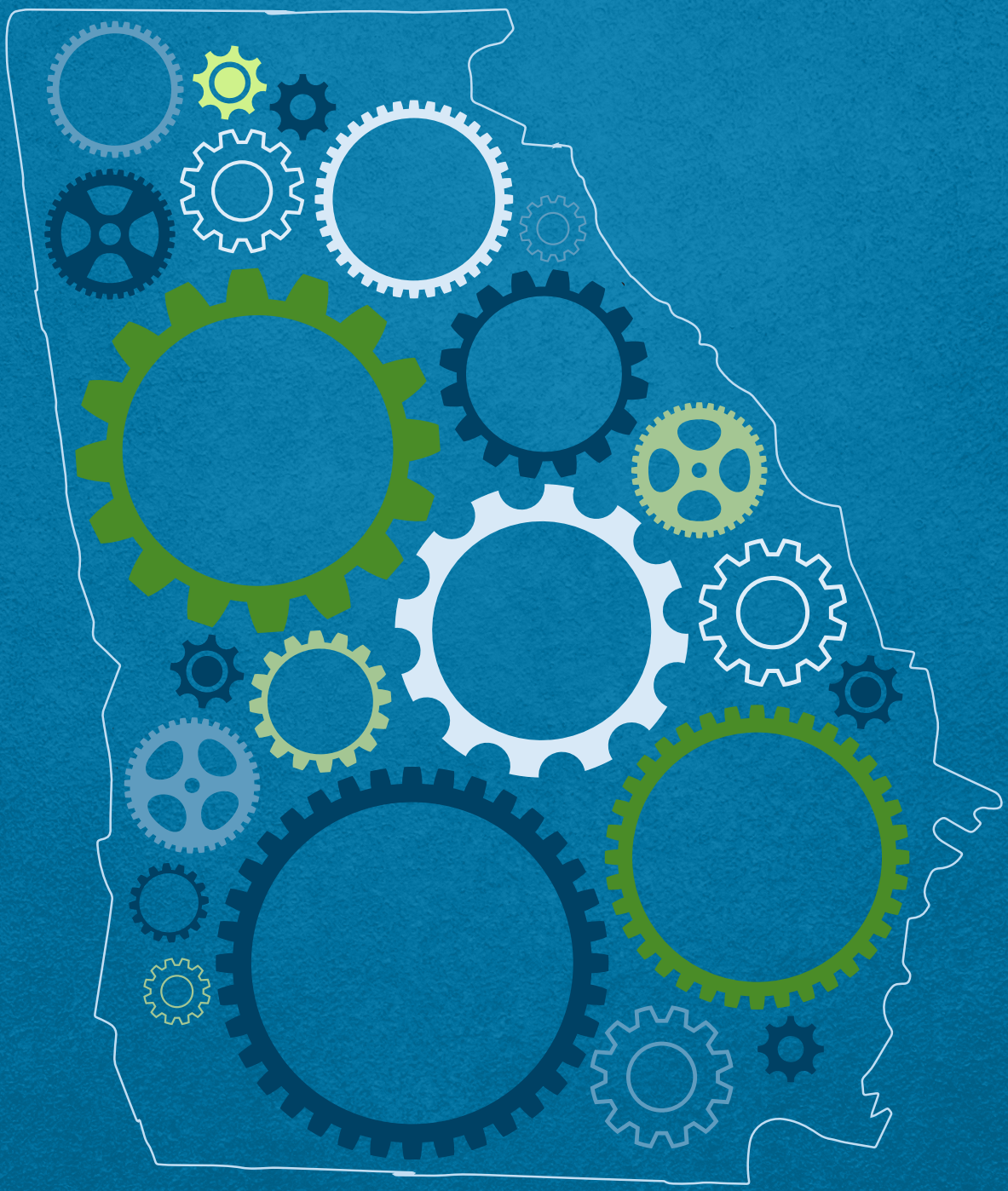

GEORGIA **ALIGNMENT** TOOLKIT

Resources For Connecting **Education** And **Business**

GaDOE Georgia Department of Education

Carl Vinson Institute of Government
UNIVERSITY OF GEORGIA

GEORGIA **ALIGNMENT** TOOLKIT

Resources For Connecting **Education** And **Business**

TABLE OF CONTENTS

Project management, research, interviews, and development were provided by Greg Wilson, Rebecca McIver, Holly Lynde, Tori Tomlin, and David Tanner of the Carl Vinson Institute of Government at the University of Georgia. Editing and graphic design assistance were provided by Karen DeVivo and Jake Brower.

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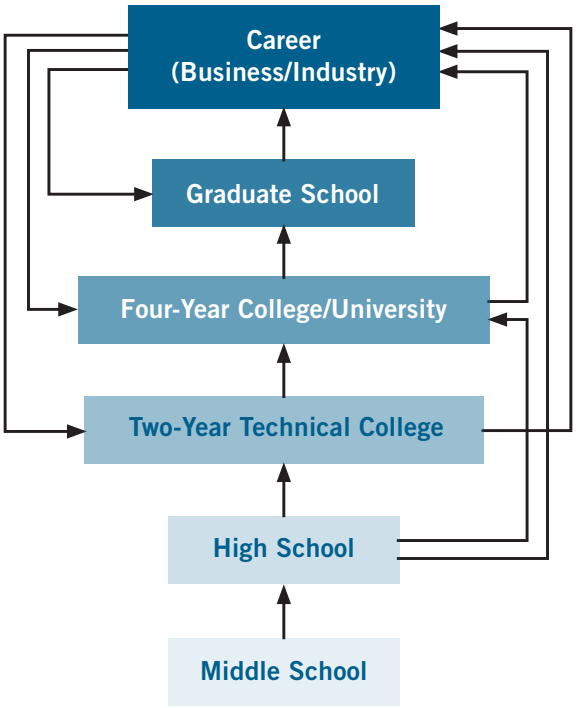
SECTION 1

What is **Alignment?**

How do you efficiently and effectively coordinate education and workforce needs in your community? How do you figure out what local employers need and prepare your students to meet those needs? How can we best prepare our students for career success after high school? Those are just some of the questions that this toolkit is designed to help you answer. Coordinating education and workforce needs is known as alignment: It is the process by which education—both K–12 and postsecondary—and local employers match Career, Technical, and Agricultural Education (CTAE) pathways with workforce skills needs. Alignment means that CTAE pathways prepare students for jobs in their local economy.

In secondary education in Georgia, a career pathway is a set of three related CTAE courses. Georgia currently has 130 career pathways organized into 17 career clusters. Clusters are made up of similar career pathways. You may already have multiple pathways in your high school(s) and programs in middle school(s) to prepare students to understand the pathways offered and what education and jobs can result from those pathways. But are students then going on to postsecondary education to study that subject? In postsecondary education—Technical College System of Georgia (TCSG), University System of Georgia (USG), or private institutions—aligned courses follow on and add to the knowledge and skills gained during pathways in high school. Aligned pathways offer multiple exit points, seamless transitions from one level of education to the next, and industry-recognized credentials. Figure 1 shows a career pathway pipeline, including those transitions and multiple exit points.

Figure 1 **Career Pathway Pipeline**



WHY CTAE

"The mission of CTAE is to educate Georgia's future workforce by engaging students in experiences that will prepare them for workplace success. Through CTAE, students see the relevance of their high school efforts to their future career goals .... One of these accomplishments is the graduation rate of 96% for CTAE completers as compared to 80.6% for Georgia's overall graduation rate."[1]

Georgia Department of Education
2017 CTAE Annual Report

Aligning academic offerings with the needs of and knowledge required by local employers involves creating clear course sequences to provide students with the skills and knowledge that local employers seek in their employees. Alignment ensures that students learn a specific skillset in a prescribed sequence. It is critical to creating strategies to "generate and retain a highly educated population capable of driving economic growth."[2] If the student chooses to pursue postsecondary education prior to entering the workforce, alignment ensures that the student is prepared for that coursework and has taken the necessary prerequisites.

Using alignment to more efficiently move students from high school to a job, either directly from high school or after postsecondary education, is part of a larger comprehensive economic or community development plan for creating a competitive workforce now and in the future. Your local workforce must be able to meet current and future demand from existing employers and potential new employers.

According to an *Area Development Magazine* annual survey of site selection consultants, the number one factor in site selection is the availability of skilled labor. In the magazine's survey of corporate executives, a skilled labor force was the third most important site selection factor:[3] "A community that does not have the adequate labor profile is devastating to a project's success in that location, and also limits the economic developer's ability to successfully compete for a project."[4]

Alignment does not necessarily mean starting a new pathway for a particular industry sector or employer, but it involves evaluating your existing pathways to ensure that students and employers are getting out of them what you intend. Alignment is about utilizing the limited resources in your community to best prepare students for career success after graduation. The best place to start is to evaluate your current pathway offerings, current local employment opportunities, and potential future local employment opportunities. As you evaluate the current situation, you may consider some of the following questions: Are you preparing your students for current jobs and possible future jobs? Do the educational opportunities offered in your community allow for seamless transitions to each step of the educational ladder and eventually to a job in your community? How many of your past students have gone on to employment locally after taking courses in a pathway meant to prepare them for that job? Are local companies hiring for positions that your pathway is meant to prepare them for?

Alignment is not just a one-time event or process. Employers can come and go, and their needs change. Economies are constantly evolving, and technology is impacting the nature of work. Together with your alignment partners, you should examine the number and quality of the jobs that students are getting, how the skills required for those jobs change, the relevance of pathway and other academic offerings, and the skills needs of those employers. How have those changed recently? How are they likely to change? How do they need to change to keep up with the evolution of the local job market?

WHAT IS A REGIONAL ECONOMY?

You live in a regional economy. That region may incorporate other cities, towns, counties, or even parts of other states. While you may live or work in a specific city or county, your community is part of a regional economy. Workers enter and leave your community each day for employment. You may travel to a neighboring county to buy groceries and another community to purchase a car. As you consider pathways and programs, you must look at the larger regional economy in which your school or district is situated.

Where do the workers go every day to work? In some rural areas, they may travel further distances than in a more urban environment. Therefore, a rural region may be geographically large with a smaller population, while an urban area may be geographically smaller but with a large population.

Your region may be defined by a governmental organization—say, the regional commission (defined by the state) or a metropolitan or micropolitan statistical area (defined by the Census Bureau). Your region may be defined more informally, such as several counties that share common interests but are not necessarily otherwise formally in the same region.

Throughout this toolkit, we use the term "local" to refer to your region and the employers—both business and industry—who recruit and employ workers from your area. Local to you may be within your city/town, county, or a multicounty region, or all three. Develop an alignment strategy that fits the region in which your school district is located.

As Stephen Covey highlights in his book *The 7 Habits of Highly Effective People*, you should "begin with the end in mind"—employment—and work backwards to understand the academic path, competencies, experiences, and credentials/degrees that students need to achieve that goal. But that goal cannot be achieved without business and industry at the table helping you understand what skills and knowledge your students need, and whether you are assessing those in a way that accurately reflects what students learn. This information needs to be shared both ways: Educational partners need to help business and industry understand what they currently provide and what they can provide in the future, and business and industry needs to help educators understand what they need now and what they may need in the future. Engaging with your local chamber of commerce, development authority, and other economic development groups can help with this facilitation, and they should be part of the conversation: They may be privy to information about future jobs that you are not.

Aligning pathways to the local economy requires a number of resources, tools, and actions. Alignment does not occur by chance but is an intentional effort by educators, district leadership, business partners, and other leaders in the community or region. This toolkit is intended to provide you with the resources and tools you need to begin your alignment efforts. It will help you bring together the appropriate partners to ensure students can gain employment and move on to postsecondary education, and that local employers are able to hire workers from the local area who are equipped with the desired skills and knowledge.

PERKINS V

The federal Strengthening Career and Technical Education for the 21st Century Act (commonly called Perkins V) was signed into law in 2018. The law updates the policies and procedures for federal funding to support CTAE, including a change relevant to alignment. Perkins V requires each district to complete a comprehensive local needs assessment (CLNA) to support the local application for funds process. The CLNA process involves consulting with stakeholders (e.g., local industry, economic development organizations, workforce boards, student advocates) and reviewing performance data, labor market alignment, and program operations. Visit the Association for Career and Technical Education Perkins V information page at **acteonline.org/perkins-implementation** for additional resources.

RESOURCES

Several resources are available that can assist you with starting the alignment process or helping to ensure alignment over the long run:

CTAE Resource Network: ctaern.org

Georgia Department of Education CTAE Division: gadoe.org/ctae

Georgia Department of Labor: dol.georgia.gov

Technical College System of Georgia: tcsg.edu

University System of Georgia: usg.edu

For school districts in rural areas, a good place to start is the Carl Vinson Institute of Government's *Economic Development Handbook for Georgia's Rural Communities* available at **cviog.uga.edu/ruralhandbook**. The handbook can help you organize information and conduct basic economic development activities, one of which is alignment. It also contains information on laws, partners, programs, and resources.

CASE STUDY

Health Care at Fayette County Schools

Health care is an important industry in Fayette County, which is located in the southern portion of metro Atlanta, accounting for more than 6,700 jobs in 2018.[6] Fayette County Schools has long worked with Piedmont Fayette Hospital, a 282-bed facility located in the community, to place students from four high schools in clinical rotations for the third class in the Allied Health and Medicine pathway. Several years ago, Piedmont Fayette Hospital approached the school system seeking to streamline processes and paperwork for the clinical rotations. Out of this initial inquiry, a larger conversation between the school district and the hospital leadership emerged. They began to explore the hospital's talent needs and how the Fayette County School District could help to prepare more students to enter the health care field. Specifically, Piedmont Fayette Hospital requested assistance with training more certified nursing assistants (CNAs).

Industry partners, growing student interest, and a review of labor market information were the driving forces behind the changes made to the Fayette County health care science programs. Fayette County CTAE Director, Lisa Collins, and the Coordinator for Counseling and Career Development, Lakisha Bonner, worked in conjunction with the Fayette County's health science teachers to develop strategies to grow the county's program using limited resources. The Center of Innovation is a former elementary school building repurposed by Fayette County as a common pathway instruction location for all Fayette County high schools. The first two classes in Therapeutic Services are taught at the student's base high school by a teacher employed by the school district. Four third-level pathway courses (e.g., Phlebotomy, Emergency Medical Responder, and Health Information Management/Medical Office) are taught at Center of Innovation by either a Southern Crescent Technical College (SCTC) instructor and one third-level pathway course (e.g., Allied Health and Medicine) is taught by a Fayette County teacher. Transportation is provided from each Fayette County high school. After completing the pathway, students receive high school credit, technical college credit, a technical college certificate, and a health care industry credential.

Closely aligning the district's health care programs to local needs and establishing an enhanced partnership with Piedmont Fayette Hospital have had several benefits. First, the district has increased its capacity to train students for high-demand, high-wage careers. Offering the third class through dual enrollment has created space to grow the program. Enrollment in health care programs in Fayette County has grown from 52 students in the third-level class in the 2015–2016 school year to 333 students registered for the 2019–2020 school year. Second, Piedmont Fayette Hospital and other health care employers in Fayette County and the region have a deeper talent pool from which to draw when filling open positions.

CASE STUDY

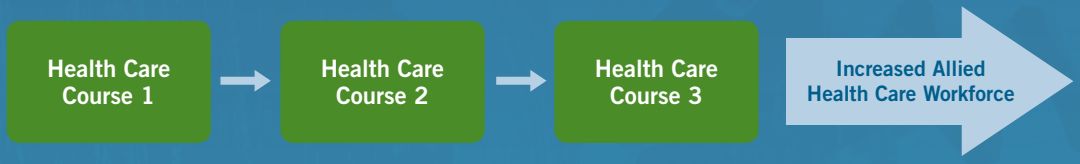
Health Care at Fayette County Schools CONT.

