

**Education, Training and Job Placement
in Emerging Industries:**

**A State Plan Addressing
Contextualized Learning, Early College and
Career Certificate Programs**

Connecticut Employment and Training Commission

January 2015

EXECUTIVE SUMMARY

The 2014 General Assembly charged the Connecticut Employment and Training Commission (CETC), collaborating with Connecticut's Workforce Investment Boards (WIBs), to develop a statewide plan and funding proposal to implement, expand, or improve contextualized learning, career certificate, middle-college, and early-college programs – examining how these strategies can provide cost-effective education and training leading to job placement and career advancement in manufacturing, health care, construction/green technology, and other emerging industries driving Connecticut's economy. (Public Act# 14-217, Section 197 – An Act Implementing Provisions of the State Budget for the Fiscal Year Ending June 30, 2015 – Statewide Plan to provide Education, Training and Job Placement in Emerging Industries).

The CETC Statewide Plan Work Group formed to take on this assignment was co-chaired by CETC Chair Donald Shubert (President, Connecticut Construction Industries Association) and Lyle Wray (Executive Director, Capitol Region Council of Governments). The Connecticut Department of Labor Office of Workforce Competitiveness (OWC), provided staff support. Participants included CETC members, WIB Executive Directors, OWC's Executive Director, and state agencies with oversight responsibility for the targeted programs, including the Board of Regents for Higher Education, and the Departments of Education, Labor and Social Services.

CETC endorses the Work Group's plan/report and recommendations. Members believe that focused attention on the targeted education and training strategies can help to address employers' needs for skilled workers and develop the critical skills of Connecticut's readily available and future workforce.

Recommendation 1 - Establish Standards and Outcomes: Establish an Interagency Program Team to coordinate efforts to improve and expand contextualized learning programs statewide. The Interagency Team should: develop consistent, evidence-based program standards, across funding streams and operating entities to guide state and regional funding decisions; develop consistent performance objectives and outcome measures to assess program effectiveness, promote continuous improvement and link funding to performance; develop and maintain an accessible, updated program inventory; and, report on program outcomes. Representatives of the Departments of Education, Labor, Social Services, Economic and Community Development, Board of Regents for Higher Education, Workforce Investment Boards and selected programs operators should be included. CETC should provide input into related state and regional procurement processes to ensure fidelity to program standards and metrics.

Recommendation 2 - Focus Training Investments: Establish an Industry and Education Partnership Fund to promote focused investment in training directly linked to employment in high-value industries, at the middle-skill jobs level and higher. Ten million dollars should be allocated to the Fund over the next two fiscal years to support contextualized learning and career certificate programs, emphasizing efforts to prepare adults for jobs in healthcare, manufacturing and

construction/green technology. Funding should be sufficiently flexible to address critical needs and opportunities. The Fund should test the effectiveness of instructional and training strategies and incentivize programs to achieve critical outcomes, particularly attainment of skills, certificates and successful employment.

Recommendation 3 - Expand Early College Opportunities: Support the plan of the Early College Steering Committee to identify promising strategies, replicate successful models and guide implementation of early college initiatives going forward. The state should provide the funding requested by the Board of Regents for Higher Education to support early college program efforts over the next two years. The Early College Steering Committee should: encourage linkage of early college programs with local/regional employers in partnership with Workforce Investment Boards, Department of Economic and Community Development, and Connecticut Department of Labor; adopt consistent performance objectives, assess program effectiveness and report on outcomes, to promote continuous improvement and link funding to program performance; and develop and maintain an accessible, user-friendly early college programs inventory.

Recommendation 4 - Create Clearinghouse on Early College, Contextualized Learning and Career Certificate Programs: Develop and maintain a clearinghouse providing readily accessible information on early college, contextualized learning and career certificate programs. Information should include program overviews, enrollment requirements, and participant outcomes to inform prospective participants about potential training and career opportunities. Regularly updated input from the Workforce Investment Boards, Connecticut Department of Labor, Board of Regents, State Department of Education and other relevant state agencies should be included, with information posted on appropriate websites.

Recommendation 5 - Align Career Pathways System: The impending strategic planning process driven by the new federal Workforce Innovation Opportunity Act (WIOA), coordinated by CETC, should be used to integrate contextualized learning, early college and career certificate programs as key elements of an aligned statewide career pathways system, responsive to the workforce priorities of key industry sectors and the aspirations of low-skill and middle-skill workers to succeed in jobs leading to productive careers and financial security. The new unified state workforce plan provides a unique opportunity to re-envision how Connecticut's education and workforce systems can have maximum impact on the state's economic competitiveness.

LEGISLATIVE CHARGE

Background

The 2014 General Assembly approved legislation (Public Act No. 14-217, Section 197) charging the Connecticut Employment and Training Commission (CETC) to collaborate with Connecticut's five regional Workforce Investment Boards (WIBs) in developing a statewide plan and funding proposal to implement, expand, or improve on 1) **contextualized learning** programs; 2) **career certificate** programs; 3) **middle-college** programs; and, 4) **early-college high school** programs. The legislative intent is to examine how these strategies can provide cost-effective education and training leading to job placement and career advancement in manufacturing, health care, construction/green technology, and other emerging industry sectors that drive Connecticut's economy. [Note: This plan/report consolidates middle-college programs into the early college category, consistent with the work of the Early College Steering Committee.]

CETC must report on its plan to the General Assembly's Higher Education and Employment Advancement Committee by January 1, 2015. Annually thereafter, beginning September 1, 2015, CETC is required to report on the status of these programs and related improvement efforts.

CETC is Connecticut's State Workforce Investment Board, authorized under Federal law and state statute. CETC is the State body with lead responsibility to provide workforce development policy and planning guidance to the Governor and General Assembly. CETC is charged to promote strategic coordination of the state's workforce development investments, strategies, and programs. Members represent Connecticut businesses, key state agencies, regional/local public entities, labor, community organizations and other key stakeholders. The Connecticut Department of Labor Office of Workforce Competitiveness provides staff support and technical assistance.

The planning effort described in this plan/report builds on the underlying assumption that the General Assembly and Higher Education and Career Advancement Committee are generally supportive of each of the identified program strategies and believe that they contribute importantly to the State's overall workforce development efforts. There is concern about a perceived mismatch between employers' needs for qualified workers in middle-skill jobs and above with the availability of appropriately skilled workers, both in the near-term and longer-range. Concerns raised by legislative leadership that served as the focus for this plan/report included:

- What do we know about job/career opportunities in the targeted industries? What critical skill gaps do employers need to fill?
- What are accurate, practical program attributes for each of the targeted strategies, particularly for exemplary programs?

- What relevant programs currently exist in Connecticut in each category? Who operates them, and who are key partners? Who do they serve? What are they intended to achieve? How are they funded? What resource gaps exist? [Note: This initial CETC planning effort does not review evaluation of program effectiveness.]
- What can be done to align these discrete program strategies systemically across agencies and funding streams, integrated into a career pathways framework that promotes consistency, cost-effectiveness, and desired results? How do these programs help meet the needs of industry and workers, particularly in middle-skill occupations? What resources are needed to support these programs?

PLANNING PROCESS

CETC Statewide Plan Work Group

CETC Chair Donald Shubert established a CETC Statewide Plan Work Group to take on this assignment. Mr. Shubert and CETC member Lyle Wray (Executive Director, Capitol Region Council of Governments) co-chaired the Work Group. The Connecticut Department of Labor Office of Workforce Competitiveness (OWC) provided staff support. Participants on the Work Group included several CETC members; Executive Directors of Connecticut's five WIBs; OWC's Executive Director; and state agencies with state-level oversight responsibility for the targeted program categories (contextualized learning; early-college; career certificates), representing the Board of Regents for Higher Education, Connecticut State Department of Education and the Connecticut Department of Labor.

The Work Group met three times – July 24, September 8 and November 25, 2014. A preliminary draft outline of the report/plan was discussed at the September 23, 2014 CETC meeting, which included public comment from several key stakeholders. A final draft was reviewed and discussed at the December 11 CETC meeting, and CETC members voted to endorse the plan/report, subject to final consensus modifications suggested in the discussion. Chairman Shubert was authorized to oversee staff completion of the plan/report for submission to the General Assembly Higher Education and Employment Advancement Committee on CETC's behalf. Members also authorized Mr. Shubert to determine subsequent steps to ensure that CETC conducts the necessary work to develop and provide the initial annual status report to Higher Education and Employment Advancement Committee by September 1, 2015.

