



# New Jersey School Boards Association

413 West State Street • Trenton, NJ 08618 • Telephone: 609.695.7600 • Toll-Free: 888.88.NJSBA • Fax: 609.695.0413

## FINAL REPORT: Task Force on Educational Opportunities for the Non-College-Bound Learner



**October 2, 2018**

*Updated December 31, 2018*

FINAL REPORT:  
**Task Force on Educational Opportunities  
for the Non-College-Bound Learner**

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[www.njsba.org/Non-College-Bound-Learner](http://www.njsba.org/Non-College-Bound-Learner)

*The New Jersey School Boards Association is a federation of the state's local boards of education and includes the majority of New Jersey's charter schools as associate members. NJSBA provides training, advocacy and support to advance public education and promote the achievement of all students through effective governance.*

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## **MEMORANDUM**

**TO:** Daniel T. Sinclair, President  
Lawrence S. Feinsod, Ed.D., Executive Director

**FROM:** Donald Webster, Jr., Immediate Past President

**SUBJECT:** Final Report: Task Force on Educational Opportunities for the Non-College-Bound Learner

**DATE:** October 2, 2018

I am pleased to submit the Final Report of the New Jersey School Boards Association's Task Force on Educational Opportunities for the Non-College-Bound Learner. The document reflects seven months of study and deliberation by the 20-member Task Force, the active participation and valuable contributions of nine NJSBA staff members, and additional research, writing and editing by our consultant and staff.

The Task Force was comprised of school board members and administrators from local, regional, county vocational and county special services school districts. It included representatives of higher education, as well as business and industry. Its work is aligned with the objectives of NJSBA's 2018-2020 Strategic Plan in the area of Student Growth, Learning, Well-Being and Success: *"Every New Jersey student will have the tools to be successful in pursuit of their chosen life goals in a safe, healthy, caring climate."*

In developing its report, the Task Force made nine findings on the delivery, funding and breadth of programming for the career-focused student. Among the most prominent is the following:

New Jersey needs to rethink the best methods to deliver appropriate training to students, to increase the pool of career technology education (CTE) teachers, to align curriculum with necessary skill acquisition, and to test students to assure they have both the hard and the "soft" skills, such as punctuality and teamwork, that will serve them in their careers.

The Task Force believes that our schools must prepare students for an evolving job market, one influenced by technology, automation and artificial intelligence. That job market is increasingly populated by positions requiring middle-level skills—that is, those not acquired through a four-year college degree, but obtained through a variety of secondary and post-secondary educational and training experiences. To that end, it becomes the responsibility of families and educators to allow each student to find his or her best career path by considering not only the traditional four-year college route, but also the broad range of other post-secondary options.

To address these and other challenges, the Task Force makes 69 recommendations for the consideration of New Jersey's boards of education and school administrators, the labor and workforce community, the New Jersey Department of Education, the Legislature, the Governor, and NJSBA. The final report groups the Task Force's recommendations to improve opportunities for non-college-bound students into the following six categories:

- *Ascertain the skills required to meet the needs of business and industry, and change the attitude toward jobs that do not require a college education.*
- *Maintain stronger communication and collaboration among local school districts, county vocational-technical schools, community colleges, state agencies, business and industry, and other prospective partners.*
- *Revisit curricula and programs so that they reflect economic realities, expose all students to the full array of post-secondary opportunities and prepare them for careers.*
- *Revise preparation and certification requirements to resolve a shortage of teachers in the STEM/STEAM and Makerspace areas.*
- *Revise student assessment and graduation requirements.*
- *Address financial needs and concerns and explore alternative funding sources.*

### **Deliberation**

Although the Task Force represented diverse sectors of the educational and business communities, common themes emerged during its discussions. The members drew from their personal experience, identifying specific concerns, weaknesses within the current system, and possible solutions that warrant further exploration.

The Task Force reviewed materials on the opportunities available through the military, which were produced through the U.S. Army-NJSBA collaborative to advance STEAM (science, technology, engineering, the arts, and mathematics) education. NJSBA staff members provided support and information on careers in STEAM education and environmental sustainability, as well as professional development, labor relations, proposed legislation, and existing statute and regulation related to curriculum, standards and assessment, and teacher certification.

During its deliberations, the Task Force heard speakers from the Vernon Township Public Schools, who discussed their high school's CTE (career and technical education) Pathways Program, and the Bergen County Workforce Development/Investment Board, who discussed successful collaborations that benefit students.

The majority of the final report is based on the work of five subcommittees, consisting of Task Force members and NJSBA staff, which took place over several months and focused on ways to expand educational opportunities through best practices and changes in state and federal policy.

It has been an honor to chair the Task Force on Educational Opportunities for the Non-College-Bound Learner. We hope that our Final Report will represent the start of a discussion among educational, governmental, labor and community leaders to reevaluate existing educational structures, assumptions and practices with the goal of expanding educational options for our career-focused learners.





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## **Task Force on Education Opportunities For the Non-College-Bound Learner**

### **Charge**

The NJSBA Task Force on Educational Opportunities for the Non-College-Bound Learner will –

- (a) Study the current status of education programs and post-secondary training and career opportunities for non-college-bound high school students;
  - (b) Identify strategies to expand program options, and
  - (c) Recommend appropriate action by local school boards, NJSBA, and other governmental entities involved in education.
- 

### **Members**

**Donald Webster, Jr.**, Chairman  
NJSBA Immediate Past President  
Manchester Township Board of Education (Ocean County)

**Barbara Dawson**  
Morris County Vocational Board of Education

**Linda DiPalma**  
Manasquan Board of Education (Monmouth County)

**Jo Ann Groeger**  
Lawrence Township Board of Education (Mercer County)

**Carol Grossi**, Superintendent  
Hanover Park Regional School District (Morris County)

**Marsha Hershman**  
Lindenwold Board of Education (Camden County)

**Jonathan Hodges, M.D.**  
Paterson Board of Education (Passaic County)

**Dr. Penelope Lattimer**, Director, Rutgers Institute to Improve Student Achievement  
Rutgers Graduate School of Education

**Irene LeFebrve**  
Boonton Town Board of Education (Morris County)

**Tammy Molinelli**, Executive Director, Bergen County Workforce Investment Board  
Pascack Valley Regional Board of Education (Bergen County)

**Ray Morris**  
Newton Board of Education (Sussex County)

NJSBA Task Force on Educational Opportunities for the Non-College-Bound Learner

*Continued*

**Ginny Murphy**

Washington Township Board of Education (Gloucester County)

**Andrew Musick**, Vice President, Taxation & Economic Development

New Jersey Business and Industry Association

**Ira Stern**

Piscataway Board of Education (Middlesex County)

**Sudhan Thomas**

Jersey City Board of Education (Hudson County)

**Raymond Topoleski**

Linden Board of Education (Union County)

**Karen Vick**

Clearview Regional Board of Education (Gloucester County)

**Jason Waugh**

Collingswood Board of Education (Camden County)

**Anthony Wilcox**

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**Dan Sinclair**, NJSBA President *ex officio*

Lakeland Regional Board of Education (Passaic County)

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**Dr. Lawrence S. Feinsod**, Executive Director *ex officio*

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**Jesse Adams**, Field Service Representative

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**Consultant:**

**Donna M. Kaye**

**Resource Persons:**

- **Arthur DiBenedetto**, Superintendent, Vernon Township Public Schools (Sussex County)
- **Charles McKay**, Assistant Superintendent, Vernon Township Public Schools (Sussex County)
- **Danielle Liautaud Watkins**, Associate Provost, William Paterson University

**EXECUTIVE SUMMARY**

***Ensure that all students are prepared for higher education and the workforce.***

These words express the primary goal of our state's education system. Yet, they beg the question: "Are we adequately serving those students who are *not* bound for college immediately after graduation?"

Given that our current high school structure and curricula are based largely on recommendations of the Committee of 10<sup>1</sup>, dating back to 1894, it is time for New Jersey to review what we are teaching and when. Without an alignment to the needs of business, industry and post-secondary educational organizations, the pre-kindergarten-through-12<sup>th</sup> grade public school system will not be able to fully prepare *all* students for their futures.

***It is time for New Jersey to review what we are teaching in our schools and when.***

***We owe it to our students to redesign our high schools to respond to societal changes and employment needs.***

America has experienced radical changes in employment. Many well-paying jobs that do not require a college degree are going unfilled as companies search for employees with the skills they need. Business groups report that New Jersey has 44,000 vacant "middle-skills" jobs, which the Harvard Business School describes as "those that require more education and training than a high school diploma but less than a four-year college degree."<sup>2</sup> There is a disconnect between the skills that are being taught in schools, and the skills required in many entry-level positions. Technological advances require skill sets very different from those required for 20<sup>th</sup> century employment.

We owe it to our students to respond to societal change and employment needs.

In September 2017, the New Jersey School Boards Association, under the leadership of President Daniel T. Sinclair, created the Task Force on Educational Opportunities for the Non-College Bound Learner. The 20-member study group was asked to think "outside the box" and to challenge the perception that the path to success invariably requires attendance at a four-year college. The project's ultimate goal: Identify strategies to better equip students with the skills required in a job market that is rapidly changing due to advances in artificial intelligence, automation, robotics, and other factors. These strategies, reflected in the Task Force's 69 recommendations, encompass best practices by local school districts, changes in state and federal policy, and action by the New Jersey School Boards Association and other stakeholders.

The Task Force concluded its work with a clarion call for a reevaluation of the philosophy that guides our educational system, a redefinition of the roles of comprehensive high schools, county vocational-technical school districts and county colleges, and a formal plan for the future of our preK-12 education system.

<sup>1</sup> *Report of the Committee of Ten on Secondary School Studies; with the Reports of the Conferences Arranged by the Committee*, National Education Association, (N.Y.: Amer. Bk., 1894). Accessed June 22, 2018, <https://books.google.com/books?id=PfcBAAAAYAAJ&pg=PA3&lpg=PA3#v=onepage&q&f=false>.

<sup>2</sup> "Middle Skills," U.S. Competitiveness Project, Harvard Business School, accessed July 26, 2018, <https://www.hbs.edu/competitiveness/research/Pages/middle-skills.aspx>.



## **FINDINGS**

During its deliberations, the NJSBA Task Force on Educational Opportunities for the Non-College-Bound Learner made the following observations on the delivery, funding and breadth of programming for the career-focused student:

- New Jersey needs to identify the best methods to deliver appropriate training to students, to increase the pool of career technology education (CTE) teachers, to align curriculum with necessary skill acquisition, and to test students to assure they have both the hard and the “soft” skills<sup>3</sup> that will serve them in their careers. The effort must include a redefinition of the roles of comprehensive high schools, county vocational-technical school districts, and county colleges.
- K-12 and regional high school districts have difficulty building CTE programs because they lack the financial resources and are unable to attract properly certificated staff due to a shortage of teachers in technical fields.
- The belief that, to be successful, one must earn a four-year college degree is simply not true, and the entire education community should work to dispel the notion that pursuing a technical-vocational career pathway is inferior to obtaining a bachelor’s degree. Even the term “non-college-bound learner” is stigmatizing and negative; “career-focused learner” is more accurate and appropriate. (While this report continues to use the term “non-college-bound learner” because it is reflected in the original charge, the Task Force recommends that, going forward, all references be to the “career-focused learner.”)
- Artificial intelligence will increasingly replace workers in many areas of employment, and experts say that new skills will be necessary to compete in the future job market. Communication between the education and business communities is critical for educators to appreciate employers’ current and emerging needs and to prepare students with the skills and content essential for entry-level positions in various industries.
- Schools must raise student awareness of all careers and the broad variety of career pathways through meaningful experiences and exposure. Consideration should be given to models such as Colorado’s CareerWise<sup>4</sup> youth apprenticeship program and dual-enrollment strategies.
- Existing curricula are inadequate to prepare students with practical, job-ready skills. Current assessment tools are not designed to reflect whether students have acquired the skills necessary to obtain industry certifications and state licenses or to succeed in current and emerging jobs that do not require a college education.
- County vocational-technical schools traditionally focused on the trades or “middle skills,” but many have become increasingly selective and geared toward the college-bound student. For example, the growth of selective county vo-tech “academies” has reduced opportunities

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<sup>3</sup> “Soft” skills include punctuality, teamwork, and communication with management and co-workers.

<sup>4</sup> John W. Hickenlooper, Jr., “Colorado’s Swiss Apprenticeship Model: A Letter from Governor Hickenlooper,” Colorado Official State Web Portal, accessed June 25, 2018, [https://www.colorado.gov/pacific/sites/default/files/CO\\_Swiss\\_Apprenticeship\\_Model.pdf](https://www.colorado.gov/pacific/sites/default/files/CO_Swiss_Apprenticeship_Model.pdf).

for career-focused students interested in learning a trade. This shift in focus has altered relationships between local school districts and county vocational-technical schools, often making them tense and competitive, rather than collaborative.

- The number of seats available in the county vocational-technical schools is insufficient to serve all New Jersey students who wish to pursue career and technical education, leaving a significant number underserved. In 2013, almost 17,000 students who applied to county vocational-technical high schools could not be accommodated<sup>5</sup>, according to the New Jersey Employer Coalition for Technical Education, created by the New Jersey Council of County Vocational-Technical Schools and the New Jersey Business and Industry Association.
- Dialogue, information-sharing and collaboration among school districts that operate comprehensive high schools, the county CTE districts and the community colleges are necessary components to providing a full range of opportunities to the college-bound and the career-focused learner. The New Jersey Department of Education should take a leadership role in encouraging such communication.

## RECOMMENDATIONS

The Task Force on Educational Opportunities for the Non-College-Bound Learner makes 69 recommendations for the consideration of New Jersey's local boards of education, school administrators, the labor and workforce community, the New Jersey Department of Education, the Legislature and the Governor. Recommendations are grouped into the six categories. Each category is listed below, followed by examples of specific recommendations. (*A complete list of the Task Force's recommendations starts on page 78 of this report.*)

### Chapter 1 (page 32)

*Ascertain the skills required to meet the needs of business and industry, and change the attitude toward jobs that do not require a college education.*

- The New Jersey Department of Education should explore the use of new assessment tools to measure the skills necessary to succeed in available jobs.
- NJDOE should develop measures of school and student success that focus on "career readiness."
- The New Jersey Departments of Education and Labor & Workforce Development should establish a formal, standing structure to facilitate collaboration with representatives of industry, trade unions, and other entities to ensure that students recognize the array of careers available to them and the multiple pathways to those careers. These pathways include earning job-specific professional certification and two-year degrees, as well as experience in apprenticeships and internships and CTE programs at the secondary and post-secondary levels.
- NJDOE should ensure the availability of a staff liaison to engage in dialogue with schools about meaningful career preparation.

<sup>5</sup> "NJ Employer Coalition for Technical Education," Career Tech NJ, New Jersey Council of County Vocational-Technical Schools, accessed July 26, 2018, <https://www.careertechnj.org/nj-employer-coalition-for-technical-education/>.

**Chapter 2 (page 34)**

*Strengthen communication, collaboration and support among local school districts, county vocational-technical schools, community colleges, state government and its various agencies, business and industry, and other prospective partners.*

- The state should support and fund the expansion of CTE programs in all school districts, including those that operate comprehensive high schools. (There is no state funding category specifically aimed at CTE programs in comprehensive high schools. A state bond issue that will appear on the November 2018 ballot would set aside \$350 million for both school security enhancements and expansion of high school CTE programs. Funds for CTE program expansion, however, would apply only to county vocational-technical school districts.<sup>6</sup>)
- The state Department of Education should take a more active role in assisting local school districts in developing CTE programs. The assistance should facilitate the sharing of CTE programs among neighboring districts, thereby providing additional educational opportunities in a cost-efficient manner.
- The New Jersey Department of Education and local school districts should study the Colorado CareerWise program<sup>7</sup>, a public-private partnership that provides three-year apprenticeships to high school students starting in junior year and leads to industry credentials and associate degrees.
- The New Jersey School Boards Association should advocate for changes in federal law and U.S. Department of Labor regulations that limit the ability of Workforce Development Boards and Workforce Investment Boards to use federal Workforce Innovation and Opportunity Act funds for the training of currently enrolled high school students. Upon such changes, the N.J. Department of Labor & Workforce Development should ensure that state procedures enable the use of such funds for the training of in-school youth.
- The state Department of Labor & Workforce Development should provide preK-12 and regional school districts with a level of assistance comparable to its support of county CTE schools.
- NJDOE should establish regional liaisons to help K-12 school districts respond to area employment needs. It should consider the use of the county roundtable structure for assistant superintendents and curriculum directors to encourage dialogue among schools and businesses about regional employment needs and the status of education programs.
- County vocational-technical schools should structure their admissions processes to create more options for students across the achievement spectrum.
- Representatives of local school districts and county vocational-technical school districts should create opportunities to engage in respectful dialogue about the issues they face, and work constructively toward the advancement of student achievement.

<sup>6</sup> “Legislative Update: Governor Signs Vo-Tech, School Security Bond Measure; Voters to Decide its Fate,” *School Board Notes*, September 5, 2018, New Jersey School Boards Association, accessed September 13, 2018, <https://www.njsba.org/news-publications/school-board-notes/september-5-2018-vol-xlii-no-6/legislative-update-governor-signs-vo-tech-school-security-bond-measure-voters-to-decide-its-fate/>.

<sup>7</sup> “Colorado’s Swiss Apprenticeship Model,” accessed June 25, 2018, [https://www.colorado.gov/pacific/sites/default/files/CO\\_Swiss\\_Apprenticeship\\_Model.pdf](https://www.colorado.gov/pacific/sites/default/files/CO_Swiss_Apprenticeship_Model.pdf).

**Chapter 3** (page 50)

*Revisit curricula and programs so that they reflect economic realities, expose all students to the full array of post-secondary opportunities and prepare them for careers.*

- As they consider a replacement for PARCC as the state’s assessment program, the New Jersey Department of Education and State Board of Education should explore a variety of alternative methods to determine student progress toward state learning standards. These alternatives may include the SAT, the ACT, the Armed Services Vocational Aptitude Battery, licensing/certification tests, and admission to apprenticeship programs.
- School districts should provide exposure to various post-secondary opportunities through community-based instruction, job shadowing, internships, college visits, and apprenticeships. These efforts should focus on the career opportunities that will exist when students graduate, which will be affected by artificial intelligence, robotics and automation.
- School districts should ensure that the curriculum provides all students with instruction in the “soft skills,” such as punctuality and teamwork, that are necessary for workplace success, as well as experience with asynchronous web-based courses.
- School districts should educate parents and students about the cost and return on investment for all post-secondary opportunities, as well as methods to reduce the expense.
- Students should be able to benefit from a dual-enrollment system that would allow them to graduate from high school with (a) certification that qualifies them for entry-level employment in certain fields and/or (b) a two-year associate’s degree or significant credit toward that degree.
- School districts should evaluate the choice of courses offered to students and the sequence in which they are provided. For example, the “biology-chemistry-physics” sequence is based on alphabetical order of the subject areas, not a pedagogical rationale. A revaluation is especially critical in subjects related to engineering and science, areas that have experienced substantial growth.

**Chapter 4** (page 55)

*Revise preparation and certification requirements to resolve a shortage of teachers in the STEM/STEAM and Makerspace areas.*

- NJDOE and the State Board of Education should clarify CTE teacher certification and preparation requirements that contain conflicting and ambiguous provisions involving required levels of education and the substitution of work experience for a college degree.
- NJDOE and the State Board of Education should consider revisions to alternate-route-to-certification qualifications to encourage more skilled individuals to become licensed to teach CTE programs.
- The state Department of Education should relax teacher certification standards in vocational instructional areas to allow credit for years of working experience.

- NJDOE and the State Board of Education should create a new certification category, or amend existing requirements, to enable non-CTE teachers to instruct in the STEM/STEAM (science, technology, engineering, the arts and mathematics) and Makerspace<sup>8</sup> learning areas. There is a shortage of teachers in these content areas, which stress problem-solving and practical application.

**Chapter 5** (page 64)

*Develop an assessment system that better reflects student growth and learning. Revise student assessment and graduation requirements in collaboration with the business community.*

- NJDOE and the State Board of Education should revise graduation regulations to allow credit for internships, apprenticeships and cooperative learning opportunities.
- NJDOE should consider the use of multimodal testing platforms to more accurately measure student growth and learning, and assessments to enable students to demonstrate competency in vocational applications of mathematics and technology.
- NJDOE should align statewide testing to standards for entry-level employees based on NOCTI (National Occupational Competency Testing Institute) or comparable industry benchmarks.<sup>9</sup>

**Chapter 6** (page 68)

*Assess financial needs and concerns, and explore alternative funding sources.*

- NJSBA and other state education organizations should work with local school districts to advocate for more state and federal funding for CTE programs to benefit students in all settings, including comprehensive high schools.
- NJSBA, other state education organizations and local school districts should create partnerships with business and industry and labor unions to generate internships and apprenticeships.
- Boards of education and state education leaders should collaborate on the cost-effective inter-district delivery of career training for the non-college-bound student.
- Wherever possible, school districts should identify resources within the annual budget to support the career-focused student.
- Boards of education should establish public-private partnership committees that include school officials, local business leaders, municipal officials and members of the municipal economic or industrial board.

<sup>8</sup> For information on Makerspaces in education, see: "The 'Maker Mindset' and How It Can Transform Schools" by Marc Natanagara, *New Jersey School Leader*, March 30, 2017, 15, New Jersey School Boards Association, accessed July 30, 2018, <https://www.njsba.org/news-publications/school-leader/march-april-2017-volume-47-5/maker-mindset-can-transform-schools/>.

<sup>9</sup> NOCTI is a not-for-profit consortium focusing on improvement of the American workforce. (See: <https://www.nocti.org/aboutnocti.cfm>.) NOCTI's Job Ready tests are one of two assessment batteries used by the Pennsylvania Department of Education to measure the occupational competency of career and technical education students. (See: <https://www.education.pa.gov/K-12/Career%20and%20Technical%20Education/Pages/Assessment-Information.aspx>.)

**Chapter 7** (page 75)

*The Next Steps*

- The New Jersey business and education communities should engage in a formal study to determine the best methods to deliver CTE training to our students and to define the roles of local school districts, county vocational-technical high schools and community colleges in the effort. The study should be initiated by the state. It should involve representatives of the following: The New Jersey School Boards Association; other stakeholders in K-12 education, including county vocational-technical school districts; community colleges; other institutions of higher education, the New Jersey Department of Education; the New Jersey Department of Labor and Workforce Development; state-level business organizations, and government workforce development agencies.

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**MOVING FORWARD**

The NJSBA Task Force on Educational Opportunities for the Non-College-Bound Learner hopes that its work will prompt educational, governmental, labor and community leaders to reevaluate existing educational structures, assumptions and practices. The report represents a springboard for additional discussion and future research.

Reform must take place, with a fresh eye and the willingness to anticipate a future in which workforce opportunities will be radically different than those of yesterday and today.



**Introduction:**

**Where we are and how we arrived here—A historical perspective**

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*For generations, graduating from college with a degree has been viewed as the “gold standard”—the goal for all students. In reality, few other options were offered. Often, the students who were guided toward college by educators and parents were neither ready for, nor interested in, pursuing higher education immediately after high school.*

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The education community, parents and the public continue to convey to students the message that only a four-year college degree leads to success. However, statistical and anecdotal experience demonstrates that college enrollment upon high school graduation is not the best fit for all students. Radical changes in employment opportunities and entry-level foundational skills and knowledge have created the need to find each student’s best career path by considering not only the traditional four-year college route, but all other post-secondary paths.

Assemblywoman Patricia Egan Jones, D-Camden/Gloucester (5th Legislative District) recognized that our schools should not market college as the only path to success:

Our children all have very unique skills sets and learning styles from one another. Some of them are great in studying math, science, and literature in a classroom setting. Others learn by doing. Not all are interested in attending college and should not feel short of success by not doing so. As a representative of the Fifth Legislative District and member of the Assembly Education Committee, I applaud the state School Boards Association for working to expand access to vocational training. It is great to see the needs of all our children being met.<sup>10</sup>

Societal, parental, peer and school pressures steer students toward college even when they are age-ready but lack the life skills to succeed. Some students may experience disillusionment after incurring large college debt and experiencing difficulty finding well-paid employment. A “one-size-fits-all” system where college is the expectation, does a disservice to many students.

In addition, the significant number of college freshmen who are required to take non-credit remedial classes suggests that high school does not necessarily prepare students for the academic, social and/or other demands of college.

A 2015 report by the Governor’s Council on Higher Education cites statistics showing that 40 percent of students at New Jersey’s public colleges and universities require remediation, while 70 percent of entering freshmen at the state’s community colleges must take remedial courses. The report describes the impact of this “serious and continuing problem both in New Jersey and the rest of the country.”

After enrolling, many students learn that they must take remedial courses which do not earn college credits. The result is that many students become frustrated with the need for remedial courses and drop out. Additionally, having to pay for those courses, which do not count toward graduation, significantly increases costs and causes many to withdraw.<sup>11</sup>

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<sup>10</sup> "All Hail the NJSBA for Task Force Access to Vocational Training." *Insider NJ*, October 25, 2017, accessed June 18, 2018, <https://www.insidernj.com/hail-njsba-task-force-access-vocational-training/>.

<sup>11</sup> "Strategic Priorities for New Jersey Higher Education," April 2015, Governor’s Council on Higher Education, 15, accessed July 12, 2018, <http://www.nj.gov/highereducation/documents/pdf/2015Report.pdf>.

Certainly, many students succeed by following the traditional route of attending a four-year college directly upon graduation. But when educators, parents and society convey to students that any other route is inferior, they do a great disservice to those whose skills and interests may lead them on a different path. For some students, the best choice directly after high school may be a two-year college, a post-secondary program that does not lead to a degree, direct entry into the workforce, or enlistment with the military.

Task Force members observed that not only are students directed toward college, but in some cases, the schools fail to advise them of alternatives. Sometimes, guidance counselors will not discuss the possibility of vocational careers with students. And even when they do, the counselors have a hard time convincing parents that college may not be the best route for their students.

In some counties, strategies are in place to provide students with information on the wide range of post-secondary education and career paths. A Bergen County program enables schools and business to share information about rewarding careers for workforce-bound students. North Jersey Partners, in collaboration with PSEG, Suez, Verizon, Bergen Community College, Rapid Pump and Meter Service Co., Inc. and Machinery Services Corp., recently held a free information/resource-sharing event at Bergen Community College for parents, students and guidance counselors.

