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Manufacturing Skills for Connecticut:

Review of New Britain High School's Academy of Manufacturing, Engineering & Technology

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Background

This program review report includes observations and key takeaways from data collected as part of the Manufacturing Skills for Connecticut (MSforCT) project and specific to the manufacturing program at New Britain High School. The report summarizes information gathered by WestEd between November 2020 and June 2021 through document reviews, surveys, and virtual site visits.

Manufacturing Skills for Connecticut Project Description[1]

Throughout Connecticut, significant gaps exist in the state's manufacturing workforce development system, most notably the dearth of comprehensive education, recruitment, and well-developed career pathways that, collectively, serve to connect industry to education. To address these issues CONNSTEP, in partnership with ReadyCT, the Connecticut Business & Industry Association (CBIA), and the Connecticut Manufacturers' Collaborative (CMC), designed the MSforCT project. The CMC includes all the major regional and statewide manufacturing member organizations across Connecticut, representing over 1200 manufacturing companies with tens of thousands of employees throughout all of Connecticut.

Funded through a grant from the U.S. Department of Commerce National Institute of Standards and Technology (NIST), the MSforCT project (2020-22) aimed to increase and improve career pathways to advanced manufacturing within the K-12 school system. To better understand which programs and models are most effective, remove the silos in which promising programs are operating, and share best practices, the project proposed to:

- complete a comprehensive inventory and analysis of manufacturing career pathway programs and initiatives across K-12 schools/districts;
- conduct program reviews of a subset of programs; and
- build a web-based repository of effective career pathway programs and key criteria for the creation of new programs. This interactive website will also serve as an online community of practice accessible to school districts, business associations, students and families, postsecondary institutions, and other stakeholders.

CONNSTEP contracted with WestEd, a nonprofit educational research, development, and service organization, to conduct the comprehensive inventory and program review. This report summarizes only a portion of the data collected during the overall project period. Specifically, this report focuses on the engineering and manufacturing programs at New Britain High School, one of the 13 programs that were selected for program review, and includes information collected via a state-wide online survey conducted in January 2021 and a virtual site visit conducted in June 2021.

[1] Project description adapted from ReadyCT's Manufacturing Skills for Connecticut webpage and *Manufacturing Skills for Connecticut Project Abstract*.

New Britain High School's Manufacturing, Engineering and Technology Pathway

Regional Information

New Britain High School is located in central Connecticut within Hartford County. This region offers a culture of business development, with internationally known companies in various sectors, including insurance and financial services, aerospace, manufacturing, healthcare, and more. Top-tier educational institutions include UCONN, Trinity, University of Hartford, Central Connecticut State University (CCSU), and University of St. Joseph[2]. Hartford County is home to 1,603 manufacturing sector employers[3], with Capital Workforce Partners (CWP) serving as the workforce investment board for this region. Pratt & Whitney and Stanley Black & Decker are amongst the industry leaders in this region. According to the most recent U.S. Census Bureau statistics, New Britain has an estimated population of 72,495, a median household income of $46,499, with 21.7 % of persons living in poverty[4].

District, School, and Program Overview

New Britain High School is a part of the Consolidated School District of New Britain (CSDNB). During the 2020-2021 academic year there were 9,665 students across 28 different schools within the district. According to 2019-20 Edsight[5] data, the CSDNB is 47.6% female and approximately 66.7% Hispanic or Latino. Of the students in the district, 17% identify as English learners, 73.6% qualify for free and reduced lunch, and 21.7% identify as students with special education needs. Approximately 28% of students enrolled in a four-year institution in the fall immediately following graduation, and 26% enrolled in two-year institutions. New Britain is one of 33 Alliance Districts in CT; these are school districts with among the lowest Accountability Index measures in the state[6].

New Britain High School's Manufacturing, Engineering & Technology (MET) Academy launched in 2018. Following the NAF model[7], the MET Academy addresses the country's need for engineers by educating high school students in the principles of engineering and providing content in the fields of electronics, biotech, aerospace, civil engineering, and architecture. Through connections with industry professionals and the business community NAF provides rigorous, career-focused curricula that incorporate current industry standards and practices, project-based learning, performance-based assessment, and work-based learning experiences, including internships.