Related Connecticut Efforts

This CETC-led planning exercise intentionally builds on the work of several recent related planning efforts conducted by various groups in Connecticut. The CETC Statewide Plan Work Group attempted to mine the insights and information produced by these various planning efforts,

avoiding duplication where possible, adopting the findings and recommendations these groups developed as a foundation to build on. These recent related planning efforts include:

The **Early College Steering Committee**, a joint effort by the Board of Regents for Higher Education and Connecticut State Department of Education to review early college strategies and recommend expansion of early college programs in Connecticut. The Steering Committee was charged to identify: high school/college partnership programs in the community college system and in joint projects between school districts and colleges statewide; attributes of successful high school/college early college programs; early college models in Connecticut and elsewhere that might be taken to scale; and relevant funding structures. An initial Steering Committee report from December 2013 was revised in October 2014. Program attributes developed by the Steering Committee were adopted for this CETC planning exercise, and are included as **Appendix C**.

The **CETC Career Advancement Committee** produced in December 2013 a *Review of Contextualized Learning and Its Importance to Career Advancement for Adults in Connecticut*. That report defines contextualized learning, provides an overview of programs funded through the state Departments of Education and Labor as well as private funders, and outlines a set of essential attributes for effective contextualized learning programs in Connecticut. The essential attributes included as **Appendix B** were endorsed by CETC and adopted for this planning exercise.

The **Legislative Program Review and Investigations Committee** in 2014 authorized a study of Higher Education Certificate Programs to examine the effectiveness of workforce development sub-baccalaureate certificate programs, alignment with employer demand, and completion rates. The study is to produce a description of certificates awarded by the Board of Regents through the Community Colleges, Connecticut State Universities, and Charter Oak State College, and those issued by private nonprofit colleges, universities and private occupational schools. The report will assess the alignment of supply and demand for targeted certificate programs. An interim staff update was presented on October 1. The final staff study was presented on December 19. CETC will review the information developed in the study to determine how best to align its findings and recommendations with CETC's ongoing responsibility to review and report annually on career certificate programs. Information on the study is contained in **Appendix G**.

In May 2014 the U.S. Departments of Education, Health and Human Services, and Labor issued a joint request for information concerning career pathways systems. The **Office of Workforce Competitiveness** took the lead in developing a State response on CETC's behalf, working with two CETC committees (Career Advancement, and Youth Employment), key state agencies, the WIBS, local school districts and community-based organizations to identify exemplary programs and propose recommendations for a high quality career pathway system in Connecticut. Endorsed by CETC, the paper was submitted in June. The information developed for that response helped to frame the recommendations in this plan/report.

The **Connecticut Department of Labor Office of Research**, in conjunction with the Office of Workforce Competitiveness, is conducting research and analysis leading to production of two documents that will contribute significantly to our understanding of job openings (demand) and program performance (supply), to help guide planning for the development of effective contextualized learning, early college and career certificate programs. The **2014 Legislative Report Card** is a data-driven review of the impact and outcomes of an array of Connecticut education and training programs, operated and/or funded by state agencies across various funding streams. The Report Card (to be released by January 2015) will provide useful information going forward on how well targeted education and training programs are doing to produce the skilled workforce Connecticut needs to support key industries. In addition, with support from OWC, the Office of Research is conducting an extensive vacancy survey of Connecticut businesses and employers to ascertain current job openings and near-term anticipated vacancies, valuable information to help guide planning for responsive education and training strategies. Survey results are expected in early 2015. CETC will rely on information from the Report Card and vacancy study to inform future efforts to review and report on contextualized learning and career certificate programs.

The **Planning Commission for Higher Education** was established by the legislature to develop a strategic master plan for higher education in Connecticut. The Commission met initially in 2013 and is working to complete a strategic plan intended to: increase the level of post-secondary educational attainment in Connecticut to at least 70% by 2025; ensure that higher education contributes to developing a globally competitive state economy; and ensure that higher education is genuinely affordable for Connecticut residents. Data gathered as part of this strategic planning helped to inform the Work Group on attainment of college credentials and degrees.

Information from all of these efforts helped to clarify the focus of this CETC plan/report and how it can contribute to the state's understanding of innovative program strategies.

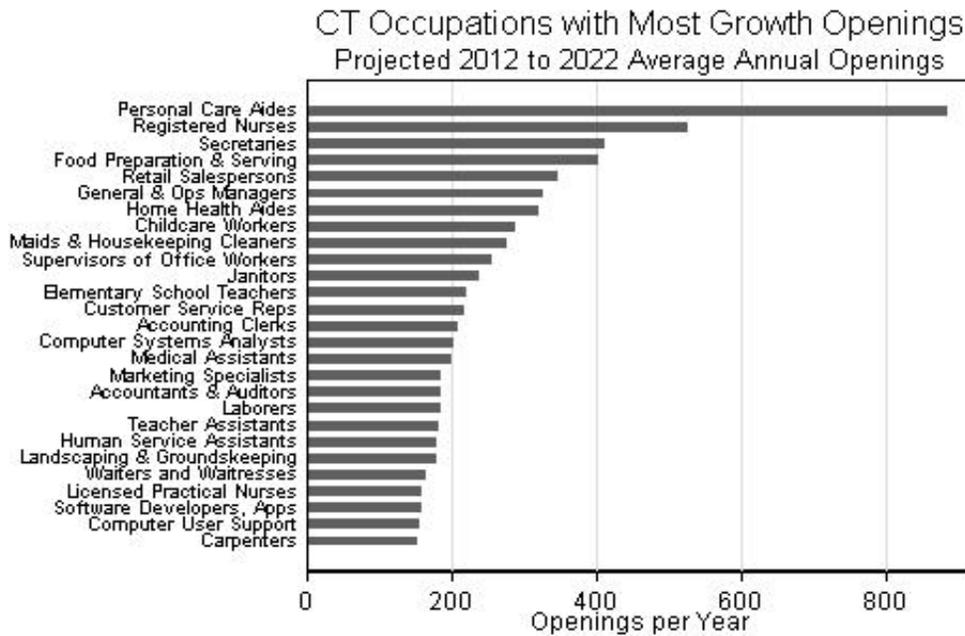
INDUSTRY WORKFORCE DEMAND

CETC's legislative charge specifically identifies three industries as the focus of this workforce development planning effort: manufacturing, health care, and construction/green technologies, with an opportunity to identify other relevant emerging industries in Connecticut. The charge reflects the implicit assumption that these industries are economic drivers, critical to the state's growth and prosperity. Further, it is assumed that these industries offer viable job opportunities at entry, middle and higher levels, with practical pathways to productive and rewarding careers for qualified workers who have the necessary skills, aptitudes, education, training, experience and credentials. Future CETC reports required by the legislation will review other emerging noteworthy Connecticut industries driving economic growth, including (but not limited to) insurance/finance, biosciences and transportation and logistics. While this report/plan focuses on industries identified in the legislation, the Work Group acknowledges the importance of Information Technology (IT) as a crosscutting priority in developing skilled employees to meet the

needs of businesses in each of these industry sectors. IT (and related occupations) is not treated as a separate industry in this report/plan. However demand in specific IT-related occupations will be addressed in future efforts.

Table 1 below highlights occupations with the most growth openings projected through 2022. Many of these openings align with the industries discussed in this report, particularly healthcare and the building trades. For instance, the greatest growth is expected in the healthcare occupations of personal care aides and nurses, while growth is also projected in laborers and carpenters.

Table 1: Connecticut Occupations with Most Growth Openings



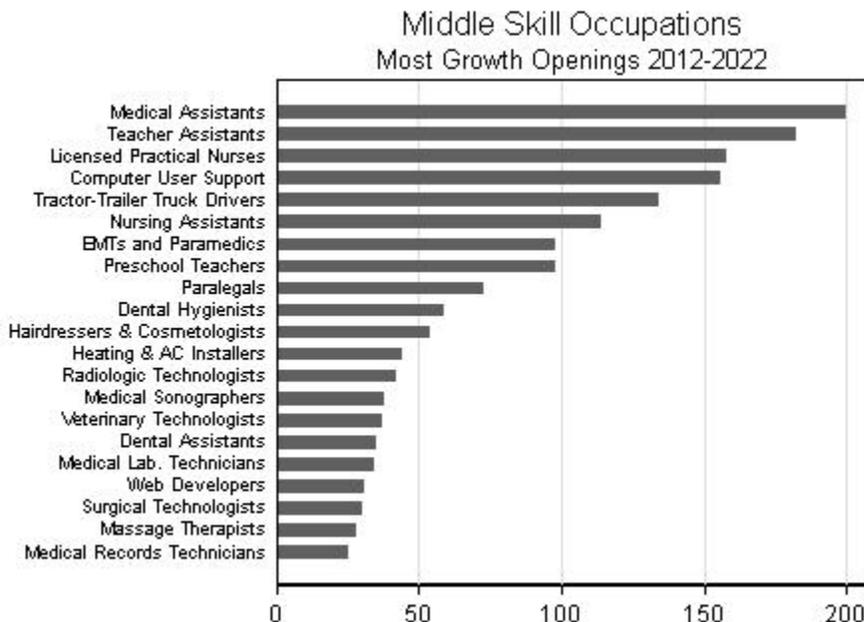
A significant and growing number of Connecticut jobs require post-secondary education. Two of every three new jobs (66%) created by 2018 will require at least some post-secondary education [*The Basic Economic Security Tables for Connecticut, Wider Opportunities for Women, 2012*]. Jobs with high wages, health benefits and advancement opportunity will be out of reach for workers lacking requisite reading, math and English proficiency needed at that postsecondary level. Contextualized learning, early college and career certificate programs can help these workers gain technical and job readiness skills that put them on a path to meaningful employment.