But not all counties have similar programs, or any meaningful sharing of information.

The mind-set that college is the superior route permeates the requirements established by the New Jersey State Board of Education, the Task Force found. All students must take courses that are geared toward attending college, and fulfillment of these requirements leaves little time in the school day for programs such as shop, automotive and workshop that could prepare students for careers.

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***Too many students graduate college saddled with debt;  
many have difficulty finding jobs to repay it.***

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The National Center for Education Statistics data show that average tuition at a public four-year college climbed by nearly 250 percent over the past three decades.

For the 2015–16 academic year, the average annual price for undergraduate tuition, fees, room, and board was \$16,757 at public institutions, \$43,065 at private nonprofit institutions, and \$23,776 at private for-profit institutions. Charges for tuition and required fees averaged \$6,613 at public institutions, \$31,411 at private nonprofit institutions, and \$14,195 at private for-profit institutions.<sup>12</sup>

Over the past two years, the news media have focused on the burden of student loan debt. For example, NJTV reported that nearly two-thirds of students in the Garden State have loans. The average borrower carries more than \$30,000 in debt. The report references research by the George Washington School of Business, the New Jersey College Affordability Study Commission, and the New Jersey Association of State Colleges and Universities.<sup>13</sup>

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<sup>12</sup> “Digest of Education Statistics, 2016,” IES, National Center for Education Statistics, Table 330.10, accessed June 18, 2018, [https://nces.ed.gov/programs/digest/d16/tables/dt16\\_330.10.asp](https://nces.ed.gov/programs/digest/d16/tables/dt16_330.10.asp).

<sup>13</sup> Erin Delmore, “New Jersey Ranks Ninth in Student Loan Debt | Video.” November 15, 2016, accessed June 18, 2018, <https://www.njtvonline.org/news/video/new-jersey-ranks-ninth-student-loan-debt/>.

Debbie Cochrane, vice president of the Institute for College Access & Success, a research and advocacy organization that focused on college affordability and accessibility, described the serious and dramatic ramifications of mounting student debt in an interview with a local radio station.

New Jersey ranks 11<sup>th</sup> in average debt for graduates who are leaving school with debt, and 8<sup>th</sup> in terms of the share of students who are leaving school with debt. It can influence which type of job they take, where they're going to live, whether they buy a car—lots and lots of life decisions are influenced by how much debt students have.<sup>14</sup>

Nor does college graduation assure a great paycheck.

An article from *MarketWatch* cites a study by the Federal Reserve Bank of New York, which found that 45 percent of those who graduated between 2009 and 2013 worked in a “non-college job,” defined as “a position in which fewer than 50 percent of the workers in that job need a bachelor’s degree.”

**Nearly two-thirds of N.J. students have college loans. The average borrower carries more than \$30,000 in debt.**

The lowest skilled jobs (baristas, bartenders, and cashiers) accounted for 19.3% of the underemployed recent college graduates, paying an average of \$23,584. Another 25.2% worked in office and administrative positions paying an average of \$37,207. The highest-paid were in information processing and business support, where 11.4% were earning an average of \$59,059.

That’s still below the average pay for a job requiring a college degree, which is about \$78,500, the report states.<sup>15</sup>

The statistics are based on recent college graduates, and the *MarketWatch* article notes that these workers eventually move up to better paying jobs.

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***Despite a changing labor and economic environment—and an explosion of information—the predominant high school organization continues to operate on platforms standardized in the 1890s by the ‘Committee of Ten.’***

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The organization of today’s high schools is largely based on assumptions and structures recommended in an 1894 report by the Committee of Ten on Secondary School Studies<sup>16</sup>, published under the auspices of the National Education Association. The committee’s work was premised on Industrial Age concerns—primarily the need for standardization.

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<sup>14</sup> David Matthau, “The Average Student Debt for Every NJ College Last Year,” October 20, 2016, *New Jersey 101.5*, accessed on July 16, 2018, <http://nj1015.com/the-average-student-debt-for-every-nj-college-last-year/>.

**See also:**

Carla Astudillo, “This map blows up everything you think you know about student loan debt,” April 14, 2018, *NJ.com*, accessed on June 22, 2018 at [http://www.nj.com/data/2018/04/this\\_map\\_blow\\_up\\_everything\\_you\\_think\\_you\\_know\\_about\\_student\\_loan\\_debt.html](http://www.nj.com/data/2018/04/this_map_blow_up_everything_you_think_you_know_about_student_loan_debt.html).

Dino Flammia, “Analysis Shows the Burden of Student Loan Debt in New Jersey,” May 3, 2018, *New Jersey 101.5*, accessed on June 22, 2018 at <http://nj1015.com/analysis-shows-the-burden-of-student-loan-debt-in-new-jersey/>.

<sup>15</sup> Goldstein, Steve. “Nearly Half of College Grads Are Underemployed. But They’re Not Literally Baristas,” *MarketWatch*, January 11, 2016, accessed on June 22, 2018. <https://www.marketwatch.com/story/there-really-arent-many-baristas-with-college-degrees-research-finds-2016-01-11>.

<sup>16</sup> *Report of the Committee of Ten on Secondary School Studies; with the Reports of the Conferences Arranged by the Committee*, National Education Association, (N.Y.: Amer. Bk., 1894), 17. Accessed June 22, 2018, <https://books.google.com/books?id=PfcBAAAAYAAJ&pg=PA3&lpg=PA3#v=onepage&q&f=false>.

Because public high schools with varied curricula were springing up around the country, the Committee of Ten issued a report to standardize public education and to prepare students for college. It identified inconsistency in the areas of graduation requirements, course offerings, curricula, expectations of student learning and times allotted for each subject.

The Committee of Ten recommended that all high school students take four years of English, mathematics and history/civics. And it rejected the notion of separating college-bound students from non-college bound.

Charles Eliot, president of Harvard University and author of the final report, stated, “Every subject which is taught at all in a secondary school should be taught in the same way and to the same extent to every pupil so long as he pursues it, no matter what the probable destination of the pupil may be, or at what point his education is to cease.”<sup>17</sup>

Today, our system retains the underlying assumption that its role is to prepare all students for a four-year college. The course sequencing and requirements...relate back to the days when there was a need to bring consistency to the many new schools within the fledgling public school system that had no common standards. For example, high school students typically study sciences in the following order: biology (9<sup>th</sup> grade); chemistry (10<sup>th</sup> grade) and physics (11<sup>th</sup>/12<sup>th</sup> grades). Why? In fact, there is no pedagogic rationale for this order; rather, they are laid out in the alphabetical order of the course titles.

***Our system retains the underlying assumption that its role is to prepare all students for a four-year college.***

Citing research by organizations ranging from the CIA to the American Association of Colleges and Universities, a February 2017 *American School Board Journal* article illustrates the impact of the “manufacturing” model on school structure and why it is outdated.

Our current “assembly line” of 13 stations, from kindergarten to grade 12, attempts to do the same thing, the same way. Where the Model T had a station designed to add the front bumper and another station designed to add the rear bumper, we have a station (grade level) designed to add number sense and another station (grade level) designed to add algebraic thinking, and so on. Our organizational structure is fundamentally unchanged over the last 100 years. We have moved from the agricultural age to the manufacturing age to the digital age; we just forgot to move our schools along with it.

Our calendar is built to serve an agrarian economy that disappeared nearly a century ago. In 1870, 50 percent of all workers were employed in the agricultural or agricultural support industry. By 1950 that percentage had declined to 20 percent. Today less than 1 percent of all employment is related to agriculture..., and yet our calendar remains stubbornly rooted in a 19th century agrarian calendar.

Our curriculum was designed more than 100 years ago. The “seven cardinal principles,” written in 1918, remain fundamentally unchanged. The recommendations from the “Committee of 10” in 1894 to have a common amount of time dedicated to each and every subject remain in place

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<sup>17</sup> *Report of the Committee of Ten on Secondary School Studies*, 17.

today, 125 years later. If mathematics is a 60-minute period, then history, and art, and biology will also be 60-minute periods. That is how assembly lines functioned 100 years ago. It is how our curriculum functions today. The challenges of the 21st century are not the same as the challenges of the 20th century. Ninety-one percent of employers report that the challenges the modern workforce faces are more complex today than in the past...<sup>18</sup>

The NJSBA Task Force found that school operations are premised on dated educational models that are no longer relevant in this information age in which we live; some may have been adopted simply for the need for consistency. It is time to consider whether that sequence, and so many other aspects of the educational models used today, makes sense in the larger scheme of preparing students for life after high school.

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*Many well-paying jobs that do not require a college degree go unfilled because companies cannot find employees with the skills they need.*

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Our schools are failing to adequately prepare students for, or even advise them of, the many jobs that exist, the Task Force found.

According to the National Skills Coalition, an advocacy organization comprised of representatives of business, labor, community colleges, and workforce development, “middle-skill” jobs—those that require post-secondary education, but not a four-year degree—make up the largest part of the state’s and the nation’s labor markets. But key industries cannot find enough sufficiently trained workers to fill these jobs. Based on its research, the coalition predicts that demand for these jobs will remain strong through 2024.<sup>19</sup>

New Jersey currently has 44,000 vacant job openings that require middle skills, such as those in the building trades, according to Michele Siekerka, president and CEO of the New Jersey Business and Industry Association.<sup>20</sup>

In a February 2018 article, Mike Wallace, NJBIA’s vice president for governmental affairs, cites a report from McKinsey & Company, a global management consulting firm, which concludes that 53 percent of New Jersey jobs are appropriate for people with middle-skills, yet only 37 percent of the state’s workforce fall into this category. The same report predicts that this situation will not significantly change in the near future, with half of all job openings through 2024 requiring middle skills.

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<sup>18</sup> Chris Colwell, "Educating the Class of 2030," *American School Board Journal*, February 2017, National School Boards Association, accessed June 22, 2018, <https://www.nsba.org/newsroom/american-school-board-journal/asbj-february-2017/educating-class-2030>.

<sup>19</sup> “Middle-Skill Jobs State by State | New Jersey,” February 6, 2017, National Skills Coalition, accessed June 22, 2018, <https://www.nationalskillscoalition.org/resources/publications/2017-middle-skills-fact-sheets/file/New-Jersey-MiddleSkills.pdf>.

See also:

Tara Nurin, "Job Training Shifts to 'Middle Skills' to Put Millennials Back to Work," *NJ Spotlight*, May 6, 2014, , accessed June 22, 2018, <http://www.njspotlight.com/stories/14/05/06/job-training-shifts-to-middle-skills-to-put-millennials-back-to-work/?p=all>.

<sup>20</sup> "NJ Businesses Can't Find Enough Middle-Skill Workers," video posted to YouTube, March 30, 2018, New Jersey Business and Industry Association, accessed July 17, 2018, <https://www.youtube.com/watch?v=Pj8o-qNmXVE>.



**Middle-Skill Jobs, State by State | New Jersey**

February 6, 2017

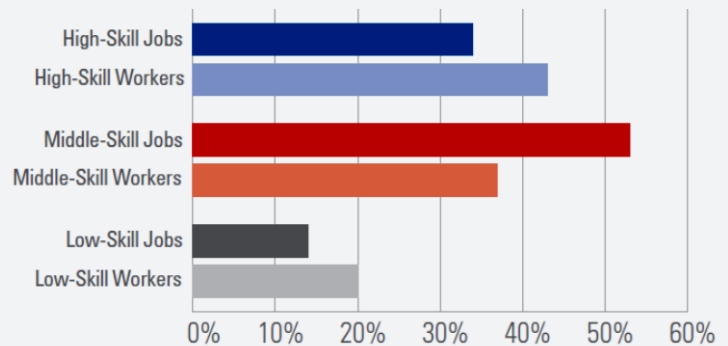


**NATIONAL SKILLS COALITION**  
Every worker. Every industry. A strong economy.

**A Middle-Skill Gap**

Middle-skill jobs account for 53 percent of New Jersey's labor market, but only 37 percent of the state's workers are trained to the middle-skill level.

**Jobs and Workers by Skill Level, New Jersey, 2015**



Source: NSC analysis of Bureau of Labor Statistics Occupational Employment Statistics by State, May 2015, and American Community Survey data, 2015.

“With the crisis of college student debt, manufacturing and other technical skill jobs can be an affordable career alternative,” states Wallace. “Manufacturing pays much more than other industries; people in mechatronics<sup>21</sup>, for instance, make an average of \$105,000 per year. Students deserve to know all of the options available to them.”<sup>22</sup> State and federal officials recognize the need to expand the workforce prepared with the technical education required by New Jersey’s middle-skill jobs.

“...we need to rapidly transform our state,” said U.S. Representative Josh Gottheimer (NJ-CD 5) during a forum at Bergen Community College’s Stryker Manufacturing Laboratory in March. “It turns out that in New Jersey, there are more high- and low-skill workers than most employers need, but not nearly enough qualified middle-skill workers. We have an employment, or skill, mismatch. Let’s help fill more of those middle-skill jobs by focusing on ‘middle skill education.’”<sup>23</sup>

“There finally appears to be a broader recognition that there are multiple pathways to a successful professional life,” wrote state Senator Troy Singleton (LD 7) in an article posted in March on the website of the New Jersey Council of County Vocational–Technical Schools.

<sup>21</sup> “Mechatronics” is a field in which “concepts from mechanical engineering, electrical engineering, and computer science are merged to design, build and operate products.” Source: “What Is the Difference between Robotics and Mechatronics?” TryEngineering.org, September 18, 2013, accessed July 17, 2018, <http://tryengineering.org/ask-expert/what-difference-between-robotics-and-mechatronics-also-how-does-mechanical-and-automation>.

<sup>22</sup> Mike Wallace, “Targeting the Skills Employers Need Most,” *New Jersey Business*, February 1, 2018, New Jersey Business and Industry Association, accessed June 17, 2018, [https://njbmagazine.com/monthly\\_articles/targeting-skills-employers-need](https://njbmagazine.com/monthly_articles/targeting-skills-employers-need).

<sup>23</sup> “Gottheimer Outlines Vision for Future of Technology Jobs in New Jersey,” *Insider NJ*, March 19, 2018, accessed June 22, 2018, <https://www.insidernj.com/press-release/gottheimer-outlines-vision-future-technology-jobs-new-jersey/>.



“Employers – now more than ever – are looking for potential employees who can think critically, can perform specific skill-sets and are capable with their hands.”<sup>24</sup>

A 2011 report by the Pathways to Prosperity Project, based at the Harvard Graduate School of Education, maintains that the United States is failing to prepare millions of young people to lead successful lives due to a college-prep approach, and points to the shortage of workers who have the training to fill middle-skill jobs.

***How much and what kind of post-secondary education is really needed to prosper in the new American economy?***

The message is clear: in 21st century America, education beyond high school is the passport to the American Dream. But how much and what kind of post-secondary is really needed to prosper in the new American economy?

The [Georgetown University Center on Education and the Workforce] projects that 14 million job openings—nearly half of those that will be filled by workers with post-secondary education—will go to people with an associate’s degree or occupational certificate. Many of these will be in “middle-skill” occupations such as electrician, and construction manager, dental hygienist, paralegal and police officer. While these jobs may not be as prestigious as those filled by B.A. holders, they pay a significant premium over many jobs open to those with just a high school degree. More surprisingly, they pay more than many of the jobs held by those with a bachelor’s degree. In fact, 27 percent of people with post-secondary licenses or certificates—credentials short of an associate’s degree—earn more than the average bachelor’s degree recipient.<sup>25</sup>

After the release of the *Pathways to Prosperity* report, the Harvard Graduate School of Education joined with Jobs for the Future, a Boston-based nonprofit organization focused on creating educational and economic opportunity for low-income youth and adults, to create the Pathways to Prosperity Network. The network includes partners in eight states. In 2014, it issued a report, *The Pathways to Prosperity Network: A State Progress Report 2012–2014*, which noted advances made in the eight states to develop career paths in fields such as information technology, health care and advanced manufacturing, and in building political and financial support for these efforts.<sup>26</sup>

Another report, *Creating Pathways to Prosperity: A Blueprint for Action* includes recommendations for state and federal policy and educational programming.<sup>27</sup> Also released in

<sup>24</sup> Troy Singleton, "A Renaissance of Vocational and Technical Education," Career Tech NJ, March 29, 2018, New Jersey Council of County Vocational-Technical Schools, accessed June 22, 2018, <https://www.careertechnj.org/news/blog-renaissance-vocational-technical-education-senator-troy-singleton/>.

<sup>25</sup> William C. Symonds, Robert Schwartz, and Ronald F. Ferguson, *Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century*, report, Graduate School of Education, Harvard, February 2011, 2-3, accessed June 22, 2018, <https://dash.harvard.edu/handle/1/4740480>.

See also:

Emily Hanford, "A 21st-century Vocational High School," American RadioWorks, September 11, 2014, American Public Media, accessed June 22, 2018, <http://www.americanradioworks.org/segments/a-21st-century-vocational-high-school/>.

<sup>26</sup> "The Pathways to Prosperity Network: A State Progress Report, 2012-2014," June 1, 2014, The Pathways to Prosperity Network, accessed June 22, 2018, <https://www.jff.org/resources/pathways-prosperity-network-state-progress-report-2012-2014/>.

<sup>27</sup> Ronald F. Ferguson and Sara Lamback, "Creating Pathways to Prosperity: A Blueprint for Action," June 14, 2014, Graduate School of Education, Harvard, accessed June 22, 2018, <http://www.agi.harvard.edu/pathways/CreatingPathwaystoProsperityReport2014.pdf>.

2014, the report was issued by the Pathways to Prosperity Project at the Harvard Graduate School of Education and the Achievement Gap Initiative at Harvard University.

These efforts were spearheaded by Robert Schwartz and Ronald F. Ferguson, two of the co-authors of the 2011 report. In a Graduate School of Education news release announcing the publication of the reports, Ferguson emphasized the need to broaden the perspective on post-secondary success.

We need to acknowledge that people can be skilled workers and great human beings without four-year degrees. Every young person needs career preparation beyond high school, but that can take many forms. We need cultural and institutional shifts in order to expand our will and capacity to help young people to explore a variety of career alternatives and prepare for success in whichever ones they eventually choose.<sup>28</sup>

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***Present curricula do not prepare students with practical, job-ready skills.***

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School curricula are not geared toward preparing students to pass the specific tests leading to certifications and licenses that are required for entry in particular trades, the Task Force found.

Passing these tests may require months of preparation and study. For example, to obtain the commercial driver's license (CDL), applicants must submit to a multi-step process involving vision, road and knowledge tests.<sup>29</sup> (The latter consists of a 50-question general assessment, with additional tests for each endorsement, such as hazardous material, passenger, school bus, double and triple trailer, tank vehicle, etc.)

Where practical courses would assist students in obtaining the credentials that could lead directly to the workforce, our schools have a void.

Job-readiness, however, may involve more than just preparation to take a skills test or obtain a credential. To be successful in the workplace, employees need certain life skills, such as appreciating the importance of calling in when sick, and being prompt. Discussing these expectations, and practicing their implementation, is particularly important for students who live in communities with limited opportunity for summer employment.

Businesses often use an "experiential learning" approach that could serve as a model for schools. According to Task Force member Tammy Molinelli, who serves as executive director of the Workforce Investment Board in Bergen County, many companies will hire applicants who do not have a four-year degree but who demonstrate responsibility and possess general job-related skills. The businesses will train those individuals and, at the same time, allow them to explore their interests and grow into the careers that they enjoy. The companies will nurture talent and pay for their credentials.

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<sup>28</sup> "Pathways to Prosperity Releases New Reports," Harvard Graduate School of Education, July 1, 2014, accessed June 22, 2018, <https://www.gse.harvard.edu/news/14/07/pathways-prosperity-releases-new-reports>.

<sup>29</sup> "Getting Your Commercial Driver License (CDL)," New Jersey Motor Vehicle Commission, accessed July 18, 2018, <http://www.state.nj.us/mvc/drivertopics/gettingcdl.htm>.

**Career and Technical Education in New Jersey—A History**

Interest in vocational education—today, called “Career and Technical Education,” or CTE—became stronger near the turn of the 20th century, prompted in part by economic and social changes. “Factory owners were facing a shortage of skilled labor in a rapidly industrializing society. And public schools were seeing an influx of immigrants and farm kids,” according to an American RadioWorks broadcast, “The Troubled History of Vocational Education.”<sup>30</sup>

In the 1890s, New Jersey “school officials began to question whether high school curricula met the needs of youth who did not wish to go to college. The ‘literary’ high school programs were impractical; in this newly industrialized state, courses in manual training, cooking, music, and drawing appeared, and some schools introduced ‘commercial curriculums.’”<sup>31</sup>

*In the 1890s, school officials began to question whether high school curricula were meeting the needs of youth who did not wish to go to college.*

New Jersey statute that authorizes the establishment of county vocational high schools dates back to 1913,<sup>32</sup> with the first such district established in Middlesex County the following year.<sup>33</sup> However, public school vocational training programs existed before then.

In 1910-1911, the “Newark Vocational School opened with 40 pupils and 2 teachers. Three years later a state law authorized state aid for vocational schools, to give special training for industry, agriculture and homemaking. In 1917, federal support for these programs became available with the enactment of the Smith-Hughes Act.”<sup>34</sup>

The 1950s saw the establishment of several more county vocational school systems. “The economy was still dominated by manufacturing and agriculture. At the time, fewer than 10 percent of U.S. students earned a bachelor’s degree or higher... In that context, early vo-tech programs, aimed at teaching students a marketable trade, provided a valuable service to the community, the economy and the students themselves.

“Those programs utilized a shared-time system where students took academic courses at their local high school for part of the day, and then were transported to technical classes, eventually graduating from their local high school with a certificate of completion”<sup>35</sup> or state license.

<sup>30</sup> Emily Hanford, “The Troubled History of Vocational Education,” American RadioWorks, September 9, 2014, American Public Media, accessed June 22, 2018, <http://www.americanradioworks.org/segments/the-troubled-history-of-vocational-education/>.

<sup>31</sup> Donna Kaye, “Highlights in the Evolution of New Jersey Education,” 1997, New Jersey School Boards Association, 7, a paper summarizing information from the following sources:

Roscoe L. West, *Elementary Education in New Jersey: A History, Vol. 7, The New Jersey Historical Series* (Princeton: D. Van Nostrand Co., Inc., 1964);

Robert D. Bole, and Laurence B. Johnson, *New Jersey High School: A History, Vol. 8, The New Jersey Historical Series* (Princeton: D. Van Nostrand Co. Inc., 1964), and

Carolyn M. Campbell, M. Peryl King, and Martha T. Smith, *Chickaree in the Wall: A history of one-room schools in Ocean County, N.J.* (Neptune, NJ: American Press 1987).

<sup>32</sup> L. 1913, c. 294, *Acts of the One Hundred and Thirty-Seventh Legislature of the State of New Jersey*, 598, accessed July 31, 2018, <https://njlaw.rutgers.edu/cgi-bin/diglib.cgi?page=1&collect=njleg&file=137&zoom=120>.

<sup>33</sup> “MCVTS Centennial / Centennial Timeline,” Middlesex County Vocational & Technical Schools, accessed July 31, 2018, <https://www.mcvts.net/Page/5965>.

<sup>34</sup> Kaye, 8.

<sup>35</sup> Leslie Garisto Pfaff, “Tech Time: New Jersey’s Vocational Schools,” New Jersey Monthly, September 18, 2014, accessed July 18, 2018, <https://njmonthly.com/articles/towns-schools/tech-time-new-jerseys-vocational-schools/>.

“...by the 1970s, the good jobs that required just a high school education were beginning to disappear,” according to an American RadioWorks broadcast, the Troubled History of Vocational Education. “Technology and globalization were increasing the skill levels required for most occupations, and making the labor market more volatile. Entire sectors of the economy were being wiped out, and new kinds of jobs were being created.”<sup>36</sup>

In the early 1980s, many education experts argued that high school should be about preparing kids for college, not work. This was buttressed by conclusions in the 1983 report, “A Nation At Risk,”<sup>37</sup> and the fear that American students were falling behind their peers academically.

The American RadioWorks report indicates that, by the late 1990s, vocational education had developed an image problem and was perceived by some as a “dumping ground for kids who weren’t succeeding in the traditional academic environment.” These students included those with behavioral problems and learning disabilities. “In many school districts, vocational education wasn’t much more than a ‘second-tier special ed program,’” according to Jim Stone, director of the National Research Center for Career and Technical Education.<sup>38</sup>

Prompted by the “A Nation At Risk” and federal education policy, such as the “Goals 2000: Educate America Act,” enacted in 1994, states including New Jersey embraced standards-based education reform.<sup>39</sup> “Standards represent what we want all of our students to know by the time they graduate high school; that means being ready to succeed in higher education and employment,” said NJSBA Executive Director Dr. Lawrence S. Feinsod, as New Jersey began a review of its standards in 2015.<sup>40</sup>

*Today, New Jersey’s public schools operate 1,025 state-approved CTE programs.*

In 2001, Congress passed the No Child Left Behind Act, the reauthorization of the federal Elementary and Secondary Education Act, which reinforced academic standards for all schools and programs, including those dedicated to CTE.

“The law required states, in exchange for federal education funding, to test their students every year and insure that all students would eventually be proficient in math and reading. All students meant the kids in vocational programs too.... Under No Child Left Behind, those programs could eventually be shut down for poor performance.”<sup>41</sup>

Today, New Jersey’s public schools operate 1,025 state-approved CTE programs.<sup>42</sup>

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<sup>36</sup> Hanford, “The Troubled History of Vocational Education”.

<sup>37</sup> “A Nation At Risk,” National Commission on Excellence in Education, April 1983, U.S. Department of Education, accessed July 19, 2018, <https://www2.ed.gov/pubs/NatAtRisk/risk.html>.

<sup>38</sup> Hanford.

<sup>39</sup> Robert B. Schwartz and Marian A. Robinson, “Goals 2000 and the Standards Movement,” 2000, Brookings Papers on Education Policy, summary by ERIC-Institute of Education Sciences, accessed July 19, 2018, <https://eric.ed.gov/?id=EJ898336>.

<sup>40</sup> “NJSBA Comments on Governor’s Common Core Proposal,” May 28, 2015, New Jersey School Boards Association, accessed July 19, 2018, <https://www.njsba.org/news-publications/press-releases/njsba-comments-governors-common-core-proposal-2/>.

<sup>41</sup> Hanford.