The program has grown from the initial allied health and medicine pathway to encompass other health care professions (e.g., phlebotomy, emergency medical responder, and medical assisting) that industry partners have identified as in high demand. Finally, the enhanced partnership between Piedmont Fayette Hospital and the school system has helped to secure resources to support the health care pathways. Specifically, Piedmont Fayette Hospital helped to provide used equipment and supplies for several health care labs at area high schools and the Center for Innovation. By aligning its programs to local industry needs and creating additional student capacity, Fayette County Schools is helping to meet critical workforce needs and prepare students for success in a high-demand and high-wage industry.

WHY IT WORKS

- ✓ Both local industry needs and labor market projections were assessed from the beginning of the process.
- ✓ Students across the district receive dual enrollment instruction in a common place, allowing more credit opportunities for all students.
- ✓ The school system has a strong relationship with the dual enrollment institutions and continues to work to strengthen the program for students and instructors.

SECTOR **Health Care**

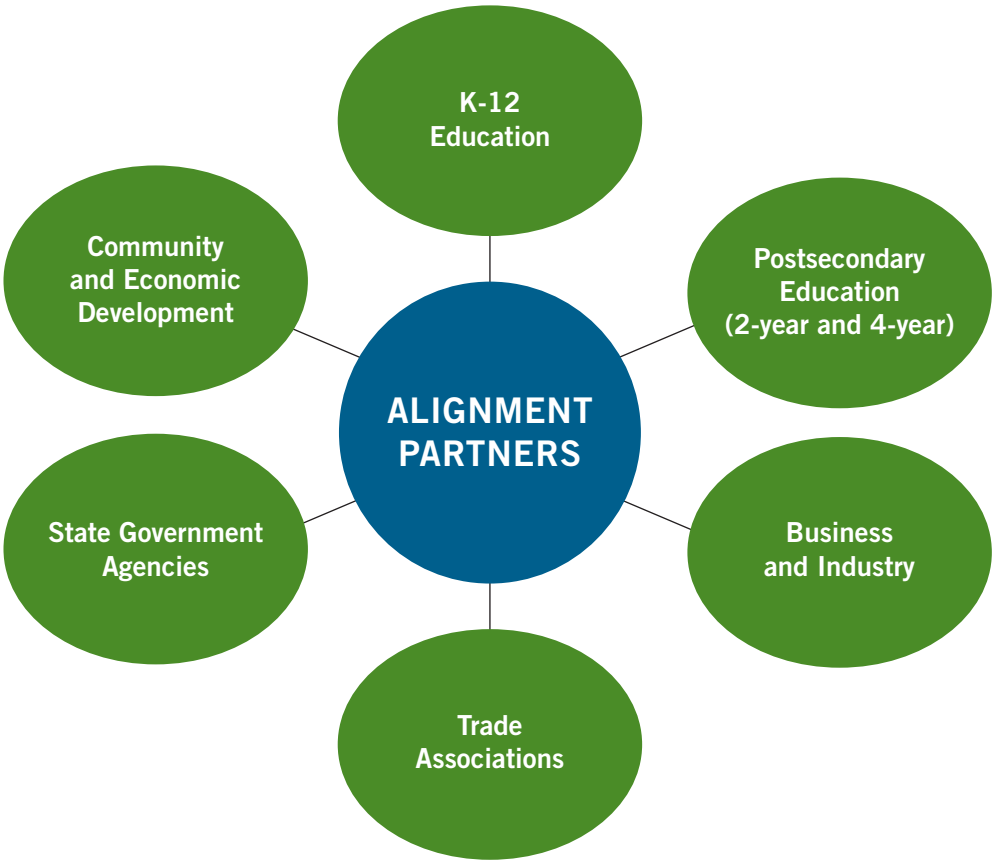


WHERE	At Base High School	At Base High School	Center of Innovation
HOW	High School Teacher	High School Teacher	Dual Enrollment Instructor

SECTION 2

Alignment **Partners**

Figure 2 Key Alignment Partners



Ensuring appropriate alignment with postsecondary and business and industry needs requires collaboration. It starts with gathering your partners. Each partner has a vested interest in ensuring alignment between education and career. Educational institutions want their students to succeed after graduation, and employers want to have access to the best talent possible. Once you have gotten your partners together, you will need to conduct a needs assessment to determine what needs you are currently meeting and where you may be falling short. More information on the needs assessment can be found on page 12.

You need partners at the table to help you conduct a needs assessment and establish strategies for aligning your curricula and programs to postsecondary and business and industry needs. *You cannot and should not do this alone.* There are specific partners at each step along the career pathway pipeline (see Figure 1 on page 2). Descriptions of each of these partners are provided below.

K-12 Education

It is important to include all K–12 stakeholders that may be impacted by the outcome of the needs assessment process, such as teachers, school counselors, CTAE directors, work-based learning coordinators, career coaches, and middle school educators and counselors. Depending on the district, the superintendent and other administrators may need to be involved as well. You may also consider taking a multidistrict approach to the needs assessment process and involving several school districts in the region in your analysis and planning efforts.

Postsecondary Education

Representatives from local colleges and universities, including TCSG and USG institutions and private colleges, should be included in the process. The exact representative will vary depending on the school and the program. Key points of contact could be postsecondary dual enrollment coordinators, TCSG vice presidents of economic development, vice presidents of academic affairs, and an instructor and dean from the applicable department related to the specific alignment areas being considered. Much like K–12 institutions, other administrators may need or want to be included in the process.

Business and Industry

Including local and regional employers is pivotal to making alignment work. If you need help identifying the employers in your community, ask your community and economic development partners to help make those connections. Be sure that you do not just include the big businesses: Think about smaller firms and companies that do not fall directly in the industry but still may be able to employ students from pathways you are targeting. For instance, if you are looking to start a marketing program, nearly every business has some need for marketing even if they do not have a dedicated office or person assigned to that role.

UNDERSTANDING THE BIG PICTURE

"Employers and businesses are in the unique position to provide information about their own workforce needs. Industry-driven partnerships enable industry representatives to share information about their workforce needs projections, skills and competencies necessary for success, and the current sources of their talent. Partners start by analyzing an industry's current and future skill needs and identifying occupations with skill gaps before developing a plan to close these gaps. Identifying where and when businesses need workers, the skills workers need to have to start a work-based learning program, how those skills should progress over time, and the pathways to that skill development are all at the foundation of an industry partnership's goals."[7]

National Skills Coalition

Trade Associations

Depending on the particular pathway, it may be important to include local, state, or national trade associations. A good way to find out about such organizations is to talk to other school districts that already have that pathway and see who they have on their advisory committees or who was involved in their needs assessment process. Another way to learn about industry trade or professional associations is to ask your business and industry partners. Many of them will be members of such organizations or be involved in some way and can probably point you in the right direction. While this may seem like one of the harder partners to get to the table, trade associations can provide a lot of resources that others may not be able to. Typically, associations have existing curricula or information that can be helpful during the needs assessment.

State Government Agencies

Many state agencies have resources that you can use in your needs assessment or as part of your pathway. Or they can put you in touch with the right resources or partners to assist in your alignment efforts. Representatives from your local workforce board, the Georgia Department of Economic Development, the Georgia Department of Labor, and the Georgia Vocational Rehabilitation Agency are all potential partners.

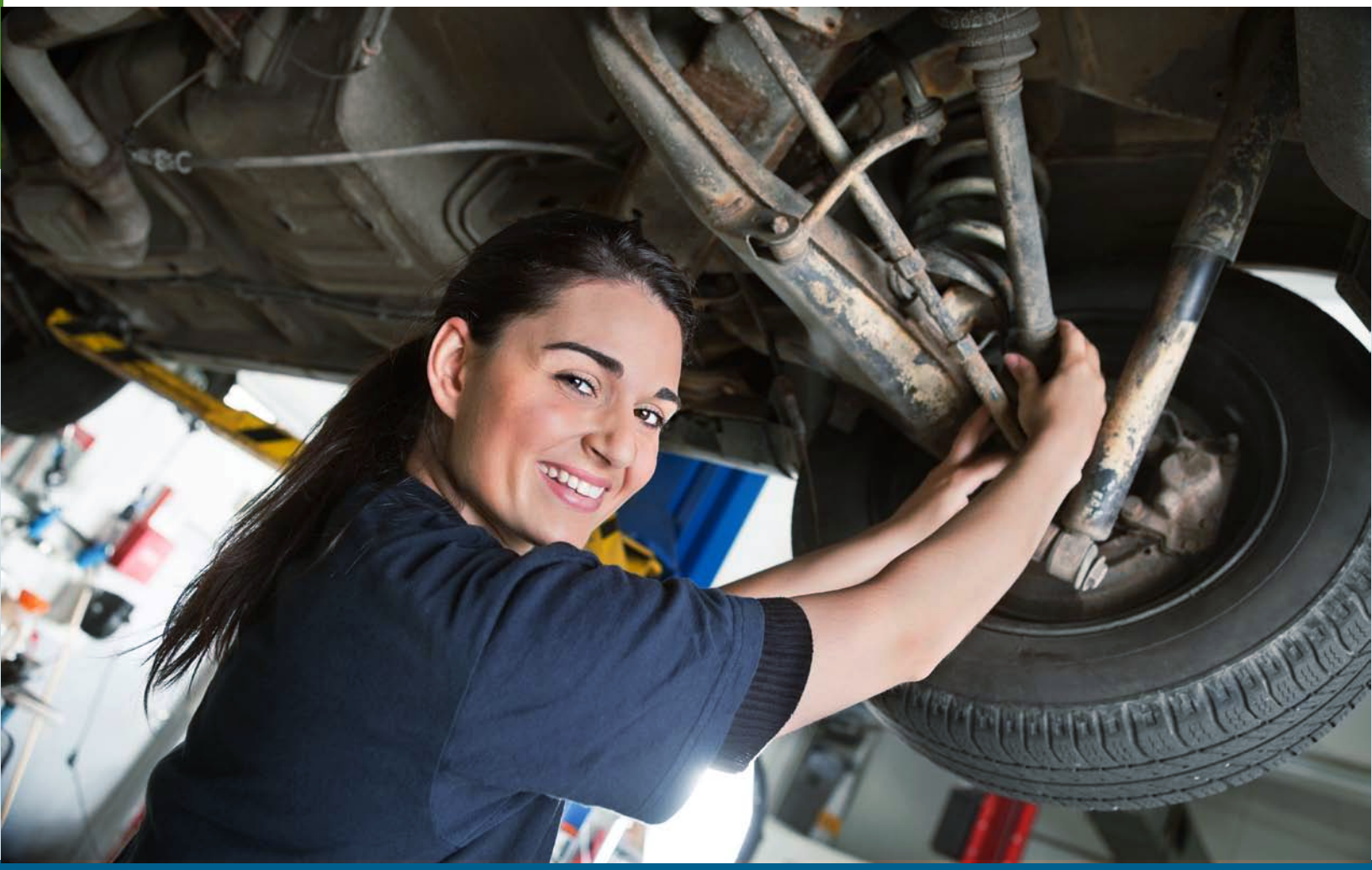
Community and Economic Development

Every community has different community and economic development organizations, so it is important to get to know them and involve them in your needs assessment process. After all, one way they are selling your community to prospects is the quality of the school district and the future workforce. Some of the common representatives in this category are members of the chamber of commerce, members of the economic development council or authority, utility community and economic development representatives, members of workforce boards, and community development corporation members.

Use the Partner Worksheet in Appendix A to create a list of the partners that should be included in your community's needs assessment process.

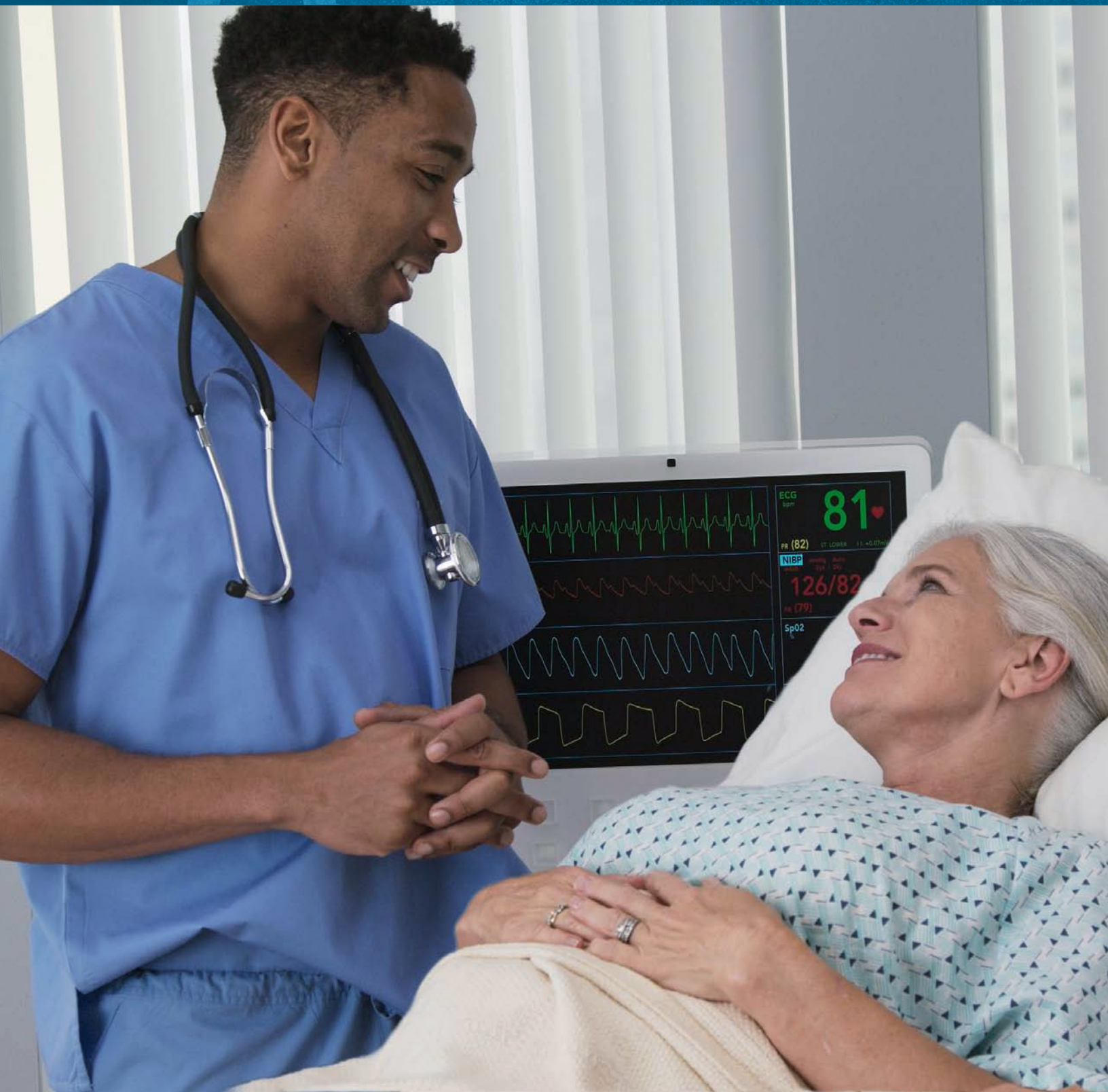
Intermediaries

Building relationships with local and regional business partners can be difficult for many CTAE teachers as they have numerous school-based responsibilities and limited opportunities to attend chamber meetings, call on businesses, or work to build relationships with regional employers. Often, intermediary organizations—like chambers of commerce, economic development organizations, and trade associations—can help to connect educational programs with relevant businesses that may be willing to partner.



