



STATE OF CONNECTICUT
DEPARTMENT OF EDUCATION



TO: Clerk of the Senate
Clerk of the House of Representatives

Nivea L. Torres

FROM: Dr. Nivea L. Torres, Superintendent of Schools
Connecticut Technical High School System

DATE: November 2, 2016

SUBJECT: Assuring Connecticut's Success: Tomorrow's Framework
Connecticut Technical High School System 2015-16 Annual Report

In accordance with Section 10-95h(b)(2) of the Connecticut General Statutes (C.G.S.), enclosed is a copy of Assuring Connecticut's Success: Tomorrow's Framework Connecticut Technical High School System 2015-16 Annual Report

Please note that by copy of this letter, I am distributing copies of this report in accordance with C.G.S. Section 11-4a.

If you have any questions, please contact Nivea L. Torres, Superintendent of Schools at 860-807-2200. Thank you.

DW:nltc

xc: Education Committee
Labor Committee
Higher Education Committee
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Enclosure

WORKING TOGETHER.

Sharing Success.

CONNECTICUT TECHNICAL HIGH SCHOOL SYSTEM • STRATEGIC PLAN ANNUAL REPORT



2015 – 2016

**CTHSS**
CONNECTICUT TECHNICAL
HIGH SCHOOL SYSTEM

working together

SUCCESS

reaching goals

“Success is not final. Failure is not fatal. It is the courage to continue that counts.”

– *Winston Churchill*

The 2015 – 2016 school year was one of unprecedented **SUCCESS** for our district. As we look to 2016 – 2017, we are filled with **ENTHUSIASM** and **OPTIMISM** for our system and our students. We will continue to move forward in growing a culture of coherence and collaboration, allowing us to focus on future success.



THE STRATEGIC PLAN IN ACTION



COHERENCE: *Where greatness begins*

How do we achieve coherence en route to becoming the best technical education system in the nation?

- By promoting Professional Capital and developing the expertise of all our staff.
- By focusing all improvement efforts around our Foundational Imperatives and the goals of our Strategic Action Plan.
- By having clear lines of communication between our Superintendent, administrative staff and across our instructional programs.
- By developing professional learning relationships with school principals as the role of home office evolves into one of support and partnership with schools.



STORY OF SUCCESS

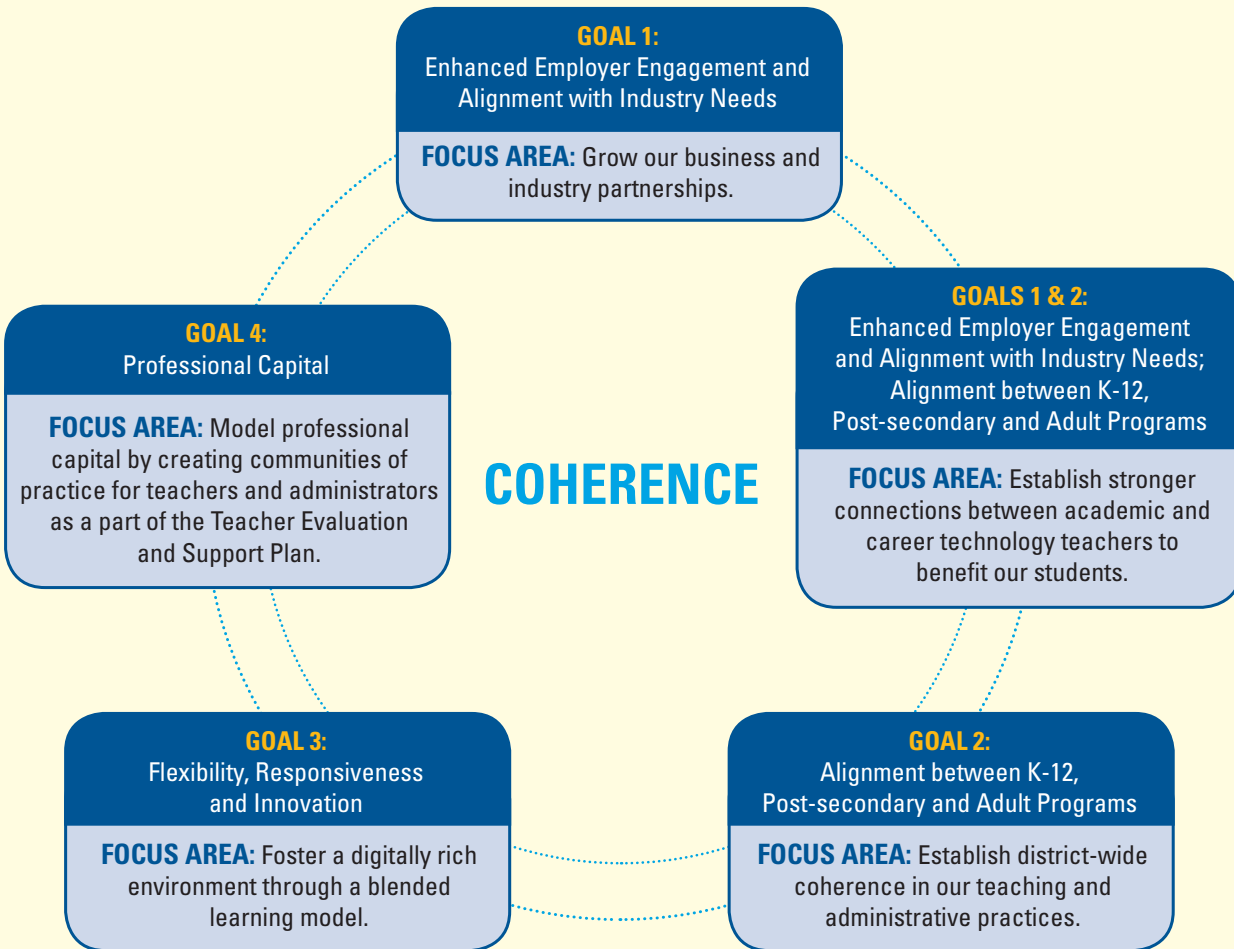
The Schmidt Family

From the 1930s through 2016, four generations of Schmidt electricians have graduated from the Connecticut Technical High School System. The education they received has served them well over the years, as they have turned their experiences with the CTHSS into a successful business – Schmidt Electric in Naugatuck, Connecticut. The family credits Work-Based Learning and instructors who are experienced in the electrical field with providing them the skills necessary for their future success. Their company prides itself on being at the forefront of technology, expertise and customer satisfaction – and the foundation they have built their company on began at a Connecticut technical high school.



OUR STRATEGIC PLAN *in Action*

As we put our Strategic Plan into action throughout the 2015 – 2016 school year, we continued to work toward a culture of coherence around our four goals. The Focus Areas guide us in achieving these goals as we continue into 2016 – 2017.



FOUR GOALS

MAKING CONNECTIONS

AFTERNOONS WITH DR. TORRES

Superintendent Torres spent several afternoons visiting schools throughout our district, meeting with building leaders and their teachers. In all, Dr. Torres made over 80 visits to the CTHSS schools last year.

These visits:

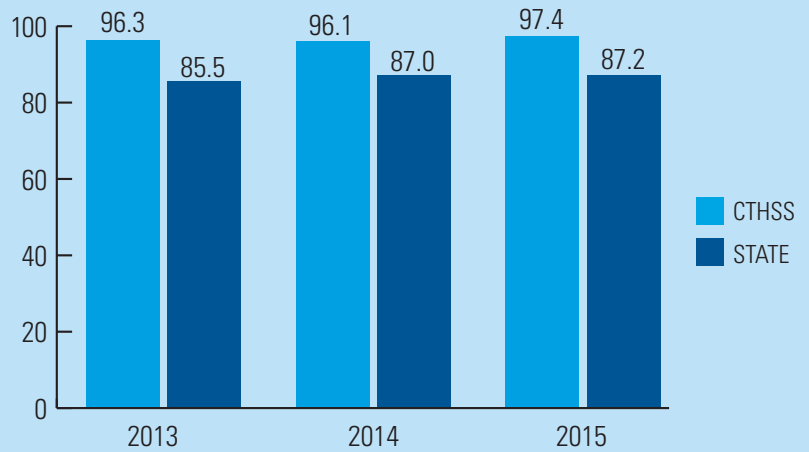
- Provided opportunities to connect with school communities.
- Allowed for exchanges of ideas and to gain a better understanding of each school's perspective on the Strategic Plan.



SUCCESS STATS

The CTHSS's graduation rate is at an all-time high: **97.4%** for the 2015 – 16 school year compared to the state's 87.2%.

FOUR-YEAR GRADUATION RATES COMPARED TO STATE AVERAGE



Four of the CTHSS's schools took bronze in the *U.S. News and World Report* High School Rankings: Bullard-Havens, Kaynor, Platt and Wilcox.

165 out of the 169 Connecticut towns are represented within the CTHSS's student body.



