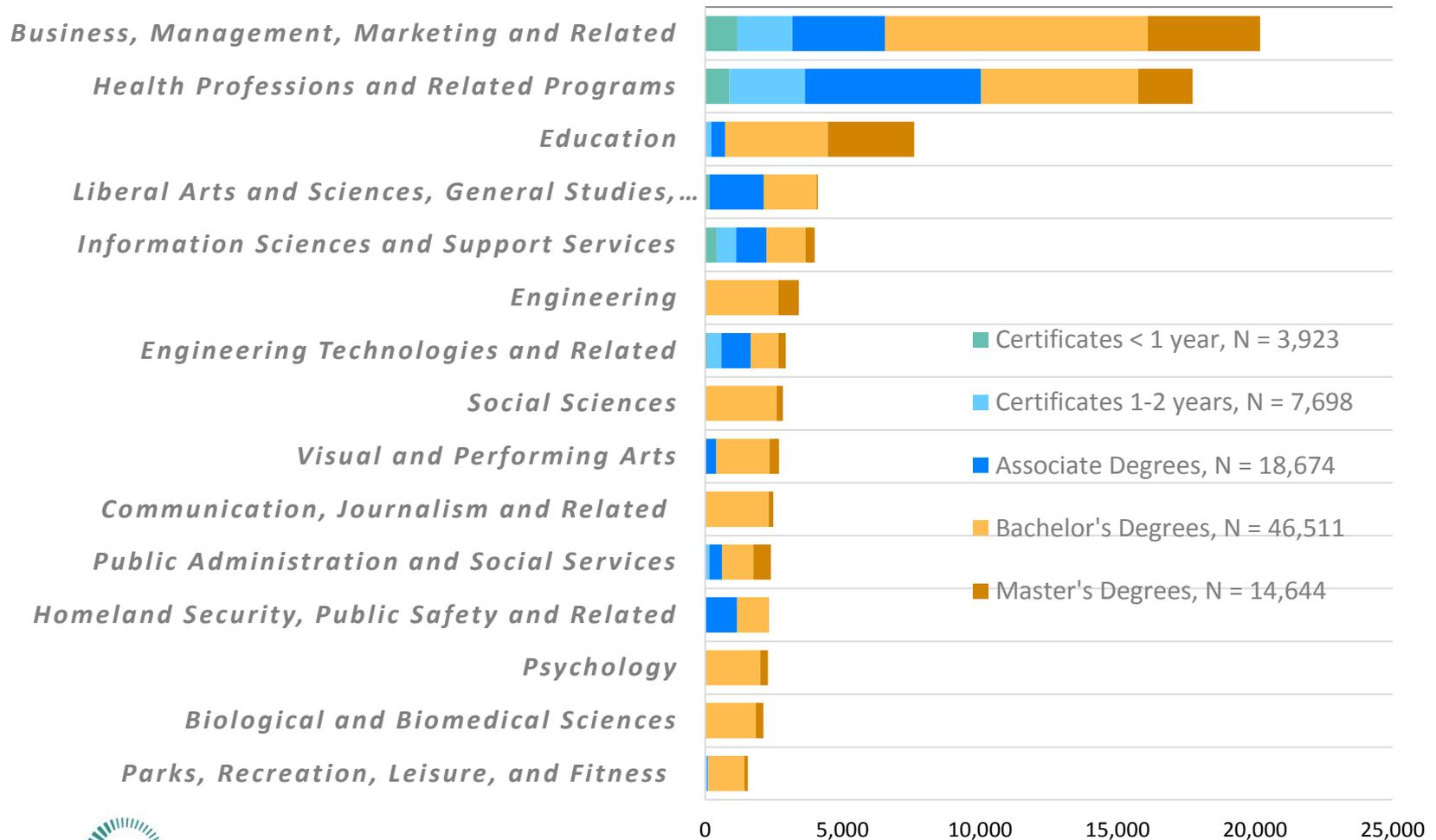
We have included Rose-Hulman Institute of Technology and Vincennes University as part of the region because they are important sources of technical education and serve students across Indiana. Excluded from the analysis are postsecondary institutions with less than 300 students, all cosmetology, massage, and therapeutic proprietary schools, religious training schools, and any college that is not included in the National Center for Educational Statistics database. The analysis is limited to accredited colleges and universities located within Indiana.

The data in the charts show the total graduates, or student completions, from these institutions by field of study. The field of study is federally defined by the *Classification of Instructional Programs* coding system used for U.S. colleges that disperse student financial aid.

Our sample includes 90 Indiana public and private colleges and universities that enroll just over 450,000 students. These institutions awarded 91,540 credentials in 2013. They ranged from short term academic certificates to master's degrees. As comparison for the region, the first two charts in this section includes total completers in the top 15 programs of study for all 93 public and private postsecondary institutions in Indiana.