<sup>42</sup> “Career and Technical Education Programs & Programs of Study in NJ Schools” (Excel Spreadsheet), August 7, 2018, New Jersey Department of Education, accessed July 23, 2018, <https://www.state.nj.us/education/cte/pubvoc.xlsx>.

**The Current CTE Structure**

Each of New Jersey's 21 counties has a board of education that governs vocational-technical school district. "These boards oversee the 65 vocational high schools... (Some have one campus; some have several.) In total, they serve approximately 32,000 full-time and share-time students."

"Although many of these schools originated as part-time programs (students would attend a traditional high school and go to the vocational school for part of the day), many schools have shifted to full-time programs—a movement started when leaders opted to create full-time 'career academies.'"<sup>43</sup>

**2014–15**

	Number of Schools with CTE Programs	Number of Students Participating in CTE
Vocational School Districts	21	31,091
Comprehensive High Schools	90	45,673
Community Colleges	19	118,225

SOURCE: "Next Generation CTE: The Future Is Now," presentation to New Jersey School Boards Association annual conference (Workshop) by Marie Barry, Assistant Division Director, Office of Career and Technical Education, New Jersey Department of Education, October 26, 2016, accessed July 23, 2018, <http://www.careertechnj.org/wp-content/uploads/2016/10/10.26.16-Next-Generation-CTE-The-Future-is-Now.pptx>.

The county CTE high schools prepare students for careers after high school, and the curriculum is updated and adapted to changing industries, the NJSBA Task Force found. They align high school CTE with postsecondary options, including continued technical training or college. On its website, the New Jersey Council of County Vocational Technical Schools indicates that graduates may find employment as chefs, graphic designers, auto technicians, emergency first responders, health care providers, construction trades professionals, and small business owners. In addition, students can earn industry certifications and state licenses, which provide a significant edge in the job market or when pursuing a college degree or further training.<sup>44</sup>

Under state law and regulation, county vocational boards do *not* have an exclusive right to run CTE schools or programs. In fact, in 2017, the state approved the creation of business programs in four traditional districts (in addition to new district CTE programs in health, plant science, graphic design, construction, and manufacturing across five districts).<sup>45</sup> During the 2017-2018 school year, 1,025 state-approved CTE programs were in operation in New Jersey's public schools.<sup>46</sup>

<sup>43</sup> Andy Smarick, "The Evolving High School CTE: New Jersey's Distinctive Approach to Career Education," November 2017, American Enterprise Institute, 3, 4, accessed July 18, 2018, <http://www.aei.org/wp-content/uploads/2017/11/The-Evolving-High-School-CTE.pdf>.

<sup>44</sup> "For Students and Parents," Career Tech NJ, New Jersey Council of County Vocational Technical Schools, accessed July 23, 2018, <https://www.careertechnj.org/for-students-and-parents/>.

<sup>45</sup> Smarick, 20.

<sup>46</sup> "Career and Technical Education Programs & Programs of Study in NJ Schools," <https://www.state.nj.us/education/cte/pubvoc.xlsx>.



“As of 2016, traditional district-based high schools [in New Jersey] served about 48,000 students in CTE programs, about 50 percent more than the CTE-specific county vocational schools.” According to statute, *N.J.S.A. 18A:54-5*, “The board of education of any school district or regional school district may establish and maintain vocational schools.” Although the statute remains on the books, regulations implementing this statute were repealed in 1991 along with state funding for such schools run by traditional districts.<sup>47</sup>

In a recent opinion article in *NJ Spotlight*, three superintendents presented a case for state support of CTE programs in comprehensive high schools.

...traditional comprehensive high-school CTE programs provide students with valuable career training, including courses sequenced and aligned with industry standards, advised by industry partners, and combined with internships and onsite applied learning opportunities...

CTE programs in comprehensive high schools are an integral part of New Jersey’s vocational education puzzle. Yet these programs receive significantly fewer resources than comparable programs offered by the county institutions.<sup>48</sup>

County vocational schools receive funding from four primary streams: county taxes appropriated by the county board of freeholders, state aid, district-paid tuition, and federal sources under the 2018 “Strengthening Careers and Technical Education for the 21<sup>st</sup> Century Act”<sup>49</sup> (Perkins V), the reenactment of the Carl D. Perkins Act, which is “a principal source of federal funding to states and discretionary grantees for the improvement of secondary and postsecondary career and technical education programs across the nation.”<sup>50</sup>

*‘CTE programs in comprehensive high schools are an integral part of New Jersey’s vocational education puzzle.’*

According to the USDOE, provisions in Perkins V (2018) will allow school districts to use federal funds to provide all students, not just those enrolled in CTE, career exploration and development activities in the middle grades and for comprehensive guidance and academic counseling in the upper grades.<sup>51</sup>

The New Jersey Department of Education’s “Taxpayer’s Guide to Education Spending 2017,” [www.state.nj.us/education/](http://www.state.nj.us/education/), indicates that approximately 22 percent of the county vocational school district revenue comes from tuition paid by other school districts.<sup>52</sup>

There is no state funding category specifically for CTE programs in comprehensive high schools. At the time of this report, a small number of comprehensive high schools had received funding through federal Perkins Act grants.

<sup>47</sup> Smarick, 26.

<sup>48</sup> Chuck Sampson, J. Kenyon Kummings, and Christopher H. Kobik, “Op-Ed: Comprehensive High Schools, a Key Piece of the Vo-Tec Puzzle,” *NJ Spotlight*, May 23, 2018, accessed July 23, 2018, <http://www.njspotlight.com/stories/18/05/22/op-ed-comprehensive-high-schools-a-key-piece-of-the-vo-tec-puzzle/>.

<sup>49</sup> “Strengthening Career & Technical Education for 21st Century Act Signed,” ED.gov Blog, U.S. Department of Education, August 02, 2018, accessed September 06, 2018, <https://blog.ed.gov/2018/08/strengthening-career-technical-education-21st-century-act-signed-law/>.

<sup>50</sup> “Perkins Act,” Perkins Collaborative Resource Network, U.S. Department of Education, Office of Career, Technical, and Adult Education, accessed July 31, 2018, <https://cte.ed.gov/legislation/about-perkins-iv>.

<sup>51</sup> “Strengthening Career & Technical Education for 21st Century Act Signed,” ED.gov Blog.

<sup>52</sup> “Taxpayers’ Guide to Education Spending, 2017,” New Jersey Department of Education, April 20, 2017, accessed July 23, 2018, <https://www.state.nj.us/education/guide/2017/>.



Vocational Education was:	Career Technical Education is:
<ul style="list-style-type: none"><li>• Basic academics with technical skills related to specific jobs</li></ul>	<ul style="list-style-type: none"><li>• High-level academics with technical training to enter jobs or college</li></ul>
<ul style="list-style-type: none"><li>• Primarily for non-college goers</li></ul>	<ul style="list-style-type: none"><li>• For anyone interested in field</li></ul>
<ul style="list-style-type: none"><li>• Based on assumption individuals will always work in same occupation</li></ul>	<ul style="list-style-type: none"><li>• Preparation for a changing workplace, including the ability to change careers</li></ul>
<ul style="list-style-type: none"><li>• Often used to track some students into job training and away from college</li></ul>	<ul style="list-style-type: none"><li>• Again – for anyone interested in field, college and non-college goers alike</li></ul>

SOURCE: "Career and Technical Education: Building New Pathways into the Labor Market," Center for Public Education, National School Boards Association, December 8, 2016, accessed September 06, 2018, <http://www.centerforpubliceducation.org/research/career-technical-education-glance>.

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*Many county vocational schools, which traditionally focused on the trades or “middle skills,” are becoming increasingly geared toward the “college-bound” student, highly selective, and lacking in capacity to accommodate many applicants.*

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The county CTE districts have limited capacity. “They are...in high demand, receiving, on a statewide average, about 2.5 applicants for every available seat,” states an article on the New Jersey Council of County Vocational-Technical Schools website.<sup>53</sup> In testimony at an October 2017 hearing on a proposed statewide bond issue to fund expansion of the county CTE schools, Judy Savage, NJCCVTS executive director, noted that “of the nearly 30,000 students who applied this year to attend a vocational school, only a little more than 12,000 could be accepted due to space constraints.”<sup>54</sup>

Many of the county CTE schools offer “career academies” in areas such as engineering, visual and performing arts, health sciences, and information technology. These programs need to be expanded, according to the New Jersey Employer Coalition for Technical Education, created by the NJCCVTS and the New Jersey Business and Industry Association.

These 21st century CTE programs are not the vocational schools of the past: they integrate rigorous academic content and technical skills to prepare all types of students for college and careers, not just for a specific job. Today, more than 32,000 students attend New Jersey’s county vocational-technical schools, but the student and parent demand for CTE programs exceeds the space available.”<sup>55</sup>

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<sup>53</sup> Kathryn Forsyth, "NJ 101.5 Highlights the Value of Career and Technical Education and Opportunities in Trade and Technical Careers," Career Tech NJ, September 9, 2016, New Jersey Council of County Vocational Technical Schools, accessed July 23, 2018, <https://www.careertechnj.org/news/nj-101-5-highlights-the-value-of-career-and-technical-education-and-opportunities-in-trade-and-technical-careers/>.

<sup>54</sup> John Reitmeyer, "New Bond Issue Edges Closer as Vo-Techs Make Case for Urgent State Funding," *NJ Spotlight*, October 18, 2017, accessed July 31, 2018, <http://www.njspotlight.com/stories/17/10/17/new-bond-issue-edges-closer-as-vo-techs-make-case-for-urgent-state-funding/>.

<sup>55</sup> "NJ Employer Coalition for Technical Education," Career Tech NJ, New Jersey Council of County Vocational-Technical Schools, accessed June 22, 2018, <https://www.careertechnj.org/nj-employer-coalition-for-technical-education/>.

In 2014, *New Jersey Monthly's* biannual education issue included an article about the county vocational-technical schools' career academies, stressing their focus on college preparation. It described the admissions policy<sup>56</sup> at Monmouth's High Technology High School, considered one of the nation's top academic high schools and one of five career academies operated by the district.

Today, these career academies attract many of their counties' top students, routinely garner local and national awards and send a striking percentage of their students to the best colleges in the country.

For the 2014-15 school year, 347 hopeful Monmouth County eighth-graders applied to High Technology High; only 80 were offered enrollment. The application process is a numbers game in which students strive to score as close to 100 points as possible: Prospective students take an entrance exam on which they can score a maximum of 35 points in each of two subjects, math and language arts. They also submit their final seventh-grade and first-marking-period eighth-grade transcripts, and the school uses a complex rubric to convert their GPAs into point scores ranging from 0 to 15 per grade. The school then accepts the highest-scoring students (with at least 75 points) from each Monmouth County school district from which there are applicants (generally, 35 to 40 of the county's 45 districts are represented). The rest of the slots are accorded to the highest-ranking students that remain after the first round. Similar entrance processes are used at most of the Garden State's career academies which, like High Technology, tend to be small and have low student/teacher ratios.<sup>57</sup>

Accepting high achieving students who would otherwise attend their K-12 or regional high school districts of residence has generated friction between county vocational schools and other districts. The Task Force found that the growth of the career academies for high-achieving college-bound students has drawn some vocational districts away from the mission to serve students interested in a career in the trades.

In 2012, the North Wildwood Board of Education, concerned about the admissions rates and competitive application processes at county vocational schools, proposed policy to the NJSBA Delegate Assembly challenging the use of testing as the basis for enrollment.

The board's resolution resulted in additions to NJSBA's *Manual of Positions and Policies on Education*.

***The NJSBA believes that county vocational boards of education should have the ability to structure their admissions policies in a comprehensive holistic way, of which testing appropriate to the program is a component, but not the sole criterion for admission. The ultimate decision on admission should lie within the discretion of the county vocational school district.***

***The NJSBA believes that the state should provide funding and support to local school districts to facilitate the development of career-readiness programs to assist students who are unable to attend county vocational programs, including revisions to the funding formula to reflect the increased per pupil cost for vocational education provided in the local high school.***

"Career Education: Vocational-Technical Education," *Manual of Positions and Policies on Education*, FC6142.12, May 2012, New Jersey School Boards Association, accessed July 31, 2018, <https://www.njsba.org/wp-content/uploads/2016/02/resources-policy-ppm-6000-6142-12.pdf>.

<sup>56</sup> "Career Academy Admissions," Monmouth County Vocational School District, accessed August 01, 2018, <https://www.mcvsd.org/career-academy-policy.html>.

<sup>57</sup> Leslie Garisto Pfaff, "Tech Time: New Jersey's Vocational Schools," *New Jersey Monthly*, September 18, 2014, accessed July 18, 2018, <https://njmonthly.com/articles/towns-schools/tech-time-new-jerseys-vocational-schools/>.

In recent public statements, NJCCVTS officials have echoed the concerns of the NJSBA Task Force on Educational Opportunities for the Non-College-Bound Learner, expressing the need for programming that prepares students for those careers that do not require a bachelor's degree. During an October 2017 hearing on a proposed state bond issue to provide a half billion dollars for expansion of the county CTE schools, "vocational-school officials...made the case that as the job market is starting to tip more toward workers with technical skills, and as the cost of going to a four-year college continues to rise, it makes sense for the state to invest more heavily in career and technical education."<sup>58</sup>

At the same hearing, the NJCCVTS executive director cited the organization's statewide needs assessment, which showed that "only two schools said they had no need to expand facilities or build new ones to keep up with demand. In all, the council determined there's a need for \$891 million in spending to meet the construction, renovation, and equipment needs across the state."<sup>59</sup>

On August 27, 2018, Governor Murphy signed the "Securing Our Children's Future Bond Act," which would fund expansion of CTE programs—but only in county vocational school districts and community colleges. Totaling \$500 million, the bond act would finance facility projects as follows:

- \$350 million for county vocational school district CTE grants (to be used to construct and equip educational facilities to expand existing or offer new programs) *and* for school security project grants;
- \$50 million for county college career and technical education grants;
- \$100 million for school district water infrastructure improvement grants.<sup>60</sup>

The bond issue will appear on the November 6, 2018 General Election ballot.

While the New Jersey School Boards Association supported the legislation, it expressed serious concern that the proposal would not provide funding for comprehensive high schools, which need to expand their CTE offerings.

***To date, there have been limited funding initiatives to expand student access to CTE in comprehensive high schools.***

In May 2018, the New Jersey Department of Education announced the award of approximately \$3 million in grants to seven county vocational school districts. The state-funded program, now in its fourth year, supports county vocational-technical schools that partner with school districts that

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<sup>58</sup> John Reitmeyer, "New Bond Issue Edges Closer as Vo-Techs Make Case for Urgent State Funding," *NJ Spotlight*, October 18, 2017, accessed July 31, 2018, <http://www.njspointlight.com/stories/17/10/17/new-bond-issue-edges-closer-as-vo-techs-make-case-for-urgent-state-funding/>.

<sup>59</sup> Reitmeyer.

<sup>60</sup> "Legislative Update: Governor Signs Vo-Tech, School Security Bond Measure; Voters to Decide its Fate," *School Board Notes*, September 5, 2018, <https://www.njsba.org/news-publications/school-board-notes/september-5-2018-vol-xlii-no-6/legislative-update-governor-signs-vo-tech-school-security-bond-measure-voters-to-decide-its-fate/>.

operate comprehensive high schools, business and industry and postsecondary institutions to expand access to CTE programs.<sup>61</sup>

Eligibility for the grant is limited to county vocational school districts, which serve as the lead agencies for the partnerships. Six K-12 districts and one regional high school district are among the secondary school partners in the grant program announced in May.<sup>62</sup> (See Appendices III and IV, “County Vocational-Technical School Partnership Grants” and “Murphy Administration Announces Vo-Tech Partnership Grants,” respectively.) Although a step in the right direction, this initiative is inadequate to serve the statewide need for CTE expansion.

Another legislative proposal ([S-1827/A-482](#)) would authorize the state’s Economic Development Authority to issue \$50 million in bonds to provide grants for certain county vocational school district facilities projects and increase the debt service aid for such projects. The grants would only be allocated to county vocational school districts that increase capacity by the larger of 10 percent or 75 students, or which convert part-time programs to a full-time basis for at least 75 students.

This legislation, currently in the Senate and Assembly Education Committees, does not address the rigorous, selective admissions policies that make it difficult for many non-college-bound students to gain admission to CTE programs. And it falls short of the \$891 million that the NJCCVTS indicates is needed to meet facility needs in the county vocational districts.

The NJSBA Task Force found that additional financial support to expand CTE programs in comprehensive high schools, as well as county vocational-technical districts, is essential to ensure that career-focused students have access to training for the growing number of middle-skill positions. It also believes that the state Department of Education should encourage the sharing of services among neighboring districts to create an array of CTE opportunities for students. These efforts should also allow send-receive relationships for programs with low enrollment, which can then be realistically funded through the support and collaboration of two or more districts.

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***K-12 and regional high school districts lack the financial resources  
and certificated staff needed for CTE programs.***

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Comprehensive high schools that try to operate CTE programs in-house are challenged to find creative solutions to finance them. CTE programs tend to be costly, typically requiring modern equipment and tools, safety measures, and small class sizes. And federal and state dollars are not available on the required scale, with only a few districts able to secure the few available.

A dearth of qualified, certified staff to teach CTE courses exacerbates the situation, the Task Force found. New Jersey provides for CTE endorsement based upon education and/or work experience.<sup>63</sup>

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<sup>61</sup> "County Vocational School District Partnership Grant-Cohort 4-Competitive," New Jersey Department of Education, November 2017, accessed August 07, 2018, <https://www.state.nj.us/cgi-bin/education/grants/gropps2.pl?string=recnum&maxhits=1>.

<sup>62</sup> "Murphy Administration Announces Vo-Tech Partnership Grants," New Jersey Department of Education, May 7, 2018, accessed June 22, 2018, <https://www.state.nj.us/education/news/2018/0507voc.htm>.

<sup>63</sup> Certification and Induction: Career and Technical Educators, New Jersey Department of Education, accessed August 1, 2018, <https://www.nj.gov/education/educators/license/cte/infofaq.htm#15>.

It provides alternate routes to certification through which established tradespeople with the subject-matter knowledge can obtain a teaching certification in their skill area based on employment experience. Brookdale Community College is the sole provider of an NJDOE-endorsed formalized pilot program for alternate-route CTE certification.<sup>64</sup>

In its deliberations, the Task Force found that some provisions of Administrative Code governing CTE endorsement (contained in [N.J.A.C. 6A:9B](#)) are ambiguous and overly restrictive and, therefore, may contribute to the shortage of teachers in this area. (See discussion on page 55.) A comprehensive review of these regulations is warranted, the Task Force believes.

The NJSBA Task Force believes that county colleges have been increasingly taking over the traditional role of the county vocational schools, and offering programs in the various trades.<sup>65</sup> The community colleges do not face the same teacher certification requirements as do public school districts.

Community college instructors can teach courses in the trade and middle-skill areas based on their professional experience.

***Dwindling numbers of people are applying to fill vacancies as CTE instructors, and a quarter of all existing CTE teachers are 59 years of age or older.***

The New Jersey Department of Education recognizes the CTE teacher shortage.

The NJDOE held focus groups with vocational-technical and comprehensive high schools to hear about obstacles they faced in hiring teachers to address the CTE teacher shortage, especially in high-demand occupational areas like STEM, health sciences, agriculture, and information technology. Dwindling numbers of people are applying to fill vacancies as CTE instructors, and a quarter of all existing CTE teachers are 59 years of age or older.<sup>66</sup>

In October 2017, the department announced the receipt of \$876,081 through the federal CTE Teacher Pathway Initiative.<sup>67</sup> The grant will fund a three-year program to attract up to 150 industry experts and current teachers to CTE positions in 29 school districts.

Through the program, prospective CTE teachers will have the opportunity to teach part-time with a mentor teacher in a classroom, while allowing them to continue working at their current job. The grant will help pay for the educator-preparation training that prospective teachers must receive before working in a classroom, as well as provide stipends for the mentors and potential teachers.<sup>68</sup>

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<sup>64</sup> "Career and Technical Education Teacher Training Program," Brookdale Community College, accessed August 01, 2018, <https://www.brookdalecc.edu/continuinged/careerdevelopment/cte/altroute/arprogram/>.

<sup>65</sup> Rob Jennings, "This Was a Car Dealership for Nearly a Century. Now It Will Be a College Classroom," NJ.com, July 30, 2018, NJ Advance Media, accessed August 1, 2018, [https://www.nj.com/sussex-county/index.ssf/2018/07/this\\_was\\_a\\_car\\_dealership\\_for\\_nearly\\_a\\_century\\_now.html#incart\\_river\\_index](https://www.nj.com/sussex-county/index.ssf/2018/07/this_was_a_car_dealership_for_nearly_a_century_now.html#incart_river_index).

<sup>66</sup> "NJDOE Announces Grant to Increase Numbers of Career and Technical Education Teachers," New Jersey Department of Education, October 31, 2017, accessed August 1, 2018, <https://www.nj.gov/education/news/2017/1031cte.htm>.

<sup>67</sup> "Career and Technical Education (CTE) Teacher Pathway Initiative," New Jersey Department of Education, accessed August 1, 2018, <https://www.nj.gov/education/cte/cert/pathway/>.

<sup>68</sup> "NJDOE Announces Grant to Increase Numbers of Career and Technical Education Teachers".



The NJSBA Task Force notes that, while each of the 21 county vocational-technical schools received the funds, only eight comprehensive high schools with CTE programs were eligible to participate.

The Task Force believes that the New Jersey Department of Education should also consider an endorsement process for CTE, similar to the one created by the Center for Teaching and Learning, to increase the number of teachers qualified to teach physics. The program, sanctioned by the NJDOE, has helped to alleviate a shortage of physics teachers.

[The Center for Teaching and Learning] worked with the New Jersey Department of Education to develop a summer program that trains existing science teachers to begin teaching the...algebra-based physics course. The teachers continue their training over the course of the next year. After passing the Praxis exam in physics and general science, participating teachers become certified by the state to teach physics. They also earn 30 credits from Kean University, which can be applied to a master's degree. The CTL course for teachers was made possible after a state law was adopted authorizing alternative methods of certifying new physics and chemistry teachers.<sup>69</sup>

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***Comprehensive high schools have collaborated with government, community colleges and/or industry to implement innovative programs that lead to careers in CTE.***

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### Vernon Township Public Schools

At a meeting of the Task Force, Art DiBenedetto, then-superintendent, and Charles McKay, assistant superintendent, of the Vernon Township Public Schools, described a successful program in their high school, made possible through a Department of Education Career Pathways Grant. The NJDOE-administered funding, totaling \$800,000, is aimed at expanding career pathway programs in seven to eight districts with comprehensive high schools.<sup>70</sup>

The Sussex County school district provides an example of how comprehensive high schools can meet the needs of career-focused students. In Vernon Township, 40 percent of the students were headed to a four-year college, another 40 percent to a community college, and 20 percent to the workforce.

***"We asked what are the five best jobs the kids in Vernon can get in New Jersey, and we aligned our CTE to that."***

The high school introduced six new CTE programs. In addition, district worked with the Department of Education to assure that the teachers had CTE certification through what the superintendent described as a rather complex application process. The school day was expanded to nine periods, and the district partnered with the community college which offered evening courses. As a result, students had the opportunity to

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<sup>69</sup> Janet Bamford, "Physics for All," *New Jersey School Leader*, July-August 2014, 18, New Jersey School Boards Association, accessed August 1, 2018, <https://www.njsba.org/news-publications/school-leader/julyaugust-2014-volume-45-1/physics-for-all/>.

<sup>70</sup> "Building Capacity for Career Pathways: A Pilot Program for Comprehensive High Schools-Year 3 of 5," New Jersey Department of Education, accessed August 1, 2018, <http://www.nj.gov/cgi-bin/education/grants/gropps2.pl?string=recnum&maxhits=1>.



graduate high school with associate degrees. Of Vernon Township High School's 997 students, 435 took some classes in the CTE area.

The programs consist of three-course sequences in areas such as health, construction, engineering, graphics, hospitality and marketing. The speakers highlighted the Hospitality and Management program, as well as an Allied Health program through which students may earn college credits from Rutgers in health-related fields. The later program provides a foundation for three post-secondary career pathways: pre-med; community college for nursing; or direct employment as an EMS.

The Vernon Township program suggests that, through partnerships and collaboration with government, trade unions, higher education and the business community, comprehensive high schools can meet students' CTE needs.

***"In these career programs, teachers can actually answer students who ask, 'Why do I need to learn that?'"***

### Colorado CareerWise

The NJSBA Task Force viewed a video about Colorado's innovative CareerWise program, the nation's first statewide youth apprenticeship program. Established through a public-private partnership, CareerWise provides three-year apprenticeships to students, starting in their junior year of high school and leading to industry credentials and associate degrees.

The curriculum is developed by businesses, colleges and K-12 schools. Through the program, high school juniors and seniors attend class three days a week, and work as apprentices on site for the other two days. A major goal is to help the state address the "middle skills gap" and meet the state's current and projected need to fill 40,000 technology jobs. By linking enterprises with the school district, students are armed with knowledge of the "ins and outs of finance, information technology, business operations, or advanced manufacturing." Students also learn good communication and time management skills, valuable for workplace success.<sup>71</sup>

While currently funded through federal and state business and philanthropy, the hope is that eventually industry will provide the largest investment.

The Colorado program was inspired by the apprenticeship program used successfully in Switzerland. In Switzerland, 40 percent of companies offer apprenticeships and two-thirds of young people participate in them, as a result, the nation has a 3.2 percent youth unemployment rate.

Research shows that Swiss students who take part in apprenticeships have lower unemployment and higher earnings than peers who stick to the exclusively academic track.<sup>72</sup>

<sup>71</sup> Hari Sreenivasan, PBS NewsHour, Rethinking College Series, "Colorado Apprenticeship Program Turns the Factory Floor into a Classroom," PBS, August 30, 2017, accessed June 25, 2018, <https://www.pbs.org/newshour/show/colorado-apprenticeship-program-turns-factory-floor-classroom>.

<sup>72</sup> Catherine Gewertz, "Schools and the Future of Work: Can Apprenticeships Pave the Way to a Better Economic Future," *Education Week*, September 27, 2017, accessed August 1, 2018, <https://www.edweek.org/ew/articles/2017/09/27/can-apprenticeships-pave-the-way-to-a.html>.

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*The job market of the future promises to look very different than that of today. Artificial intelligence is replacing workers in many traditional areas of employment.*

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During its deliberations, the Task Force reviewed research on the impact of artificial intelligence and other advanced technology on employment. The research is convincing; it would be reckless to ignore it.