CTHSS and OLIVER WOLCOTT TECH were awarded **2015 Partnership District Awards** for their commitment to developing and sustaining excellent programs of family and community engagement by the **National Network of Partnership Schools at Johns Hopkins University**.



2015 – 2016 CTHSS SCHOOL OF DISTINCTION: NORWICH TECH

This first-ever Superintendent's award was given to celebrate a school's efforts in academic excellence and statewide and national recognition.

The CTHSS had a district goal of 62 for the STAR Reading Student Growth Percentile (SGP). **FIVE OF OUR SCHOOLS EXCEEDED THAT GOAL:**

1. Bristol T.E.C., 69 SGP
2. Prince Tech, 67 SGP
3. Abbott Tech, 66 SGP
4. Grasso Tech, 65 SGP
5. Norwich Tech, 65 SGP

In addition, the CTHSS surpassed the national SGP average of 50.

69.6% of the CTHSS's students mastered the ALEKS® math course – **EXCEEDING OUR GOAL BY NEARLY 10 PERCENT.**





Model professional capital by creating communities of practice for teachers and administrators by placing a special focus on professional learning

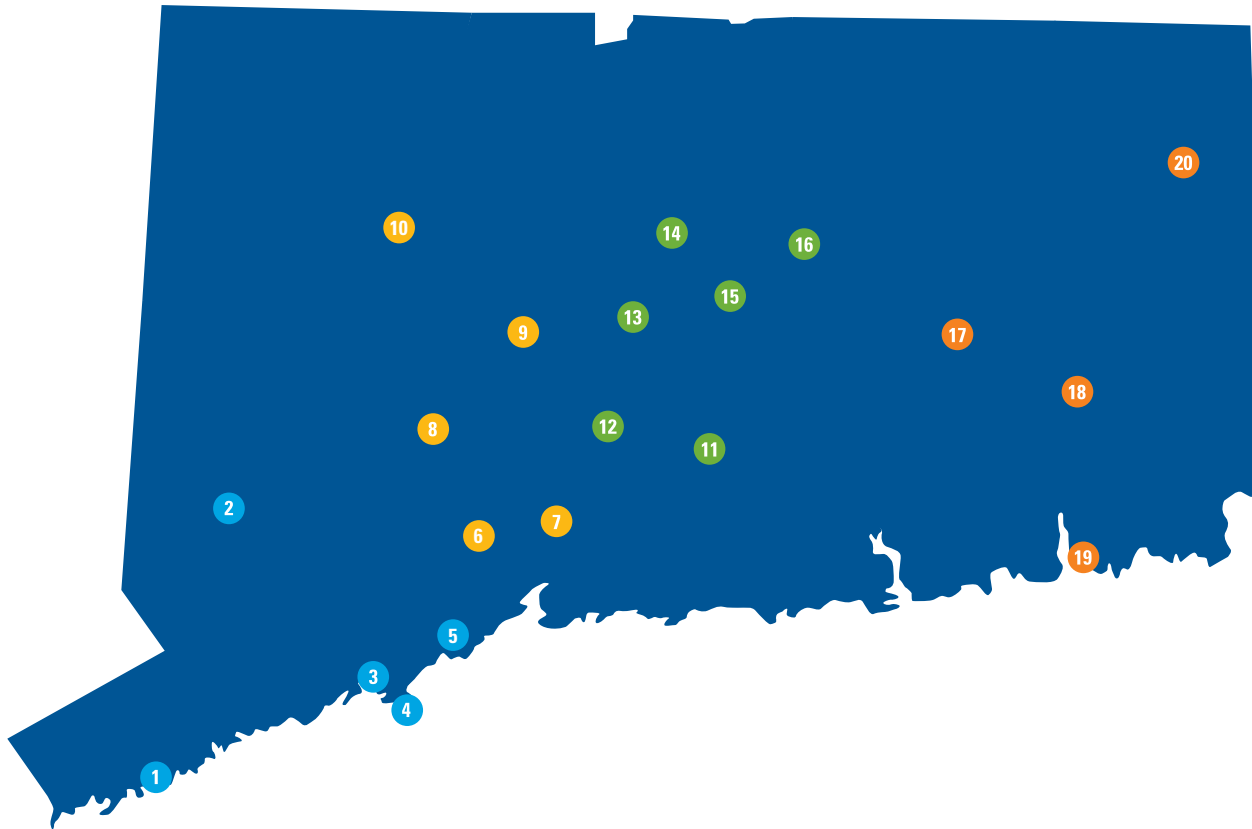
- We held our first-ever Professional Development Day, “Coming Together to Achieve Greatness,” on November 3, 2015. Here, we brought together the entire faculty from all of our schools for a day of learning.
- We followed up our district-wide professional development day with CTHSS’s first-ever Regional Professional Development Day on April 6, 2016.
- By organizing the district into four regions, we were able to take lessons learned from November 3 and to give them even more relevancy based on the areas the schools are located.



“As a first year teacher, I was able to learn some great teaching strategies, as well as find out some very interesting information on our district-wide Smart House project. I also attended a workshop on safety for young workers, which was especially helpful for me, as we have a high number of students in the Work-Based Learning program in our welding shop.”

– Amy Howroyd, Bristol T.E.C.

SCHOOLS AND LOCATIONS BY REGION



REGION 1

- 1 J.M. Wright Technical High School
Stamford
- 2 Henry Abbott Technical High School
Danbury
- 3 Bullard-Havens Technical High School
Bridgeport
- 4 Stratford School for Aviation Maintenance Technicians
Stratford
- 5 Platt Technical High School
Milford

REGION 2

- 6 Emmett O'Brien Technical High School
Ansonia
- 7 Eli Whitney Technical High School
Hamden
- 8 W.F. Kaynor Technical High School
Waterbury
- 9 Bristol Technical Education Center
Bristol
- 10 Oliver Wolcott Technical High School
Torrington

REGION 3

- 11 Vinal Technical High School
Middletown
- 12 H.C. Wilcox Technical High School
Meriden
- 13 E.C. Goodwin Technical High School
New Britain
- 14 A.I. Prince Technical High School
Hartford
- 15 CT Aero Tech School for Aviation Maintenance Technicians
Hartford
- 16 Howell Cheney Technical High School
Manchester

REGION 4

- 17 Windham Technical High School
Willimantic
- 18 Norwich Technical High School
Norwich
- 19 Ella T. Grasso Technical High School
Groton
- 20 Harvard H. Ellis Technical High School
Danielson



“The regional approach was a great opportunity to open and engage in discussions for different strategies and techniques that have been implemented in other schools. We need to form partnerships within schools that are geographically close, share professional learning ideas and experiences with each other, creating a strong teaching team and consistency within schools to provide the best education possible.”

– Dr. Tanya Celadon, Assistant Principal,
Oliver Wolcott Technical High School



NATIONAL TEACHER & SCHOOL SUCCESS





SUSAN KELLY
PHYSICS
HENRY ABBOTT
TECHNICAL HIGH SCHOOL

Susan represented the United States at a European Geophysical Union workshop in Vienna, Austria in April 2016 after a competitive application process.

CHRIS WHITE
SCIENCE
A.I. PRINCE
TECHNICAL HIGH SCHOOL

Chris attended a conference at the University of California’s Kavli Institute of Theoretical Physics discussing the Higgs Boson, the last piece of the Standard Model of particle physics.



ADRIENNE KIEL
ART
E. C. GOODWIN
TECHNICAL HIGH SCHOOL

Adrienne was presented the award for 2016’s Connecticut Art Educator of the Year from the National Art Education Association (NAEA) in Chicago, Illinois in March 2016.



H. H. ELLIS AND
W. F. KAYNOR
TECHNICAL HIGH SCHOOLS

Ellis Tech and Kaynor Tech made Niche.com’s annual list of 2016 Best Public Schools in Connecticut – ranking 73 and 96 respectively.





Stronger connections between academic and career technology teachers

The Connecticut Technical High School System is leading the charge in how CTE is incorporated into our schools' curricula.

- No longer is CTE a separate track solely focused on career technologies, but rather a rigorous and relevant curriculum fully integrated with academics, providing pathways to either employment, apprenticeship or further education at a two or four-year institution.
- The CTHSS recognizes how a strong CTE program is key in ensuring the strength of Connecticut's workforce, our global competitiveness and the economic health of our state.
- Incorporating STEM concepts with our E-House program – indicative of our focus on the integration of academics and CTE as an instructional model with recognition on the national stage.
- The CTHSS has been recognized by national organizations such as the Association for Career and Technical Education (ACTE).
- Four Prince Tech students were invited to present at the national Good Jobs, Green Jobs conference in Cleveland, Ohio on June 16, 2016. This was the first time any of our students have been asked to present on a national stage where they discussed the building of their E-House.



“In a technical high school, you have to balance swapping between academics and shop. And a technical high school has to cover in 90 days what a public high school does in 180. That means you're doing double the work and you have to work extra hard to make sure you get it all done. Before you know it, you've developed a work ethic you didn't know you had. With that, you're not just prepared for the career technologies side, but you're ready for college, too, and to handle a lot of work in a short amount of time.”