[2] Choose Connecticut – Hartford Region
[3] Connecticut Department of Labor - Labor Market Information
[4] U. S. Census - New Britain City, Connecticut
[5] Edsight - Home
[6] CT.gov - Alliance Districts
[7] NAF - About Us

Program Inventory Review

ReadyCT and WestEd worked together throughout fall 2020 to develop a comprehensive statewide inventory of K-12 Advanced Manufacturing Programs. To identify existing programs, WestEd used Google Forms and consulted with ReadyCT, the Connecticut State Department of Education (CSDE), and industry partners. At the end of the effort, the team had identified over 140 advanced manufacturing programs. A list of all programs identified can be found in Appendix A.

Survey and Site Selection Overview

WestEd researchers developed and disseminated an online survey to capture basic program data and inform the selection of programs to be reviewed.

Survey Development

The project team utilized several sources to develop a rubric to define high-quality, high-impact programs, including the Association for Career & Technical Education (ACTE)[8], the Society of Manufacturing Engineers (SME) and SME Education Foundation[9], the National Association of Manufacturers (NAM)[10], and the U.S. Department of Labor, Employment and Training Administration[11]. Survey questions were then developed to mirror the rubric and focused on five broad categories:

- Curriculum Standards and Competencies
- Business and Community Partnerships
- Career Development Offerings
- Sequencing and Articulation
- Access and Equity

Survey Dissemination

WestEd administered an online survey to K-12 manufacturing programs from February 3, 2021 through March 12, 2021. A total of 47 schools responded providing information on 51 programs, representing a 33% response rate. A list of all survey respondents can be found in Appendix B.

Site Selection

The project team used a combination of survey responses, site demographics, and industry recommendations to identify the manufacturing programs that would be invited to participate in a

[8] Association for Career & Technical Education (ACTE) - 12 Elements of a High-quality CTE Program of Study.
[9] Society of Manufacturing Engineers (SME) & SME Education Foundation - Four Pillars of Manufacturing Knowledge.
[10] National Association of Manufacturers (NAM) - NAM-endorsed Skills Certification System.
[11] U.S. Department of Labor, Employment and Training Administration - Advanced Manufacturing Competency Model.

program review of high-quality, high-impact manufacturing programs. Using the rubric created (see Appendix D) during the survey development phase, WestEd researchers scored and ranked each completed survey. A higher survey score indicated that, based on the rubric, the program was more closely aligned with elements of a high-quality, high-impact program. However, it is also important to note the limitations of this approach to identifying high-quality, high-impact programs. The primary limitations are that the programs were chosen among only a sample of manufacturing programs that completed the survey; not all surveys provided complete responses; and surveys were completed by respondents playing diverse roles with differing levels of programmatic knowledge.

Thus, the sample from which the team identified high-quality, high-impact programs is limited by self-selection and the self-reported nature of the data source. It is possible that other manufacturing programs not responding to the survey are indeed high-quality and/or the programs chosen among the survey respondents provided incomplete or inaccurate information.

In addition to survey rankings, the research team considered ReadyCT's input as it further analyzed the program list. To ensure that the sample included variation, the project team considered region, urban-rural classification, and socioeconomic and diversity indexes to select a list of finalists that were eligible to participate in the program review. Finally, stakeholder feedback was incorporated into the project team's finalist list. The goal was to identify a group of sites that consisted of both programs of interest to the CMC and programs that were willing and able to participate in the evaluation. The final list of programs selected for review can be found in Appendix C.

Visit Overview

WestEd researchers conducted focus groups and interviews with stakeholders regarding the MET Academy at New Britain High School during the week of June 1, 2021. Due to the ongoing coronavirus pandemic and travel restrictions, the activities were held virtually using an online video conferencing system. The purpose of the focus groups and interviews was to gather information on program characteristics and activities to supplement data captured via the survey. Additionally, the focus groups and interviews gathered information from key stakeholders about program strengths and challenges and solicited recommendations. The focus groups and interviews were tailored to stakeholders' roles as below.

- A focus group with the principal and associate principal
- A focus group with the program director and lead teacher
- An interview with the district's superintendent
- A focus group with four teachers
- Two focus groups with a total of six students
- A focus group with eight business partners

Program Review Results

The sections below synthesize information gathered through the program's documents, survey response, and virtual site visit. The results are organized by the framework that most influenced the site selection rubric—the 12 areas of high-quality CTE that were developed by the Association for Career & Technical Education (ACTE).

