

Skilled Construction Trades Study

**The Chamber For a Greater Chapel Hill-Carrboro
Prepared in Partnership with the Skilled Construction Trades Study Group
July 2020**





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This report is the culmination of many months of meetings and reflection among the nearly thirty members of the Skilled Construction Trades Study Group (Study Group), which was ignited by two visionaries: Orange County Commissioner and builder Mark Marcoplos and UNC adjunct faculty member and former Carrboro Mayor James (Jim) Porto. We appreciate the entire Study Group and acknowledge the strong engagement from key members for whom we are especially grateful, including: Travis Myren, Steve Brantley, Nancy Coston, and Amanda Garner of Orange County Government; Holly Fraccaro of the Home Builders Association of Durham, Orange, and Chatham Counties; Kim Tesoro of the Hillsborough/Orange County Chamber of Commerce; Penny Gluck (retired), Tom Jaynes, Jaclyn Krohn, and Maryah Smith-Overman of Durham Technical Community College; Shannon Braxton of Orange County Schools and Kathi Breweur of Chapel Hill-Carrboro City Schools; Matt Meyer of the North Carolina Community College System; and Nora Spencer of Hope Renovations.

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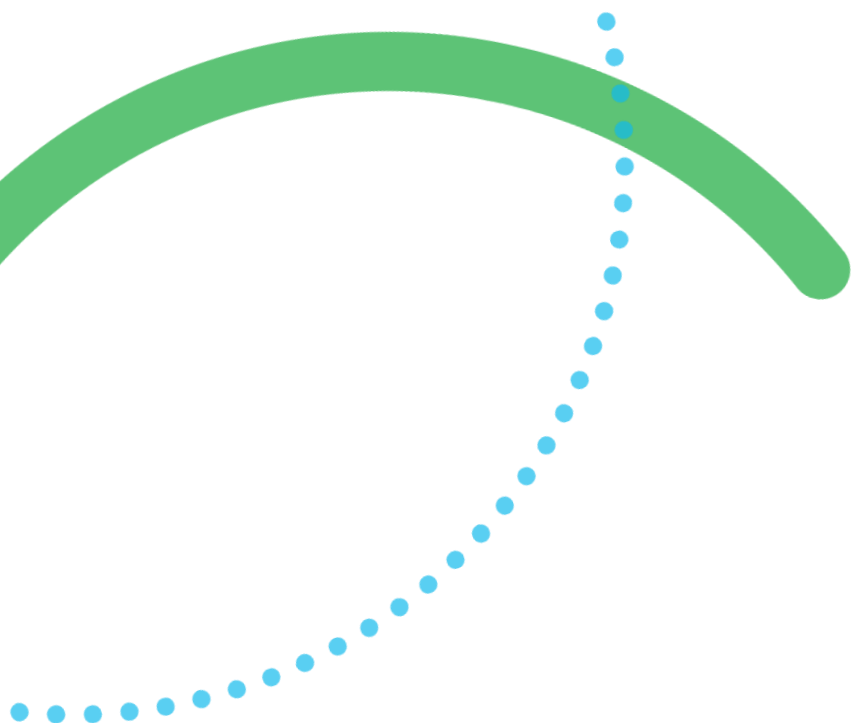
TABLE OF CONTENTS

Executive Summary	5
Section 1: Introduction	9
1.1 Challenge	
1.2 Charge	
1.3 History	
1.4 Definitions	
Section 2: Construction Careers	15
2.1 Occupations	
2.2 Star Jobs	
2.3 Pathways	
Section 3: Model Training Programs	20
3.1 CVCC Construction Careers Academy (Hickory, NC)	
3.2 WayMakers (Durham, NC)	
3.3 Goodwill Construction Training Center (Charlotte, NC)	
3.4 Peaslee Tech (Lawrence, KS)	
Section 4: Mapping the Talent Pipeline	31
4.1 Learners	
4.2 Educators	
4.3 Employers	
4.4 Supports	
Section 5: Feasibility of a Training Center	45
5.1 Contract Existing Training Program	
5.2 Lease Existing Warehouse	
5.3 Buy Existing Warehouse	
5.4 Construct New Facility	
5.5 Cost Estimates	
5.6 Administrative Structure	
Section 6: Other Findings	52
6.1 Short-Term Construction Training Opportunities	
6.2 COVID-19 Implications	
6.3 Funding Opportunities	
6.4 Other Notable Industries	

References	58
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Appendix	63
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- A. Study Scope of Work
- B. Minutes from Jan 2020 Meeting
- C. Minutes from May 2020 Meeting
- D. List of Model Programs
- E. List of Learners
- F. List of Educators
- G. List of Employers
- H. List of Support Organizations
- I. Feasibility Supplemental Information



EXECUTIVE SUMMARY

Charge:

- To compile an inventory of agencies participating in the skilled construction trades talent pipeline and assess the feasibility of a tradescraft training center in Orange County. (See Appendix A for the study scope of work and Appendix B and C for the minutes and participants of the two meetings of the Study Group.)

Talent Pipeline Findings

- **Worker shortage:** There is a skilled construction trades worker shortage in Orange County and our region, which the state has documented, the media has amplified, and the Skilled Construction Trades Study Group (Study Group) has validated through this study. It is likely that this shortage will intensify as baby boomers retire.
- **Coronavirus impact:** The pandemic has created uncertainty in the market. While it is reasonable to anticipate a national contraction in commercial construction, residential construction remains strong. This study found a continued high demand among local employers for skilled talent to construct new residential facilities (single family and multi-family) as well as high demand for employees to maintain existing facilities.
- **Income opportunities:** The state has documented a strong income opportunity ("5 Star Jobs") for several skilled construction trade occupations in our region, including construction managers, first line supervisors, HVAC mechanics and installers, and plumbers.
- **Orange County training gaps:** There are minimal training opportunities for skilled construction trade occupations in Orange County. There are construction classes for Orange County Schools high school students through career and technical education (CTE), but not in Chapel Hill-Carrboro City Schools. As of July 2020, Orange County women have access to a small-cohort, skilled trades training program through the nonprofit, Hope Renovations. Some Orange County residents currently employed in the construction field have access to on-the-job training (OJT) from their employer. Other than these three limited training options, interested learners must travel to surrounding counties for construction training.

- **Regional training challenges:** Surrounding counties provide training through community college continuing education classes and certificate, diploma, and/or degree programs, but the classes are largely at capacity. Further, public transportation to these programs is a barrier for many.
- **Prospects:** If Orange County were to offer more training options, the primary population served could be re-careering adults, including local immigrant populations and those formerly in retail, hospitality, and other COVID-impacted industries. A secondary population could be high school students, but this study surfaced long-standing negative perceptions of the skilled trades among Orange County high school parents, which could require additional effort for successful trainee recruitment.
- **Models:** The Construction Careers Academy (Hickory, NC), WayMakers: Durham's Skilled Trades Pathway (Durham, NC), Goodwill Construction Skills Training Center (Charlotte, NC), and Peaslee Tech (Lawrence, KS) are four different construction training center models all powered by public-private coalitions with programming deeply connected with the local high schools and community colleges.

Training Center Feasibility Findings

- **Variables:** The Study Group explored the feasibility of a construction training center, informed by the models and insights above, with a lens for a pilot program that could be taken to scale and situated at a population center and/or accessible by public transit and/or highway(s).
- **Four Options:** Four training center site types were identified and studied. Cost estimates on currently available listings were generated by Daniel A. Jewell RLA, ASLA, President of Coulter Jewell Thames (professional engineering, land surveying, and landscape architecture firm) and Phillip Post, President of Philip Post & Associates (civil engineering and land surveying firm).
- **Estimates:** The following is a summary of those estimates, which is outlined with more detail in Section 5, Table 5.51, and the full table with assumptions is provided in Attachment A, "Study Tables."
 - 1) **Contract Existing Training Program:** ~\$75-125 per instructional hour; Hope Renovations Training Center, Carrboro.
 - 2) **Lease Existing Warehouse:** ~\$1 million for a 5-year lease; Eno River Mill, Suite 45A, Hillsborough.

3) Buy Existing Warehouse: ~\$2 million; 360 Executive Court, Hillsborough.

4) Construct New Facility: ~\$2.5 million; building on county-owned land at 3800 US-70 West, Efland.

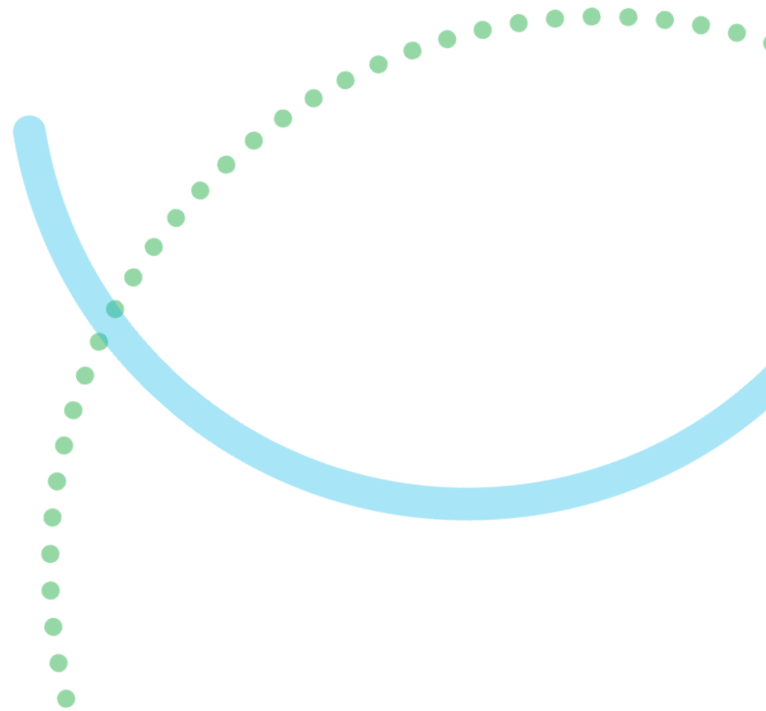
Other Findings

- **New Short-Term Construction Training Opportunities:** Constructive conversations among key stakeholders unfolded throughout this study and three new opportunities emerged that, if implemented, could immediately improve the Orange County construction trades talent pipeline: 1) expand WayMakers to include Orange County and Chapel Hill-Carrboro City Schools, 2) launch the HVAC training program at Chapel Hill-Carrboro City Schools, and 3) contract Durham Tech faculty to teach construction classes at Orange High School in the evenings and/or on weekends.
- **Other Notable Industries:** When considering real-time labor market information and ten-year projections across all industries in Orange and surrounding counties, it is clear that several industries, including construction, would benefit from an increased workforce development focus. Other top industries and career pathways include health care and biopharma, information technology, professional services, hospitality and food services, logistics, electrical, and automotive.

Conclusion

- **Bottom Line:** This study confirms that the construction trades talent pipeline in Orange County needs attention and identifies the start-up costs of a possible training center.
- **Short-Term Actions:** The Study Group recommends the following short-term, no- and low-cost actions to immediately improve the construction trades talent pipeline:
 - 1)** Expand WayMakers to include Orange County and Chapel Hill-Carrboro City Schools.
 - 2)** Support the launch of the new HVAC training program at Chapel Hill-Carrboro City Schools and the continued success of the Hillsborough Chamber's "Students Transforming Expectations & Exploring Real Opportunities" (STEER) career exploration program.

- 3) Fund Hope Renovations to provide more construction training for Orange County residents and the development of new construction classes to be taught by Durham Tech faculty for re-careering adults in Orange County at the Orange High School construction lab after-hours (evenings and weekends).
- **Mid-Term Actions:** The Study Group recommends the County Commissioners and key stakeholders discuss these study findings in detail as soon as possible (September 2020) and do so with a comprehensive view of all regional workforce development opportunities. This review should consider Durham Tech priorities, new coronavirus realities and displaced workers, and an acknowledgement of the well-documented needs in the construction trades in Orange County as well as other industries.
 - **Long-Term Actions:** This study and subsequent discussions should culminate in a comprehensive, demand-driven workforce development plan for Orange County that is regional in approach, aligned to dynamic business needs, and designed to build Orange County's competitive advantage. This plan should inform Orange County long-term future workforce development investments, including in a possible construction trades training center.



SECTION 1: INTRODUCTION

[1.1] Challenge

The nationwide shortage of workers in the skilled construction trades is well-documented and has been topic of much discussion among business, industry, and education leaders, as well as the media, over the last decade. In 2011, Harvard Graduate School of Education published a landmark report, *Pathways to Prosperity*, which outlined the need for multiple career pathways to be incorporated into the American education system, including more career-oriented credentialing programs such as the construction trades (Symonds et al., 2011). Since then, national associations have sounded the alarm on the need for skilled trades workers and states have doubled down on comprehensive career and technical education reforms, yet the problem persists in communities across the country, including Orange County, North Carolina (NC).

The Associated General Contractors of America (AGC) reported in 2017 that 70 percent of contractors have a hard time finding qualified workers and cautioned that “chronic labor shortages could have significant economic impacts absent greater investments in career and technical education” (Associated General Contractors of America, 2017, para. 1). Around the same time, the National Association of Home Builders (NAHB) released a report for HousingEconomics.com, called “Young Adults & The Construction Trades,” which highlighted the low propensity of young adults (age 18-25) to desire a career in the trades. According to the NAHB, this lack of interest among young adults spans different racial/ethnic groups, regions of the country, and urban/suburban/rural boundaries (Quint, 2017).

All the while, employer demand for skilled workers in the construction trades continues to rise. The U.S. Bureau of Labor and Statistics (BLS) projects 10 percent growth nationally in the construction and extraction trades (from 2018 to 2028), “which is faster than the average for all occupations, a gain of about 704,000 new jobs” (BLS, 2020, para. 1).

To address this persistent talent challenge, the National Center for Construction Education & Research’s (NCCER) Build Your Future (BYF) initiative has launched many teacher resources, videos, and student outreach guides to recruit the next generation of skilled construction trades professionals through its website, www.byf.org. Other initiatives have also emerged and gained prominence, i.e.: Lowe’s “We Are Generation T” (‘T’ stands for technology and trades). This initiative recruits the next generation of talent and emphasizes the high demand, high pay, and high potential careers in the construction trades through its website, www.wearegenerationt.com.

States across the country are addressing this workforce supply and demand challenge with comprehensive reforms, including California's \$200 million initiative to improve the delivery of career and technical education and Tennessee making technical college free (Gross & Marcus, 2018).

North Carolina has pain points throughout its construction trades talent pipeline. The NC Department of Commerce Labor & Economic Analysis Division (LEAD) projects 10 percent statewide growth in the construction industry by 2026 (NC LEADS, 2020), yet employers continue to report substantial hiring difficulties (NC Works Commission, 2018). In fact, construction companies reported a higher level of difficulty in filling open positions, with longer vacancies than any other industry (NC Works Commission, 2016). The most cited reasons for the hiring challenges are applicants' lack of employability, technical skills, and/or work experience as well as low numbers of applicants (NC Works Commission, 2018).

Like the nation and the state, the Raleigh-Durham Region, which includes Orange County, is facing a similar construction talent supply and demand challenges. LEAD projects a need for 1,855 more construction trades workers in the region by 2026, which is 3.8 percent growth from 2017 (NC LEADS, 2020). This growing demand for skilled construction trades workers is compounded by the multifaceted talent shortage. Public awareness and interest in this challenge is increasing as demonstrated with recent news coverage. WRAL featured two pieces on the region's construction trades talent pipeline, one in November 2019 on the worker shortage and another in January 2020 on the need and opportunity for more apprenticeships (Laliberte, 2019; Chou, 2020).

[1.2] Charge

The charge for this study was to map the skilled construction trades talent pipeline and assess the feasibility of a training center in Orange County. ("Feasibility Study," 2019). This report is a culmination of findings as authorized by the Orange County Board of Commissioners in June 2019. The Orange County Manager contracted The Chamber For a Greater Chapel Hill-Carrboro (The Chamber) to conduct the study in November 2019. This final report addresses all ten deliverables as outlined in the initial scope of work as well as presents other findings and recommended next steps.

[1.3] History

Most recent interest in improving the construction trades talent pipeline in Orange County began in 2015 with the Home Builders Association of Durham, Orange, and Chatham Counties (HBA). The HBA identified employer challenges in the construction trades talent pipeline, including employee recruitment, training, and retention. Recognizing strong employer demand and high worker earning potential, the HBA began advocating for the development of a future training center.



This county-wide construction talent pipeline challenge was reinforced with a study commissioned by Durham Technical Community College (Durham Tech) in 2017. The Hanover Research study, called the “Orange County Employer Needs Analysis,” identified, among other findings, that there is a need for non-credit training programs in the construction and industrial trades in Orange County and recommended the pairing of these programs with internships and apprenticeships with local employers (Hanover Research, 2017). Further, the Hanover study quoted local employers, including a representative from Frontier Communications who said, “We don’t have enough electricians, plumbers, carpenters, and HVAC technicians in the region,” and a UNC Health representative who mentioned that, “UNC Health Care hires its own electricians, plumbers, and HVAC technicians, and Durham Tech could help to train such workers” (p. 11).

Interest in a trades training center was reinforced in September 2018 during The Chamber’s Inter-City Visit to Lawrence, Kansas. Together, nearly 100 local leaders, including many Orange County elected officials and senior staff, toured the Dwayne Peaslee Technical Training Center (Peaslee Tech), which is a technical school co-located with the Lawrence College and Career Center to offer residents of Lawrence a comprehensive workforce development campus. Peaslee Tech is the largest provider of apprenticeships in Kansas and offers many training courses - including carpentry, plumbing, welding, HVAC, and electric – all with deep industry engagement to meet current and emerging employer and community needs.

In March 2019, former Carrboro Mayor Jim Porto hosted a Tradecraft Training Center Discussion at The Chamber with approximately twenty leaders representing employers, educators, advocates, and government officials (“Attendance at Tradecraft,” 2019). This meeting validated a strong need for talent in the skilled construction trades. In response, Orange County Commissioner Mark Marcoplos proposed an amendment to the county budget for a feasibility study of a tradecraft training center in Orange County, which was approved in June 2019. The amendment read, “compile an inventory of agencies participating in the work force development pipeline available to Orange County and assess the feasibility of a Tradecraft Center” (“Feasibility Study,” 2019, p. 1).

Throughout the late Summer and Fall of 2019, The Chamber discussed collaboration with key stakeholders including the Hillsborough/Orange County Chamber of Commerce (Hillsborough Chamber), Durham Tech, and the HBA, and submitted a proposal. The Chamber was contracted in November 2019 to facilitate the study, including conducting two or three meetings of the Study Group and providing a written report compiling all findings.