“Robots and AI-powered digital agents already rival humans at translating languages, playing strategy games, and flipping hamburgers,” wrote Benjamin Herold in *Education Week*’s special coverage on Schools and the Future of Work. “They’ve started driving cars and diagnosing cancer. Increasingly, they’re able to learn by observing humans, rather than being programmed by us.”<sup>73</sup>

A recent report by the international accounting firm PwC suggests that 38 percent of jobs in the United States will be replaced by robots and artificial intelligence by the early 2030s. The report concludes that while robotics and artificial intelligence will disrupt and change labor markets, many new jobs will also be created. The long-term effect should be positive for the economy as a whole, provided that business and government work together to help people through the transition.<sup>74</sup>

A 2013 study, *The Future of Employment: How Susceptible Are Jobs to Computerisation?* by academicians at the University of Oxford’s Oxford Martin School and Department of Engineering Science, suggests that 47 percent of total United States employment is at risk of automation over the next two decades. According to the study, telemarketers, insurance underwriters and appraisers, tax preparers, and cashiers were among the most likely to see their jobs threatened by automation, while mental-health and substance-abuse social workers, oral surgeons, choreographers, and physicians and elementary school teachers were among those more protected.<sup>75</sup>

In an analysis based on the Oxford study, independent information designer Henrik Lindberg applied the Oxford projections to 2016 data from the U.S. Bureau of Labor Statistics to chart how many Americans currently work in a wide range of occupations, and how likely those occupations will be automated by

**47% of total United States employment is at risk of automation over the next two decades. Telemarketers, insurance underwriters and appraisers, tax preparers, and cashiers are among the most likely to see their jobs threatened by automation.**

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<sup>73</sup> Benjamin Herold, “Schools and the Future of Work: Automation and artificial intelligence are disrupting the labor market. What do K-12 educators and policymakers need to know?” September 27, 2017, *Education Week*, accessed June 22, 2018, <https://www.edweek.org/ew/articles/2017/09/27/the-future-of-work-is-uncertain-schools.html>.

<sup>74</sup> John Hawksworth, Richard Berriman and Saloni Goel, “Will robots really steal our jobs? An international analysis of the potential long term impact of automation,” February 2018, PwC, PricewaterhouseCoopers LLP, [https://www.pwc.com/hu/kiadvanyok/assets/pdf/impact\\_of\\_automation\\_on\\_jobs.pdf](https://www.pwc.com/hu/kiadvanyok/assets/pdf/impact_of_automation_on_jobs.pdf).

<sup>75</sup> Carl Benedikt Frey and Michael A. Osborne, *The Future of Employment: How Susceptible Are Jobs to Computerisation?* Oxford Martin School, University of Oxford, September 17, 2013, accessed June 22, 2018, [https://www.oxfordmartin.ox.ac.uk/downloads/academic/The\\_Future\\_of\\_Employment.pdf](https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf).

2030. Jobs most vulnerable to automation included retail sales, cashiers, bookkeepers-accountants-auditors, wait staff, fast food and counter workers, and office clerks. Among those least affected would be teachers, nurses, computer and information analysts, police, and first-line office supervisors.<sup>76</sup>

In 2017, the University of Redlands Institute for Spatial Economic Analysis (ISEA) used the Oxford study to rate the probability of automation for the 700 most common jobs, and then mapped out which metropolitan areas have a high share of those jobs and would be hit hardest by automation. The ISEA study predicts that almost all large American metropolitan areas may lose more than 55 percent of their current jobs because of automation in the next two decades.<sup>77</sup> As reported in Education Week, futurist [Martin Ford](#) sees big problems ahead. The author of *Rise of the Robots* (Basic Books, 2015), Ford notes that automation has already begun replacing assembly-line workers, warehouse stockers, and cashiers. Paralegals, radiologists, line cooks, truck drivers, insurance underwriters, travel agents, lab technicians, tax preparers, and office assistants could be next. And because artificial-intelligence systems can write their own code, many six-figure computer-science jobs could eventually be lost to technology, too.<sup>78</sup>

The jobs that seem most at risk of replacement by robotics or artificial intelligence include those in which responsibilities are defined through a step-by-step process, according to an article in *Fortune*. Also, jobs that involve physical and repetitive tasks are susceptible to automation. At least for now, there seems to be job security for those who “build and fix stuff”—like plumbers, welders, electricians, engineers and scientists.<sup>79</sup>

***At least for now, there seems to be job security for those who “build and fix stuff”—like plumbers, welders, electricians, engineers and scientists.***

One only needs to look around to see how artificial intelligence has already infiltrated our lives. Consider the numerous artificial intelligence applications (apps) that collect information when a user makes requests and then utilize that information to better recognize the user’s speech with results that are tailored to the user’s preferences. For example, Microsoft says that Cortana, its voice-controlled virtual assistant comparable to Apple’s Siri, “continually learns about its user” and that it will eventually develop the ability to anticipate users’ needs.<sup>80</sup>

<sup>76</sup> Benjamin Herold, “The Future of Work Is Uncertain, Schools Should Worry Now,” Education Week, June 20, 2018, accessed August 1, 2018, <https://www.edweek.org/ew/articles/2017/09/27/the-future-of-work-is-uncertain-schools.html>.

<sup>77</sup> “Future Job Automation to Hit Hardest in Low Wage Metropolitan Areas like Las Vegas, Orlando and Riverside-San Bernardino,” Institute for Spatial Economic Analysis, University of Redlands, School of Business, May 3, 2017, accessed August 1, 2018, <https://www.iseapublish.com/index.php/2017/05/03/future-job-automation-to-hit-hardest-in-low-wage-metropolitan-areas-like-las-vegas-orlando-and-riverside-san-bernardino/>.

<sup>78</sup> Herold, *Schools and the Future of Work* “Automation and artificial intelligence are disrupting the labor market. What do K-12 educators and policymakers need to know”.

See also:

Joe Pompeo, “Robot reporter Wordsmith begins its advance,” October 20, 2015. *Politico*, accessed June 22, 2018, <https://www.politico.com/media/story/2015/10/robot-reporter-wordsmith-begins-its-advance-004229>.

<sup>79</sup> Barb Darrow, “Here Are the Jobs Automation Will Kill next,” *Fortune*, May 20, 2015, accessed August 1, 2018, <http://fortune.com/2015/05/20/here-are-the-jobs-automation-will-kill-next/>.

<sup>80</sup> Giselle Abramovich, “5 Examples Of AI In Our Everyday Lives,” CMO.com by Adobe, January 29, 2018, accessed August 1, 2018, <https://www.cmo.com/features/articles/2018/1/22/5-examples-of-ai-in-our-everyday-lives.html#gs.Ej0OuwM>.

Predictive technology is already being used with many devices and services, not only with smart phones and virtual assistants, but also in video games, smart cars, purchase prediction for major retailers like Amazon and Target, fraud detection in credit cards, online customer support, security surveillance, music and movie recommendations services, and smart home devices.

In the area of medicine, artificial intelligence is used to review x-rays and other diagnostic results, achieving levels of accuracy that exceed those of humans. In the area of law, research and brief-writing—traditionally the domain of junior associates—is being accomplished with artificial intelligence. And media outlets like Fox, the Associated Press and Yahoo News, are using Wordsmith Technology (a natural language template engine created by Automated Insights) to write financial summaries, sports recaps and other simple, data-driven stories that were typically written by journalists.<sup>81</sup>

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*New skills will be necessary to compete in the future job market.*

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Educators and policy-makers across the country are examining how to create reforms that will make education relevant to the 21st century student. A recent article in the *American School Board Journal* references Daniel Pink, an author specializing in the workplace, management and behavioral sciences, who said that our society has entered a “conceptual age,” that is, “an era that requires creativity and innovative thought around complex problems not easily solved by linear thinking...”<sup>82</sup>

In the *ASBJ* article, author Chris Colwell, chair of the education department at Stetson University in Florida, states that efforts to “to modernize curriculum, instruction, and assessment systems” cannot succeed “as long as we attempt to implement these initiatives on top of our current 20<sup>th</sup> century teaching and learning platform. There are fundamental systems problems underlying P-12 education in 2016 that need to be resolved in order for any new solutions and innovations to truly take root.”

Colwell identifies three fundamental problems with our current system of education:

- First, our system is not modern. It is based on assumptions dating back a hundred years.
- Second, our current model does not align with what we know about learning. It is largely based on avoiding failure, which ignores that learning is based on taking risks, making mistakes and learning from failure. Much of our system is based on teaching to the test.

An analysis of what 21st century employers are looking for in terms of skill sets for their workforce center[s] around the employee’s communication skills, the ability to solve complex problems, to have a work ethic, and commitment to excellence; they look for employees with

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<sup>81</sup> Amanda Davis, “How Artificial Intelligence has Crept into our Everyday Lives,” The Institute, IEEE, June 8, 2016, accessed June 22, 2018, <http://theinstitute.ieee.org/technology-topics/artificial-intelligence/how-artificial-intelligence-has-crept-into-our-everyday-lives>.

<sup>82</sup> Chris Colwell, “Educating the Class of 2030,” *American School Board Journal*, February 2017, National School Boards Association, accessed August 2, 2018, <https://www.nsba.org/newsroom/american-school-board-journal/asbj-february-2017/educating-class-2030>, citing Daniel H. Pink, *A Whole New Mind: Moving from the Information Age to the Conceptual Age* (New York: Riverhead Books, 2005).

grit, with resilience, with tenacity ... Our “modern” design “isolates students from each other. Learning is measured as an interaction between the student and a standardized test. Working in groups is called cheating. Being active and noisy is poor classroom management. Creativity is an after-school activity.”<sup>83</sup>

- Third, our current model of assessing student learning does not align with the knowledge and skills that 21st century graduates need. Current assessments can evaluate math, vocabulary, reading, history and geography skills and knowledge. “What is not easily assessed by standardized multiple choice exams, however, is the ability of the student to demonstrate the skills that 21st century employers are looking for; the ability to solve complex problems, think critically and creatively, take risks, assess the veracity of information, and work in teams,” states Colwell.

Since the late 1980s, authors and pundits have cited variations of the following observations: “A weekday edition of today's New York Times contains more information than the average person in seventeenth-century England was likely to come across in an entire lifetime.”

In fact, in the Age of Siri and Alexa, the volume of information requires critical thinking and research skills are necessary to access, evaluate the veracity of, and use the vast amounts of information available. [The video “Did You Know? Shift Happens,” provides a perspective on the impact of the information explosion on education and the workplace.<sup>84</sup> It was produced in 2007 by Karl Fisch, technology director at a Colorado High School, and updated for 2018 by Scott McLeod, founding director of the Center for the Advanced Study of Technology Leadership in Education at the University of Colorado Denver.]

In *Education Week*'s special coverage of “Schools and The Workplace” Benjamin Herold wrote that, if the predictions of automation's impact on the job market are correct, “...today's students are going to need a new set of skills, regardless of what field they enter.

***“When the potter’s wheel was invented, potters were concerned that this advancement would put them out of work. But in fact, they either learned how to use the new technology or were trained in one of the new fields that emerged from the increased production of pots. Additional distribution needs, glaziers, packers, sales force and so forth created new and exciting jobs.”***

**– NJSBA President Dan Sinclair**  
*(recounting the words of a fellow school board member)*

Every young person entering the 2030 labor market might need a solid grounding in statistics and data science, the thinking goes. Farmers, for example, would need to make sense of torrents of data generated by sensors and drones on soil and weather conditions.

To maintain their edge, workers would also need to focus on cultivating the human qualities that robots still lack, such as creativity, empathy, and abstract thinking.

And because most jobs could constantly evolve, today's students could eventually face a make-or-break question: Can you adapt?<sup>85</sup>

<sup>83</sup> Colwell.

<sup>84</sup> Fisch Karl and Scott McLeod, "Did You Know (Officially Updated for 2018)," YouTube, September 03, 2016, accessed August 2, 2018, <https://www.youtube.com/watch?v=u06BXgWbGvA>.

<sup>85</sup> "The Future of Work Is Uncertain, Schools Should Worry Now," <https://www.edweek.org/ew/articles/2017/09/27/the-future-of-work-is-uncertain-schools.html>.

In its February 2018 report, the international accounting firm PwC recommends that government, working with employers and education providers, “should therefore invest more in the types of education and training that will be most useful to people in this increasingly automated world.”<sup>86</sup>

Given all these sobering projections, the NJSBA Task Force on Educational Opportunities for the Non-College-Bound Learner believes that it is time to look at the existing teaching and learning platform with fresh eyes. We must be willing to reinvent the way we approach preparing our students not only with the hard skill set, but also with the critical thinking, empathy, creative and collaborative problem-solving, and communication skills they will need to succeed in the emerging job market after high school.

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<sup>86</sup> Hawksworth, *et al.*, [https://www.pwc.com/hu/hu/kiadvanyok/assets/pdf/impact\\_of\\_automation\\_on\\_jobs.pdf](https://www.pwc.com/hu/hu/kiadvanyok/assets/pdf/impact_of_automation_on_jobs.pdf).



**Chapter 1:**

**Needs, attitudes, expectations—workforce, societal, parental**

*Ascertain the skills required to meet the needs of business and industry, and change the attitude toward jobs that do not require a college education.*

**CONCERN: Misperceptions and Lack of Awareness**

The education community, including parents and students, is not always aware of the post-secondary training and career opportunities available for non-college-bound students. There is also a persistent misperception that career without college is inferior to the four-year college route. Existing student assessment tools do not necessarily reflect the skills required to succeed in available jobs that do not require a college education. There is a lack of information on how best to assess whether non-college-bound students are ready for the workplace.

**RECOMMENDATIONS**

1. The New Jersey Department of Education should explore the use of new assessment tools to measure the skills necessary to succeed in available jobs. The effort should address the use of NJCAN<sup>87</sup> as an assessment support.
2. NJDOE should develop additional measures of school and student success that focus on career readiness.
3. The New Jersey Departments of Education and Labor & Workforce Development should establish a formal, standing structure to facilitate collaboration with representatives of industry, trade unions, and other entities to ensure that students recognize the array of careers available to them and the multiple pathways to those careers. These pathways include earning job-specific professional certification and two-year degrees, as well as experience in apprenticeships and internships and CTE programs at the secondary and post-secondary levels.
4. NJDOE should ensure the availability of a staff liaison to engage in dialogue with schools about meaningful career preparation.
5. Inter-agency collaboration is critical to address the issues raised by the Task Force. Therefore, the state Departments of Education and Labor & Workforce Development, along with other state agencies, should establish a formal structure to identify current programs and propose additional efforts that would support the goals of this Task Force.
6. Working with its partners in business and industry, government and higher education, the New Jersey School Boards Association should conduct programming for its members to promote consideration of, and dialogue about, the full range of career pathways available to students.

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<sup>87</sup> The New Jersey Career Assistance Navigator is an internet-based system sponsored by the NJDOE and the state Department of Labor & Workforce Development that provides information on careers, post-secondary education and financial aid. See: <https://njcis.intocareers.org/materials/portal/home.html>.

**BACKGROUND/DISCUSSION**

High school students should have a broad range of post-secondary education, training and career opportunities in addition to enrolling in a four-year college. Nonetheless, society continues to define post-secondary success as college admission. Changing this attitude will require a message from the top.

The Task Force believes that the New Jersey Department of Education has an important role to play in communicating—and emphasizing—the fact that there are many pathways to a successful career other than enrolling in a four-year college. These pathways include earning job-specific professional certification, associate degrees, apprenticeships/internships and vocational-technical programs. Efforts to promote this message should be fully funded by the state.

For example, the Department of Education and the State Board of Education should ensure that New Jersey’s Student Learning Standards, which include a section on 21st Century Life and Careers<sup>88</sup>, are placing appropriate emphasis on current and anticipated career pathways, as well as the soft skills, such as punctuality, teamwork and communication with management and co-workers, which are essential to workplace success. The NJDOE School Performance Reports<sup>89</sup>, which include data on high school students’ participation in CTE programs and structured learning experiences, as well as industry-valued credentials earned, should be organized so that statistics on post-secondary involvement in such career-focused activities is recognized as a measure of student achievement on par with college admission rates.

The NJDOE should ensure the future availability of a resource person to assist school districts in resolving questions about career-readiness and to provide ongoing dialogue about how best to prepare students for meaningful career paths.

The Task Force also believes that the Department of Education should explore new assessment tools to measure skills that are necessary to succeed in available jobs. For example, NJDOE should consider how NJCAN could be used as an assessment support. (NJCAN is the acronym for the New Jersey Career Assistance Navigator, a free on-line interactive career exploration resource, operated by the state Departments of Education and Labor & Workforce Development.)

An essential part of the New Jersey School Boards Association’s mission is to provide training and support to advance student achievement through effective school district governance. The Task Force, therefore, believes that the Association should work with business to sponsor workshops and events that promote the consideration of alternative career pathways.

The NJDOE Office of Career Readiness “is responsible for the statewide implementation of secondary and postsecondary career and technical education (CTE) programs. This includes

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<sup>88</sup> "New Jersey Student Learning Standards: 21st Century Life and Careers," New Jersey Department of Education, accessed August 2, 2018, <https://www.nj.gov/education/aps/cccs/career/>.

<sup>89</sup> "New Jersey School Performance Reports," New Jersey Department of Education, accessed August 2, 2018, <https://rc.doe.state.nj.us/PerformanceReports.aspx>.

collaboration with the state workforce development system, institutions of higher education, business and industry and other state agencies to create rigorous programs of study that are aligned to workforce needs and career pathways.”<sup>90</sup>

To encourage greater understanding of the needs of employers, available jobs and required skills, the Department of Education should ensure that discussions with the manufacturing, labor, and business communities occur regularly. The formal collaboration should include representatives from the following sectors: Retail Hospitality and Tourism; Advanced Manufacturing; Financial Services; HealthCare; Life Sciences; Technology and Entrepreneurship; Transportation; and Logistics and Distribution.

Information gathered from the various industries, with assistance and input from the state Department of Labor & Workforce Development, would inform NJDOE decisions about standards, curricula and testing. As part of these discussions, the participants should identify how additional efforts might be made across the various departments of state government to support the goals reflected in this Task Force report.

The [New Jersey Community College Consortium for Workforce & Economic Development](#) may serve as a model for such collaboration. It consortium provides businesses with skills training for current or prospective employees. Partners include the New Jersey Council of County Colleges, the New Jersey Business and Industry Association, and the New Jersey Department of Labor & Workforce Development. According to its website, the consortium also helps veterans, the unemployed and the underemployed receive the training they need to find jobs and careers with companies that need their skills.

Liaisons involving the state, local school districts, business and industry and the New Jersey School Boards Association will be a win-win for both students and employers. Industry will have a forum to advocate for policy and programming that will ensure a skilled workforce, and students will be prepared for meaningful and appropriate career paths during and after high school.

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<sup>90</sup> "Learning That Works for New Jersey: CTE," New Jersey Department of Education, accessed August 2, 2018, <https://www.nj.gov/education/cte/>.

**Chapter 2:**

**Communication and collaboration among educational and business partners**

*Strengthen communication, collaboration and support among local school districts, county vocational-technical schools, community colleges, state government and its various agencies, business and industry, and other prospective partners.*

**CONCERN: A Communications Gap and Lack of Collaboration and Support**

A communications gap, along with a lack of collaboration, exists among local boards of education, county vocational-technical schools, county and municipal government, the New Jersey Department of Education and other departments of state government, the Legislature, and the business and employment community. As a result, several factors constrain programming for the career-focused learner. These include (a) a lack of information about employers' current and future needs, (b) limited knowledge of the essential skills and content that students must master to qualify for entry-level positions in various industries, and (c) support for CTE education in all segments of the public education system.

**RECOMMENDATIONS**

7. The state should support and fund the expansion of CTE programs in all school districts, including those that operate comprehensive high schools. (There is no state funding category specifically aimed at CTE programs in comprehensive high schools. A state bond issue that will appear on the November 2018 ballot would set aside \$350 million for both school security enhancements and expansion of high school CTE programs. Funds for CTE program expansion, however, would apply only to county vocational-technical school districts. An additional \$50 million would be set aside for CTE programs in community colleges.<sup>91</sup>)
8. The state Department of Education should take a more active role in assisting local school districts in developing CTE programs. The assistance should facilitate the sharing of CTE programs among neighboring districts, thereby providing additional educational opportunities in a cost-efficient manner.
9. The New Jersey Department of Education and local school districts should study the Colorado CareerWise program<sup>92</sup>, a public-private partnership that provides three-year apprenticeships to high school students starting in junior year and leads to industry credentials and associate degrees.
10. The New Jersey School Boards Association should advocate for changes in federal law and U.S. Department of Labor regulations that limit the ability of Workforce Development Boards

<sup>91</sup> "Legislative Update: Governor Signs Vo-Tech, School Security Bond Measure; Voters to Decide its Fate," *School Board Notes*, September 5, 2018, New Jersey School Boards Association, accessed September 13, 2018, <https://www.njsba.org/news-publications/school-board-notes/september-5-2018-vol-xlii-no-6/legislative-update-governor-signs-vo-tech-school-security-bond-measure-voters-to-decide-its-fate/>.

<sup>92</sup> "Colorado's Swiss Apprenticeship Model," accessed June 25, 2018, [https://www.colorado.gov/pacific/sites/default/files/CO\\_Swiss\\_Apprenticeship\\_Model.pdf](https://www.colorado.gov/pacific/sites/default/files/CO_Swiss_Apprenticeship_Model.pdf).

and Workforce Investment Boards to use federal Workforce Innovation and Opportunity Act funds for the training of currently enrolled high school students. Upon such changes, the N.J. Department of Labor & Workforce Development should ensure that state procedures enable the use of such funds for the training of in-school youth.

11. The state Department of Labor & Workforce Development should provide preK-12 and regional school districts with a level of assistance comparable to its support of county CTE schools.
12. NJDOE should establish regional liaisons to help K-12 school districts respond to area employment needs. It should consider the use of the county roundtable structure for assistant superintendents and curriculum directors to encourage dialogue among schools and businesses about regional employment needs and the status of education programs.
13. County vocational-technical schools should actively share information with local boards of education about the needs of employers and the skills that the business community requires of its employees.
14. Local school districts should actively forge relationships and networking opportunities with business organizations and community groups to obtain information and share resources related to the labor market.
15. Parents and guidance counselors should be involved in discussions of CTE options and benefits with students as early as the 7<sup>th</sup> or 8<sup>th</sup> grade.
16. Local school districts should provide programming for all students beginning in elementary school and continuing through the middle grades and high school to raise awareness of all careers and the broad variety of career pathways. Districts should consider initiatives, such as open houses and “Career Awareness Days” with follow-up discussions, as effective introductions. Districts should provide students with additional age-appropriate opportunities, such as site visits, technology-based field trips and internships, to foster greater understanding of careers and to refine students’ potential career interests and pathways.
17. Local boards of education should forge relationships with county, municipal and state government. For example, representation by a school district on the community Industrial Development Board (or similar structures) would provide a forum for local industry to explain its skill needs for entry level employees.

### **BACKGROUND/DISCUSSION**

The education community does not always fully understand the needs of local businesses and employers. Through their established relationships with the county government, community colleges and local employers, county vocational-technical schools are prepared to understand the demands of local employers and the skills required of their employees.

Unfortunately, local school districts may not always have the same relationships and lines of communication with these entities. And many employers may not have the time and resources to develop individual relationships with all local school districts across New Jersey. Yet the information gleaned from relationships with the business community is critical in providing students with the training and skills that will enable them to succeed in the job market.



**Relationship Building**

Various stakeholders should be engaged in the process of preparing non-college-bound students for meaningful employment. These parties should include K-12 and regional high school district boards of education, county CTE districts, the business community, county and municipal government, various state departments and agencies, and the Legislature.

These parties must communicate if they are to gain an appreciation of the employment needs within the state and within a particular community. Such collaboration will provide educators with information about the particular skills that must be taught to enable students to qualify for, and thrive in, the workforce. It will also provide the business community with information about current CTE programming in both vocational-technical and comprehensive high schools.

School officials should actively forge new relationships and engage in networking opportunities to obtain information and share resources. For example, school administrators could participate in local, regional and statewide business organizations, such as the New Jersey Chamber of Commerce, the National Federation of Independent Business and the Ne

***There is a lack of information about ...the essential skills and content that students must master to qualify for entry-level positions in various industries.***

Association, as well as groups such as the Rotary Club, Kiwanis International and Lions Clubs.

Networking through these organizations can facilitate relationship-building, and it can provide information and data that schools can use to better understand employers' needs. Districts can host meetings at school facilities with selected organizations for information sharing. These networking activities can provide information about labor needs in a particular region, salaries and the potential for career growth, and employment mobility including the ease of finding employment after losing a job.

**Career Education**

The Task Force believes that career education, involving teachers, guidance counselors and parents, should begin in elementary school, continue through the middle grades and high school, and include discussion of educational options and their respective benefits. Initiatives like open houses and "Career Awareness Days" with follow-up discussions are effective introductions. Districts should also afford age-appropriate opportunities to deepen the students' understanding of what the various careers involve. These might include site visits, technology-based field trips and internships, that will enable students to refine their potential career interests and pathways.

New Jersey's Student Learning Standards (9.2, Career Awareness, Exploration and Preparation) sets benchmarks for career awareness, exploration and preparation by the conclusion of the fourth, eighth and 12<sup>th</sup> grades, respectively. Career exploration activities include the following:

- Research careers...and determine attributes of career success.
- Develop a Personalized Student Learning Plan with the assistance of an adult mentor that includes information about career areas of interest, goals and an educational plan.
- Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

- Evaluate how traditional and nontraditional careers have evolved regionally, nationally, and globally.
- Analyze labor market trends using state and federal labor market information and other resources available online.
- Demonstrate understanding of the necessary preparation and legal requirements to enter the workforce.
- Evaluate the impact of online activities and social media on employer decisions.<sup>93</sup>

### Apprenticeships

Colorado's "CareerWise", the nation's first statewide youth apprenticeship program, provides an exciting model for collaboration between school and business.<sup>94</sup> The program (discussed earlier in this report) was inspired by one that operates successfully in Switzerland, and is coordinated by a nonprofit organization.

CareerWise enables students, starting in their junior year, to obtain high school and college credit, as well as a paycheck. Its curriculum was developed jointly by businesses, colleges, and K-12 schools. The program is currently funded through federal and state business and philanthropy.