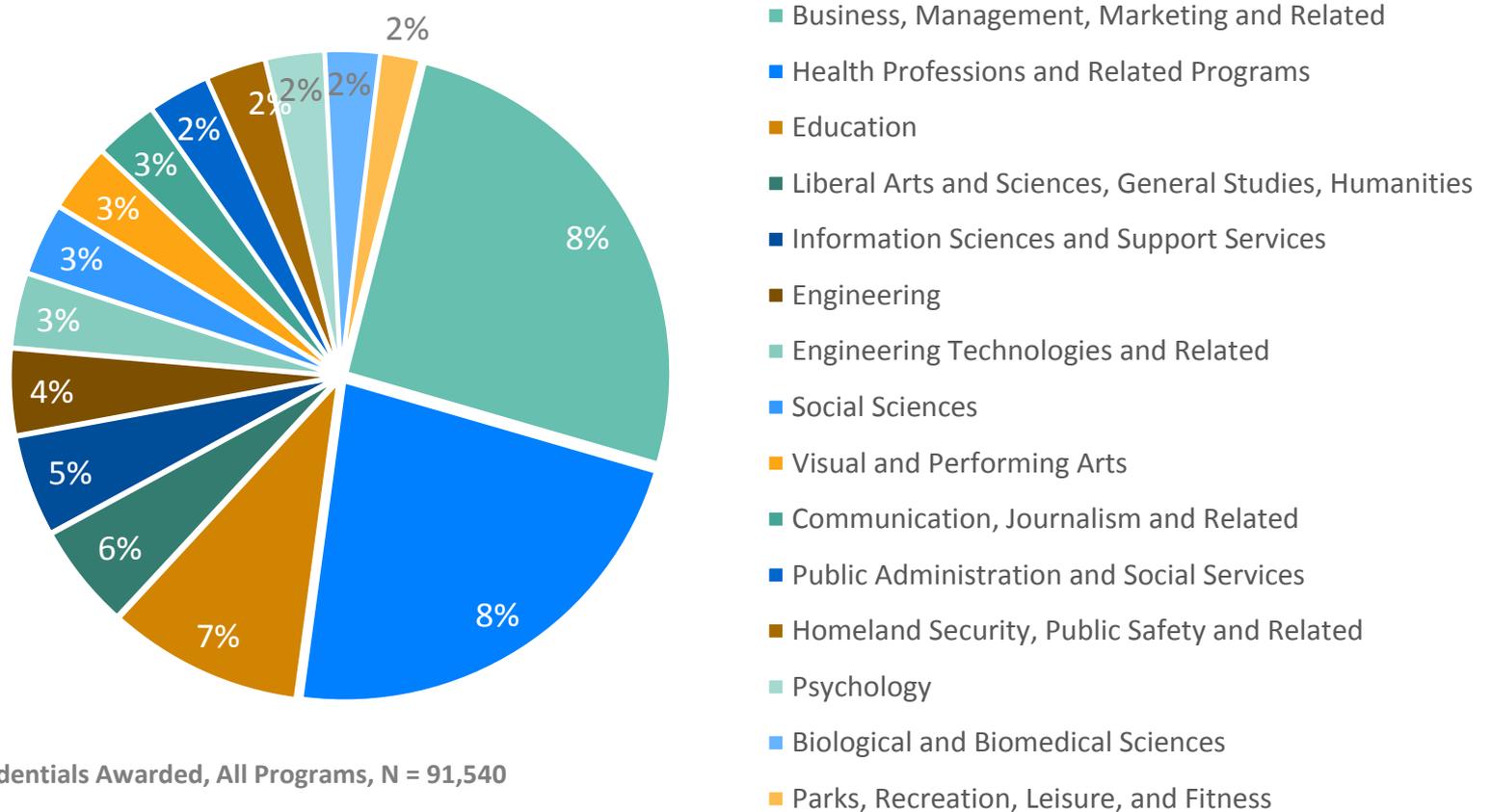
Colleges and universities award a variety of credentials to students and workers in the Indiana workforce. We show data on academic, credit bearing credentials including certificates representing less than one full year of study (about 30 credits or less); certificates representing between one- and two-years of study (between 30 and about 48 credits); associate degrees, bachelor's degrees, and master's degrees. We do not include professional development and skills training certificates, non-credit programs, or industry-based certifications. Even though these programs can be important sources of talent, their data sources are not consistent and vary in terms of access, which make their use beyond the scope of this project.

TOP 15 PROGRAMS OF STUDY, ALL 90 INDIANA POSTSECONDARY INSTITUTIONS, BY TOTAL CREDENTIALS AWARDED, 2013



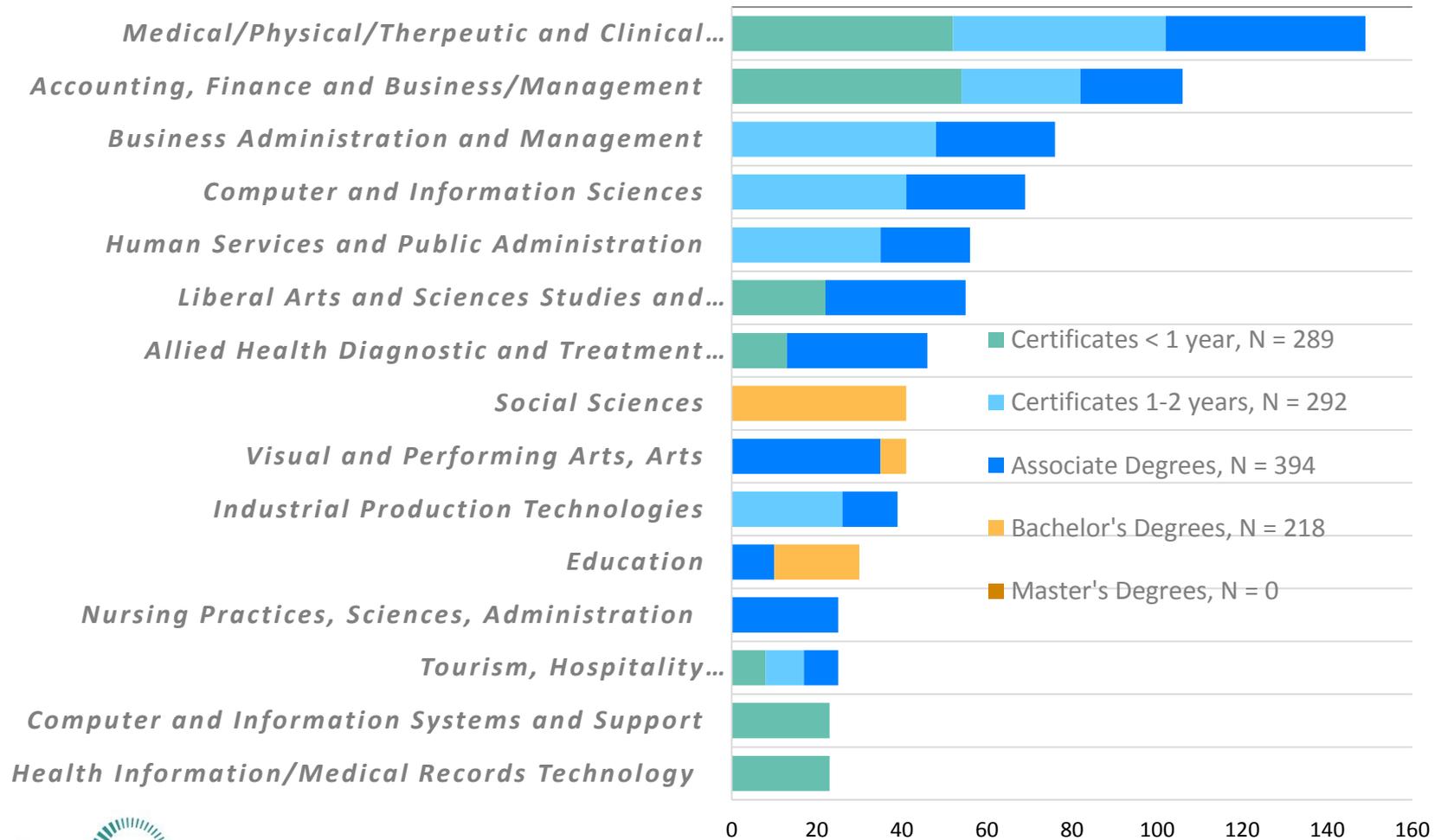
Source: National Center for Education Statistics, IPEDS, 2014.