[1.4] Definitions

To ensure clarity for the Study Group, industry terms such as “tradescraft” and “skilled trades” were defined early in the process, and the following are definitions of several additional terms used throughout this study and/or in this final report.

Terms from the Study Scope:

- **Tradescraft:** “A skill acquired through experience in a trade” (“Tradescraft,” n.d.)
- **Skilled Trades:** “Occupations that require a special skill, knowledge, or ability which can be obtained at a college, technical school, or through specialized training” (Jackson County Intermediate School District, n.d.). According to this same source, the skilled trades are generally divided into three categories: 1) Skilled Industrial Trades, including machinists and mechanics; 2) Skilled Construction Trades, including carpenters, electricians, and plumbers; and 3) Skilled Service Trades, including nurses, aides, orderlies, and service technicians. For this study, we focused specifically on the skilled construction trades.

Terms in the Field of Workforce Development

- **Career Pathway:** “The National Career Pathways Network defines a career pathway as ‘a coherent, articulated sequence of rigorous academic and career/technical courses, commencing in the ninth grade and leading to an associate degree, baccalaureate degree and beyond, an industry recognized certificate and/or licensure’” (Catron, 2016).
- **Credentials:** “Documents attesting to qualifications and the attainment of competencies, usually in the form of education degrees and certificates, industry and professional certifications, badges, and licenses” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 4).
- **Occupation:** “The type of job or job family that is typically used to classify workers into occupational categories based on the Standard Occupational Classification system (commonly referred to as SOC code) or another classification system” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 6).
- **Talent:** “Individuals who have the skills and credentials that drive competitive advantage within a company and industry” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 9).
- **Talent Pipeline Management (TPM):** “An end-to-end talent management approach that is implemented by employers to source and develop talent for jobs critical to their competitiveness and growth” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 9).
- **Talent Supply Chain:** “An end-to-end talent management process made up of employers as end-customers and education and workforce partners as providers, with each playing key roles in adding value to the development of talent. Talent supply chains can be developed by individual employers or by multiple employers



acting together as employer collaboratives” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 9).

Terms Related to Labor Market Data:

- **Labor Market Information:** “Quantitative or qualitative data related to employment and workforce trends in national, state, regional, and local labor markets” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 6).
- **Primary Labor Market Information:** “Labor market information provided directly by employers and other participants in labor markets (e.g., workers)” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 7).
- **Secondary Labor Market Information:** “Information and analysis about the level of workforce demand by industry generated through reviewing labor market information reports (e.g., state occupational projections) or through aggregating job posting data (e.g., real-time labor market information)” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 8).
- **Real-Time Labor Market Information:** “Aggregated job openings and skills data generated by using web technologies to capture and analyze job postings from job boards and websites. Real-time LMI also includes supply-side analysis using resumes and job board worker profiles” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 8).
- **Projections:** “Quantitative estimates of future employment by industry and occupation. Projections can be short- or long-term, which are defined differently depending on the originating source making the projections” (U.S. Chamber of Commerce Foundation, n.d., Appendix p. 7).

Terms Related to Workforce Training

- **On-the-job training:** Instruction for employees that takes place at work. In NC, there are funds available through an “OJT” program to “offset initial training costs to fill skilled positions while building organizational productivity as the employee learns job requirements. ...Through OJT, a wage reimbursement incentive may be provided to a business to help offset the cost of training a new employee with limited skills. Wage reimbursement ranges from 50 to 75 percent, depending upon the size of the business, with the higher percentage for businesses with up to 250 employees. OJT contracts are limited to the time required for the employee to become proficient in his/her job, not to exceed six months. Prior to hire, an individualized training plan is developed with the employer that will allow the new employee to gain the required competencies” (NC Department of Commerce, n.d.-b, para. 3).
- **Apprenticeship:** “A proven approach for preparing workers for jobs while meeting the needs of business for a highly-skilled workforce. It is an employer-driven, ‘learn-while-you-earn’ model that combines on-the-job training, provided by the employer that hires the apprentice, with job-related instruction in curricula tied to the attainment of national skills standards. The model also involves

progressive increases in an apprentice's skills and wages" (U.S. Department of Labor, n.d., para 1).

- **Registered Apprenticeship Program:** "A program of the United States Department of Labor that connects job seekers looking to learn new skills with employers looking for qualified workers. Employers, employer associations, and joint labor-management organizations, known collectively as "sponsors", provide apprentices with paid on-the-job learning and academic instruction that reflects industry needs. The goal of such instruction is to provide workers with advanced skillsets that meet the specific needs of their employers" ("Registered Apprenticeship," 2020, para 1).
- **NC Registered Apprenticeship Program:** The North Carolina Registered Apprenticeship Program is managed by the North Carolina Community College System through www.apprenticeshipnc.com and combines "on-the-job learning with related classroom instruction, allowing participants to earn while they learn a highly-skilled trade" (NC Department of Commerce, n.d.-a). Registered Apprenticeship Programs are "designed for students who have selected a career pathway and have plans to continue working for an employer either full time or part time after graduation" (Apprenticeship NC, n.d.).
- **NC Registered Pre-apprenticeship Program:** Pre-apprenticeships give "participants the option of choosing either classroom or on-the-job training, or both, and offer shorter training programs than full apprenticeships. Pre-apprenticeships enable a student to explore a career by participating in a work-based learning program that gives more time with the employer than job shadowing or an internship" (Apprenticeship NC, n.d.).
- **Internships:** "Internships are for students who have not decided on a career but want to explore options, and internships don't have a classroom component. Internships also are typically of shorter duration than either pre-apprenticeships or apprenticeships" (Apprenticeship NC, n.d.).

SECTION 2: CONSTRUCTION CAREERS

[2.1] Occupations

A career in the construction trades can go in many directions. The U.S. Bureau of Labor Statistics (BLS) lists 19 occupations within the “Construction and Extraction” trades, including carpenters, plumbers, and electricians. The median annual wage for all construction and extraction occupations was \$47,430 in May 2019, which was higher than the median annual wage for all occupations of \$39,810 (BLS, 2020). See Table 2.1 for the full list of all 19 occupations with job summaries, entry-level education, and 2019 median pay.

Table 2.1: U.S. Bureau of Labor Statistics “Construction and Extraction” Occupations

Occupation	Job Summary	Entry-Level Education	2019 Median Pay
Boilermakers	Boilermakers assemble, install, maintain, and repair boilers, closed vats, and other large vessels or containers that hold liquids and gases.	High school diploma or equivalent	\$63,100
Carpenters	Carpenters construct, repair, and install building frameworks and structures made from wood and other materials.	High school diploma or equivalent	\$48,330
Construction and Building Inspectors	Construction and building inspectors ensure that construction meets building codes and ordinances, zoning regulations, and contract specifications.	High school diploma or equivalent	\$60,710
Construction Equipment Operators	Construction equipment operators drive, maneuver, or control the heavy machinery used to construct roads, buildings and other structures.	High school diploma or equivalent	\$48,160
Construction Laborers and Helpers	Construction laborers and helpers perform many tasks that require physical labor on construction sites.	On-the-Job Training	\$36,000
Drywall and Ceiling Tile Installers, and Tapers	Drywall and ceiling tile installers hang wallboard and install ceiling tile inside buildings. Tapers prepare the wallboard for painting, using tape and other materials.	No formal educational credential	\$47,360
Electricians	Electricians install, maintain, and repair electrical power, communications, lighting, and control systems.	High school diploma or equivalent	\$56,180

Elevator Installers and Repairers	Elevator installers and repairers install, fix, and maintain elevators, escalators, moving walkways, and other lifts.	High school diploma or equivalent	\$84,990
Flooring Installers and Tile and Marble Setters	Flooring installers and tile and marble setters lay and finish carpet, wood, vinyl, and tile.	No formal educational credential	\$42,050
Glaziers	Glaziers install glass in windows, skylights, and other fixtures in storefronts and buildings.	High school diploma or equivalent	\$44,630
Hazardous Materials Removal Workers	Hazardous materials removal workers identify and dispose of asbestos, lead, radioactive waste, and other hazardous materials.	High school diploma or equivalent	\$43,900
Insulation Workers	Insulation workers install and replace the materials used to insulate buildings and their mechanical systems.	On-the-Job Training	\$44,180
Ironworkers	Ironworkers install structural and reinforcing iron and steel to form and support buildings, bridges, and roads.	High school diploma or equivalent	\$53,650
Masonry Workers	Masonry workers use bricks, concrete blocks, concrete, and natural and manmade stones to build masonry structures.	See How to Become One	\$46,500
Painters, Construction and Maintenance	Painters apply paint, stain, and coatings to walls and ceilings, buildings, bridges, and other structures.	No formal educational credential	\$40,280
Plumbers, Pipefitters, and Steamfitters	Plumbers, pipefitters, and steamfitters install and repair piping fixtures and systems.	High school diploma or equivalent	\$55,160
Roofers	Roofers replace, repair, and install the roofs of buildings.	No formal educational credential	\$42,100
Sheet Metal Workers	Sheet metal workers fabricate or install products that are made from thin metal sheets.	High school diploma or equivalent	\$50,400
Solar Photovoltaic Installers	Solar photovoltaic (PV) installers assemble, install, and maintain solar panel systems on rooftops or other structures.	High school diploma or equivalent	\$44,890
Note: Last Modified by BLS on Friday, April 10, 2020.			

[2.2] Star Jobs

Star Jobs is a digital platform managed by the NC Department of Commerce to categorize occupations with a star rating (1-5 stars) based on wages, projected growth rate, and projected job openings. "Occupations with 5 stars are considered to have better career prospects than occupations with fewer stars" (NC Careers, 2020, para. 1). For the Raleigh-Durham Region, there are seven 5 Star Jobs, including construction managers, first-line supervisors, plumbers, and HVAC (NC Careers, 2020). See Table 2.2 for a list of all "5 Star Jobs" in "Architecture & Construction" in the Raleigh-Durham Region.

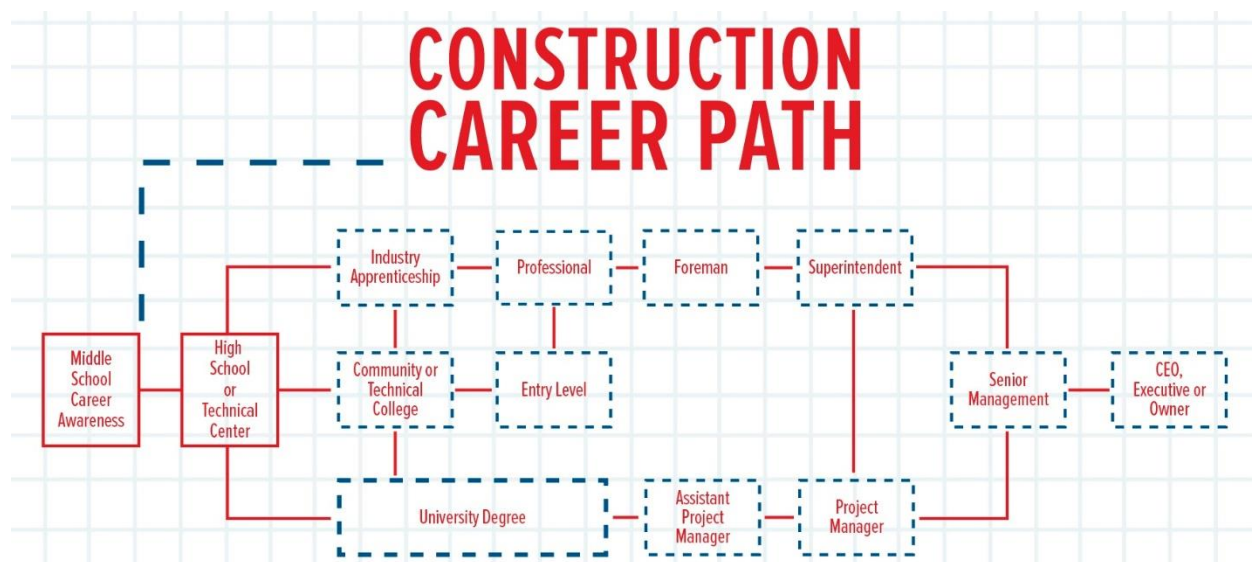
Table 2.2 "5 Star Jobs" in "Architecture & Construction" for the Raleigh-Durham Region

5 Star Job	Descriptive Analysis
Construction Managers	Requires Bachelor's degree, has 0.6% Annual Growth, 333 Average Annual Openings in region, and a Median Annual Wage of \$99,482
*First-Line Supervisors of Construction Trades and Extraction Workers	Requires a high school diploma or equivalent, 0.5% Annual Growth, 627 Annual Openings in region, and a Median Annual Wage of \$60,245
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Requires postsecondary nondegree award, 1.1% Annual Growth, 396 Annual Openings in region, and a Median Annual Wage of \$45,583
Plumbers, Pipefitters, and Steamfitters	Requires high school diploma or equivalent, has 1.1% Annual Growth, 426 Annual Openings in region, and a Median Annual Wage of \$45,247
*Civil Engineers	Requires Bachelor's degree, has a 0.9% Annual Growth, 293 Average Annual Openings in region, and a Median Annual Wage of \$82,400
*Cost Estimators	Requires Bachelor's degree, has 0.7% Annual Growth, 196 Average Annual Openings in region, and a Median Annual Wage of \$64,487
*First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	Requires a high school diploma or equivalent, has 1.6% Annual Growth, 108 Annual Openings in region, and a Median Annual Wage of \$56,421
Note: * Means this is a 5 Star Job in our region and across the entire state of NC.	

[2.3] Career Pathways

The schematic featured in this section is from the National Center for Construction Education & Research (NCCER) and represents the construction career pathway (see Image 2.3). While this schematic depicts the journey beginning with a young person in middle school gaining career awareness, progressing through classes and hands-on work experiences, and culminating in jobs that progress towards management and business ownership, the reality is that the on-ramp for a career in the construction industry is not limited to young people. Re-careering adults can enter and navigate through this pathway without limit.

Image 2.3: NCCER “Construction Career Path”



Source: National Center for Construction Education and Research

The construction career pathway includes a variety of job opportunities including those that are unlicensed (i.e. carpenter), licensed (i.e. plumber), and specialty jobs (i.e. sheet metal worker). Construction is one of the few industries in which individuals can earn as they learn and accumulate additional credentials that build upon one another, known as “stackable credentials.” Doing so can help individuals quickly advance on the construction career pathway to higher paying jobs and management positions.

A local example of how one might quickly advance along the construction career pathway is with CQC Homes. Their founder and CEO, Ken Combs shared that one of his employees was hired out of high school with no technical skills or industry knowledge but great work ethic. This individual started in an entry level position with on-the-job training and classes, and within seven years advanced to supervisor and makes six figures (K. Combs, personal communication, May 21, 2020).

There are many resources to help individuals learn about the variety of construction occupations, understand the salary potentials, and navigate the career pathway. Some career pathway resources recommended by members of the Study Group, in addition to the ones listed in Section 1.1, paragraph 4, include:

- National Association of Home Builders Careers in the Construction Trades portal (<https://www.nahb.org/Advocacy/Top-Priorities/Workforce-Development/Careers-in-the-Construction-Trades>),
- US Careers Online, which features short videos of various occupational opportunities (<https://uscareersonline.com/video-gallery/>), and
- Build Your Career, which is an initiative of the Carolinas Association of General Contractors and features information on each construction occupation and the average salary (<https://buildyourcareer.us/careers-in-construction>).

SECTION 3: MODEL TRAINING PROGRAMS

Four exceptional construction trades training programs were studied, each with a different type of facility and program design. The facilities vary from the use of an existing facility and expanding existing facilities to renovating existing warehouses into state-of-the-art training centers and constructing new facilities as part of a comprehensive workforce development campus.

- 1) Catawba Valley Community College Construction Careers Academy –** Uses an existing facility for classroom instruction coupled with work-based learning (pre-apprenticeship program) to serve ~30 mostly high school students per summer in the skilled construction trades. Program began instruction in 2018.
- 2) WayMakers –** Uses ~2,000 SF of existing lab space at Durham Tech and ~3,500 SF at Durham Public Schools (DPS) plus additional classroom space for classroom instruction coupled with work-based learning (pre-apprenticeship and apprenticeship programs) serving ~140 high school and community college students annually in the construction and other skilled trades. WayMakers launched in 2019, and programming was largely already underway.
- 3) Goodwill Construction Career Training Center –** Uses a refurbished 15,000 SF facility for classroom instruction and work-based learning (pre-apprenticeship and apprenticeship programs) serving ~520 high school students and adult learners annually in the skilled construction trades. Program began instruction in 2018.
- 4) Peaslee Tech –** Uses a renovated 80,000 SF facility, which is adjacent to the Lawrence College & Career Center, which is a new facility built in 2014. Together, they establish a campus for workforce development that serves high school and adult learners with classroom instruction and work-based learning in the construction and other skilled trades. Peaslee Tech began instruction in Fall 2015.

A detailed summary of each training program with contact information for the representatives interviewed in Appendix D, “List of Model Programs.”

[3.1] Catawba Valley Community College Construction Careers Academy

Hickory, North Carolina



2018 Construction Careers Academy Students
Source: Catawba Valley Community College

Partners: Catawba Valley Community College (CVCC); twenty area construction companies; The Chamber of Catawba County; Catawba Valley and Hickory Home Builders Associations (CVHHBA); Career & Technical Education programs (CTE) at Catawba County Schools, Hickory High School, Newton-Conover High School, and Alexander Central High School; the K-64 Initiative; and CVCC Foundation.

Roles:

- CVCC provides overall program coordination, the instructional facility, and classroom training in Construction Fundamentals.
- Area construction companies provide paid pre-apprenticeships, which include on-the-job training and hands-on construction trades instruction.
- The Chamber, K-64, and CVHHBA provide marketing and promotional support.
- The CTE programs provide vital student recruitment.
- The CVCC Foundation provides funding assistance and support.

Participants: Serves primarily high school students, ages 16-18 years old (rising juniors and seniors) who take construction trade CTE classes and have an interest and aptitude for construction. Post-secondary students are also welcome. Thirty students participated in 2019 and 23 are enrolled in summer 2020. Note: the program originally only focused on re-careering adults but shifted primarily to high school students to improve enrollment.

Programs: Pre-apprenticeship and Career & College Preparation program model conducted over the summer months (7 weeks from mid-June to mid-August) through which students “earn while they learn” making \$10/hour and earning high school and college credit as well as a National Construction Careers Education & Research (NCCER) Certificate. The program has four cornerstones:

- 1) Identification and Recruitment (focuses on CTE students in construction trades classes),
- 2) Training in Construction Fundamentals (OSHA 10, Basic Construction Principles, and Employability Skills),
- 3) Construction Pre-Apprenticeships (on-the job learning as paid pre-apprentices with construction firms), and
- 4) Full-Time Employment (upon graduation with local construction firms).