— Jack Petrucci, *W. F. Kaynor Technical High School, Manufacturing Student*

CTE IS IMPORTANT FOR CONNECTICUT'S WORKFORCE AND AN INTEGRAL PART OF DRIVING STUDENT SUCCESS

- **80% OF STUDENTS** taking college preparatory academic curriculum with rigorous CTE **MET COLLEGE AND CAREER READINESS GOALS** vs. only 63% of those taking the same academic core without CTE.

- Students attending CTE high schools have demonstrated **HIGHER RATES** of on-time graduation and credit accumulation.

- Students attending CTE high schools have a *greater likelihood of successfully* finishing a college preparatory mathematics sequence.

- The average **HIGH SCHOOL GRADUATION RATE FOR CTE STUDENTS IS 93%** vs. only 80% for the national graduation rate.

- A ratio of one CTE class for every two academic classes *minimizes the risk* of students dropping out of high school.

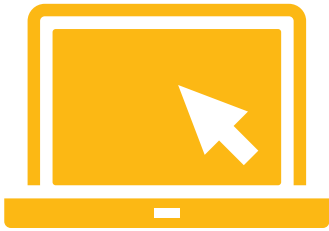
- CTE students are more likely than non-CTE students to report developing: **PROBLEM-SOLVING, PROJECT COMPLETION, TIME MANAGEMENT** and **CRITICAL THINKING SKILLS** during high school – many of which are in demand by employers.

Last year, **64.5% OF THE CTHSS'S STUDENTS MET OR EXCEEDED THE DISTRICT PERFORMANCE BENCHMARK** for the Workplace Employability Skills Assessment.

SUCCESS

“The Connecticut Technical High School System has done tremendous work to deliver vital STEM education through innovations in its career and technical education programs. The CTHSS is a leader in progressive CTE programming, and offers premier educational experiences that provide students with the 21st century skills they need to become college- and career-ready.”

– Ms. LeAnn Wilson, Executive Director, Association for Career and Technical Education



INFORMATION TECHNOLOGY

- Electronics Technology
- Graphics Technology
- Information Systems Technology

HEALTH SCIENCE

- Health Technology
- Biotechnology



CONNECTICUT TECHNICAL HIGH SCHOOL SYSTEM

CAREER



HUMAN SERVICES

- Early Care and Education
- Hairdressing and Cosmetology

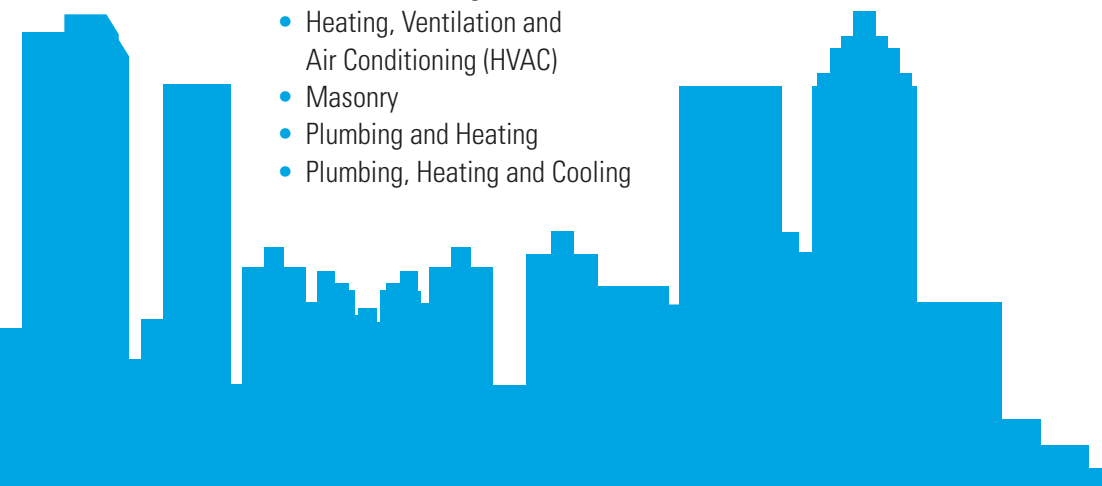
ARCHITECTURE AND CONSTRUCTION

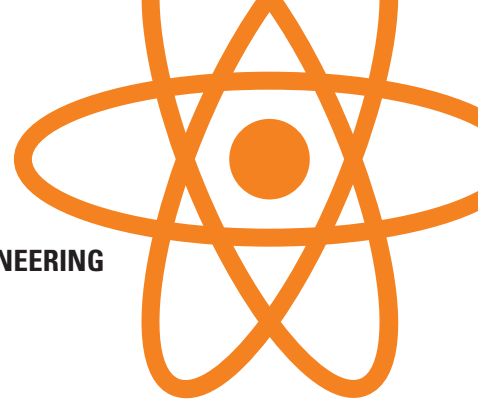
- Sustainable Architecture
- Carpentry
- Electrical
- Facilities Management
- Heating, Ventilation and Air Conditioning (HVAC)
- Masonry
- Plumbing and Heating
- Plumbing, Heating and Cooling



ARTS, AUDIO/VIDEO TECHNOLOGY AND COMMUNICATIONS

- Digital Media
- Sound Production Technology





SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM)

- Pre-Electrical Engineering and Applied Electronics Technology



AGRICULTURE, FOOD AND NATURAL RESOURCES

- Bioscience and Environmental Technology

CLUSTERS



MARKETING, SALES AND SERVICE

- Marketing, Management and Entrepreneurship



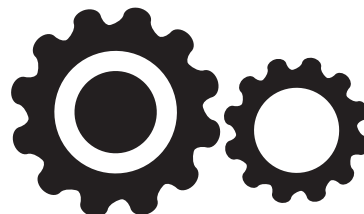
TRANSPORTATION, DISTRIBUTION AND LOGISTICS

- Automotive Collision, Repair and Refinishing
- Automotive Technology
- Diesel and Heavy-Duty Equipment Repair



HOSPITALITY AND TOURISM

- Culinary Arts
- Tourism, Hospitality and Guest Services Management



MANUFACTURING

- Automated Manufacturing Technology
- Mechanical Design and Engineering Technology
- Mechatronics
- Precision Machining Technology
- Welding and Metal Fabrication

CTE STUDENT SUCCESS

The more students participate in CTE organizations the higher their academic motivation, academic engagement, grades, career self-efficacy, college aspirations and employability skills.

STRIVING FOR EXCELLENCE

DARIA STIFEL **NORWICH TECHNICAL HIGH SCHOOL**

Daria won gold in the electrical division at the 2016 SkillsUSA national competition.

Although the competition was in June of 2016, Daria had to wait until July to receive her gold medal. The reason for the delay was a mistake in scoring during the wiring test. She received the lowest possible score, an 8 out of 80. She knew that couldn't be correct and decided to reach out to the SkillsUSA staff. Instead of an explanation, she received an apology and the top score of 80, vaulting her to the top spot for the overall electrical competition.



JACOB AND BRETT HAWRAN **A. I. PRINCE TECHNICAL HIGH SCHOOL**

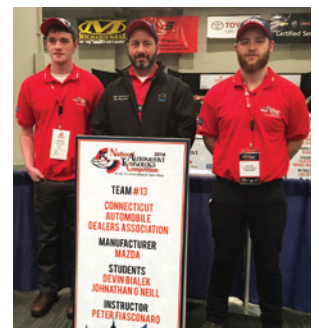
Jacob and Brett won gold in audio-radio production in the 2015 and 2016 SkillsUSA national competitions.

These talented young men had to win the state SkillsUSA competition two years in a row to have the opportunity to compete at the national events in 2015 and 2016. Once there, they were required to produce approximately 3 ½ minutes of broadcast in addition to taking a written test – they were the only group in the competition to score a 100 on the test portion in 2015. In addition to their gold medal, Jacob and Brett each received a scholarship for \$4,000 to the Academy for Media Production in Hanover, Pennsylvania. Jacob and Brett took home gold again at the 2016 nationals by placing first among a pool of 23 entries.

DEVIN BIALEK AND JONATHAN O'NEILL **NORWICH TECHNICAL HIGH SCHOOL**

Devin and Jonathan took 1st place at the 2016 National Automotive Technology Competition.

Devin and Jonathan were sponsored by the Connecticut Automotive Retailers Association and beat out 29 other teams from across the country to win this competition held in New York in conjunction with the New York International Automobile Show. The two talented auto technicians can now call themselves “America’s Top Technicians” along with winning a variety of prizes and scholarship money.