The Task Force believes strongly that similar initiatives should be replicated in New Jersey and is encouraged by Governor Phil Murphy's proposed New Jersey Apprenticeship Network, which would be developed by the state Departments of Labor & Workforce Development and Education and the Office of the Secretary of Higher Education.<sup>95</sup>

***The Task Force is encouraged  
by Governor Murphy's proposed  
New Jersey Apprenticeship  
Network.***

Appendix II, "Apprenticeships: A Key to a 'Future Ready' New Jersey," provides information about NJSBA's support for the apprenticeship concept.

### County Development/Investment Boards

The County Workforce Development/Investment Boards present another venue that could potentially assist in career awareness and training for high school students. The current role of the county Workforce Development/Investment Boards includes providing training programs that qualify participants for skilled entry-level jobs.

Members of Workforce Development/Investment Boards (WDBs or WIBs) have indicated anecdotally that they have more resources than clients. However, they are limited in using the funds to provide job training to high-school-aged students unless those students drop out of school or graduate.

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<sup>93</sup> "9.2 Career Awareness, Exploration, and Preparation," New Jersey Student Learning Standards, New Jersey Department of Education, accessed August 2, 2018, <https://www.nj.gov/education/cccs/2014/career/92.pdf>.

<sup>94</sup> Hickenlooper, "Colorado's Swiss Apprenticeship Model," [https://www.colorado.gov/pacific/sites/default/files/CO\\_Swiss\\_Apprenticeship\\_Model.pdf](https://www.colorado.gov/pacific/sites/default/files/CO_Swiss_Apprenticeship_Model.pdf).

<sup>95</sup> "Governor Phil Murphy Announces the Creation of the New Jersey Apprenticeship Network," State of New Jersey, March 29, 2018, accessed August 06, 2018, [https://nj.gov/governor/news/news/562018/approved/20180329a\\_apprenticeship.shtml](https://nj.gov/governor/news/news/562018/approved/20180329a_apprenticeship.shtml).

The federal [Workforce Innovation and Opportunity Act](#) (P.L. 113-128) and related U.S. Department of Labor regulations (20 CFR 681.410) require states and local Workforce Development Boards to spend at least 75 percent of funding on out-of-school students. The [Federal Register, Vol. 81, No. 161, Part VI](#), August 19, 2016, contains the following statement:

“...the focus in WIOA is on expending additional resources on OSY (out-of-school youth). Local WDBs do not have the authority under WIOA to determine ISY (in-school youth) and OSY expenditure rates based on the needs of their own area. Local areas must spend a minimum of 75 percent of youth funds on OSY...”

The Task Force believes that the New Jersey School Boards Association should advocate for changes in federal law and regulation to remove existing restrictions on the use of Workforce Innovation and Opportunity Act Funds for in-school youth. Upon such changes, the N.J. Department of Labor & Workforce Development should ensure that state procedures enable the use of such funds for the training of currently enrolled students.

#### Government Support

The Task Force believes that state and local government must also be partners with school districts in maintaining and expanding opportunities for the career-focused learner. It noted several activities and practices that would enable school districts to make progress toward this goal.

- School district representation on the community's Industrial Development Board (or similar local governing body structure) would provide a forum for local industry to address the skills that entry-level employees should possess.
- The state Department of Education should take a more active role in assisting local school districts that operate comprehensive high schools in developing CTE programs. The assistance should include facilitating the sharing of CTE programs among neighboring districts, which would provide additional educational opportunities for students in a budget-friendly and efficient manner.
- NJDOE should appoint liaisons to assist local school boards in understanding and responding to regional employment needs. The department should also consider the use of the county roundtable structure for assistant superintendents and curriculum directors to encourage dialogue among schools and businesses about regional employment needs and the status of education programs.
- The state Department of Labor & Workforce Development should provide information and support to local K-12 districts much as they do with the county vocational-technical schools.
- The Legislature should understand the critical need for CTE expansion in all districts, not only in the county vocational districts. For example, recent legislation authorizes a statewide bond referendum to support facility expansion in the county vocational school districts. Missing from the equation are the many school districts that operate comprehensive high schools and

***The Legislature should understand the critical need for CTE expansion in all districts, not only in the county vocational districts.***

which are struggling to provide career and technical education. Any new money from the state should be used to expand viable options for career-focused students in all school districts.

### **CONCERN: Tension between County Vocational and K-12 Districts**

Communication, collaboration and sense of “partnership” are frequently lacking between county vocational-technical schools and K-12 districts concerning the best methods to serve all students. Often, tension stems from a feeling that county and local school districts are competing against one another to retain or attract high-achieving students. There is also concern about selective admissions processes depriving students of CTE opportunities. Adversarial relationships between county vocational schools and local school districts run contrary to the overarching goal of maximizing student potential.

### **RECOMMENDATIONS**

18. Representatives of local school districts and county vocational-technical school districts should create opportunities to engage in respectful dialogue about the issues they face, and work constructively toward the advancement of student achievement.
19. Local school districts and county vocational-technical school districts should consider possible areas of collaboration, such as offering career pathways to students in other districts where such programs do not exist.
20. If a local district offers a unique career pathway, that district is encouraged to offer other districts the option to enroll tuition students in the program when seats are available.
21. Vocational-technical schools are encouraged to establish “satellite” programs in local school districts through inter-local agreements. Such CTE programs would be open to students from the host district as well as from neighboring high schools.

***Competition to attract high-achieving students can lead to an adversarial relationship between county CTE and local school districts.***

### **BACKGROUND/DISCUSSION**

The Task Force’s subcommittee on Communication and Collaboration found that a sense of “partnership” concerning how to best serve all student is lacking between county vocational-technical schools, on the one hand, and K-12 and regional high school districts, on the other, concerning how best to serve all students. Often, tension stems from a feeling that they are competing against one another to retain or attract the state’s highest-achieving students. This competition can lead to an adversarial and sometimes contentious and confrontational relationship.

#### **Sources of Tension**

The Task Force found the following concerns expressed by local school districts:

- The proliferation of the “Academy” model in the countywide systems, as opposed to the traditional skill-building or technical training model of the vocational-technical schools, has created a new dynamic and can sometimes exacerbate the tension between local and

countywide school districts. Some local districts believe that entrance criteria or selective admissions processes adopted by the county schools results in “skimming” of the sending districts’ highest academic achievers. Lower-performing students remaining in the comprehensive high school may be less likely to enroll in post-secondary education and are precisely the population that would most benefit from skills training. However, the local district may not be able to provide that training.

- Selective admissions processes can also result in a county school system’s student body not necessarily reflecting the demographics of the local districts from which it receives pupils. Whether intentional or not, this enrollment trend can result in an inequitable access for some segments of the population.
- There are financial implications for sending districts as more of their students attend county vocational-technical schools. They must pay tuition to the county districts. In addition, “[s]ending districts must also pay for students’ transportation (because county vocational districts do not receive state transportation aid)—meaning the local district loses a student and the associated state aid *and* must cover the costs of busing the student to the county school.”<sup>96</sup>

Conversely, the countywide districts have their own sources of contention with local districts.

- They occasionally experience resistance from sending districts when they recruit students into their schools. This resistance can lead to a lack of awareness of the county vocational-technical option among students and parents. In fact, a recent report noted that some county district officials believe that local districts “have been known to discourage their students from applying to the county schools” and that some consider local district efforts to create CTE programs as a “strategy to undermine their schools.”<sup>97</sup>
- Because of the growing attractiveness of their academies to state’s highest achievers, vocational-technical school districts can sometimes be demonized or made to feel like they are “poachers,” rather than being portrayed as a viable alternative educational path that is in the best interests of many students.

***Alleviating the tension that exists between some local school districts and the state’s 21 county vocational-technical school districts requires collective recognition that neither the local nor county model is going away any time soon.***

Task Force members believe that alleviating the tension that exists between some local school districts and the state’s 21 county vocational-technical school districts requires collective recognition that neither the local nor county model is going away any time soon. With the acceptance of that reality, leaders should set a course in which both types of districts work independently and collaboratively to ensure they are providing all students with opportunities to maximize their academic potential.

<sup>96</sup> Smarick, “The Evolving High School CTE, 20.

<sup>97</sup> Smarick, 21.



Common Goal and Understanding

Therefore, representatives of both entities should create opportunities to “sit down and talk to one another” in a respectful manner, with the goal of reaching a common understanding of the issues that concern each respective entity, and leading to continued conversations on the best way to work collaboratively toward advancing student achievement.

In a recent opinion article, Michael C. Dicken, superintendent of the Gloucester County Institute of Technology and Special Services School District, commented that the ultimate goal should be meeting the needs of all students. The president-elect of the New Jersey Council of County Vocational-Technical Schools, Dicken addressed the cost-effectiveness of county-wide CTE programs, but also stressed the need for a better relationship between local school districts and county vocational schools.

It is also time to change the conversation about CTE from a focus on cost and conflict between school districts to an emphasis on expanding opportunities for students. All schools and colleges have a role to play in preparing students for career success.

The bottom line is that employers need graduates with technical and scientific skills, strong academic preparation and work-readiness skills. And young people need to be shown clear pathways to success. They need help identifying career goals and accessing education and training.

With improved communication and a collaborative mindset, county and local school districts can work together to address the needs of all students in a cost-effective way.<sup>98</sup>

The Task Force believes that local districts and county vocational districts, with support from the New Jersey Department of Education and NJSBA, should identify areas where they can share and collaborate. Through these conversations, K-12 school districts should learn how best to leverage the expertise of the county schools when developing their own programs. County vocational programs should consider lotteries for admission, locating programs where underrepresented populations live, and intensive outreach to parents. They should also give serious thought to sharing resources, expertise and space. Local districts and county vocational districts should discuss how the vocational district might assist in filling the needs of students remaining in the comprehensive high school.

***Effective communication  
can lead to productive  
partnerships that benefit  
students from both county  
and local school districts.***

Given the ill-will that may exist in some counties between local and county vocational districts, there may be reluctance in starting the conversation. But effective communication can lead to productive partnerships that benefit students from both county and local school districts. By coming together and sharing concerns, ideas and resources, they may discover ways to help and work with one another. In and of itself, simply initiating the conversation may ease any tension that interferes with collaboration.

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<sup>98</sup> Michael C. Dicken, "County Career-tech Programs More Cost-effective than Local Ones," The Press of Atlantic City, February 9, 2018, accessed June 22, 2018, [http://www.pressofatlanticcity.com/opinion/commentary/county-career-tech-programs-more-cost-effective-than-local-ones/article\\_53fa4ab9-0dd3-5fc1-8eaa-e53f25097ce3.html](http://www.pressofatlanticcity.com/opinion/commentary/county-career-tech-programs-more-cost-effective-than-local-ones/article_53fa4ab9-0dd3-5fc1-8eaa-e53f25097ce3.html).

Multiple Campuses

Some county vocational-technical school districts operate CTE programs at multiple locations. These “satellite” programs provide selected career pathways and are located closer to a student’s home district. The Task Force believes that vocational-technical schools should consider situating additional programs in K-12 local districts under inter-local agreements and opening the programs to students from neighboring high schools.

Model Practices

While there are pockets of friction between local and county school districts in some areas, there are also examples of practices that could serve as models for collaborative and complementary relationships.

The Morris County Vocational School District has made a conscious effort to forge a positive working relationship with the local districts. A “Key Communicator Group” has been created to facilitate communication between various stakeholders, including members of the local boards of education, superintendents, administrators, faculty and parents.

This forum builds a sense of shared responsibility for the educational well-being all of all students in the county.

***There are examples of practices that could serve as models for collaborative and complementary relationships.***

Morris County does not appear to experience tension between the vocational-technical and local school districts. Attendance at open houses where prospective students and their families learn about CTE programs are at or near capacity. Entrance criteria result in attendance by the highest performing students from the local high schools. However, the Vo-Tech’s Academy students take courses with traditional students; the schedules are coordinated and all the trade programs are on campus. Most high schools in the county do not offer vocational training, avoiding any sense of competition with the county vocational school. Also, the schools have put in place a Memorandum of Agreement whereby the vocational school will pay back the local district for vocational students taking courses in local district schools.

Partnership models like this have been funded through the County Vocational School District Partnership Grant.<sup>99</sup> That program, while limited, provides a model of collaboration among county vocational school districts and other school districts, business and industry groups, community colleges and other entities to expand access and opportunities in CTE.

Appendix III, an article posted by the NJCCVTS, “County Vocational-Technical School Partnership Grants: Expanding CTE Programs and Partnerships to Meet Student and Employer Demands,” provides examples of collaborative programs funded through the partnerships grants. A list of the partner schools and CTE programs is in Appendix IV.

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<sup>99</sup> Notice of Grant Opportunity, County Vocational School District Partnership Grant, Cohort 4, November 2017, New Jersey Department of Education, accessed August 6, 2018, <http://www.state.nj.us/education/grants/docs/18-ve04-g06.doc>.

**CONCERN: Impact on School Performance Reports and Access to Opportunity**

The Department of Education's [School Performance Reports](#) take into account college admission rates, college preparation activities and test scores. The reports provide an inaccurate image of overall school district performance when large numbers of the highest achieving students opt to attend academies operated by the county vocational-technical school districts.

**RECOMMENDATIONS**

- 22.** County vocational-technical schools should structure their admissions processes to create more options for students across the achievement spectrum.
- 23.** The New Jersey Department of Education should develop additional measures of school and student success that place more emphasis on “career readiness” as opposed to “college readiness.”
- 24.** NJDOE should revise or weight its performance measurement system in a way that does not penalize a comprehensive high school for the loss of its highest achievers to county vocational-technical schools. The departure of high-achieving students creates a perception about the quality of the district, which may be misleading or completely inaccurate.

**BACKGROUND/DISCUSSION:**

As noted earlier, a source of contention between school districts that operate comprehensive high schools and the county vocational districts, particularly with the proliferation of the “academy” model, is a sense that the county districts attract the highest-performing students to their schools. This can build resentment among the sending districts toward the county vocational school. In addition, selective admissions processes can create a school demographic that does not reflect countywide enrollment and can result in an inequitable access for some segments of the population.

A May 2017 *Education Week* article focused on the challenge. "As CTE programs get tougher, and demand builds, schools must decide who gets in and who doesn't. When those decisions are based on academic skill—[and] students must have good grades and pass a test to get in—[those] who've had less opportunity can find themselves at a distinct disadvantage."<sup>100</sup>

***It is in the interests of all students for vocational-technical schools to create more options for students across the achievement spectrum.***

The Task Force believes that selective admissions processes adopted by many of the county vocational-technical school districts has the unfortunate effect of depriving students of the rich opportunities offered by the county CTE programs. Selective processes tend to exclude students who do not aspire to post-secondary education and can create inequities in access. It is in the interests of all students for vocational-technical schools to structure their admissions processes to be less selective in order to create more options for students across the achievement spectrum.

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<sup>100</sup> Catherine Gewertz, "Can a Career Tech Ed. School Be Too Popular?" *Education Week*, June 20, 2018, Editorial Projects in Education, accessed August 06, 2018, <https://www.edweek.org/ew/articles/2017/05/17/can-a-career-tech-ed-school-be.html>.

Local school districts are also concerned that this trend has an adverse impact on their performance as measured by the New Jersey Department of Education.

The state's School Performance Reports include indicators of "College and Career Readiness." This section illustrates measures of student behavior that correlate with greater success in college, including:

- Performance on standardized test (i.e., PARCC);
- Percentage of graduates who enrolled in college in the fall of 2017 and the percentages of graduates who were enrolled in 2-year and 4-year colleges;
- Percentage of students taking rigorous coursework in high schools, such as AP or IB classes;
- Participation and performance on college entrance exams (PSAT, SAT, ACT), including a measure of those who score at or above College Readiness Benchmarks for each test.<sup>101</sup>

There is also a "Graduation and Postsecondary" section in the School Performance Report, which shows graduation rates, dropout rates, and postsecondary enrollment rates. This information indicates how many students finish high school and move on to a college or university.

However, the reports have begun including indicators aimed at measuring students' "career" readiness. For example, the reports include the percentage of students enrolled in approved career and technical (CTE) programs. They include a measurement of student participation in structured learning experiences (SLEs), and report data on students who earn "industry-valued credentials."

Nonetheless, with its emphasis on academic test scores, participation in college preparatory activities and college enrollment, the current performance reporting system may not be in the best interests of students. It incentivizes school districts to focus on indicators, data points and scores, rather than concentrating on the appropriate pathway for each individual student. It encourages "teaching to the test." It is not responsive to the need to prepare students for careers that have yet to be identified; to the increasing replacement of humans by robots and artificial intelligence; or to the fact that many careers do not and will not require a four-year degree. There is a growing recognition among employers that earning professional certificates is a career pathway across industries.

***With its emphasis on academic test scores, participation in college preparatory activities and college enrollment, the state's current school performance reporting system, may not be in the best interests of students.***

When college-bound and high-achieving students attend the county vocational academies, it changes the proportion of academically oriented students remaining in the comprehensive high school. This may create a misleading and inaccurate perception about the quality of a district. In such a case, the School Performance Report may fail to adequately reflect the success of a district in preparing students to enter the workforce and in assisting them in finding the best career paths and direction.

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<sup>101</sup> "Performance Reports - Reference Guide," New Jersey Department of Education, accessed August 6, 2018, <https://rc.doe.state.nj.us/Documents/ReferenceGuide.html>.

To reflect the success of schools with varying populations, the School Performance Reports should be revised so that they do not penalize school districts in which a large number of high-achieving students opt to attend academies operated by county vocational school districts. The state Department of Education should develop additional measures of school and student success. It should build upon some of the changes that have been made to the School Performance Reports in recent years, which place more emphasis on “career readiness” as opposed to college readiness.

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**CONCERN: Lack of Information about Military Opportunities**

Many students are not aware of the post-secondary education and career opportunities offered by the military, and are sometimes dissuaded from considering this option.

**RECOMMENDATIONS**

25. School districts should educate students and parents about the opportunities that the military can offer with respect to post-secondary education and career training and about requirements for enlistment.
26. School districts should actively confront the stigma associated with the military that may dissuade parents and students from considering this option.
27. School districts should establish a “Military Opportunities Day” as part of their efforts to prepare students for their post-secondary pathways.

**BACKGROUND/DISCUSSION**

Entering the military is an additional career pathway that some non-college-bound students may want to consider. Many probably do not know about the post-secondary opportunities that the military can offer in terms of training for various careers. For example, they may not be aware that most of the U.S. Army’s career paths are non-combat. In addition, they may not know about the financial support that the military provides to qualified students. Others are deterred from considering this option because of misconceptions about military service.

While not easy to get into the military, it is a viable post-high school option for the student who is not ready for college.

Leadership for Educational Excellence (LEE)<sup>102</sup>, a coalition of the state’s major educational organizations, has joined with the New Jersey Department of Education, the Office of the Lieutenant Governor, the U.S. Army, America’s Navy, the United States Marine Corps, the U.S. Air Force and the Army National Guard in encouraging public schools to institute a “Military Opportunities Day” between September and November. During Military Opportunities Day, high school juniors and seniors could receive information about the educational and career opportunities available through the various branches of the military.

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<sup>102</sup> Leadership for Educational Excellence includes the New Jersey School Boards Association, the New Jersey Association of School Administrators, the New Jersey Education Association, the New Jersey Principals and Supervisors Association, the New Jersey Association of School Business Officials, and the New Jersey PTA.



In a letter urging school districts to schedule a Military Opportunities Day, the LEE Group noted that the U.S. Military is the largest provider of post-secondary scholarships in the world; it offers educational and career opportunities in the growing STEM fields, and it has a strategic interest in improving student academic achievement.

Military Opportunities Day can be an integral part of a school's annual effort to help juniors and seniors prepare for a post-secondary pathway: work, college, or the military. Activities can include presentations to students by each branch of service, evening seminars geared toward parents on the education and career opportunities available to their children through military service, the scheduling of career exploration workshops, and information on "March2Success," a preparation course for the Armed Services Vocational Aptitude Battery Test, the SAT, the ACT and other standardized tests.<sup>103</sup>

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**CONCERN: Overlooking the Faith-Based Community**

School districts may overlook the role that the faith-based community can play in program development.

**RECOMMENDATION**

- 28.** School districts should consider consulting faith-based communities when developing CTE programming. These communities can provide a point of access for employers to engage with students who are preparing to enter the workforce.

**BACKGROUND/DISCUSSION**

An underutilized resource in school districts is the faith-based community. Whether the matter concerns the social-emotional needs of students or developing school-community partnerships to assist students as they plan for their futures, engaging spiritual leaders can be critical. Many towns have interfaith councils, which can provide natural forums for collaboration on a variety of topics. Since faith-based institutions understand the needs and characteristics of a community, they can provide insight for educators in developing specific programs.

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**CONCERN: Is Higher Education the Best Preparation for Every Student?**

School districts may not be questioning whether and how higher education prepares an individual student to succeed in the workforce.

**RECOMMENDATION**

- 29.** Local school districts should provide appropriate career awareness guidance to students who are contemplating post-secondary education with honest conversations about college-readiness and the availability of other pathways.

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<sup>103</sup> Lawrence S. Feinsod, Ed.D., *et al.*, Military Opportunities Day – 2017, Letter of Support, August 2017, Leadership for Educational Excellence, accessed August 6, 2018, <https://www.njsba.org/wp-content/uploads/2017/08/Military-Opportunities-Day-Letter-of-Support-2017.pdf>.

## **BACKGROUND/DISCUSSION**

While higher education plays an important role in preparing students for the workforce, a four-year institution is not for everyone. Colleges are accepting many students who may not be ready for college-level coursework. Some of these students eventually drop out, and some require remedial courses.

Additionally, as referenced elsewhere in this report, many students who attend college accumulate debt.

For some students, a four-year institution may eventually be a "good fit," but not right after high school. A student who is uncertain about his or her direction may benefit from a "gap year" before college. Some may wish to attend community colleges, which in recent years have increased their focus on vocational training, rather than simply being providers of remedial courses or stepping stones to four-year colleges.

For other students, there are pathways to the workforce other than higher education. Students need guidance about the variety of pathways to careers that include entering the workforce directly upon high school graduation or completing a post-secondary path that results in a professional certificate or a two- or four-year degree. Ultimately, what is critical is that each student be provided information about the available options and be apprised of the realistic predictions for employment and success along any career path.

The education community does a disservice to students if it does not expose them to multiple pathways. School districts must review the career-awareness guidance programs they offer in both middle and high schools.

The guidance provided by schools should be informed by the predictions of experts and researchers who have studied employment and job market trends. The guidance that schools provide to students should include discussion about the future workforce, including predictions about which employment positions are likely to evaporate, and which are emerging.

The impact of globalization and artificial intelligence is having a significant impact on the career choices of current and future PreK-20 students. Artificial intelligence, technology and robotics are increasingly replacing humans for jobs that can be accomplished through a defined step-by-step process. Concurrently, there are employment needs in many of the traditional trades like welding, electrical and plumbing.

Among the greatest concerns is the large number of students who plan to enter the workforce directly after graduation. Without a skill or a plan to acquire one, these students will earn the minimum wage.

Considering the above factors, schools must engage with students at an early stage, so that the student can follow a program that will allow him or her to achieve skills to qualify in a career that is financially viable and personally rewarding.

In sum, higher education may play a role in preparing students, but we should dispense with the presumption that students must earn the traditional four-year degree. Schools should provide students who are contemplating post-secondary education with appropriate guidance on multiple pathways and the various programs and classes available. They should engage students in honest conversations about college-readiness, the likely costs of various levels and types of higher education, the well-paying jobs that are available now and predictably in the future, the types of skills that are required for those jobs, and prospects for employment.

**Chapter 3**

**Curriculum and school-based programs**

*Revisit curricula and programs so that they reflect economic realities, expose all students to the full array of post-secondary opportunities and prepare them for careers.*

**CONCERN: Meeting the Curricular and Programming Needs of All Students**

Given the diverse student population and the broad range of existing and emerging career opportunities, school districts face significant challenges in meeting the curricular and programmatic needs of all students.

**RECOMMENDATIONS**

30. As they consider a replacement for PARCC as the state’s assessment program, the New Jersey Department of Education and State Board of Education should explore a variety of alternative methods to determine student progress toward state learning standards. These alternatives may include the SAT, the ACT, the Armed Services Vocational Aptitude Battery, licensing/certification tests, and admission to apprenticeship programs.
31. School districts should provide exposure to various post-secondary opportunities through community-based instruction, job shadowing, internships, college visits, and apprenticeships. These efforts should focus on the career opportunities that will exist when students graduate, which will be affected by artificial intelligence, robotics and automation.
32. School districts should ensure that the curriculum provides all students with instruction in the “soft skills,” such as punctuality and teamwork, that are necessary for workplace success, as well as experience with asynchronous web-based courses.
33. School districts should educate parents and students about the cost and return on investment for all post-secondary opportunities, as well as methods to reduce the expense.
34. Students should be able to benefit from a dual-enrollment system that would allow them to graduate from high school with (a) certification that qualifies them for entry-level employment in certain fields and/or (b) a two-year associate’s degree or significant credit toward that degree.
35. School districts should evaluate the choice of courses offered to students and the sequence in which they are provided. For example, the “biology-chemistry-physics” sequence is based on alphabetical order of the subject areas, not a pedagogical rationale. A revaluation is especially critical in subjects related to engineering and science, areas that have experienced substantial growth.
36. Students should be made aware of all post-secondary options including military careers, post-secondary certification opportunities, non-traditional academic settings, as well as traditional two- and four-year degree programs.

- 37.** School districts should assist students in determining the economic sustainability of various career paths so that they are well-informed when faced with career choices.
- 38.** School districts should offer access and preparation for a student's preferred career regardless of the student's current placement or socioeconomic status.
- 39.** Local districts should consider developing short- and long-term strategic plans to revise curricula and course offerings at all grade levels, along with accompanying short- and long-term funding for those programs.

### **BACKGROUND/DISCUSSION**

Public school districts must embrace the reality that there are many career opportunities for students—traditional careers, new technology-driven careers and, as yet, undefined emerging careers—all with multiple pathways to success. Similarly, the programmatic needs of each student vary greatly, depending on the career path that student chooses.

The Task Force finds that career success is dependent on how well school districts meet the programmatic needs of each student—whether the student has an individualized education program (IEP), is enrolled in an advanced placement class, is bound for a community college, a four-year college or an apprenticeship program, is technologically oriented, an entrepreneur, an artist, a musician, etc. The list is as diverse as our students, and so are the challenges.