Table 3.1: 2019 Construction Career Academy Class and Work Schedule

Month	Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
June	1	17 Class	18 Class	19 Class	20 Class	21 Class		
	2	24 Class	25 Work	26 Work	27 Work	28 Work		
July	3	1 Class	2 OFF	3 OFF	4 OFF	5 OFF		
	4	8 Class	9 Work	10 Work	11 Work	12 Work		
	5	15 Class	16 Work	17 Work	18 Work	19 Work		
	6	22 Class	23 Work	24 Work	25 Work	26 Work		
August	7	29 Class	30 Work	31 Work	1 Work	2 Work		
	8	5 Class	6 Work	7 Work	8 Work	9 Work		

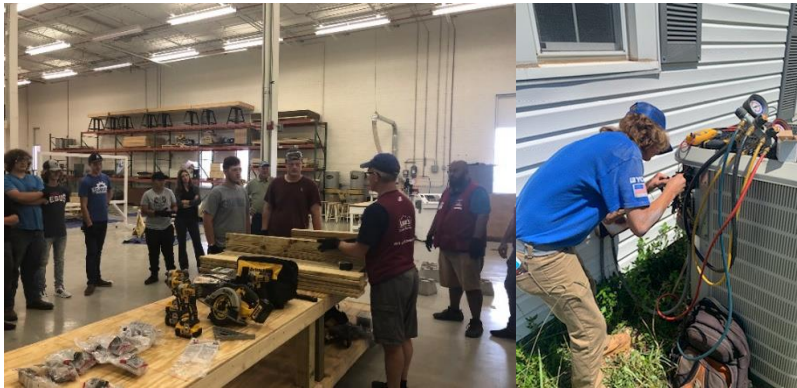
Facility: The in-class construction fundamentals training (96 hours) is conducted at CVCC in an existing facility which is not otherwise in use during the summer months. The balance of the hands-on instruction (24 workdays) is provided through on-the-job training with local construction firms.

Funding: This is a relatively low-cost per student model provided at no cost to the students. Student tuition is covered by ApprenticeNC as a registered pre-apprentice or through the Career & College Promise program. CVCC provides the training facility, instructors, and program coordination. Business partners help to support operating expenses for the program, which run between \$25,000 and \$30,000 in-total annually. The operating expenses include all labor, equipment, materials, books, and fees.

Sponsors: Sponsors of the Construction Careers Academy contribute tax deductible donations to the CVCC Foundation at one of three levels:

- 1) Academy Sponsors, which is an initial gift of \$5,000 and annual gifts of \$3,000,
- 2) Program Sponsors, which is an initial gift of \$2,500 and annual gifts of \$1,500, and
- 3) Support Sponsors, which is an initial gift of \$1,000 and annual gifts of \$500.

Sponsors include: Neill Grading and Construction, David E. Looper and Company Inc., Matthews Construction, Hickory Mechanical, JK Landscaping and Grading, Hickory Homebuilders Association of Hickory and Catawba Valley, ServPro of Catawba County, Lake Norman Glass and Custom Closets, Century Fire Protection, T.M. Caldwell Plumbing, All County Plumbing LLC, Peoples Bank, Robinson Builders Mart, The Chamber of Catawba County, Lake Electric Company, Canella Heating and Air Conditioning Inc., Locke-Lane Construction, Inc., Troutman Plumbing & Heating Co., Minyard Plumbing, Inc., Brushy Mountain Builders, Inc., Hickory Plumbing & Heating Co., Inc., and Dennis L. R. Starnes Sr. Scholarship Endowment.



*2019 Class Instruction and On-the Job Learning
Source: Catawba Valley Community College*



*2019 Graduates and On-the Job Learning with Canella Heating & Air Conditioning
Source: Catawba Valley Community College*

[3.2] WayMakers: Durham's Skilled Trades Pathway Durham, NC



Source: Durham Public Schools

Partners: Durham Technical Community College (Durham Tech), Durham Public Schools (DPS), and local companies.

Roles:

- DPS manages the Skilled Trades Pathway, featuring CTE classes in the construction trades at Southern School of Energy & Sustainability (plumbing, HVAC, electrical, highway construction, and entrepreneurship) and coordinates work-based learning opportunities and pre-apprenticeships for high school seniors.
- Durham Tech manages the Construction Trades Programs (continued education), offering classes in carpentry, welding, architectural technology, and industrial systems technology, and coordinates apprenticeship opportunities; while also expanding the core Construction Fundamentals Course and sharing programming with DPS, creating a new plumbing lab and program, and offering new HVAC apprenticeship opportunities.
- Local employers provide support to the DPS Skilled Trades Pathway and the Durham Tech Construction Trades Programs by serving as guest instructors, providing work-based experiences for students, and advising on curriculum and training labs.

Participants: DPS students (approximately 60 will graduate annually from the high school portion of the pathway, which is open to students from any high school, including Orange County Schools) and Durham Tech students (approximately 80 of the 170 students enrolled in the construction trades at DT are involved in Apprenticeships related to WayMakers).

Programs: WayMakers is a public-private partnership that is bringing the skilled trades back into the high schools and creates clear pathways for students into further training and employment opportunities.

Facility: WayMakers is mobilizing ~3,500 SF of existing high school and 2,000 SF college lab space plus classroom facilities and programs, leveraging new resources to expand facilities and offerings, and providing better connections and communications for clear, well-supported career pathways in the skilled construction trades.

Funding: The A.J. Fletcher Foundation is the founding sponsor and awarded \$150,000 to Durham Tech and \$300,000 to Durham Public Schools.

Partners: The WayMakers Executive Committee includes Southeast for LeChase Construction, Holt Brothers Construction, Duke Energy, CT Wilson Construction, and Duke University Health System. There are ~40 additional employers involved across several counties, including Orange County.



Source: Durham Public Schools

[3.3] Goodwill Construction Skills Training Center Charlotte, North Carolina



Source: Goodwill Industries of the Southern Piedmont

Partners: Goodwill Industries of the Southern Piedmont, Charlotte-Mecklenburg Schools (CMS), Central Piedmont Community College (CPCC) and The ROC (Rebuilding Opportunities in Construction) have partnered together to build the Goodwill Construction Skills Training Center.

Roles: All four partners have key roles:

- Goodwill focuses on adult workforce development, wraparound support services, and managing the facility.
- CMS focuses on high school student recruitment, logistics, and advocacy.
- CPCC focuses on college credits and industry-certified instruction.
- The ROC focuses on teen workforce development, and industry apprenticeships and mentorships.

Participants: These four organizations work together under one roof with the capacity to train and certify more than 400 adults and 120 youth each year for in-demand trade skills employers are desperately seeking, at no cost to students. Any CMS student can participate in the youth programs, with active recruitment of junior and seniors from three high schools, and anyone in the community with a high school diploma or GED can access the adult programs.

Programs: The programs offered at the center focus on specialized areas like construction, carpentry, blueprint reading and estimating, and HVAC and electrical, which help high school students and adults access high-potential, family-sustaining trade careers at no cost to them. Skills in these specialized areas can lead to in-demand jobs with great earning potential, health insurance, and other benefits.

Facility & Funding: The facility is a \$2.5 million renovation of an existing 15,000 SF warehouse that formerly housed Goodwill's retail operations. The renovation costs include upfit and equipment, and the project received an initial \$500,000 investment from Christ Episcopal Church. The facility is conveniently located across from Phillip O. Berry Academy of Technology at 1335 Allegheny Street in West Charlotte, and is now a state-of-the-art training facility with laboratory bays filled with industry-specific equipment, allowing for hands-on training, and a "smart" classroom space for additional instruction.

Funding for the Building: Renovations to the building were made possible by the generous donations from the following companies, organizations, and individuals: Blythe Development, Charlotte Pipe & Foundry, Christ Episcopal Church, Darren & Kathryn Ash Foundation, DH Griffin Wrecking Co., Edifice, Inc., Freedom Communities, John M. Belk Endowment, Molly Shaw, PC Godfrey, Rodgers Builders, Shelco, Showalter Construction, SteelFab, The Leon Levine Foundation, The Sara Belk Gambrell Foundation, and Trinity Partners.

Funding for the Programing: Trades training programs are made possible with generous support from the following: City of Charlotte, Charlotte Works Grant, Fifth Third, J.E. Dunn, JP Morgan Chase, Wells Fargo, Sandra Cashion, Lowe's, Charlotte Mecklenburg Community Foundation, The Blumenthal Foundation, and Truist Foundation.





Source: Goodwill Industries of the Southern Piedmont

[3.4] Dwayne Peaslee Technical Training Center (Peaslee Tech) Lawrence, Kansas



Source: Dwayne Peaslee Technical Training Center

Partners: Business partners include local employers, Lawrence Home Builders Association, and the Lawrence Chamber; Education partners include Lawrence Public Schools (USD 497), University of Kansas, and surrounding community and technical colleges (Flint Hills Technical College, Johnson County Community College, and Neosho County Community College); Government and economic development partnerships include Douglas County Government, City of Lawrence, and Kansas Works.

Roles:

- Peaslee Tech staff provide overall facility and program management and teaching.
- Business partners provide apprenticeships and job opportunities, funding, strategic direction on the programming and curriculum, and ongoing marketing support.
- Government and economic development partners provide funding.
- Education partners provide teaching and curriculum alignment for stronger career pathways, and management of the co-located Lawrence College and Career Center.

Participants: In 2018, more than 800 adult and high school learners were served on campus, at companies throughout Douglas County, and at affiliated community college programs.

Programs: Peaslee Tech provides training in construction technology, industrial engineering technology, HVAC, welding, power plant technology, automotive technology, computers, and other areas, as well as custom training via short courses to industry partners. Peaslee Tech offers credentialed training to the public in the areas of commercial driving, pharmacy technician, Cisco computer networking, manufacturing technology, and industrial maintenance mechanic apprenticeship. Additionally, Peaslee Tech initiated programs to train carpenters, electricians, plumbers, and facilities maintenance technicians.

Facility: Peaslee Tech operates out of an 80,000 SF facility that was built in 1978 for aviation radio and renovated in 2014 for Peaslee Tech purposes. Peaslee Tech is a not-for-profit corporation that owns the facility and grounds. The facility had an appraised value of more than \$4 million in 2017. The facility is conveniently co-located with the newly constructed Lawrence College and Career Center (built in 2014), creating a workforce development campus for Lawrence that is accessible to public transit.

Facility Funding: The Douglas County Commission has funded \$200,000 toward the annual mortgage principle payment since 2017. It is anticipated that the final payment will be made in 2024.

Programming Funding: Peaslee Tech's ongoing funding is secured through several sources: leasing of space within Peaslee Tech, training tuition for apprenticeships, open-enrollment and custom courses, gifts and grants, and city/county funding.

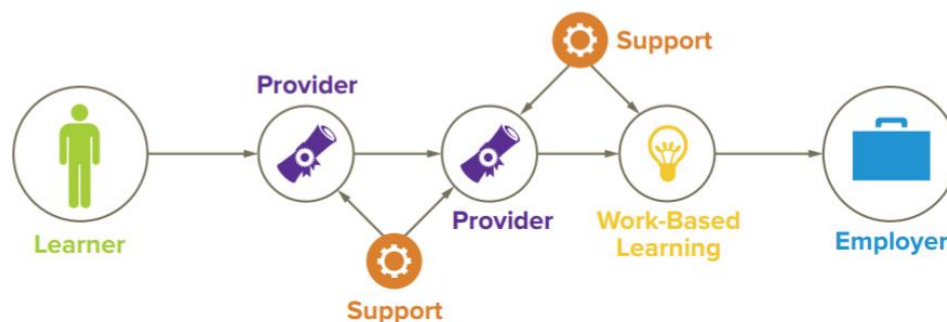


Source: Dwayne Peaslee Technical Training Center

SECTION 4: MAPPING THE TALENT PIPELINE

The construction trades talent pipeline starts with the learners, includes education providers, and culminates with the employers who provide jobs. Throughout the talent pipeline are available supports from regional, state, and national organizations that can strengthen and support the talent flow. The following is a graphic from the U.S. Chamber Foundation Talent Pipeline Management (TPM) Academy that depicts the talent pipeline and guides the analysis of the Orange County construction trades talent pipeline.

Image 4.1: U.S. Chamber Foundation Talent Pipeline Management Supply Chain



Source: US Chamber Foundation

[4.1] Learners

Primary Learner Population: If Orange County were to offer more training options for learners, including youth, teens, and adults, then the primary learner population emerging from this study is re-careering adults. Orange County’s immigrant population as well as those formerly working in retail, hospitality, service, and other COVID-impacted industries were identified by the Study Group and key stakeholders as ideal prospective learners.

Pilar Rocha-Goldberg, President & CEO of El Centro Hispano affirmed that connecting immigrants to construction training in Orange County is something that her organization has discussed in-depth, reinforced that El Centro Hispano is “always looking for trainings for our workers,” and acknowledged that “it would be great if Durham Tech could provide these trainings at their Orange County site” (P. Rocha-Goldberg, personal communication, May 14, 2020). El Centro Hispano would be one of dozens of local community organizations and agencies that should be engaged in the recruitment process of re-careering adults in Orange County.

It is worth noting that the NC Community College System’s continuing education classes, including the construction trades courses, do not require citizenship. As such,



learners who are immigrants without documentation would be eligible for formal training programs.

Secondary Learner Population: A secondary learner population emerging from this study is high school students. However, this study also surfaced long-standing negative perceptions of the skilled trades among Orange County's high school students and apprehension among parents to support their children on this career pathway. These attitudes toward the skilled trades may require additional recruitment efforts for successful enrollment of high school learners into a future Orange County training program.

Representatives from several of the model training centers studied acknowledged that they, too, have had to navigate negative perceptions of the skilled construction trades in their communities. To overcome these perceptions, training center staff have implemented interventions to address this recruitment challenge, including in-person outreach efforts, intentional engagement with the parents, and a clear and persuasive presentation of the high pay, high demand jobs in the construction trades. Together, these efforts have proven that the negative perception is not insurmountable.

STEER Initiative: The Hillsborough Chamber has a new program underway to actively address the negative perception of the skilled trades and engage more young people (rising 10th and 11th grade students) in career opportunities in Orange County, including construction. The program, called "Students Transforming Expectations & Exploring Real Opportunities" (STEER), is a one-day a month, school year-long career exploration for Orange County youth (~14 youth per year).

This workforce pipeline development initiative is coordinated in partnership with the Orange County 4-H, is free for students compliments of Duke Energy and BB&T now Truist, and includes visits to businesses in key industries (agriculture, construction, hospitality, healthcare, information technology, manufacturing, energy, and more). The program helps students develop new connections, leadership and teamwork skills, as well as career skills such as time management, self-motivation, personal finance, communication, and positive attitude.

STEER is designed to help students gain apprenticeships and part-time jobs that culminate in long-term careers in Orange County after high school graduation. This initiative, which was launched in 2019, was recognized by the 2020 NC Association of Extension 4-H Agents with the "Excellence in Workforce Development Programming Award." The Study Group believes programs like STEER are important for building the Orange County workforce talent pipeline in the construction trades, and there is an opportunity for county leaders to intentionally engage middle school students (7th and 8th graders) in career awareness as well.

More Information on Learners: A list of many community organizations and agencies that reach prospective learners, including youth, teens, and adults is listed in Appendix E, “List of Learners.”

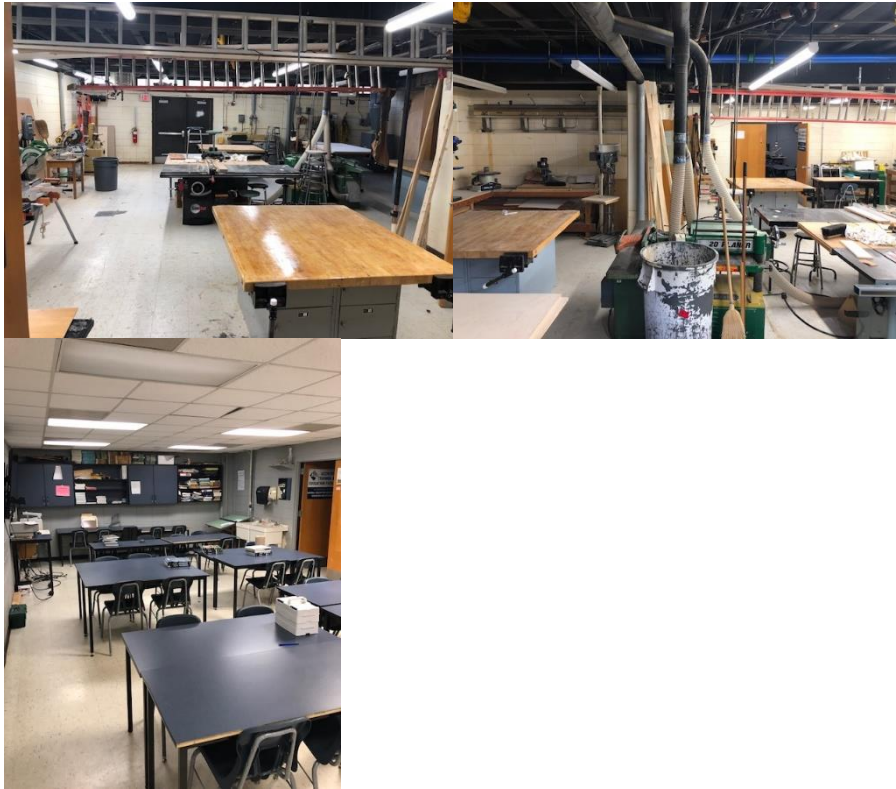
[4.2] Educators

Training Programs in Orange County: There are minimal providers of educational training opportunities in the construction trades in Orange County. Currently, there are three options: 1) Orange County Schools Career and Technical Education (CTE) Construction Technology Career Pathway, which serves approximately 80 students per year; 2) Hope Renovations’ nonprofit construction training program, which now serves approximately 8-12 women at a time through a 12-week training program; and 3) on-the-job training provided to those currently employed at construction companies. Other than these three limited training options in Orange County, interested learners, including re-careering adults, must travel to surrounding counties for formal construction training.