#IAMCTE

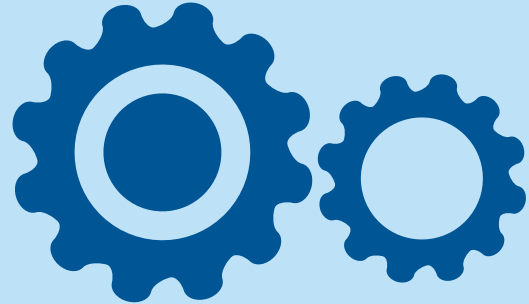
CELEBRATING CTE MONTH



MANUFACTURING CTE & WORK-BASED LEARNING HIGHLIGHTS

Statewide Enrollment: 1,559 students (grades 9-12)

The majority of the CTHSS's Manufacturing students see their career path keeping them right here in Connecticut and going on to attend college through their employers.



Automated Manufacturing: **58 students**

Precision Machining: **784 students**

Mechanical Design: **519 students**

Mechatronics: **112 students**

Welding & Metal Fabrication: **86 students**

JOBS STUDENTS ARE CURRENTLY WORKING IN:

- Machinist
- Tool Room Machinist
- CNC Machinist
- Toolmaker Pre-Apprentice
- Mold Making Pre-Apprentice
- Machine Maintenance
- Inspection
- Four-Slide Machine Set-up
- CNC Production
- CNC Machine Operator
- CNC Machine Pre-Apprentice



189 PRECISION MACHINING SENIORS graduated in 2016.



55 PERCENT of our Precision Machining seniors worked in manufacturing as part of the Work-Based Learning program and are expected to go full-time upon graduation.



23 PERCENT will be attending post-secondary education institutions.

GRASSO TECH'S REVAMPED WELDING SHOP opened in 2016, offering **4,000 SQUARE FEET** of updated equipment and workspace for our students.



BULLARD-HAVENS TECH re-opened its Precision Machining program for the 2015 – 2016 school year making **\$1M IN RENOVATIONS** to update equipment.

WORK-BASED LEARNING SUCCESS



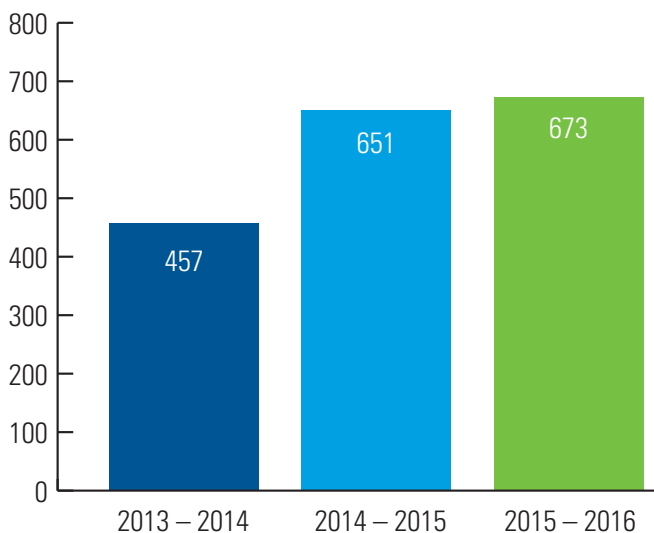
WINDHAM TECH AND UCONN

This past school year Windham Tech had two junior students hired by UConn. Chase Decandia, Automotive, and David Verizzi, HVAC, worked on UConn's campus during their trade cycle days. In lieu of attending school, Chase worked with UConn's auto fleet department helping to service various types of vehicles from golf carts to fire engines. David served in UConn's facilities department maintaining the heating, ventilation and air conditioning needs of the campus. Both students earned wages, at the same time gaining valuable hands-on training, experience and credit toward their diplomas.



Chase and David are just two of over 600 Connecticut Technical High School System students who are finding success in and out of the classroom through our Work-Based Learning program.

WORK-BASED LEARNING 3-YEAR OVERVIEW



CHENEY TECH WINS THE DISTRICT'S WBL AWARD. CHENEY TECH HAD THE HIGHEST WBL NUMBERS FOR THE CTHSS LAST YEAR – 85 WBL STUDENTS AND 98 WBL PLACEMENTS OVERALL.

“I graduated in 2008 from the electrical shop with high honors and as Student of the Year. Upon graduation I was accepted into the International Brotherhood of Electrical Workers where I have been working steady since graduation. On my last project, I had the opportunity to be a sub-foreman and went for my E1 and I passed. This is exciting because there are not many women with their E1 in the state of Connecticut.”

– Jasmine Scinto, W.F. Kaynor Technical High School Alumna

PARTNERSHIPS



MANUFACTURING SUCCESS

In 2016, we had 197 PMT graduates. 56% entered the manufacturing workforce.

SOME OF THE JOBS: machinist, toolmaker pre-apprentice, CNC production, CNC machine operator



▶▶ Grow business and industry partnerships

We have continued to grow and strengthen our partnerships with much success, including General Dynamics Electric Boat and Eastern Advanced Manufacturing Alliance (EAMA), among others. Partnership successes this past year include:

- Platt Technical High School added a partnership with NASA and the High School Students United with NASA to Create Hardware (HUNCH).
- NASA and HUNCH allowed our students to gain real-world experience manufacturing components for the International Space Station.
- Partnering with Energize CT – preparing students for emerging employment opportunities in green technology careers and helping fill an immediate gap in the green workforce.

- Thanks to Energize CT and CT Green Bank partnerships, students in our Construction Cluster have experienced E-House design and construction with green technology as part of the overall curriculum. Over the next five years, all 18 CTHSS schools will have a fully operational E-House – currently there are nine with the others under construction.

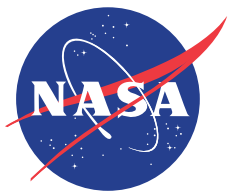
CTHSS received a **2016 GreenCircle Sustainability Award** from the Connecticut Department of Energy and Environmental Protection and the *Hartford Business Journal*.

PARTNERSHIPS ARE KEY TO STUDENT SUCCESS



PARTNERSHIP SUCCESS

IN THEIR
OWN
WORDS



**GENERAL
DYNAMICS**
Electric Boat



“HUNCH is about students creating, designing and producing real-world, valued products for NASA, such as what Platt Technical High School is doing in building class 1E flight hardware parts for a single stowage locker that is going to be used on board the International Space Station. In return, students develop 21st century skills such as teamwork, resiliency, problem solving and a relationship with NASA that could launch their careers.”



FLORENCE GOLD

*NASA HUNCH Implementation Project Manager/Management
POC for Fabrication Schools*

“Connecticut’s partnership-in progress, an alliance of manufacturers, the Connecticut Technical High School System and our state’s community colleges, is laying the foundation for students’ continuous learning on the job and in school. What makes it work is constant interaction between these schools’ instructors and the manufacturing leaders within our companies.”

RAYMOND (RAY) COOMBS, JR.

President, Westminster Tool Inc. and Board Member of the Eastern Advanced Manufacturing Alliance (EAMA)



“I had been at Sonitek for about two years when Mr. Zilinek was contacted by Hubbell of Stratford looking for a designer. He shared my name with them and with my Solidworks Skills program knowledge and my experience with another older program called Cadkey, now Kubotek, I received a very generous job offer from the Vice President of Hubbell and almost doubled my income.”

MARISA SEWICK

*CADD Graduate, Platt Technical High School Class of 2012
Job Coordinator, Hubbell Electric Heater Company*



“General Dynamics Electric Boat is extremely proud to support Connecticut technical high schools. We continue to focus our collaborative work in preparing students in the area of workforce readiness. As a major employer, Electric Boat is committed to developing local talent both for the future of our workforce and to advance the economic well-being of the state of Connecticut.”

HOWARD M. JENKINS, JR.

*Manager of Human Resources,
General Dynamics Electric Boat*



Foster a digitally-rich environment

Testimony to making the shift to a technology-friendly, blended learning environment rests with the leadership of school administrators and teachers across the district.

- Kaynor Tech was our pilot school for using Google Classroom.
- Grades 9-12 received Google Chromebooks for the 2014 – 15 school year.
- The year-one survey responses from staff, students and parents were overwhelmingly positive.

Kaynor Tech's teachers were instrumental in sharing professional development opportunities on Google Classroom with all of our teachers prior to rolling out the technology across the system this past year.

- All ninth grade students at the 16 other CTHSS schools were issued Chromebooks.
- Schools will continue to do the same for each incoming freshman class over the next three years.



“When Kaynor Tech brought in Chromebooks for class and home use, I realized how far we have come! Children can use it at home and at school, allowing research on the web to be done at any given time – and with Wi-Fi at school, students are able to complete work during academic access periods. And Google Classroom is the best! Students can complete and submit assignments electronically as well as review each academic class for assignments and due dates.”

– Cher Fried, Parent of two W.F. Kaynor Technical High School students



TECHNOLOGY TRAINING SUCCESS

We created a sequence of course offerings; Google 101 through Google 104. **ALLOWING ALL TEACHERS TO BECOME PROFICIENT IN GOOGLE APPS.**



The CTHSS deployed over **3,000 CHROMEBOOKS** across the district last year.

