

HB15-1274 CAREER PATHWAY  
DEVELOPMENT FOR  
COLORADO'S CONSTRUCTION  
AND HEALTHCARE  
INDUSTRIES FY17

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## **EXECUTIVE SUMMARY**

Colorado State legislation HB15- 1274 established the need for development of career pathways in high-demand industries. The first set of five career pathways created in 2015-2016 focused on information technology (IT). During 2016-2017, pathways were developed in construction and healthcare. The focus for 2017-2018 will be business operations and cybersecurity.

This report provides a summary of activity for career pathways development and related talent development issues. For more in-depth information, please visit the Colorado Workforce Development Council (CWDC) and Careers In Colorado websites.

## **DEVELOPING CAREER PATHWAYS IN COLORADO**

The goal of developing career pathways systems is to establish regional demand and then create supply to meet that demand. Intended results are as follows:

- Pathways that didn't exist are created.
- Pathways already in existence are improved.
- Business has access to appropriately skilled talent pipeline.
- Individuals have access to the education, training, and work experience needed to enter careers.

Essential to this work is cross-agency collaboration towards information gathering activities, employer engagement, and establishing a framework for implementation of expanded public and private partnerships toward career awareness, career readiness and training, work-based learning opportunities, career placement and access to regional support services.

Developing regional industry-driven career pathways in Colorado utilizes the 8-step framework the Colorado Workforce Development Council worked with partners to develop, which is explored in detail in the 2016 Building Industry-Driven Career Pathway Systems in Colorado Step-by-Step Guide, as well as pathway development knowledge gained from the building of manufacturing career pathways under HB13-1165.

## **DEFINITIONS**

### **WHAT IS HIGH DEMAND?**

High demand industries contain jobs that are defined as ten percent growth over a ten-year period.

### **WHAT IS A CAREER PATHWAY SYSTEM?**

A career pathway system aligns public partners and engages them in a continuous conversation that is led by industry to ensure that job-seekers and students move seamlessly through and among support programs, educational institutions, training opportunities, and work-based experiences to build skills and credentials that meet industry demand and prepare them for jobs and careers. In Colorado, the statewide career pathway system aligns career pathway programs and systems developed throughout high demand industries in each economic development region of the state.

### **WHAT IS A CAREER PATHWAY PROGRAM?**

A career pathway program offers a clear sequence of stackable credits and credentials, combined with support services, which enables students and job-seekers to secure industry-relevant skills, certifications, and credentials and advance to higher levels of education and employment in high demand occupations.

### **WHAT IS A TALENT PIPELINE?**

A talent pipeline is an identified group of currently employed and potential workers to fill positions requiring various skills, knowledge, and abilities. In each key industry, the following process for Colorado will be utilized to build career pathways (see APPENDIX: A):

1. Organize business through sector strategies or connect with an existing sector partnership.
2. Organize a team of public partners.
3. Identify Critical Occupations based on labor market data and qualitative input from employers.
4. Inventory relevant education, training, and workforce programs.
5. Understand critical competencies required to effectively perform on the job.
6. Align, improve, and create career pathway programs that prepare students and job seekers with critical competencies.
7. Create a picture of the career pathway and market it to all audiences.
8. Continuous improvement.

## **CRITICAL COMPETENCY IDENTIFICATION & VALIDATION**

Critical competencies are defined as the specific knowledge, skills, and abilities that industry leaders have collectively identified as being critical to performing a specific occupation or group of occupations effectively. These competencies are both foundational and task specific.

The Competency Model Clearinghouse from the U.S. Department of Labor, Employment and Training Administration and the Occupational Information Network (O\*Net) were utilized as the starting points for identifying core knowledge, skills and abilities. Employers then provided feedback which led to the final list of critical competencies.

## **CAREERS IN COLORADO WEBSITE DEVELOPMENT**

A primary deliverable of career pathways development under HB15-1274 is to “create a microsite concerning the career pathway on a state-provided, free on-line resource” (HB15-1274, 2015) including the following elements: industry/sector awareness, salary and wage information, employment forecasts, education, training, and support services.

Key features of Careers In Colorado.org are the interactive, regional career pathways modules for Colorado industries including IT, healthcare, construction, and advanced manufacturing (externally linked through work completed via HB13-1165).

The career pathways module allows students to gain an overview of career opportunities in the key industries -- and allows them to drill down and “walk along” career pathways exploring the careers and the related knowledge, skills, abilities requirements, and educational opportunities to move forward along the career pathways. Highly interactive, the module includes a gap analysis for the knowledge, skills, and abilities requirements for a career of interest and comprehensive take-away information reports.

To incorporate the new career pathways in student Individual Career and Academic Plans (ICAPs) in CollegeInColorado.org, two new activities are available: The Explore Pathways Activity; and the Explore Industries ICAP activity.

Within each industry, end users are given the opportunity to explore the different career pathways—14 for healthcare, 2 for construction, and 5 for IT. Each pathway provides the end user with in-depth information about the careers within that pathway and how they form a career sequence, the related regional educational opportunities, and links to supporting resources.

Upon clicking to further explore the pathways, end users are presented with a map from which they can choose a region. After choosing a region, users see a diagram of the career pathway and can choose to explore from the beginning or start directly with a career of interest. After clicking start a pathway, using the scroll wheel on a mouse or the left/right buttons on a keyboard, users can “walk” along a pathway. Each mini window on the pathway has an option to drill in for more detail.

### **HOW ARE EXPERIENCE LEVELS DEFINED?**

Entry-level - Apprenticeship, on-the-job training, or some previous work-related skills knowledge, or experience.

Mid-level - Associate’s degree or vocational school training, completion of an apprenticeship and previous work-related skills knowledge, or experience.

Advanced-level - Bachelor’s or graduate degree, and considerable or extensive skills, knowledge, and experience.

## **MAPPING THE EDUCATION & TRAINING LANDSCAPE**

Efforts under HB15-1274 have inventoried education and training programs from middle school through the doctorate level, leveraging and utilizing the Eligible Training Providers List (ETPL) as the data source for the Careers In Colorado website. Additionally, work is underway to crosswalk education and training information with statewide initiatives and legislation regarding youth apprenticeships, registered apprenticeships, and workforce initiatives, K-12 educational requirements including ICAP and Graduation Guidelines, and supports for students earning industry-recognized credentials (Career Success Pilot Program).

## **DOCUMENTING SUPPORT SERVICES**

Building on foundational work completed for the IT pathway, support services for students, incumbent workers, and special populations have been included in Careers In Colorado with direct website referrals to workforce, education, and public partner agencies. Moving forward, we anticipate utilizing the TalentFOUND website and brand to further enhance the depth and efficiency of support service access.

## **TALENT INITIATIVES SCAN**

The initiatives in this section impact industry awareness, career exploration, targeted skill training, building of general education competencies, partnership development, work-based learning opportunities, and professional development. This is not an exhaustive list, but is presented to encourage collaboration and serve as a resource for future expansion of talent development activities.