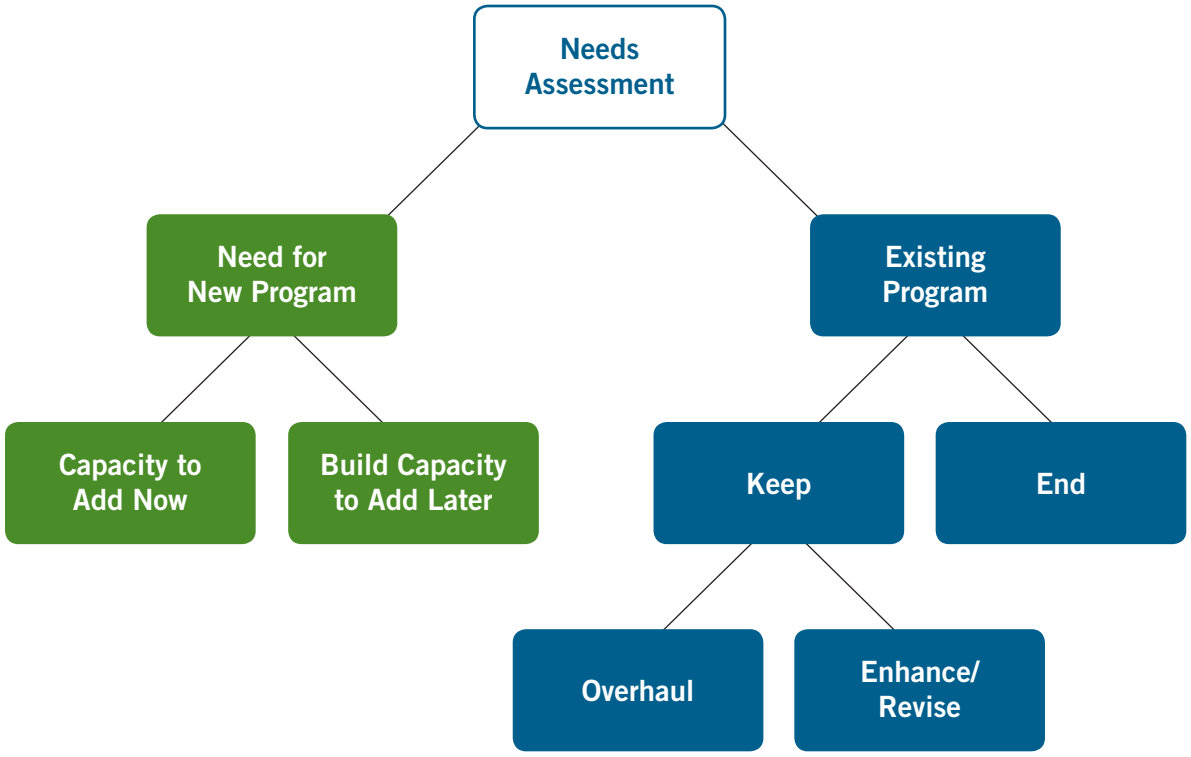
SECTION 3

Needs **Assessment**



Alignment starts with a needs assessment. Your needs assessment is what drives your decision making. It is the basis for understanding whether to keep or eliminate an existing program or if an entirely new program is needed to meet current or future needs. Your needs assessment will lead down one of several paths, as highlighted in Figure 3 below. For example, your district launches a needs assessment process and focuses on reviewing its existing programs. You decide that your existing computer science pathway is largely meeting industry needs but, based on feedback from industry, you will overhaul several parts of it, including the curriculum and the end of pathway assessment, and create opportunities for work-based learning and other types of experiential learning.

Figure 3 Needs Assessment Flowchart



The needs assessment is a core element of the CTAE alignment process. At the most basic level, the needs assessment is about collecting information from and about employers and employment patterns in your region regarding hard-to-fill jobs and skills shortages. The needs assessment process may involve interviews with businesses, conversations with local economic development professionals, surveys of business partners, and a review of relevant labor market information. The needs assessment process will help to identify key industries, high-demand jobs, and opportunities for the school system to plug into local workforce development needs.

CASE STUDY

Manufacturing at Newton County Schools

How do you get students enrolled in a CTAE pathway with high local demand but uninterested students? Tim Schmitt, the director of CTAE and workforce innovation for Newton County Schools, and Chad Walker, principal and CEO of the Newton County College and Career Academy (NCCCA), faced just this problem with the Manufacturing pathway. The local chamber of commerce reached out to Schmitt about an ongoing need among local manufacturing firms: a lack of workers. Newton County decided to do two things: First, Schmitt and Walker changed the name of the pathway, and then Schmitt worked with several local employers to develop a teacher externship program.

By changing the name from Manufacturing to Automation, Robotics, and Manufacturing and including some additional topics, the school system removed some of the stigma and increased student interest in the pathway. Another way Schmitt tackled the stigma and boosted student interest was through a one-week summer externship program open to all faculty and staff. The educators tour local manufacturing and meet employees. They must then produce a portfolio profiling three to four people they met, including their job description, educational background, wages, and other relevant information. The portfolios are then shared as a resource for other teachers to incorporate into the curriculum, such as creating real-world math problems using local companies to allow students to learn what actual manufacturing work looks like in their community. Teachers were surprised to learn about the wide variety of positions in the field and the respective entry points ranging from a high school diploma to a PhD, depending on the position.

Schmitt has seen increased enrollment in the Automation, Robotics, and Manufacturing pathway, which he hopes will produce students more likely to enter the local manufacturing workforce. When asked how to make this work in other schools, he shared two pieces of advice: "Ask for meaningful things from local business," and remember, "if it is good for the kids, then we are for it." It can be easy to get discouraged by legal or logistical barriers, but if both sides can be flexible and provide multiple options, then finding a middle ground beneficial to both sides should be feasible.

WHY IT WORKS

- ✓ Communication between industry and education leaders is ongoing, and both sides showed flexibility.
- ✓ Classroom teachers and school administrators are involved.
- ✓ New knowledge gained through local tours and other activities is applied directly in the classroom.

Needs Assessment Approaches

There are three main approaches to conducting a needs assessment process. Some school districts use more than one approach, such as combining a needs assessment meeting with targeted follow-up interviews to capture missing voices.

1. **Needs Assessment Meeting.** This approach to gathering needs assessment information focuses on getting various partners (e.g., business leaders, school leaders, community and economic development leaders) in the room for short presentations and discussion. Each business should be asked to make a short presentation addressing the four questions highlighted on the next page. After the business presentations, the group should discuss common needs and opportunities for partnerships. Needs assessment meetings typically last no more than four hours. Depending on the size of the community, you may need to have more than one meeting and could break up industry sectors. See Appendix B for a sample needs assessment meeting agenda and Appendix C for a sample needs assessment meeting guide.

2. **Needs Assessment Survey.** Another means of to gathering needs assessment information is through a short online survey. You could use an existing list of relevant contacts (e.g., advisory committee roster, partners in education listing) or work with your partners to develop a list (e.g., chamber of commerce, economic development). Several free or low-cost survey tools are available that can be used to develop and administer the online survey, such as Survey Monkey, Qualtrics, or Google Forms.

3. **Needs Assessment Interviews.** The final approach to gathering needs assessment information is through interviews. The interviewer is typically a member of the school district's leadership team, sometimes accompanied by a partner from economic development or the local chamber of commerce. The interviews would preferably be conducted in person, but they can also be completed via phone. In-person interviews have the advantage of helping you form and build relationships with potential partners. The interviews are also a great way to garner input from partners who are not able or willing to participate in a needs assessment meeting or survey. As mentioned earlier, interviews need not be a stand-alone approach to conducting a needs assessment but can also be an important supplement to the other approaches.

Key Needs Assessment Questions

No matter the approach you use to conduct your needs assessment, you should be trying to answer the following basic questions. The answers to these questions can also be supplemented with labor market information, which is discussed on page 17.

1. **What jobs are currently the most difficult to fill?**
2. **What jobs do you anticipate struggling to fill in the next five to 10 years?**
3. **What types of skills, knowledge, and attributes are entry-level workers missing when they interview for a position or start employment with your company?**
4. **How can our school district help to meet your company or industry workforce development needs?**

Additional questions to take into consideration are included in the sample needs assessment meeting guide in Appendix C.

In addition to these key needs assessment questions, the needs assessment process may need to address additional factors to best align programs, support students, and meet local workforce development needs. The Needs Assessment Evaluation Criteria worksheet in Appendix D is a tool to help ensure that you are asking the right questions during the needs assessment process. It also raises other potential considerations that may be relevant to your community.

As mentioned earlier, multiple exit points should be built into your career pathway pipeline. These exit points and the associated credentials, skills, and knowledge that a student can obtain at each exist point should be evaluated. Appendix E contains an example of the credentials, titles, and relevant employers where students can obtain nursing jobs. It also contains a worksheet that you can use for each pathway or career.

Two other perspectives that a needs assessment must take into account are those of the students and parents/caregivers. Parents and students might have a bias toward certain industries and trades. Even a pathway aligned with industry cannot be successful if no students are interested in taking the classes or choosing a career in that industry, or if parents discourage enrollment. Some programs are naturally more popular than others in a high school and may not require heavy student recruitment. Other programs may not have a natural constituency or students may have limited exposure to careers in the industry, which can hinder enrollment. Helping both parents and students understand the competencies required to succeed in these industries or careers and the potential associated wage or salary is important to overcoming this bias. See the Construction at Roswell High School case study on page 16 to learn about how the Construction pathway took a K–12 approach to building and sustaining interest in construction careers.

CASE STUDY

Construction at Roswell High School

The construction industry is growing rapidly in metro Atlanta, and contractors are having a difficult time finding young people to enter the industry. Roswell High School, located in the northern part of Fulton County, launched the Construction pathway in 2014 to help fill the gap and graduate students ready to enter the construction field or continue to postsecondary education. Unfortunately, it was difficult to get high school students interested in construction, and parents had misconceptions about the field, career prospects, and earning potential.

To help expand the high school program and meet regional talent needs, leaders from the construction industry and Fulton County Schools launched a construction pipeline program in their two middle and six elementary feeder schools. According to Zach Fields, former Roswell High School construction teacher and current vice president of K-12 pipeline for the Construction Education Foundation of Georgia, the elementary school and middle school pipeline programs are designed to "expose students to construction careers and build their interest in the high school construction pathway."

At the six elementary schools, Toolbox Construction Clubs meet after school once a week. Students have the opportunity to complete hands-on projects, learn employability skills, and receive mentoring from industry leaders. The construction clubs are entirely volunteer-driven and funded by industry partners. The construction pipeline continues into the two middle schools in the Roswell cluster. Each school has a Construction Connections class in which students learn additional construction and employability skills and have opportunities to interact with the high school Construction pathway instructor. The middle school class is not meant to accelerate the high school pathway but instead to continue to develop interest in the field and transition students into the high school program.

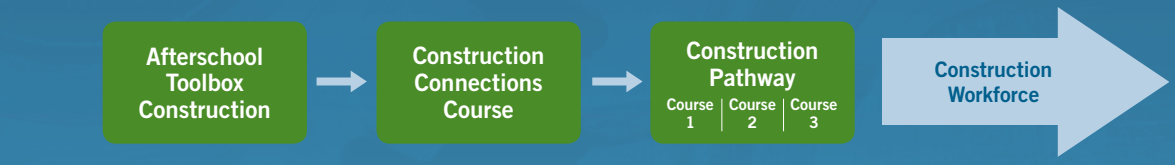
The pipeline approach has led to a group of students ready to enter the high school Construction pathway and has helped change the negative stigma of careers in construction among parents and students. Ultimately, this approach is helping to fill high-demand jobs in the region and prepare students to develop the skills needed to succeed in this career field.

WHY IT WORKS

- ✓ The program is designed to meet the needs of a growing industry and prepare students for high-demand careers.
- ✓ Industry partners are actively involved in developing and supporting the construction career pipeline.
- ✓ Student interest in construction careers starts well before high school with elementary school construction clubs and middle school Construction Connections classes.

CASE STUDY **Construction at Roswell High School** CONT.

SECTOR **Construction**



WHERE	Elementary School	Middle School	High School
HOW	Volunteers	Middle School Teacher	High School Teacher

Labor Market Information

As mentioned previously in this toolkit, labor market information (LMI)—data about the quality of, supply of, and demand for a workforce—can be a powerful tool to help secondary and postsecondary educational institutions align their offerings with business and industry needs. Knowing where to look for LMI on a specific industry in your region or what your existing workforce looks like and how to analyze and use such data can be overwhelming, so this section is designed to provide some basic LMI resources. Some of these sources are national in scope while others are specific to Georgia.

Note also that different data sources report information for different geographic areas. Educational sources like the Career Pipeline Tool and the Governor's Office of Student Achievement (GOSA) are more likely to be very detailed, going as specific as the county or district level, whereas other sources of economic data like the US Census Bureau and the Bureau of Labor Statistics more commonly report information by county or multicounty regions.

Keep the following in mind as you research LMI:

- **Do not limit your data collection to a snapshot in time: Make sure you look at trends over time.**
- **Benchmark your region/county/school district against similar or surrounding areas, or use a state average.**
- **Look at existing employers as well as at sectors of the economy that have the promise of growth. As an educator, you may not know this information, so rely on your partners.**
- **Each data source has limitations, so it is important to pull from multiple data sources. These sources should ideally include quantitative (statistical) backed by qualitative (interviews) information from partners.[8]**

USEFUL TERMINOLOGY

Below are some common and useful terms that you will need to know as you work through your LMI analysis:

Standard Occupational Classification (SOC) codes: SOC is the federal statistical standard to classify workers into occupational categories. There are 459 occupations that are divided into 23 major groups. Every occupation has a code, which is a hierarchy to help place it in the larger system. At the two-digit level, you will only see the 23 major groups, but as you increase the number of digits, the information gets more detailed. An individual occupation can be explored at the five-digit level. For example, the two-digit code 25 is for Educational Instruction and Library Occupations. Under that category are subcategories for Postsecondary Teachers (25-1000) and Preschool, Elementary, Middle, Secondary, and Special Education Teachers (25-2000). Each of those categories is then broken down further; for example, code 25-1194 is for Career/Technical Education Teachers, Postsecondary, and 25-2023 is for Career/Technical Education Teachers, Middle School.

SOC codes are useful as you look at the number of jobs in a region, job growth over time, or average earnings for certain types of jobs and typical education needed for entry-level positions. You can learn more about the occupations and major groups at the Bureau of Labor Statistics (BLS): **bls.gov/soc**.

North American Industry Classification System (NAICS) codes: This is the federal classification for business establishments. All business fall into one of 20 sectors. Much like the SOC codes, all industries are coded in a hierarchy starting with a two-digit sector going down to a six-digit industry. For example, code 23 is for Construction. Under that category are subcategories for Construction of Building (236) and Heavy and Civil Engineering Construction (237). Each of these is broken down further, such as Residential Building Construction (2361) and Nonresidential Building Construction (2362). The final two digits divide the industry even further. In the example of residential building construction, there is New Single-Family Construction (236115), New Multifamily Construction (236116), and Residential Remodeling (236118). In total, a business can be classified into one of 1,057 industries. NAICS codes are useful as you look at what industries are growing, remaining constant, or declining over time in your community.

To learn more about NAICS, visit **bls.gov/bls/naics.htm or census.gov/eos/www/naics**.