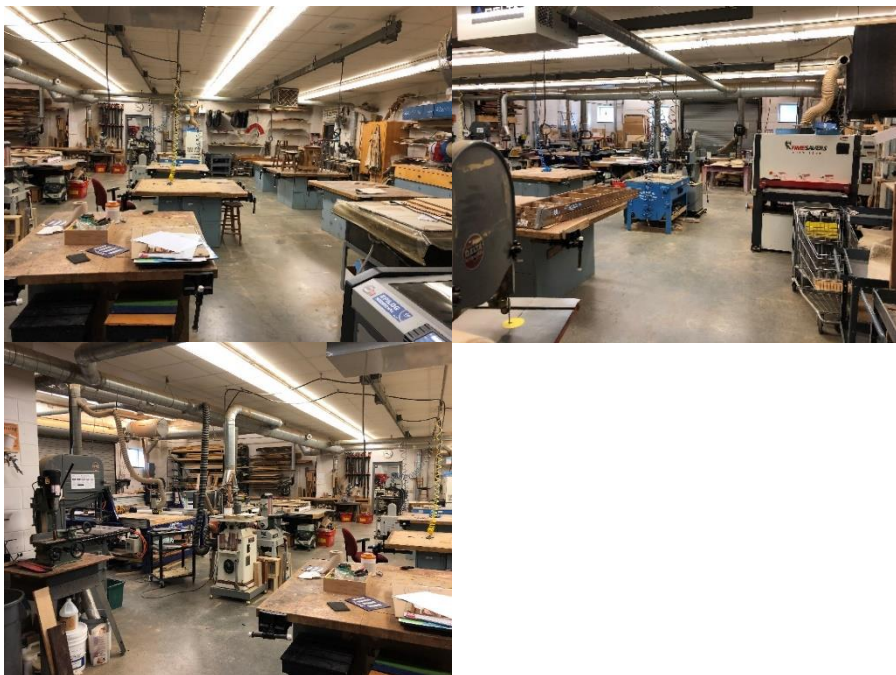
Orange County CTE: Students at Orange County Schools have access to a CTE construction technology career pathway, but Chapel Hill-Carrboro City Schools students do not have related classes. Participants in the Orange County Schools CTE program can start with middle grades exploration, engage in high school classes at Orange High School, and progress through the Career & College Promise Career Technical Education Pathway. Along the way, students can earn industry-recognized credentials, including the OSHA 10 Hour Industry Certification and the NCCER certification. CTE construction classes include Core Construction, Construction Technology II and III, and CTE Advanced Studies, including an opportunity for an Apprenticeship or Internship.

The Orange County Schools CTE construction technology career pathway is at capacity serving the state required maximum of 20 students per class per semester. Core Construction is offered in the fall and spring, serving a total of 40 students, and Construction Technology II and III are offered in the fall and spring respectively, also serving a total of 40 students. (S. Braxton, personal communication, Jan 23, 2020). In addition, related construction industry skills can also be developed through participation in other CTE pathways offered, including welding skills through Agriculture Mechanics at Orange High School and Cedar Ridge High School, and carpentry skills in Woodworking and Furniture Making classes at Cedar Ridge High School.

Orange County Schools have a total of 4,100 SF available for classroom and lab instruction space for the construction trades, including 1,200 SF at Orange High School and 2,900 at Cedar Ridge. Each year, Orange County construction technology students have the opportunity to build a habitat house as part of the Hands for Habitat service-learning project, which began in the 2009-2010 school year. More information about the Orange County Schools CTE construction technology career pathway is available at <https://www.orangecountyfirst.com/Page/141>.



Source: Images of Orange High School Construction Lab provided by Orange County Schools

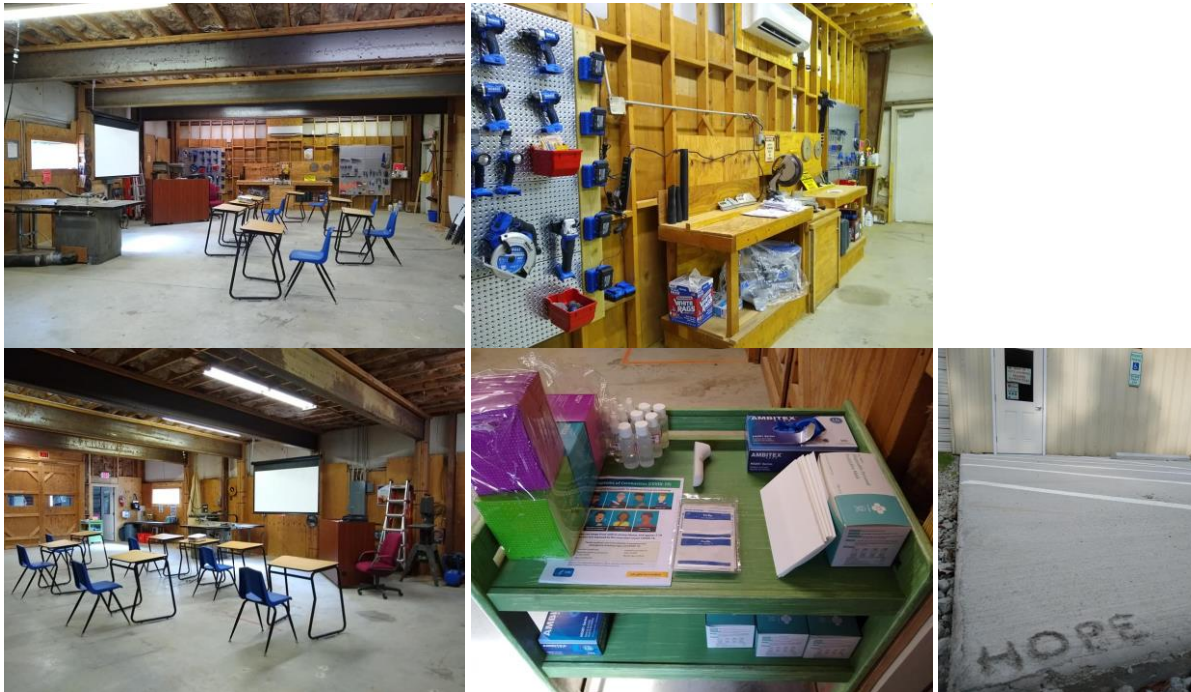


Source: Images of the Woodworking Lab at Cedar Ridge High School provided by Orange County Schools



Source: Image of Orange County Schools & Habitat for Humanity "blessing of the home" Kickoff Ceremony for new Habitat House on September 12, 2019; <https://www.orangecountyfirst.com/Page/152>

Hope Renovations: Orange County women have access to a new construction training program, called Hope Renovations. The launch of the program was put on hold due to COVID-19 but is now in operation and serves approximately 8-12 women at a time through a 12-week training program. More information on Hope Renovations can be found Section 5.1 and at <https://www.hoperenovations.org/>.



Images: Hope Renovations Construction Training Lab at Fitch Lumber in Carrboro, NC on July 5, 2020.
Source: Hope Renovations.



Images: Hope Renovations Construction Training Lab at Fitch Lumber in action in Carrboro, NC on July 6 and 10, 2020.

Source: Hope Renovations.

On-The-Job Training: Some Orange County residents currently employed in the construction industry have access to on-the-job training from their employer. More information on OJT is in Section 4.3.

Training Opportunities in Surrounding Counties: Surrounding counties offer construction training through their respective community colleges: Durham Tech serves Durham County (and Orange County), Central Carolina Community College serves Chatham County, Alamance Community College serves Alamance County, and Piedmont Community College serves Caswell and Person Counties.

The construction trades training classes provided in surrounding counties include continuing education classes as well as certificate, diploma, and/or degree options. Representatives from these institutions confirmed that the classes are largely at capacity and public transportation from Orange County to these programs can be a barrier for many. Also, in interviews, one stakeholder mentioned that the community colleges do not actively advertise outside the counties they directly serve, suggesting Orange County residents likely know little about the training opportunities available in surrounding counties, such as the highly-regarded sustainable green building program in northern Chatham County at Central Carolina Community College.

Table 4.21 is a list of courses offered in the construction trades at the community colleges serving the counties surrounding Orange County and their respective enrollments or registrations in 2018-2019. This list was produced by the North Carolina Community College System on May 21, 2020.

Table 4.21 Construction Trades Classes at Surrounding Community Colleges

Chapel Hill/Carborro Region						
College	Workforce Bd	Career	Program - Reported in Catalog	Enrollment - 18-19	Non-Degree/Con.Ed.	Registrations
Alamance CC	Regional Partnership	HVAC Technician	HVAC	395	Apprentice: Electrical	
		Carpenter	Carpentry	5	Cabinetmaking	40
		Instrumentation Technician	Mechatronics Engineering Technology	74	Commercial/Residential Wiring	14
		Industrial Maintenance Mechanic	Mechatronics Engineering Technology		Plumbing	37
			Industrial Systems Technology	50	Welding	16
		Instrumentation Fitter	Mechatronics Engineering Technology	74		
		Millwright	Computer-Integrated Machining	134	Construction Building Trades	45
		Welder	Welding Technology	423		
Central Carolina CC	Triangle South	Project Supervisor	Building Construction Technology	85	Carpentry: Introduction	
		Carpenter	Capentry	77	Construction Building Trades	28
		Mason	Masonry	56	Masonry	13
		Electronics Systems Technicians	Electronics Engineering technology	156	Residential Framing	
		Instrumentation Technician	Electronics Engineering technology		Welding	45
		Millwright	Computer-Integrated Machining	152		
		Industrial Maintenance Mechanic	Industrial Systems Technology	162	Commercial/Residential Wiring	2
		Welder	Welding Technology	674	Electricity & Electronics, Basic	11
Durham Tech	Durham WDB				Plumbing	1
		Electrician	Electrical Systems Technology	226	Carpentry: Introduction	25
		Project Supervisor	Archetctural Technology	111	Construction Building Trades	22
		Project Management	Archetctural Technology		Construction Estimating	
		Electronics Systems Technicians	Electronics Engineering technology	61	Masonry	12
		Instrumentation Technician	Electronics Engineering technology		Welding	25
		Millwright	Computer-Integrated Machining	63		
		Industrial Maintenance Mechanic	Industrial Systems Technology	23	HVAC: Heating, Air Conditioning & V	29
Piedmont CC	Kerr-Tar NorthWest Piedmont	Welder	Welding Technology	75	Cabinetmaking	21
					Plumbing	21
					Commercial/Residential Wiring	46
		Carpenter	Carpentry	79	Electricity & Electronics, Basic	8
		Electrician	Electrical Systems Technology	72	HVAC: Heating, Air Conditioning & V	114
		Electronics Systems Technicians	Electronics Engineering technology	5	Masonry	63
		Instrumentation Technician	Mechatronics Engineering Technology	7	Residential Framing	77
		Instrumentation Fitter	Mechatronics Engineering Technology		Welding	61
		Power Generation Technician	Electrical Power Production Technician	33		
		Welder	Welding Technology	306		
		Industrial Maintenance Mechanic	Industrial Maintenance Tech	40		

Source: NC Community College System

Training Programs in Durham at Durham Tech: Durham Tech serves the post-secondary educational needs of Orange County residents with credit and non-credit bearing classes in the construction trades that are offered at facilities in Durham County. According to Maryah Smith-Overman, Director of the Construction Trades program at Durham Tech, the most in-demand construction-related classes at Durham Tech (i.e. those regularly at-capacity and/or have a waitlist) are HVAC, Welding, and Carpentry. Further, when operating at full capacity within their existing space, Durham Tech is still not able to meet the employer demand for skilled construction trade talent. The greatest employer needs they are seeing in the construction trades at Durham Tech are skilled talent in HVAC repair, commercial carpentry entry-level positions, and supervisors across all trades. When considering both the credit and non-credit bearing classes at Durham Tech in the construction trades, only approximately 6 to 13 percent of the students are Orange County residents in 2019-2020 (M. Smith-Overman, personal communication, May 27, 2020).

Durham Tech's non-credit bearing classes, which are known as continuing education, have approximately 170 students registered each year across 13 different courses: Carpentry, Masonry, Plumbing, HVAC, Electrical apprenticeship, Cabinetry, Welding, Woodworking, Blueprint reading and Core Construction Fundamentals, which is offered at various levels. Table 4.2 summarizes the registration and capacity of non-credit construction trades courses at Durham Tech.

Table 4.22: "Registration and Capacity in Durham Tech's Non-credit Construction Trades Courses, 2019-2020"

Course Type	Class	Registration	Capacity
Non-credit	Introduction to Carpentry	25	24
Non-credit	Construction Estimating	10	15
Non-credit	Masonry	12	12
Non-credit	Welding	25	24
Non-credit	HVAC: Heating, Air Conditioning & Ventilation	29	26
Non-credit	Cabinetmaking, Woodworking	21	24
Non-credit	Plumbing	21	24
Non-credit	Electrical Apprenticeships	70	Capacity fluctuates

Source: Durham Technical Community College

Durham Tech's credit-bearing courses in the construction trades have approximately 246 students enrolled each year across approximately six areas: Electrical Systems Technology, Architectural Technology, Electronics Engineering technology, Computer-Integrated Machining, Industrial Systems Technology, and Welding Technology.

Table 4.23 summarizes the enrollment of credit bearing construction trades courses at Durham Tech in 2018-2019 as confirmed by the Dean. While most of these classes are considered at-capacity, this table does not include capacity numbers for several reasons. First, curriculum programs do not necessarily have fixed capacities. In some cases, additional demand for a class could result in an additional section being added depending on the availability of an instructor and lab time. Second, students are admitted into the program, but may not take technical classes every semester (i.e. some students are in the program but take general education or development classes).

Table 4.23 “Enrollment in Durham Tech’s Credit-bearing Construction Trades Courses”

Course Type	Class	Enrollment
Credit	Electrical Systems Technology	226
Credit	Architectural Technology	111
Credit	Electronics Engineering technology	61
Credit	Computer-Integrated Machining	63
Credit	Industrial Systems Technology (including HVAC certificate)	23
Credit	Welding	75

Source: Durham Technical Community College

University Training Programs Across NC: Of the 5 Star Jobs in “Architecture & Construction” for the Raleigh-Durham Region, three require a bachelor’s degree: Construction Managers, Civil Engineers, and Cost Estimators. For learners who wish to earn a four year university degree in the construction trades, such as Construction Engineering or Construction Management, there are at least six university programs in NC: 1) NC State University (Construction Engineering), 2) East Carolina University (Construction Management), 3) North Carolina A&T State University (Construction Management), 4) UNC Charlotte (Engineering Technology and Construction Management), 5) Western Carolina University (Construction Management), and 6) Appalachian State (Construction Management). Build Your Career, a workforce development initiative of the Carolinas Association of General Contractors (AGC) and the NC Community College System (NCCCS), offers more information on these university programs at <https://buildyourcareer.us/university-programs>.

More Information on Educators: A list of formal and informal educational providers serving Orange County residents as well as contact information for each primary representative is included in Appendix F, “List of Educators.”

[4.3] Employers

In Orange County, the construction industry ranks in the top ten both in the number of enterprises and overall sales, ranking sixth with 467 enterprises and \$685 million in sales according to The Chamber For a Greater Chapel Hill-Carrboro (2019, p. 20-21).

There are many types of enterprises that employ those skilled in the construction trades in Orange County, including small, mid-size, and large businesses (i.e. Sparrow & Sons Plumbing, Inc., Resolute Building Company, and Summit Engineering and Design), educational institutions and nonprofit organizations (such as UNC-Chapel Hill and UNC Health), and government agencies (such as Orange County Government). These enterprises need skilled construction workers for a variety of projects, from the construction of new facilities and installation of new products to the maintenance and repair of existing facilities and infrastructure.

Recruitment: Filling these high demand construction jobs is a well-documented challenge. In fact, as already mentioned in Section 1.1 paragraph six, construction companies report a higher level of difficulty in filling open positions, with longer vacancies than any other industry in the state (NC Works Commission, 2016).

This recruitment challenge begs the questions of how construction companies recruit talent and if they are making full use of their local talent pipeline, including community colleges. Interestingly, as outlined in Table 4.31, construction companies in NC lean significantly more than other industries on “word of mouth” (91%) and significantly less on community colleges (19%) in their employee recruitment efforts (NC Works Commission, 2016, p. 12). Compared to other industries, the construction industry relies far less on local community colleges (19%) for their talent recruitment than the health care industry (36%), STEM (27%) or the overall industry average (25%). According to this same study, construction companies are more reliant on recruiting agencies/temporary employment services (29%), local newspapers (25%), and postings on job boards (i.e. monster.com or indeed) (24%) than leveraging the local community college.

Table 4.31
 “Resources used by Employers for Recruitment”

	Overall	Manufacturing	Construction	STEM	Health Care
Word of Mouth	85%	88%	91%	88%	93%
Internet Postings on NCWorks Online	19%	20%	16%	12%	16%
Internet Postings on Company Job Boards	31%	20%	17%	33%	32%
Postings on Job Boards, i.e. Monster.com or Indeed	32%	32%	24%	37%	37%
Social Networking Websites, i.e. Facebook or LinkedIn	24%	15%	20%	29%	24%
Local Newspapers	23%	28%	25%	16%	39%
NCWorks Career Center	11%	12%	9%	5%	10%
Community or Technical Colleges	25%	21%	19%	27%	36%
4-Year Colleges and Universities	19%	13%	11%	26%	24%
Recruiting Agency/Temporary Employment Services	19%	33%	29%	19%	18%

Highlighted percentages indicate a statistically significant difference from the Overall sample.

Source: NC Department of Commerce Labor & Economic Analysis Division (LEAD)

This finding of the ways NC construction companies recruit employees could indicate that a simple shift in recruitment efforts among construction companies (such as direct recruitment from local colleges) may yield more applicants and stronger results. This statewide finding was reinforced locally through the Hanover Report (2017), which recommended “Durham Tech should consider expanding its advertising and communication in Orange County, including reaching out to small businesses and high schools. Employers report that there is limited awareness of Durham Tech’s offerings in Orange County” (p. 4). However, anecdotal interviews and discussions with local employers through this study found the opposite. Local employers, including C.T. Wilson, CQC Homes, Chapel Hill-Carrboro City Schools, and UNC-Chapel Hill all successfully engage with the local community colleges in their recruitment efforts and still face a very difficult worker shortage.

Training: These same local employers and others in this study verified a great deal of time and effort put into OJT to get new hires to expected and desired level of job performance. This is consistent with the statewide finding that 91% of construction companies rely on OJT as outlined in Table 4.2, which is found in the 2016 Employer Needs Survey (p. 28).