TOP 15 PROGRAMS OF STUDY, ALL 90 INDIANA POSTSECONDARY INSTITUTIONS, AWARDS IN FIELDS AS PERCENTAGES OF ALL CREDENTIALS AWARDED, 2013



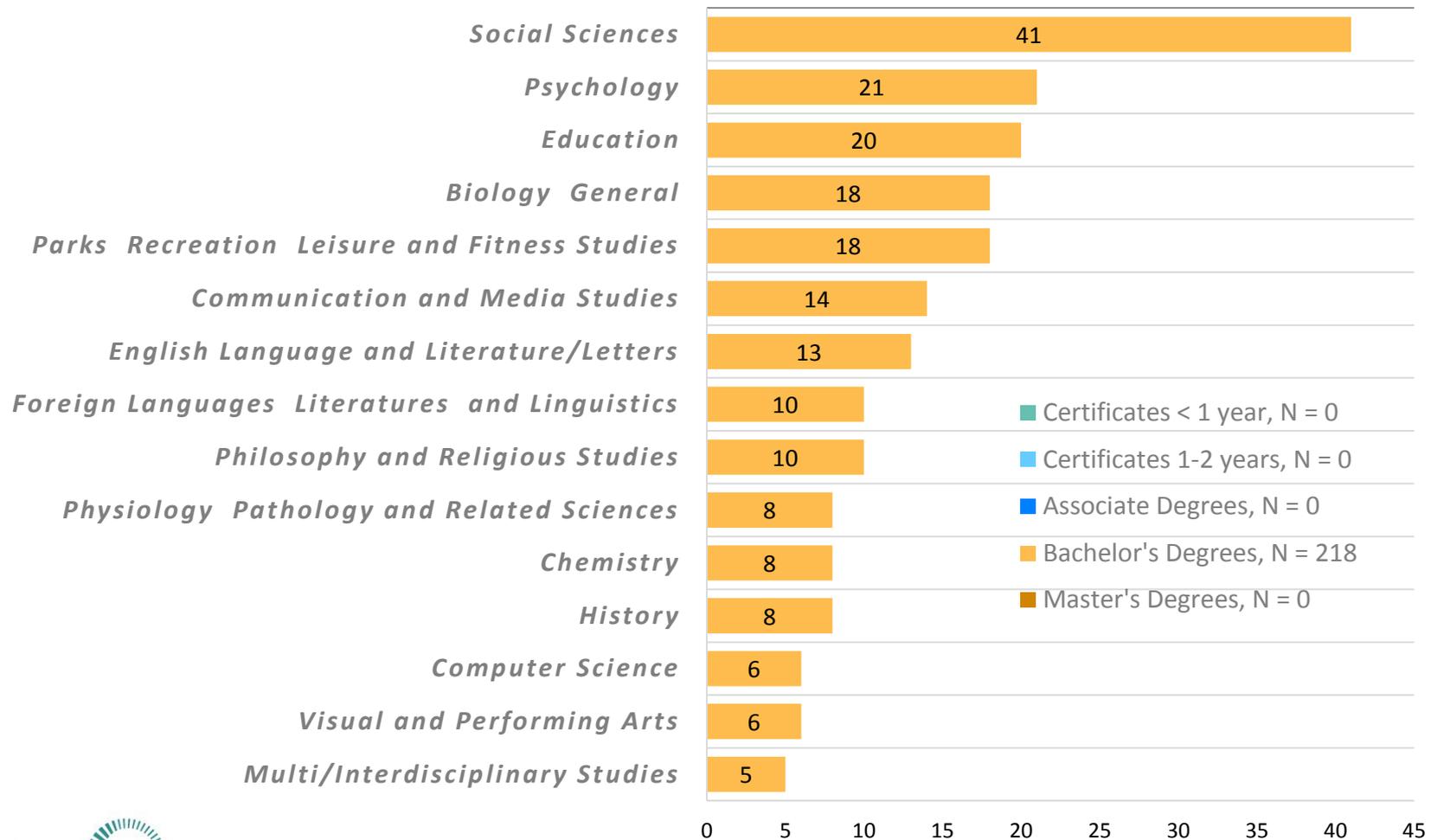
Total Credentials Awarded, All Programs, N = 91,540