Metropolitan Statistical Area (MSA): This is a common geographic area for measuring economic indicators, including all Census data. An MSA is defined as an area containing at least one urbanized area of 50,000 or more people. Currently, the US has 542 MSAs, 14 of which are in Georgia: Albany, Athens, Atlanta, Augusta, Brunswick, Columbus, Dalton, Gainesville, Hinesville, Macon, Rome, Savannah, Valdosta, and Warner Robins. In addition to these 14, Georgia has 23 micropolitan statistical areas. These are defined as one or more adjacent counties that have at least one urban core area of at least 10,000 but less than 50,000 residents.

To find out more about MSAs and other geographic delineations, visit the US Census Bureau's website: **census.gov/programs-surveys/metro-micro.html**.

WHERE TO FIND LMI AND EDUCATION DATA

Listed below are some of the most useful websites for finding LMI and education data. If you represent a school or district, these will help you gain a better understanding of the labor market in your area. If you are an employer, the education data can help you gain a better understanding of the school district or districts in your area.

- **Georgia's Career Pipeline Tool** is provided by the Georgia Department of Education (GaDOE) CTAE Division. This tool contains pathway completion rates and CTAE enrollment by school and district as well as data about end-of-pathway assessments (EOPAs) and career and technical student organizations. Business partners may find the Career Pipeline Tool helpful as it also includes contact information for district leadership like CTAE directors and work-based learning coordinators. To learn more about this tool, visit **gacareerpipeline.gadoe.org**.

- **Georgia Insights** is an initiative of the Georgia Department of Education, focused on improving the clarity and accessibility of district and school-level data through public-friendly and easy-to-use dashboards. Dashboards include Georgia Milestones, Teacher pipeline and Endorsements and many other easy-to-understand visuals. By displaying the data in a streamlined, usable and useful manner, GaDOE hopes to equip educators, parents, and communities with the tools they need to enact positive change in their schools. To see dashboards, visit **georgiainsights.com**.

- **GeorgiaData.org** is a website developed by the Carl Vinson Institute of Government at the University of Georgia. It contains state- and county-level data on a wide variety of topics, including economics, education, health, labor, and population as well as links to other state data resources. This resource can be accessed at **georgiadata.org**.

- **Georgia's Labor Market Explorer**, which is compiled by the Georgia Department of Labor (DOL), links closely with the Career Pipeline Tool to provide economic data for each of the 17 high school CTAE career clusters. It also provides maps and labor market data like STEM (science, technology, engineering, and mathematics) careers, top growing careers, and top employers in the state. For more information on the labor market in Georgia, visit **explorer.gdol.ga.gov**.

- **The Governor's Office of Student Achievement (GOSA)** focuses on all levels of education. The following data sources are free to anyone interested in Georgia education data from pre-k through postsecondary.

    - Downloadable Data includes a series of K-12 performance indicators (e.g., dropout rates, graduation rates, HOPE-eligible graduates, attendance data) that can be downloaded by school district.

    - The High School Graduate Outcomes dashboard shows what high school graduates do after graduation.

    - Higher Learning and Earnings provides information on earnings for Georgia's technical college and college/university graduates who work in Georgia after completing their degrees.

    - Report Cards provides indicators and information about all public educational institutions in the state including pre-k, K-12 public schools, USG institutions, TCSG institutions, and Georgia Military Colleges.

All of these data sources and more can be found on GOSA's Data Dashboards page at **gosa.georgia.gov/report-card-dashboards-data**.

- **The Governor's Office of Planning and Budget (OPB)** is particularly useful for accessing state and county population data as well as data and links to external resources like the Census. Past population data by county are available at **opb.georgia.gov/population-estimates**. Population projection data must be requested. To do so, visit **opb.georgia.gov/population-projections** and fill out a request form.

- **The Bureau of Labor Statistics (BLS)** is part of the US DOL and is responsible for measuring labor market activity, working conditions, and price changes in the economy. All of its data, including official monthly unemployment rates, labor force participation rates, and productivity, are free and open to the public and can be found at **bls.gov/data**.

  Another BLS resource—the Occupational Employment Statistics (OES) data—estimates employment and wage data annually for states and MSAs. It can be found at **www.bls.gov/oes**.

- **The US Census Bureau**, part of the US Department of Commerce, contains a vast amount of data and resources. Below are some details on several of the tools that may prove to be particularly interesting and useful throughout the alignment conversation.

  - **American FactFinder** is the hub for most Census data such as population, housing, and economic and geographic information. It includes data from the Decennial Census as well as County Business Patterns and the American Community Survey. To access American FactFinder, visit **census.gov/data/data-tools/american-factfinder.html**.

  - **Quarterly Workforce Indicators (QWI)** provides detailed information (32 indicators) on employment at the state and county level, including demographics, ownership, and size of firm. QWI uses NAICS codes. More about QWI can be found at **qwiexplorer.ces.census.gov**.

  - **OnTheMap** has data and maps to help explain commuting patterns based on where people work and live. It goes as detailed as zip codes but also includes state, county, and Workforce Investment Areas as well. To explore commuting maps, visit **onthemap.ces.census.gov**.

For additional LMI data resources, see Appendix F.

HOW TO USE THE DATA

Now that you know what information you are looking for and where to find it, you are probably wondering what to do with it. When it comes to alignment, it is helpful to define a region and pick three to five key indicators that you think best make the case to get everyone on board with your alignment plans.

Defining your region can be difficult. For many districts it is easier to stick to a single county. However, if surrounding counties heavily influence your local economy, then it can be helpful to include them. Additionally, if your county has very few employers, then it may be beneficial to take a larger regional approach. In alignment, the rule of thumb is that your region should include places where your students can reasonably travel for work-based or other experiential learning opportunities since this is a large part of quality alignment.

It is important to look at historical data, current data, and projections: The balance of these three, as well as talking to partners, will help you see the big picture. Some of the most common indicators used for

alignment are population projections, current employment levels in each industry, employment projections by industry, fastest growing occupations, typical education needed for an entry-level position, high school graduation outcomes, and largest employers in the area.

Once you pick which indicators you want to use, it is important to present the data in a way that everyone can understand. Educators may understand the education data easily but not the economic data, while community and business partners may understand economic and labor data but be confused about the educational data. Providing a combination of several types of indicators can make the conversation about creating new programs or aligning current ones easier.

Continue to reference the data throughout the alignment process, and circle back to it if people forget why they are participating in the process or the importance of alignment for all stakeholders. Making decisions based on the data will help schools know what to offer, help students be prepared for jobs in the community, and help businesses build their workforce pipeline.

KEY LABOR MARKET QUESTIONS FOR ALIGNMENT AND WHERE TO FIND THE ANSWERS

What are the largest industries in my region? Several different sources provide this information. For Georgia-specific data, Georgia DOL creates area labor profiles for each county that can be found on its Labor Market Explorer site. This overview includes a wide variety of information, but some of the most useful parts are the industry mix and the top 10 largest employers in the county and surrounding area. If you are looking for additional industry information, the County Business Patterns page under Topics on GeorgiaData is a good resource. It provides the number of establishments, employees, and average annual wages for each industry by county.

Super Sector Industries

	Establishments			Employment			Weekly Wage		
	2017	2018	% Change	2017	2018	% Change	2017	2018	% Change
Construction	11,326	11,663	3.0%	116,736	122,952	5.3%	1,347	1,409	4.6%
Education and Health Services	16,794	17,109	1.9%	329,167	342,036	3.9%	1,100	1,133	3.0%
Financial Activites	16,032	16,259	1.4%	160,319	163,453	2.0%	1,689	1,793	6.2%
Information	3,006	3,101	3.2%	92,889	91,002	-2.0%	2,046	1,918	-6.3%
Leisure and Hospitality	13,769	14,186	3.0%	290,427	292,366	0.7%	429	432	0.7%
Manufacturing	4,863	4,947	1.7%	165,170	171,632	3.9%	1,277	1,324	3.7%
Natural Resources, Mining, and Agriculture	373	390	4.6%	3,471	3,736	7.6%	1,018	1,032	1.4%
Other Services	10,878	10,962	0.8%	66,176	67,922	2.6%	763	779	2.1%
Professional and Business Services	33,806	34,340	1.6%	470,813	484,575	2.9%	1,437	1,496	4.1%
Trade, Transportation and Utilities	31,004	31,178	0.6%	588,638	589,793	0.2%	1,020	1,020	0.0%
Unclassified	8,087	7,773	-3.9%	5,875	6,168	5.0%	1,576	1,400	-11.2%
Government	2,912	2,862	-1.7%	319,270	321,559	0.7%	1,022	1,056	3.3%
Total	**152,851**	**154,770**	**1.3%**	**2,608,949**	**2,657,194**	**1.8%**	**1,143**	**1,172**	**2.5%**

Note: All figures are 4th Quarter of 2017 and 2018.

Top Employers - 2018*

TEN LARGEST EMPLOYERS

Atlanta-Sandy Springs-Roswell, GA Metropolitan Statistical A

Childrens Healthcare of Atlanta
Delta Air Lines, Inc.
Emory Healthcare, Inc.
Emory University
Northside Hospital
Publix Super Markets, Inc.
The Kroger Company
United Parcel Service
Walmart
Wellstar Health System, Inc.

*Note: Represents employment covered by unemployment insurance excluding all government agencies except correctional institutions, state and local hospitals, state colleges and universities. Data shown for the Fourth Quarter of 2018. Employers are listed alphabetically by area, not by the number of employees.

Source: Georgia Department of Labor

SIZE CLASS

Employees	Establishments	Employment
0 - 4	93,672	128,937
5 - 9	22,113	147,040
10 - 19	16,109	220,497
20 - 49	13,093	397,170
50 - 99	5,092	354,699
100 - 249	3,393	502,866
250 - 499	839	285,186
500 - 999	301	209,883
1000 - and over	157	386,049
Total	**154,769**	**2,632,327**

Note: Data shown for the Fourth Quarter of 2018.

Home About Topics Resources Financial Data Initiatives

County Business Patterns

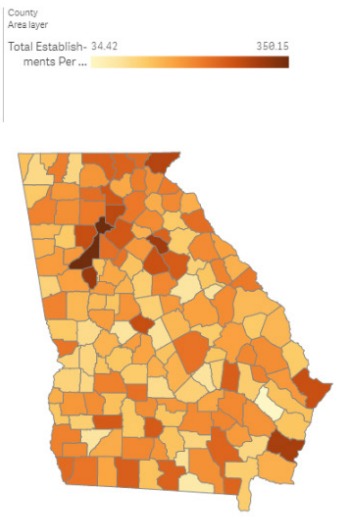
Welcome to Georgiadata.org's interactive data pages!

These pages contain maps, graphs, tables and other kinds of visualizations related to a topic. You can use the filters at the top or click anywhere on the visualizations to update the data displayed on the page.

No selections applied

Filter by Rural/Urban | Filter by Service Region | Filter by County | Filter by Industry | Filter by Number of Establishments in County | Filter by Average Annual Wage of County

Total Establishments Per 10,000 People | Average Annual Wage



County Business Patterns

County	NAICS Code (3-digit)	Industry	# of Establis...	# of Est - Under 50	# of Est - 50 to 499	# of Est - 500 Plus	# of Employees	Aggr. Annual Wage*	Avg. Annual Wage**
Totals			**227,098**	**214,140**	**12,389**	**569**	**3,327,053**	**$160,093,553,000**	**$48,119**
Fulton	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	879	846	33	0	8,826	$1,968,984,000	$223,089
Cobb	525	Funds, Trusts, and Other Financial Vehicles	5	5	0	0	6	$1,267,000	$211,167
Colquitt	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	6	6	0	0	8	$1,671,000	$208,875
Liberty	237	Heavy and Civil Engineering Construction	4	4	0	0	6	$1,230,000	$205,000
Columbia	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	32	32	0	0	74	$15,003,000	$202,743
Wilkes	454	Nonstore Retailers	3	3	0	0	1	$191,000	$191,000
Cobb	312	Beverage and Tobacco Product Manufacturing	11	9	2	0	276	$51,174,000	$185,413
Gwinnett	486	Pipeline Transportation	3	3	0	0	3	$554,000	$184,667
Oconee	532	Rental and Leasing Services	6	6	0	0	19	$3,335,000	$175,526
Clarke	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	30	30	0	0	148	$23,556,000	$159,162
Clayton	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	5	5	0	0	4	$596,000	$149,000
Bibb	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	32	32	0	0	185	$27,539,000	$148,859
Clayton	551	Management of Companies and Enterprises	10	10	0	0	63	$9,275,000	$147,222
Spalding	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	11	11	0	0	28	$4,115,000	$146,964
Dougherty	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	19	19	0	0	66	$9,580,000	$145,152
Bulloch	523	Securities, Commodity Contracts, and Other	7	7	0	0	19	$2,684,000	$141,263

Qlik *Wages only available when # of employees is not a range; **Avg. Annual Wage calculated as Aggr. Annual Wage/# of Employees

What are the fastest growing jobs in my region? From the Georgia Labor Market Explorer homepage, you can click on "Occupational Outlooks." This will give you a few options for occupational growth data, including fastest growing occupations, occupations with the most annual openings, and declining occupations. Most of the Georgia DOL labor data are presented by Local Workforce Development Area (LWDA), so you will select your area to view relevant data in an Excel spreadsheet.

This page displays detailed data on Occupational Projections (Long-term).
It is currently showing information for Multiple Occupations in Georgia in 2016-2026. Click Search Options to change these selections.

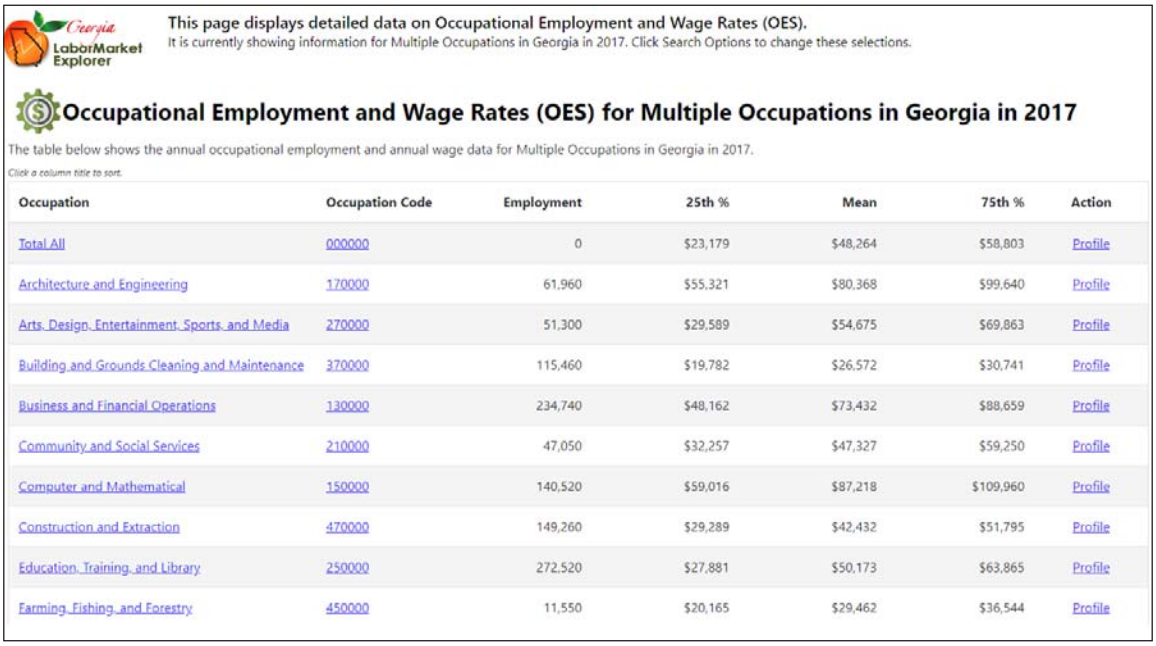
Occupational Projections (Long-term) for Multiple Occupations in Georgia in 2016-2026

The table below shows the long term employment projections for Multiple Occupations in Georgia for the 2016-2026 projection period.