Summary by 12 Areas of High-Quality CTE

Standards-aligned and Integrated Curriculum

New Britain offers five programs as a part of the MET Academy as follows: computer science, engineering, manufacturing, construction, and automotive. The manufacturing program consists of the following pathways: manufacturing production process, manufacturing production, quality assurance, engineering design and development, information support and service, and programming and software development. There is no entrance exam required for entrance into the program, nor are prerequisite courses required.

The program incorporates standards from the National Institute for Metalworking Skills (NIMS) into the curriculum as well as employability skill standards, such as problem solving, critical thinking, teamwork, communications, interview skills, and workplace etiquette, to prepare students for the workplace. New Britain also incorporates curriculum recommendations from industry partners. For example, manufacturing partners recently communicated that the program's curriculum needed to be revamped in order to incorporate instruction on the new equipment and machinery (see below) recently purchased by the school.

Sequencing and Articulation

Within the MET Academy there are a series of pathways students can follow. They are:

- Manufacturing Cluster: Manufacturing Production Process Pathway & Quality Assurance
- Engineering/STEM Cluster: Engineering, Design, & Development
- Information Technology Cluster: Information, Support, & Service and Programming & Software Development Information Technology
- Construction & Automotive

Students in the Manufacturing and Engineering pathway take three or four year-long courses toward the articulation and pre apprenticeship program. Courses include Engineering Essentials, Introduction to Engineering Design, Computer Integrated Manufacturing, Manufacturing 1, Manufacturing 2, and MET Capstone.

New Britain has dual articulation agreements with a number of colleges and universities that afford their students the opportunity to earn post-graduate credits. For example, a recent New Britain graduate received enough articulated credit to receive his B.A. in just two years. Students

can receive additional credits through the Early College Education program, which is offered through a partnership with the University of Connecticut (UCONN). New Britain provides access to UCONN credits during the school day through its high school classes. Project Lead the Way[12] (PLTW) offers four dual articulation opportunities for students. New Britain is in the process of acquiring an additional articulation agreement with Tunxis Community College.

Student Assessment

New Britain offers a number of credentialing exams. Students are assessed through project-based learning as well as through paper and pencil assessment; the administrators indicated that assessment formats varied based on the teacher. Students can obtain certifications from Haas and the Occupational Safety and Health Administration. Additionally, students also take exams administered by PLTW and ToolingU[13].

Prepared and Effective Program Staff

The MET Academy is fortunate to have highly trained program staff. Most instructors in the department have past industry experience which translates to teaching hours at the community college level. This enables them to teach dual enrollment courses at New Britain High School. Further, the Academy's manufacturing instructor is also a professor at Central Connecticut State University.

In terms of continued training and professional development, New Britain has partnered with universities and colleges as well as local industry groups such as the New England Spring and Metalstamping Association (NESMA) to provide training for teachers in Mobile Apps, PLTW, Learn Robotics, NIMS, and advanced manufacturing curriculum. The University of New Haven provides graduate credits for PLTW professional development training. Learn Robotics and Mobile Apps are online courses that were introduced to the district through NAF. Teachers also have opportunities to receive training on the use of manufacturing equipment from local industry partners, such as Palomar Manufacturing, and suppliers of the newly purchased equipment. Additionally, teachers also seek out their own personal professional development opportunities, such as machinery training. The district will pay for related training as long as it doesn't interfere with student learning.

Engaging Instruction

Students communicated that they are excited about the manufacturing program and the many opportunities they have to work with the equipment. One student shared a recent experience of creating a hammer and expressed that the ability to produce a physical product was "very rewarding." Additionally, students communicated that they find the course content both "interesting and inclusive." All of the students interviewed plan to go directly into the

[12] Project Lead the Way - Home
[13] Tooling U-SME - Home

manufacturing industry after graduation and agree that the curriculum offered through the MET Academy is preparing them for the industry.