TOP 15 PROGRAMS OF STUDY, ALL REGION 9 POSTSECONDARY INSTITUTIONS, BY TOTAL CREDENTIALS AWARDED, 2013



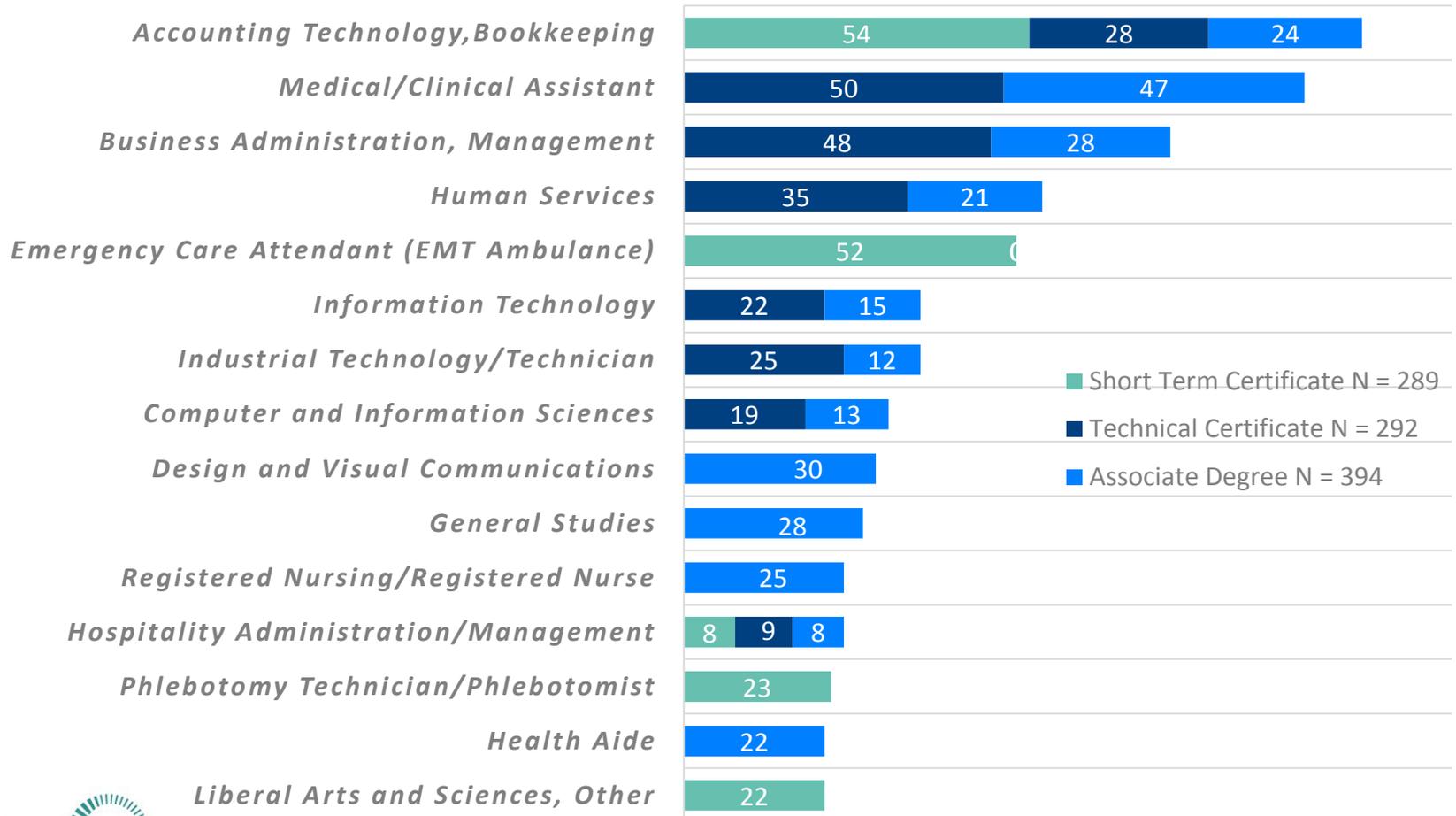
Source: National Center for Education Statistics, IPEDS, 2014.

TOP 15 PROGRAMS OF STUDY, HANOVER COLLEGE, BY TOTAL CREDENTIALS AWARDED, 2013



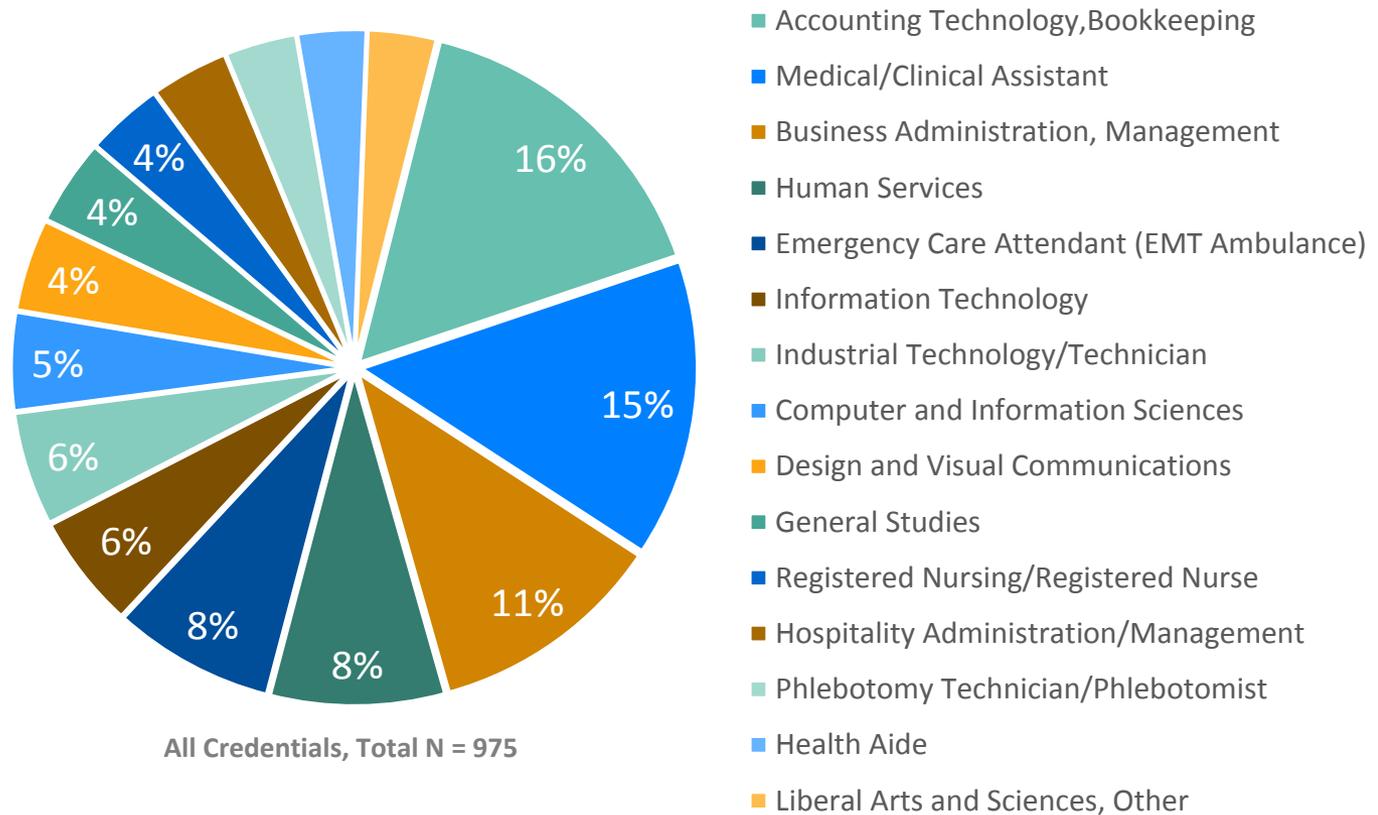
Source: National Center for Education Statistics, IPEDS, 2014.