Table 4.32
 “Resources Used to Meet the Workforce Skill Needs”

	Overall	%	Missing	Mfg.	%	Missing	Constr.	%	Missing	STEM	%	Missing	Health Care	%	Missing
On the Job Training	391	97%	1	341	94%	13	312	91%	15	304	89%	18	360	95%	7
Private Vendor Training	84	21%	1	55	15%	12	71	21%	16	82	24%	20	112	30%	8
Community College Programs	70	18%	3	62	17%	15	50	15%	17	57	17%	20	96	26%	9
4-Year Universities/Colleges	56	14%	3	23	6%	15	25	7%	17	54	16%	20	62	17%	10
Apprenticeship Programs	43	11%	3	48	13%	14	42	12%	17	71	21%	20	71	19%	9
Other	52	13%	0	29	8%	0	33	9%	0	42	12%	0	53	14%	0
# of Cases	403			376			356			359			384		
None Across the Board*	25			0			0			0			0		

*Note: All cases that provided 0s for each category were considered to be missing, and were not used in calculating %. These are found in 'None Across the Board.'

Highlighted percentages indicate a statistically significant difference from the Overall sample.

Source: NC Department of Commerce Labor & Economic Analysis Division (LEAD)

At first glance, this level of OJT in the construction industry may appear high (91%), but it is actually significantly lower than the overall average (97%) and arguably should be increased given the high expectation for safety measures at worksites. Another point of interest in resources used by employers in the construction industry to meet their workforce skill needs is the arguably modest levels of community college programs (15%) and apprenticeship programs (12%) used. These data precede the launch of the Durham WayMakers initiative, so it is likely that this state percentage does not reflect the Raleigh-Durham Region, where many local employers are actively engaged in apprenticeship programs with Durham Tech to meet their workforce skills needs.

It is worth noting that all local employers interviewed in this study expressed interest in deepening their level of engagement and strengthening the construction trades talent pipeline in Orange County, including offering more work-based learning experiences such as job shadowing and apprenticeships, speaking to students about job opportunities, and contributing financially and/or with in-kind donations to a future training center in Orange County.

Retention: Employee retention was not a topic of significant discussion among the study group or in the literature reviewed. However, relatively high employee turnover was acknowledged by some local employers as a reality in the industry as individuals gain skills at a company and then resign to start their own business. This is a topic worth further exploration if county leaders wish to better understand the full talent pipeline.

More Information on Employers: See Appendix G, “List of Employers,” for a non-exhaustive list of employers in the Orange County construction trades talent pipeline. These employers are members of the Study Group, members of the chambers in Chapel Hill and/or Hillsborough, and/or members of WayMakers and likely offering work-based learning opportunities. These employers are ideal prospects for engagement in the development of a future Orange County training center.



[4.4] Supports

There are many organizations at the national, state, and regional level that provide support for the local construction trades talent pipeline. These support organizations help bolster the workforce development system to meet the needs of employers; however, they make up a complex web of organizations, initiatives, and funding streams that can be difficult to understand. The following is a summary of some of the key stakeholders.

National: The primary legislation guiding the national workforce development system is the Workforce Innovation and Opportunity Act (WIOA), which was signed into law in 2014 to better coordinate federal workforce development and related programs across several federal agencies. The full text of WIOA, H.R. 803, is available at www.congress.gov/113/bills/hr803/BILLS-113hr803enr.pdf. Some of the US agencies involved in workforce development include the US Department of Labor, which manages employment data and produces reports through the Bureau of Labor Statistics (BLS); the US Department of Commerce, which manages industry data and produces reports through the Bureau of Economic Analysis (BEA); and the US Department of Education, which oversees student loans and grants, directs the nation's post-secondary education and CTE programs, and manages student outcome data through the National Center for Education Statistics (NCES).

State: NC Department of Commerce supports the state's workforce system, including managing data and producing reports through its Labor & Economic Analysis Division (LEAD) and providing job information and training through its Workforce Solutions Division. The policies and strategies of the state workforce system is guided by the NCWorks Commission and funded through WIOA, the Wagner-Peyser Act, and the Trade Adjustment Act, as well as special grants. The state's direct programs and services are delivered through 23 regional workforce boards and more than 80 NCWorks Career Centers. More information about the state's workforce system is available at www.nccommerce.com/about-us/divisions-programs.

In addition, the NC Community College System (NCCCS) provides oversight to the state's 58 community colleges, manages statewide community college data, supports economic development with innovative partnerships and services, and runs ApprenticeshipNC to develop work-ready, skilled talent to meet current and future employer needs. More information about the NCCCS is available at www.nccommunitycolleges.edu, and ApprenticeshipNC at www.apprenticeshipnc.com.

Regional: The Regional Partnership Workforce Development Board (RPWDB) is the workforce board that serves a five-county region, including Orange, Alamance, Montgomery, Moore, and Randolph. The board is dedicated to strengthening the region's labor market and building regional competitive advantage. RPWDB sets the strategic direction for workforce development throughout the five-county region,

provides tools, services, and support at no or low cost to employers and job seekers, and oversees the region's NCWorks Career Centers. In addition, RPWDB stewards WIOA funds for the region. More information about the RPWDB is available at <https://regionalpartnershipwdb.org>.

The NCWorks Career Center in Orange County is based in Chapel Hill, is managed by Orange County Government, and is a one-stop for job seekers, including access to employment opportunities, job training, and referrals to relevant community-based agencies. The center provides support to employers to address talent needs, including employee training resources and staffing support. More information on the NCWorks Career Center in Orange County is available at www.orangecountync.gov/1823/NC-Works-Skills-Development-Center.

There is also an Orange Works Employment and Training Center, which is an expansion of the Orange County Department of Social Services and is designed to help individuals get the skills needed for self-sufficiency. Durham Tech provides an education navigator at this site, who refers prospective students to construction and other related courses. Students who are on government assistance such as Supplemental Nutrition Assistance Program (SNAP) may be eligible for full financial tuition assistance. More information on this training center is available at <https://www.orangecountync.gov/1820/Orange-Works-Employment-and-Training-Cen>.

More Information on Supports: A more complete list of support organizations is available in Appendix H, "List of Support Organizations."

SECTION 5: FEASIBILITY OF A TRAINING CENTER

Many variables were considered in the process of determining the feasibility of a training center in Orange County, including the location being in a population center, proximate to an interstate, and/or accessible to public transit, and for the site to be able to support a ~10,000 SF training facility and have sufficient parking; but the most important variable considered was site type.

The Study Group considered four site types:

- 1) Contract with an existing training program;
- 2) Lease existing warehouse;
- 3) Buy existing warehouse; and
- 4) Construct new facility on county-owned land.

With the help of local commercial realtors, the Study Group explored all four site types. Orange County options were very limited, but we were able to identify at least one existing option (as of May 22, 2020) for each site type sufficient for financial modeling purposes. The following are details on each site type option.

[5.1] Option #1: Contract existing training program



Source: Hope Renovations

- **What:** Hope Renovations Training Center
- **Location:** Fitch Lumber Company, Warehouse 4, 502A N. Greensboro St, Carrboro, NC 27510
- **Facility:** Existing 1,200 SF warehouse in downtown Carrboro already retrofitted into a construction trades training center with sufficient parking and accessible to public transit
- **Curriculum:** Offering Home Builder Institute (HBI) licensed curriculum through the National Association of Home Builders (NAHB) and is currently in the process of becoming a registered NC Pre-Apprenticeship program. This is a new training program that began instruction on July 6, 2020. Possible contract training opportunities available.
- **Cost Estimate:** ~\$75-\$125 per instruction hour with maximum 12 students/class and minimum of a 4-hour class. Example: 4-hour training would be ~\$300-\$400 and 80-hour training, like HBI carpentry, would be ~\$6,000-\$10,000.
- **Contact:** Nora Spencer, Founder and CEO, Hope Renovations, nora@hoperenovations.org, 919-921-8460 (cell)
- **Learn more:** www.hoperenovations.org
- **Note:** This is the only existing option of this site type in Orange County.

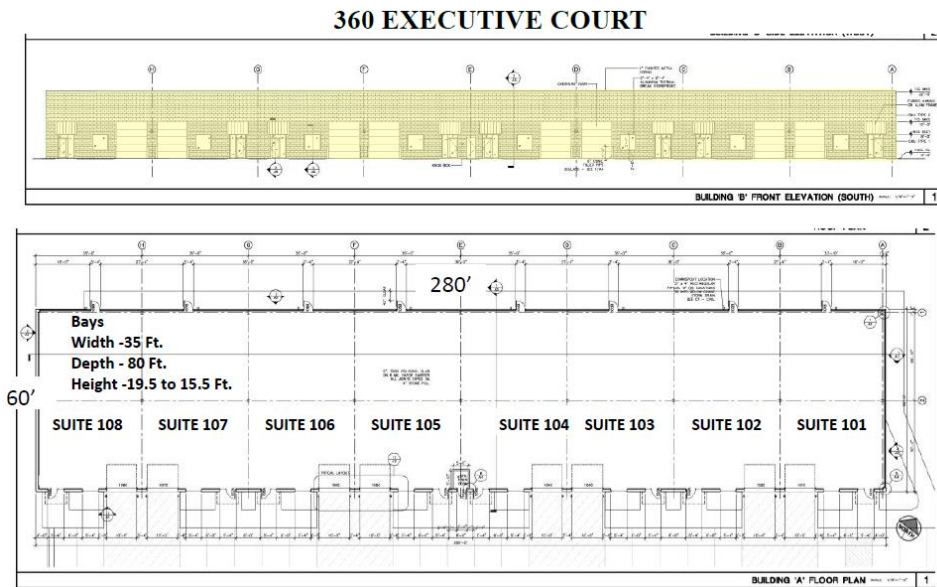
[5.2] Option #2: Lease Existing Warehouse



Source: Eno River Mill

- **What:** Eno River Mill
- **Location:** Eno River Mill, Suite 45A, 437 Dimmocks Mill Rd., Hillsborough, NC 27278
- **Facility:** Existing 10,000 SF unfinished warehouse space available for lease within 1 mile of the Interstates 40/85 split, includes parking, and approved for many uses including light manufacturing. Example: Suite 45A is 16,000 SF that can be cut to 10,000 SF at ~\$6/SF plus ~\$2.70/SF TICAM, build-out, and utilities. Space has a restroom and some temporary walls for offices and would need updates on bathrooms, plumbing, electrical, HVAC, and to become ADA compliant.
- **Cost Estimate:** \$1,177,000 for a 5-year lease, site costs, hard costs, FF&E, soft costs, and other costs.
- **Contact:** Carrie Ehrfurth, Historic Preservation Specialist, Hedgehog Holdings, cehrfurth@hedgehogholdings.com, 919-434-1439 (cell)
- **Learn more:** www.enorivermill.com/copy-of-suite-29

[5.3] Option #3: Buy Existing Warehouse



Source: Tryon Business Center II

- **What:** 360 Executive Court, Hillsborough
- **Location:** 360 Executive Court, Hillsborough, NC 27278
- **Facility:** New Flex/Warehouse/Office space available for purchase (or lease) located in the Meadowlands Office/Industrial Park off Business 70-A with easy access to I-85 at Exit 165 and I-40. Purchase price is \$150/SF plus ~\$1/SF CAM and includes \$15/SF up-fit allowance and sprinkler system.
- **Cost Estimate:** \$1,996,500 including \$1,510,000 purchase price plus hard costs, FF&E, soft costs, and other costs.
- **Contact:** Mark O'Neal, CCIM, Pickett Sprouse Commercial Real Estate: A West & Woodall Company, mark.oneal@westandwoodall.com, 919-287-3051 (cell)
- **Learn more:** www.loopnet.com/Listing/360-Executive-Ct-Hillsborough-NC/11186689/

[5.4] Option #4: Construct New Facility



Source: Orange County Government

- **What:** County-owned land, 3800 US-70 West, Efland
- **Location:** 3800 US-70 West, Efland, NC 27243
- **Facility:** Outparcel on county-owned land where the emergency services substation is along Highway 70 West in Efland available for new construction of 10,000 SF facility (must tear-down old residence on site).
- **Cost Estimate:** \$2,464,000, assumes no lease fee or land costs from county and includes site work, hard costs, FF&E, soft costs, and other costs.
- **Contact:** Alan Dorman, Asset Management Services, Orange County Government, adorman@orangecountync.gov, 919-619-8859 (cell)
- **Learn more:** www.google.com/maps/place/3800+US-70,+Efland,+NC+27243/@36.0806834,-79.1766074,139m/data=!3m2!1e3!4b1!4m5!3m4!1s0x89acd84a1ff54035:0x94c596b32dbf340e!8m2!3d36.0806834!4d-79.1760602
- **Note:** This parcel is no longer an option, but there is one other county-owned property that is available for consideration: 600 Hwy 86 North (north of downtown Hillsborough) across from the intersection of Hwy 86 and 57, which is the area around the Motor Pool (GPIN: 9865833029).

[5.5] Cost Estimates

The following is a feasibility table (Table 5.51) which summarizes the estimated costs to develop a training center for each site type. Estimates were generated by Daniel A. Jewell RLA, ASLA, President, Coulter Jewell Thames (professional engineering, land surveying, and landscape architecture firm) and Phillip Post, President, Philip Post & Associates, (civil engineering and land surveying firm). More detailed information and all assumptions are included in Appendix I, "Feasibility Study Supplemental Information."

Table 5.51: Feasibility of Orange County Construction Trades Training Center

Description	<u>Option #1</u> Contract Existing Training Program	<u>Option #2</u> Lease Existing Warehouse	<u>Option #3</u> Buy Existing Warehouse	<u>Option #4</u> Construct New Facility
Example Site	Hope Renovations Carrboro	Eno River Mill Hillsborough	360 Executive Ct Hillsborough	3800 US-70 West Efland
Lease Fee / Purchase Price	~\$75-\$125/ Instruction Hour	\$435,000	\$1,510,000	\$0
Land	\$0	\$0	\$0	\$0
Site Work	\$0	\$25,000	\$0	\$400,000
Hard Cost	\$0	\$300,000	\$5,000	\$1,250,000
FF&E	\$0	\$250,000	\$250,000	\$250,000
Soft Costs	\$0	\$60,000	\$50,000	\$340,000
Other Costs	Max. 12 students/ class; Min. 4-hour class	\$107,000	\$181,500	\$224,000
TOTAL	Negotiable	\$1,177,000	\$1,996,500	\$2,464,000

Note: Table includes construction and start-up costs only. All four were realistic options on May 22, 2020.

[5.6] Administrative Structure

If key stakeholders choose to move forward with a Tradecraft Training Center in Orange County, decisions will need to be made on which site type is best fit for purpose. The site type decision will help inform the most appropriate administrative structure of the future training center as well as all elements involved in establishing the center, developing the operations, and managing the overall talent pipeline to maintain momentum.

This study uncovered several specific skillsets among key stakeholders that should be considered when determining roles and responsibilities for the development of a future training center, including its administrative structure and the overall talent pipeline management.

- Durham Tech and the CTE Directors at the County and City public schools are strong in curriculum design and instruction, program management, and instructor recruitment, training, and retention. Additionally, both should be well-positioned to help lead student recruitment.
- HBA has steep knowledge of the construction industry and strong relationships with employers, and is well-suited for program design, partnership development, and securing employer commitments (funds, in-kind donations, work-based learning experiences, and jobs). In addition, the HBA is well-positioned to lead the site and facility negotiations as well as manage the renovations and/or construction.
- The Chamber For a Greater Chapel Hill-Carrboro is strong in stakeholder relations, project management, and meeting facilitation, and could be useful in helping manage the talent pipeline and facilitating a diverse business-led coalition to build momentum.
- The County and Town Governments and the Regional Partnership Workforce Development Board could provide financial and in-kind resources as well as strategic insights and direction.

It is important to acknowledge that this Feasibility Study captures estimated construction and start-up costs, but not ongoing operation costs, including personnel (instructors and administrative staff, security, cleaners) and non-personnel (hardware/software, textbooks/supplies, utilities, and maintenance/repairs).

SECTION 6: OTHER FINDINGS

[6.1] Short-Term Construction Training Opportunities

Throughout the study, constructive conversations among key stakeholders unfolded and two new opportunities emerged that could immediately bolster the construction trades talent pipeline in Orange County at no and relatively low costs.

The first opportunity is to officially expand WayMakers so that it includes Orange County. A conversation with Tom Jaynes, Interim President of Durham Tech, on July 7, 2020, revealed that the original intent of WayMakers was to be a regional initiative. As such, formally engaging Orange County Schools (OCS) in the collective and ensuring mutually reinforcing programming would be a logical next step. OCS CTE Director Shannon Braxton expressed openness to conversations that could move this WayMakers expansion opportunity forward in the coming months. If done well, expanding WayMakers to include OCS would help Orange County high school students access more apprenticeship opportunities and have a clearer and more energized pathway into the construction trades, and employers would have greater access to Orange County talent.

The second opportunity that emerged from the July conversation with Interim President Jaynes is for Durham Tech faculty to possibly teach construction classes for adults in the construction lab at Orange High School after-hours (evenings and weekends). While Durham Tech traditionally has not sent faculty off-site for teaching, a new policy was implemented at Durham Tech within the last two years. This new policy, which allows Durham Tech faculty to deliver off-campus instruction, was implemented to overcome transportation barriers, improve student access, and achieve more equitable student outcomes. With this new policy, a conversation between Durham Tech and OCS is now possible, and OCS CTE Director Braxton expressed an openness to exploring this opportunity further. It is important to note that this opportunity likely has financial implications, including modest fees for use of OCS space and equipment and Durham Tech instructors.

The Study Group recommends Orange County Commissioners consider supporting both emerging opportunities for immediate improvement in the Orange County construction trades talent pipeline.

[6.2] COVID-19 Implications

The study was authorized and largely conducted prior to the global coronavirus pandemic. NC is currently under a “Safer at Home” executive order authorized by Governor Cooper (more information at www.nc.gov/covid-19/covid-19-executive-orders). The impacts of the global pandemic and the statewide response on the regional economy, local workforce, and future training programs are still being determined. The following are some insights gathered to help Orange County leaders make sense of the pandemic as it relates to the construction trades talent pipeline and the possibility of a future training center.

Residential Construction: While there is a predicted commercial/non-residential construction slump according to the Wall Street Journal in early May (Tita & Hufford, 2020), the National Association of Home Builders believes there will be a slowdown, but not a slump for residential construction (H. Fraccaro, personal communication, May 4, 2020). In early May, Robert Dietz (2020a), SVP and Chief Economist for the NAHB, wrote that pent-up demand in home building will help drive the economic recovery. He added to this viewpoint in late June with another article showing a rise in housing sales and permits (Dietz, 2020b).

Women: The national economic situation is still evolving and should be tracked closely going forward. One emerging finding is the disproportionately negative impact that the pandemic is having on women in the economy. According to the Charlotte Observer, “women between the ages of 20 and 64 make up about 37% of the state’s labor force, according to census data. Yet 58% of the nearly 835,000 workers who filed N.C. unemployment claims in March and April were women” (Chemtob & Off, 2020). The article continues with a comparison in the construction industry, which is a male dominated industry in NC and made up less than two percent of the March and April unemployment claims.