ONE-TO-ONE DEVICE SUCCESS

For the 2015 – 2016 school year over **2 MILLION** artifacts, docs, spreadsheets, slides, presentations and collaborative projects were created through Google Classrooms.



2,000,000

A MODEL FOR SUCCESS – TODAY AND TOMORROW

This past year has been an incredibly successful year for the Connecticut Technical High School System. And it stems from working together, not only as a system, but also as part of a much bigger team. That team includes Governor Dannel P. Malloy, Lieutenant Governor Nancy Wyman, the Commissioner of Education, Dr. Dianna R. Wentzell, the state Board of Education, the CTHSS Board, legislators, our industry partners, faculty, staff and our students and their families. Together, with an unwavering commitment to our goals, we are all helping lead the charge to training Connecticut's workforce today, preparing them for the jobs of tomorrow and beyond. At the same time, we're positioning the CTHSS to enjoy continued success throughout the coming school year and for many years to come.

“Connecticut's technical high schools are a critical part of developing a talented labor pool. The strong relationships that the CTHSS has built with business and industry help our students achieve and contribute to a strong workforce pipeline throughout the state. They are important partners in education and economic growth.”

– *Lieutenant Governor Nancy Wyman*





Leadership

STATE OF CONNECTICUT

Dannel P. Malloy
Governor

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Economic and Community Development

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CONNECTICUT TECHNICAL HIGH SCHOOL SYSTEM SUPERINTENDENT OF SCHOOLS

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WORKING TOGETHER

Sharing Success.



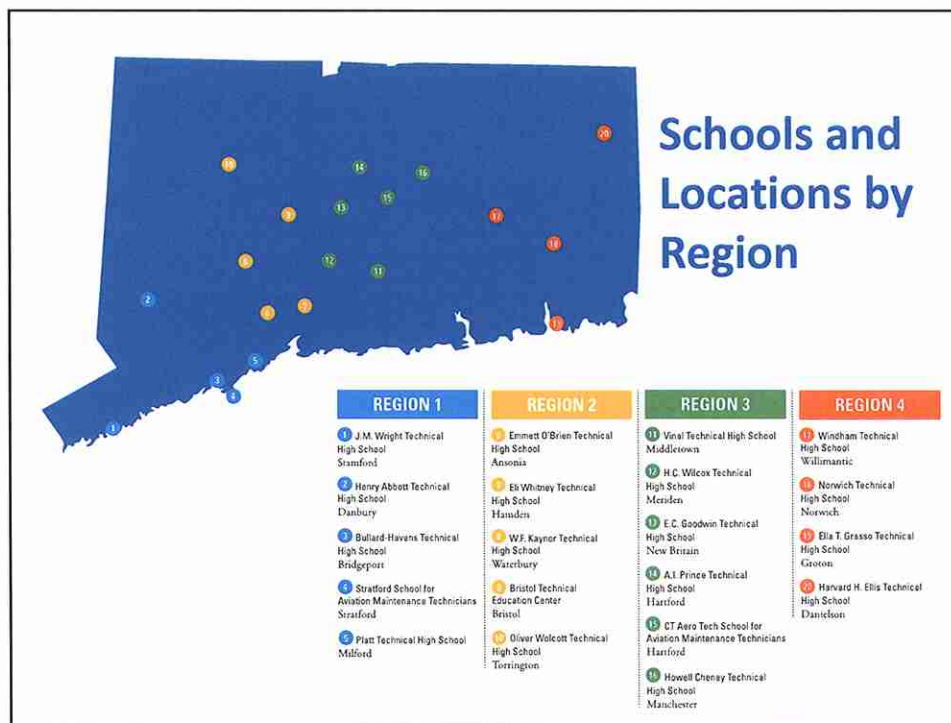
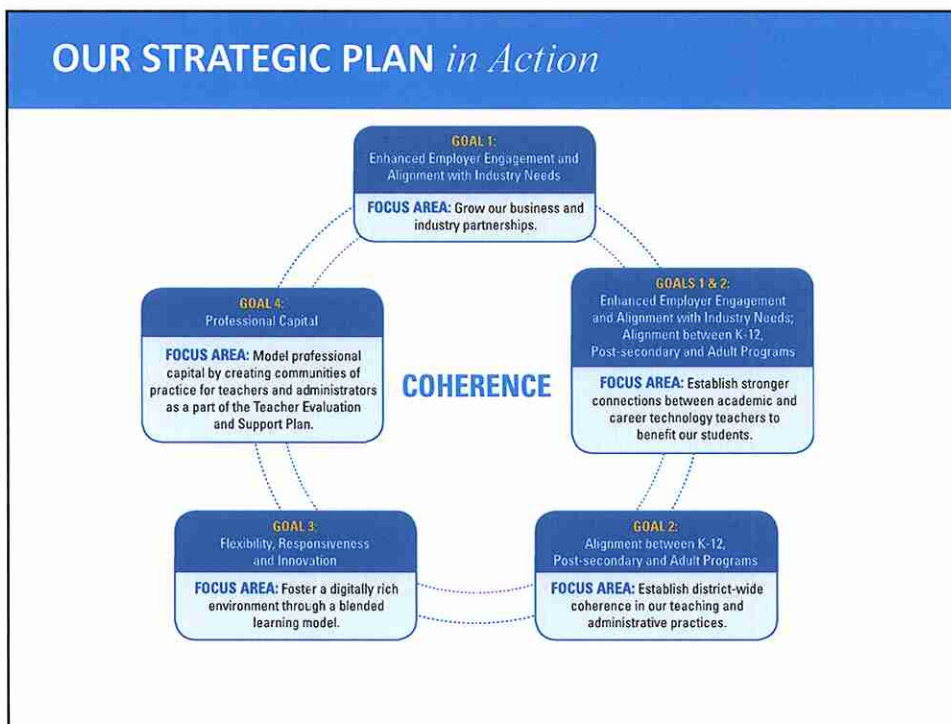
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November 16, 2016



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SUCCESS • ENTHUSIASM • OPTIMISM

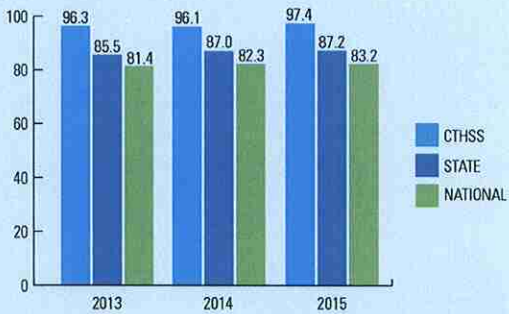




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The CTHSS had a district goal of 62 for the STAR Reading Student Growth Percentile (SGP). **FIVE OF OUR SCHOOLS EXCEEDED THAT GOAL:**


- 1. Bristol T.E.C., 69 SGP
- 2. Prince Tech, 67 SGP
- 3. Abbott Tech, 66 SGP
- 4. Grasso Tech, 65 SGP
- 5. Norwich Tech, 65 SGP

In addition, the CTHSS surpassed the national SGP average of 50.

69.6% of the CTHSS's students mastered the ALEKS® math course – **EXCEEDING OUR GOAL BY NEARLY 10 PERCENT.**

TECHNOLOGY TRAINING SUCCESS
We created a sequence of course offerings; Google 101 through Google 104. **ALLOWING ALL TEACHERS TO BECOME PROFICIENT IN GOOGLE APPS.**



The CTHSS deployed over **3,000 CHROMEBOOKS** across the district last year.

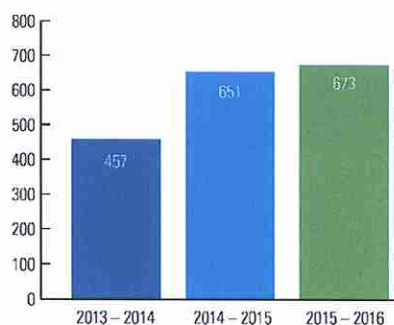
ONE-TO-ONE DEVICE SUCCESS
For the 2015 – 2016 school year over **2 MILLION** artifacts, docs, spreadsheets, slides, presentations and collaborative projects were created through Google Classrooms.



2,000,000

WORK-BASED LEARNING

WORK-BASED LEARNING 3-YEAR OVERVIEW



CHENEY TECH WINS THE DISTRICT'S WBL AWARD. CHENEY TECH HAD THE HIGHEST WBL NUMBERS FOR THE CTHSS LAST YEAR – 85 WBL STUDENTS AND 98 WBL PLACEMENTS OVERALL.



STRIVING FOR EXCELLENCE

Daria Stifel

Norwich Technical High School

Daria won gold in the electrical division at the 2016 SkillsUSA national competition.

Although the competition was in June of 2016, Daria had to wait until July to receive her gold medal. The reason for the delay was a mistake in scoring during the wiring test. She received the lowest possible score, an 8 out of 80. She knew that couldn't be correct and decided to reach out to the SkillsUSA staff. Instead of an explanation, she received an apology and the top score of 80, vaulting her to the top spot for the overall electrical competition.