TOP 15 PROGRAMS OF STUDY, IVY TECH COMMUNITY COLLEGE,  
COLUMBUS, BY TOTAL CREDENTIALS AWARDED, 2012-2013



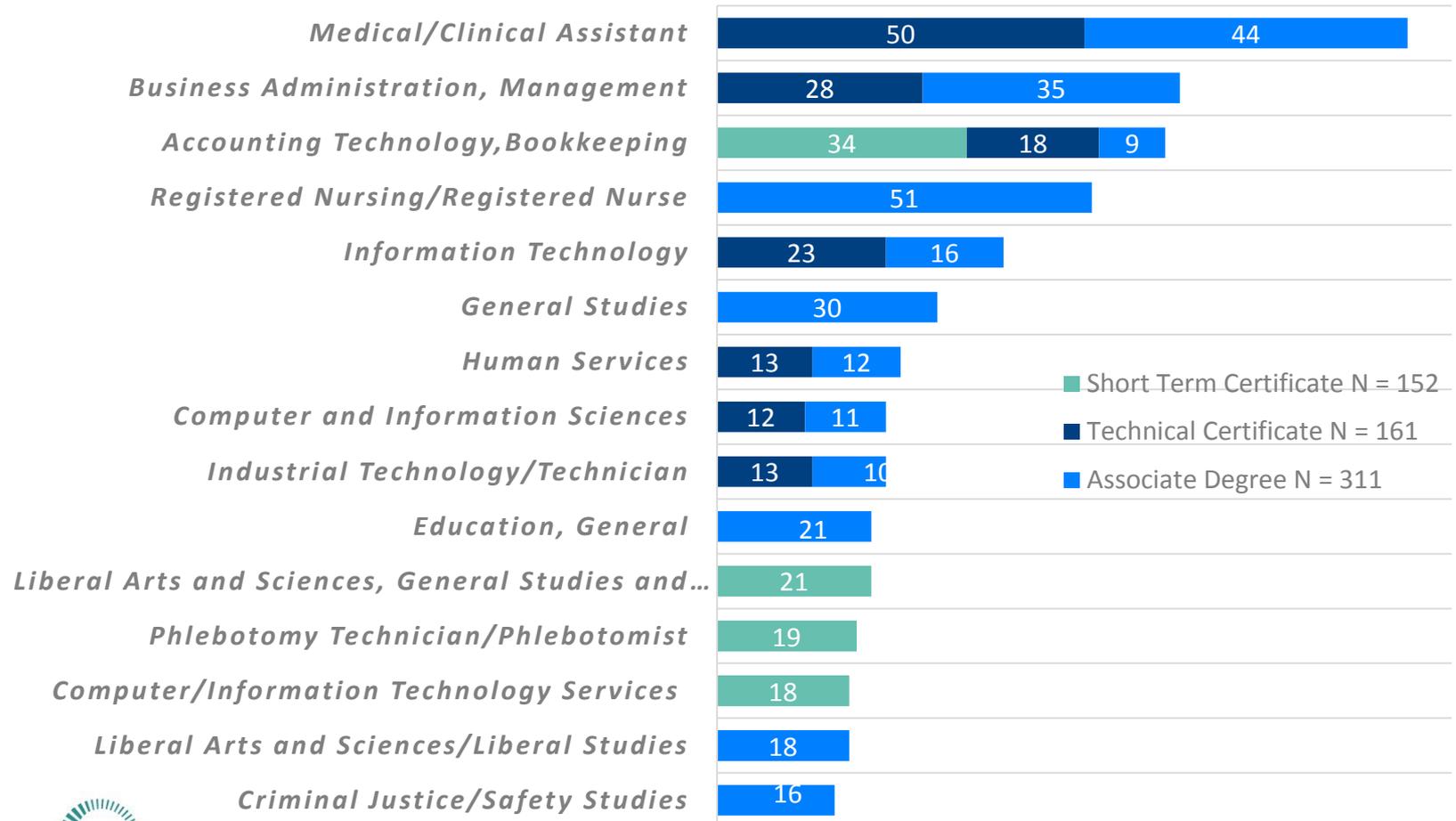
Source: Ivy Tech Community College, Data Provided, 2014.