### **Work-Based Learning**

With leadership from the Governor's Education and Training Cabinet, the Colorado Workforce Development Council, and the Business Experiential Learning (BEL) Commission, statewide emphasis on the role of work-based learning (WBL) in talent development is increasing. Additionally, the formation of the Work-Based Learning Unit at the Colorado Department of Labor and Employment (CDLE), development of the WBL Incubator series, Career and Technical Education's (CTE) focus on WBL in 2017-2018, and CareerWise Colorado's youth apprenticeship launch support the diversity of stakeholders and opportunities for students and incumbent workers to engage in WBL activities.

### **Apprenticeships**

There are increased resources within Colorado regarding apprenticeships, with two organizations, in particular, focusing on increasing apprenticeship opportunities across industries:

- The CDLE Work-Based Learning Unit, with particular focus on increasing the number and breadth of registered apprenticeships in Colorado.
- CareerWise Colorado, whose focus is on developing and supporting an innovative, sustainable youth apprenticeship system in the state.

### **Competency or skills-based labor market development**

Skillful, (Skillful.com) a Markle initiative, in partnership with Microsoft, LinkedIn, the state of Colorado, and local partners, has launched in Colorado to "help job seekers access a variety of choices to achieve lasting career success; for employers to find the skilled talent they need to grow; and for educators to train people with the skills required to compete in today's economy." Initial work focused on developing

resources for IT, advanced manufacturing and healthcare job seekers, with resources for career advising and skills-based hiring underway.

## **INDUSTRY OVERVIEW & LABOR MARKET INFORMATION: HEALTHCARE**

### **KEY SECTORS IN HEALTHCARE**

While there are many ways to categorize the overarching structure of the healthcare industry, one approach is to begin with the categories of acute and ambulatory care, and then identify examples of types of care that most closely align. Examples include behavioral health, long-term care, rehabilitation, and specialty clinics, to name a few.

### **HEALTHCARE INDUSTRY OVERVIEW**

Healthcare is a dynamic, complex, and highly regulated industry, with a huge variety of jobs at multiple levels requiring differing levels of education, training, certifications, licensure, and registration. There is also complexity to where and how healthcare is delivered, with jobs frequently being performed within multiple types of settings.

Labor market predictions found on the Colorado LMI Gateway, estimate that Colorado is poised to grow more than 107,800 new healthcare positions during the next ten years, a 3.0% annual percent change, and a 34.2% change over the ten-year period).

### **LABOR MARKET INFORMATION**

Below please find key characteristics of the healthcare industry in Colorado as cited from the Colorado LMI Gateway:

- **Jobs Available:** There were 10,994 job openings advertised online for Healthcare and Social Assistance in Colorado on August 16, 2017, with 18,871 postings in July.
- **Jobs Available Distribution:** Denver County (2,480), Adams County (1,231), Arapahoe County (1,230), Jefferson County (1,062), El Paso County (1,038), Larimer County (908), Boulder County (705), Weld County (381), Douglas County (365) and Mesa County (346).
- **Employers:** There are 32,173 employer locations listed for Healthcare and Social Assistance in Colorado.
- **Employer Distribution:** Denver County (5,129), Arapahoe County (4,082), El Paso County (3,824), Jefferson County (2,991), Boulder County (2,847), Larimer County (2,041), Adams County (2,028), Douglas County (1,606), Weld County (965) and Pueblo County (864).
- **Employment Wage Statistics:** The average weekly wage for Healthcare and Social Assistance in Colorado in 4th Quarter, 2016 was \$1,004. This would be equivalent to \$25.10 per hour or \$52,208 per year, assuming a 40-hour week worked the year around.
- **Establishments and employees:** As of 4th Quarter, 2016 were 18056 and 333295, respectively.
- **Industry Employment Distribution:** Denver County (60,442), Arapahoe County (43,732), El Paso County (40,723), Jefferson County (34,012), Adams County (25,755), Boulder County (22,104), Larimer County (21,544), Pueblo County (13,639), Douglas County (12,066) and Mesa County (11,055) (CO LMI Gateway).

# CAREER PATHWAY DEVELOPMENT: HEALTHCARE

## HEALTHCARE OVERVIEW

Recognizing healthcare as an important sector across all regions of the state, work to date includes state and regional labor market analyses, the identification of critical occupations and competencies, on-going regional healthcare organization feedback conversations, and a preliminary inventory of talent pipeline resources.

## HEALTHCARE INDUSTRY & PUBLIC PARTNER ENGAGEMENT

The emergence of so many healthcare initiatives, while good news for talent development support, invites HB15-1274 leadership to focus on aligning business, community, education and government agency outreach. Inaugural work towards the building of a Colorado healthcare industry career pathway map included input from 10 economic regions (either directly or through the Slalom Consulting work for the Colorado Health Foundation).

Since the legislation was passed, a good deal of time has been spent building “among and between” relationships, include the following key stakeholders:

- Public partners: CWDC, the Colorado Community College System (CCCS), Colorado Department of Higher Education (CDHE)’s College in Colorado (CIC) team, Colorado Department of Education, CDLE, and the Colorado Workforce System
- CareerWise Colorado (a non-profit, startup state-wide youth apprenticeship program that is currently building a healthcare division)
- The CTE Health Science and Public Safety team
- Colorado Health Foundation (engaging with Slalom Consulting)
- Slalom Consulting (through funding from CareerWise and the Colorado Health Foundation) to conduct interviews and needs assessments as a third party
- Skillful (an initiative through the Markle Foundation and Microsoft) through funding and resources to CareerWise and other pertinent partnerships
- Hope Street Group as part of their national Health Career Pathways initiative.

Eleven out of fourteen economic regions in the state have healthcare sector partnerships, with varying levels of activity and priorities that include and extend beyond workforce. Most sector partnerships in Colorado have identified the need for talent development and have dedicated resources towards creating a pipeline of future workers by aligning education & training with workforce needs. The partnerships in Northern Colorado, the Denver Metro area, Pueblo, Eastern Colorado, Southwestern Colorado and Grand Junction are active in the healthcare space. Colorado Springs has recently relaunched a sector partnership in healthcare.

## HEALTHCARE 10 MOST CRITICAL OCCUPATIONS STATEWIDE

1. Registered Nurses
2. Home Health Aides
3. Nursing Assistants
4. Medical Assistants & Medical Secretaries
5. Dental Assistants & Dental Hygienists

6. Emergency Medical Technicians
7. Licensed Practical & Vocational Nurses
8. Physical & Occupational Therapy Assistants
9. Medical & Clinical Laboratory Technicians & Technologists
10. Medical Records & Health Information Management.

In April, CTE held a statewide Advisory Committee meeting, pulling together over 100 secondary and postsecondary educators and industry representatives. While not expressly focused on critical occupation or competency identification, the meeting raised awareness about pathways work and aimed to promote alignment among health science programs statewide.

## **TOP JOB IDENTIFICATION & CRITICAL OCCUPATION VALIDATION IN HEALTHCARE**

Statewide labor market data utilized in the 2016 Talent Pipeline Report indicated 55 Tier 1 and Tier 2 Top Jobs for the healthcare industry (see Appendix A for complete information). Of those 55 jobs, ten emerged as the most critical (see APPENDIX B).

In urban areas there is also an acute need for surgical technicians and specifically skilled advanced practice nurses. In rural regions, there are pronounced challenges in the areas of social work, mental health (counselors; clinical and school psychologists, substance abuse workers), nurse practitioners, physicians and surgeons, and long term care workers.