Educational Training Programs: Education leaders across the state are trying to make sense of the public health guidance and adjust training facilities and curriculum to accommodate appropriate new safety protocols. Going forward, we will likely see smaller class sizes, which will likely require more class offerings, and the expansion or construction of new classrooms that are larger to account for more personal spacing (M. Meyer, personal communication, May 22, 2020). It is likely that the pandemic will result in long-lasting changes to educational delivery and this should be tracked closely by Orange County leaders as they discuss the design of a possible training center.

[6.3] Funding Opportunities

As key stakeholders consider the development of a construction trades training center, there are budget implications. The following are some funding sources that could prove helpful:

EDA CARES Act Funding: The U.S. Economic Development Administration (EDA), a bureau within the U.S. Department of Commerce, has CARES Act funding available to support public-owned infrastructure projects (new construction or renovation), technical assistance, or planning projects that are economic development projects and that help communities prevent, prepare for, and respond to coronavirus as it relates to retraining workforce for more resilient opportunities. More information at www.eda.gov/coronavirus/.

North Carolina Education and Workforce Innovation Grant: The Chamber For a Greater Chapel Hill-Carrboro has been encouraged by a representative from the North Carolina Education and Workforce Innovation Board to submit an application based on the findings of this skilled construction trades study and the work underway to improve this construction career pathway in Orange County. Planning conversations between The Chamber and the City/County CTE Program Directors are already underway. More information is available at www.ncleg.net/EnactedLegislation/Statutes/HTML/ByArticle/Chapter_115C/Article_6C.html

Other: We have also been notified by a contact at the NC Community College System of funding available from the state through the CARES Act for workforce development-related higher education interventions, and there are likely other funding opportunities worth exploring.

[6.4] Other Notable Industries

Labor Market Information for Orange County: The scope of this study is on the construction trades in Orange County, which is an industry with strong projected growth. According to Chmura Economics & Analysis, the construction industry has a ten-year forecast growth rate of 14.9 percent, and the strongest projected growth of any industry in Orange County (JobsEQ, 2020a).

At the same time, of the 20 major industry sectors in Orange County, 19 are projected to grow over the next ten years, with the top three being "Construction" (14.9%), "Health Care and Social Assistance" (14.3%), and "Professional, Scientific, and Technical Services" (14.1%) (JobsEQ, 2020a). Image 6.1 depicts the ten-year forecast growth rate in Orange County as reported by JobsEQ.

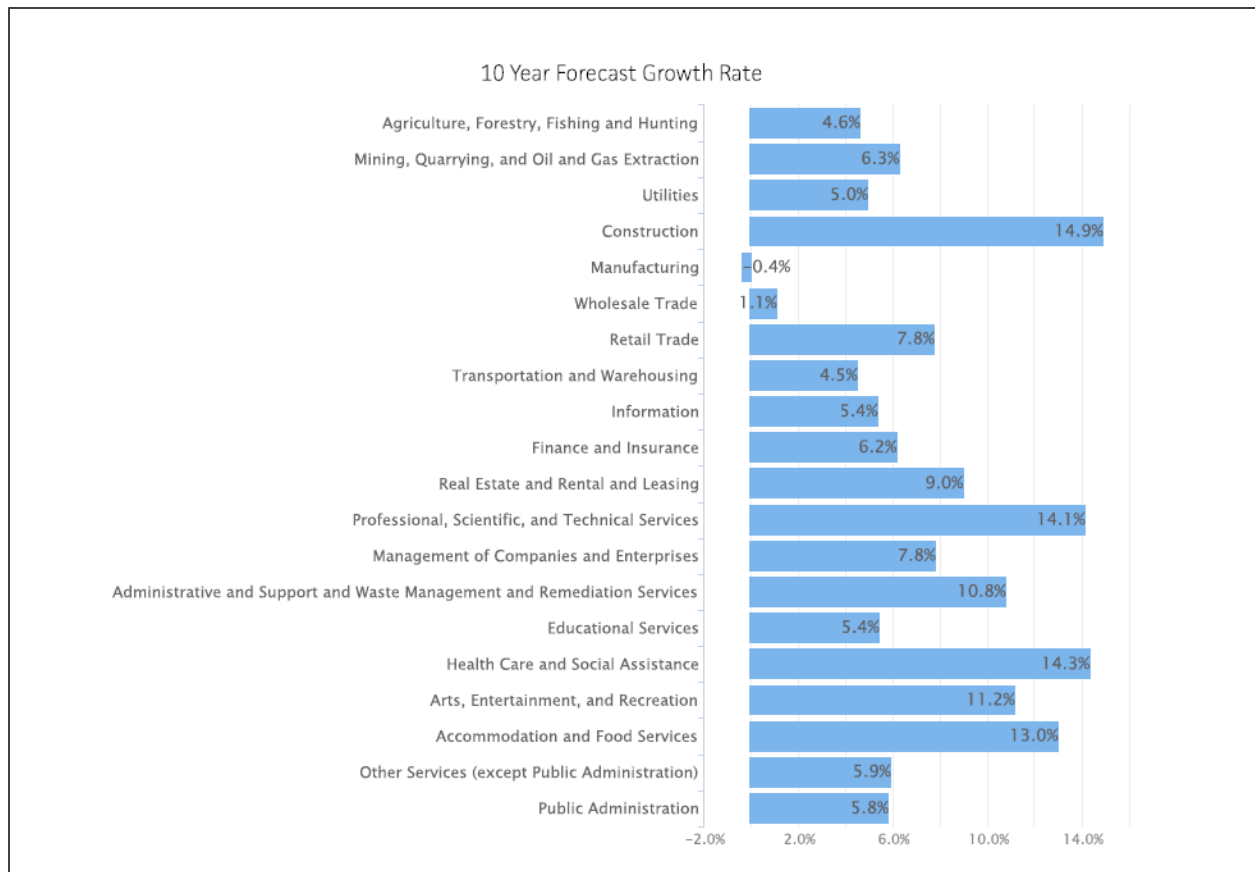


Image 6.11

Source: Chmura Economics & Analytics

Labor Market Information for Orange and Surrounding Counties: Slightly different projected industry growth results emerged after examining the same JobsEQ report for Orange and Surrounding Counties (Orange, Durham, Chatham, Alamance, Caswell, and Person Counties). Again, 19 of the 20 major industry sectors are still projected to have positive employment growth over the next ten years, but the strongest growth is anticipated in "Health Care and Social Assistance," "Professional, Scientific, and Technical Services," and "Accommodation and Food Services." (JobsEQ, 2020b). Image 6.12 depicts the ten-year forecast growth rate in Orange and Surrounding Counties as reported by JobsEQ.

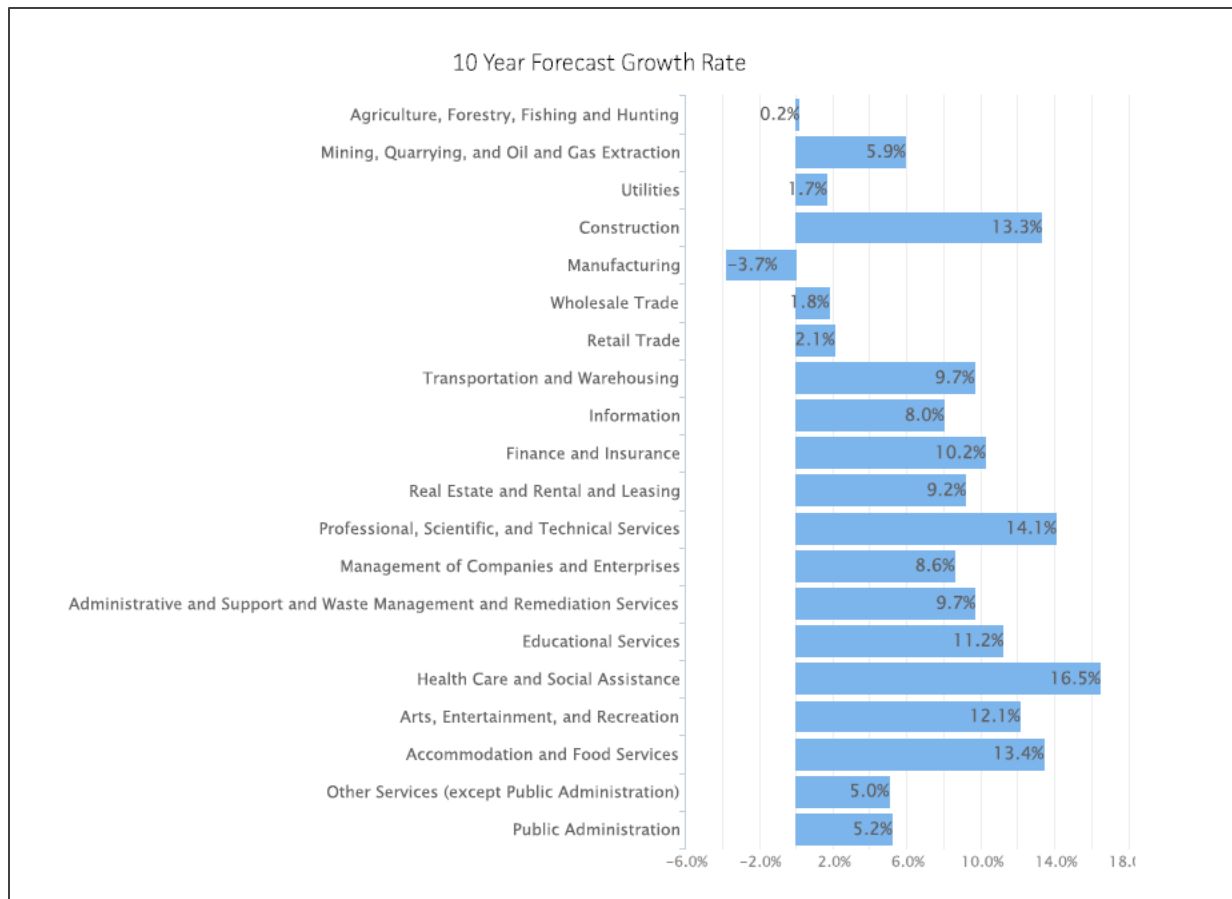


Image 6.12

Source: Chmura Economics & Analytics

Primary Labor Market Information for Orange County: While this JobsEQ labor market information is useful, it can have inaccuracies and should be considered with on-the-ground insight. To that end, the secondary insights from JobsEQ were reinforced with primary insights from the Orange County Economic Development Director, Steve Brantley.

In a personal interview, Mr. Brantley discussed the newly recruited companies in Orange County whose needs may not yet be reflected in the JobsEQ data, namely:

- 1) Medline Industries, a manufacturer and distributor of medical supplies, is building a new, one-million SF distribution center in Mebane and creating 250 new jobs. (More information at www.nccommerce.com/news/press-releases/medical-supply-company-invest-65-million-mebane.)
- 2) ABB, a global leader in electrification products, robotics, and industrial automation, is expanding their Mebane facility and creating more than 400 new jobs. (More information at <https://governor.nc.gov/news/global-industrial-company-abb-selects-orange-county-major-expansion>.)

- 3) Well Dot, Inc, a fast-growing healthcare technology company, is opening an operations center and corporate headquarters in Chapel Hill and bringing 400 new high paying jobs. (More information at www.nccommerce.com/news/press-releases/governor-cooper-announces-400-new-jobs-chapel-hill-healthcare-technology.)
- 4) Piedmont Metalworks LLC, a locally-owned structural and sheet metal fabrication company serving industries throughout the southeast, is relocating its Durham manufacturing site to western Orange County and creating 30 new jobs. (More information at <http://orangecountync.gov/CivicAlerts.aspx?AID=417&ARC=746>.)

Mr. Brantley emphasized the importance of meeting the workforce needs of the four aforementioned companies. He also listed several industries, in addition to construction, that would benefit from a stronger workforce development focus in Orange County and align with overall regional cluster priorities: health care, biopharma, information technology, logistics (including warehousing, forklift operations, accounting, and trucking), electrical (lineworkers), and automotive (including metal working, plastics, electrical, and repair). (S. Brantley, personal communication, Jan 22, 2020).

In addition, the Hanover Report (2017), informed by interviews with Orange County employers, recommended that Durham Tech expand “public safety,” “information technology,” and “health technology” programming in Orange County to meet the demands of the largest employers and the skills training needs of the local workforce (p. 4).

Bottom line: As Orange County leaders discuss future workforce development priorities and investments, the Study Group recommends that they do so with a regional view and consideration of all top industry needs, including the well-documented needs in the construction industry as well as in the health care and biopharma; information technology; professional, scientific, and technical services; hospitality and food services; logistics; electrical; and automotive industries.

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APPENDIX A

Study Deliverables

1. Develop list of potential community pipelines for Tradecraft Training Center
2. List of agencies who want to or are conducting training within the County.
3. List of Placement Services.
4. List of potential sponsors for apprenticeship programs.
5. List of best practice programs in Tradecraft Training Programs.
6. List of potential sites in Orange County to locate a Tradecraft Training program.
7. Estimate Total Cost to develop a Tradecraft Training Center.
8. Outline a potential administrative structure to manage a center and to coordinate all the elements in the pipeline flow.
9. Conduct two or three meetings presenting findings to Tradecraft Training Study Group.
10. Provide a written report compiling all findings.

Source: <https://www.orangecountync.gov/DocumentCenter/View/7435/Amendments-Attachment-A-1-Feasibility-Study-for-Tradecraft-Training-Center>

APPENDIX B

Minutes from the January 2020 Study Group Meeting

What: Meeting of the Skilled Construction Trades Study Group

When: Tuesday, Jan 28, 2020 from 8:30 a.m. – 10:00 a.m.

Where: The Chamber For a Greater Chapel Hill-Carrboro, Chapel Hill, NC

Participants: Approximately 22 participants, including government, business, nonprofit, and trade association leaders. See Attachment A, "Study Tables," "Tab 9, Study Group, Jan 2020" for the participant list.

Minutes: Katie Loovis called the meeting to order at 8:35am with a welcome and overview of the group discussion. Loovis shared two recent WRAL television news stories on the skilled worker shortage and the opportunity for more apprenticeships to help students earn as they learn. Loovis continued with background on and scope of the study. She defined terms, clarified the list of occupations in the skilled construction trades, and shared the most recent state labor market data that reinforced several "5 Star" jobs in the skilled construction trade jobs for the region. These jobs, including first-line managers, construction supervisors, plumbers, and HVAC are noted by the state for their strong wages, projected growth rates, and projected job openings (see attached power point presentation).

Deputy County Manager Travis Myren provided a welcome and encouraged the group to leverage existing county investments and consider a nimble, scalable pilot program. He shared with the group that the county is also an employer, manages facilities, and is facing hiring challenges in the skilled trades. A recent job posting had only two applicants versus the average of twenty.

County Commission Mark Marcoplos and former Carrboro Mayor Dr. Jim Porto, who were driving forces behind the study, followed Myren with emphasis on the need for a stronger skilled construction trades pipeline and the opportunity to foster it through a construction training center. Porto emphasized the need for physical space and a state-of-the-art facility.

Loovis invited participants to introduce themselves, their organization, and share why this issue is urgent and/or important to them and their organization.

Nora Spencer of Hope Renovations, which is a nonprofit helping women in the construction trades, shared their urgent and important need for training space. She has spent many months talking to anyone and everyone, including all elected officials and



many commercial real estate agents, to find and establish a construction training space in Orange County. This has proven incredibly challenging. She is now running out of time and at risk of losing her regional grant.

Steve Brantley of Orange County Economic Development emphasized the challenge of connecting the relevance of the construction trades programming, such as the Orange County Schools' CTE (Career and Technical Education) programs and Durham Technical Community College (Durham Tech) construction trade programs with Orange County students and parents.

Penny Gluck of Durham Tech emphasized the need for students to find purpose through a career pathway and the opportunities in the skilled construction trades.

Darius Dixon of UNC Facilities and Operations emphasized the tsunami coming of pending retirements and the urgent and important need for hundreds of workers in the skilled construction trades at UNC Facilities, including plumbers, carpenters, HVAC. UNC sources talent largely from surrounding counties, including Orange, Durham, Alamance, and Chatham, and is building its own talent pipeline through a new apprenticeship program modeled after those at UVA and Arizona State. Dixon shared that UNC Hospitals are separate from the university and likely have similar level of need and urgency to their skilled trades talent pipeline.

Ondrea Austin is the Lead Workforce Development Coordinator for Durham Public Schools and manages the highly regarded "WayMakers," which is a public-private partnership between Durham Tech, Durham Public Schools, philanthropy, and more than fifty local businesses. Austin explained that the Triangle continues to grow, is experiencing a building boom, and there is a critical gap in skilled trades workers, including construction, HVAC, plumbing, electrical, highway construction, power line maintenance, and entrepreneurship. WayMakers is designed to address that gap and build the future employee pipeline. This program is open to Orange County students, but the classes are all offered in Durham.

Quincy Williams of Chapel Hill-Carrboro City Schools CTE shared observations that in Orange County there is a focus on college-ready, not career-ready students. He sees students who could do very well in the skilled trades but are not encouraged to follow this pathway. He believes this is an equity issue.

Phil Post, a civil engineer and land surveyor emphasized the strong training programs in Wake County with Wake Tech and that accessing those programs from Orange County is a challenge. Post stressed that we need more accessible skilled trades training programs here in Orange County.

Caraina Garris, Manager of the NC Works/Skills Development Center in Orange County, verified that there are several upcoming large-scale hiring events, and that there is

interest in construction trades but a gap since the predominant focus is IT and healthcare.

Quinton Louris is the Business Engagement Coordinator for the Regional Partnership Workforce Development Board, which manages the Workforce Innovation and Opportunity Act (WIOA) funds for a five-county region, including Orange County. He shared the many programs that can help connect more displaced workers into the skilled trades and support construction companies as they look to improve their talent pipeline.

David Fitch of the family-owned, Fitch Lumber Company, said he is asked daily for talent. He reflected on when Chapel Hill High School had a vocational and technical training (vo-tech) program and how troubling it is that these programs have been pushed out of schools. He acknowledged that his own business has eight baby boomers retiring soon and he will have a talent challenge of his own.

Jason Dell, an owner of Bold Construction – one of the area’s premier builders, stressed the urgent need for talent in the skilled construction trades. He works with sub-contractors who struggle to grow their business because of talent challenges. He believes we need to elevate the status of craftsmanship, and if we do this right, then there will be lots of opportunities for individuals in the skilled trades to create their own small businesses.

Kathi Breweur is Director of Career Technical Education (CTE) for Chapel Hill-Carrboro City School System. She emphasized that there are 2,000 high school and middle school students in our system and the only trade program is in automotive. There is an opportunity for industries to set up apprenticeships, which provide great exposure.