Access and Equity

The MET Academy is implementing a systematic approach to providing STEM experiences to students in grades K-12 by planning STEM and Career and Technical Education (CTE) courses as early as elementary school. Elementary school principals and the assistant coordinator of STEAM and summer programs ensure New Britain public schools have a career awareness component. Middle school technology education courses and labs will be modeled after New Britain's MET Academy, thus, creating a pipeline for high school and post-graduate manufacturing. A new curriculum information teacher (CIT) hired through ESSER funds works to ensure the middle school curriculum aligns both vertically and horizontally, and that the high school curriculum aligns with the new manufacturing equipment. The hope is that ultimately, this district wide approach will increase the number of students entering the manufacturing pathway.

Facilities, Equipment, Technology and Materials

New Britain High School's facilities have recently been renovated, and the school has purchased new equipment using federal, state, and local funds including the Perkins Grant and funds from the school's business advisory board. Facilities are equipped with Haas computer numeric control machines, Bridgeport milling machines with digital readouts, lathes with digital readouts, surface grinders, optical comparators, cold saws, band saws, and simulators, among other pieces of equipment. The middle school has all the same machines, but they are smaller and fewer in quantity.

Business and Community Partnerships

The MET Academy benefits from a number of business and community partnerships, including Capital workforce partners, Pratt and Whitney, Haas Machinery, Richard Machinery and OK Industries. Business and community partners work directly with the MET Academy to ensure that the school's curriculum aligns with industry standards. Additionally, local business partners assist with curriculum development as well as reviewing and revising annual course offerings. New Britain's partnerships provide the school with a wealth of student career development activities and work-based learning opportunities. Business partners communicated excitement about the direction of the program as well as their dedication to change the negative stereotype associated with manufacturing pathways. They have partnered with the district to contribute to that change by engaging students at each grade level, starting as early as elementary school.

Student Career Development

New Britain High School offers a wealth of career development opportunities. In addition to career fairs, the program staff identified career education and awareness, career exploration, career immersion, and additional resources and supports to help students find work. All students have a weekly, two hour STEAM lab beginning in K where students engage in project based,

hands-on, minds-on learning. Additionally, CSDNB offers students career preparation and planning tools via an online, district operated platform. New Britain was one of the only schools reviewed that mentioned using CT's Student Success Plan[14], In the 2020-2021 academic year, New Britain's work-based learning department partnered with Junior Achievement of Southwest New England[15] to host virtual mock interviews for graduating seniors. The interviews were attended by industry professionals who provided feedback directly to students.

Career and Technical Student Organizations (CTSOs)

New Britain High School offers Family, Career and Community Leaders of America (FCCLA), Distributive Education Clubs of America (DECA), and Future Business Leaders of America (FBLA) for student participation. Students in the MET Academy can participate in each program. However, no data was provided on how many students from the program participate in the Career and Technical Student Organizations (CTSO). The students interviewed for this project had not participated in any of the school's CTSOs.

Work-based Learning

New Britain High School has extensive work-based learning opportunities that include cooperative work experience, internships, and pre-apprenticeships. They are also certified as a National Academy Foundation[16]. CSDNB has a partnership with the Apprenticeship Connecticut Initiative[17] which provides pre-apprenticeships and industry recognized credential-based training in the sectors of manufacturing, healthcare, and construction. Additionally, CSDNB provides students access to virtual job shadowing, career exploration, and career planning via its online platform.

All New Britain students are required to participate in work-based learning. The school has a work-based learning liaison who works to ensure that students receive opportunities for in-field learning. The liaison coordinates field trips and workshops to expose students to work-based learning opportunities. Additionally, students have opportunities to participate in job shadowing and paid employment within the manufacturing industry.

Data and Program Improvement

Administrators talked about their use of data on student attendance, skill attainment, culminating projects and completion of work-based learning activities for program improvement. They use universal indicators for all students, as well as assessment of the teacher lesson plans to look at the quality of instruction. Business partners play a large role in helping the MET staff engage in continuous improvement by participating in curriculum review and revision as well as alignment

[14] CSDE - Student Success Plan
[15] Junior Achievement - About
[16] National Academy Foundation - About Us
[17] Connecticut Department of Labor - The Office of Apprenticeship Training

with industry standards. Many also help prepare students for the workforce by providing direct work experience.

Final Reflections and Takeaways

The MET Academy finds strength in its highly trained teaching staff, newly renovated facilities, and heavily involved local partnerships. New Britain was unique in its mention of the career awareness program in the elementary schools. Additionally, the school's articulation agreements afford students access to a postsecondary education opportunities by providing numerous transferable credits and New Britain's business partnerships are clearly a huge asset. Teachers communicated that one area of improvement would be to decrease class sizes. CSDNB course offerings and career development opportunities provide a wealth of resources that prepare students for careers in the manufacturing industry.