During five regional Healthcare Talent Development Forums [Ft. Collins, Denver, Limon, Pueblo, Alamosa] roughly 90 representatives from business participated in critique these data projections and findings in their regional context, identify critical regional occupations not listed, and clarify workforce skills which businesses now need to meet the needs of their communities. Public partners from education and workforce also joined the meetings to directly hear industry input.

Employers statewide identified the need for additional talent in the entry-level healthcare roles of home health aides, nursing assistants, and medical assistants. Additionally, most regions expressed a palpable demand for licensed practical nurses and registered nurses (particularly those with a specialized skill set). There was regional variability in the need for surgical technicians, mental health workers, laboratory technicians and technologist, health information management and dental support roles.

Finally, there was regional variability in additional talent pipeline challenges, including: growing and attracting local talent, increasing retention among new recruits, and capacity challenges for training, clinicals, in particular.

The Colorado Health Foundation-commissioned work by Slalom Consulting found similar results as those that emerged from the regional forums: health providers across Colorado see attracting and retaining a skilled workforce as a key challenge, particularly for entry-level employees. Additionally, remote locations, lower salaries, a high cost of living, and access to education and training programs are key drivers of workforce issues in rural regions (CO Health Foundation, Slalom Consulting, CareerWise Colorado).

## **14 HEALTHCARE PATHWAYS**

1. Health Support
2. Diagnostic Services
3. Health Informatics
4. Biotechnology Research & Development
5. Pharmacy
6. Dentistry
7. Optometry
8. Speech Pathology
9. Mental & Behavioral Health
10. Occupational & Physical Therapy
11. Emergency Medical Services
12. Physician
13. Surgical
14. Nursing

### **HEALTHCARE PATHWAY MAPPING**

Much work was completed to develop both big picture career pathways for all healthcare Top Jobs, and deeper dives into selected career pathways. For an overview of the healthcare Top Jobs map, see Appendix C.

Fourteen pathways were sequenced as part of career pathways development (see right). Based on employer engagement, the Nursing, Health Support, Pharmacy, and Mental and Behavioral Health pathways were sequenced in depth. The in-demand occupations within these pathways have been analyzed and segmented by the certifications, education, and preferred field experience which accelerate strong employment opportunities.

### **HEALTHCARE CORE COMPETENCY IDENTIFICATION**

Work to identify core competencies for healthcare careers started by utilizing the Competency Model Clearinghouse and Occupational Information Network (O\*Net) data to develop competency ranking sheets for employers to review during sector partnership meetings. Additionally, in some cases, sample position descriptions were shown for industry representatives to review for additional clarification. An example of a competency ranking sheet appears in Appendix D.

Our discussions across the state have identified that it is foundational for a healthcare worker to have the required medical knowledge, usually as identified by the required training and certification (see the attached for a full list of the training and certifications required). However, there are some good entry-level roles (such as Home Health Aide/Caregiver and Mental Health Tech) where certification is not required and there are some, such as Specialty Nurse and Licensed Clinical Social Worker, where training/experience/supervision beyond a certification is required.

In addition, there are three foundational competencies that were identified in at least 80% of the Healthcare jobs surveyed:

- **Customer Focus:** Focusing on, observing, and understanding the patient is a foundation for the industry. It is so important, that reimbursements are often tied to customer feedback and outcomes.
- **Interpersonal Skills:** Treatment in Healthcare requires a team to work effectively together. In addition, patients come from a variety of backgrounds, developing rapport and building trust with them is essential.
- **Communication:** Good listening, inquiry (to understand the situation), and documentation (to accurately record patient care information) skills are important...and you must be able to help the patient understand what is happening and care instructions in a culturally sensitive way.

A summary recommendation for those considering working in Healthcare is that it is a field driven through interactions with people; you will be most successful if you enjoy working with and helping people.

## **KEY INITIATIVES: HEALTHCARE APPRENTICESHIP DEVELOPMENT**

Apprenticeship is a very new concept in the healthcare field, where the requirements of education and clinicals are not only ingrained, but regulated. Several organizations in Colorado are developing innovative models that will get people into healthcare roles and provide opportunities and support for advancement through a combination of education and experience competency based milestones.

**CareerWise Colorado:** CareerWise Colorado launched in mid-2016 and welcomed the first class of 114 youth apprentices in the fields of IT, Advanced Manufacturing, Business Operations and Insurance during summer of 2017. In early 2017 CareerWise partnered with the CWDC and Sector Partnerships, Colorado Community Colleges, HOSA, the Colorado Health Foundation, the Colorado Hospital Association, the Colorado Healthcare Association (CHCA) and numerous businesses from hospital systems to long-term care facilities to develop an appropriate youth (~16 years of age) three-year apprenticeship model based on patient care competencies. Numerous business partners throughout the state will be hosting patient-care apprentices starting in summer 2018. Additional support roles such as medical billing / customer support, healthcare IT, and medical office support may also become available in this model.

**National Institute of Medical Assistant Advancement (NIMMA) Apprenticeship- Salud Health and Centura:** The Salud family of clinics was one of the first two national test sites for the NIMAA medical assistant registered apprenticeship in 2016. Centura plans to implement this model in late 2017 / early 2018.

Kaiser Permanente: Kaiser Permanente has implemented an apprenticeship model for technicians.

## **SUMMARY FINDINGS AND NEXT STEPS IN HEALTHCARE**

Subsequent work on the building of healthcare career pathways will be dependent on fostering these relationships, supporting emerging sector partnerships, continual alignment of various career pathway funding sources, refining mechanisms for industry to improve curriculum, and expanding work-based learning opportunities at all education levels (Pre-kindergarten through Doctoral degree (P-20)).

Both the Greater Metro Denver Healthcare Partnership (GMDHP) and CTE Health science state team received WORK Act grants to help facilitate Denver metro area and statewide healthcare marketing and coaching campaigns to support students through the start of their healthcare careers. Additionally, CTE received a grant to develop online core health science curriculum which aims to open access to healthcare career preparation regardless of geography. CareerWise Colorado will be launching their healthcare apprenticeships in the 2017-2018 year which will also increase student access and awareness to healthcare career pathways.

A number of specific ideas and recommendations emerged from career pathway development over the previous year including the following:

- There are meaningful pathways that work for some, but there are many roadblocks and some breaks in the pathways that keep a large number of people from successfully making it to the jobs the employers are struggling to fill. An example of a next step is for stakeholders to agree on the pathways (including training/certifications), and to develop a common outreach message when talking with students/teachers/job seekers. Careers In Colorado should be a meaningful part of that message.
- Almost all healthcare jobs require someone to have good communication, customer focus, and interpersonal skills competencies, which creates an opportunity for employers and educators to work together to help students practice and improve these skills during their training programs.
- More work is needed to bring clarity to the mental health jobs and pathways.

Conversations must continue regarding behavioral health, long-term care, and patient navigators, bringing clarity to training, jobs, and pathways.

## **INDUSTRY OVERVIEW & LABOR MARKET INFORMATION: CONSTRUCTION**

### **KEY SECTORS IN CONSTRUCTION**

- **General Contractors:** Establishments primarily engaged in contracts that include responsibility for all aspects of individual construction.
- **Specialty Trade Contractors:** Establishments primarily engaged in activities to produce a specific component (e.g., masonry, painting, and electrical work) of a construction project.
- **Heavy and Civil Engineering Construction:** Establishments involved in the construction of engineering projects.