Click a column title to sort.

Occupation	Occupation Code	2016 Estimated Employment	2026 Projected Employment	Total 2016-2026 Employment Change	2016-2026 Annual Avg. Percent Change	Total Percent Change
Total All	000000	4,504,561	5,029,483	524,922	1.11%	11.65%
Architecture and Engineering	170000	62,296	72,068	9,772	1.47%	15.69%
Arts, Design, Entertainment, Sports, and Media	270000	61,099	68,901	7,802	1.21%	12.77%
Building and Grounds Cleaning and Maintenance	370000	139,350	153,825	14,475	0.99%	10.39%
Business and Financial Operations	130000	232,076	266,794	34,718	1.40%	14.96%
Community and Social Services	210000	70,785	78,930	8,145	1.10%	11.51%
Computer and Mathematical	150000	131,495	147,520	16,025	1.16%	12.19%
Construction and Extraction	470000	161,482	180,888	19,406	1.14%	12.02%
Education, Training, and Library	250000	267,432	307,585	40,153	1.41%	15.01%
Farming, Fishing, and Forestry	450000	56,745	61,470	4,725	0.80%	8.33%

What are the highest paying jobs in my region? Georgia DOL also provides occupational wage data on its website. This informationcan be sorted by the county labor draw area, MSA, or even my education and training level.



This page displays detailed data on Occupational Employment and Wage Rates (OES).
It is currently showing information for Multiple Occupations in Georgia in 2017. Click Search Options to change these selections.

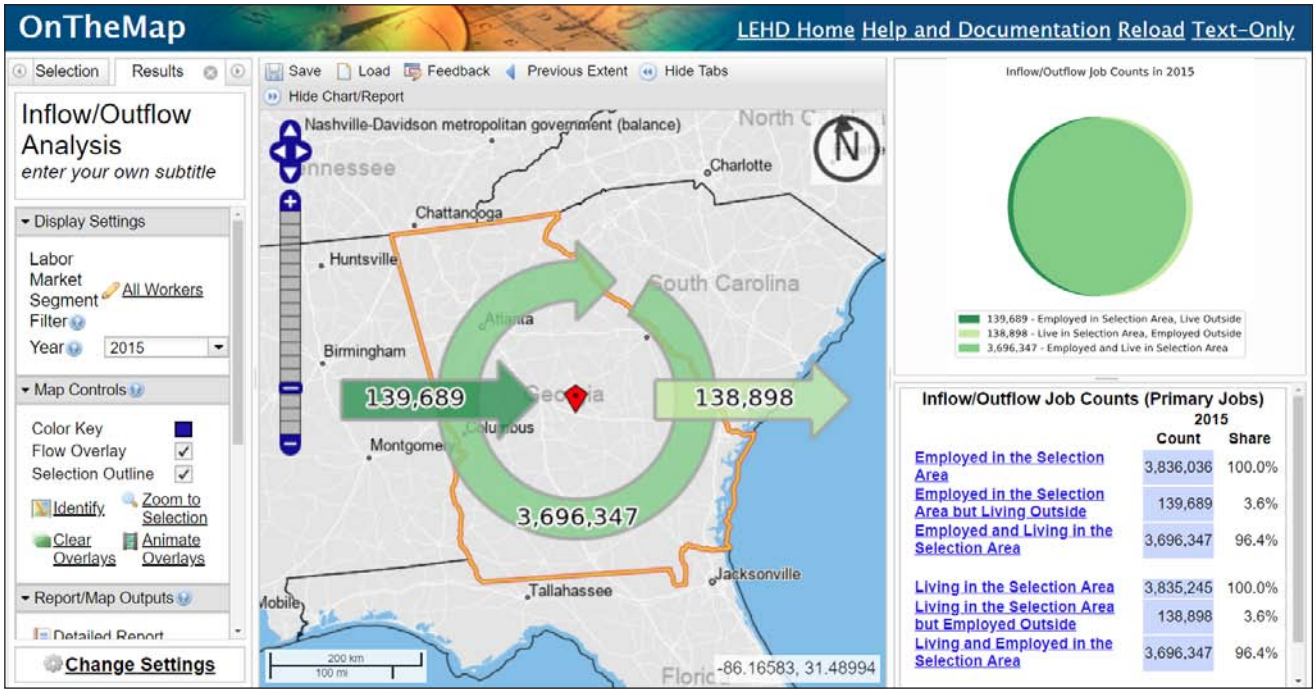
Occupational Employment and Wage Rates (OES) for Multiple Occupations in Georgia in 2017

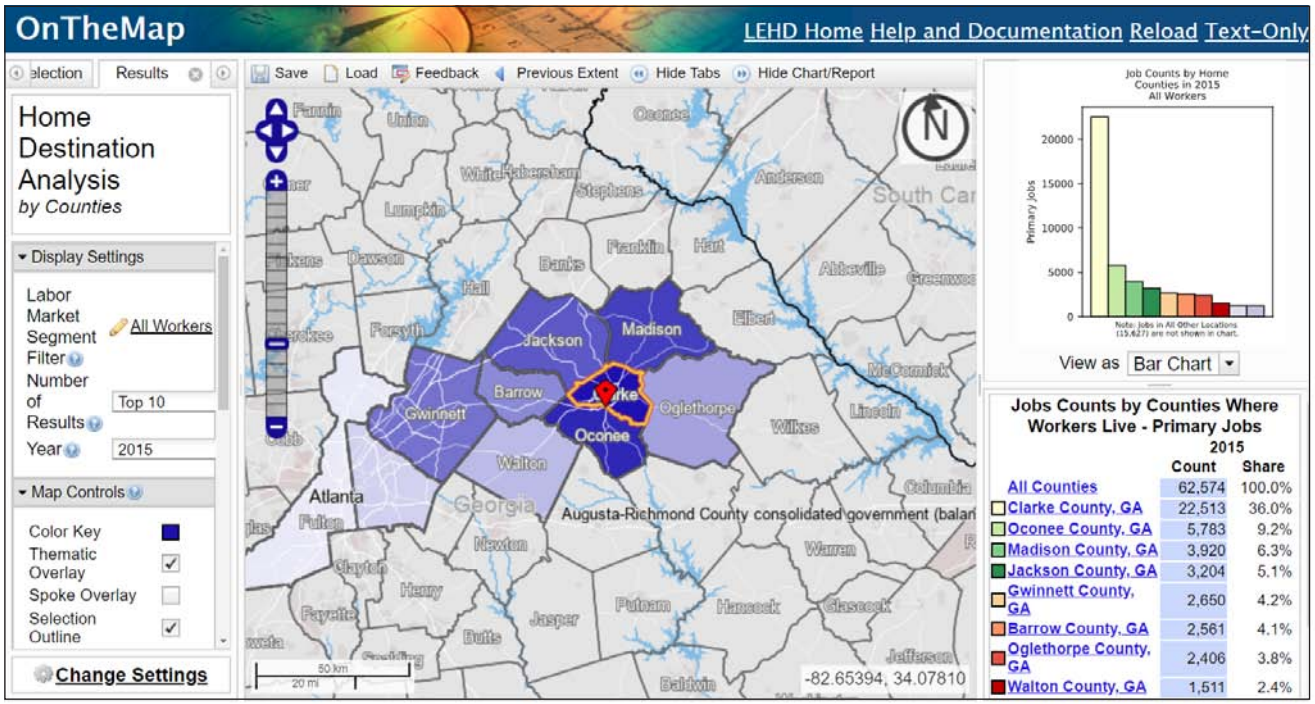
The table below shows the annual occupational employment and annual wage data for Multiple Occupations in Georgia in 2017.

Click a column title to sort.

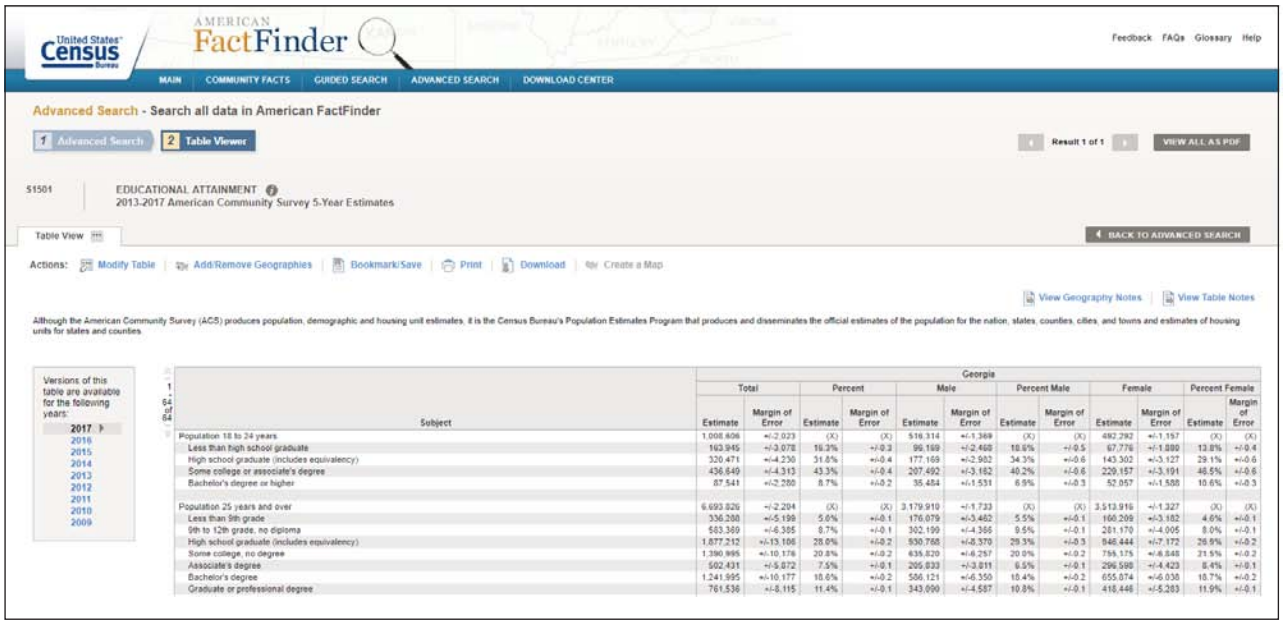
Occupation	Occupation Code	Employment	25th %	Mean	75th %	Action
Total All	000000	0	$23,179	$48,264	$58,803	Profile
Architecture and Engineering	170000	61,960	$55,321	$80,368	$99,640	Profile
Arts, Design, Entertainment, Sports, and Media	270000	51,300	$29,589	$54,675	$69,863	Profile
Building and Grounds Cleaning and Maintenance	370000	115,460	$19,782	$26,572	$30,741	Profile
Business and Financial Operations	130000	234,740	$48,162	$73,432	$88,659	Profile
Community and Social Services	210000	47,050	$32,257	$47,327	$59,250	Profile
Computer and Mathematical	150000	140,520	$59,016	$87,218	$109,960	Profile
Construction and Extraction	470000	149,260	$29,289	$42,432	$51,795	Profile
Education, Training, and Library	250000	272,520	$27,881	$50,173	$63,865	Profile
Farming, Fishing, and Forestry	450000	11,550	$20,165	$29,462	$36,544	Profile

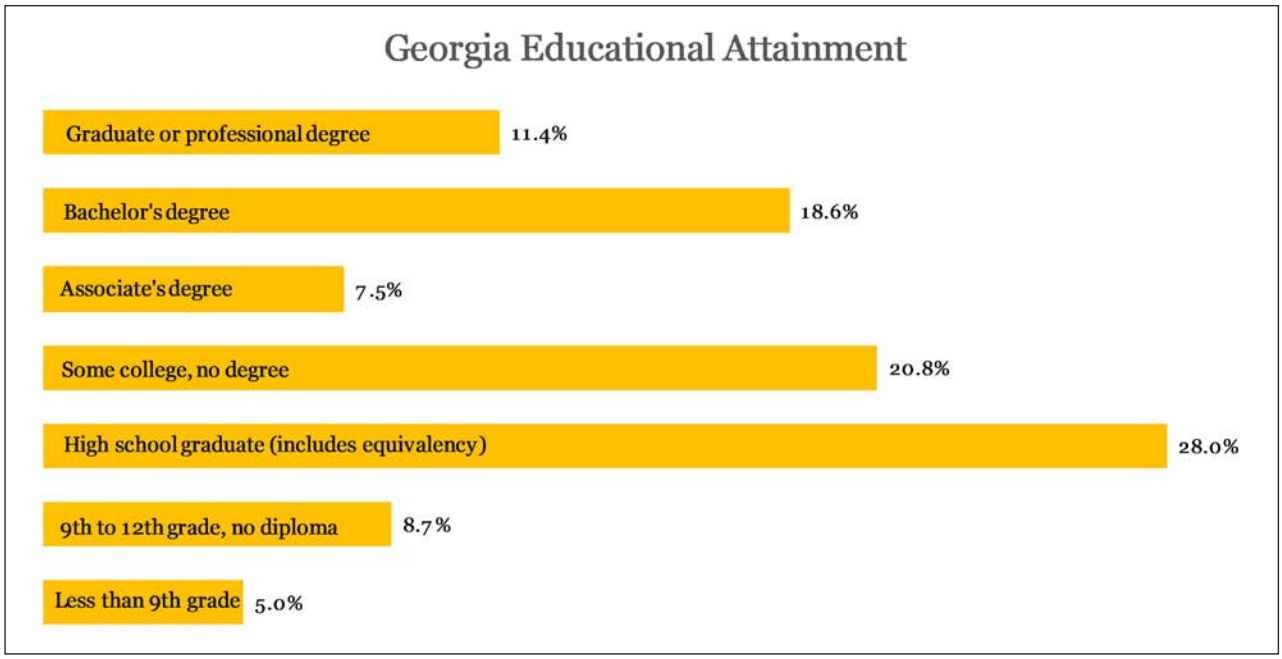
Where are people in my region commuting to and from for work? OnTheMap can help you define your region by allowing you to look at where people who work in your community live and where those who live in your community commute to for work.