TOP 15 PROGRAMS OF STUDY, IVY TECH COMMUNITY COLLEGE, COLUMBUS, BY  
TOTAL CREDENTIALS AWARDED, 2012-2013



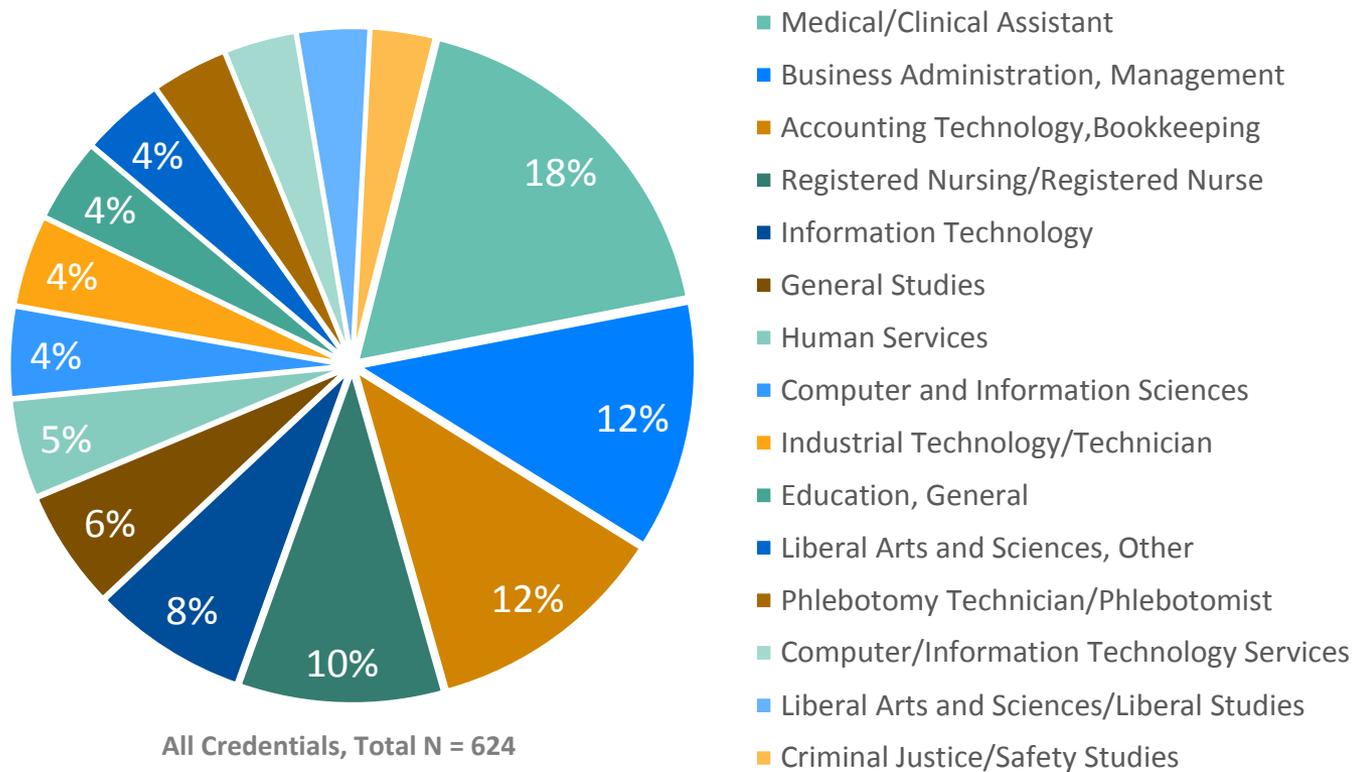
Source: Ivy Tech Community College, Data Provided, 2014.

TOP 15 PROGRAMS OF STUDY, IVY TECH COMMUNITY COLLEGE,  
SOUTHEAST, BY TOTAL CREDENTIALS AWARDED, 2012-2013

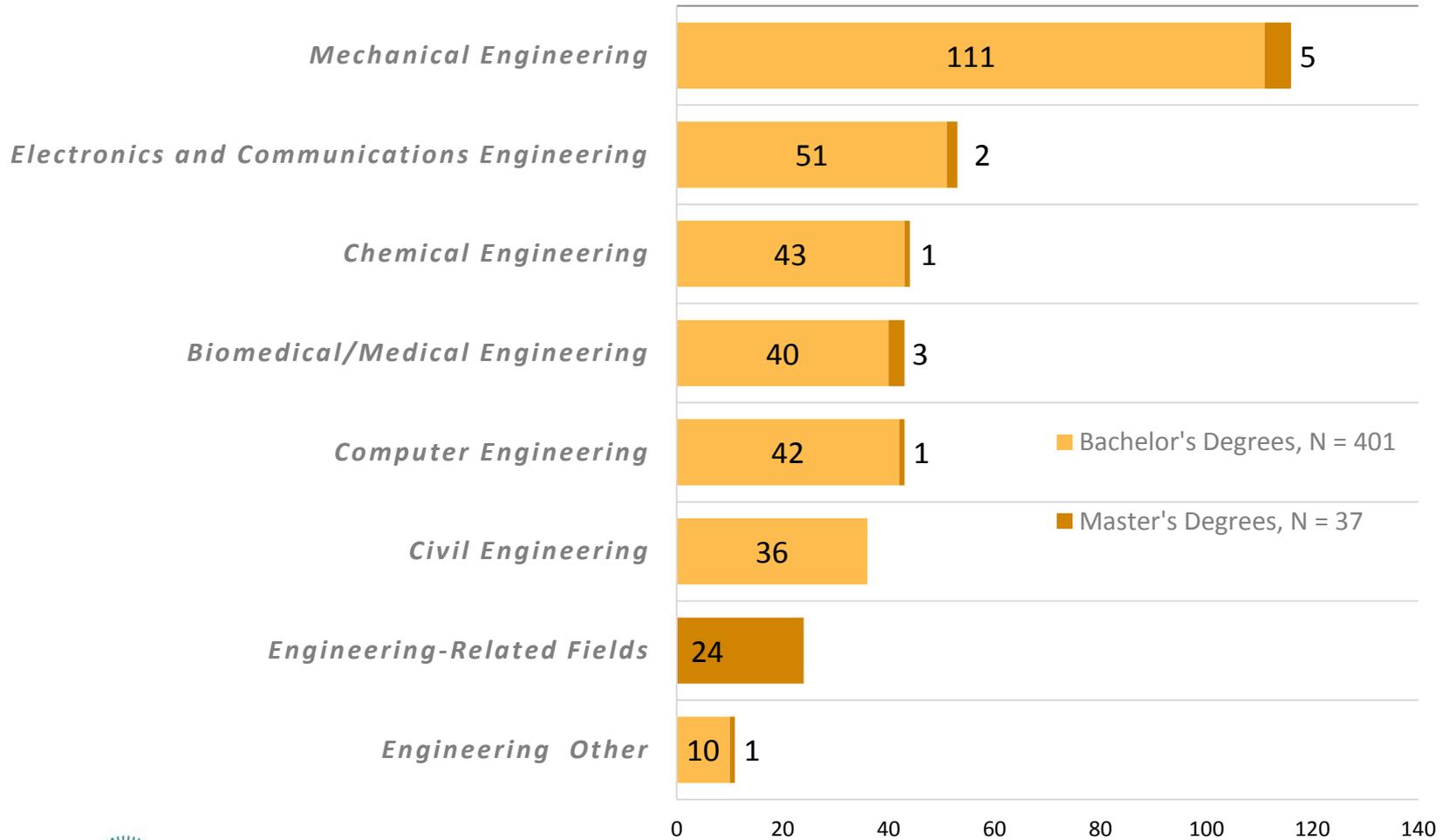


Source: Ivy Tech Community College, Data Provided, 2014.