Not all jobs requiring postsecondary education require a four-year degree. These jobs, typically referred to as “middle-skill jobs”, require training beyond high school, but not necessarily a four-year degree. This can include an associate’s degree, occupational certification, or an apprenticeship. In 2012 in Connecticut, 15% of all jobs were low-skilled; 49% were middle-skill occupations; and 36% were high-skilled. However, we have an oversupply of individuals prepared for high-skill jobs (41%) and low-skill jobs (19%), but only 39% of workers had the requisite skills

needed to qualify for middle-skill jobs (at a minimum), creating a significant middle-skills gap. [National Skills Coalition, Middle Skill Jobs State by State: Connecticut, August 2012]

Table 2 below highlights a variety of these middle skill occupations. Again the field of healthcare shows growth for a number of different occupations.

Table 2: Middle Skill Occupations



The program strategies that serve as the focus of this report – contextualized learning, early college and career certificates – designed well, properly resourced, and strategically aligned, can play a significant role in addressing workforce needs and shortages in each of the targeted industry sectors in Connecticut, in the near-term and long-range.

Following is a brief overview highlighting selected information about these industries in Connecticut. Information was derived from labor market data available through the Connecticut Department of Labor Office of Research and other public sources.

Manufacturing in Connecticut

Manufacturing is a significant component of and contributor to Connecticut’s economy. As the nation’s 18th most intensive manufacturing state [U.S. Bureau of the Census], aerospace and defense manufacturing has a location quotient of 6.86, a proportion of manufacturing jobs approximately 686% higher than the national rate [Deloitte Consulting 2009 Report: *Examining Advanced Manufacturing in a Networked World*]. More than half of the top 100 companies headquartered here are manufacturers [CBIA – Manufacturing; Vital to Connecticut’s Future]. Manufacturing accounts for almost \$25 billion (11.4%) of Connecticut’s gross state product [U.S. Bu-

reau of Economic Analysis]. According to the Connecticut Department of Labor, the state's manufacturing sector employs approximately 163,300 workers, representing 10.4% of Connecticut's private-sector payroll and 10.8% of all non-farm employees. Manufacturing exports account for more than 90% of all Connecticut exports, in products including transportation equipment, industrial machinery, fabricated metal, electronic equipment, chemicals and food products [National Association of Manufacturers].

In addition to this strong foundation, major Connecticut manufacturers will experience significant growth over the next decade. Pratt and Whitney is in the process of transforming production operations and those of its supply chain of small/medium manufacturers in preparation for the imminent ramp-up in orders for the F135 jet engine program and PurePower Geared Turbofan engine for Airbus. The U.S. Navy recently awarded Electric Boat \$17.6 billion for construction and delivery of the next block of Virginia Class Submarines. Despite uncertainties in federal defense spending, Electric Boat's submarine and undersea production efforts are anticipated to grow and its business outlook is strong.

Labor economists project consistent employment in manufacturing over the next decade, perhaps a net reduction in Connecticut manufacturing jobs, reflecting improved efficiencies in design and innovative production technologies and processes. As a rapidly aging skilled manufacturing workforce reaches retirement and leaves the workplace, and as major companies experience surges in defense and commercial contracts, a wide array of manufacturing jobs and career opportunities will become available for skilled workers in respective supply chains. The "graying" of Connecticut's manufacturing workforce necessitates developing an effective talent pipeline of skilled young workers.

Manufacturing jobs will be available across a spectrum of occupations and skill requirements, ranging from entry-level production workers to highly technical specialized engineering jobs requiring advanced education and training. Over the next decade, manufacturing in Connecticut will have a significant number of vital middle-skill jobs to be filled, usually requiring post-secondary education and/or training. Concurrently, in the near-term, recent surveys indicate that manufacturers are particularly concerned about filling skilled production jobs that typically require 5-7 years direct, hands-on, relevant workplace experience.

Health Care in Connecticut

The healthcare workforce is one of Connecticut's largest. According to CTDOL, in 2013, employment for health-related occupations (277,171) was 17% of total state employment (1,633,806). CTDOL projects a steady rise in overall health-related employment, increasing by 2020 to 325,928. These healthcare jobs range from entry level positions requiring a high school diploma and some technical training to professions required advanced degrees. Employers report particular need for professionals with middle skills and practical experience. For instance, health

information technology is an area expected to grow over the next 3-5 years with the emphasis on electronic health records and medical billing and coding. Demand for registered nurses and physicians continues to grow with the focus on primary care, while the need for entry level direct care workers to provide care in home and community settings is also on the rise. The simultaneous aging of Connecticut's general population and its healthcare workforce, and the increasing complexity of health-related conditions will impact these demands.

Connecticut's aging population will impact the state's healthcare-related workforce and projected job openings, requiring increased services, such as nursing and residential care. Connecticut ranked second nationally in percentage of population aged 65 and over, and 90 and over [Connecticut Department of Social Services. 2013. Strategic Rebalancing Plan: A Plan to Rebalance Long Term Services and Supports 2013-2015]. This trend alone will affect both the demand and supply of health-care employment in the next decade. Growth in long-term services and supports will shift delivery of care from residential facilities to community-based services, redistributing the workforce from skilled nursing facilities to home care agencies. Increases in the rates of chronic diseases such as diabetes and hypertension will increase demand for ambulatory care and hospitalizations. All of these changes will require a Connecticut healthcare workforce with strong interpersonal and technical skills as well as hands-on practical knowledge learned both in the classroom and on the job.

The age of Connecticut's healthcare workforce is another compounding factor. The state's aging population will require more health care services at the same time the healthcare workforce trained to provide that care is aging rapidly. According to CTDOL, between 2011 and 2013, 25% of Connecticut's health-related workers were between the ages of 45-54, and 18% were 55-64 [Connecticut Department of Labor, Connecticut Employment Trends: Focus on Health Care, 2013]. This "graying" of Connecticut's healthcare workforce, as in manufacturing, demands preparation and production of skilled new workers both in the short- and long-term.

Construction/Green Technology in Connecticut

According to the Connecticut Department of Labor, the construction industry in Connecticut employs 57,200 workers. Construction employment grew in the past several years and is expected to have expanded by 7,500 jobs between 2010 and 2020. As in other key industries, an aging workforce will create the need for new workers to move into anticipated vacancies in the next 5-10 years. Construction management, telecommunications installers and HVAC mechanics/installers are among construction-related middle-skill jobs projected to grow by 2020. It is also anticipated that there will be a need for skilled laborers during that same timeframe.

While there is no commonly agreed upon definition of "green industries" or "green technologies", implementation of Connecticut's Comprehensive Energy Strategy – with its shift towards natural gas conversion and incentives to increase use of alternative and renewable fuels, energy

conservation and efficiency technologies – will likely produce related job opportunities with increased skill requirements for new and incumbent workers.

WORKFORCE SUPPLY

To address the demand for qualified workers in increasingly demanding jobs, Connecticut employers draw from a talent pool that has both a high percentage of well-educated and highly-skilled workers and a significant number of individuals with limitations that must be addressed if they are to become competitive in the workforce. Of Connecticut's 2,266,232 residents aged 18-64, 9% (205,558) are without a high school diploma or equivalent, while 26% (585,008) have a high school diploma but lack college experience. [US Census Bureau, 2013 American Community Survey 1-Year Projections]

Individuals with limited education often face barriers to employment including basic and technical skill deficiencies, limited access to transportation and childcare challenges. While 20% of the state's population has not acquired the literacy skills necessary to succeed in the 21st century workforce, Connecticut's urban centers are particularly impacted by the widening gap in adult (employment-related) functional literacy. Connecticut's urban centers have an illiteracy rate of 65-70%. Less than 10% of the state's African-American students meet math goals. Only 20% of our 9th graders are achieving critical post-secondary credentials and degrees. With an estimated 40% of Connecticut's future workforce coming from our urban communities, a significant skills gap will emerge if these trends continue, particularly for minority residents, negatively impacting worker preparedness and employer competitiveness statewide.

Accessing affordable efficient transportation to/from work is an obstacle to sustained, productive employability for many Connecticut workers. Public transportation services are inadequate for many workers – particularly low-wage workers from urban communities – pursuing job opportunities outside of their local community, in the wider surrounding region. For many families, childcare also presents a significant barrier to employment. For example, according to the United Way's ALICE Report, the average cost of attending a full-time, accredited childcare center in Connecticut is \$1,893 per month (\$1,038 per month for an infant and \$855 per month for a four year old). Childcare for two children is by far the greatest expense and accounts for 28% of United Way's Household Survival Budget. While alternatives in Connecticut such as family daycare centers and state subsidized pre-school programs offer less expensive and more accessible childcare options, high occupancy rates limit their availability.