Appendix A: Inventory of CT K-12 Advanced Manufacturing Programs, by District

Ansonia School District

Ansonia High School, Ansonia, CT

Berlin School District

Berlin High School, Berlin, CT

Bolton School District

Bolton High School, Bolton, CT

Bridgeport School District

Bassick High School, Bridgeport, CT
Bridgeport Regional Vocational Aquaculture School, Bridgeport, CT
Central High School, Bridgeport, CT
Fairchild Wheeler Interdistrict Multi-Magnet High School, Bridgeport, CT
Kolbe Cathedral High School, Bridgeport, CT
Warren Harding High School, Bridgeport, CT

Bristol School District

Bristol Central High School, Bristol, CT
Bristol Eastern High School, Bristol, CT

Brookfield School District

Brookfield High School, Brookfield, CT

Capitol Region Education Council

Academy of Aerospace and Engineering, Windsor, CT

Cheshire School District

Cheshire High School, Cheshire, CT

Clinton School District

The Morgan School, Clinton, CT

Colchester School District

Bacon Academy, Colchester, CT

Connecticut Technical Education and Career System (CTECS)

A. I. Prince Technical High School, Hartford, CT
Bristol Technical Education Center, Bristol, CT
Bullard-Havens Technical High School, Bridgeport, CT
E. C. Goodwin Technical High School, New Britain, CT
Eli Whitney Technical High School, Hamden, CT
Ella T. Grasso/Southeastern Technical High, Groton, CT
Emmett O'Brien Technical High School, Ansonia, CT
H. C. Wilcox Technical High School, Meriden, CT
Harvard H. Ellis Technical High School, Danielson, CT
Henry Abbott Technical High School, Danbury, CT
Howell Cheney Technical High School, Manchester, CT
J.M. Wright Technical High School, Stamford, CT

Norwich Technical High School, Norwich, CT
Oliver Wolcott Technical High School, Torrington, CT
Platt Technical High School, Milford, CT
Vinal Technical High School, Middletown, CT
W. F. Kaynor Technical High School, Waterbury, CT
Windham Technical High School, Windham, CT

Coventry School District

Coventry High School, Coventry, CT

Cromwell School District

Cromwell High School, Cromwell, CT

Danbury School District

Danbury High School, Danbury, CT

Darien School District

Darien High School, Darien, CT

Derby School District

Derby High School, Derby, CT

East Granby School District

East Granby High School, East Granby, CT

East Haddam School District

Nathan Hale-Ray High School, Moodus, CT

East Hartford School District

East Hartford High School, East Hartford, CT
Synergy Alternative High School, East Hartford, CT
Woodland School, East Hartford, CT

East Haven School District

East Haven High School, East Haven, CT

East Lyme School District

East Lyme High School, East Lyme, CT

Eastern Connecticut Regional Educational Service Center (EASTCONN)

Quinebaug Middle College, Danielson, CT

Ellington School District

Ellington High School, Ellington, CT

Enfield School District

Enfield High School, Enfield, CT

Fairfield School District

Fairfield Ludlowe High School, Fairfield, CT
Fairfield Warde High School, Fairfield, CT

Farmington School District

Farmington High School, Farmington, CT

Glastonbury School District

Glastonbury High School, Glastonbury, CT

Granby School District

Granby Memorial High School, Granby, CT

Greenwich School District

Greenwich High School, Greenwich, CT

Griswold School District

Griswold High School, Griswold, CT

Groton School District

Robert E. Fitch High School, Groton, CT

Guilford School District

Guilford High School, Guilford, CT

Hamden School District

Hamden High School, Hamden, CT

Hartford School District

Hartford Public High School, Engineering & Green Technology Pathway, Hartford, CT