- Residential homebuilders: Establishments constructing and remodeling single-family and multifamily housing units.

## **CONSTRUCTION INDUSTRY OVERVIEW**

The construction industry in Colorado is growing exponentially and offers a diversity of opportunities to jobseekers in the types of roles available, the variety of education and training needed, and the professional growth potential within the industry.

The 2015-2025 long-term projected employment for the construction industry in Colorado was 205,478 with a total percentage change of 38.2%, with the Denver-Aurora MSA accounts for a projected 115,230 openings. (CO LMI Gateway).

## **CONSTRUCTION LABOR MARKET INFORMATION**

Below please find key characteristics of the construction industry in Colorado as cited from the Colorado LMI Gateway:

- Jobs Available: There were 884 job openings advertised online for Construction in Colorado on August 15, 2017; 1,340 jobs were posted in July.
- Jobs Available Distribution: The counties with the highest number of job openings advertised online were Denver County (252), Arapahoe County (223), Larimer County (71), Weld County (51), Boulder County (41), Douglas County (40), El Paso County (39), Adams County (39), Broomfield County (35) and Jefferson County (28).
- Employers: There are 21,168 employer locations listed for Construction in Colorado.
- Employers Distribution: The counties with the highest number of employers for Construction in Colorado were El Paso County (2,259), Jefferson County (2,233), Denver County (2,201), Arapahoe County (2,016), Adams County (1,583), Larimer County (1,516), Weld County (1,152), Boulder County (1,092), Douglas County (1,024) and Mesa County (698)
- Employment Wage Statistics: The average weekly wage for Construction in Colorado in 4th Quarter, 2016 was \$1,207. This would be equivalent to \$30.18 per hour or \$62,764 per year, assuming a 40-hour week worked the year around.
- Establishments and Employees: The establishments and employees for the Construction industry in Colorado as of 4th Quarter, 2016 were 18624 and 162288, respectively.
- Industry Employment Distribution: As of 4th Quarter, 2016 were Adams County (22,428), Denver County (21,346), Arapahoe County (20,597), Jefferson County (15,396), El Paso County (15,353), Larimer County (10,724), Weld County (9,608), Douglas County (8,440), Boulder County (5,364) and Mesa County (4,202). (Source: CO LMI Gateway)

## **CAREER PATHWAY DEVELOPMENT: CONSTRUCTION**

### **CONSTRUCTION OVERVIEW**

Recognizing construction as a crucial sector across all regions of the state, work to date includes state and regional labor market analyses, the identification of critical occupations and competencies, feedback conversations, and a preliminary inventory of talent pipeline resources.

## CONSTRUCTION INDUSTRY & PUBLIC PARTNER ENGAGEMENT

All sectors of the construction industry in Colorado have strong statewide industry association representation, so a logical starting point for engagement regarding career pathways work was to connect with the existing industry association infrastructure. Below includes the key stakeholder groups engaged in the process:

- Associated General Contractors of America (AGC) represents more than 26,000 firms, including general contractors, specialty-contracting firms, service providers and suppliers. AGC of Colorado is Colorado's leading professional association for the state's commercial building industry, representing 500 firms statewide (AGC of Colorado).
- Colorado Contractors Association (CCA) is the leading professional association for infrastructure construction professionals across the state, representing 400 member firms and owner agencies (CCA).
- The Colorado Building and Construction Trades Council, AFL-CIO is comprised of 23 Craft Local Unions who represent 13 national and international Unions. These Local Unions make up the nucleus of some 30,000 skilled working men and women in the state (CBCTC).
- The International Association of Sheet Metal, Air, Rail and Transportation Workers (SMART) has 208,000 members across North America. SMW Local #9 manages the Joint Apprenticeship Training Center, which has three locations across Colorado (SMART).
- The Colorado Association of Home Builders (CAHB) is an affiliate of the National Association of Home Builders and has 10 local home builders associations across Colorado, and a statewide membership of nearly 2,000 member companies (CAHB).

In parallel with construction career pathway development, conversations had been underway among key industry association groups and the CWDC during fall, 2016 for the development of a Denver Metro area construction sector partnership. The launch meeting was held on January 23, 2017 with roughly 100 industry, association, union representatives, and public partners from workforce and education in attendance. The new sector partnership identified their top priorities for collective action as: 1. talent pipeline, 2. branding/marketing/career awareness building, and 3. business-to-business partnering. Project champions were identified and working groups emerged for priorities 1 and 2, which met periodically between March and June to solidify priorities and draft action plans.

## CONSTRUCTION KEY INITIATIVES

Industry associations and employers, many of whom are also engaged in the sector partnership, have collaborated in the development and growth of two programs to increase the construction talent pipeline:

- The Colorado Homebuilding Academy is an "industry-driven academy providing hands-on education, innovation and collaboration" (HBA). Courses offered include a construction skills boot camp, basics in concrete construction, and coming soon will be a superintendent training program.
- The Construction Careers Now program grew out of a WORK Act grant, and is collaboration among multiple organizations to attract new employees into the construction industry through a four-week introduction to the construction industry course, as well as informational resources on the BuildColorado.com website.

- Additionally, the AGC of Colorado launched an initiative called the Colorado Construction Connection (originally called the High School Navigator program) to engage high school students and expand their exposure to construction careers. This initiative grew out of previous Construction Career Days events with the goal of creating a longer-term, more impactful series of experiences. In the initial year, the group prioritized three projects with a pilot group of 11 area high schools (who had high participation rates in the Construction Career Days):
- Create a volunteer program where industry members engage with area high schools to raise awareness and increase student/educator knowledge about the construction industry.
- Develop a manual for industry members to reference and share with teachers and counselors during their outreach.
- Schedule a series of jobsite tours for high school students around Construction Month in October.

## **CONSTRUCTION TOP JOB IDENTIFICATION & CRITICAL OCCUPATION VALIDATION**

Statewide labor market data utilized in the 2016 Talent Pipeline Report indicated 31 Tier 1 and Tier 2 Top Jobs in the construction industry (See Appendix E for the complete list). From this list, and in the process of pathway development and validation with industry, 33 Critical Occupations were identified in two career pathways: Building & Infrastructure with Skilled Trades (23 jobs); and Pre-Construction & Professional (10 jobs).

Universally, when talking with industry, regardless of the sector, they emphasized the tremendous need for employees now across all roles. They were also acutely aware of the 10-year projected needs and not being on track as an industry to meet demand. Employers put particular emphasis on occupations in the Building & Infrastructure with Skilled Trades pathway, with laborers, carpenters, and electricians being commonly referenced as the areas with greatest need.

The construction industry had completed surveys and reports on the economic impact, status and needs of their talent pipeline prior to the career pathways launch. They collectively agreed that the surveys and reports, over regional industry forums, would provide sufficient data to validate top jobs. Results presented served as the validation that underscored the conversations had during industry association and sector partnership meetings.