Aaron Nelson, President of The Chamber For a Greater Chapel Hill-Carrboro emphasized that the strongest source of talent in the skilled trades pipeline could be, not students, but disadvantaged populations including refugees and retail workers looking to shift to a higher paying career. He shared that policy changes such as the weighted grading allows students the opportunity to take classes aligned with the trades, such as drafting, which they may not have taken otherwise and now exposes them to new career pathways in the skilled trades.

Maryah Smith-Overman, Director of the Construction Trades program at Durham Tech, emphasized the urgent need for more training in the skilled construction trades and more training space. She shared that the continuing education classes at Durham Tech are at capacity and the curriculum programs are full of mostly re-career adults. She shared that there is also a need for soft skills training and more apprenticeships.

Ryan Miller is the Founder and CEO of the North Carolina Building Performance Association, the state’s not-for-profit trade association representing building

performance companies and professionals. Ryan emphasized the importance of energy efficiency and growth in green jobs with 87,000 jobs across the estate, half in energy efficiency and the other half in green building. His organization is holding events to connect the talent pipeline. He also emphasized the need for training in insulation.

Randall (Randy) Lanou, a Partner at BuildSense, developed an apprenticeship program and has a colleague at his firm who used to do workforce development and got jealous of all the people she had heled into the trades. She went back to school and is now working at BuildSense.

Dr. Matt Meyer is the Associate Vice President, Business Engagement, National & International Partnerships for the NC Community College System. He shared that we are only 9% female in the trades and that we need more female role models. He highlighted 1) Lowe's Generation T, a movement to help rebuild the skilled trades in America, 2) Goodwill Industries construction center in partnership with Charlotte-Mecklenburg Schools, Central Piedmont Community College, and The ROC Charlotte, and 3) Furniture Academy in Catawba County as three good models. The Governor is interested in a Latino initiative, as that is the fastest growing population in the state.

Leon Meyers, a Partner with BuildSense, shared how apprenticeships are a challenge for small businesses.

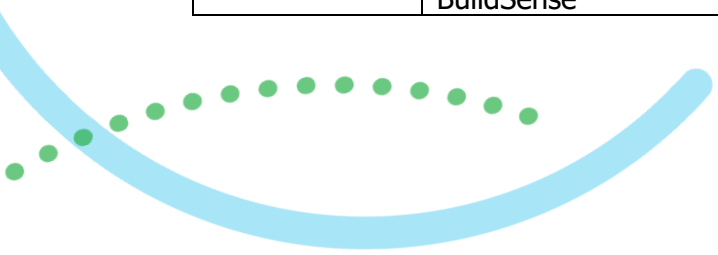
Most of the meeting was spent doing sharing perspectives on why this issue is urgent and important. Loovis followed with an update on the status of the research on the current talent pipeline, including:

- 1) Learners: Current and prospective learners (youth, teens, and adults).
- 2) Educators: Formal and informal career training programs and placement services, and work-based learning/on-the-job training programs.
- 3) Employers: Small, mid-size, and large organizations.
- 4) Support: Local, regional, and state/national organizations.

Loovis closed by reiterating the ten deliverables in this scope of work, emphasizing the need to better understand the pain points across the talent pipeline and the promising practices in the field of talent pipeline management. Loovis, Myren, Marcoplos, and Porto adjourned the meeting shortly after 10am.

Participants:

Name	Affiliation	Email
Katie Loovis	Vice President, The Chamber For a Greater Chapel Hill-Carrboro	kloovis@carolinachamber.org
Travis Myren	Deputy County Manager, Orange County Government	tmyren@orangecountync.gov
Jim Porto	Project Developer, CommunityCAPS	Jim_porto@communitycaps.org
Mark Marcoplos	Commissioner, Orange County Government	mmarcoplos@orangecountync.gov
Nora Spencer	CEO Hope Renovations	nora@hoperenovations.org
Steve Brantley	Director, Orange County Economic Development	sbrantley@orangecountync.gov
Penny Gluck	Executive Director, Community Affairs; Executive Dean, Orange County Campus, Durham Technical Community College	gluckp@durhamtech.edu
Darius Dixon	Executive Director, Facilities Services, UNC-Chapel Hill	Darius.Dixon@fac.unc.edu
Ondrea Austin	Lead Workforce Development Coordinator, Durham Public Schools	ondrea.austin@dpsnc.net
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Phil Post	President, Philip Post & Associates (Civil Engineer and Land Surveyor)	philip.n.post@gmail.com
Caraina Garris	Manager, NCWorks/Skills Development Career Center, Orange County Government	cgarris@orangecountync.gov
Quinton Louris	Business Engagement Coordinator, Regional Partnership Workforce Development Board	QLouris@REGIONALCS.ORG
David Fitch	President, Fitch Lumber Company, Inc	david@fitchlumber.com
Jason Dell	Owner, Bold Construction	jason@boldnc.com
Kathi Breweur	Director of Career Technical Education, Chapel Hill-Carrboro City School System	kbreweur@chccs.k12.nc.us
Aaron Nelson	President, The Chamber For a Greater Chapel Hill-Carrboro	anelson@carolinachamber.org
Maryah Smith-Overman	Program Director/Instructor, Construction Trades, Durham Tech	smithovermanm@durhamtech.edu



Ryan Miller	Founder and CEO, North Carolina Building Performance Association	Ryan@BuildingNC.org
Randall Lanou	Partner, BuildSense	rlanou@buildsense.com
Matt Meyer	Associate Vice President, Business Engagement, National & International Partnerships, NC Community College System	meyerm@nccommunitycolleges.edu
Leon Meyers	Partner and Project Lead, BuildSense	lmeyers@buildsense.com

APPENDIX C

Minutes from the May 2020 Study Group Meeting

What: Meeting of the Skilled Construction Trades Study Group

When: Friday, May 22, 2020 from 12:00 p.m. – 1:30 p.m.

Where: Zoom Video Conference

Minutes: Katie Loovis called the meeting to order at 12:03pm with a welcome and overview of the agenda for the 90-minute meeting. She explained that the meeting would include a two parts: the first half of the meeting would be a presentation and discussion on the study findings thus far related to the talent pipeline and four model programs, and then the second half would be a presentation and discussion of the cost estimates for the four future training center site types.

At 12:05 p.m., Loovis began the first part of the meeting with a presentation on the pain points in the current construction trades talent pipeline pain in Orange County and an overview of the four model programs studied.

At 12:20 p.m., Loovis concluded the first presentation and invited group discussion. Study Group members made comments validating the worker shortage, extrapolating future needs including in sustainable building practices, and posed questions about the model programs, including the benefits and challenges of targeting adult versus youth learners.

At approximately 12:50 p.m., Loovis began the second half of the meeting and presented the findings from the feasibility study of a future training center. Four training center site types were studied: the opportunity to 1) to contract an existing training program, 2) lease an existing warehouse, 3) buy an existing warehouse, or 4) construct a new facility. Estimates were generated by Daniel A. Jewell RLA, ASLA, President of Coulter Jewell Thames (professional engineering, land surveying, and landscape architecture firm) and Phillip Post, President of Philip Post & Associates (civil engineering and land surveying firm).

Jewell and Post led the group through a detailed overview of the financial modeling, assumptions used, and cost per line item for each of the four sites studies (Lease Fee or Purchase Price, Site Costs, Hard Costs, FF&E, Soft Costs, and Other Costs).

The group then discussed the four site types, inquired about other possible locations in the county and the possibility of improved transportation, and reiterated the need for more training opportunities. The group also discussed potential impacts of COVID-19 including the possible need for larger classrooms and/or smaller class size, and hybrid classes with online components when possible and potential funding streams.

The meeting adjourned at 1:30 p.m. with Loovis asking all members to be ready to review the final report.

Participants:

Name	Affiliation	Email
Katie Loovis	Vice President, The Chamber For a Greater Chapel Hill-Carrboro	kloovis@carolinachamber.org
Travis Myren	Deputy County Manager, Orange County Government	tmyren@orangecountync.gov
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Steve Brantley	Director, Orange County Economic Development	sbrantley@orangecountync.gov
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Phil Post	President, Philip Post & Associates (Civil Engineer and Land Surveyor)	philip.n.post@gmail.com
Caraina Garris	Manager, NCWorks/Skills Development Career Center, Orange County Government	cgarris@orangecountync.gov
Quinton Louris	Business Engagement Coordinator, Regional Partnership Workforce Development Board	QLouris@REGIONALCS.ORG
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Randall Lanou	Partner, BuildSense	rlanou@buildsense.com
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	International Partnerships, NC Community College System	
Margaret Robertson	Vice President for Workforce Development, Administrative Services, Central Carolina Community College	mroberton@cccc.edu
Leon Meyers	Partner and Project Lead, BuildSense	lmeyers@buildsense.com
Holly Fraccaro	CEO Home Builders Association of Durham, Orange & Chatham Counties	holly@hbadoc.com
Kim Tessero	Hillsborough/Orange County Chamber of Commerce	kim@hillsboroughchamber.com
Shannon Braxton	CTE Director, Orange County Public Schools	shannon.braxton@orange.k12.nc.us
Patrick Abele	Assist Superintendent for Support Services, Chapel Hill-Carrboro City School System	pabele@chccs.k12.nc.us
Dan Jewell	President, Coulter Jewell Thames, P.A. (Professional Engineering Land Surveying and Landscape Architecture firm)	djewell@cjtpa.com
Nancy Coston	Director of the Department of Social Services, Orange County Government	ncoston@orangecountync.gov
Jeff Grau	Grau Building	jeff@graubuilding.com

APPENDIX D

List of Model Programs

This is the list of model programs studied as part of this research project.

Model Programs	Stakeholder Organization	Contact Information
Catawba Valley Community College Construction Careers Academy	Catawba Valley Community College	Keith Sipe, Director, Business & Industry Services, CVCC, 828-327-7000 ext. 4613, bsipe498@cvcc.edu , http://www.cvcc.edu/CCE/Workforce_Development/Certification/Construction-Careers-Academy.cfm
WayMakers: Durham's Skilled Trades Pathway	Durham Public Schools and Durham Technical Community College	Ondrea Austin, Lead Workforce Development Coordinator, Durham Public Schools, (919) 560-3858, ondrea.austin@dpsnc.net Maryah Smith-Overman, Program Director/Instructor, Construction Trades, Durham Tech, smithovermanm@durhamtech.edu ; www.durhamtech.edu/continuing-education/construction-trades-continuing-education
Goodwill Construction Skills Training Center	Goodwill Industries of the Southern Piedmont	Marvin E. Kelley Jr., Director, Construction and Trade Training, Marvin.kelley@goodwillsp.org , 704-839-4235; LaRita Barber, Chief Advancement Officer, LaRita.Barber@goodwillsp.org
Dwayne Peaslee Technical Training Center	Peaslee Tech and Lawrence College & Career Center	Kevin Kelley, CEO, Peaslee Tech, 785-856-1801, kevin.kelley@peaslee.education Patrick Kelly, USD 497 Lawrence Public Schools, Director of Innovation Learning, Career and Technical Education, Lawrence College & Career Center, 785.832.5000 ext 2405, PKelly@usd497.org

APPENDIX E

List of Learners

This is a non-exhaustive list of organizations that reach potential learners.

Learners	Stakeholder Organization	More Information
Level 3 - Adults	Current employers	See employer tab as well as Chamber business directories: https://business.carolinachamber.org/list/ and https://business.hillsboroughchamber.com/list
Level 3 - Adults	Durham Tech	www.durhamtech.edu
Level 3 - Adults	UNC-Chapel Hill	www.unc.edu
Level 3 - Adults	Hope Renovations	https://www.hoperenovations.org/
Level 3 - Adults	Vocational Rehabilitation Services	www.ncdhhs.gov/divisions/dvrs
Level 3 - Adults	Orange County Employment Services	Includes Orange Works Employment and Training Center and the Skills Development Center; www.orangecountync.gov/1823/NC-Works-Skills-Development-Center
Level 3 - Adults	Orange County DSS Employment Programs	www.orangecountync.gov/1878/Work-First-Family-Assistance
Level 3 - Adults	Family Success Alliance and Zone Navigators	www.familysuccessalliance.org (A coalition of ~20 nonprofits plus support from Orange County's Dept. of Health, which has "Family Navigators" on staff who work with families in Chapel Hill, Carrboro, and Hillsborough, sorting all manner of needs from cradle to career.)
Level 3 - Adults	Empowerment, Inc.	www.empowermentinc.org/
Level 3 - Adults	Club Nova	https://clubnova.org/
Level 3 - Adults	Refugee Community Partnership	https://refugeecommunitypartnership.org/
Level 3 - Adults	El Centro Hispano	https://elcentronc.org/
Level 3 - Adults	Compass Center for Women and Families	www.compassctr.org/
Level 3 - Adults	Casa	www.casanc.org/
Level 3 - Adults	Centre for Home Ownership & Economic Development Corporation, Inc. (CHOED)	https://homeownershipcentre.org/
Level 3 - Adults	Community Empowerment Fund (CEF)	https://communityempowermentfund.org/

Level 3 - Adults	Oxford house	https://oxfordhouse.org/userfiles/file/
Level 3 - Adults	Freedom house	https://freedomhouserecovery.org/
Level 3 - Adults	Caramore	www.caramore.org/
Level 3 - Adults	Dress for Success	https://trianglenc.dressforsuccess.org/
Level 3 - Adults	Benevolence Farm	https://benevolencefarm.org/
Level 2 - Teens	STEER Initiative	https://orange.ces.ncsu.edu/2019/12/students-transform-expectations-and-explore-local-careers-with-new-4-h-chamber-program/
Level 2 - Teens	Boomerang	https://boomerangyouth.org/
Level 1,2 - Youth/Teens	Orange County Schools	www.orangecountyfirst.com/
Level 1,2 - Youth/Teens	Durham Public Schools	www.dpsnc.net/
Level 1,2 - Youth/Teens	Chapel Hill-Carrboro City Schools	www.chccs.org/
Level 1,2 - Youth/Teens	YMCA of the Triangle	www.ymcatriangle.org/
Key:		
Level 3 - Adults = Those enrolled in post-secondary education, re-careering adults, and disconnected adults		
Level 2 - Teens = Those enrolled in grades 9-12 and disconnected youth		
Level 1 - Youth = Those enrolled in grades K-8		

APPENDIX F

List of Educators

This is a non-exhaustive list of organizations that provide educational services.

Educators	Stakeholder Organization	More Information
Level 5 - Formal	Durham Technical Community College & WayMakers	Maryah Smith-Overman, Program Director/Instructor, Construction Trades, smithovermanm@durhamtech.edu; https://www.durhamtech.edu/continuing-education/construction-trades-continuing-education
Level 5 - Formal	Central Carolina Community College (Chatham County)	Jeff Gannon, Building Construction Technologies Advisor, jgannon@cccc.edu, (919) 545-8032; https://www.cccc.edu/curriculum/majors/bct/ ; https://www.cccc.edu/green/greenbuilding/
Level 5 - Formal	Alamance Community College (Alamance County)	Duncan Shaw, Student Services Manager, (336) 506-4200; Justin Snyder, Dean, Industrial Technologies, (336) 506-4279, Duncan.Shaw@alamancecc.edu; https://www.alamancecc.edu/continuing-education-site/home/construction-courses/
Level 5 - Formal	Piedmont Community Collegen (Person and Caswell Counties)	Doris W. Carver, Vice President, Continuing Education, doris.carver@piedmontcc.edu, (336) 322-2111; https://www.piedmontcc.edu/careertraining
Level 5 - Formal	Orange County Schools	Shannon Braxton, Director, Career and Technical Education, shannon.braxton@orange.k12.nc.us; https://www.orangecountyfirst.com/Page/112
Level 5 - Formal	Chapel Hill-Carrboro City Schools	Kathi Breweur, Director of Career Technical Education, kbreweur@chccs.k12.nc.us; https://www.chccs.org/CTE (Currently, no construction training programs)
Level 5 - Formal	Durham Public Schools CTE & WayMakers	Ondrea Austin, CTE Lead Workforce Development Coordinator, ondre.austin@dpsnc.net, (919) 560-3858. https://www.dpsnc.net/Page/2402
Level 5 - Formal	Hope Renovations	Nora Spencer, CEO, nora@hoperenovations.org; (In the process of becoming a certificated Pre-apprenticeship program); https://www.hoperenovations.org/
Level 4 - Informal	On the Job Training	Various employers (see employer tab)

Level 4 - Informal	Habitat for Humanity of Orange County, NC	Jennifer Player, CEO, Habitat for Humanity of Orange County, jplayer@orangehabitat.org , (volunteer experiences in the construction trades); https://www.orangehabitat.org/
Key:		
Level 5 - Formal Education Programs, including certificate, diploma, and degree programs, continuing education classes, state or national licensing, and internships or apprenticeships		
Level 4 - Informal Education Programs, including volunteer experiences and on the job training		

APPENDIX G

List of Employers

This is a non-exhaustive list of organizations that employ those skilled in the construction trades.