TOP 15 PROGRAMS OF STUDY, IVY TECH COMMUNITY COLLEGE, SOUTHEAST, BY  
TOTAL CREDENTIALS AWARDED, 2012-2013

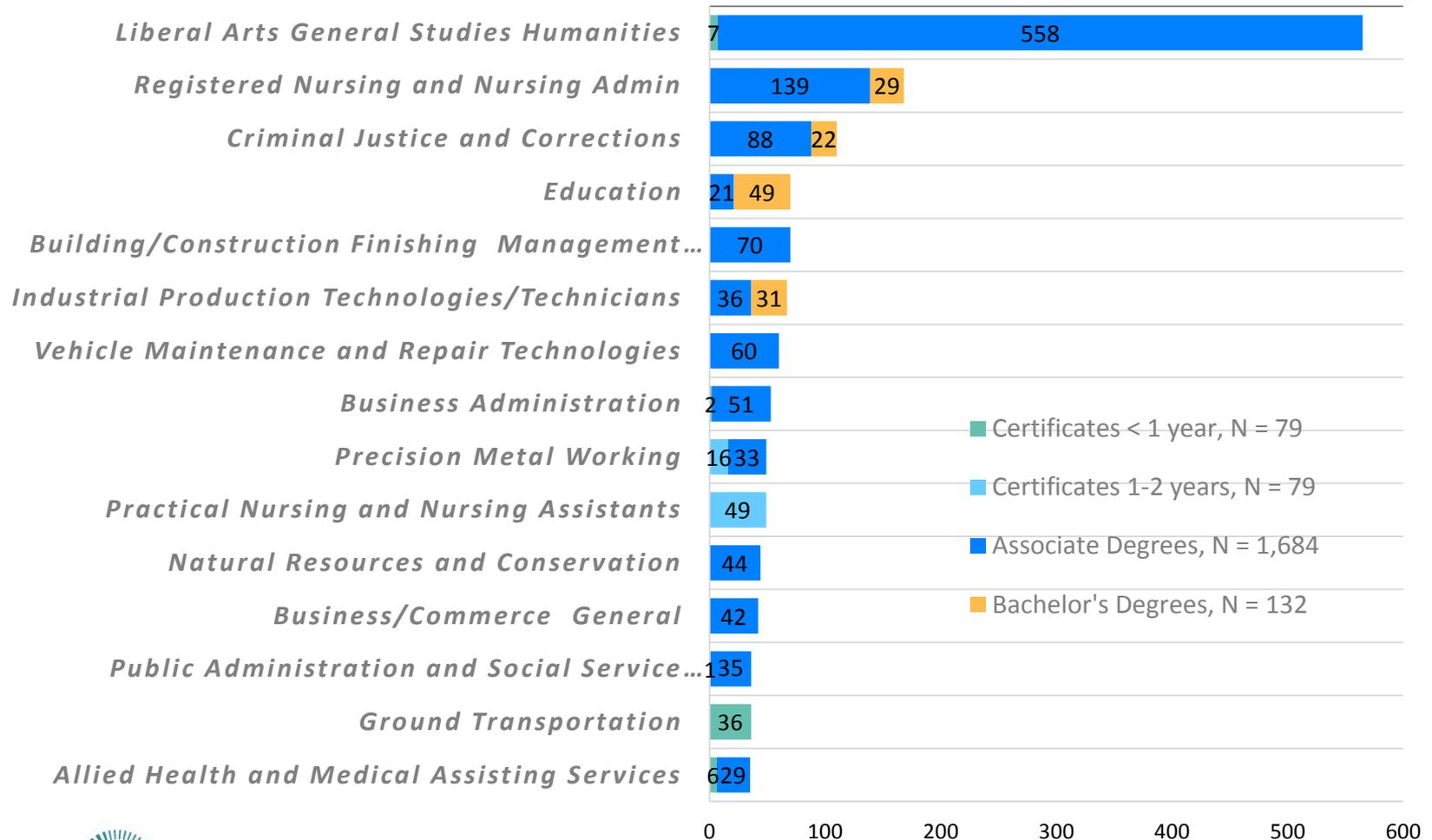


TOP PROGRAMS OF STUDY, ROSE-HULMAN INSTITUTE OF TECHNOLOGY, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

### TOP 15 PROGRAMS OF STUDY, VINCENNES UNIVERSITY, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

**DEFINITIONS AND TECHNICAL NOTES, POSTSECONDARY INSTITUTIONS**

All data on postsecondary credentials are from the U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) for 2013. Collected for this research in September, 2014.

Regional and statewide data for Ivy Tech Community College are provided by Ivy Tech Community College, Office of Institutional Research for 2012-2013.

For more detailed discussion of the employment patterns of Indiana college graduates and their likelihood of remaining employed in the state after graduation, see reports by the Indiana Business Research Center, Indiana University, such as “How Education Pays: The Work Outcomes of Indiana’s Postsecondary Graduates,” November, 2011, and a report commissioned by the Central Indiana Corporate Partnership, “Competitive Economic Advantage: The Opportunity to Win the Global Competition for College Educated Talent,” July, 2013.

A black and white, long-exposure photograph of a multi-lane highway with heavy traffic. The cars are blurred into streaks, creating a sense of rapid movement. In the background, city buildings are visible under a bright sky.

**SECTION 3**

**Overview of Demand Supply Alignment**

## SECTION OVERVIEW:

Our analysis of demand-supply alignment organizes data on demand across key occupational areas and aligns them with data on concentrators from CTE districts and credential output from postsecondary institutions in the region. We present a “Summary Chart of Alignment” of our analysis of demand-supply alignment in this section.

The summary chart, on the next page, shows a high-level picture of demand supply alignment across a number of key occupational areas and is a useful starting point for discussion among members of the Works Council and with employers, educators, government, and civic leaders in the region. The chart will help these partners understand overall labor market demand and the alignment of the supply of talent to meet that demand.

The data included in the chart come from multiple sources:

- » The first area is annual demand. Demand data are for 2013 based on FutureWorks calculations of EMSI’s projected job openings from the U.S. Bureau of Labor Statistics in 2013 and Burning Glass Labor Insight’s 2013 real-time job postings. All demand data are specific to the Works Council region.
- » The second area is credentials awarded from both regional secondary CTE districts and area postsecondary institutions. The secondary data are Graduating Seniors with a CTE concentration reported to Indiana DOE/DWD for each school district and CTE center in the region. Postsecondary credentials data are credentials awarded from two-year and four-year postsecondary institutions within or nearby the region. All data on postsecondary credentials are from the U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) for 2012.