While there are many reports detailing the Colorado construction industry, including information from Workforce Centers and CO LMI gateway, several key reports and findings that helped inform pathways work are summarized as follows:

- In the January 2015 report, Thevenin and Elliott, (2015) Economic Impacts of the Construction Industry on the State of Colorado, Colorado State University's Department of Construction Management leveraged grant funding from four organizations to produce a 67-page report detailing the current and future state of the construction industry. The report includes four sections: Colorado Construction Establishments; Construction employment and Wages; Industry Education and Employment Opportunities; and Economic Indicators. Among the findings highlighted is an estimate of "60,000 new jobs by 2023, which represents a 47% increase, the majority of which will be in specialty trade contractors".

- In August 2016, the Center for Workforce Initiatives at the Community College of Denver produced a report for the Colorado Department of Transportation: Wert and Palacios, (2016) Community Job Readiness and Workforce Needs Assessment. The 30-page report focused on local labor hiring provisions for Central 70 work, targeting 20 neighborhoods, conducting 15 focus groups, 4 employer focus groups, 69 interviews, and collecting 528 surveys. “The insights...supported the identification of goal recommendations and program action strategies related to the outreach, training and skills development, and supportive resources needed to help residents attain and retain employment on Central 70”.
- AGC of America conducts an annual Workforce Survey of its membership (2015). Colorado results from the 2016 survey were shared with the pathways team. Among the findings is the insight that “Two-thirds of construction firms report they are having a hard time filling hourly craft positions that represent the bulk of the construction workforce”.

## **CONSTRUCTION PATHWAY MAPPING**

In analyzing the Top Job data from the perspectives of experience level, education and training required, and job types, reviewing national models (i.e. GO Build Alabama, NCCER, O\*NET), categorizing roles by skills needed, and consulting with existing Colorado programs, two pathways quickly emerged: Building & Infrastructure with Skilled Trades (23 jobs); and Pre-Construction & Professional (10 jobs).

The most current pathway map can be found on Careers In Colorado. In the process of validating the 31 Top Jobs in the Talent Pipeline Report with industry, 33 Critical Occupations emerged and were utilized (See APPENDIX E).The final career pathways can be found on Careers In Colorado.

## **CONSTRUCTION CORE COMPETENCY IDENTIFICATION**

Industry association leaders validated that they utilize the Competency Clearinghouse models in their training programs, so using this as the source for mapping competencies for career pathways work was congruent with their practices.

More specifically, two models within the Competency Clearinghouse were utilized in construction pathway development: Commercial and Industrial Construction Competency Model and the Residential Construction Competency Model. Appendix F represents the foundational competencies identified for construction which served as a basis for conversations with industry.

To validate competencies with industry, the career pathways team attended the April 12, 2017 AGC meeting where the roughly 23 industry representatives and 12 public partners attending prioritized and discussed the competencies for a selection of critical occupations (See APPENDIX G) for a sample of rankings for 6 occupations).

## **SUMMARY FINDINGS AND NEXT STEPS IN CONSTRUCTION**

Subsequent work on the building of construction career pathways will be dependent on remaining engaged with industry associations, the sector partnership, and their key initiatives to ensure ongoing alignment. Paying close attention to changing industry trends and key projects like Central 70 is also crucial to being able to help students and jobseekers connect with opportunities.

A number of specific ideas and recommendations emerged from career pathway development over the previous year including the following:

- There is and will likely be extremely large unmet demand for construction workers across critical occupations, but particularly in the Building & Infrastructure with Skilled Trades pathway.
- While there is tremendous energy from all stakeholders toward increasing awareness and access to careers in construction, opportunity remains for additional alignment and coherence in messaging.
- There is additional opportunity in connecting with educators, from program development through outreach into schools. Educational outreach efforts to date have centered on high school students and job changers, but exploring middle and even elementary school career awareness activities might be of interest. Exploring how and where to build secondary and postsecondary programs is also a potential area for expanding the number of jobseekers who possess technical skills necessary for some positions.
- Apprenticeships have a strong tradition in construction, but there might be opportunities to expand offerings to include other work-based learning activities.
- More work is needed to broaden engagement beyond the statewide and Metro Denver area for industry, workforce, and education stakeholders, so the conversation remains regionally relevant.
- There is an opportunity to seek additional competency prioritization for the 33 critical occupations represented in Careers In Colorado, so the information shared with users is specific and validated.

## **NEXT STEPS IN CAREER PATHWAYS WORK**

At their April 2017 meeting, the Council voted that business operations and cybersecurity would be the career pathways for development in 2017-2018.

Once construction and healthcare pathways were published in June on Careers In Colorado, work shifted to exploring opportunities for improving the user experience and solidifying the scope of work with CDHE for the next release of Careers In Colorado.

In summer and fall, the focus of career pathways work is on outreach and training efforts, with more than 60 presentations completed reaching over 600 representatives from education, training, workforce, and industry.

In the fall, 2017 pathways work is focusing on documenting the talent development landscape for cybersecurity and business operations career pathways, including identifying the top jobs, industry forecasts, salary and wage forecasts, and occupation specific competencies. The project team is documenting education and training programs, career pathways programs, and work-based learning opportunities in cybersecurity and business operations. The project team will have developed baseline career pathway maps and metadata as the project moves into the next phase of engaging industry and validating data.

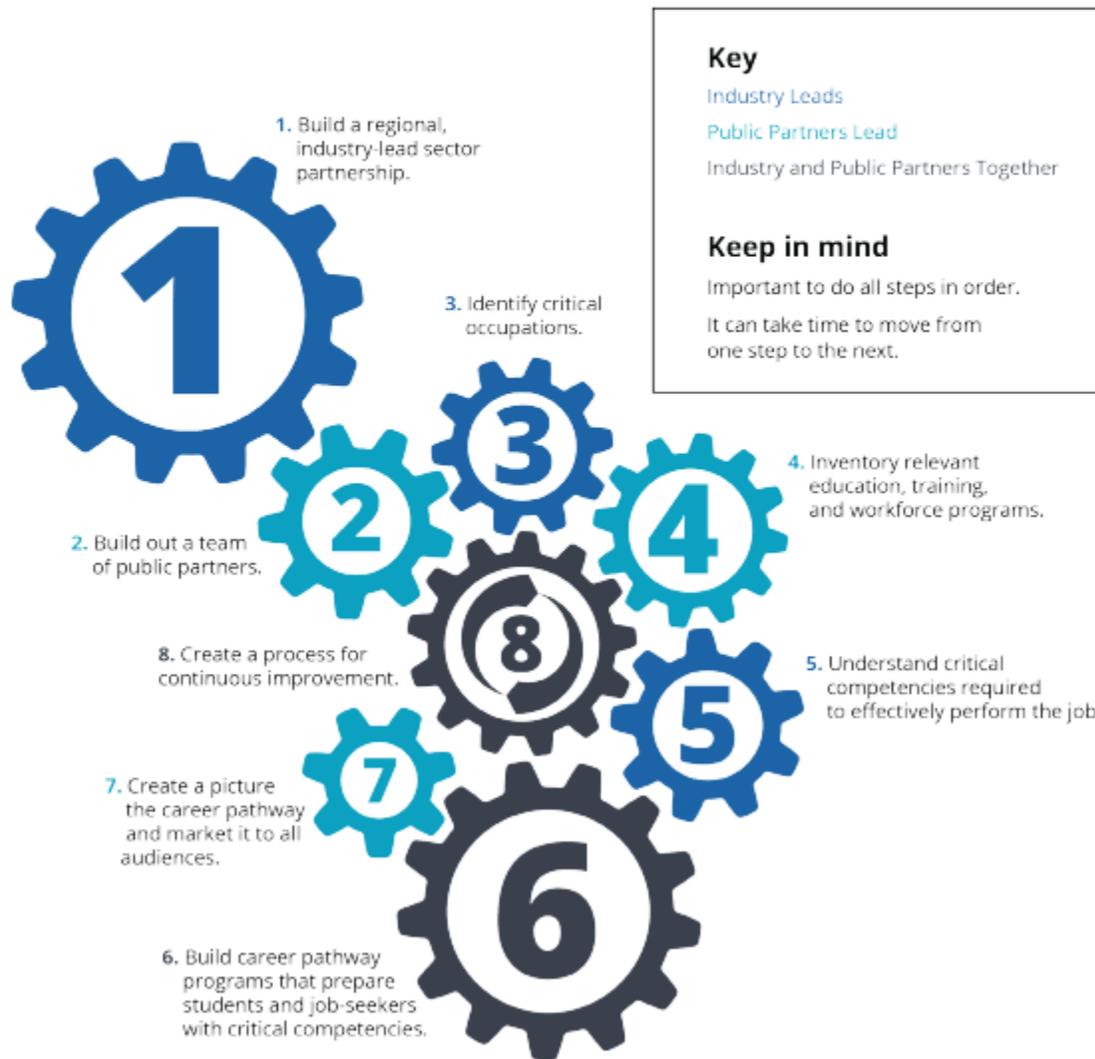
In early 2018, the project team will utilize information collected as industry is engaged to validate Top Jobs, proposed career pathways, and core competencies. The outcome of those meetings will help guide the project team to develop career pathways.