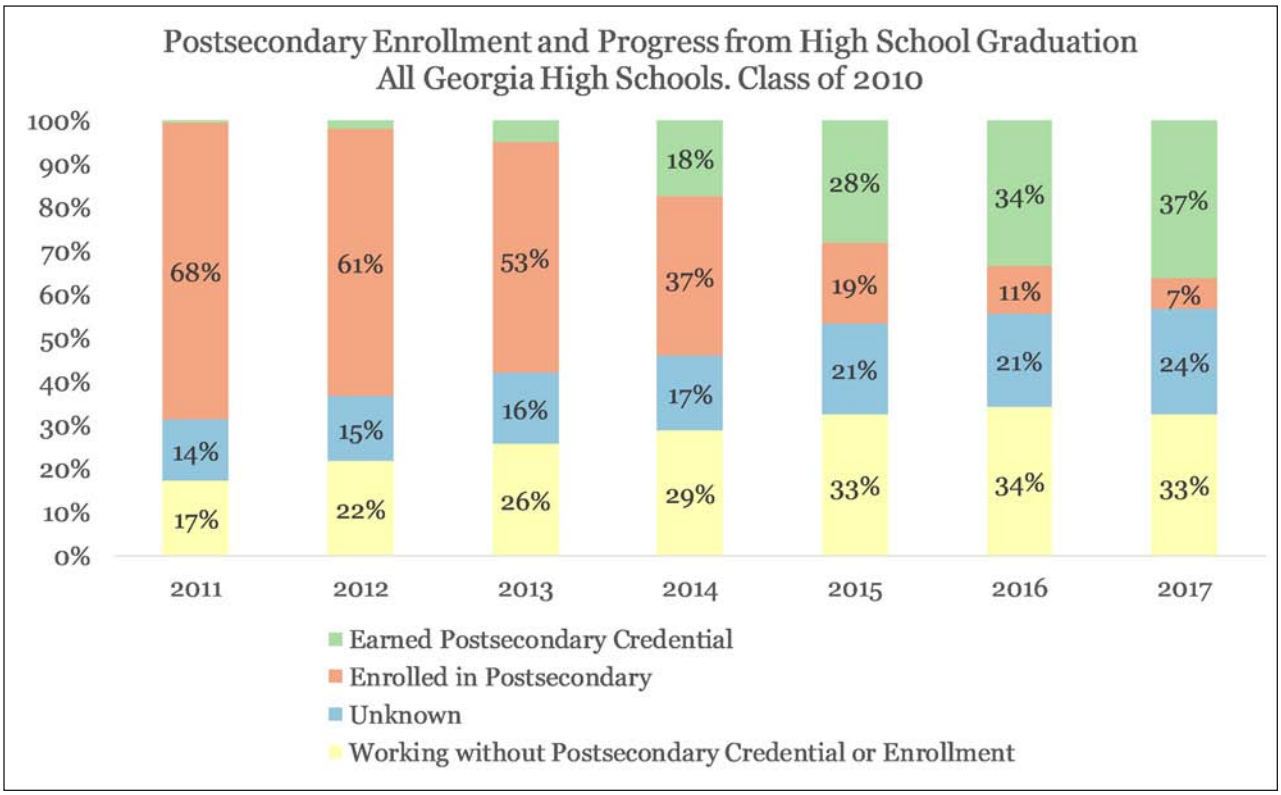


What are the current training and education levels of my community's workforce? Use the American FactFinder tool to access American Community Survey data that show the educational attainment of your county or region's population ages 25+.





Where do the students from our high school(s) go after graduation? The GOSA High School Graduate Outcomes dashboard shows you how many students from a high school or district go on to pursue a career, additional education, etc. These data are presented by graduation cohort, so you can see how students' post graduation decisions change over time.



Source: hsgrad.gosa.ga.gov/

CASE STUDY

Teaching as a Profession with Georgia Southern University

Thomas Koballa, dean of the College of Education at Georgia Southern University (GSU) in Statesboro, Georgia, reached out to several high schools in the area to gauge interest in starting a Teaching as a Profession pathway, which is now in its second year of operation. GSU ultimately partnered with Statesboro High School. Dr. Koballa wanted to start a "homegrown teacher's initiative" to help alleviate the teacher shortage in Bulloch County and surrounding areas. The ultimate goal was to recruit from local high schools in order to keep trained teachers in the area. Marlynn Griffin, a professor in the College of Education at GSU, stated, "We have many students come and go from metro Atlanta, but we have a hard time keeping teachers in the area."

The university provided a one-time $3,000 stipend to the high school to demonstrate its commitment to the process, in addition to stipends to participating university faculty. GSU also conducts summer institutes with high school teachers to train them on current college curricula and standards to ensure continued alignment. Both the staff at Statesboro High School and the GSU faculty emphasize the importance of trust and dedication at both institutions as a key to overall program success.

The pathway consists of three courses: Examining the Teaching Profession, Contemporary Issues in Education, and Teaching as a Profession Practicum, in which students work with a mentor teacher in a classroom setting twice per week. Through an articulation agreement, students who successfully complete the pathway courses, the end-of-pathway assessments, and a teaching portfolio are awarded credit for an introductory course in a college teacher certification program at any Georgia four-year university. GSU hopes that its investment in local students will keep teachers in the Statesboro area.

WHY IT WORKS

- ✓ GSU invests in both high school students and professional development for high school teachers.
- ✓ GSU instructors have been involved in curriculum development from the start of the program.
- ✓ Students are able to receive college credit toward an education degree and also gain classroom experience.

CASE STUDY

Teaching as a Profession with Georgia Southern University CONT.

SECTOR **Education**

	Teaching as a Profession (TAP) Course →	TAP Course 2 →	TAP Course 3 → Enroll in a USG Education Program with 3 credits
	Portfolio		
WHERE	At High School	At High School	At High School
HOW	High School Teacher	High School Teacher	High School Teacher

SECTION 4

Alignment in **Practice**

As you evaluate the alignment between your educational programs and your regional economy, you will need to look at several key factors that are a part of alignment:

1. **Number of jobs in your region.** How many jobs in the industry or industries does the pathway prepare students for? For a pathway to be viable, your region must have a sufficient number of jobs in the relevant industry for students to compete for upon graduation. A limited number of jobs in a particular industry may indicate limited opportunities for employment after graduation.

2. **Preparation for entry-level roles.** Does the pathway provide the knowledge, skills, and experiences to help students secure entry-level jobs? Program-industry alignment should allow for students to graduate high school and start work the following week.

3. **Relationships with employers.** Another aspect of alignment is having relationships with employers in the region. Does the program have relationships with employers that can hire its graduates, help guide the curriculum, and enhance the educational experience? A program cannot be fully aligned if it does not have relationships with pathway-relevant employers.

4. **End-of-pathway assessment (EOPA)/industry-recognized credential.** Another factor for analyzing alignment between school and industry is looking at the EOPA. Does the EOPA offer the student a credential that can help them be more competitive in the job-search process and enhance their value to potential employers? Aligned programs must work with their business partners and regional employers to ensure the credential helps prepare students for the workforce and adequately reflects the learning attained during the pathway.

5. **Integrating aligned work-based learning opportunities.** Work-based or experiential learning opportunities are critical for developing student interest in a career pathway and providing hands-on application for the learning. Alignment between school and industry extends beyond the pathway program to work-based learning. Does your work-based learning program include relationships and placements that can help your pathway completers apply their classroom learning? Advisory committee members may be a good place to start as you look to increase these kinds of opportunities for your students.

GaDOE provides a CTAE Division Industry Certification Checklist (see Appendix G) to help CTAE directors ensure that their pathway is on the road to industry certification. Industry certification is what GaDOE refers to as the "stamp of approval" from industry partners after their review of a pathway.

Once you have a better understanding of what local employers need, what postsecondary education requirements your pathways meet, and what you offer, you can begin aligning your curricula with those requirements and needs.

CREATING AND REPLICATING HIGH-QUALITY EXPERIENTIAL LEARNING FOR HIGH SCHOOL STUDENTS

The Carl Vinson Institute of Government at the University of Georgia, with the support of Georgia Power, has released a guide and related resources to help school systems and business partners create and replicate high-quality experiential learning programs in their communities. Visit **gaworkforce.org/explearning** to access the guide, case studies, and other related resources.

Aligning to Postsecondary Education: Dual Enrollment and Articulation

As mentioned previously, successful alignment does not just involve aligning skills and knowledge to business and industry, but also to postsecondary education. While for some jobs, students can acquire the skills and knowledge necessary to go directly into the workforce upon graduating from high school, many careers require a postsecondary credential or degree. For some students, postsecondary education may not be the right fit now, but they may decide to continue their education later.

By aligning their pathways to postsecondary education, schools make sure students have a clear path to where they can or may want to go in their future career. Alignment means students have a clear connection between their high school studies and postsecondary education. This can be done through dual enrollment or articulation, or by ensuring clear pathways after graduation. Effective alignment in a school district may involve several of these pieces. Students' ability to earn multiple certificates or degrees during their career progression provides multiple exit points as well as entry points: They can go back to school at any point to earn additional credentials and advance their careers.

Your role in aligning your curricula to postsecondary curricula and business and industry needs involves figuring out how to match high school courses to what is offered at the postsecondary level and what is needed by business and industry in their workforce. Two ways that you can align your offerings with postsecondary education are through dual enrollment and articulation agreements. Dual enrollment occurs when a high school student is enrolled in a college course and earns college credit. The course is placed on the student's college transcript, allowing him or her to be exempted from that course or its equivalent upon entering college. Articulation is an agreement between two educational institutions that allows students to receive credit at their home institution for a course taken at another institution. While it is most common between postsecondary institutions, articulation agreements can also be used for courses taken in high school. A dual enrollment course is typically taught by a postsecondary instructor, while an articulation course is taught by a high school teacher. Both dual enrollment and articulation may save students time and money in earning their degree.

But remember, not all career pathway courses need to be articulated or dual enrollment courses, and not all articulated or dual enrollment courses need to be career pathway courses. A high school course does not have to provide postsecondary credit for it to be aligned. However, by default, if you are negotiating articulated or dual enrollment courses, you are discussing alignment.

CASE STUDY

Nursing at Chattahoochee Technical College

Across Georgia, demand for health care professionals, particularly certified nursing assistants (CNAs), licensed practical nurses (LPNs), and registered nurses (RNs), is high. To respond to this need, local health care and education partners created a streamlined pilot nursing program with multiple certification exit points. Many local, state, and regional partners were involved in the effort, including Chattahoochee Technical College (CTC) in Marietta, Wellstar Health System in Marietta, the Georgia Hospital Association in Marietta, Georgia Highlands College in Rome, Kennesaw State University in Kennesaw, the USG, the TCSG, the Georgia Board of Nursing, the Southern Regional Education Board (SREB), and GaDOE CTAE staff members. The new pathway was designed to streamline the health care education process to increase the number of CNAs, LPNs, and RNs in the workforce. The overall goal was to align targeted credentials with employment opportunities within the Wellstar Health System.

The Accelerated Nursing pathway was inspired by a similar effort in Kentucky. In Kentucky, SREB worked with state and local industry and education partners to develop a 120-credit hour nursing pathway that guided students from a CNA certification to the LPN certification, followed by an Associate Degree in Nursing (ADN) in which students receive their RN and finally a Bachelor of Science in Nursing (BSN). Each education partner assists in the certification process along each step in the pathway.

The four-year pilot program, commencing in fall 2019, will allow students to receive stackable certifications and degrees—CNA, LPN, ADN, RN, and BSN—in a total of 136 credit hours, rather than the traditional 160 credit hours, at low or no cost. Dual enrollment in high school, the HOPE Scholarship, and tuition reimbursements from some employers will cover most if not all of the program costs. Education partners worked to streamline core course requirements to allow students to advance to major subject area content sooner; additionally, the TCSG, the USG, and the other institutions involved in the program worked to align their nursing curricula. In addition, through a waiver from the Georgia Board of Nursing, the number of hospital nursing hours required for the LPN certification was lowered.

Beginning in 2018, CTC worked with participating high schools in Marietta City, Paulding County, and Cobb County to provide dual enrollment options that allow students to graduate high school with college credits and industry credentials. Students first complete three CTAE courses—Introduction to Health Care Science, Essentials of Health Care, and Patient Care Fundamentals—after which they receive a nursing assistant certification. These courses are then supplemented with dual enrollment credit at CTC, allowing them to attain a CNA certification. Students can then either continue straight into an LPN program at CTC or take advantage of a guaranteed interview for employment as a CNA at Wellstar after graduation. The goal of this program is to target ninth-graders interested in nursing to create a seamless pathway to a BSN. Strategy and planning discussions with local school districts were integral to the planning process. These discussions revolved around marketing to guide students interested in health care to the more rigorous, aligned pathway over traditional routes to nursing certifications.

CASE STUDY

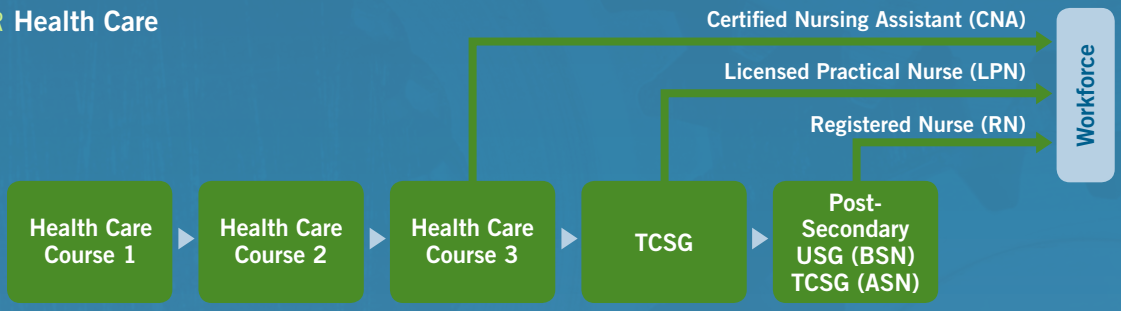
Nursing at Chattahoochee Technical College CONT.

Students can now receive their LPN credential after their freshman year of college through a condensed LPN pilot program and can then bridge to an ADN program at Georgia Highlands College to receive a BSN, which also gives them an RN credential. Jason Tanner, the vice president of academic affairs at CTC, stated, "We hope this new, shortened LPN portion becomes the LPN curriculum moving forward." Involved partners credited the dedication of all education, industry, and government partners for the smooth path to program implementation. Graduates of the LPN and BSN programs are also guaranteed interviews at Wellstar, giving them the opportunity to begin a career either as a practical nurse or a registered nurse.

WHY IT WORKS

- ✓ The program was developed to address certification requirements based on labor market projections and industry need.
- ✓ Program discussions involved all relevant education, industry, and state agency partners at each level of development.
- ✓ The program addresses a need for a more efficient and affordable route to needed patient care credentials.

SECTOR **Health Care**



WHERE	High School	High School	High School
HOW	High School Teacher	High School Teacher	Dual Enrollment Instructor

DUAL ENROLLMENT

Dual enrollment allows students to advance their postsecondary education while still in high school and potentially earn certificates, licenses, diplomas and degrees before graduation. School systems also benefit through expanded access to programs that may not be available locally due to budget constraints, limited space, or a host of other reasons. Dual enrollment may be especially critical in creating more opportunities for students to complete CTAE courses, especially in rural Georgia. Schools can work with their local TCSG or USG institutions or private colleges to establish dual enrollment pathways that could fit into a student's schedule and best prepare them for college and career after graduation.

Dual enrollment can look different depending on the district, pathway, and postsecondary partner. Some programs are taught at the technical college campus, and others are taught at the local high school (for example, see the Timber Harvesting at Coastal Pines Technical College case study on page 36 and 37). Some programs are comprised of courses only taught by the postsecondary partner, but other pathways include a mix of both high school and dual enrollment courses (for example, see the Health Care at Fayette County Schools case study on pages 5 and 6). Some programs prepare students to enter the workforce directly after graduation, whereas others are generally preparing a student to continue with additional postsecondary education. There are many different models for dual enrollment, and it is critical that you choose the model that best meets student needs and helps to prepare them for what is next (for example, see the Nursing at Chattahoochee Technical College case study on pages 32 and 33).

As you consider new dual enrollment partnerships or review your existing programs, the same alignment principles and questions discussed previously apply. The program should be aligned to available jobs in the local economy and should help prepare students to succeed in these high-demand careers. Your postsecondary partners should be involved in alignment discussions and may be able to lend data and industry partnerships to help explore alignment questions.

DID YOU KNOW?