Furthermore, the funding available for basic skills instruction and technical training is insufficient to meet the legitimate level of need for those services. Most of the available resources come with individual eligibility requirements – such as public assistance recipient or high school dropout – that limits access to services for many prospective participants. Non-credit community college courses, offering opportunity for short-term technical training leading to more immediate

employment, are ineligible for federal or state financial aid, forcing (limited-income) students to pay the cost of those courses directly themselves.

Contextualized learning, early college and career certificate programs should be designed, funded and implemented to help prepare these individuals for productive employment in Connecticut's economy.

PROGRAM ATTRIBUTES

As noted, the legislative charge guiding this planning exercise identified four program categories for review – contextualized learning programs; career certificate programs; middle-college programs; and early college programs. The categories are described in the legislation as follows:

- *Contextualized Learning Program*: Education in an educator-designed learning environment chosen or designed by educators, that incorporates different forms of experience – social, cultural, physical, and psychological – to achieve desired learning outcomes.
- *Early-College High School*: A (high) school in which students under-represented in colleges/universities – including (not limited to) low-income youth, first-generation college students, English language learners, minority students – earn simultaneously, tuition-free, 1) a high school diploma and associate degree, or 2) up to two years of credit toward a bachelor's degree.
- *Middle-College Program*: Collaboration between a school district's high school(s) and a regional community-technical college allowing students who desire a more independent learning environment to 1) enroll in a combination of core high school and college-level courses for which college credit may be earned, and 2) attribute all earned college credits toward a college/university in which the student enrolls upon middle-college program graduation. [Note: The Early College Steering Committee subsumes middle college as an early college model rather than its own category.]
- *Career Certificate Program*: CGS Section 10-20a authorizes the Commissioner of Education to award career certificates to Connecticut high school and post-secondary students who complete school-to-career programs comprising school-based and work-based instruction and coordinating/connecting activities, approved by the Commissioners of Education and Labor.

The CETC Statewide Plan Work Group used these definitions as a starting point in initial discussions, to establish a common frame of reference. However, the decision was made to rely on work recently conducted by other groups (cited above) studying each of these strategies/models and working to define the attributes of effective programs.

Contextualized Learning Programs

“Contextualized learning”, or teaching in context, is the concept of relating subject matter content to meaningful situations relevant to students’ lives. The objective is to help students acquire basic skills while also learning technical skills to prepare them for employment. This approach recognizes that learning is a multi-faceted process that goes beyond drill-oriented, stimulus and response methods, and occurs only when students process new information in a way that makes sense in their own frame of reference. Two commonly used contextualized learning strategies are contextualized basic skills instruction and integrated education and training. In Connecticut today numerous programs use the label “contextualized learning” to describe their education and training strategy. It has become an attractive concept. However, as a practical matter, there appears to be little consistency when it comes to program characteristics and practices and an emphasis on career advancement.

Contextualized basic skills instruction creates explicit connections between academics and instruction in a discipline or technical field, using industry and occupational knowledge to support the learning of basic reading, math and language skills. Integrated education and training allows students to gain literacy (or language) and occupational skills simultaneously, helping educationally underprepared adults succeed by integrating basic skills and career-specific training to move faster to certificate or degree completion. The best-known example of the integrated education and training strategy is Washington State’s Integrated Basic Education and Skills Training (I-BEST) Program.

Attributes that help to define an effective contextualized learning program include: identified curriculum strategy; team teaching of basic academic and technical skills; strong employer participation; reliable occupational focus and linkages; case management and wrap-around supports; sufficient flexibility to serve participants in need regardless of categorical limitations; and, performance evaluation for continuous improvement. A full listing of the attributes is contained in **Appendix B**.

Effective contextualized learning models:

- Incorporate strong recruitment strategies;
- Provide individualized assessment and employability planning;
- Offer structured career exposure;
- Include intensive case management and wrap-around supportive services;
- Offer life skills training;
- Place graduates in jobs related to their training; and
- Ensure retention support and tracking.

Currently Connecticut providers offer I-BEST programs through funding from the State Department of Education (CSDE) and Connecticut Department of Labor (CTDOL). The programs are highlighted in **Appendix E**.

Early College Programs

To help define “early college programs”, the Work Group reviewed and decided to endorse the *Attributes of Early College Programs* (incorporating middle college programs in that category) developed by the Early College Steering Committee.

The early college strategy intentionally blends high school and college in a rigorous, supportive learning environment to ensure that all students graduate high school ready for college and career, often with a significant number of college credits. Early College initiatives enable more students – particularly low-income and minority students – to experience demanding coursework that leads to improved outcomes. Early College students outperform their peers nationwide: 90% graduate from high school vs. 78% of high school students nationally; 94% of graduates earn free college credit while in high school; 30% earn an Associate’s degree or other post-secondary credential along with their diploma while in high school. [Jobs for the Future: *Reinventing High Schools for Postsecondary Success*]

The program label “early college” encompasses various models (including middle college programs) and partnerships that focus on the transition of high school students to college and into the workforce. The mix of strategies included under the early college umbrella ranges from individual high school students taking college courses in a college setting or at their home high school (Individualized/Course-Related Program), to high schools where all students graduate with an industry validated certificate or an Associate’s degree (Cohort/High School-Wide Program), with multi-year curriculum pathways, supports and experiences. Some early college programs emphasize career pathways and exposure to career options, while others focus exclusively on academics and college readiness.

The Early College Steering Committee developed a set of attributes to help define early college programs. A full listing of the attributes is included in **Appendix C**. In summary, attributes that help to define an Early College program include:

- A rigorous academic program for courses offering college credit
- Systems aligned to the benefit of participating students
- Coherent curriculum pathways to ensure student success
- Treating high school students like college students, with appropriate and adequate guidance and related support services
- Effective collaboration between participating high schools and colleges, plus extended collaboration with business and industry
- A formal program oversight/advisory structure

- Collaboration between high school and post-secondary partners on professional development – and beyond – for faculty, staff and administrators
- Effective use of data to evaluate and improve program performance
- Provision of adequate resources and a sustainability strategy

The Early College Steering Committee outlined a general recommendations emphasizing:

- Strong collaboration and alignment across K-12, college and workforce efforts.
- Identification and support of statewide policies and legislative changes that support a robust early college system.
- Alignment of early college efforts with other key state strategies, including the Planning Commission on Higher Education and CETC Statewide Plan on contextualized learning, early college and career certificates.
- Accelerated development of an aligned longitudinal data system with all state partners and national sources.

Specific early college initiatives identified by the Steering Committee include: launching additional Connecticut Early College Opportunity (CT-ECO) programs (based upon the acclaimed P-TECH model); standardization and accreditation of dual (concurrent) enrollment programs; strengthening CSCU and Connecticut Technical High School system alignment; promoting College of Technology and Technical High Schools articulated credit pathways; expanding collaboration between high school and college faculty to ensure college readiness of high school graduates; aligning K-12, college and workforce-related stackable credentials and pathways (including expansion of Asnuntuck Community College’s “Fifth Year Program”); clarifying advanced placement policies at CSCU institutions; identifying best practices to ensure a sustainable early college funding system; and identifying metrics to assess early college programs effectiveness.

Career Certificate Programs

Significant confusion exists in the education and workforce arenas about the definitions of certificates and credentials. To develop a working definition of career/educational certificate programs, the CETC Statewide Plan Work Group reviewed research conducted by the Bureau of Labor Statistics (BLS), CLASP and other national experts.

According to the BLS report *Certificates: A Fast Track to Careers*, certificates, professional licenses and certification are different awards for study and/or skill performances. Typically, certificates document that a participant has successfully completed a specific educational program of job-related study. Certifications, on the other hand, involving assessments and documentation of experience, demonstrate that workers have attained competency in an occupation. Typically, schools issue educational certificates to program graduates, and professional or industry associations issue professional certifications.

Certificates are one of the most popular types of post-secondary awards. In 2010-2011, US schools awarded more than one million certificates – more than the number of Associate, Masters or Doctoral degrees and nearly as many as the Bachelor’s degree (1.7 million). Certificates typically do not lead directly to professional licenses and certification.

BLS identifies 33 occupations that typically require a certificate or other postsecondary non-degree award to qualify for employment. The most popular disciplines for certificate programs in 2010-2011 were in healthcare, personal and culinary services, and mechanical and repair technologies and technicians. To reap the benefits of a certificate, employees typically must work in the occupation related to the award. Those who do, earn 37% more than workers with a high school diploma and almost as much as workers with an associate’s degree [Center on Education and the Workforce, 2012].