Pathways Academy of Technology & Design, East Hartford, CT

Killingly School District

Killingly High School, Killingly, CT

LEARN

Connecticut River Academy, East Hartford, CT

Lebanon School District

Lyman Memorial High School, Lebanon, CT

Ledyard School District

Ledyard High School, Ledyard, CT

Madison School District

Daniel Hand High School, Madison, CT

Manchester School District

Manchester High School, Manchester, CT

Meriden School District

Francis T. Maloney High School, Meriden, CT

Orville H. Platt High School, Meriden, CT

Middletown School District

Middletown High School, Middletown, CT

Milford School District

Joseph A. Foran High School, Milford, CT

The Academy, Milford, CT

Milford School District

Jonathan Law High School, Milford, CT

Monroe School District

Masuk High School, Monroe, CT

Montville School District

Montville High School, Oakdale, CT

New Britain School District

New Britain High School, New Britain, CT

New Canaan School District

New Canaan High School, New Canaan, CT

New Haven School District

Metropolitan Business Academy, New Haven, CT
Riverside Education Academy, New Haven, CT

New Haven School District

Engineering - Science University Magnet School, West Haven, CT
Wilbur Cross High School, New Haven, CT

New London School District

New London High School, New London, CT

Newtown School District

Newtown High School, Sandy Hook, CT

North Stonington School District

Wheeler High School, North Stonington, CT

Norwich Free Academy

Norwich Free Academy, Norwich, CT

Old Saybrook School District

Old Saybrook High School, Old Saybrook, CT

Plainfield School District

Plainfield High School, Plainfield, CT

Plainville School District

Plainville High School, Plainville, CT

Plymouth School District

Terryville High School, Terryville, CT

Portland School District

Portland High School, Portland, CT

Regional School District 1

Housatonic Valley Regional High School, Falls Village, CT

Regional School District 4

Valley Regional High School, Deep River, CT

Regional School District 5

Amity Regional High School, Woodbridge, CT

Regional School District 7

Northwestern Regional High School, Winsted, CT

Regional School District 8

RHAM High School, Hebron, CT

Regional School District 10

Lewis S. Mills High School, Burlington, CT

Regional School District 12

Shepaug Valley School, Washington, CT

Regional School District 15

Pomperaug High School, Southbury, CT

Regional School District 16

Woodland Regional High School, Beacon Falls, CT

Regional School District 17

Haddam-Killingworth High School, Higganum, CT

Regional School District 18

Lyme-Old Lyme High School, Old Lyme, CT

Regional School District 19

E. O. Smith High School, Storrs, CT

Rocky Hill School District

Rocky Hill High School, Rocky Hill, CT

Seymour School District

Seymour High School, Seymour, CT

Shelton School District

Shelton High School, Shelton, CT

Simsbury School District

Simsbury High School, Simsbury, CT

Somers School District

Somers High School, Somers, CT

South Windsor School District

South Windsor High School, South Windsor, CT

Southington School District

Southington High School, Southington, CT

Stafford School District

Stafford High School, Stafford Springs, CT

Stamford School District

The Academy of Information Technology, Stamford, CT

Stonington School District

Stonington High School, Stonington, CT

Stratford School District

Frank Scott Bunnel High School, Stratford, CT

Stratford School District

Stratford High School, Stratford, CT

Suffield School District

Suffield High School, Suffield, CT

Thomaston School District

Thomaston High School, Thomaston, CT

Thompson School District

Tourtellotte Memorial High School, North Grosvenordale, CT

Torrington School District

Torrington High School, Torrington, CT

Trumbull School District

Trumbull High School, Trumbull, CT

Unified School District #1

State of Connecticut Department of Correction, Wethersfield, CT

Vernon School District

Rockville High School, Vernon, CT

Wallingford School District

Lyman Hall High School, Wallingford, CT

Mark T. Sheehan High School, Wallingford, CT

Waterbury School District

Waterbury Career Academy, Waterbury, CT

Waterbury School District

Crosby High School, Waterbury, CT

John F. Kennedy High School, Waterbury, CT

Wilby High School, Waterbury, CT

Waterford School District

Waterford High School, Waterford, CT

Watertown School District

Watertown High School, Watertown, CT

West Hartford Public Schools

Conard High School, West Hartford, CT

William H. Hall High School, West Hartford, CT

West Haven School District

West Haven High School, West Haven, CT

Westbrook School District

Westbrook High School, Westbrook, CT

Wethersfield School District

Wethersfield High School, Wethersfield, CT

Windham School District

Windham High School, Windham, CT

Windsor School District

Windsor High School, Windsor, CT

Windsor Locks School District

Windsor Locks High School, Windsor Locks, CT

Wolcott School District

Wolcott High School, Wolcott, CT

Woodstock Academy

The Woodstock Academy, Woodstock, CT

Appendix B: CT Advanced Manufacturing Program Survey Respondents, by District

Ansonia School District
- Ansonia High School, Ansonia, CT

Bridgeport School District
- Bassick High School, Bridgeport, CT

Bristol School District
- Bristol Central High School, Bristol, CT
- Bristol Eastern High School, Bristol, CT