Employers	Stakeholder Organization	More Information
Level 8 - Business	Bold Construction	Jason Dell, Owner, jason@boldnc.com, 919-929-6288
Level 8 - Business	C.T. Wilson Construction Company	Justin Ramsey, Senior Project Manager, justin.ramsey@ctwilson.com, 919-383-2535
Level 8 - Business	Fitch Enterprises, LLC	David Fitch, President and CEO, david@fitchlumber.com
Level 8 - Business	Marcoplos Construction & Advanced Green Building	Marc Marcoplos, President, markmarcoplos@gmail.com, www.marcoplosconstruction.com/
Level 8 - Business	Summit Engineering and Design	Nikki Orie, nikki.orie@summitde.net; Sue Holady, Engineer, sue.holaday@summitde.net
Level 8 - Business	BuildSense	Randall Lanou, Partner, rlanou@buildsense.com; Leon Meyers, Partner, lmeyers@buildsense.com, 919-667-0404
Level 8 - Business	Grau Building Company, LLC	Jeff Grau, President, jeff@graubuilding.com, 919-478-9611
Level 8 - Business	84 Lumber	Garren Maynard, Business Manager, Garren.Maynard@84Lumber.biz, https://www.84lumber.com/
Level 8 - Business	Condie Construction Corporation	Chapel Hill, NC (919) 929-4301
Level 8 - Business	Danis Construction Company, LLC	Raleigh, NC, (919) 468-6240
Level 8 - Business	Resolute Building Company	Chapel Hill, NC 919-933-1000
Level 8 - Business	Terramor Homes	Raleigh, NC 800.831.3720
Level 8 - Business	Action Solar & Electric, LLC	Chapel Hill, NC, (919) 259-9533
Level 8 - Business	Boer Brothers Heating and Cooling, LLC	Carrboro, NC (919) 929-9886
Level 8 - Business	BRW Design and Construction	Carrboro, NC (919) 929-1723
Level 8 - Business	CertaPro Painters of Durham	Durham, NC (919) 806-2244
Level 8 - Business	Chandler Concrete Co.	Burlington, NC, (336) 226-1181

Level 8 - Business	Christopher Rand Construction	Hillsborough, NC (919) 795-2931
Level 8 - Business	Clancy & Theys Construction	Raleigh, NC, (919) 834-3601
Level 8 - Business	Collins Design-Build	Durham, NC, 919.422.2818, chad@collinsdesignbuild.com
Level 8 - Business	CRA Associates, Inc	Chapel Hill, NC (919) 401-8586
Level 8 - Business	David Weekly Homes	Chapel Hill, NC (919) 636-6806
Level 8 - Business	Dynamic Electrical Solutions Inc	Hillsborough, NC, (919) 370-0056
Level 8 - Business	Ferguson Enterprises	Carrboro, NC (919) 933-6994
Level 8 - Business	Greenstreet Builders, Inc.	Chapel Hill, NC (919) 605-4810
Level 8 - Business	Hearthstone Luxury Homes	Raleigh, NC, 919-900-7090
Level 8 - Business	Herndon Construction LLC	Chapel Hill, NC (919) 730-5577
Level 8 - Business	Hillsborough Plumbing Co. Inc	Hillsborough, NC, (919) 732-4506
Level 8 - Business	Hogan Contracting	Chapel Hill, NC, (919) 923-7449
Level 8 - Business	LPG Masonry, LLC	Creedmoor, NC, (919) 730-3612
Level 8 - Business	McAdams Surveying	Erica Evans, evans@mcadamsco.com
Level 8 - Business	Peter Thorn Builders	Peter Thorn, peter@peterthornbuilders.com
Level 8 - Business	R.T. Lincoln & Associates, Inc.	Todd Lincoln, President, rtlincoln.com@gmail.com
Level 8 - Business	Red Ladder Residential	Nicole Goolsby, Owner, nicole@redladderresidential.com
Level 8 - Business	RestorePro Reconstruction Co.	Raleigh, NC (919) 835-0676
Level 8 - Business	SBT Construction	Hillsborough, NC, (919) 245-8640
Level 8 - Business	Select Concrete	Hillsborough, NC 919-459-7235 ext 101
Level 8 - Business	Servpro of South Durham and Orange County	Durham, NC (919) 596-1242
Level 8 - Business	Sparrow & Sons Plumbing, Inc.	Carrboro, NC (919) 942-5171
Level 8 - Business	Sunrock	Sherry Hamilton, shamilton@thesunrockgroup.com

Level 8 - Business	Thompson Paving	Lori Carter, thompson lcarter@wvpaving.com
Level 8 - Business	Tom Bacon Plumbing Co. Inc.	Hillsborough, NC, (919) 732-2270
Level 8 - Business	Triangle Electrical Services, Inc.	Chapel Hill, NC (919) 929-8785
Level 8 - Business	Will Johnson Building Company	Chapel Hill, NC (919) 933-2100
Level 8 - Business	Zachary Inc.	Ana Munoz, ana.munoz@zacharycorp.com
Level 8 - Business	Warren-Hay Mechanical Contractors Inc. Heating and Air Conditioning	Hillsborough, NC, (919) 732-4362; jenniferwarren@earthlink.net
Level 8 - Business	American Tobacco	aklein@americanunderground.com
Level 8 - Business	LeChase Construction	cameron.jones@lechase.com; denise.barnes@lechase.com;
Level 8 - Business	DIRTT Environmental Services	cfarley@dirtt.net
Level 8 - Business	Vaughan Electric	sdvaughaniv@veco-nc.com
Level 8 - Business	Incline Construction	csparks@inclineconstruction.com
Level 8 - Business	Stier Supply Company	chrish@stiersupply.com
Level 8 - Business	CQC Home	ken@cqchome.com; shae@cqchome.com
Level 8 - Business	Romeo Guest	mriggs@romeoguest.com; bmilne@romeoguest.com; rhopkins@romeoguest.com; swolynec@romeoguest.com; wfoushee@romeoguest.com
Level 8 - Business	Atlantic Corporate Contracting	aburell@acc-gc.com; mhiggins@acc-gc.com
Level 8 - Business	Riggs-Harrod Builders, Inc.	akozar@riggsharrod.com; bharrod@riggsharrod.com; dgarrett@riggsharrod.com; jeffd@riggsharrod.com; dparrish@riggsharrod.com; tcothran@riggsharrod.com
Level 8 - Business	CT Wilson Construction	andrew.phillips@ctwilson.com; emily.ellis@ctwilson.com; peter.hausmann@ctwilson.com; emily.herndon@ctwilson.com; justin.ramsey@ctwilson.com
Level 8 - Business	DW Ward Construction Co.	andy@dward.com
Level 8 - Business	Resolute	banna@resoluteinc.com; RAG@resoluteinc.com; tjordan@resoluteinc.com

Level 8 - Business	L A Downey & Son Inc	BarryPerry@ladowney.com; davidford@ladowney.com; mdavis@ladowney.com; denise.thompson@lechase.com
Level 8 - Business	WL Bishop Construction	jerry@wlbishop.com; mike@wlbishop.com; willie@wlbishop.com
Level 8 - Business	ACH Constructors, LLC	markf@achconstructors.com
Level 8 - Business	O C Mitchell Jr Inc	ocm3@ocmitchell.com; phil@ocmitchell.com
Level 8 - Business	Incline Construction Inc	RPope@inclineconstruction.com
Level 8 - Business	Sunrock Group	rgoswick@thesunrockgroup.com; bzirbel@thesunrockgroup.com
Level 8 - Business	Sanford Contractors Inc	bsloan@sanfordcontractors.com
Level 8 - Business	Buckner Companies	daveh@bucknercompanies.com
Level 8 - Business	Pike	jbanner@pike.com; mhardy@pike.com
Level 8 - Business	Ply Gem	julie.smith@plygem.com; nicole.butler@plygem.com
Level 8 - Business	Barnhill Contracting Company	mmoser@barnhillcontracting.com; mtaylor@barnhillcontracting.com
Level 8 - Business	Shelco, LLC	mrhoades@shelcollc.com
Level 8 - Business	ST Wooten	ricky@stwcorp.com
Level 8 - Business	Fred Smith Company	<u>robert.baugnon@fredsmithcompany</u>
Level 8 - Business	Crowder	tdean@crowderusa.com
Level 8 - Business	Acme Plumbing Co.	wltiley3@acmeplumbing.com
Level 8 - Business	Pipetech Plumbing	dale@pipetechsplumbing.com
Level 8 - Business	Monteith Construction	drecktenwald@monteithco.com
Level 8 - Business	GSK	frances.m.stewart@gsk.com; lisa.m.benna@gsk.com; melonie.d.lynch@gsk.com
Level 8 - Business	Associated Scaffolding Company	georges@associated-scaffolding.com
Level 8 - Business	Bryant-Durham Electric	holly.southerland@bryantdurham.com
Level 8 - Business	Duke Energy	indira.everett@duke-energy.com; Tiffany.McNeill@duke-energy.com
Level 8 - Business	Sumter Utilities	jdubose@suimail.com

Level 8 - Business	AW North Carolina	jnewton@aw-nc.com; MichaelGabbard@awnc.com
Level 8 - Business	Dickerson Fence Co.	accounting@dickersonfenceco.com
Level 8 - Business	Stiers Supply Company	jennyb@stiersupply.com; jeremym@stiersupply.com
Level 8 - Business	Duke University Facilities Management	john.noonan@duke.edu; michelle.jenkins@duke.edu; Vanessa.Roth@Duke.edu
Level 8 - Business	Bonitz	JonHoyle@Bonitz.com
Level 8 - Business	Atlantic Corporate Contracting	kristeystewartcit@gmail.com
Level 8 - Business	Bland Landscaping	KBland@BlandLandscaping.com
Level 8 - Business	IBM	Lauren.Rogers@ibm.com
Level 8 - Business	R.T. Lincoln & Associates, Inc.	rtlincoln.com@gmail.com
Level 8 - Business	AKG American	marcelene.cook@akg-america.com; Traci.bond-white@akg-america.com
Level 8 - Business	Doggett Concrete Construction	mkana@doggettconcrete.com
Level 8 - Business	Moniclectic, LLC	Monica.king@moniclectic.com
Level 8 - Business	Bonitz Contracting Co Inc	nichellegreen@bonitz.com
Level 8 - Business	6&Fix	nick@6andfix.com
Level 8 - Business	IEM Electrical	nora.duran@iem.com
Level 8 - Business	Merck	olga_dhennezel@merck.com; regine.roache@merck.com; wade_smedley@merck.com
Level 8 - Business	DPR Construction	patriceg@dpr.com
Level 8 - Business	Holt Brothers Construction	pgilmore@holtbrothersinc.com
Level 8 - Business	Skansa Hispanic Contractors Association	Renee.Jones@skanska.com
Level 8 - Business	Bryant-Durham Electric	Richard.Jones@bryantdurham.com; tommy.britt@bryantdurham.com
Level 8 - Business	Brown Brothers Plumbing & Heating	rick@bbph.com
Level 8 - Business	ACR Supply	Robb.Ursery@ACRSupply.com
Level 8 - Business	Bridgepoint Construction	Smcphatter@bridgepointnc.com

Level 8 - Business	Kimley-Horn	Todd.Ireland@kimley-horn.com
Level 8 - Business	Waspco Corporation	andyhutchins@waspco.com
Level 8 - Business	Raleigh Kitchens	chi@raleigh-kitchens.com
Level 8 - Business	Cree	yray@cree.com
Level 7 - Government	Orange County Government	Travis Myren, Deputy County Manager, Travis Myren tmyren@orangecountync.gov, www.orangecountync.gov/473/Facility-Services
Level 7 - Government	Town of Chapel Hill	Mack Howell, Facilities Management Superintendent, mhowell@townofchapelhill.org, www.townofchapelhill.org/government/departments-services/public-works/contact-us
Level 7 - Government	Town of Hillsborough	Eric Peterson, Town Manager, eric.peterson@hillsboroughnc.org, https://www.hillsboroughnc.gov/
Level 7 - Government	Town of Carrboro	Joe Guckavan, Public Works Director (Central Services), JGuckavan@townofcarrboro.org, https://townofcarrboro.org/2271/Central-Services
Level 7 - Government	Orange County Schools	Monique Felder, Superintendent, ocs.superintendent@orange.k12.nc.us, 919-732-8126 x10001, www.orangecountyfirst.com/domain/52, 919-732-4581
Level 7 - Government	Chapel Hill-Carrboro City Schools	Patrick Abele, Assistant Superintendent for Support Services, pabele@chccs.k12.nc.us
Level 6 - Nonprofit	UNC-Chapel Hill Facilities Management	Darius Dixon, Executive Director, Facilities Services, Darius.Dixon@fac.unc.edu, https://facilities.unc.edu/operations; wilshire@email.unc.edu; michele.bowen@fac.unc.edu
Level 6 - Nonprofit	UNC Health	Mel Hurston, Senior VP, Professional & Support Services, mhurston@unch.unc.edu, http://news.unchealthcare.org/photo-library/leadership/hurston/view
Level 6 - Nonprofit	Duke University Facilities Management	charles.perez@duke.edu
Level 6 - Nonprofit	Duke Regional Hospital	annette.wilder@duke.edu; dexter.nolley@duke.edu; robin.thomas@duke.edu; stephany.pantoja@duke.edu
Key:		
Level 8 - Businesses, including small, mid-size, and large companies		
Level 7 - Government, including local and county		
Level 6 - Nonprofit, including charitable and quasi-governmental organizations		

APPENDIX H

List of Support Organizations

This is a non-exhaustive list of organizations that provide support to the workforce development system.

Supports	Stakeholder Organization	More Information
Level 11 - National	US Department of Labor	This agency manages employment data and produces reports through the Bureau of Labor Statistics (BLS). www.dol.gov .
Level 11 - National	US Department of Commerce	This agency manages industry data and produces reports through the Bureau of Economic Analysis (BEA). www.commerce.gov
Level 11 - National	US Department of Education	This agency oversees student loans and grants, directs the nation's post-secondary education and CTE programs, and manages student outcome data through the National Center for Education Statistics (NCES). www.ed.gov
Level 11 - National	US Chamber Foundation Talent Pipeline Management Academy	Jaimie Francis, Senior Director, Programs and Policy, Center for Education and Workforce (CEW), jfrancis@uschamber.com ; Office: 202-463-5903, m: 202-253-5562, https://www.uschamberfoundation.org/talent-pipeline-management .
Level 10 - State	Office of the Governor	Kiya Edwards, Program Manager, NCBCE (Business Committee for Education), kiya.edwards@nc.gov
Level 10 - State	NC Department of Commerce	Michelle Muir, North Central Regional Operations Director, Division of Workforce Solutions (DWS), 919-272-5416, Michelle.Muir@nccommerce.com , www.nccommerce.com/about-us/divisions-programs .
Level 10 - State	NC Community Colleges	Matt Meyer, Associate Vice President, Business Engagement, National & International Partnerships, meyerm@nccommunitycolleges.edu ; Elizabeth Standafer, Youth Apprenticeship Coordinator, ApprenticeshipNC, standafere@nccommunitycolleges.edu ,

		https://www.nccommunitycolleges.edu/ and https://www.apprenticeshipnc.com/
Level 10 - State	NC Department of Health and Human Services	Deanna Jones, Business Relations Representative, Division of Vocational Rehabilitation Services (Voc Rehab), deanna.jones@dhhs.nc.gov , https://www.ncdhhs.gov/divisions/dvrs
Level 10 - State	NC Education and Workforce Innovation Commission	Steve Griffin, President of Insurance People of North Carolina and appointed member of the commission, steve@inspeople.com ; https://www.ncleg.gov/EnactedLegislation/Statutes/PDF/ByArticle/Chapter_115C/Article_6C.pdf
Level 10 - State	NC Building Performance Association	Ryan Miller, Executive Director and Founder, ryan@BuildingNC.org
Level 10 - State	NC Chamber Foundation	Andrew Meehan, Consultant and Facilitator of the TPM Academy, andrew@meehanstrategy.com
Level 10 - State	AJ Fletcher Foundation	Damon Circosta, damon@ajf.org ; https://ajf.org
Level 9 - Regional	Regional Partnership Workforce Development Board	Tammy Wall, Director, twall@REGIONALCS.ORG , https://regionalpartnershipwdb.org Glenda Morrow, business Services Representative, gmorrow@regionalcs.org
Level 9 - Regional	Home Builders Association of Durham, Orange, and Chatham Counties	Holly Fraccaro, CEO, holly@hbadoc.com ; https://www.hbadoc.com/
Level 9 - Regional	Orange County Government	Caraina Garriss, Career Center Manager, NCWorks, cgarriss@orangecountync.gov ; Nancy Coston, Director, Orange County Department of Social Services, ncoston@orangecountync.gov ; Steve Brantley, Orange County Economic Development Director, sbrantley@orangecountync.gov ; Orange County Economic Development Advisory Board, Paige Zinn, Vice-Chair, pzinn@jenningsco.com
Level 9 - Regional	Orange County Board of Commissioners	Email all commissioners at ocbocc@orangecountync.gov , https://www.orangecountync.gov/953/Board-of-County-Commissioners-BOCC
Level 9 - Regional	The Chamber For a Greater Chapel Hill-Carrboro	Aaron Nelson, President & CEO, anelson@carolinachamber.org ; Katie

		Loovis, VP for External Affairs, Kloovis@carolinachamber.org; www.carolinachamber.org
Level 9 - Regional	Hillsborough/Orange County Chamber of Commerce	Kim Tessoro, President and CEO, kim@hillsboroughchamber.com; https://www.hillsboroughchamber.com/
Key:		
Level 11 - National, including government agencies and initiatives		
Level 10 - State, including governmental agencies and state-level trade associations and advocacy organizations		
Level 9 - Regional, including the workforce development board and regional and local government agencies, nonprofit organizations, and trade associations		

APPENDIX I

Feasibility Supplemental Information

Orange County Construction Trades Training Center					
ESTIMATED CONSTRUCTION COSTS					
Date: May 20, 2020					
Program 10,000 sf Building, 40 parking spaces, 1-acre site			Assumes Site Lighting by Duke Energy Lease Lights		
			Assumes OWASA service area		
ITEM		QTY		UNIT COST	EXTENDED COST
Sitework					
Temp Erosion Control and Tree Protection		1	LS	\$10,000.00	\$10,000.00
Clearing and Grubbing	assumes wooded site	1	AC	\$6,000.00	\$6,000.00
Earthwork	assumes balance cut/ fill	1000	CY	\$15.00	\$15,000.00
Asphalt Pavement, subbase, curbs	Parking and driveways	1500	SY	\$50.00	\$75,000.00
Sidewalks and ramps	4" On-Site	1000	SF	\$5.00	\$5,000.00
Driveway Connection	to street	1	EA	\$3,000.00	\$3,000.00
Storm drainage piping and inlets		1	LS	\$25,000.00	\$25,000.00
Water/Sewer/Fire Sprinklr Services	W &S at site w/ street tap	1	LS	\$22,000.00	\$22,000.00
Fire Hydrant	at street	1	LS	\$8,000.00	\$8,000.00
Trash Enclosure	conc with Wood fence	1	LS	\$10,000.00	\$10,000.00
Bike Racks, ect		1	LS	\$5,000.00	\$5,000.00
Plantings and Seeding		1	LS	\$15,000.00	\$15,000.00
		1	LS	\$5,000.00	\$5,000.00
		SUBTOTAL:			\$204,000.00
Add 10% Miscellaneous and Contingency					<u>\$20,400.00</u>
Total Hard Cost					\$224,400.00

Other						
Storm Management Pond	Includes additional design fees fees	1	LS	\$125,000.00	\$125,000.00	
<u>FEES Assumes Town of Chapel Hill Jurisdiction</u>						
Application Fees	Site Plan/ZCP/CD's	1	LS	\$15,000.00	\$15,000.00	
OWASA Review Fees		1	LS	\$500.00	\$500.00	
OWASA Tap and Availabilty Fees	1" meter	1	LS	\$9,000.00	\$9,000.00	
Orange County S&E Review and Permits		1	LS	\$1,000.00	\$1,000.00	
Professional Fees	Survey, Eng, LA @ 15%	1	LS	\$33,660.00	<u>\$33,660.00</u>	
FEES SUBTOTAL					\$59,160.00	
Total with Storm Pond					\$408,560	