In spring, 2018 work will shift to adding career pathways into Careers In Colorado and exploring which pathways to address or refresh in the coming year.

# APPENDENCIES

## APPENDIX A: How to Build Regional Industry-Driven Career Pathways Systems

### Steps to Building Regional, Industry-led Career Pathways Systems



This graphic depicts the eight steps to building regional, industry-driven career pathways systems shown as interlocking gears.

## APPENDIX B: Healthcare Top Jobs

SOC	Occupation Title	MEDIAN* HOURLY > \$22.90 or >\$11.33	Median Annual Wage	2015-2025 Growth (%)	Annual Avg. Openings	Related Post sec. Awards (IPE DS, 2015)	Typical Entry Education Level	Apprentice able by USDOL	Licensed Occupation	Workers with Some College & Higher	Workers with Min. Entry Edu & Higher
<b>TIER 1</b>											
11-9111	Medical and Health Services Managers	49.22	\$102,382	36.79	270	616	Bachelor's	X		91%	64%
19-1042	Medical Scientists, Except Epidemiologists	27.11	\$56,385	27.11	71	759	Doctoral or Prof. degree			100%	62%
19-2041	Environmental Scientists and Specialists, Including Health	36.27	\$75,433	27.88	183	415	Bachelor's	X		100%	93%
19-3031	Clinical, Counseling, and School Psychologists	35.69	\$74,233	38.42	228	112	Doctoral or Prof. degree		X	100%	49%

	gists										
25-1071	Health Specialists Teachers, Postsecondary	53.32	\$110,899	37.00	279	N/A	Doctoral or Prof. degree			100%	43%
25-1072	Nursing Instructors and Teachers, Postsecondary	29.94	\$62,272	37.42	69	N/A	Master's			100%	43%
29-1011	Chiropractors	23.76	\$49,414	27.68	69	N/A	Doctoral or Prof. degree		X	99%	89%
29-1021	Dentists, General	76.07	\$158,229	28.39	125	116	Doctoral or Prof. degree		X	100%	96%
29-1031	Dietitians and Nutritionists	27.93	\$58,097	33.85	43	366	Bachelor's*			84%	72%
29-1041	Optometrists	55.83	\$116,133	40.02	73	N/A	Doctoral or Prof. degree		X	99%	95%
29-1051	Pharmacists	58.08	\$120,798	26.02	275	250	Doctoral or Prof. degree		X	100%	55%
29-1067	Surgeons	92.77	\$192,958	33.79	79	*	Doctoral or Prof. degree		X	100%	94%
29-1069	Physicians and Surgeons, All	92.76	\$192,942	28.71	157	*	Doctoral or Prof. degree		X	100%	94%

	Other										
29-1071	Physician Assistants	46.46	\$96,631	49.07	174	73	Master's		X	95%	49%
29-1122	Occupational Therapists	38.47	\$80,015	42.22	171	48	Master's		X	99%	46%
29-1123	Physical Therapists	35.88	\$74,630	53.30	389	146	Doctoral or Prof. degree		X	99%	28%
29-1126	Respiratory Therapists	27.98	\$58,199	36.38	109	82	Associate's		X	98%	85%
29-1127	Speech-Language Pathologists	39.78	\$82,736	32.24	187	185	Master's		X	99%	88%
29-1141	Registered Nurses	32.95	\$68,542	39.59	2,981	2,611	Bachelor's		X	99%	57%
29-1171	Nurse Practitioners	48.60	\$101,078	54.87	195	316	Master's		X	99%	91%
29-1199	Health Diagnosing and Treating Practitioners, All Other	23.51	\$48,895	44.76	85	153	Master's		X	96%	70%
29-2011	Medical and Clinical Laboratory	30.64	\$63,735	34.62	154	56*	Bachelor's		X	89%	53%

	ry Technologists										
29-2021	Dental Hygienists	39.14	\$81,407	28.67	214	125	Associate's		X	96%	88%
29-2031	Cardiovascular Technologists and Technicians	32.10	\$66,765	50.16	43	N/A	Associate's			92%	70%
29-2032	Diagnostic Medical Sonographers	38.39	\$79,843	50.45	62	17	Associate's			92%	70%
29-2034	Radiologic Technologists and Technicians	29.23	\$60,793	29.27	159	199	Associate's	X		92%	70%
29-2055	Surgical Technologists	23.20	\$48,261	40.15	72	68	Postsec. non-degree	X	X	75%	75%
31-2011	Occupational Therapy Assistants	23.69	\$49,280	40.28	40	73	Associate's		X	97%	88%
31-2021	Physical Therapist Assistants	24.75	\$51,481	50.70	85	85	Associate's		X	92%	75%
<b>TIER 2</b>											

19-4091	Environmental Science and Protection Technicians, Including Health	20.72	\$43,106	26.22	62	17	Associate's	X		82%	59%
21-1011	Substance Abuse and Behavioral Disorder Counselors	19.82	\$41,226	40.32	77	N/A	Bachelor's		X	94%	79%
21-1012	Educational, Guidance, School, and Vocational Counselors	22.45	\$46,691	25.40	211	133	Master's	X	X	94%	53%
21-1014	Mental Health Counselors	21.61	\$44,949	40.19	342	58	Master's*		X	94%	53%
21-1015	Rehabilitation Counselors	17.53	\$36,465	35.09	78	10	Master's		X	94%	53%
21-1021	Child, Family, and School	21.44	\$44,604	29.16	351	709	Bachelor's		X	93%	79%