Cheshire School District
- Cheshire High School, Cheshire, CT

Colchester School District
- Bacon Academy, Colchester, CT

Connecticut Technical Education and Career System (CTECS)
- Bristol Technical Education Center, Bristol, CT
- Bullard-Havens Technical High School, Bridgeport, CT
- Eli Whitney Technical High School, Hamden, CT
- H. C. Wilcox Technical High School, Meriden, CT
- Harvard H. Ellis Technical High School, Danielson, CT
- Platt Technical High School, Milford, CT
- Vinal Technical High School, Middletown, CT
- W. F. Kaynor Technical High School, Waterbury, CT

Coventry School District
- Coventry High School, Coventry, CT

East Granby School District
- East Granby High School, East Granby, CT

East Haddam School District
- Nathan Hale-Ray High School, Moodus, CT

East Hartford School District
- East Hartford High School, East Hartford, CT

East Haven School District
- East Haven High School, East Haven, CT

Eastern Connecticut Regional Educational Service Center (EASTCONN)
- Quinebaug Middle College, Danielson, CT

Glastonbury School District
- Glastonbury High School, Glastonbury, CT

Griswold School District
- Griswold High School, Griswold, CT

Hamden School District
- Hamden High School, Hamden, CT

Hartford School District

HPHS Academy of Engineering & Green Technology, Hartford, CT

LEARN

Connecticut River Academy, East Hartford, CT

Lebanon School District

Lyman Memorial High School, Lebanon, CT

Madison School District

Daniel Hand High School, Madison, CT

Manchester School District

Manchester High School, Manchester, CT

New Britain School District

New Britain High School, New Britain, CT

Plainfield School District

Plainfield High School, Plainfield, CT

Plainville School District

Plainville High School, Plainville, CT

Regional School District 16

Woodland Regional High School, Beacon Falls, CT

Regional School District 8

RHAM High School, Hebron, CT

Rocky Hill School District

Rocky Hill High School, Rocky Hill, CT

South Windsor School District

South Windsor High School, South Windsor, CT

Stonington School District

Stonington High School, Stonington, CT

Suffield School District

Suffield High School, Suffield, CT

Thomaston School District

Thomaston High School, Thomaston, CT

Thompson School District

Tourtellotte Memorial High School, North Grosvenordale, CT

Torrington School District

Torrington High School, Torrington, CT

Unified School District #1

State of Connecticut Department of Correction, Wethersfield, CT

Wallingford School District

Lyman Hall High School, Wallingford, CT

Waterbury School District

Waterbury Career Academy, Waterbury, CT

West Hartford Public Schools

Conard High School, West Hartford, CT

William H. Hall High School, West Hartford, CT

Windham School District

Windham High School, Windham, CT

Windsor School District

Windsor High School, Windsor, CT

Appendix C: Final List of CT Programs Selected for Review

Bacon Academy Manufacturing at Bacon Academy Colchester School District, Colchester, CT
Bristol Manufacturing Production Pathway at Bristol Central & Bristol Eastern High Schools Bristol School District, Bristol, CT
Early College Advanced Manufacturing Program at Connecticut River Academy LEARN Regional Education Service Center, East Hartford, CT
Precision Machining Technology at Eli Whitney Technical High School Connecticut Technical Education and Career System (CTECS), Hamden, CT
Hamden Engineering Careers Academy at Hamden High School Hamden School District, Hamden, CT
Intro to Manufacturing at Lyman Hall High School Wallingford School District, Wallingford, CT
Manchester Public Schools Manufacturing Program at Manchester High School Manchester School District, Manchester, CT
Academy of Manufacturing, Engineering & Technology (MET) at New Britain High School New Britain School District, New Britain, CT
Manufacturing for Industry: YMPI with EWIB at RHAM High School Regional School District 8, Hebron, CT
Manufacturing Pathway at Tourtellotte Memorial High School Thompson School District, North Grosvenordale, CT
Precision Machining Technology at Vinal Technical High School Connecticut Technical Education and Career System (CTECS), Middletown, CT
Manufacturing Academy at Waterbury Career Academy Waterbury School District, Waterbury, CT
Career and Technical Education at Windsor High School[18] Windsor School District, Windsor, CT

[18] Windsor High School declined to participate in the program review.