Researchers examining dual enrollment programs have found the following:

- An estimated 34% of high school students have completed a dual enrollment course before graduation.[9]
- Over 80% of dual enrollment classes in the United States are taught at the student's high school.[10]
- Georgia has offered a dual enrollment program since 1992.[11]
- Dual enrollment students are more likely to graduate high school, enroll in college, and remain in college than students not participating in dual enrollment.[12,13]

HIGH SCHOOL POSTSECONDARY GRADUATION OPPORTUNITY

The High School Postsecondary Graduation Opportunity (formerly known as Senate Bill 2) provides an alternative pathway for students to complete high school while simultaneously completing an associate degree, a technical diploma or at least two technical certificates in one area. Students are required to complete the eight high school core courses (two English, two Math, two Social Studies and two Science) and any associated state assessments as well as one secondary credit in health and physical education plus an associate degree, technical diploma, or two certificates within a specific career pathway. A high school student could graduate on Friday with their high school diploma and receive a two-year degree on Saturday. The High School Postsecondary Graduation Opportunity opens a new path for students to complete high school and be better prepared to enter the workforce after graduation. Visit the Georgia Student Finance Commission website for more information: **gafutures.org/hope-state-aid-programs/scholarships-grants/dual-enrollment**.

Here are some questions you should think about when considering new dual enrollment partnerships or reviewing existing programs:

- **What will the logistics for the dual enrollment program be (e.g., instructor, class time, location, transportation, lab requirements)?**
- **What kind of credential, certificate, diploma, degree, or skill will the student graduate with?**
- **What is the local industry demand for graduates of the program? What kind of feedback have we received from our business partners on the program?**
- **Do we have enough program-ready students to launch this dual enrollment program, or is there an opportunity to tap into existing classes?**

ARTICULATION

Effective articulation as a means of moving students from a career pathway in middle or high school to a job via postsecondary education requires relationship building with local industry and postsecondary programs. Doing so ensures that the high school and postsecondary curricula are keeping up with industry needs. Relationship building also benefits all involved parties. As students continue to successfully complete pathways that include articulated courses and then continue into careers within local industries, further connections are built to advance further collaboration efforts. Additionally, relationships built among postsecondary and secondary instructors lead to further alignment and innovation efforts between the two education levels.

For students to receive college credit for a high school course, a formal agreement must be in place between the high school and the postsecondary institution involved. An example of an articulation agreement is provided in Appendix H. This template can be used as a starting point for articulation agreements within current or newly developed pathways. Of course, agreements should be tailored to specific pathways and programs and the individual institutions involved.

CASE STUDY

Timber Harvesting at Coastal Pines Technical College

Timber is an important industry in Georgia. According to the University of Georgia Center for Agribusiness and Economic Development, timber is the fifth highest grossing agricultural product in the state, with nearly $700 million in timber sales in 2017.[14] However, timber harvesting companies in South Georgia are facing an aging workforce and difficulties attracting young adults into the career field. According to Ashley Tyree, procurement manager for Beasley Forest Products, "The timber industry as a whole is struggling to find skilled labor. We have to do something."

Six years ago, timber harvesting companies approached Coastal Pines Technical College (CPTC) in South Georgia looking for assistance on training new workers and identifying potential talent pools. Leaders from CPTC and the timber industry began studying timber harvesting programs around the Southeast and looking at potential options for training the workforce. Early on, they identified that the biggest hurdle for program success was going to be finding people interested in pursuing this career pathway. They decided that offering the program to high school students via dual enrollment could help to capture interest and expose young people to a viable career pathway before graduation. According to Tyree, the program allows the timber industry to get in front of students during high school and exposes them to the various careers in forestry-related companies.

The dual enrollment timber harvesting program is a two-semester program that combines classroom learning with hands-on field experiences, such as visiting a sawmill, evaluating timber stands, and visiting timber harvesting job sites. Students learn the basics of timber harvesting, first aid, and safety. They earn a technical certificate of credit (TCC) in Basic Timber Harvesting. The following summer students continue their timber harvesting education with a hands-on component that lasts three weeks and nets them a second TCC in Timber Harvesting Operations. During this component, students learn how to operate the various industry equipment and harvest a small plot of trees. In addition to earning two TCCs, the students complete their first aid certification while in the program. The program started in one high school, and due to industry support and student interest, it is now offered in three high schools and will be expanding to a fourth in fall 2019.

Business and industry partners have been involved with the program from the beginning through a program advisory committee and student mentorships, and they provide necessary resources. For example, timber harvesting vendors have donated harvesting equipment and trucking services to help with the summer hands-on component. The Georgia Forestry Commission is another program partner, and it provides the small plot of timber that students harvest to gain hands-on experience.

According to Dr. Glenn Deibert, president of Coastal Pines Technical College, this intentionally designed program helps to meet the needs of local industry, prepares students to secure in-demand jobs, and offers additional educational opportunities through CPTC (an associate degree in forest technology) or the University of Georgia (a bachelor's in forestry).

CASE STUDY

Timber Harvesting at Coastal Pines Technical College CONT.

WHY IT WORKS

- ✓ Program development was driven by industry needs, and the curriculum was designed with input from industry partners.
- ✓ The program offers students multiple pathways to college and career, including straight to work after program completion, an associate degree track, and a bachelor's degree track.
- ✓ An advisory committee made up of various timber industry partners helps provide resources, guest instructors, and program oversight.

SECTOR **Agriculture**

WHERE	High School	High School	High School
HOW	TCSG/Industry Instructor	TCSG/Industry Instructor	TCSG/Industry Instructor

Creating a Local Pathway

Georgia currently has hundreds of CTAE courses that make up 130 pathways in 17 career clusters. If you have begun to go through the alignment process and have realized that the courses in one of the 130 pathways do not align to your local needs, there are options for creating a unique local pathway through GaDOE. The process for creating new pathways is straightforward but, to be successful, you must involve local industry and postsecondary partners. A good place to start is with the school's established advisory committee which is made up of representatives from regional business partners, postsecondary institutions, and other stakeholders. Advisory committees can help to ensure alignment by reviewing the curriculum, facilitating work-based learning placements, advising on end-of-pathway assessment selection, and ensuring that the program helps meet regional workforce development needs. They also enhance the classroom experience by providing resources, by speaking to classes, by providing job shadow opportunities, and many other ways.

The first step in creating a local pathway is to conduct a needs assessment using the advisory committee and as many other stakeholders as possible. Through this needs assessment process, if the district sees the need for and chooses to move forward with creating a unique local pathway, the next step is to convene a team that will design the course of study, write the three proposed courses, and select the appropriate industry credential as the End of Pathway Assessment. This team should consist of 50% + 1 from related business and industry. It should also include high school teachers from the program area as well as partner from post-secondary institutions. It is critical that all partners are involved at all times through this process.

Once the curriculum is designed, district leadership must submit a pathway rationale, program of study, course standards, teacher qualifications, and list of necessary equipment with lab design to GaDOE for approval. Once proper documentation has been submitted to GaDOE, the approval process can take up to 60 days. The final step for local pathway creation is State Board of Education approval. While GaDOE submits the request to the State Board on behalf of the local district, representatives from the school, as well as industry partners, are expected to present their case to the State Board.

STEP 1	STEP 2	STEP 3	STEP 4
Needs Assessment (1–3 months)	**Curriculum Design** (3–6 months)	**GaDOE and State Board of Education Approval** (30–60 days)	**Start Offering Classes**

DID YOU KNOW?

The CTAE Resource Network offers a one-day advisory committee training course to help school districts and programs build and strengthen their district and program advisory committees. The course teaches CTAE professionals how to build, use, and sustain their advisory committees. Visit **ctaern.org** for more information and to view available classes.

RESOURCES FOR CREATING A NEW PATHWAY

US Department of Labor Career Pathways Toolkit: **careerpathways.workforcegps.org/resources/2016/10/20/10/11/Enhanced_Career_Pathways_Toolkit**

GaDOE Programs of Study & Local Pathway Development: **gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/Programs-of-Study.aspx**

Do you know who the GaDOE program specialist is for your career cluster? Every pathway is part of a career cluster, and each cluster has an assigned program specialist who can serve as a resource as you work to implement new pathways and align existing pathways. Go to **gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/CTAE-Georgia-Career-Clusters.aspx** to find the appropriate contact.

CASE STUDY

International Business in Troup County

With the growing presence of international companies in Troup County, the school district saw a need to make international competencies a strategic priority for all high school students. Of the many companies in the county, nearly 40 have international locations in LaGrange, like Sentury Tire North America, while others have manufacturing plants or logistics centers there, like Kia and Duracell Batteries. This industry presence opens a wide variety of career pathway options for students in their local community. Whether working on an assembly line, as a plant manager, or in a human resources office, students will interact with people and policies from foreign countries and will need knowledge in international concepts to be successful.

While Troup County educators are trying to infuse global awareness into all their courses, the district also chose to create a local International Business pathway to more directly support this effort. With the help of representatives from several of the international companies and the local private postsecondary institution, LaGrange College, the district was able to move the International Business pathway from idea to implementation in just a year and a half.

In spring 2017, Troup County education leaders started discussing the need for the International Business pathway as a more engaging and regionally appropriate alternative to the traditional CTAE Business pathway. With guidance provided by GaDOE Troup County convened a team of business partners and secondary and postsecondary educators to begin writing the draft course standards. Once the standards were solidified, they worked with LaGrange College to establish dual enrollment options for some of the courses. Through this process, they settled on the following three classes: Introduction to International Business, Global Awareness and Cultural Competency, and International Business Concepts. These courses focus on geography, culture, international currency and finance, and project management. Each course added a unique twist by using simulation software as a tool to teach students about project management, risk management, and resource allocation. In the future Troup County hopes to add some international travel opportunities, such as study abroad. The first cohort of students began classes in fall 2018.

WHY IT WORKS

- ✓ Across the district and the region, leaders in this effort emphasized international awareness and global competencies.
- ✓ The right players were at the table from the beginning: industry partners, postsecondary, and K-12.
- ✓ The school district worked with GaDOE from the beginning to ensure a smooth process.

SECTION 5

Conclusion

CTAE pathways play an important part in their community's and region's workforce development ecosystem by helping provide young adults with the skills and knowledge necessary to succeed in their regional economy. By aligning CTAE pathways with high-demand careers, you are preparing your students for post-graduation success and building local sources of talent for key local industries.

Gathering your partners—K-12 and postsecondary education, business and industry, community and economic development, trade associations, and relevant governmental agencies—to conduct a needs assessment is key to understanding if your CTAE pathways are aligned with the requirements of current job openings and to future hiring. LMI data from a variety of sources will help supplement the information you gather from your partners.

Alignment is an inherently local and intentional process that involves a large amount of work by the district and local partners. Creating stronger alignment between education and business and industry improves the "overall effectiveness and performance of education, workforce, and human service systems."[15] Ultimately, alignment is about setting shared goals and making decisions about how to best utilize resources to serve students and local employers.

SECTION 6

Appendices

APPENDIX A. PARTNER WORKSHEET

List all potential partners, including those you may already have a relationship with and those you may need to begin to work with in order for the new pathway to be successful.

K-12 Education

Postsecondary Education

Business and Industry

Community and Economic Development

Trade Associations

State Government Agencies

Intermediaries

APPENDIX B. SAMPLE NEEDS ASSESSMENT MEETING AGENDA

Cobb Workforce Partnership

August 5th 7:30 AM

Chattahoochee Technical College Building A, Cobb Board Room (A2016)

Building Trades, Infrastructure and Raw Materials

AGENDA

Breakfast

1. Greetings - Dr. Ron Newcomb, President, Chattahoochee Technical College
2. Welcome – Brooks Mathis, Cobb Chamber of Commerce
3. Introductions
4. Meeting overview – David Tanner, Carl Vinson Institute of Government
5. Company Presentations

    Construction Education Foundation of Georgia, Scott Shelar

    Brasfield and Gorrie, Josh White

    JE Dunn Construction, Will Etheredge & Brent Strength

    Associated General Contractors of Georgia, Mike Dunham

    Gay Construction, Mark Whitney

    Holder Construction, Greer Gallagher
6. Discussion – Facilitated by Greg Wilson, Carl Vinson Institute of Government
7. Closing Remarks – Brooks Mathis, Cobb Chamber of Commerce

Carl Vinson Institute of Government
UNIVERSITY OF GEORGIA

COBB chamber
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APPENDIX C. SAMPLE NEEDS ASSESSMENT MEETING GUIDE

Local County Workforce Alignment Partnership Meeting

March 3, 2019

Building Trades, Infrastructure, and Raw Materials Discussion

Industry Overview

The building trades, infrastructure, and raw materials industry employs nearly 25,000 people in Local County. The top five occupations in this industry group are construction laborers, carpenters, retail salespeople, electricians, and first-line supervisors of construction trades and extraction workers.

Local County Industry Data

Industry	Number of Establishments	2017 Employment	2017 Average Wages per Employee
Building material and garden supply stores	107	3,906	$52,895
Construction of buildings	564	4,775	$77,271
Lumber and construction supply merchant wholesalers	78	2,084	$89,563
Specialty trade contractors	1,094	14,083	$57,946

Source: Bureau of Labor Statistics, QCEW Program

Possible Questions

- What is the most difficult position to fill? Why do you think that is?
- Is an aging skilled-trade workforce something that concerns you? How will the wave of future retirements impact your business?
- What key skill or skills are applicants and new employees missing? What steps, if any, have you taken to teach them these skills?
- Have you found any successful strategies for recruiting or training for difficult-to-fill positions?
- Do you have any suggestions for how the educational system can get students more excited about these careers?
- Have you tried any internship or apprenticeship programs?
- Do you find that educational programs such as technical colleges, four-year institutions, or other programs properly prepare students to enter the workforce?