"I graduated from Norwich Tech this past spring, and attending school there was the best decision of my life. [CTHSS] schools stand out because of their equal focus on students who want to enter the workforce immediately upon graduating and students who want to further their education in college...I would not be where I am today without the guidance of the devoted teachers at Norwich Tech."

– Daria Stifel



STRIVING FOR EXCELLENCE

Jacob and Brett Hawran

A. I. Prince Technical High School

Jacob and Brett won gold in audio-radio production in the 2015 and 2016 SkillsUSA national competitions.

These talented young men had to win the state SkillsUSA competition two years in a row to have the opportunity to compete at the national events in 2015 and 2016. Once there, they were required to produce approximately 3 ½ minutes of broadcast in addition to taking a written test – they were the only group in the competition to score a 100 on the test portion in 2015. In addition to their gold medal, Jacob and Brett each received a scholarship for \$4,000 to the Academy for Media Production in Hanover, Pennsylvania. Jacob and Brett took home gold again at the 2016 nationals by placing first among a pool of 23 entries.



STRIVING FOR EXCELLENCE

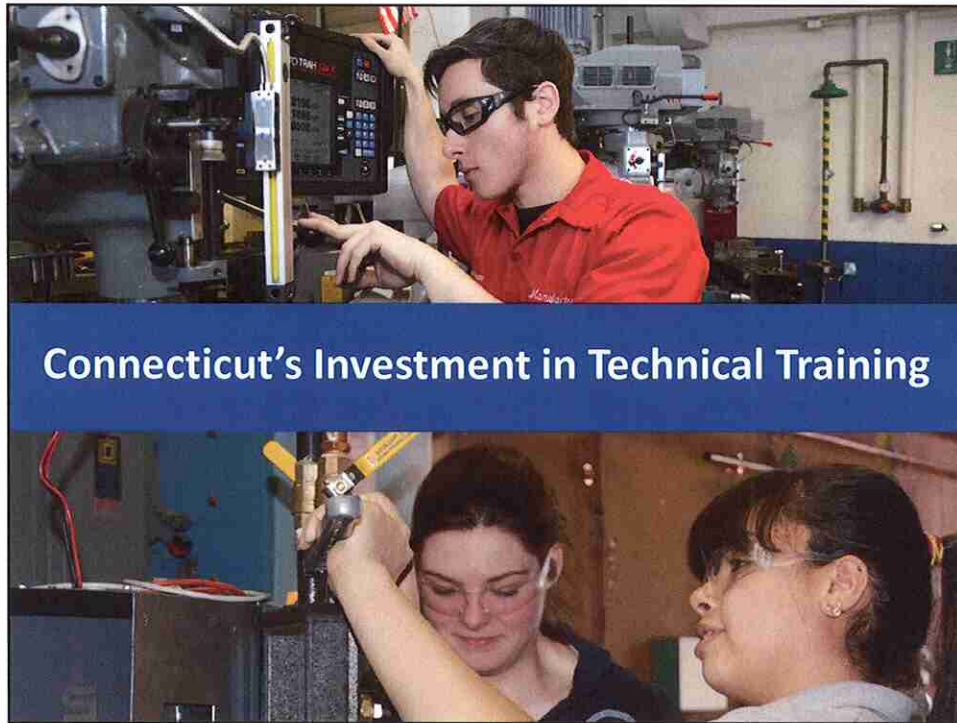
Devin Bialek and Jonathan O'Neill

Norwich Technical High School

Devin and Jonathan took 1st place at the 2016 National Automotive Technology Competition.

Devin and Jonathan were sponsored by the Connecticut Automotive Retailers Association and beat out 29 other teams from across the country to win this competition held in New York in conjunction with the New York International Automobile Show. The two talented auto technicians can now call themselves "America's Top Technicians" along with winning a variety of prizes and scholarship money.





Connecticut's Investment in Technical Training

CONNECTICUT TECHNICAL HIGH SCHOOL SYSTEM

CAREER CLUSTERS

INFORMATION TECHNOLOGY

- Electronics Technology
- Graphics Technology
- Information Systems Technology

HEALTH SCIENCE

- Health Technology
- Biotechnology

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM)

- Pre-Electrical Engineering and Applied Electronics Technology

HUMAN SERVICES

- Early Care and Education
- Hairdressing and Cosmetology

AGRICULTURE, FOOD AND NATURAL RESOURCES

- Bioscience and Environmental Technology

ARTS, AUDIO/VIDEO TECHNOLOGY AND COMMUNICATIONS

- Digital Media
- Sound Production Technology

MARKETING, SALES AND SERVICE

- Marketing, Management and Entrepreneurship

ARCHITECTURE AND CONSTRUCTION

- Sustainable Architecture
- Carpentry
- Electrical
- Facilities Management
- Heating, Ventilation and Air Conditioning (HVAC)
- Masonry
- Plumbing and Heating
- Plumbing, Heating and Cooling

HOSPITALITY AND TOURISM

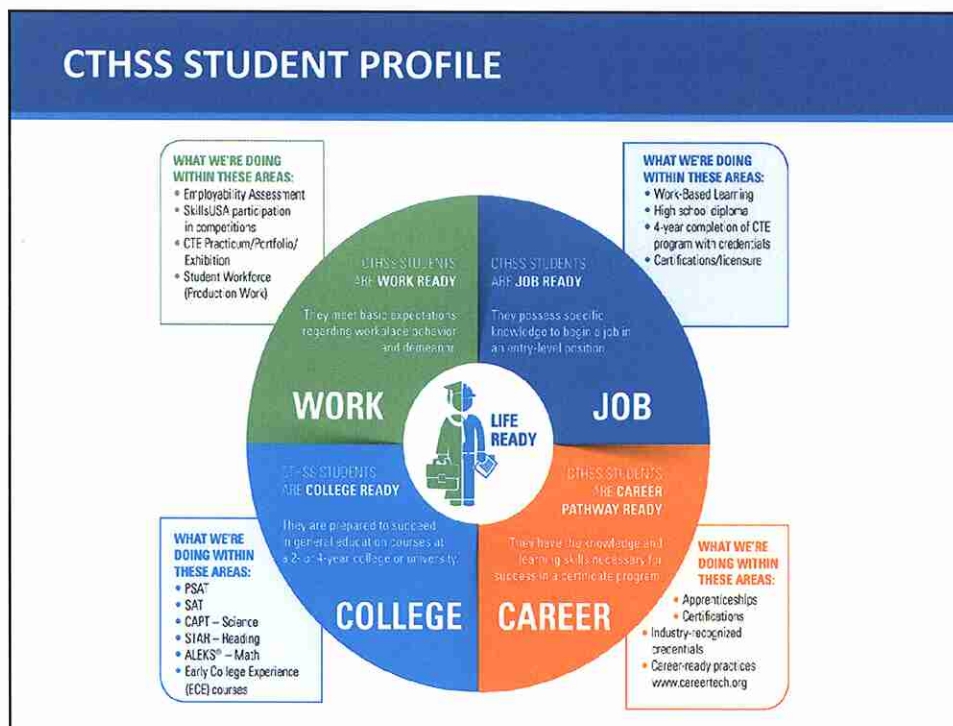
- Culinary Arts
- Tourism, Hospitality and Guest Services Management

TRANSPORTATION, DISTRIBUTION AND LOGISTICS

- Automotive Collision, Repair and Refinishing
- Automotive Technology
- Diesel and Heavy-Duty Equipment Repair

MANUFACTURING

- Automated Manufacturing Technology
- Mechanical Design and Engineering Technology
- Mechatronics
- Precision Machining Technology
- Welding and Metal Fabrication



TECHNICAL EDUCATION

	Technical Education 7:30 a.m. to 2:30 p.m.	Vocational Training 3:00-5:00 p.m.	Short-Term Training ** 6:00-9:00 p.m.	Post-secondary Technical Training ** 6:00-9:00 p.m.	Apprenticeship Programs 6:00-9:00 p.m.
Program Outcomes	<ul style="list-style-type: none"> • High School Diploma • National/Industry recognized credentials • Hours in the Career/Technology Program 	Specific trade technology training based on regional needs	Specialized training for a specific sector or region, incumbent worker training – administered by community colleges	Certificate program in advanced manufacturing – administered by community colleges	State of CT Licensure
Target	9-12 grade students who have met CTHSS admissions requirements	Students from local high schools with an interest and aptitude for a trade technology	Unemployed or underemployed adults coordinated through Workforce Investment Boards and regional partnerships	Community college students	Adult students enrolled through DOL
Program Length	4 years of high school	Varies by district, normally a school year	5-10 weeks depending on training	2 semesters (1 year)	1 year up to a 4 year program
Total Enrollments as of 11/17/16	10,610	TBD	48	108	1169
Total Locations (Fall 2016)	All 17 Technical High Schools and Bristol T.E.C.	Eli Whitney, January 2017	Grasso Tech Kaynor Tech	Abbott Tech Grasso Tech Kaynor Tech Wilcox Tech	Abbott Tech Bullard-Havens Tech Bristol T.E.C. Norwich Tech Prince Tech Whitney Tech

**


- Since fall of 2012, the State's Community Colleges have utilized our precision machining labs for short-term and post-secondary training through a partnership agreement between the CTHSS and the BOR.
- Since this partnership has been in place, the BOR has used eight (8) of our locations for training.
- These programs have clocked more than 6800 hours of instruction in our precision machining labs.