	Social Workers										
21-1023	Mental Health and Substance Abuse Social Workers	18.92	\$39,362	41.26	117	N/A	Bachelor's		X	93%	79%
21-1029	Social Workers, All Other	22.76	\$47,339	26.70	67	709	Bachelor's		X	93%	79%
21-1093	Social and Human Service Assistants	15.67	\$32,592	31.85	134	153	HS diploma/equivalent**	X		81%	98%
21-1099	Community and Social Service Specialists, All Other	18.65	\$38,788	28.08	149	233	Master's degree			86%	23%
29-2012	Medical and Clinical Laboratory Technicians	18.39	\$38,245	39.04	131	56*	Associate's	X		89%	70%
29-2041	Emergency Medical Technicians and Paramedics	17.46	\$36,307	39.04	236	1,407	Postsec. non-degree	X		85%	85%

	cs										
29-2052	Pharmacy Technicians	16.08	\$33,436	30.68	202	230	HS diploma/equivalent**	X		75%	98%
29-2056	Veterinary Technologists and Technicians	14.37	\$29,894	42.84	181	528	Associate's degree			75%	40%
29-2061	Licensed Practical and Licensed Vocational Nurses	22.37	\$46,536	28.62	312	272	Postsec. non-degree	X	X	80%	80%
29-2071	Medical Records and Health Information Technicians	21.93	\$45,612	34.07	128	145	Postsec. non-degree	X		75%	75%
29-2081	Opticians, Dispensing	16.76	\$34,855	39.52	88	N/A	HS diploma/equivalent**	X		70%	98%
29-2099	Health Technologists and Technicians, All Other	19.01	\$39,534	44.05	166	104**	High school diploma or equivalent	X App. Exists in CO	X	79%	98%
31-101	Home Health	11.54	\$24,000	56.73	1,004	9	No formal ed.	X		53%	100%

1	Aides						credential**				
31-1014	Nursing Assistants	13.80	\$28,709	34.31	1,118	1,936	Postsec. non-degree	X	X	53%	53%
31-9011	Massage Therapists	19.70	\$40,976	40.79	428	839	Postsec. non-degree		X	81%	81%
31-9091	Dental Assistants	17.95	\$37,342	28.53	334	629**	Postsec. non-degree	X	App. Exist in CO	67%	67%
31-9092	Medical Assistants	15.76	\$32,779	37.15	548	1,328**	Postsec. non-degree	X	App. Exist in CO	75%	75%
31-9093	Medical Equipment Preparers	17.41	\$36,209	37.76	57	N/A	HS diploma/equivalent**			51%	92%
31-9094	Medical Transcriptionists	20.17	\$41,947	25.00	49	N/A	Postsec. non-degree	X		79%	79%
31-9097	Phlebotomists	16.65	\$34,625	44.47	122	242	Postsec. non-degree	X		71%	71%

Source: 2016 Talent Pipeline Report <https://www.colorado.gov/pacific/cwdc/colorado-talent-pipeline-report>

Criteria: high growth (>2.4% annually), high # of openings (>40 annually) and pay a living wage

\* Internship or residency Requirement; \*\* On-the-job-training required

**APPENDIX C: Healthcare Critical Occupations Identified and Reviewed:**

<b>Region 2 Loveland, CO</b>  <b>4.18.17</b>	<b>Region 3 Aurora, CO</b>  <b>2.23, 3.14, 3.21, 3.28, 3.30,</b>	<b>Region 4 Colorado springs, CO</b>  <b>2.27.17 &amp; 3.20.17</b>	<b>Region 5 Limon, CO</b>  <b>2.24.17</b>	<b>Region 7 Pueblo, CO 2.28.17</b>	<b>Region 8 Alamosa, CO</b>  <b>3.2.17</b>
<ul style="list-style-type: none"> <li>- Certified Nursing Assistant (CNA)/ Caregiver</li> <li>-Licensed Practical Nurse (LPN)</li> <li>- Medical/Health care Social Workers</li> <li>-Mental Health Counselors</li> <li>-Social &amp; Human Service Assistants</li> <li>-Clinical, Counseling, and Social Psychologists</li> </ul>	<ul style="list-style-type: none"> <li>-Certified Nursing Assistant</li> <li>-Medical Assistant</li> <li>-Registered Nurse</li> <li>-Medical &amp; Clinical Laboratory Technician</li> <li>-Surgical Technologist</li> <li>-Pharmacy Technician</li> <li>-Radiologic Technologist &amp; Technician</li> <li>-Medical Scientist</li> </ul>	<p><i>February meeting served as a sector partnership re-launch.</i></p> <p><i>The Talent Pipeline subcommittee discusses three occupations in the March meeting:</i></p> <ul style="list-style-type: none"> <li>-Medical Assistant</li> <li>-Surgical Tech - Registered Nurse</li> </ul>	<ul style="list-style-type: none"> <li>-Certified Nursing Assistant (CNA)</li> <li>-Medical Assistant (MA)</li> <li>-Resource/ Healthcare Navigator</li> </ul>	<ul style="list-style-type: none"> <li>-Certified Nursing Assistant (CNA)</li> <li>-Licensed Practical Nurse (LPN)</li> <li>-Surgical Technician</li> <li>-Registered Nurse (RN)</li> <li>-Physical Therapist (PT)/Occupational Therapist (OT)</li> <li>-Mental Health-Psychiatric Mental Health Nurse Practitioner</li> <li>-Physician</li> </ul>	<ul style="list-style-type: none"> <li>-Licensed Practical Nurse (LPN)</li> <li>- Medical Assistant (MA)</li> <li>-Registered Nurse (RN)</li> <li>-Physical Therapist (PT)/Occupational Therapist (OT)</li> <li>-Healthcare Social Worker</li> <li>-Substance Abuse and Behavioral Disorder Counselor</li> <li>-Physician</li> <li>-Surgeon</li> </ul>

## APPENDIX D: Statewide Healthcare Competency Prioritization

(the top of the list is most important, the bottom, least important)

					<b>Technicians &amp; Technologists Job Family (Medical &amp; Clinical Lab. Technologists; Radiologic Technicians &amp; Technologists; Surgical Technologists)</b>
<b>Pharmacy Technician</b>	<b>Certified Nursing Assistant</b>	<b>Medical Assistant</b>	<b>Surgical Tech</b>	<b>Medical and Clinical Laboratory Technologist</b>	
Communication	Communication	Communication	Communication	Communication	Communication
Customer Focus	Customer Focus	Customer Focus	Planning & Organizing	Science & Tech	Critical & Analytical Thinking
Reading	Critical & Analytical Thinking	Interpersonal Skills	Customer Focus	Critical & Analytical Thinking	Customer Focus
Physical Abilities	Planning & Organizing	Reading	Physical Abilities	Reading	Physical Abilities
Medicine & Dentistry	Interpersonal Skills	Medicine & Dentistry	Critical & Analytical Thinking	Writing	Medicine & Dentistry
Mathematics	Psychology	Critical & Analytical Thinking	Medicine & Dentistry	Physical Abilities	Reading
Writing	Medicine & Dentistry	Writing	Working with Tools and Technology	Medicine & Dentistry	Science & Tech
Critical & Analytical Thinking	Physical Abilities	Checking, Examining, and Recording	Instructing	Customer Focus	Writing