The recommendations in this chapter were developed following discussion of the following issues:

- *Measures of School Success: Do they provide for a measurable proficiency in mathematics and literacy?*

Governor Murphy has announced that the state's current standardized testing instrument, PARCC, will be replaced, and the Commissioner of Education is facilitating a process to gather input regarding the parameters for a new state testing program. The Task Force referenced some of the many tests currently administered to students. Depending on a student's pathway, some of these alternative testing instruments could serve to establish graduation standards for certain students. Therefore, in conjunction with its review of PARCC, the Department of Education should consider whether and how the following tests might serve to establish graduation standards:

- SAT, ACT, Armed Services Vocational Aptitude Battery (ASVAB).
- Licensing/Certification Tests
- Admission to apprenticeship program
- Alternative testing as it exists today
- Meeting IEP goals
- Local choice/autonomy
- Outcome-based tests

- *Measures of Student Readiness to Graduate: Does the local school district offer access to a variety of robust programs/pathways that ensure that graduates are career-ready or college-ready?*

Each school district must examine course offerings in grades 7-12. While schools are generally preparing students to be college-ready, efforts vary greatly with regard to career readiness.

The Task Force believes that dual enrollment should be available to all high school students, enabling them to graduate with an entry-level certificate for employment in a trade, along with flexible pathways to continue advancing in that chosen career. Alternatively, they should graduate high school with a two-year (associate) degree or with significant coursework completed towards that degree.<sup>104</sup>

Additionally, for both college-bound and career-focused students, we must reconsider the courses we offer and the reasons we offer them. For example, rather than offer instruction in the sciences in alphabetical order (i.e., biology, chemistry, physics), there should be a pedagogical rationale for the timing and sequence of these courses. For a decade there has been a national movement to teach “physics first” in the sequence of high school sciences; especially an Algebra I-based physics program.<sup>105</sup>

The methods used to deliver instruction should expand and enable students to acquire employment traits considered important in this century. High school students should have experiences with asynchronous web-based courses, work in collaborative teams, have opportunities to “tell a story” or communicate, and become aware of their empathetic feelings.<sup>106</sup>

- *Opportunities to Examine Careers: Do districts provide students the opportunity to examine a variety of careers and the multiple paths to success within these careers? What are the roles of vocational-technical high schools and community colleges?*

Explorative opportunities are rarely imbedded within structured curricula. Guidance counselors often use Naviance, a college and career platform, to help students explore their interests and develop a course of study that matches their career goals. The subcommittee believes that school districts should go beyond this and provide a realistic view of the employment experience. They should actually expose students to various career opportunities and academic settings through job shadowing, community-based instruction, internships, college visits and fairs, and apprenticeships.

As noted earlier in this report, Colorado has implemented the nation’s first statewide youth apprenticeship program, CareerWise. Under the program, junior and senior students attend school three days a week, and work as apprentices on site two days a week. Like New Jersey, Colorado faces a huge gap of unfilled “middle skills” jobs. By linking the businesses with the

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<sup>104</sup> Jennifer Dounay Zinth, "CTE Dual Enrollment: A Strategy for College Completion and Workforce Investment," Education Commission of the States, March 2014, accessed September 4, 2018, <https://www.ecs.org/clearinghouse/01/11/50/11150.pdf>.

<sup>105</sup> Bamford, “Physics for All,” *New Jersey School Leader*, <https://www.njsba.org/news-publications/school-leader/julyaugust-2014-volume-45-1/physics-for-all/>.

<sup>106</sup> Dan Schawbel, “Geoff Colvin: Why Humans Will Triumph Over Machines,” *Forbes*, August 4, 2015, accessed June 26, 2018, <https://www.forbes.com/sites/danschawbel/2015/08/04/geoff-colvin-why-humans-will-triumph-over-machines/#6a2dd6322b54>.



school district, students gain “practical learning experience to augment the classroom in fields such as healthcare, business operations, information technology, advanced manufacturing and financial services.”<sup>107</sup> Students also learn many of the softer workplace skills like good communication and time management. The State of New Jersey, as well as local school districts, should study this program as it may inform apprenticeship programs on a local and statewide basis.

Career exploration should be embedded in the curricula as well as the focus of specific courses from P-12. For example, the study of community helpers in the primary grades is also an introduction to careers (police, fire, store keepers, doctors, etc.). Efforts should be made by teachers and facilitated by administrators to make connections between all content (academic, the arts, technology, etc.) and the careers that emphasize that content.

While there are many unfilled jobs in multiple lucrative fields, many high school graduates do not qualify to fill those positions due to lack of certification and training. Students are not aware of employer needs and opportunities. School districts should expose students to the broad range of workplaces including military careers, post-secondary certification opportunities and non-traditional academic settings. Districts should conduct comprehensive assessments of the career exploration programs they provide at all levels (P-12) to ensure that students receive the background career information to make informed potential career choices. In addition, school districts should provide programming and curricula that are responsive to employer needs in the student’s particular, and informed, career choice.

- *Post-Secondary Education: Are students and parents knowledgeable about the cost of college, the potential debt burden, and how to mitigate it?*

Many students leave high school well-prepared to attend a four-year college where, upon completion, they attain an advanced degree that prepares them for the career of their dreams. There are students who, once employed, earn enough to pay off the loans that financed their education. We should all celebrate their accomplishments, identify the opportunities and supports that were provided to these students, and then use their successes as a learning experience to inform what needs to be in place for this type of achievement.

Unfortunately, not every student experiences a similar outcome. Many graduate high school without a realistic vision of the career opportunities available to them. They may be directed towards a four-year college and graduate with significant debt. Some find no job, or only jobs for which they are deemed undertrained despite their expensive education, or jobs that do not pay enough to cover the loan payments.

To reduce the probability of this all-too-frequent scenario, school districts should provide early and frequent education for parents and students regarding the cost and return on investment of a four-year college education. They should provide information to assist parents in analyzing the availability and economic sustainability of the desired career path. We do not educate parents early enough about life options for students. This creates

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<sup>107</sup> “About: CareerWise connects education and industry to benefit students and businesses,” CareerWise Colorado, accessed August 6, 2018, <https://www.careerwisecolorado.org/about/>.

unrealistic expectations on the part of some parents, or no expectations at all. Educating parents about the various career paths is in everyone's best interest. Likely sources of information about options for students include the workforce, the vocational-technical schools, career and technical programs in the district, and elective classes such as home economics or shops.

School districts should also provide information to parents and students on possible avenues to reducing the cost of a college degree. Some students might obtain college credits while in high school through the following options, among others:

- Advanced Placement and International Baccalaureate (AP/IB) programs;
- Dual-credit programs (which in effect enroll students in college courses at a low cost while they are still in high school, allowing them to earn credit for both);
- Academy programs;
- Two-year associate's degrees, with guaranteed credit transfer to a four-year college, and
- Military service.

- *Access for All: Does the curricula provide instruction for all students on the “soft skills” necessary for workplace success?*

The members believe that curricula should ensure that all students have structured, inclusive instruction in the soft skills necessary for workplace success. School districts should offer access and preparation for a student's preferred career regardless of the student's current placement or socioeconomic status.

There are various student populations—some largely overlooked by current curricula—that can benefit from career education. These populations include those students who are at risk because they are on probation from the corrections system, who are incarcerated, who are returning from rehabilitation or other judicial programs, and those who are on the verge of dropping out and have been directed to remain in school.

Accordingly, the curricular needs of this diverse population of students is varied, and might encompass the acquisition of soft skills like team work and punctuality on the job as well as other life skills. They might best benefit from project-based preparation, outcome-based preparation and internships. Local districts should consider developing short- and long-term strategic plans to revise curricula and course offerings at all grade levels with accompanying short- and long-term funding for those programs.

In order to offer these students an effective curriculum, school districts should explore opportunities for apprenticeship programs, making connections with community colleges, county vocational-technical schools, trades and their unions, large corporations and other local businesses, government agencies, and existing training programs. Internship opportunities might include work experience, senior service projects, volunteer programs, distributive education programs, cooperative industrial education (C.I.E.), work study, and education projects.

**Chapter 4**

**Teacher Preparedness and Certification**

*Revise preparation and certification requirements to resolve a shortage of teachers in the STEM/STEAM and Makerspace areas.*

**CONCERN: Difficulty in Recruiting CTE Teachers and the Process for CTE Endorsement**

Comprehensive high schools have difficulty building CTE programs because of difficulty in attracting appropriately certificated staff. Administrative regulations addressing certification for the CTE endorsement are overly prescriptive and many provisions are unclear, causing an adverse impact on hiring.

**RECOMMENDATIONS**

- 40.** The New Jersey Department of Education and the State Board of Education should clarify CTE teacher certification and preparation requirements that contain conflicting and ambiguous provisions involving required levels of education and the substitution of work experience for a college degree.
- 41.** NJDOE and the State Board of Education should consider revisions to alternate-route-to-certification qualifications to encourage more skilled individuals to become licensed to teach CTE programs.
- 42.** The state Department of Education should relax teacher certification standards in vocational instructional areas to allow credit for years of working experience.
- 43.** NJDOE should collaborate with employers and labor organizations when revising requirements for the CTE endorsement.
- 44.** NJDOE and the State Board of Education should create a new certification category, or amend existing requirements, to enable non-CTE teachers to instruct in the STEM/STEAM (science, technology, engineering, the arts and mathematics) and Makerspace<sup>108</sup> learning areas. There is a shortage of teachers in these content areas, which stress problem-solving and practical application.
- 45.** The state Department of Education should collaborate with NJSBA, the New Jersey Technology and Engineering Educators Association, university partners, NJEA and other organizations to create the framework for a short course for Integrative STEM/STEAM and Makerspace courses.
- 46.** The state Department of Education should create a shorter training program (6-12 months) for teachers so that they can obtain a certificate to teach STEM and STEAM courses that include design-based pedagogy and manufacturing components.

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<sup>108</sup> For information on Makerspaces in education, see: "The 'Maker Mindset' and How It Can Transform Schools" by Marc Natanagara, *New Jersey School Leader*, March 30, 2017, 15, New Jersey School Boards Association, accessed July 30, 2018, <https://www.njsba.org/news-publications/school-leader/march-april-2017-volume-47-5/maker-mindset-can-transform-schools/>.

47. The state Legislature and the State Board of Education should identify and revise statutes and regulations, respectively, that unduly impinge on the ability of school districts to deliver necessary services to students pursuing post-secondary employment opportunities.
48. School districts should identify and publicize issues that they face in hiring and retaining appropriately certified staff to provide required instruction to students who are pursuing post-secondary employment opportunities.

### **BACKGROUND/DISCUSSION**

CTE is the only teaching area that is focused on the applied learning of skills with a blending of theoretical learning. These skills mirror workplace situations, responsibility and leadership.

School districts statewide are experiencing difficulty attracting certified, competent staff to provide instruction to non-college bound learners due to obstacles created by overly prescriptive regulations. Certification requirements should be revised to allow districts to meet the instructional needs of non-college bound learners to ensure that they have the skills necessary to enter the workplace upon graduation from high school.

New Jersey has an alternate route to certification. The state should also consider an endorsement process for CTE, similar to the one created by the Center for Teaching and Learning to increase the number of teachers qualified to teach physics. The program, sanctioned by the NJDOE, has helped to alleviate a shortage of physics teachers.<sup>109</sup>

#### **STEM/STEAM**

In addition, there is a shortage of teachers in the areas of STEM/STEAM and Makerspace learning areas. Existing certification requirements prevent or make it difficult for non-CTE teachers to obtain certification to teach STEM/STEAM content areas. The Department of Education should consider creating a new certification or loosening the existing requirements for regular education teachers to obtain a certification in STEM/STEAM and Makerspace learning areas. This would help increase the number of students who could participate in design-based classes that target workplace readiness skills.

The Department of Education should also investigate the creation of a framework for a short course for teaching Integrative STEM/STEAM and Makerspace courses, with collaboration by partners such as NJSBA, NJTEEA, NJEA, colleges and universities, and other organizations. In addition, NJDOE should investigate creating a certification fast-track pathway of one year that will enable teachers to earn a certificate to teach STEAM/STEM courses that include design-based pedagogy and manufacturing components.

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<sup>109</sup> Bamford, "Physics for All," <https://www.njsba.org/news-publications/school-leader/julyaugust-2014-volume-45-1/physics-for-all/>.

The Task Force also discussed the need for clarification on matters such as what should be required to teach STEM/STEAM in a hands-on style in settings outside of CTE. Many of the skills taught in CTE programs—for example, electricity, carpentry, plumbing and computer repair—would benefit students throughout their lives, regardless of their career plans.

### Ambiguity

The existing administrative regulations that govern the CTE endorsement are contained in *N.J.A.C. 6A:9B*. (See “Administrative Code Overview” at the end of this chapter.) The career and technical education (CTE) endorsement authorizes the holder to teach approved career and technical education programs in grades nine through 12 in all public schools. The holder of a standard CTE endorsement who has completed the study requirements in *N.J.A.C. 6A:9B-14.19(b)2i* and *ii*, or *14.20(b)2i* or *ii*, is also authorized to place and supervise career and technical education students in school-sponsored cooperative education experiences in the occupation in which the holder is certified as part of a career and technical education program.

An applicant for the instructional certificate with a CTE endorsement must successfully navigate a host of requirements. For example, the candidate must obtain a certificate of eligibility, a provisional certificate, become eligible for a renewal provisional certificate, and obtain a certificate of eligibility with advanced standing (CEAS). Some of the provisions pertaining to these certificates impede otherwise qualified candidates from obtaining the endorsement.

The Task Force was able to identify some of the provisions that appear overly restrictive or ambiguous and exacerbate the shortage of CTE teachers. Additional comprehensive review of these regulations is warranted.

Below are examples of provisions that are overly restrictive or ambiguous.

- Under *N.J.A.C. 6A:9B-11.3* (“Career and Technical Education”), to obtain an instructional certificate with a CTE endorsement, a candidate must, among a multitude of other requirements, complete requirements for certificates of eligibility with advanced standing (CEAS) pursuant to *N.J.A.C. 6A:9B-8.2*. One of the requirements listed under this section is that the candidates must “hold a bachelor’s or an advanced degree from a regionally accredited college or university.” However, another provision, *N.J.A.C. 6A:9B-5.8*, “Minimum degree and age requirement,” states the following: “(t)he requirement of a baccalaureate degree *shall not apply to applicants for career and technical education endorsements* as set forth in *N.J.A.C. 6A:9B-11.3 ...*” (emphasis added).

When read together, these regulations are inconsistent and ambiguous: One section requires applicants to hold a bachelor’s or advanced degree; the other does not.

- In addition, the NJDOE may wish to review the wording of the following regulation to clarify its intent:

#### ***N.J.A.C. 6A:9B-5.8 Minimum degree and age requirement***

Applicants for teaching certificates shall be at least 18 years old, have graduated from an

approved high school or have an equivalent education as determined by the Board of Examiners, and have received a baccalaureate degree from a regionally accredited higher education institution. *The requirement of a baccalaureate degree shall not apply to applicants for career and technical education endorsements as set forth in N.J.A.C. 6A:9B-11.3, for educational interpreter endorsements as set forth in N.J.A.C. 6A:9B-14.18, or for military science endorsements as set forth in N.J.A.C. 6A:9B-11.8. (emphasis added)*

- *N.J.A.C. 6A:9B-11.3(b)(1)* allows a candidate/applicant for the CTE endorsement to substitute work experience in place of a baccalaureate degree. One element for qualification is that the candidate must demonstrate 8,000 hours of employment over the past ten years. The candidate's work experience must be verified by his or her employer(s). However, the regulation does not address instances where a candidate's former employer has gone out of business or is otherwise unavailable to verify the candidate's submission. While a need to confirm both the license and experience is certainly advisable, alternate methods of confirmation of the work experience should be permitted where an applicant is unable to seek confirmation from an employer. Such alternate records could include redacted tax filings, or other documents with suitable reliability, including affidavits.
- The same regulation *N.J.A.C. 6A:9B-11.3* does not allow applicants to substitute teaching experience in the occupation for the required 8,000 hours of occupational experience. However, in many vocations, persons with vast years of experience in their field gravitate toward instructing others in the workplace, and may spend the majority of their time engaged in duties that translate easily and directly into the classroom. It would be valuable to allow candidates to use a combination of work and teaching experiences. This would benefit both school districts and applicants, while augmenting the pool of applicants qualified to provide the instruction needed to meet the increasing educational needs of all students—including those whose post-secondary plans do not include pursuing a four-year degree.
- The regulations create an exception to the requirement that teaching experience in an occupation cannot be used as a substitute for the required occupational experience. They state that the Department of Education may consider teaching experience in an apprenticeship training program registered with the U.S. Department of Labor or "equivalent state agency" as evidence of eligible employment experience. However, the regulation does not specify the equivalent state agency(ies) to which it refers. Therefore, the Department of Education should clarify which state agency or agencies may have a registered apprenticeship program that may be used as teaching experience.
- Subparagraph (ii) of *N.J.A.C. 6A:9B-11.3(b)(1)* pertaining to self-employment reiterates the 8,000-hour employment requirement. Many self-employed individuals may be adept at their vocation, yet may not have accrued 8,000 hours of self-employment over the past ten years. This is especially true where an individual has recently initiated the business and may actually be in need of part-time hours outside of that new business to supplement income during its startup and initial phases. Consideration should be given to expanding opportunities for individuals who have the skills but may not meet the precise requirements of the administrative regulations.



- Subparagraph (b)(2) of *N.J.A.C. 6A:9B 11.3* speaks to degree-based endorsements using a bachelor's degree or higher. The regulation specifically mentions candidates who graduated after 2016, but does not mention criteria for candidates who may have graduated prior to that date. It is not clear whether this omission was intentional. Clarification of the baccalaureate requirements for candidates who have graduated prior to 2016 would be beneficial and should take into consideration the regulations as they existed at the time that a candidate graduated.

Industry and trade are in need of trained employees who have a vested interest in working with NJDOE to ensure that appropriate certification standards are developed and implemented to guarantee a workforce-ready labor pool.

### **ADMINISTRATIVE CODE OVERVIEW**

Pursuant to *N.J.A.C. 6A:9B-11.3*, Career and Technical Education, in order to obtain an instructional certificate with a career and technical education endorsement, a candidate must be at least 18 years of age, have graduated from an approved high school or attained an equivalent education, as determined by the New Jersey Board of Examiners, and have received a baccalaureate degree from an accredited higher education institution. In addition, a candidate must successfully complete the following requirements:

1. Certificate of Eligibility. A certificate of eligibility is defined in *N.J.A.C. 6A:9-2.1* to mean a certificate with lifetime validity issued to persons who have completed degree, academic study, and applicable test requirements for certification. The CE permits the applicant to seek and accept employment in corresponding positions requiring certification. "Charter school certificate of eligibility" or "CSCE" means a certificate with lifetime validity issued to a person who has a bachelor's degree and has satisfied applicable test requirements for certification. The CSCE permits the applicant to seek and accept employment at charter schools in positions requiring certification. The CSCE may be used only for employment in charter schools and does not satisfy the requirements for employment in school districts, excluding charter schools.
2. Provisional Certificate. A provisional certificate is defined by *N.J.A.C. 6A:9-2.1*, as a two-year certificate issued to candidates who have met the requirements for initial employment, but who have not yet met the requirements for a standard certificate. Provisional certificates may be renewed for two years if the candidate has not completed the requirements for a standard certificate within two years pursuant to *N.J.A.C. 6A:9B-8.5*. Provisional certificates are issued to instructional, administrator, and educational services staff whose employment with a specific school district is authorized by a CE or CEAS. Provisional certificates are also issued to initially employed educational services staff who have at least one year, but less than three years, of successful full-time experience or the equivalent in another state under that state's standard certificates. As required under *N.J.A.C. 6A:9B*, such staff shall also be enrolled in a CE educator preparation program and/or a district mentoring program, or a residency program.
3. Renewal of both a provisional and standard certificate. A standard certificate is defined by *N.J.A.C. 6A:9-2.1* to mean a permanent certificate issued to a person who has met all certificate requirements; and

**Administrative Code Overview** *continued*

4. Certificate of Eligibility with Advanced Standing (CEAS). A CEAS is defined by *N.J.A.C. 6A:9-2.1* to mean a certificate with lifetime validity issued to persons who have completed degree, academic study, applicable test requirements, and CEAS educator preparation programs for certification. The CEAS permits the applicant to seek and accept employment in positions requiring certification.
  - a. A charter school provisional certificate is defined in *N.J.A.C. 6A:9-2.1* to mean a two-year certificate issued to novice teacher candidates who have been hired by a charter school, but who have not met the requirements for a standard certificate. Charter school provisional certificates are issued to novice instructional staff who are employed at a charter school, may be used only for employment in charter schools, may be renewed once at the discretion of the employing school, and do not satisfy the requirements for obtaining employment in school districts, excluding charter schools.
  - b. A charter school standard certificate is defined in *N.J.A.C. 6A:9-2.1* to mean a permanent certificate issued to a person who has met all charter school certification requirements. This certificate may be used only for employment in charter schools and does not satisfy the requirements for employment in school districts, excluding charter schools.

**CERTIFICATE OF ELIGIBILITY**

According to *N.J.A.C. 6A:9B-8.3* and the other sections of code it references, in order to qualify for a certificate of eligibility, a candidate must demonstrate sufficient experiential or degree-based expertise.

Experience-Based Endorsement - the candidate must:

1. Pass an examination in physiology, hygiene, and substance abuse issues; and
2. Possess a State-issued occupational license, certificate, or registration if the occupation is regulated by the state; and
3. Demonstrate employment experience consisting of a minimum of four years of Department-approved and documented employment experience, which will be equivalent to 8,000 hours of employment. The employment experience shall be acquired within 10 years of the endorsement application and shall be verified by the applicant's employer(s); or
  - a. Teaching experience in the occupation cannot be used as a substitute for the required four years of occupational experience; however, the Department may consider teaching experience in an apprenticeship training program registered with the United States Department of Labor or equivalent state agency as evidence of eligible employment experience;
4. Demonstrate self-employment experience consisting of a notarized letter from a tax preparer and/or an attorney verifying the following:
  - a. That the candidate has filed State and/or Federal taxes for self-employment using a Federal U.S. Census North American Industry Classification System (NAICS) that is appropriate for the endorsement; and

**Administrative Code Overview** *continued*

- b. That the candidate's self-employment experience meets the minimum of four years of employment experience within 10 years of the certificate application, which will be equivalent to 8,000 hours of employment.
5. Demonstrate military experience consisting of a military discharge (DD-214) indicating military qualifications and occupational training. These qualifications will then be assessed to determine if credit can be extended to the candidate.

**Degree-Based Endorsement** (bachelor's degree or higher) - the candidate must:

1. Demonstrate possession of a four-year or higher degree in a NJDOE approved subject area and at least 30 credits in a coherent sequence of courses in the subject area from a regionally accredited college or university.
2. Pass an examination in physiology, hygiene, and substance abuse issues pursuant to N.J.A.C. 6A:9B-5.9.
3. If the candidate seeks an endorsement in a regulated occupation for which a State-issued occupational license, certificate, or registration is required for employment in or practice of the occupation, the candidate must also hold the State-issued occupational license, certificate, or registration.
  - a. Candidates with a bachelor's degree or higher who graduate on or after September 1, 2016, with a GPA that is below 3.00 in a four-year degree program but is at least 2.50 when a GPA of 4.00 equals an A grade, and for whom no State-endorsed test is available, may meet the above requirements by submitting evidence of a minimum of two years (4,000 hours) of full-time employment or equivalent part-time employment.

**Degree-Based Endorsement** (associate's degree) - the candidate must:

1. Possess a two-year degree in a Department-approved subject area for the endorsement and shall complete at least 30 credits in a coherent sequence of courses in the subject area from a regionally accredited college or university; and
2. Submit evidence of a minimum of two years of eligible employment, which will be equivalent to 4,000 hours of employment. The employment must be approved by the NJDOE and documentation must be submitted demonstrating the required hours of employment. The employment experience must have been acquired within 10 years of the candidate's application and must be verified by the applicant's employer(s).
  - a. Teaching experience in the occupation cannot be used as a substitute for the required four years of occupational experience; however, the Department may consider teaching experience in an apprenticeship training program registered with the United States Department of Labor or equivalent state agency as evidence of eligible employment experience; and
3. Pass an examination in physiology, hygiene, and substance abuse issues pursuant to N.J.A.C. 6A:9B-5.9.

**Administrative Code Overview** *continued*

4. If the candidate seeks an endorsement in a regulated occupation for which a State-issued occupational license, certificate, or registration is required for employment in or practice of the occupation, the candidate must also hold the State-issued occupational license, certificate, or registration.

**PROVISIONAL CERTIFICATE**

According to *N.J.A.C. 6A:9B-8.4*, in order to obtain a provisional certificate, a school district must demonstrate to the NJDOE that the provisional certificate candidate:

1. Holds a CE or CEAS in the endorsement area required for the teaching assignment;
2. Has obtained and accepted an offer of employment in a position that requires instructional certification;
3. Has registered in the district mentoring program upon employment; and
4. For a candidate with a CE, be enrolled in a CE educator preparation program.
5. A provisional teacher holding provisional certification in and working under one endorsement may seek employment and be employed in more than one school district during the provisional time period prior to earning the standard certificate.
6. The annual summative evaluation rating(s) from each prior employing school district shall constitute part of the record on which a principal shall base his or her standard certification determination, pursuant to *N.J.A.C. 6A:9B-8.6*.
7. The provisional certificate must be issued each time a teacher is employed with a CE or CEAS by a different school district from the previous employing school district that submitted the initial provisional certificate documentation. However, the two-, four-, and six-year time restraints pursuant to *N.J.A.C. 6A:9B-8.5* shall still apply.

**RENEWAL OF PROVISIONAL CERTIFICATE**

According to *N.J.A.C. 6A:9B-8.5*:

(a) The principal may recommend a provisional teacher for renewal of his or her two-year provisional certificate if the candidate has not yet completed the requirements for the standard certificate within the first two years of employment pursuant to *N.J.A.C. 6A:9A-8.4*.

1. A provisional teacher who meets the criteria in (a) above but is not renewed for employment within the same school district following the two-year provisional certificate may seek and accept, under the same endorsement, a position with another school district, pursuant to *N.J.A.C. 6A:9B-8.4(d)*.