MANUFACTURING

NATIONAL


HIGH WAGES

The average manufacturing worker in the U.S. in 2014 earned **\$79,553** – **20 percent higher** than an average worker's salary in other industries.



+20%

Source: Facts about manufacturing in the United States, National Association of Manufacturers (NAM), 2014.



+17.8%

AVERAGE WEEKLY EARNINGS FOR MANUFACTURING WORKERS IN CT INCREASED BY 17.8% FROM JULY 2015 TO JULY 2016.

Source: CBA

CT CONSTRUCTION & MANUFACTURING

According to the CT DOL, projected growth in construction employment and machinery manufacturing employment over the course of 10 years (2014-2024) far exceeds overall state employment growth projections.

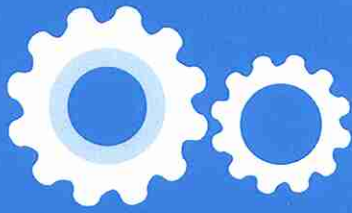
<p style="font-weight: bold; margin: 0;">CONSTRUCTION</p> <p style="font-size: 0.8em; margin: 0;">employment is projected TO INCREASE BY</p> <h1 style="font-size: 2em; color: orange; margin: 0;">+13.2%.</h1>	<p style="font-weight: bold; margin: 0;">MACHINERY MANUFACTURING</p> <p style="font-size: 0.8em; margin: 0;">is projected TO GROW BY</p> <h1 style="font-size: 2em; color: orange; margin: 0;">+8.8%.</h1>	<p style="font-weight: bold; margin: 0;">OVERALL</p> <p style="font-size: 0.8em; margin: 0;">state employment is projected TO INCREASE BY</p> <h1 style="font-size: 2em; color: orange; margin: 0;">+ 6.1%.</h1>
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Source: <http://www1.ctdol.state.ct.us/bmlctrindustry2014.asp>

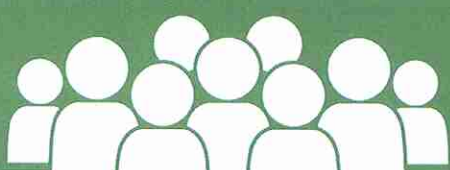
CONNECTICUT

MANUFACTURING CTE & WORK-BASED LEARNING HIGHLIGHTS

Statewide Enrollment: 1,559 students (grades 9-12)
 The majority of the CTHSS's Manufacturing students see their career path keeping them right here in Connecticut and going on to attend college through their employers.




Automated Manufacturing: **58 students**
 Precision Machining: **784 students**
 Mechanical Design: **519 students**
 Mechatronics: **112 students**
 Welding & Metal Fabrication: **86 students**





JOB STUDENTS ARE CURRENTLY WORKING IN:

- Machinist
- Tool Room Machinist
- CNC Machinist
- Toolmaker Pre-Apprentice
- Mold Making Pre-Apprentice
- Machine Maintenance
- Inspection
- Four-Slide Machine Set-up
- CNC Production
- CNC Machine Operator
- CNC Machine Pre-Apprentice


MANUFACTURING CTE & WORK-BASED LEARNING HIGHLIGHTS

 **189 PRECISION MACHINING SENIORS** graduated in 2016.

 **55 PERCENT** of our Precision Machining seniors worked in manufacturing as part of the Work-Based Learning program and are expected to go full-time upon graduation.

 **23 PERCENT** will be attending post-secondary education institutions.

GRASSO TECH'S REVAMPED WELDING SHOP opened in 2016, offering **4,000 SQUARE FEET** of updated equipment and workspace for our students.



BULLARD-HAVENS TECH re-opened its Precision Machining program for the 2015 – 2016 school year making **\$1M IN RENOVATIONS** to update equipment.

PARTNERSHIPS

MANUFACTURING SUCCESS

In 2016, we had 197 PMT graduates. 56% entered the manufacturing workforce.
SOME OF THE JOBS: machinist, toolmaker pre-apprentice, CNC production, CNC machine operator



PARTNERSHIPS ARE KEY TO STUDENT SUCCESS



A MODEL FOR SUCCESS – TODAY & TOMORROW



“Connecticut’s technical high schools are a critical part of developing a talented labor pool. The strong relationships that the CTHSS has built with business and industry help our students achieve and contribute to a strong workforce pipeline throughout the state. They are important partners in education and economic growth.”

– Lieutenant Governor Nancy Wyman



The Eastern CT Manufacturing Pipeline

*A Brief Description of the Key Role of the
CT Technical High School System*



November 16, 2016



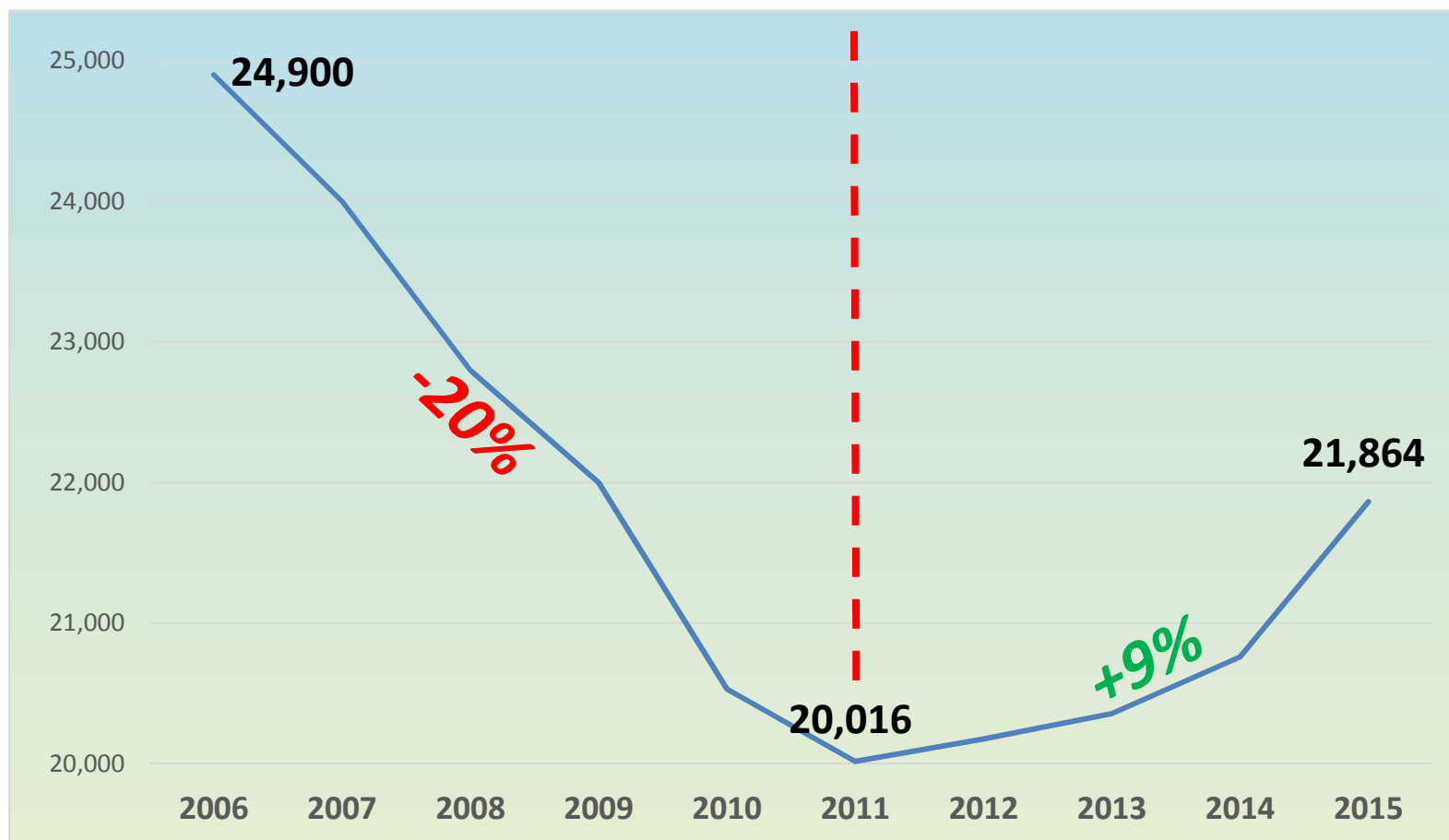
What... Is The Eastern CT Manufacturing Pipeline?