APPENDIX D. NEEDS ASSESSMENT EVALUATION CRITERIA

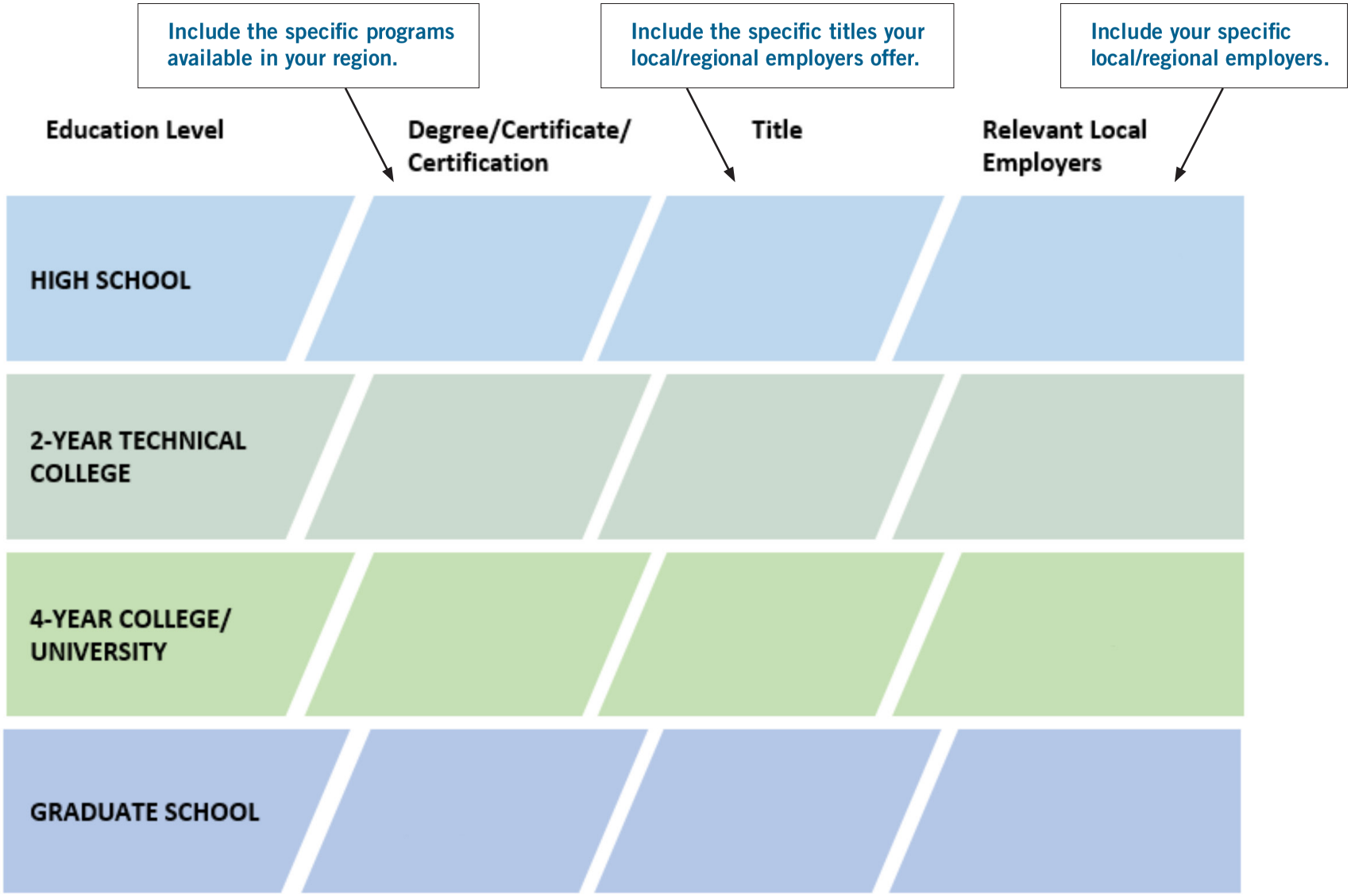
Needs Assessment Considerations	Notes and Action Items
Existing workforce needs in the potential area of study ■ Establish a reasonable geographic boundary ■ Look at the LMI data: a combination of projections including current, five-year, and 10-year to ensure existing and future career potential for students ■ What are general employment trends in the geographic region, including commute patterns, etc., and how do those impact workforce opportunities for students and support the overall workforce development efforts of a particular community? (See Appendix F for a list of LMI sites and tools.)	
Diversity and quality of potential local or regional employers ■ How many potential employers exist for this pathway? ■ Who are the potential employers for this pathway? ■ Ensure there is a diverse and large group of potential employers. Do not rely on a single company or single job function.	
Student population interest and aptitude ■ Is there an interested population with the appropriate aptitude? ■ What determines the recruitment strategy for this population to ensure the pathway engages the appropriate student population and maintains appropriate enrollment numbers? ■ If the aptitude exists but there is no student interest, devise a recruitment strategy for getting students to consider a career in the relevant industry. ■ What is the mechanism for tracking students pre- and post-pathway to evaluate effectiveness of program?	

Needs Assessment Considerations	Notes and Action Items
Parent/caregiver support and interest ■ Is there parental or caregiver support for this pathway? ■ What is the ongoing plan for engaging parents and caregivers to ensure continued support for the identified pathway?	
General community support and interest ■ Make sure other key community members such as chamber of commerce representatives, school board members, local elected officials, leaders from civic organizations, etc. are engaged to ensure support for the pathway.	
Available curricula and related resources ■ Evaluate existing curricula and application to the desired pathway to evaluate long-term implementation plans of the pathway from Class 1 to Class 3. ■ Ensure that available curricula and related resources (lab equipment and supplies, etc.) will appropriately complement the investment and capacity of the school system.	
Pre-pathway exposure and post-pathway professional opportunities ■ What kind of programs exist for students prior to entering high school to expose them to the pathway and careers? These should be documented if they exist, and if not, they should be described with a plan for implementation. ■ What kind of postsecondary and career opportunities exist for students after they complete the pathway? These should be documented if they exist, and if not, they should be described with a plan for implementation. ■ Do other, similar programs already exist at the current school or another school that is available to the same student population? ■ How are employability skills being addressed in the program?	

Needs Assessment Considerations	Notes and Action Items
Educator staffing, credentials, and professional development resources ■ What is the implementation plan for training an educator in this pathway? ■ Is there an identified educator with the appropriate background and credentials to deliver the pathway content effectively? ■ Is the school and educator aware of professional development experiences to enhance pathway delivery and support the educator? ■ Is the school committed to ensuring continued professional development dedicated to the pathway delivery?	
Physical resources, lab space, and equipment ■ Is there sufficient physical space for the pathway lab? ■ What is the funding and space plan to ensure adequate lab creation? ■ Evaluate the lab equipment list and provide an associated plan for funding and development. This evaluation should include potential vendors and a sketch of the space.	
Proposed advisory committee structure and members ■ Create a documented plan for how to manage the advisory committee, a meeting schedule, and a list of members to recruit, and explain how you will maximize the value of the committee to support the pathway and students.	

APPENDIX E. EXIT POINT SAMPLE AND WORKSHEET

Education Level	Degree/Certificate/ Certification	Title	Relevant Local Employers
HIGH SCHOOL	Various certifications (CNA, phlebotomy, radiology, etc.)	**Medical Assistant**	Hospital, nursing home, hospice, doctor's office, etc.
2-YEAR TECHNICAL COLLEGE	Certifications above; practical nursing diploma	**RN, LPN, Medical Assistant**	Hospital, nursing home, hospice, doctor's office, etc.
4-YEAR COLLEGE/ UNIVERSITY	Bachelor of Science in Nursing, other heath care-related degree	**RN, Nurse Manager**	Hospital, nursing home, hospice, doctor's office, etc.
GRADUATE SCHOOL	PhD, MD/DO, Master of Science in Nursing, etc.	**PA, NP, Dr.**	Hospital, nursing home, hospice, doctor's office, etc.


Include the specific programs available in your region.
Include the specific titles your local/regional employers offer.
Include your specific local/regional employers.
Education Level
Degree/Certificate/ Certification
Title
Relevant Local Employers
HIGH SCHOOL
2-YEAR TECHNICAL COLLEGE
4-YEAR COLLEGE/ UNIVERSITY
GRADUATE SCHOOL

APPENDIX F. LABOR MARKET INFORMATION ANALYST GUIDE

SOURCE	TIMING	WHAT IS IT	TIPS, TRICKS, AND USES
Quarterly Census of Employment and Wages (QCEW) www.bls.gov/cew State LMI Agency	5 to 6 months after quarter end	QCEW provides an employment, wages, and establishment count by industry. QCEW covers 99% of US workers. Data are from unemployment insurance filings and based on county of employment.	• Key source to understand trends and changes in employment and wages • Tool to understand growing and shrinking industries • Some data suppressed at the county level due to confidentiality rules
Quarterly Workforce Indicators (QWI) lehd.ces.census.gov/data/#qwi	9 months after quarter end	QWI provides labor market data by worker demographics (e.g., age, sex, rates, and educational attainment), firm age and size, and industry. These data come from linking job-level data to employers. QWI covers over 95% of US private-sector workers using administrative records collected by states and the federal government.	• QWI's strength lines in that it combines and links numerous other LMI and economic data sources • Can be used to understand which industries are hiring, experiencing turnover, or losing jobs • Can be used to understand the age structure of each industry
American Community Survey (ACS) www.census.gov/programs-surveys/acs factfinder.census.gov	Varies among products; typically fall of each year	The ACS provides the most comprehensive community data available, including information on jobs, demographic variables, educational attainment, housing, migration, health insurance, poverty, income, etc. The ACS replaced the decennial census long-form questionnaire.	• Can be used to understand regional economic conditions, assets, and challenges • Releases estimates collected over 1 year for areas with populations of 65,000+, 3 years for areas over 20,000, and 5 years for smaller areas • The easiest way to access ACS data is through the advanced search function of the American FactFinder
O*NET	N/A	This database provides detailed information on job descriptions, tasks, skills, knowledge,	• Details all attributes associated with each job and can assist with aligning training

SOURCE	TIMING	WHAT IS IT	TIPS, TRICKS, AND USES
www.onetonline.org		and education for each standard occupational code (SOC) on a national level.	programs to job requirements • Useful as a career exploration and planning tool
Occupational Employment Statistics (OES) www.bls.gov/oes	March of every year	The OES program provides the most detailed occupational data available on a geographical basis. The OES provides employment totals and wage data for more than 800 occupations by state, metropolitan, and nonmetropolitan areas.	• The most detailed and comprehensive occupational data available • Can be used to understand occupation by employment and what the job pays in the region • OES also produces staffing patterns that can be used to understand what occupations each industry employs
Real-time LMI www.conference-board.org/data/helpwantedonline.cfm burning-glass.com economicmodeling.com	Varies based on vendor	Real-time LMI compiles current job postings data and resumes from online job boards. Vendors use proprietary methods to aggregate data, de-duplicate the data, and sort it by occupation. One of the key benefits of this source is the short lag time between production and release.	• Users should understand the strengths (e.g., timeliness and depth) and weaknesses (e.g., lack of completeness, not all jobs are posted online) of online job postings data • Real-time LMI is best used in conjunction with traditional LMI and other business engagement strategies
Employment Projections www.bls.gov/emp/ State LMI Agency	Every other year	The Bureau of Labor Statistics (BLS) and every state LMI agency produce short- and long-term occupational projections, including the number of new jobs, replacement jobs, and education required.	• Powerful training and education planning tools • Several key assumptions are built into the projections (e.g., full employment) • Useful in aligning training programs, counseling clients, and understanding talent needs
OnTheMap onthemap.ces.census.gov	Varies	OnTheMap uses the same data source as QWI. The mapping tool allows users to understand where workers live and where they work and to drill down into industry,	• Workforce agencies can benefit from knowing the commuting patterns of residents and employees

SOURCE	TIMING	WHAT IS IT	TIPS, TRICKS, AND USES
		educational attainment, firm size and age, and income.	• A user-friendly tool to create visuals that demonstrate commuting patterns and the location of job clusters • Data from the tool can be exported in various formats including reports, Excel, and GIS shapefiles
State Population Projections opb.georgia.gov/population-projections **State Data Center (SDC) Program** goo.gl/1pYKvH	Varies	Many states produce short- and long-term population projections at the county level. The projections typically detail overall change and change by subgroup (e.g., age, sex, race).	• Can help workforce boards and training providers understand the rate of population change • Age structure in the population projections can assist with workforce planning
Local Area Unemployment Statistics (LAUS) www.bls.gov/lau State LMI Agency	Three weeks after the end of the month	The LAUS program produces county-level unemployment and labor force statistics.	• LAUS can provide a near real-time snapshot of economic conditions for your region • The most frequently updated traditional LMI source

Source: 2017 Economic Development Handbook for Georgia's Rural Communities

APPENDIX G. GEORGIA DEPARTMENT OF EDUCATION CTAE DIVISION INDUSTRY CERTIFICATION CHECKLIST

PROGRAM INFORMATION:

- ☐ Ample number of students enrolled?
- ☐ Is program curriculum based on current state standards?
- ☐ Has a career pathway been implemented in the program area? Is the program area utilizing project-based instruction?
- ☐ Does the program have an active advisory committee with at least two years of meeting dates/minutes?

INSTRUCTOR INFORMATION:

- ☐ Do your program instructors keep abreast of industry changes through membership in their professional organizations?
- ☐ Have your instructors held leadership positions in state and national level professional organizations in the last two years?
- ☐ Have your instructors held leadership positions at the local level in the last two years?
- ☐ Are your instructors aware of the general standards that govern the certification process for the program area?

CAREER TECHNICAL STUDENT ORGANIZATION (CTSO) PARTICIPATION:

- ☐ Does the program have an established/active CTSO Chapter? Is enrollment in CTSO Chapter adequate?
- ☐ Are students given the opportunity to participate in regional competitive events? Have your students advanced to state and national level competitions?

EQUIPMENT AND FACILITIES:

- ☐ Does the program have adequate square footage in the lab area? Is essential equipment in existing lab area adequate?
- ☐ Are equipment lists readily available for review?
- ☐ Has adequate office space been provided to instructor?
- ☐ Is the lab space barrier-free to accommodate students with disabilities?

LOCAL SUPPORT:

- ☐ Budget: Are matching funds available to support this process locally? Will this process be supported by system level administrators?
- ☐ Has a commitment to pursue the certification process been obtained from the instructor?

APPENDIX H. ADDITIONAL ARTICULATION INFORMATION

BOARD OF REGENTS OF
THE UNIVERSITY SYSTEM OF GEORGIA

DIVISION OF ACADEMIC AFFAIRS
OFFICE OF EDUCATIONAL ACCESS AND SUCCESS
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

404-962-3146
404-962-3154
ROBERT.MICHAEL@USG.EDU

January 10, 2018

TO: Education Deans, Directors and Chairs, USG
Registrars at Institutions Offering EDUC 2110, USG
CTAE Directors, GADOE

FROM: Linsey Shockley, GADOE
Bob Michael, USG

RE: Guidance for awarding of college credit for EDUC 2110 for successful completion of a high school Education Pathway

In 2008, the University System of Georgia approved a policy to award three (3) college credit hours in lieu of EDUC 2110 high school students who successfully completed the Teaching as a Profession Pathway.

Successful completion is defined as:

1. Passing the three Teaching as a Profession Pathway courses with a C or better; 13.01100-Examining the Teaching Profession; 13.01200-Contemporary Issues in Education; and 13.01300-Teaching as a Profession Practicum.
2. Completion of a portfolio as part of the Pathway's course requirements
3. Passing of the approved statewide End of Pathway Assessment

Credit will be awarded at all institutions for all students from any Georgia public school who meet the criteria for successful completion outlined above. Students without the required documentation sent by the school should be instructed to contact their high school and request the information be made available to the respective USG institution's registrar.

Students who complete the Teaching as a Profession Pathway and seek credit for EDUC 2110 must follow the processes in place at the institutions of high education. Further, students must have the following documentation in their records as transferred to the USG institution from the high school:

1. Course transcripts showing satisfactory course completion. Note: Course numbers indicated above may vary slightly but will begin with the 13-prefix and bear the names as noted; AND
2. The attached letter on school system letterhead and signed by the testing coordinator, principal or other designated certifying official.

Questions about implementation of this policy may be directed to the following persons:

Linsey Shockley
lshockley@doe.k12.ga.us

Bob Michael
bob.michael@usg.edu

cc: Dr. Barbara Wall, CTAE Director, Georgia Department of Education

"Creating A More Educated Georgia"
www.usg.edu

(Print on School Letterhead)

K Credit Award for EDUC 2110

Dear Registrar:

The below mentioned student has successfully met the requirements to earn three (3) college credit hours in lieu of EDUC 2110, and an official transcript is attached.

Successful completion is defined as:

1. Passing the three Education Pathway courses* with a C or better:
    a. *13.01100-Examining the Teaching Profession;*
    b. *13.01200-Contemporary Issues in Education; and*
    c. *13.52100-Teaching as a Profession Practicum.*
2. Completion of a portfolio as part of the Pathway's course requirements.
3. Passing of the statewide assessment.

Student Name:_____

Student Georgia Test Identification (GTID) Number_____

High School Attended:_____

Print Name of Certifying Official:_____

Title of Certifying Official:_____

Signature of Certifying Official:_____

*Note: Course numbers indicated above may vary slightly, but they will begin with the *13* prefix and bear the names as noted.

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ENDNOTES

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[15] Spiker.

GEORGIA **ALIGNMENT** TOOLKIT

Resources For Connecting **Education** And **Business**

GaDOE Georgia Department of Education

Carl Vinson Institute of Government
UNIVERSITY OF GEORGIA