The legislature’s Higher Education and Employment Advancement Committee is keenly focused on college certificates and their relevance to the labor market and employment for low-skilled adults. The study of Higher Education Certificate Programs by the Program Review and Investigation Committee on educational certificates will contribute to this understanding. To avoid duplication of effort, the CETC Statewide Plan Work Group focused on certificate programs supported by several recent Federal competitive grants secured by the Board of Regents and the Workforce Investment Boards, respectively, as well as the adult training programs offered by the Connecticut Technical High Schools. None of these programs are included in the Program Review and Investigations Committee study. The Work Group left for future reports an analysis of the individual training accounts (ITAs) issued under the Workforce Investment Act that support technical training through community colleges, nonprofits and proprietary schools, and other state and federal efforts such as the SNAP Employment and Training Program.

A brief overview of relevant research on career certificates, as well as information on the Program Review and Investigation study, is included as **Appendix D**.

CONNECTICUT PROGRAMS

The Work Group developed a preliminary inventory of basic information on selected current Connecticut contextualized learning, early college and career certificate programs. WIBs and key state agencies – Board of Regents for Higher Education, Connecticut State Department of Education, and Connecticut Department of Labor – provided basic information about programs they fund or administer in each of the program categories. Basic program information sought included: program name; funding source; operating entity; key supporting partners; target customers/participants; desired outcomes/program objectives. These preliminary program inventories can be found in **Appendices E, F and G**.

For Contextualized Learning, the information collected for the preliminary program inventory focused on I-BEST (Integrated Basic Education and Skills Training) programs funded through Workforce Investment Act (WIA) Title II Program Improvement (PIP) grants from the Connecticut State Department of Education for adult education students, and Jobs First Employment Services (JFES) I-BEST programs supported by the Connecticut Department of Labor and the WIBs through state general funds for participants on public assistance. PIP grants totaled \$480,000 in fiscal years 2014-2015. The JFES general fund allocation for I-BEST programs was \$3,115,027 for the same period. Cost per participant was limited to \$5,000.

In addition, service providers are incorporating a range of contextualized learning strategies into their adult education courses. Given the wide variety of programs, services and target populations, data was not available at this time for the inventory. However, future CETC reports will provide this information, with support from the State Department of Education, Connecticut Department of Labor, the Workforce Investment Boards and the Connecticut Association of Adult and Continuing Education.

Many of the I-BEST programs focus on the industries targeted in this plan/report. For instance, in program year 2014, Waterbury Adult Education partnered with the Manufacturing Alliance Service Corporation to train 20 JFES participants for employment in the manufacturing industry. Successful program completers received Level 1 National Institute for Metal Working Skills (NIMS) certification and were placed in a 13-week subsidized employment experience. New London Adult Education partnered with local healthcare employers to provide Certified Nurse Aide training to JFES participants. Successful program completers secured a state CNA license.

Information on Early College efforts included in the preliminary inventory focuses on an array of program models operating in individual Connecticut community colleges, in partnerships with local school districts and high schools, identified by the Early College Steering Committee. Examples of noteworthy programs include: College Career Pathways (dual enrollment) Programs offered in conjunction with all twelve community colleges; “Middle College” programs such as Great Path River Academy at Manchester Community College; New Haven Public Schools/Gateway Community College Developmental Initiative; Norwalk Early College Academy/Pathways in Technology Early College High School; Asnuntuck Community College/East Granby School System Fifth Year Program; and Waterbury Career Academy partnership with Naugatuck Valley Community College.

These programs differ significantly in terms of scope and length, such that an aggregate average unit cost would be misleading. The following information provides some per student cost estimates for four of the existing program models. For equity reasons, high school students and their families are not charged for any of these programs.

The largest early college program is the dual enrollment model, usually run under the Perkins-funded College Career Pathways (CCP) program. Based on data from Manchester Community College (the system's largest program with approximately 1,700 students earning credit last year), the historic cost is approximately \$115 per student per college course. This will increase as programs are brought up to national standards (required by new NEASC policy). The Early College Steering Committee will develop a future recommendation for sustainable funding for this cost effective program, once all programs are brought up to required standards. The estimated per-student cost to earn an associate's degree through the CT-ECO programs is \$9,000. This program provides each student with an industry mentor, a paid internship, and a first look for a middle-skilled job upon graduation. The estimated per unit cost per high school student participant in the "Fifth Year" model (exposing a significant number of students to manufacturing career options) is \$16,000 for each student starting in 11th grade who completes an associate's degree one year out of high school. The program also exposes all 6th to 10th grade students in a school district to careers in advanced manufacturing at a per-student cost of approximately \$400 per year per. This model is designed to share costs among students, school district, the state, and local employers. The various middle-college programs differ significantly in terms of grade levels involved, some beginning at 9th grade and others limited to 11th and 12th graders, and number of college credits earned. Using Three Rivers Community College as a model – where students spend two years and, on average, graduate with 12-30 college credits – the annual per student cost is approximately \$13,000.

An important element in many Early College programs is an emphasis on the importance of developing proficiency in technology-oriented skills. Many of these programs are geared to middle-skill jobs and careers requiring strong STEM (Science, Technology, Engineering and Math) skills valuable for success in information technology-related occupations across industry sectors in Connecticut. This emphasis on technology skill is an important theme across all program categories considered in the report/plan.

The Career Certificates programs preliminary inventory highlights five efforts: Connecticut Manufacturing, Energy and Transportation initiative (CT-MET); Advanced Manufacturing Centers Initiative (Connecticut State Colleges and Universities); Health and Life Sciences Career Initiative (HL-SCI); H1B programs in the workforce regions; and career programs for adults offered in the Connecticut Technical High School System (CTHSS). The Board of Regents grants (CTMET, HL-SCI) represent \$14,000,000 in federal funding. The community college-based Advanced Manufacturing Centers received significant state bond funding to support initial implementation and subsequent expansion. The Workforce Investment Boards have received \$20,000,000 in grant funding from the US Department of Labor to support regional H1B efforts in healthcare, manufacturing and information technology. CTHSS receives \$2.9 million in state general funds to support its adult programs, representing 50% of total actual cost.

These various certificate-focused programs are designed to respond to skill needs of the targeted industries. For example, students in the community college-based Advanced Manufacturing Centers earn a one-year/two-semester Advanced Manufacturing Certificate, including 576 hours of related instruction toward an Apprenticeship in manufacturing, and the OSHA 10 Certificate. Employers are intensively involved in all phases of program planning, design and implementation, through advisory boards at each Center and through a Statewide Advanced Manufacturing Advisory Committee. Starting in fall 2014 graduates can acquire a minimum of four National Institute of Metal Skills (NIMS) credentials, towards the 11-credential Machine Level I certificate. As of June 2014, BOR reports that graduates of the Centers had a 90% job placement rate.

Connecticut secured three additional grants in the last quarter of 2014. The BOR won a \$15 million Connecticut Advanced Manufacturing Initiative (CAMI) grant from the US Department of Labor, which is not included in this inventory given its new status. In addition, Capital Workforce Partners and a partnership of Workforce Alliance and the Eastern CT Workforce Investment Board received two H1B grants (USDOL) totaling more than \$12 million, expanding on current H1B grants which are included in the inventory.

Another noteworthy career certificate program, not highlighted in the inventories, is Connecticut's Registered Apprenticeship Program. Apprenticeship combines rigorous classroom instruction simultaneously with workplace-based, hands-on learning under experienced journeymen, leading to good paying careers. Apprenticeship has a long history in Connecticut. In 2014, more than 5,000 registered apprentices were working for 1,500 employer sponsors, many in the building trades associated with the construction industry. Upon completion of the apprenticeship – generally requiring 2,000 hours of on-the-job learning and 144 hours of classroom instruction for each of 4-5 years – the successful apprentice earns “journeyman” status and a CTDOL certificate of completion, which is a nationally recognized and portable credential.

The Office of Apprenticeship Training at the Connecticut Department of Labor is pursuing efforts to expand apprenticeship opportunities in targeted industries, including manufacturing, healthcare and information technology. The recently announced federal American Apprenticeship Initiative competitive grants opportunity (submissions due in April 2015) provides an impetus to ramp-up these efforts. In addition, the recently enacted Workforce Innovation and Opportunity Act (WIOA) emphasizes the importance of apprenticeships, a theme that will be addressed in 2015 as Connecticut develops its new unified state workforce plan.

GENERAL OBSERVATIONS

The preliminary/foundational program information collected by the CETC Statewide Plan Work Group documents the fact that there are numerous programs across Connecticut, and associated funding, in each of the three categories reviewed in this planning effort. While the tables included in **Appendices E, F, G** are only a preliminary effort to inventory relevant current programs,

they do identify a minimum of 18 contextualized learning programs, 30 early college initiatives, and 53 career certificate efforts statewide. This is the first time this information has been collected and produced in this format. The preliminary inventories document a considerable level of program activity and investment.

As implemented in Connecticut, the programs in these three categories serve different types of participants/students, pursue different outcome objectives, address differing employer needs and priorities, and will have different impacts in the short-run, mid-term and long-range. They are not strategically aligned within an overarching, career pathways-oriented, integrated workforce system framework.