- A proactive, community-wide initiative dedicated to meeting the urgent and on-going hiring needs of Electric Boat, its supply chain, and the Eastern Advanced Manufacturing Alliance (*EAMA*)
- A strategic collaboration and alignment of manufacturing-related workforce development partners with primary contributions from the **CT Technical High School System**



Why?

Regional Mfg. Employment Count: **The Need to Recreate the Manufacturing Talent Pipeline**



* Source: CTDOL QCEW Labor Data

** Total E/CT Employee count increased only 0.1% since 2011 while manufacturing employees have grown 9.2%



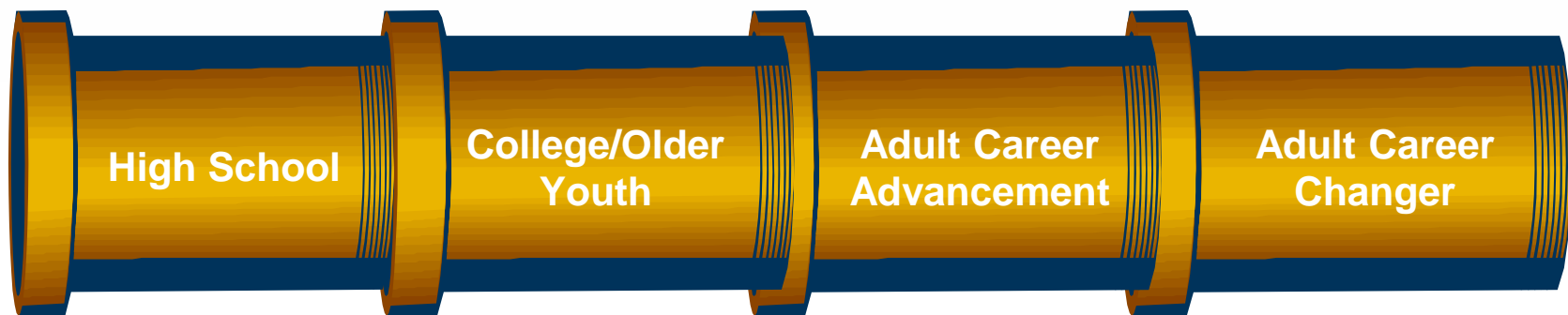
ELECTRIC BOAT: SIGNIFICANT HIRING THROUGH 2030

- **EB is poised for major business growth requiring additional personnel**
 - Virginia Class Program
 - Ohio Replacement Program
 - Virginia Payload Module
- **EB's current demographic make-up suggests significant attrition, particularly in critical skills, over next 10-15 years**
- **Accordingly, EB expects to hire ~600 people annually for 20+ years**
 - >90% of projected growth will be in trades (i.e. Machinists, Electricians, Pipefitters, Welders, Painters, Carpenters, etc.)

How?

The Manufacturing Pipeline

Accommodating Each Stage of the Career Pathway



✓ **Technical School Graduates***

✓ Summer/In School Youth

✓ Early College Opportunity

✓ **Advanced Manufacturing Centers***

✓ CT Advanced Manufacturing Institute (CAMI)

✓ **Incumbent Worker Training***

✓ **Apprenticeships***

✓ Veterans

✓ Hiring Incentives Program:
- STEP UP
- OJT

✓ **Talent Warehouse Concept***

*** CTHSS Has Been a Leader**



E/CT Manufacturing Pipeline ~ Adult Career Changer Program Evolution

Hiring Incentive Programs

Build jobseeker skills tied to employer need

CT Jobs Bill

Federal
On-the-Job
Training (OJT)
Grants

The Talent
Warehouse
Concept

1. Wage subsidy for six months plus training \$\$
2. Financial incentives to the employer to hire the unemployed
3. Creation of Advanced Manufacturing Centers

1. On-site training at employer location
2. Partial wage reimbursement to the employer for training cost
3. \$6M in competitive grants
4. Hundreds of long-term unemployed placed into employment

1. Employer-demand driven training
2. Align jobseeker skills to employer
3. Leverage colleges & **technical high schools** to organize training, facilities, instructors and equipment
4. **Employer soliciting the public workforce system for talent & skills**



Our “Talent Warehouse” Concept is Delivering Results...

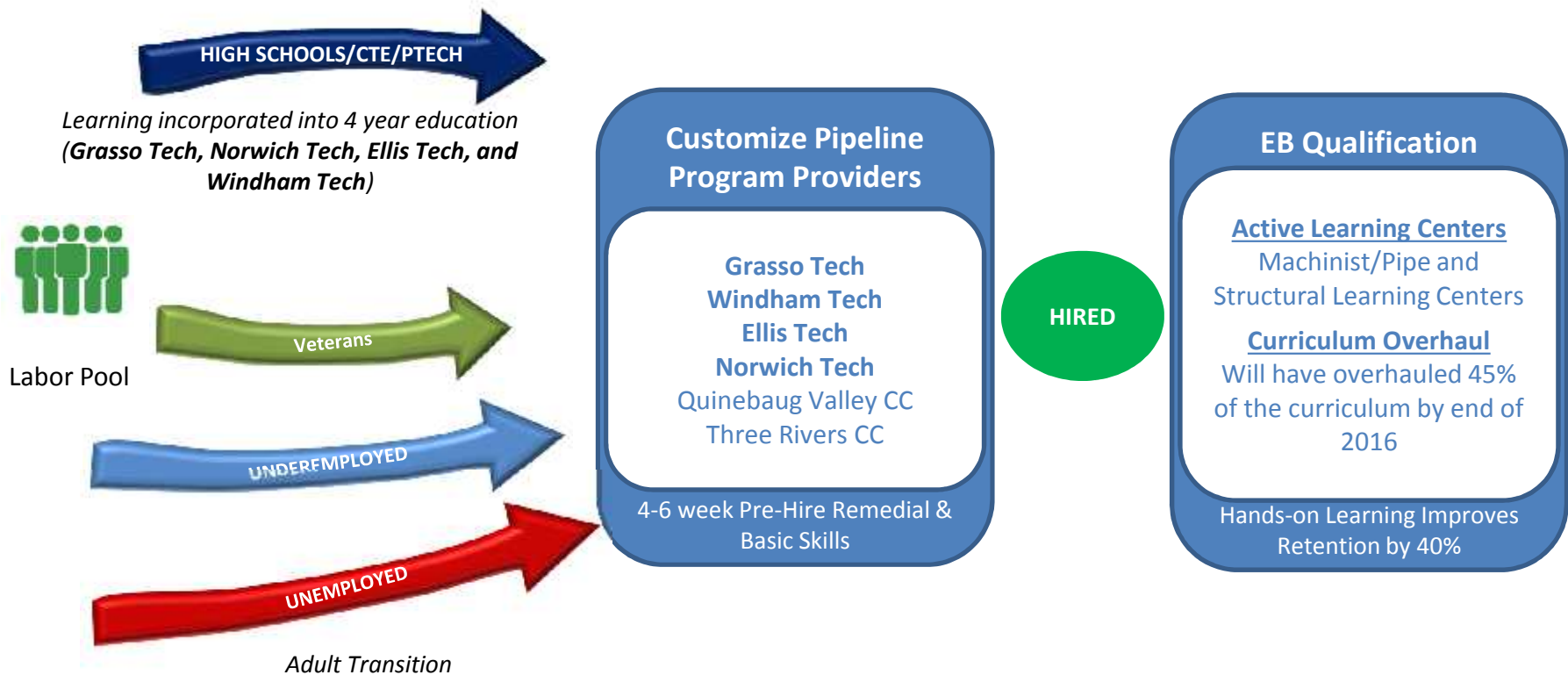


- **Governance:**
 - > 27 state/regional stakeholders
 - > CTHSS Leadership
- **Funding:**
 - > 1 of only 6 Recipients in nation – Workforce Innovation Grant
- **Training & Employment:**
 - > **7** classes graduated as of Nov. 1st (TRCC/Grasso & QVCC/Ellis)
 - > **105** enrollees
 - > **92 %** placement rate
 - > Great feedback from participants, instructors, evaluators
 - > **1,900+** registrants



And Employers Are Engaged ...

Electric Boat: *Demand-Driven Training Model Improves Efficiency*



Pipeline Programs Anticipated to Accelerate EB Qualification up to 50%



E/CT Manufacturing Pipeline

CTHSS Role & Recap

- Graduate students ready to contribute immediately providing key resources for both youth & adult
- Employer-Demand Driven Job Training
 - *Chair the Pipeline Sub-Committee (27 stakeholders)*
 - *Contribute to curriculum redevelopment (with colleges & employers)*
 - *Host machining/welding/precision manufacturing classes*
 - *Provide equipment, instructors & facilities*
 - **Result:** *425 unemployed/underemployed gain meaningful careers*
- **CTHSS is a leader in Eastern CT Pipeline programming**