## SECTION OVERVIEW, CONT.:

The regional demand supply model does not capture every pathway to employment, i.e., apprenticeships, temp agencies, etc. The academic institutional education pathway is our focus.

We recognize that the pathways into employment for many occupations in this analysis, like construction, are non-academic pathways. Determining the supply of non-academic pathways is beyond the scope of this research. Even so, in many cases, these non-academic pathways are changing. Increasingly they involve obtaining a postsecondary credential. For example, many apprenticeships are being linked to academic programs and awards of associate degrees through community colleges. Thus some production of traditionally non-academic occupational training now is being captured by data on degree awards.

To find an example of research in this area see: “Demand Study for Construction Employees” prepared by Mohr Partners Cleveland, W.E. Upjohn Institute for Employment Research, and Weber Murphy Fox for The Construction Diversity Committee, Commission on Economic Inclusion, Greater Cleveland Partnership.

## SELECTION PROCESS FOR ANALYSIS OF DEMAND SUPPLY ALIGNMENT

---

We provide data by 96 occupational groups that encompass all specific occupations in the economy.

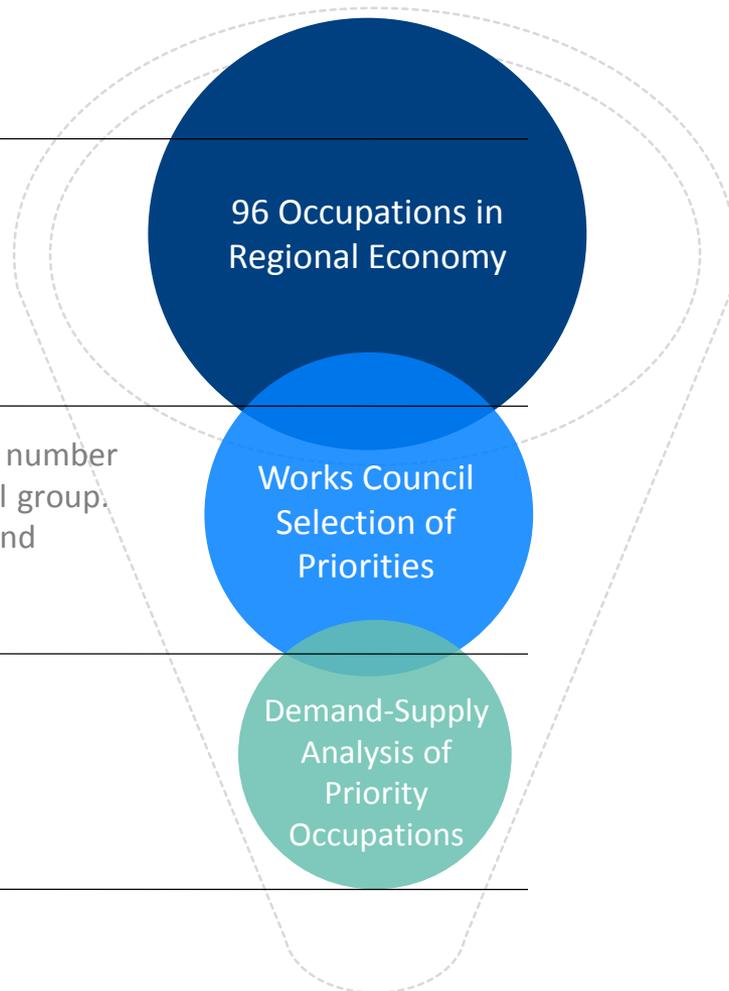
---

Works Council receives data on level of demand, earning potential, number of total jobs, and education typically required for each occupational group. The Works Council will use these data and its local understanding and priorities to identify priorities and areas for action planning.

---

CECI will partner with the Works Council to help develop a deeper analysis, strategic assessments, and action steps. CECI, Works Councils and the State Career Councils will develop an education and workforce development agenda and initiatives.

---



## SUMMARY CHART OF ALIGNMENT

 Generally speaking, there appears to be more demand than supply of credentials.

 Generally speaking, demand and supply approach balance.

 Generally speaking, there appears to be more supply of credentials than demand.

|                                      |  | Demand 2013                                  | PSE Credentials Awarded 2013 | CTE Concentrators 2013 | Alignment   |
|--------------------------------------|--|--|------------------------------|------------------------|---|
| IT                                   | Computer and IT Workers                                | 587  | 125                          | 71                     |    |
|                                      | Skilled Production, Engineering Technology and Related | 921  | 53                           | 102                    |    |
| Manufacturing                        | Installation, Maintenance and Repair Workers           | 357  | 9                            |                        |    |
|                                      | Health   | Health Diagnosing and Treating Practitioners | 465                          | 41                     | 82  |
| Health Technologists and Technicians |  | 246  | 112                          | 19                     |  |
| Health Aides and Support Workers     |  | 245  | 171                          | 118                    |  |
| Education                            | Educators (Teachers and Related)                       | 309  | 30                           | 93                     |  |

## SUMMARY CHART OF ALIGNMENT

 Generally speaking, there appears to be more demand than supply of credentials.

 Generally speaking, demand and supply approach balance.

 Generally speaking, there appears to be more supply of credentials than demand.

|                               |   | Demand 2013 | PSE Credentials Awarded 2013 | CTE Concentrators 2013 | Alignment   |
|-------------------------------|---|-------------|------------------------------|------------------------|---|
| TDL                           | Transportation and Logistics Workers                        | 914         | 0                            | 86                     |    |
| Financial Services            | Finance and Business Operations Specialists                 | 532         | 182                          | 57                     |    |
|                               | Financial and Information Clerks and Administrative Support | 601         | 2                            |                        |    |
| Accommodation & Food          | Accommodation and Food Service Workers                      | 1,157       | 59                           | 51                     |    |
| Life Sciences and Engineering | Engineers   | 540         | 0                            | 221                    |  |
|                               | Life Scientists and Technicians                             | 59          | 41                           | 83                     |  |
|                               | Architects and Mathematicians                               | 15          | 3                            |                        |  |

**PREPARED BY: FUTUREWORKS**

**STEPHEN MICHON**  
**MICHON@FUTUREWORKSWEB.COM**

**JOHN HOOPS**  
**HOOPS@FUTUREWORKSWEB.COM**