The contextualized learning programs are designed to serve adult education students and/or selected public assistance participants with basic skills deficiencies and other barriers that limit their employability. These individuals need effective training and supportive services to get into the workforce. Successful program completers improve their basic skills and/or earn an industry-recognized credential in fields offering the potential for good wages and career advancement. The various early college programs are generally intended to help high school students get onto a career pathway and into the workforce at no additional out-of-pocket cost. Successful students acquire a diploma on-time, complete an Associate's degree quickly and gain useful career exposure. The career certificate programs serve a wide array of adults, depending on the specific program, including unemployed/under-employed workers; incumbent and dislocated workers; veterans; community college, adult education and technical high school students. The programs are intended to develop and document job-related competency. Participants can gain a variety of work-related, industry-recognized certificates, participate in work-related internships, get college credits, access job placement services, etc.

The extent to which these programs help to prepare sufficient numbers of Connecticut residents for high demand jobs critical to economic growth is uncertain. As is true with many well-intentioned workforce education and training efforts, these programs do not systematically align performance objectives with workforce demand/labor market data. How well they fit into the larger effort to develop and match a skilled and productive Connecticut workforce with occupational demand in high value industries is unclear.

We do know that there is no lack of interest or effort related to these programs and that early implementation has shown promise. These efforts would be strengthened through: a statewide coordinating structure, stronger connectivity to business and industry, and the ability to bring effective programs to scale. The recommendations that follow suggest steps CETC and other key entities and stakeholders can take to support and strengthen these innovative workforce development strategies to help meet employers' needs for a skilled workforce now and into the future.

As a general proposition, cutting across each of these recommendations, the Work Group believes it is essential to directly engage employers and businesses to the extent feasible in the planning and implementation of all contextualized learning, early college and career certificate programs in Connecticut. There are abundant examples of productive participation by business in exemplary efforts that serve as models to be replicated.

RECOMMENDATIONS

The CETC Statewide Plan Work Group believes that focused attention on the three education and training program strategies addressed in this report/plan can help to address employers' needs for skilled workers in targeted industries and develop the necessary skills of Connecticut's readily available and future workforce. Connecticut needs a robust and growing economy to sustain and expand our enviable quality of life. When employers get the skilled workers they need their businesses grow, productive workers can earn family supporting wages and support the developmental and educational needs of their children, helping to prepare the next generation of educated and skilled talent.

The following recommendations focus on getting more of Connecticut's people into the workforce more quickly, better prepared and ready to work productively. The Work Group suggests actions and strategic investments to increase the availability of high-quality education and training opportunities and bring those efforts to scale.

Recommendation 1: Establish Standards and Outcomes

To support and coordinate improvement and expansion of contextualized learning programs statewide, the CETC Statewide Plan Work Group recommends establishing an Interagency Program Team, comprising representatives of the State Department of Education, Department of Community and Economic Development, Connecticut Department of Labor, Department of Social Services, Board of Regents for Higher Education, Workforce Investment Boards and effective programs. The Interagency Program Team should:

- Develop and propose consistent, evidence-based program standards, across funding streams and operating entities, used to guide funding decisions at both the state and regional levels.
- Develop and propose consistent performance objectives and outcome measures to assess contextualized learning program effectiveness, promote continuous improvement and link future funding to program performance.
- Develop and maintain an accessible, updated program inventory, including information on funding, operational program details, outcomes, etc., in a customer-friendly format.
- Report annually to CETC on program outcomes. CETC should be engaged to provide input into state and regional procurement processes to ensure fidelity to the program standards and metrics.

Recommendation 2: Focus Training Investments

To strategically expand resources currently allocated by the legislature, the CETC Statewide Plan Work Group recommends establishing an Industry and Education Partnership Fund to promote focused investment and collaboration in training directly linked to employment in high-value industries, at the middle-skill job level and higher.

The Fund should promote performance to test the effectiveness of instructional/training strategies and incentivize programs to achieve critical outcomes, particularly student attainment of certificates and successful employment. Programs should:

- Address real-time labor market occupational demand with talent supply strategies at the regional level
- Connect employers and educational institutions/training providers
- Target a wide range of low-skilled program participants
- Include comprehensive program supports to promote retention and completion
- Leverage federal, state and philanthropic funds to address current gaps and provide a strong continuum of services leading to skill acquisition and employment.

It is recommended that \$10 million should be allocated to the Fund over the next two fiscal years to support contextualized learning and career certificate programs, emphasizing efforts that prepare adults for jobs in healthcare, manufacturing and construction/green technologies. Funding should be sufficiently flexible to address critical needs and opportunities. At an estimated per participant cost of \$5,000 across program categories, an estimated 2,000 individuals could be served. The Connecticut Department of Labor should be the fiduciary of the Fund. CETC should report to the Higher Education and Employment Advancement Committee on the effectiveness/impact of programs funded.

Recommendation 3: Expand Early College Opportunities

The Work Group supports the plan developed by the Early College Steering Committee to guide implementation of early college initiatives going forward. The Early College Steering Committee intends to continue its efforts to identify promising strategies, seek related resources, and promote replication of successful models. The Board of Regents for Higher Education seeks \$3,497,095 for FY16 and \$4,470,710 for FY17 to support Early College efforts in the next biennial state budget. CETC supports these efforts and will include Steering Committee leadership in future related CETC planning activities.

The Steering Committee should align its efforts with those identified in this CETC report/plan:

- Encourage alignment and linkage of Early College programs with the efforts of local/regional employers, in partnership with the Workforce Investment Boards, Department of Economic and Community Development, and Connecticut Department of Labor.

- Adopting/report on consistent performance objectives and outcome measures to assess program effectiveness, promote continuous improvement and link future funding to program performance.
- Develop and maintain an accessible inventory of programs in each early college category, including funding, program details, outcomes, etc., in a customer-friendly format.

[Note: On December 9 the Early College Steering Committee reviewed and agreed to the above three specific recommendations to align its work with this CETC report/plan.]

Recommendation 4: Create Clearinghouse on Early College, Contextualized Learning and Career Certificate Programs

To market these programs and make them accessible to potential youth and adults in need of education and skills training, the Work Group recommends development of a clearinghouse providing accessible information on early college, contextualized learning and career certificate programs. This information should include, at a minimum, program overviews, enrollment requirements, and participant outcomes to help inform prospective students/participants about potential training opportunities. The program clearinghouse should be maintained by the Connecticut Department of Labor, include regular input from the Workforce Investment Boards and relevant state agencies, with updated information posted on the CTDOL/CETC website.

Recommendation 5: Align Career Pathways System

With the advent of the new Federal Workforce Innovation Opportunity Act (WIOA), CETC has an important role in bringing together key business sector, government and non-profit stakeholders to re-envision how Connecticut’s education and workforce systems can have maximum impact on the state’s economic competitiveness. The impending WIOA unified state strategic planning process to be coordinated by CETC should be used to integrate the programs reviewed in this document as key components of a coherent statewide career pathways system, responsive to the specific workforce priorities of each industry sector and the aspirations of low-skill and middle-skill workers pursuing jobs that can lead to productive careers and financial security.

NEXT STEPS

As noted at the outset, CETC will report on its plan to the General Assembly’s Higher Education and Employment Advancement Committee in January 2015. Annually thereafter, beginning September 2015, CETC will report on the status of these programs and related improvement efforts. CETC intends to dig deeper into issues raised in this report/plan, track lessons learned from implementing these three broad promising strategies, and recommend program changes and strategic investments. Future CETC reports will provide updated information on other relevant efforts as they evolve, for example, the Two Generation Initiative, new federal grants to the Board of Regents and the Workforce Investment Boards, and impactful federal legislative reforms, including reauthorization of TANF and the Higher Education Act.