(b) Except as indicated in *N.J.A.C. 6A:9B-8.8*, 10, and 11, a candidate shall meet the following requirements to be eligible for renewal of a provisional certificate:

1. Hold a CE or CEAS in the endorsement area required for the teaching assignment;
2. Be employed in or accept an offer of employment in a position that requires instructional certification;

**Administrative Code Overview** *continued*

3. Complete a district mentoring program;
4. Be enrolled in or have completed a CE educator preparation program if a candidate has a CE; and
5. Be recommended for renewal by his or her principal pursuant to *N.J.A.C. 6A:9B-8.6*.

(c) The two-year provisional certificate may be renewed once for a maximum provisional period of four years, or may be renewed twice for a maximum provisional period of six years if the candidate fulfills one or more of the following in addition to the renewal requirements in (b) above:

1. Holds a CE with a teacher of students with disabilities endorsement, or a CE with a bilingual/bicultural endorsement, and a CE with an endorsement appropriate to the subject or grade level to be taught or holds a CE with an English as a second language endorsement and the duration of the required coursework and CE educator preparation program extends beyond the four-year period;
2. Was issued the provisional certificate after February 1 of the first school year the candidate was employed; or
3. Does not receive from the school district, by July 31 of the fourth year, the annual summative rating as required for standard certification pursuant to *N.J.A.C. 6A:9B-8.4*.

**Chapter 5**

**Student Assessment and Graduation Requirements**

*Develop an assessment system that better reflects student growth and learning.  
Revise student assessment and graduation requirements in collaboration  
with the business community.*

**CONCERN: Adequacy of the State Testing Program and Curriculum for Career-Focused Students**

Student achievement is too often determined solely by the results of standardized tests, which fail to tell the full story. The results are not always reflective of learning because of the emotional interference many students experience when taking high-stakes, standardized tests.

The education community does not always fully understand the needs of local businesses and employers. Collaboration between these communities is critical if we are to design curriculum that will position students for post-secondary employment.

**RECOMMENDATIONS**

- 49.** NJDOE and the State Board of Education should revise graduation regulations to allow credit for internships, apprenticeships and cooperative learning opportunities.
- 50.** NJDOE should consider the use of multimodal testing platforms to more accurately measure student growth and learning, and assessments to enable students to demonstrate competency in vocational applications of mathematics and technology.
- 51.** NJDOE should align statewide testing to standards for entry-level employees based on NOCTI (National Occupational Competency Testing Institute) or comparable industry benchmarks.<sup>110</sup>
- 52.** NJDOE should review graduation requirements to ensure that career-focused students have appropriate elective credits available to enable them to secure post-secondary employment.
- 53.** The New Jersey Department of Education should place more emphasis on applied learning or problem-based learning, rather than on theoretical learning, for all students.
- 54.** NJDOE, in consultation with various industry entities, should disseminate information regarding the minimum standards necessary for post-secondary entry-level employment.
- 55.** The business and labor sectors should collaborate with the New Jersey Department of Education to ensure that certification and licensing requirements are consistent with industry standards.

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<sup>110</sup> NOCTI is a not-for-profit consortium focusing on improvement of the American workforce. (See: <https://www.nocti.org/aboutnocti.cfm>.) NOCTI's Job Ready tests are one of two assessment batteries used by the Pennsylvania Department of Education to measure the occupational competency of career and technical education students. (See: <https://www.education.pa.gov/K-12/Career%20and%20Technical%20Education/Pages/Assessment-Information.aspx>.)



56. Education leaders at all levels should initiate a public advertising campaign to re-introduce the concept of vocational education as an alternative to traditional post-secondary alternatives.
57. The education community should use the term, “career-focused learner,” in lieu of the term “non-college-bound learner,” when referring to the population of students who do not plan to attend college directly after high school but intend to pursue other career pathways.

## **BACKGROUND/DISCUSSION**

### **Measuring Achievement**

Student achievement is too often associated only with performance on academic tests rather than observable demonstrations of skills, including hands-on skills, problem-solving, collaboration, communication and other workplace-readiness or soft skills. These are critical for students who plan to enter the workforce after high school.

When measuring achievement, the New Jersey School Performance Report is highly reliant on the state standardized testing program. But for the non-college-bound student who aspires to enter the workplace after high school, other measures of success may be more telling about the readiness to succeed. Performance- and skill-based achievement would more accurately reflect the student’s preparedness and the district’s success in preparing him or her for the workforce.

***Students learn in various ways, and many will perform at levels more reflective of their actual progress when the testing platform is aligned with their preferred learning style.***

The education community does not always fully understand the needs of local businesses and employers. Collaboration among PreK-12 school districts, county CTE schools and the business community, including organizations such as the New Jersey Business and Industry Association, would be invaluable in designing curricula and assessments to position students for post-secondary employment. In addition, by learning about county vocational-technical schools’ experience with employers, the greater education community would be able to identify the skills that should be developed and assessed. (The New Jersey Council of County Vocational-Technical Schools provides descriptions of “Manufacturing-Related Programs” in the county CTE districts, which include the skills acquired in these career programs. See Appendix V.)

### **Multimodal Assessment**

In addition to proficiency in mathematics and language arts, indicators of student growth can include social and emotional learning, observable demonstration of entrepreneurship, goal-setting, and collaboration and teamwork. Students learn in various ways, and many will perform at levels more reflective of their actual progress when the testing platform is aligned with their preferred learning style. Therefore, NJDOE should consider multi-modal assessments in addition to any standardized test as it develops a successor to PARCC, the state’s current assessment.

For example, the NJDOE might consider incorporating leadership skills into an observable and measurable test. The involvement of students in the development of their own projects ("[voice and choice](#)"), including goal-setting and time management, could be a valuable addition to a performance-based assessment.

**"Career-Focused Students"**

The assumptions that the most intelligent students attend college, and that success is defined by the colleges they attend and the degrees they earn, must be refuted. These assumptions not only stigmatize a large segment of our population, but they are simply not true.

In fact, the term "non-college-bound learner" suggests a negative (absence of college) rather than a positive (focused on career) and should be replaced with "career-focused learner" in all references to this population of students. While this report continues to use the term "non-college-bound learner" because it was part of the original charge, the Task Force recommends that, going forward, all references be to the "career-focused learner."

***"Non-college-bound learner" suggests a negative—the absence of college—and should be replaced with "career-focused learner" in all references.***

The entire education community must proactively ensure that all parents understand this paradigm shift. Many parents, educators and others are not fully aware that, in the current economy, there is increasing opportunity for students to pursue careers that do not require a college degree, but provide financial and personal rewards equal to, or greater than, careers that do.

Students should be exposed in the early grades to these opportunities, and curriculum and assessment should be aligned so that there is a seamless process for the preparation of career-focused students.

Creating a program of instruction, with assessments that will advance job-readiness, will require adjustment in many areas, including change in the societal and cultural attitudes toward vocational learning

**County Workforce Development/Investment Boards**

Assuring that our students are equipped to enter those careers will require a persistent and cooperative process with state agencies and broad school-wide efforts within and beyond individual districts. It may be helpful to reach out to entities that have not traditionally worked with public schools to support job training, such as County Workforce Development/ Investment Boards. Another area that should be explored is collaboration among industry/ trades, NJDOE and local school districts to develop internships and other co-operative and entrepreneurial opportunities for student participation.

The current role County Workforce Development/Investment Boards includes the provision of training that qualifies participants for skilled entry-level jobs. As noted in Chapter 2 of this

report, some members of Workforce Development/Investment Boards said that they have more resources than clients and that there is a surplus of funds. This situation may be related to sections of the federal Workforce Innovation and Opportunity Act (*Public Law 113-128*) and related U.S. Department of Labor regulations (20 CFR 681.410) that require states and local Workforce Development Boards to allocate at least 75 percent of the funding received through the Act to programs for out-of-school students.

The Task Force believes that NJSBA should advocate for changes in federal law and regulations to allow Workforce Development/Investment Boards to direct more of their resources to the training of in-school youth. Upon such changes, the state Department of Labor & Workforce Development should ensure that state procedures give county Workforce Development/Investment Boards the leeway to expand programming for currently enrolled students.

As the Task Force arrived at its recommendations, it raised a number of issues for further discussion, including the following:

- Examining whether the depth of career exploration that occurs in many schools is adequate, or if it only addresses the names of careers without providing further exploration and explanation of the skills needed in a particular area;
- Assessing what steps schools might take to assist students who are not taking CTE courses and feel forced to enroll in college, but have no great interest in attending;
- Crediting hands-on skills toward graduation requirements, and
- Working with the local business community to develop workshops in schools on vocational opportunities.

The Task Force believes technology education teachers are critical to efforts to better serve the career-focused learner. They provide students with problem-solving and design-based instruction that engages students in real-world and meaningful experiences. The recommendations in Chapter 4 of this report, “Teacher Preparedness and Certification,” are critical to ensuring the delivery of meaningful CTE programming to our students.

**Chapter 6**

**Financial Implications**

*Assess financial needs and concerns, and explore alternative funding sources.*

**CONCERN: Financial Resources for the Education of Career-Focused Students**

Meeting the unique needs of the career-focused learner requires significant financial resources, necessitating outreach, collaboration and leadership by local boards of education and the New Jersey School Boards Association.

**RECOMMENDATIONS**

- 58.** NJSBA and other state education organizations should work with local school districts to advocate for more state and federal funding for CTE programs to benefit students in all settings, including comprehensive high schools.
- 59.** NJSBA, other state education organizations and local school districts should create partnerships with business and industry and labor unions to generate internships and apprenticeships.
- 60.** Local districts should reach out to businesses and labor unions that operate in their regions for funding, support and resources.
- 61.** Boards of education should identify areas in which existing funds for curriculum can be reallocated to meet the needs of all students, including college-bound and career-focused learners.
- 62.** Wherever possible, school districts should identify resources within the annual budget to support the career-focused student.
- 63.** Boards of education should establish public-private partnership committees that include school officials, local business leaders, municipal officials and members of the municipal economic or industrial board.
- 64.** The New Jersey School Boards Association should involve the New Jersey Public School Labor-Management Collaborative in the development of public-private partnerships for the benefit of students.
- 65.** NJSBA and/or its corporate members should assist local school districts by developing a guide on effectuating public-private partnerships.
- 66.** NJSBA should explore grant opportunities and formal partnerships with all branches of the military to support non-college-bound learners.

**BACKGROUND/DISCUSSION**

If our high schools are to address the unique needs of non-college bound students and expand their program offerings, they will need additional financial resources. To properly serve

the non-college-bound student and implement the necessary career and vocational tracks with fidelity, many districts may need to budget additional resources, even beyond an equitable distribution of funds among college preparatory and CTE courses.

Broadening career and vocational programs in comprehensive high schools represents a viable, cost-effective means of providing career education opportunities.<sup>111</sup> Such action would ensure that there are CTE programs for those students who do not gain admission to a selective county vocational school. Possible resources to fund in-house programs would include federal and state funding, private-public grant opportunities, and enhanced relationships with businesses, corporations, and labor unions. Also, a school district's creative scheduling, staffing and collaborative arrangements with other districts, including inter-local agreements, can help it meet the needs of all students in a financially efficient manner.

School districts and boards of education are also encouraged to evaluate their current resources and identify areas in which existing funds in curriculum budgets can be reallocated. However, finding adequate resources to expand vocational program offerings and learning opportunities to meet the needs of all students will require ongoing effort and the cooperation of multiple entities.

#### State and Federal Funding

As mentioned in the Introduction section of this report, there is no state aid category specifically for CTE programs in comprehensive high schools. A number of comprehensive high schools have received funding through federal Perkins Act grants.

Under policy established in 2012, "NJSBA believes that the state should provide funding and support to local school districts to facilitate the development of career-readiness programs to assist students who are unable to attend county vocational programs."<sup>112</sup> Securing additional resources from the federal and state governments could be challenging given the limited funds available. However, the Task Force believes that NJSBA, its partner education organizations and local school districts should continue working together to advocate for more state and federal funding.

Local, county and statewide public relations campaigns are necessary to increase awareness of the need for career and vocational learning opportunities. These efforts may benefit from the increasing recognition that there are many unfilled jobs that do not require a college education. The news media has featured numerous articles about employers' difficulty in finding workers with the skills needed to fill these positions, a void that has a negative impact on economic growth. And for decades, business and industry have reported exorbitant costs involved in training entry-level employees.<sup>113</sup> Publicizing the importance of CTE programs in helping students acquire these skills should help efforts to attract more support for programs and funding.

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<sup>111</sup> Sampson *et al.*, "Op-Ed: Comprehensive High Schools, a Key Piece of the Vo-Tec Puzzle," <http://www.njspotlight.com/stories/18/05/22/op-ed-comprehensive-high-schools-a-key-piece-of-the-vo-tec-puzzle/>.

<sup>112</sup> Career Education: Vocational-Technical Education," *Manual of Positions and Policies on Education*, FC6142.12, <https://www.njsba.org/wp-content/uploads/2016/02/resources-policy-ppm-6000-6142-12.pdf>.

<sup>113</sup> Wilhelm Schnotz, "The Average Cost to Train a New Employee," Small Business - Chron.com, November 21, 2017, accessed June 25, 2018, <http://smallbusiness.chron.com/average-cost-train-new-employee-44072.html>.

Task Force members researched whether there may be foundation, federal or NJDOE grants available to support the creation of apprenticeships and internships for non-college bound students. The members sought information from the Grants Program staff at NJSBA, consulted with local school business administrators, contacted the NJDOE staff, and shared information learned over time by individual committee members.

They also learned that federal funding is generally directed towards vocational-technical schools and not comprehensive high schools.

### Grant Funding

On the state level, in 2014 the NJDOE announced the creation of County Vocational-Technical School Partnership Grants.<sup>114</sup> This is a state-funded partnership program between county vocational school districts and urban districts, other school districts, business and industry groups, county colleges and other entities to expand access and opportunities in career and technical education for high school students.

Between 2015 and 2018, annual appropriations for the grants ranged from \$1 million to \$3 million. Eligibility has been limited to county vocational-technical schools as the lead agencies, with comprehensive high schools among possible partners. Seventeen comprehensive high schools have been awarded grants as partners with the county vocational-technical schools to develop or expand their program offerings. In November, NJDOE announced the awarding of the fourth cohort, which involved grants to seven county CTE districts as the lead agencies; seven comprehensive high schools were among partners in the programs.<sup>115</sup> (Appendix III, “County Vocational-Technical School Partnership Grants,” provides a description of the programs.)

A pilot program created by NJDOE in 2016, “Building Capacity for Career Pathways: A Pilot Program for Comprehensive High Schools,” has supported a handful of comprehensive high schools in expanding their career programs. The Vernon Township Public Schools were among the awardees of the available funding. School district administrators from Vernon Township made a presentation to the Task Force describing the successful implementation of their program. However, that NJDOE funding initiative was a one-time opportunity. NJDOE staff could not confirm if the pilot program would be expanded and/or continued in the future.

Through their research the Task Force members also learned about the Harbor Freight Company’s “Tools for Schools Prize for Teaching Excellence”<sup>116</sup> to help build “industrial strength classrooms for the 21st century.” This program provides prizes for teaching excellence and innovation in industrial and technical education, but those prizes are only awarded to vocational programs and pathways already in existence.

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<sup>114</sup> “County Vocational School District Partnership Grant-Cohort 4-Competitive,” New Jersey Department of Education, 2017, accessed August 07, 2018, <https://www.state.nj.us/cgi-bin/education/grants/gropps2.pl?string=recnum=01745&maxhits=1>.

<sup>115</sup> “Murphy Administration Announces Vo-Tech Partnership Grants,” New Jersey Department of Education, May 7, 2018, accessed June 22, 2018, <https://www.state.nj.us/education/news/2018/0507voc.htm>.

<sup>116</sup> “Prize for Teaching Excellence,” Tools for Schools, Harbor Freight Company, accessed August 07, 2018, <https://harborfreighttoolsforschools.org/what-we-do/prize-teaching-excellence/>.



The Task Force was unable to identify foundation grants that would help school districts support in-house programs or the creation of apprenticeships and internships for non-college bound students.

In sum, available grants and other financial resources are limited. School districts should consider new sources of revenue. The NJSBA Grants Support Program<sup>117</sup> might be a resource for possible grant opportunities. Sources of revenue might also include the United States Army and corporate sponsorships. NJSBA should also explore grant opportunities and formal partnerships with the all branches of the military.

NJSBA and our education partners should advocate for state and federal funding to support programming for non-college-bound learners. Local districts should also reach out to businesses located within their areas and to local labor unions for funding, support and resources. And where districts have established Public-Private Partnership Committees, those committees could research and review any new grant opportunities that may arise and ensure application for viable funding opportunities.

#### Informing the Public

Board members, the public and school employees may not have ready access to pertinent information about the financial resources that the district has committed to supporting the non-college-bound student. During a Task Force meeting, a member suggested that, as a “best practice,” the annual school budget request should identify resources committed to supporting non-college-bound students.

*As a ‘best practice,’ the annual school budget request should identify resources committed to the support of non-college-bound learners.*

While it may take some additional time and care on the part of school district business office staff to carve out and identify these items, it should not be an onerous task within the routine course of budget preparation. It is reasonable to include that information in the budget process to better inform board members, administrators, staff and the public of the cost and extent of the district’s efforts and needs.

#### Public-Private Partnerships

To succeed in the global economy and equip our students to thrive, the education community must forge relationships with employers. The creation of relationships with businesses, corporations, and labor unions may take time and effort to cultivate. NJSBA and other state education organizations with whom school districts have existing relationships (e.g., the New Jersey Association of School Administrators, the New Jersey Association of School Business Officials, the NJEA, the New Jersey Principals and Supervisors Association, AFT-NJ, and the New Jersey PTA) should assist school boards by facilitating these alliances. In particular, there should be a focus on generating more internship and apprenticeship opportunities for our

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<sup>117</sup> "Grants Support," New Jersey School Boards Association, accessed August 07, 2018, <https://www.njsba.org/services/grants-support/>.

students. These opportunities provide hands-on learning for students, are cost-effective for local school districts, and benefit businesses as well. Public-private partnerships involving the education community are trending nationally.<sup>118</sup>

In that same vein, boards of education are encouraged to establish Public-Private Partnership Committees, which should include the superintendent, the school business administrator, board members, and representatives of the local Chamber of Commerce or other business organizations. Since creating tomorrow's workforce is a societal challenge, districts should strengthen these alliances by formally including the mayor, municipal governing body members and representatives of the economic or industrial development board. These Public-Private Partnership Committees could work to facilitate additional funding, training and apprenticeship opportunities for our students.

Among their activities, the committees could research and review grant opportunities that may become available and ensure that the district applies for viable funding opportunities. They could foster closer ties with labor organizations and the New Jersey Business and Industry Council that would help identify and make available apprenticeships and internships for the state's non-college-bound high school students.

School boards would be well served to obtain legal guidance on the appropriate roles of the school administration and the school board with regard to these committees. NJSBA and/or our corporate partners should help develop a guide for local districts to use in effectuating the public/private partnerships.

#### Labor-Management Collaborative

The New Jersey Public School Labor-Management Collaborative<sup>119</sup> could serve as a model of collaboration. Through this effort, NJSBA has been working with Dr. Saul Rubinstein of the Rutgers School of Management and Labor Relations to bring together leaders of various education organizations to conduct a pilot program demonstrating how labor-management collaboration could advance student achievement. Additionally, NJSBA should explore the use of the Labor-Management Collaborative in developing relationships with labor unions that could facilitate the creation of alliances to support career-focused students.

Local industries and business have the potential to be exemplary partners in these efforts. For decades, business and industry have reported the exorbitant costs of training entry-level employees. It would behoove school districts to establish formal relationships with local businesses to identify skill deficits and then adjust curricula to address any areas of deficiency. They may also discuss development of internship/apprenticeship programs, as well as other means of support to enable students to gain the skills needed for employment.

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<sup>118</sup> Dave Guymon, "Public-Private Partnerships: The Real Future of Education," *Edutopia*, June 17, 2014, George Lucas Educational Foundation, accessed August 07, 2018, <https://www.edutopia.org/blog/public-private-partnerships-future-of-education-dave-guymon>.

<sup>119</sup> "Gov. Murphy, N.J. Ed Leaders, Attend Public School Labor-Management Collaboration Conference," *School Board Notes*, March 06, 2018, New Jersey School Boards Association, accessed August 07, 2018, <https://www.njsba.org/news-publications/school-board-notes/march-6-2018-vol-xli-no-29/gov-murphy-n-j-ed-leaders-attend-public-school-labor-management-collaboration-conference/>

**CONCERN: Inter-district collaboration**

Collaboration among school districts could be a cost-effective means to provide programming and services for career-focused learners. However, it is practiced infrequently.

**RECOMMENDATIONS**

- 67.** Boards of education and state education leaders should collaborate on the cost-effective inter-district delivery of career training for the non-college-bound student.
- 68.** NJDOE and NJSBA should provide a forum for addressing the delivery of career training to non-college-bound students through inter-district collaboration.

**BACKGROUND/DISCUSSION**

Many school districts collaborate with one another in a variety of ways (e.g., transportation and staff training) to save money and maximize efficiency. These inter-district collaborations are particularly useful and successful when resources are limited.<sup>120</sup>

Similarly, local boards of education should explore collaboration with neighboring school districts with the goal of providing career training to the non-college-bound students in their schools. Sharing resources can harness the expertise of one district for the benefit of many. Whereas one district may be able to provide training on a particular subject, another may be able to share its expertise in another area.

Creating “share-shops” through consortia or inter-local agreements could be a cost-efficient way to develop courses and programs that address the needs of non-college-bound students in situations where an individual district may not be able to support a program. For example, one district might provide the physical and staff resources to teach mechanics to students from a cohort of neighboring districts, a second district might provide the physical and staff resources to teach welding to students from the same group of districts, and a third may offer students a health-career program. Videoconferencing could be a valuable strategy in addition to hands-on teaching. Especially given the dearth of trained instructors, and because equipment and supplies are costly, such collaboration could save money while reaching a greater number of students.

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<sup>120</sup> See:

"Twelve Years of Shared Services: The Best Educational Services, with Substantial Financial Savings," A+ Ideas, Programs and Practices, February 12, 2016, New Jersey School Boards Association, August 7, 2018, <https://www.njsba.org/news-publications/a-ideas-programs-and-practices/school-climate/twelve-years-of-shared-services-the-best-educational-services-with-substantial-financial-savings-passaic-county-manchester-regional-high-school-and-haledon-passaic-county/>.

David Sandler, "Students, Taxpayers Benefits from Shared Services," My Central Jersey, July 30, 2015, accessed June 26, 2018, <https://www.mycentraljersey.com/story/news/local/middlesex-county/2015/07/30/podcast-focuses-shared-services/30469243/>.

Existing county-based meetings could serve as an ideal forum for discussing the possibility of forming these alliances. School board members, superintendents, school business administrators and curriculum staff could raise the topic at their respective county-level roundtables, engaging the various groups in dialogue.

In addition, NJDOE and NJSBA should explore the possibility of facilitating collaborative efforts among school districts by creating a training program and/or a forum for discussion. Ideally, such a platform would bring together experts in the field to share relevant information and make suggestions on how to seize the opportunities presented by the collaborative model.

Forging such collaboration may involve some “growing pains” related to trust, cost and other factors. It also might take some effort to get the public on board. But in this era of limited resources and given the compelling need to address this issue, the potential benefits of collaboration outweigh the concerns. Barriers to implementation of collaborative efforts can be addressed and overcome as has been demonstrated in numerous cases around the state.

**Chapter 7**

**The Next Steps**

*A comprehensive study to define the roles of comprehensive high schools, county vocational-technical school districts and county colleges in providing CTE education.*

Structures that facilitate student achievement for all, regardless of family background or zip code of residence, must be in place during all phases of a child's life. All children need a safe, caring, supportive climate and a healthy lifestyle, as well as an *educational* program that meets their learning styles and curricula that will prepare them for their future—not the past.

**RECOMMENDATION**

- 69.** The New Jersey business and education communities should engage in a formal study to determine the best methods to deliver CTE training to our students and to define the roles of local school districts, county vocational-technical high schools and community colleges in the effort. The study should be initiated by the state. It should involve representatives of the following: The New Jersey School Boards Association; other stakeholders in K-12 education, including county vocational-technical school districts; community colleges; other institutions of higher education, the New Jersey Department of Education; the New Jersey Department of Labor and Workforce Development; state-level business organizations, and government workforce development agencies.

**BACKGROUND/DISCUSSION**

NJSBA projects that have focused on supporting student learning and well-being since 2014 include the following task force reports: *Special Education: A Service, Not a Place* (2014); *What Makes Schools Safe?* (2014); *The Impact of Health and Wellness on Student Achievement* (2015); *The Final Report of the Task Force on Student Achievement* (2017), and this report, *Educational Opportunities for the Non-College-Bound Learner*. The overarching goal of

these projects is to provide information and strategies that boards of education, school administrators and educators can use to advance student growth, learning, well-being and success.

***...graduating from high school with a diploma can be a pathway to post-secondary educational experiences, but currently does not provide a career pathway to earning beyond a minimum wage.***

Reviewing these reports against the background of emerging technologies—artificial intelligence, robotics, and automation—and their impact on all students makes it clear that a coordinated strategic plan to redefine preK-12 public education, and particularly the comprehensive high school, is long overdue. Such a review is further warranted when one considers the following:

- The significant societal changes for which schools are preparing students and the increased rigor at all grades.

- The fact that our current high school organizational structure, standardized curricula, and related decisions are based on recommendations made by the NEA's "Committee of 10"<sup>121</sup> dating back to 1894, as described earlier in this report.
- The substantial debt facing students upon completion of their post-secondary education, especially a bachelor's degree. Also of concern are the number of students who have accumulated debt without having completed their degree, and the number of students who receive a degree but are underemployed due to a mismatch in the employment requirements of jobs and their educational background.

As referenced by this Task Force and others, graduating from high school with a diploma can be a pathway to post-secondary educational experiences, but currently does not provide a career pathway to earning beyond a minimum wage. Suffice it to say that upon graduation from high school, an overwhelming number of students do not have the skills or educational background to be fully self-sufficient.

Without a restructure of school organizations, without a review of what we are teaching and when, and without an alignment to the needs of business, industry and post-secondary educational organizations, the preK-12 public school systems cannot fully prepare all students for their futures.