Appendix D: Scoring Rubric

Category Name	Full Question	Response Required to Receive Point	Related High-quality CTE Program Element	Element-Weighted Score	Non-Weighted Score
Identified Student Populations	Has your program identified student populations in your vicinity that are typically underserved educationally or underemployed due to educational, economic or other barriers?	Yes	Access and Equity	0.3333333333	1
Identified Root Causes	Has your program identified the root causes of identified gaps in participation and performance of these student groups?	Yes	Access and Equity	0.3333333333	1
Orgs to Support Access & Equity	Has your program utilized any organizations and/or resources to support your efforts related to access and equity?	Yes	Access and Equity	0.3333333333	1
Business Partnerships	Is your program involved in any business partnerships?	Yes	Business and Community Partnerships	0.5	1
Community Partnerships	Is your program involved in any community partnerships (i.e., partnerships with nonprofit organizations, public agencies, and/or government offices)?	Yes	Business and Community Partnerships	0.5	1

Category Name	Full Question	Response Required to Receive Point	Related High-quality CTE Program Element	Element-Weighted Score	Non-Weighted Score
CTSOs	Has your school established one or more Career and Technical Student Organizations (CTSOs)?	Yes	Career and Technical Student Organizations (CTSOs)	1	1
Age: > 5 Years	Calculated age using starting year provided	> 5 Years	Data and Program Improvement	0.5	1
Program Data	Please describe the types of data the program collects and how data are used.	Response Provided	Data and Program Improvement	0.5	1
Specialized Facilities	Please describe any specialized facilities, equipment, technology, and/or materials available to program participants. Please provide any relevant website links or documentation.	Response Provided	Facilities, Equipment, Technology and Materials	1	1
Staff PD	Do program staff have opportunities to participate in professional learning activities specific to advanced manufacturing?	Yes	Prepared and Effective Program Staff	1	1
Sequenced Courses	Does the program structure require students to take courses in a SEQUENCE (e.g., Advanced Manufacturing Technology I, Advanced Manufacturing Technology II, Advanced Manufacturing Technology III, etc.)?	Yes	Sequencing and Articulation	0.3333333333	1

Category Name	Full Question	Response Required to Receive Point	Related High-quality CTE Program Element	Element-Weighted Score	Non-Weighted Score
Credentials	Which of the following industry-recognized credentials does your program offer?	At least 1 selected	Sequencing and Articulation	0.3333333333	1
Credit that Articulates	Which of the following opportunities to earn credit that articulates to the next level of education does your program offer?	At least 1 selected	Sequencing and Articulation	0.3333333333	1
Industry-Recognized Standards & Competencies	Does your program's curriculum incorporate industry-recognized technical standards and competencies (e.g., NIMS, AWS, MSSC, etc.)?	Yes	Standards-aligned and Integrated Curriculum	0.25	1
Employability Skill Standards	Does your program's curriculum incorporate employability skill standards, such as problem solving, critical thinking, teamwork, communications, interview skills, and workplace etiquette, that help students succeed in the workplace?	Yes	Standards-aligned and Integrated Curriculum	0.25	1
Publicly Available Standards	Are program standards publicly available and accessible?	Yes	Standards-aligned and Integrated Curriculum	0.25	1
Curriculum Reviewed Regularly	Is the program's curriculum reviewed regularly?	Yes	Standards-aligned and Integrated Curriculum	0.25	1

Category Name	Full Question	Response Required to Receive Point	Related High-quality CTE Program Element	Element-Weighted Score	Non-Weighted Score
Career Development	Which of the following career development opportunities does your program offer?	At least 1 selected	Student Career Development	1	1
Work-based Learning	Which of the following work-based learning opportunities does your program offer?	At least 1 selected	Work-based Learning	1	1
			Total Possible Score:	**10**	**19**