APPENDICES

Appendix A: CETC Statewide Plan Work Group Roster

Appendix B: Attributes of Contextualized Learning Programs

Appendix C: Attributes of Early College Programs

Appendix D: Career Certificate Programs Overview

Appendix E: Preliminary Inventory of Contextualized Learning Programs in Connecticut

Appendix F: Preliminary Inventory of Early College Programs in Connecticut

Appendix G: Preliminary Inventory of Career Certificate Programs in Connecticut

APPENDIX A: CETC Statewide Plan Work Group Roster

- Co-Chair Donald Shubert – Connecticut Construction Industries Association
- Co-Chair Lyle Wray – Capitol Region Council of Governments
- Tracy Andruskiewicz – Connecticut Department of Labor
- Lisa Arends – Connecticut Department of Labor
- Catherine Awwad – Northwest Regional Workforce Investment Board
- John Beauregard – Eastern Connecticut Workforce Investment Board
- Joseph Carbone – The Workplace
- Astread Ferron-Poole – Connecticut Department of Social Services
- Elliott Ginsberg – Connecticut Center for Advanced Technology
- Robin Golden – Board of Regents for Higher Education
- Kathleen Marioni – Office of Workforce Competitiveness
- Thomas Phillips – Capital Workforce Partners
- JoAnn Ryan – Northwest Connecticut Chamber of Commerce
- Vinnie Valente – Office of Apprenticeship Training
- William Villano – Workforce Alliance
- Maureen Wagner – Connecticut State Department of Education

APPENDIX B: Attributes of Contextualized Learning Programs

In December 2013 **CETC'S Career Advancement Committee** produced a *Review of Contextualized Learning and Its Importance to Career Advancement for Adults in Connecticut*. Subsequently endorsed by CETC, the report includes a proposed set of essential attributes for effective contextualized learning programs in Connecticut. The CETC Statewide Planning Committee adopted these program attributes to define contextualized learning programs for the purpose of this CETC planning exercise. The Career Advancement Committee report is accessible at: <http://www.ctdol.state.ct.us/OWC/CETC/Committees/Career/reports.htm>

Edited excerpts from the Career Advancement Committee Report on program attributes:

Educational experts have identified teaching in context, also known as contextualized learning, as an effective strategy to accelerate a student's path from education to employment. ***Contextualized learning, or teaching in context, is the concept of relating subject matter content to meaningful situations that are relevant to students' lives.***

There are many formats to implement contextualized learning. The purpose of these strategies is to help a student learn or improve their basic skills while also teaching the technical skills to prepare them for employment. Examples include basic skills applied to an area of discipline, embedded instruction, integrated curriculum, theme based instruction, functional context education and workplace literacy.

The contextual learning approach recognizes that:

- Learning is a complex, multi-faceted process that goes beyond drill-oriented, stimulus and response methodologies; and,
- Learning occurs only when students process new information in such a way that makes sense to them in their own frame of reference (memory, experience, response).

Two contextualized learning strategies commonly used are **contextualized basic skills instruction** and **integrated education and training**. With contextualized basic skills the instructional objective is to teach the academic skills aided by the applications of learning. For integrated education and training the objective is technical skill building with basic skills reinforcement for those who lack some level of proficiency in the basic skills.

Contextualized basic skills instruction is an instructional approach that creates explicit connections between the teaching of reading, writing or math and instruction in a discipline or technical field. Contextualized basic skills instruction uses industry and occupational knowledge to support the learning of basic reading, math and language skills. The approach can include a range of activities from single lessons dedicated to learning English in the context of an occupational application to a program where an individual receives a high school diploma or equivalent.

Integrated education and training allows students to gain literacy (or language) and occupational skills simultaneously. This approach helps educationally underprepared adults achieve success by integrating basic skills and career-specific training that moves students faster to certificate or degree completion. These training strategies are critical as they focus on the attainment of technical skills, certificates and certifications and postsecondary degrees while reinforcing students' basic skills development. The best-known example of the integrated education and training strategy is the Integrated Basic Education and Skills Training (I-BEST) Program. I-BEST is a specific model requiring fidelity to the structure and activities for replication. Gateway Community College was awarded an Accelerating Connections to Employment (A.C.E.) grant from the U.S. Department of Labor as part of a multi-state initiative to implement an enhanced I-BEST model. The enhanced model includes:

- Front-end industry engagement to inform program design and connection to in-demand jobs;
- Coordinated recruitment and assessment;
- Career navigator assigned to each cohort of students;
- Coordinated delivery of support services and resources;
- Intensive job placement and retention assistance; and,
- Development and piloting of alternative progress measures for low-skilled job seekers.

Essential Contextualized Learning Program Attributes

Based on its research and Connecticut's experience to date with contextualized learning strategies, the CETC Career Advancement Committee recommended adoption of the following program components in Connecticut to promote standardization of contextualized learning programs and services and desired participant outcomes.

Program Design

- 1. Identify curriculum strategy:** Program staff must determine which contextualized learning curriculum strategy to pursue. Per the research in this report, the Committee recommends that programs implement either contextualized basic skill instruction or integrated education and training strategies that help learners go further, faster.
- 2. Co-teaching model:** Programs must bring two or more instructors together to design and deliver contextualized learning curriculum to a group of students. This team teaching of basic and technical skills, which should happen at least 25% of the time, provides students the ability to grasp the higher level technical content as it is being taught and encourages collaboration among the two disciplines.
- 3. Employer participation:** Whether the next step for students after program completion is postsecondary education or employment, ensuring employer participation in the process is critical. That must include, but not limited to, program planning and curriculum review, career awareness and exposure, internship opportunities, and job placement.
- 4. Reliable occupation selection:** Selection of occupational training must be identified using current, relevant labor market data with programs designed to meet the scale of de-

mand. This data is available through the CT Department of Labor as well as regional and local data provided through the Workforce Investment Boards.

- 5. Evaluation and continuous improvement:** Evaluation tools enable program staff to assess program design and identify best practices and areas for improvement. In addition to collecting the quantitative metrics identified in the report, including credential attainment and employment, evaluation methods should include surveys and interviews that capture customer satisfaction and feedback on program elements.

Program Implementation

- 6. Recruitment strategies:** Identifying a target population is the first step to create a successful recruitment strategy. Once identified, recruitment must be intentional and take into account the best avenue to reach potential participants. Adequate time and resources must be given to recruiting the best-suited participants to ensure program success.
- 7. Assessment:** During the intake process, an assessment of the student's academic level and personal barriers must be completed. Information gathered will ensure that the individual matches the target population and will better prepare staff to serve the individual. Structured similar to the CSDE Student Success Plan model, participants must create a structured plan that identifies a target goal and maps out the path to get there, including course selection. This can happen during the intake process but should be periodically reevaluated based on progress towards goal.
- 8. Career exposure:** Important to create opportunities for students to explore career options and understand related job responsibilities. Also important to provide job shadowing and other activities to expose students to the work environment in their chosen career field.
- 9. Case management:** It is critical that programs provide students with academic, career and personal support to succeed in the training. Time and resources must be allocated to selecting and orienting students to the program, addressing their academic and personal barriers to engagement, and completion and promoting their career and job readiness.
- 10. Life skills training:** In addition to basic skill and technical training, participants must address the personal or "soft" skills required to succeed in training and employment and critical to participant success. Examples include opportunities to demonstrate job readiness as well as problem solving, team building and conflict resolution skills.

Placement and Retention

- 11. Job placement:** Programs must dedicate staff and resources to identify local job opportunities that align with the training provided and work with students on resume building and interview skills. Programs should be designed to directly help students secure employment related to their field of study.
- 12. Retention tracking and support:** Programs must dedicate time and resources to track the continued placement and retention of students. In addition, it is important that programs provide support services such as coaching and peer mentoring to promote long-term persistence and success.

APPENDIX C: Attributes of Early College Programs

The **Early College Steering Committee** is a joint effort of the Board of Regents for Higher Education and the Connecticut State Department of Education, established in 2013 to review early college learning and recommend expansion of early college programs in Connecticut. The Steering Committee was charged to identify: high school/college partnership programs in the community college system and in joint projects between school districts and colleges statewide; attributes of successful high school/college transition programs; models in Connecticut and elsewhere that might be taken to scale, and funding structures. An initial report was produced in December 2013 and was revised in October 2014. The report includes a description of program attributes for early college programs (including middle college programs) developed and endorsed by the Steering Committee. The CETC Statewide Planning Committee adopted these program attributes to define early college programs (including middle college programs) for the purpose of this CETC planning exercise. An excerpted/edited version of those attributes is included in this plan/report as **Appendix C**. The Steering Committee report is accessible on the Board of Regents website at: <http://www.ct.edu/files/pdfs/Middle-College-Report-October-2014.pdf>

Edited excerpts from Early College Steering Committee Report on program attributes:

The premise of the early college model is that all students can and should pursue some form of post-secondary education, recognizing that many possible pathways can result in life success.

The Early College Steering Committee generated a list of attributes (with community college/high school partnerships in mind) that should be evident in any effective early college program. In addition to any relevant New England Association of Schools and Colleges (NEASC) standards that must be met, this list should be used to assess existing programs and to assist the community colleges and their high school partners in developing new programs. The attributes are relevant to all early college programs (both individual student/course based and cohort/high school wide). The one section relevant only to the cohort/high school wide programs is noted.

Success of early college programs is predicated on the development of a conscientious, continuously self-reflecting coalition of high school and college teaching and administrative staff, whose common goal is to empower high school students to develop a clear college career pathway. For any effective early college program partnership, the college and high school must establish a functional collaborative relationship, with a process to address the list of attributes in each area of concern listed below. As resources allow, all aspects of the early college program should be considered and addressed for continual improvement.

The order in which a particular early college partnership addresses these attributes depends upon a strategic assessment of current resources, historic strengths and weaknesses. All areas of concern for which attributes are listed are important for the ultimate overall success of the early col-

lege program partnerships but cannot be addressed all at once due to lack of current resources and time. However, the partnerships should plan for future resources and time commitments to address the entire list in a timely manner.