Planning & Organizing	Health & Safety	Planning & Organizing		Working with Tools and Technology	Planning & Organizing
Checking, Examining, and Recording		Physical Abilities			Instructing
<p><i>For competency definitions and complete list, see <a href="#">Competency Model Clearinghouse</a>, and <a href="#">Occupational Information Network (O*NET)</a>, run by the U.S. Department of Labor.</i></p>					

## APPENDIX E: Construction Top Jobs

SOC	Occupation Title	Median Annual Wage	2015-2025 Growth Rate (%)	Annual Avg. Openings	Add'l Training	Existing Registered Apprenticeship (RA) in CO	Licensed Occupation
<b>TIER 1</b>							
11-9021	Construction Managers	\$85,877	24.43	406	Moderate-term on-the-job training (OJT)		
47-1011	First-Line Supervisors of Construction Trades & Extraction Work	\$64,462	25.70	500	None		
47-2021	Brickmasons & Blockmasons	\$48,776	53.55	109	Apprenticeship	X	
47-2152	Plumbers, Pipefitters, & Steamfitters	\$47,699	38.39	476	Apprenticeship	X	X
49-9021	Heating, Air Conditioning, & Refrigeration Mechanics & Installers	\$54,243	44.41	329	Long-term OJT	X	
13-1051	Cost Estimators	\$61,916	31.63	297	None		
13-2021	Appraisers & Assessors of Real Estate	\$55,528	27.26	109	Long-term OJT		X
17-101	Architects, Except	\$66,327	30.22	164	Internship/residency		X

1	Landscape & Naval						
17-2051	Civil Engineers	\$80,362	29.28	507	None		X
17-2071	Electrical Engineers	\$93,620	25.24	186	None		X
17-2081	Environmental Engineers	\$90,384	42.35	161	None		X
17-2141	Mechanical Engineers	\$82,772	30.43	398	None		X
25-1032	Engineering Teachers, Postsecondary	\$80,511	29.76	56	None		

Appendix E: Construction Top Jobs Cont.

SOC	Occupation Title	Median Annual Wage	2015-25 Growth Rate (%)	Annual Avg. Openings	Add'l Training	Existing RA in CO	Licensed Occupation
<b>TIER 2</b>							
47-2031	Carpenters	\$41,866	31.34	861	Apprenticeship	X	
47-2044	Tile & Marble Setters	\$37,287	35.93	60	Long-term OJT	X	
47-2051	Cement Masons & Concrete Finishers	\$36,876	42.39	260	Moderate-term OJT	X	
47-206	Construction Laborers	\$32,085	32.76	1,477	Short-term OJT	X	

1							
47-2073	Operating Engineers & Other Const. Equipment Operators	\$44,832	27.73	413	Moderate-term OJT	X	
47-2081	Drywall & Ceiling Tile Installers	\$40,697	33.29	125	Moderate-term OJT	X	
47-2111	Electricians	\$46,220	45.38	1,056	Apprenticeship	X	X
47-2121	Glaziers	\$42,203	29.80	42	Apprenticeship	X	
47-2131	Insulation Workers, Floor, Ceiling, & Wall	\$34,618	34.49	45	Short-term OJT	X	
47-2141	Painters, Construction & Maintenance	\$36,317	35.26	327	Moderate-term OJT	X	
47-2151	Pipelayers	\$37,049	27.84	44	Short-term OJT		
47-2181	Roofers	\$36,234	42.96	194	Moderate-term OJT		
47-2211	Sheet Metal Workers	\$43,524	35.77	210	Apprenticeship	X	
47-2221	Structural Iron & Steel Workers	\$41,380	27.48	40	Apprenticeship	X	
47-409	Construction & Related Workers, All	\$34,634	33.85	48	Moderate-	X	

9	Other				term OJT		
49-2098	Security & Fire Alarm Systems Installers	\$42,646	31.97	73	Moderate-term OJT		
27-1025	Interior Designers	\$46,215	27.91	113	None		
17-3022	Civil Engineering Technicians	\$46,696	25.24	57	None		

Source: 2016 Talent Pipeline Report <https://www.colorado.gov/pacific/cwdc/colorado-talent-pipeline-report>

Criteria: high growth (>2.4% annually), high # of openings (>40 annually) and pay a living wage

**CHANGES BETWEEN TOP JOBS LIST AND CRITICAL OCCUPATIONS UTILIZED IN THE PATHWAYS:**

- Heavy Truck Driver was added.
- Plumbers, Pipefitter & Steamfitters were separated into 2 roles in the pathway.
- Fire Sprinkler Fitter was added.
- Construction and Related Workers, All Other, Construction Managers, and First-Line Supervisors of Construction Trades and Extraction Work were replaced with Foreman and Superintendent.

## APPENDIX F: Construction Competency List

Tier 1- Personal Effectiveness	Tier 2- Academic	Tier 3- Workplace
<ol style="list-style-type: none"> <li>1. Interpersonal skills</li> <li>2. Integrity</li> <li>3. Professionalism</li> <li>4. Initiative</li> <li>5. Dependability/ Reliability</li> <li>6. Willingness to Learn</li> </ol>	<ol style="list-style-type: none"> <li>1. Reading</li> <li>2. Writing</li> <li>3. Mathematics</li> <li>4. Science</li> <li>5. Communication- visual &amp; verbal</li> <li>6. Basic Computer Skills</li> </ol>	<ol style="list-style-type: none"> <li>1. Teamwork</li> <li>2. Following Directions</li> <li>3. Commercial: Following Plans and Schedules; Residential: Planning and Scheduling</li> <li>4. Problem-Solving &amp; Decision-Making</li> <li>5. Working with Tools &amp; Technology</li> <li>6. Checking, Examining, and Recording</li> <li>7. Craftsmanship</li> </ol>

For competency definitions, see the [Competency Model Clearinghouse](#). Two models were utilized in construction pathway development: [Commercial and Industrial Construction Competency Model](#) and the [Residential Construction Competency Model](#)

## APPENDIX G: Construction Competency Prioritization for Key Critical Occupations

Importance Rank	<a href="#">Electricians 47-2111.00</a>	<a href="#">Plumbers, Pipefitters, and Steamfitters 47-2152.01</a>	<a href="#">Plumbers, Pipefitters, and Steamfitters 47-2152.02</a>	<a href="#">Heating, Air Conditioning, and Refrigeration Mechanics and Installers 49-9021.01</a>	<a href="#">Heating, Air Conditioning, and Refrigeration Mechanics and Installers 49-9021.02</a>	<a href="#">Carpenters 47-2031.02</a>
1	Building & Construction	Mechanical	Mechanical	Mechanical	Mechanical	Building & Construction
2	Mechanical	Building & Construction	Building & Construction	Customer & Personal Service	Customer & Personal Service	Mathematics
3	Mathematics	Design	Design	Building & Construction	Mathematics	Design
4	Design	Mathematics	Mathematics	Design	English Language	Mechanical
5	English Language	English Language	Customer & Personal Service	Physics	Physics & Computers & Electronics (Tied)	Administration & Management

*Rankings selected at April 12, 2017 AGC meeting*