Academic Program

Appropriate academic rigor for courses providing college credit:

- The early college program ensures its students meet the course prerequisites of the college/university.
- The early college program uses a variety of criteria to measure the likelihood of a student's success in a particular college course.
- High School instructors teaching college credit courses must be approved by the respective college academic department and meet the academic department... requirements for teaching the college/university courses.
- Course alignment with college curriculum, appropriate academic rigor, and congruence with stated learning objectives as demonstrated through evidence, such as that recommended by the National Alliance of Concurrent Enrollment Partnerships.
- Use of mid- and end-of-course summative assessments that represent evidence of mastery recognized by both colleges system wide and the K-12 system.

Align systems to the benefit of students:

- College courses taken on college campuses should be scheduled as: substitution for high school course that replaces high school's regular offering; an enrichment course to fill an elective requirement; and/or, certificate course chosen to fulfill a requirement for a certificate.
- Articulation agreements should ensure that students have the ability to transfer all college credits earned toward a four-year degree program.

Following additional attributes are relevant for cohort/high school-wide programs.

Coherent curriculum pathway to ensure success for all students:

- Engage middle-school students from feeder schools to develop interest and awareness of high school early college opportunities.
- Systematically assess all students (using an appropriate measure) early and ensure mastery of foundational skills in math and English no later than the end of 10th grade.
- Incorporate a rigorous core curriculum (including math, science, and communications) that is integrated with applied skills and a variety of authentic experiences.
- Students should be able to earn significant college credits, an Associate's Degree, or an industry sanctioned certificate at the end of 4, 5, or 6 years.

Student Support

Treat High School students like College students:

- The college/university registers or admits students as degree-seeking, non-degree seeking, or non-matriculated students and records courses on official college/university transcripts.
- Students have access to college services as needed – tutoring, career counseling, labs, etc.

Provide appropriate guidance for High School students:

- College and high school partners collaborate on providing guidance for students toward pathways leading to appropriate future postsecondary experiences.

Provide Adequate Support:

- College and high school partners collaborate to identify and address student skill levels at an early state.
- College/high school staff provide support to ensure students will succeed in college.
- Students are monitored closely to identify and remediate possible academic problems.

Collaborative Relationships

Collaboration between High School and post-secondary institution:

- Early college program shows evidence of faculty-to-faculty collaborative relationships between a specific postsecondary institution and its partner secondary institutions.
- Early college program shows evidence of regular collaboration between appropriate administrators from high schools and post-secondary institutions.
- Specific access to postsecondary resources is available to secondary instructors and students.
- Evidence of using Student Success Plan process to inform engagement of students in early college programs.
- Early college program shows evidence that educational success of each student in both college level and high school courses is joint responsibility of high school and college partners.

Extended collaboration with business community and others:

- Evidence of partnerships with community members and businesses that leverage resources such as internship/externship opportunities which contribute to student achievement.
- Evidence of collaboration on alignment of curriculum to meet industry requirements for current and future employment growth sectors.

Formal Structure:

- Existence of advisory committee that includes both college and high school personnel to collaborate on both programming and operations.
- Existence of written agreements outlining the roles of each partner including specific services, opportunities, costs, etc.
- Evidence of regular stakeholder meetings and local employer involvement.

Professional Development

High Schools and post-secondary partners collaborate on professional development to develop a common base of understanding and practice:

- The college provides high school teachers teaching college courses with discipline-specific training and orientation regarding, but not limited to, course curriculum, assessment criteria, pedagogy, course philosophy and administrative responsibilities and procedures prior to the instructor teaching the course.
- The early college program provides annual discipline-specific professional development activities and ongoing collegial interaction to address course content, course delivery, assessment, evaluation and/or research and development in the field.
- Evidence of joint professional development and curriculum alignment that incorporates common core requirements.

High schools/partners collaboration extends beyond teachers' professional development:

- Professional Development for counselors and guidance staff at both High Schools and Post-Secondary partners.
- Evidence that college and high school faculty, counselors, and administrators meet and communicate on a regular basis.
- Vertical planning between the college professors and 6-12 grade teachers.
- Peer visits between the college professors and high school teachers.

Accountability and Sustainability

Display best practices in on data collection, assessment and program improvement:

- Evidence of program evaluation based on defined metrics, data collection and analysis in a program improvement recursive loop.

Include identification of current adequate resources and plan for sustainability:

- Contains mechanisms for adequate and sustained financial support for implementation and management of the program, and for supporting the costs of course alignment.
- Receives institutional support from the administration and faculty at all partner schools.

APPENDIX D: Career Certificate Programs Overview

Information from BLS report: “Certificates: A fast track to careers”

Certificates are non-degree awards for completing an educational program of study after high school. Typically students finish these programs to prepare for a specific occupation, in a relatively short period of time.

Certificates are one of the most popular types of postsecondary education awards. In 2010-2011, US schools awarded more than 1 million certificates—more than the number of Associate, Masters, or Doctoral degrees and nearly as many as the Bachelors’ degree (1.7 million)

Certificates are not the same as – and typically do not lead directly to – professional licenses and certification. Certificates show that a person has completed a course of study. Licenses are required to practice in some occupations and certifications, which involve assessments and documentation of experience, show that workers have attained competency in an occupation.

Schools issue certificates, states or other governments issue licenses and professional or industry associations usually issue certifications.

The US Bureau of Labor Statistics has identified 33 occupations as typically requiring a certificate or other postsecondary non-degree award for people entering those occupations. The most popular disciplines for certificate programs in 2010-2011 were healthcare, personal and culinary services, and mechanical and repair technologies and technicians.

According to the NCES, private-for-profit schools and public community colleges award most certificates.

To reap the benefits of a certificate, people typically must work in the occupation related to the award. Those who do, earn 37% more than workers with a high school diploma and almost as much as workers with an associate’s degree. Almost half of certificate holders worked in an occupation related to their certificate in 2010 (CEW report).

Information from the Center for Law and Social Policy

The U.S. has a widely varied education and training system that provides multiple routes to educational and career advancement for people and a diverse multi-layered credentialing marketplace of degrees, certificates, certifications, licenses and badges that are offered by a wide variety of educational institutions and credentialing organizations.

More than 4000 personnel certification bodies are at work in the US and less than 10% are accredited or reviewed by a third party.

The proliferation of credentials without an underpinning of consistent definitions, standards and quality assure mechanisms has left employers, government, students, job-seekers, workers and education and training providers confused about the quality and market value of the credentials being offered.

Three key elements missing from the current credentialing system include: transparency, trust, and portability.

Possible essential elements:

- Competency-based credentials are widely and consistently used;
- Diverse credentials are easy to understand and use by employers, individuals and educators;
- All stakeholders—employers, learners, educators and accreditors—see a clear return on investment from acquiring and using competency-based credentials;
- Micro-credentials are understood and accepted, and can be combined in “bundles” that enhance their relevance and value;
- Users can rely on the quality of credentials, including their accuracy in representing the competencies possessed by a credential holder;
- Credentials are continually refreshed and validated to ensure relevance to changing requirements;
- Credentials are transparent to allow the user to understand how credentials are interconnected and facilitates occupational transitions during a career life cycle;
- Users doing career planning or making job transitions can combine “micro credentials” easily into customized bundles that aggregate to fit their needs; and
- Credentials are modified continually to align with emerging industries and occupations.

Legislative Program Review and Investigation Committee Scope of Study on Higher Education Certificate Programs

Uses federal interagency work group on expanded measures of enrollment and attainment definition for educational certificates: “a credential awarded by a training provider or educational institution based on completion of all requirements for a program of study, including coursework and test or performance evaluations.

Dividing sub-baccalaureate certificates into three categories based on length of program: short-term (less than one academic year), mid-term (at least one but less than two academic years), and long term (at least two years but less than four academic years).

Scope of study focuses on programs in four settings: community colleges, state universities, Charter Oak State College and private occupational schools. Does not cover programs through University of CT or CT Technical High School System.

Areas of Analysis:

- Examine reasons for the relatively lower production of sub-baccalaureate certificates compared to national average.
- Develop an inventory of sub-baccalaureate educational certificate programs offered in CT in selected four settings.
- Compare/analyze for-credit and non-credit certificate programs in terms of: types and number offered; tuition/fees; length of program; availability of academic credit for courses completed as part of the certificate program; completion and drop out rates and possible reasons for any high dropout rates; number of certificate programs that lead to industry certification.
- Identify the barriers to enrollment and completion.
- Assess the alignment of supply and demand for certain certificate programs.
- Identify any best practices for the development and operation of certificate programs.

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APPENDICES E, F, G: Preliminary Program Inventories

APPENDIX E: Contextualized Learning Programs in Connecticut

APPENDIX F: Early College Programs in Connecticut

APPENDIX G: Career Certification Programs in Connecticut