In 2017, the U.S. Department of Labor's Bureau of Labor Statistics reported that individuals born in the latter years of the baby boom (1957-1964) held an average of 11.9 jobs from ages 18 to 50.<sup>122</sup> Previously released BLS data show an average of 11.5 jobs held by the age of 48.

Number of jobs held by individuals from ages 18 to 48 in 1978 to 2012, by educational attainment	
Education Level	Number of Jobs
Less than a high school diploma	11.5
High school graduate (diploma or equivalent), no college	11.5
Some college or associate degree	12.3
Bachelor's degree and higher	11.7
<b>Total.....</b>	<b>11.5</b>
SOURCE: "Number of jobs held by individuals from age 18 to age 48 in 1978 to 2012 by educational attainment, sex, race, and Hispanic or Latino ethnicity," BLS, U.S. Department of Labor, 2015, <a href="http://www.bls.gov/nls/79r25jobsbyedu.xlsx">http://www.bls.gov/nls/79r25jobsbyedu.xlsx</a> .	

<sup>121</sup> *Report of the Committee of Ten on Secondary School Studies*, <https://books.google.com/books?id=PfcBAAAAYAAJ&pg=PA3&lpg=PA3#v=onepage&q&f=false>.

<sup>122</sup> "Number of Jobs, Labor Market Experience, and Earnings Growth Among Americans at 50: Results from a Longitudinal Survey," Bureau of Labor Statistics, U.S. Department of Labor, August 24, 2017, accessed September 4, 2018, <https://www.bls.gov/news.release/pdf/nlsoy.pdf>.



The Task Force believes that many students do not have the benefit of a thorough career-awareness program. Career awareness should (and, in most districts, does) begin in the primary grades. However, depending on the district, students may have ample support—or virtually no support—as they choose potential careers. There must be formalized efforts to ensure that by middle school and through high school every student benefits from a program that helps him or her identify potential future careers based on interest, aptitude and ability—a career awareness program that also guides the student toward the appropriate post-secondary educational path.

Matriculating in a four-year college program is the appropriate step for many students immediately after high school. New Jersey’s public and private four-year colleges and universities enroll nearly 195,000 students, according to the Office of the Secretary of Higher Education. However, to be fair to all students, we must dispel the myth that “all should attend college” to lead successful lives. Although schools have advanced this belief for generations, the Task Force feels that it is no longer true. We also know that post-secondary educational experiences, whether they be in-person or through webinars or other technology-based means, are among the keys to success.

Dual enrollment should become the norm for all high school students. In other words, a student should graduate from high school with a certificate that qualifies him or her for a position that pays above the minimum wage and provides flexible pathways to continue advancing in that chosen career. Alternatively, a student should graduate from high school with a two-year (associate) degree or with significant coursework completed toward that degree. Dual enrollment promises to have a positive impact for all students, regardless of their chosen career paths.<sup>123</sup>

***Dual enrollment should become the norm for all high school students.***

Some students currently benefit from internships while in high school, but most do not. Even fewer have an apprenticeship experience like the highly successful Colorado CareerWise initiative.<sup>124</sup>

While districts should identify the educational needs of local businesses, the state Departments of Education and Labor & Workforce Development should collaborate with regional employers to determine the skills required for entry-level positions in their various industries.

The Task Force believes that the growth of academies has resulted in a decline of available seats in county vocational-technical high schools and reduced opportunities for career-focused students to learn a trade. The expansion of CTE programs at comprehensive high schools can address this deficit. Sharing of CTE programs among neighboring high schools and districts—especially programs for which there are limited student demand and a shortage of qualified, certified instructors—should be explored.

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<sup>123</sup> Jennifer Dounay Zinth, "CTE Dual Enrollment: A Strategy for College Completion and Workforce Investment," Education Commission of the States, March 2014, accessed September 4, 2018, <https://www.ecs.org/clearinghouse/01/11/50/11150.pdf>.

<sup>124</sup> "Colorado's Swiss Apprenticeship Model," [https://www.colorado.gov/pacific/sites/default/files/CO\\_Swiss\\_Apprenticeship\\_Model.pdf](https://www.colorado.gov/pacific/sites/default/files/CO_Swiss_Apprenticeship_Model.pdf).

Additionally, Congress and the U.S. Department of Labor should amend federal law (*P.L.* 113-128) and regulations (20 CFR 681.410) that limit the ability of county Workforce Development/Investment Boards to serve students before they drop out of, or graduate from, high school.

The modes used to deliver instruction should expand, with the goal of enabling students to acquire employment traits considered important in this century. High school students should have exposure to asynchronous web-based courses, experience in working in collaborative teams, and the opportunity to communicate by “telling a story” or communicate while becoming aware of their empathetic feelings.<sup>125</sup>

We must reconsider the courses we offer and the reasons we offer them. For example, rather than offering science courses in alphabetical order, there should be a pedagogical rationale for the timing and sequence of these courses. Engineering and science application are among the more important and growing careers. For a decade there has been a national movement to teach “physics first” in the sequence of high school sciences; especially an Algebra I-based physics program.<sup>126</sup> In some New Jersey districts, physics classes that would earn high school credit has been introduced in middle school. Consideration must be given not only to the re-ordering of subjects, but also to the choice of courses that will be offered to high school students.

***We must reconsider the  
courses we offer and the  
reasons we offer them.***

However, with the focus on technology, engineering and the sciences, we must not lose sight of the liberal arts type of education that, historically, we have believed best prepares students to be contributing, knowledgeable members of our society and our evolving culture. As important as science and math are to our nation’s future, so are the humanities, the arts, the social sciences, and the historical development of our nation and the world.

Finally, there is a need for a comprehensive and thorough review of high school organizations and curricula that were established during a time when our society was agrarian. As a first step in redefining the structure and roles of high schools, the recommendations of the NJSBA studies cited at the beginning of this chapter should be considered; each report raises important issues. A collaborative effort that includes higher education, the state Department of Education, NJSBA and other state-level education associations, and business, industry and trade unions should conduct a thorough study on high school organization that will meet the needs of 21<sup>st</sup> century learners and develop recommendations for how to redesign high schools for the Information and Technology Age.

<sup>125</sup> Dan Schawbel, “Geoff Colvin: Why Humans will Triumph Over Machines,” *Forbes*, August 4, 2015, accessed June 26, 2018, <https://www.forbes.com/sites/danschawbel/2015/08/04/geoff-colvin-why-humans-will-triumph-over-machines/#6a2dd6322b54>.

<sup>126</sup> Bamford, “Physics for All,” *New Jersey School Leader*, <https://www.njsba.org/news-publications/school-leader/julyaugust-2014-volume-45-1/physics-for-all/>.

## **List of Recommendations**

### **Chapter 1**

*Ascertain the skills required to meet the needs of business and industry, and change the attitude toward jobs that do not require a college education.*

1. The New Jersey Department of Education should explore the use of new assessment tools to measure the skills necessary to succeed in available jobs. The effort should address the use of NJCAN<sup>127</sup> as an assessment support.
2. NJDOE should develop additional measures of school and student success that focus on career readiness.
3. The New Jersey Departments of Education and Labor & Workforce Development should establish a formal, standing structure to facilitate collaboration with representatives of industry, trade unions, and other entities to ensure that students recognize the array of careers available to them and the multiple pathways to those careers. These pathways include earning job-specific professional certification and two-year degrees, as well as experience in apprenticeships and internships and CTE programs at the secondary and post-secondary levels.
4. NJDOE should ensure the availability of a staff liaison to engage in dialogue with schools about meaningful career preparation.
5. Inter-agency collaboration is critical to address the issues raised by the Task Force. Therefore, the state Departments of Education and Labor & Workforce Development, along with other state agencies, should establish a formal structure to identify current programs and propose additional efforts that would support the goals of this Task Force.
6. Working with its partners in business and industry, government and higher education, the New Jersey School Boards Association should conduct programming for its members to promote consideration of, and dialogue about, the full range of career pathways available to students.

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### **Chapter 2**

*Strengthen communication, collaboration and support among local school districts, county vocational-technical schools, community colleges, state government and its various agencies, business and industry, and other prospective partners.*

#### **A Communications Gap and Lack of Collaboration and Support**

7. The state should support and fund the expansion of CTE programs in all school districts, including those that operate comprehensive high schools. (There is no state funding category specifically aimed at CTE programs in comprehensive high schools. A state bond issue that

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<sup>127</sup> The New Jersey Career Assistance Navigator is an internet-based system sponsored by the NJDOE and the state Department of Labor & Workforce Development that provides information on careers, post-secondary education and financial aid. See: <https://njcis.intocareers.org/materials/portal/home.html>.

will appear on the November 2018 ballot would set aside \$350 million for both school security enhancements and expansion of high school CTE programs. Funds for CTE program expansion, however, would apply only to county vocational-technical school districts.<sup>128</sup>)

8. The state Department of Education should take a more active role in assisting local school districts in developing CTE programs. The assistance should facilitate the sharing of CTE programs among neighboring districts, thereby providing additional educational opportunities in a cost-efficient manner.
9. The New Jersey Department of Education and local school districts should study the Colorado CareerWise program<sup>129</sup>, a public-private partnership that provides three-year apprenticeships to high school students starting in junior year and leads to industry credentials and associate degrees.
10. The New Jersey School Boards Association should advocate for changes in federal law and U.S. Department of Labor regulations that limit the ability of Workforce Development Boards and Workforce Investment Boards to use federal Workforce Innovation and Opportunity Act funds for the training of currently enrolled high school students. Upon such changes, the N.J. Department of Labor & Workforce Development should ensure that state procedures enable the use of such funds for the training of in-school youth.
11. The state Department of Labor & Workforce Development should provide preK-12 and regional school districts with a level of assistance comparable to its support of county CTE schools.
12. NJDOE should establish regional liaisons to help K-12 school districts respond to area employment needs. It should consider the use of the county roundtable structure for assistant superintendents and curriculum directors to encourage dialogue among schools and businesses about regional employment needs and the status of education programs.
13. County vocational-technical schools should actively share information with local boards of education about the needs of employers and the skills that the business community requires of its employees.
14. Local school districts should actively forge relationships and networking opportunities with business organizations and community groups to obtain information and share resources related to the labor market.
15. Parents and guidance counselors should be involved in discussions of CTE options and their benefits with students as early as the 7<sup>th</sup> or 8<sup>th</sup> grade.
16. Local school districts should provide programming for all students beginning in elementary school and continuing through the middle grades and high school to raise awareness of all careers and the broad variety of career pathways. Districts should consider initiatives, such as

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<sup>128</sup> Brent Johnson, "N.J. Voters Will Decide on \$500M for School Projects after Murphy Slashes Plan in Half," NJ.com, August 29, 2018, accessed August 29, 2018, [https://www.nj.com/politics/index.ssf/2018/08/nj\\_voters\\_will\\_decide\\_500m\\_in\\_school\\_projects\\_after\\_murphy\\_slashes\\_plan\\_in\\_half.html](https://www.nj.com/politics/index.ssf/2018/08/nj_voters_will_decide_500m_in_school_projects_after_murphy_slashes_plan_in_half.html).

<sup>129</sup> "Colorado's Swiss Apprenticeship Model," accessed June 25, 2018, [https://www.colorado.gov/pacific/sites/default/files/CO\\_Swiss\\_Apprenticeship\\_Model.pdf](https://www.colorado.gov/pacific/sites/default/files/CO_Swiss_Apprenticeship_Model.pdf).

open houses and “Career Awareness Days” with follow-up discussions, as effective introductions. Districts should provide students with additional age-appropriate opportunities, such as site visits, technology-based field trips and internships, to foster greater understanding of careers and to refine students’ potential career interests and pathways.

17. Local boards of education should forge relationships with county, municipal and state government. For example, representation by a school district on the community Industrial Development Board (or similar structures) would provide a forum for local industry to explain the skills that entry-level employees should possess.

#### Tension between County Vocational and K-12 Districts

18. Representatives of local school districts and county vocational-technical school districts should create opportunities to engage in respectful dialogue about the issues they face, and work constructively toward the advancement of student achievement.
19. Local school districts and county vocational-technical school districts should consider possible areas of collaboration, such as offering career pathways to students in other districts where such programs do not exist.
20. If a local district offers a unique career pathway, that district is encouraged to offer other districts the option to enroll tuition students in the program when seats are available.
21. Vocational-technical schools are encouraged to establish “satellite” programs in local school districts through inter-local agreements. Such CTE programs would be open to students from the host district as well as from neighboring high schools.

#### Impact on School Performance Reports and Access to Opportunity

22. County vocational-technical schools should structure their admissions processes to create more options for students across the achievement spectrum.
23. The New Jersey Department of Education should develop additional measures of school and student success that place more emphasis on “career readiness” as opposed to “college readiness.”
24. NJDOE should revise or weight its performance measurement system in a way that does not penalize a comprehensive high school for the loss of its highest achievers to county vocational-technical schools. The departure of high-achieving students creates a perception about the quality of the district, which may be misleading or completely inaccurate.

#### Lack of Information about Military Opportunities

25. School districts should educate students and parents about the opportunities that the military can offer with respect to post-secondary education and career training and about requirements for enlistment.
26. School districts should actively confront the stigma associated with the military that may dissuade parents and students from considering this option.
27. School districts should establish a “Military Opportunities Day” as part of their efforts to prepare students for their post-secondary pathway.

Overlooking the Faith-Based Community

28. School districts should consider consulting faith-based communities when developing CTE programming. These communities can provide a point of access for employers to engage with students who are preparing to enter the workforce.

Is Higher Education the Best Preparation for Every Student?

29. Local school districts should provide appropriate career awareness guidance to students who are contemplating post-secondary education with honest conversations about college-readiness and the availability of other pathways.

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Chapter 3

*Revisit curricula and programs so that they reflect economic realities, expose all students to the full array of post-secondary opportunities and prepare them for careers.*

30. As they consider a replacement for PARCC as the state’s assessment program, the New Jersey Department of Education and State Board of Education should explore a variety of alternative methods to determine student progress toward state learning standards. These alternatives may include the SAT, the ACT, the Armed Services Vocational Aptitude Battery, licensing/certification tests, and admission to apprenticeship programs.
31. School districts should provide exposure to various post-secondary opportunities through community-based instruction, job shadowing, internships, college visits, and apprenticeships. These efforts should focus on the career opportunities that will exist when students graduate, which will be affected by artificial intelligence, robotics and automation.
32. School districts should ensure that the curriculum provides all students with instruction in the “soft skills,” such as punctuality and teamwork, that are necessary for workplace success, as well as experience with asynchronous web-based courses.
33. School districts should educate parents and students about the cost and return on investment for all post-secondary opportunities, as well as methods to reduce the expense.
34. Students should be able to benefit from a dual-enrollment system that would allow them to graduate from high school with (a) certification that qualifies them for entry-level employment in certain fields and/or (b) a two-year associate’s degree or significant credit toward that degree.
35. School districts should evaluate the choice of courses offered to students and the sequence in which they are provided. For example, the “biology-chemistry-physics” sequence is based on alphabetical order of the subject areas, not a pedagogical rationale. A revaluation is especially critical in subjects related to engineering and science, areas that have experienced substantial growth.
36. Students should be made aware of all post-secondary options including military careers, post-secondary certification opportunities, non-traditional academic settings, as well as traditional two- and four-year degree programs.



37. School districts should assist students in determining the economic sustainability of various career paths so that they are well-informed when faced with career choices.
38. School districts should offer access and preparation for a student's preferred career regardless of the student's current placement or socioeconomic status.
39. Local districts should consider developing short- and long-term strategic plans to revise curricula and course offerings at all grade levels, along with accompanying short- and long-term funding for those programs.

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Chapter 4

*Revise preparation and certification requirements to resolve a shortage of teachers in the STEM/STEAM and Makerspace areas.*

40. The New Jersey Department of Education and the State Board of Education should clarify CTE teacher certification and preparation requirements that contain conflicting and ambiguous provisions involving required levels of education and the substitution of work experience for a college degree.
41. NJDOE and the State Board of Education should consider revisions to alternate-route-to-certification qualifications to encourage more skilled individuals to become licensed to teach CTE programs.
42. The state Department of Education should relax teacher certification standards in vocational instructional areas to allow credit for years of working experience.
43. NJDOE should collaborate with employers and labor organizations when revising requirements for the CTE endorsement.
44. NJDOE and the State Board of Education should create a new certification category, or amend existing requirements, to enable non-CTE teachers to instruct in the STEM/STEAM (science, technology, engineering, the arts and mathematics) and Makerspace<sup>130</sup> learning areas. There is a shortage of teachers in these content areas, which stress problem-solving and practical application.
45. The state Department of Education should collaborate with NJSBA, the New Jersey Technology and Engineering Educators Association, university partners, NJEA and other organizations to create the framework for a short course for Integrative STEM/STEAM and Makerspace courses.
46. The state Department of Education should create a shorter training program (6-12 months) for teachers so that they can obtain a certificate to teach STEM and STEAM courses that include design-based pedagogy and manufacturing components.

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<sup>130</sup> For information on Makerspaces in education, see: "The 'Maker Mindset' and How It Can Transform Schools" by Marc Natanagara, *New Jersey School Leader*, March 30, 2017, 15, New Jersey School Boards Association, accessed July 30, 2018, <https://www.njsba.org/news-publications/school-leader/march-april-2017-volume-47-5/maker-mindset-can-transform-schools/>.

47. The state Legislature and the State Board of Education should identify and revise statutes and regulations, respectively, that unduly impinge on the ability of school districts to deliver necessary services to students pursuing post-secondary employment opportunities.
48. School districts should identify and publicize issues that they face in hiring and retaining appropriately certified staff to provide required instruction to students who are pursuing post-secondary employment opportunities.

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Chapter 5

*Develop an assessment system that better reflects student growth and learning. Revise student assessment and graduation requirements in collaboration with the business community.*

49. NJDOE and the State Board of Education should revise graduation regulations to allow credits for internships, apprenticeships and cooperative learning opportunities.
50. NJDOE should consider the use of multimodal testing platforms to more accurately measure student growth and learning, and assessments to enable students to demonstrate competency in vocational applications of mathematics and technology.
51. NJDOE should align statewide testing to standards for entry-level employees based on NOCTI (National Occupational Competency Testing Institute) or comparable industry benchmarks.<sup>131</sup>
52. NJDOE should review graduation requirements to ensure that career-focused students have appropriate elective credits available to enable them to secure post-secondary employment.
53. The New Jersey Department of Education should place more emphasis on applied learning or problem-based learning, rather than on theoretical learning, for all students.
54. NJDOE, in consultation with various industry entities, should disseminate information regarding the minimum standards necessary for post-secondary entry-level employment.
55. The business and labor sectors should collaborate with the New Jersey Department of Education to ensure that certification and licensing requirements are consistent with industry standards.
56. Education leaders at all levels should initiate a public advertising campaign to re-introduce the concept of vocational education as an alternative to traditional post-secondary alternatives.
57. The education community should use the term, “career-focused learner,” in lieu of the term “non-college-bound learner,” when referring to the population of students who do not plan to attend college directly after high school but intend to pursue other career pathways.

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<sup>131</sup> NOCTI is a not-for-profit consortium focusing on improvement of the American workforce. (See: <https://www.nocti.org/aboutnocti.cfm>.) NOCTI's Job Ready tests are one of two assessment batteries used by the Pennsylvania Department of Education to measure the occupational competency of career and technical education students. (See: <https://www.education.pa.gov/K-12/Career%20and%20Technical%20Education/Pages/Assessment-Information.aspx>.)

Chapter 6

*Assess financial needs and concerns, and explore alternative funding sources.*

Financial Resources for the Education of Career-Focused students

- 58.** NJSBA and other state education organizations should work with local school districts to advocate for more state and federal funding for CTE programs to benefit students in all settings, including comprehensive high schools.
- 59.** NJSBA, other state education organizations and local school districts should create partnerships with business and industry and labor unions to generate internships and apprenticeships.
- 60.** Local districts should reach out to businesses and labor unions that operate in their regions for funding, support and resources.
- 61.** Boards of education should identify areas in which existing funds for curriculum can be reallocated to meet the needs of all students, including college-bound and career-focused learners.
- 62.** Wherever possible, school districts should identify resources within the annual budget to support the career-focused student.
- 63.** Boards of education should establish public-private partnership committees that include school officials, local business leaders, municipal officials and members of the municipal economic or industrial board.
- 64.** The New Jersey School Boards Association should involve the New Jersey Public School Labor-Management Collaborative in the development of public-private partnerships for the benefit of students.
- 65.** NJSBA and/or its corporate members should assist local school districts by developing a guide on effectuating public-private partnerships.
- 66.** NJSBA should explore grant opportunities and formal partnerships with all branches of the military to support non-college-bound learners.

Inter-District Collaboration

- 67.** Boards of education and state education leaders should collaborate on the cost-effective inter-district delivery of career training for the non-college-bound student.
- 68.** NJDOE and NJSBA should provide a forum for addressing the delivery of career training to non-college-bound students through inter-district collaboration.

Chapter 7:

*The Next Steps*

69. The New Jersey business and education communities should engage in a formal study to determine the best methods to deliver CTE training to our students and to define the roles of local school districts, county vocational-technical high schools and community colleges in the effort. The study should be initiated by the state. It should involve representatives of the following: The New Jersey School Boards Association; other stakeholders in K-12 education, including county vocational-technical school districts; community colleges; other institutions of higher education, the New Jersey Department of Education; the New Jersey Department of Labor and Workforce Development; state-level business organizations, and government workforce development agencies.





# New Jersey School Boards Association

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## APPENDIX I

### WHITE PAPER: Preparing the Non-College-Bound Student for the Post-Secondary World



**June 12, 2018**



WHITE PAPER:  
**Preparing the Non-College-Bound Student  
for the Post-Secondary World**

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*The New Jersey School Boards Association is a federation of the state's local boards of education and includes the majority of New Jersey's charter schools as associate members. NJSBA provides training, advocacy and support to advance public education and promote the achievement of all students through effective governance.*

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# Preparing the Non-College-Bound Student for the Post-Secondary World

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## *How well are we preparing non-college-bound students for “post-secondary life”?*

The concern has intensified over the years among educators and employers. For New Jersey, it involves an increasingly complex set of factors:

- Educational options for the non-college-bound learner;
- Adequate academic preparation for both college-bound and career-bound students;
- Effective career training that builds skills in areas ranging from the construction trades to allied health, the environment, and information technology;
- Collaboration among K-12 educational programs, county career and technical education (CTE) schools and community colleges, and
- Inclusion of employers, representatives of business and industry and other post-secondary career providers, such as the U.S. military, in collaborative efforts.

In a recent article, based on his presentation to a May 31, 2018 educators’ forum sponsored by *The New York Times*, former New York City Mayor **Michael R. Bloomberg**, founder of Bloomberg LP and the Bloomberg Philanthropies, described the challenge:

**One side thinks that every student should get an acceptance letter from a four-year college. The other argues that college is overrated and that we should focus on preparing young people for well-paid careers that don’t require a four-year education. The truth is that this isn’t an either/or situation. We need to do both: put more focus on college *and* careers, so students have a real choice.**

**Yet right now, we’re not doing either one very well.<sup>1</sup>**

For several decades the definition of academic success upon high school graduation has focused on admission to a four-year college. Yet, nationwide statistics from a variety of sources show that a large proportion of college enrollees do not earn bachelor’s degrees within six years.

The U.S Department of Education’s National Center for Education Statistics indicates that, in 2015, approximately 70 percent of high school graduates enrolled in college immediately upon graduation.<sup>2</sup> A study by the National Student Clearinghouse Research Center found that, of 2015’s immediate college enrollees, 78.2 percent returned to college for their sophomore year either at the same institution or another school.<sup>3</sup>

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<sup>1</sup> Bloomberg, Michael R. “The False Choice That Holds Our Kids Back.” *Bloomberg.com*, Bloomberg, 31 May 2018, [www.bloomberg.com/view/articles/2018-05-31/michael-bloomberg-education-for-college-and-career-readiness](http://www.bloomberg.com/view/articles/2018-05-31/michael-bloomberg-education-for-college-and-career-readiness). Accessed June 8, 2018.

<sup>2</sup> “The Condition of Education - Postsecondary Education - Postsecondary Students - Immediate College Enrollment Rate - Indicator January (2018).” Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2001-2002, E.D. Tab. [https://nces.ed.gov/programs/coe/indicator\\_cpa.asp](https://nces.ed.gov/programs/coe/indicator_cpa.asp). Accessed June 11, 2018.

<sup>3</sup> “First-Year Persistence and Retention Rates, Fall 2016.” National Student Clearinghouse Research Center. December 18, 2017. <https://nscresearchcenter.org/snapshotreport28-first-year-persistence-and-retention/>. Accessed June 11, 2018.

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The NCES data also show the following:

- The six-year graduation rate for first-time, full-time undergraduate students who began seeking a bachelor's degree at a 4-year degree-granting institution in fall 2010 was 60 percent. That is, by 2016 some 60 percent of students had completed a bachelor's degree at the same institution where they started in 2010.
- At two-year degree-granting institutions overall, 30 percent of first-time, full-time undergraduate students who began seeking a certificate or associate's degree in fall 2013 attained it within 150 percent of the normal time required for completion of these programs. (An example of completing a credential within 150 percent of the normal time is completing a two-year degree within three years).<sup>4</sup>

A presentation by representatives of **The College Board** to the New Jersey School Boards Association's Equity Council<sup>5</sup> on May 29, 2018 addressed the situation succinctly

**For every 100 ninth graders, 83 earn a high school diploma, 58 immediately enter college, 38 return to college for sophomore year, and 21 earn a bachelor's degree in six years. Seventy-nine will not earn a bachelor's degree.<sup>6</sup>**

The statistics came from several sources, including the NCES, the Bureau of Labor Statistics, National Student Clearinghouse, and The College Board. Additionally, the presentation showed substantial gaps related to wealth, race and future income:

- 82 percent of students whose family income exceeds \$100,000 started college immediately after high school, compared with 58 percent of students from the lowest income level (below \$20,582).
- Degree attainment varies by race. For example, 26% percent of Hispanic and 31 percent of black individuals completed at least an associate degree, compared to 54 percent of white individuals.
- Earnings of full-time workers with bachelor's degrees were 67 percent higher than that for high school graduates without post-secondary degrees.<sup>7</sup>

In the fall of 2017, the New Jersey School Boards Association created a Task Force on Educational Options for Non-College Bound Learners. The group consists of educators, local board of education members, and representatives of business and industry, workforce development and higher education.

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<sup>4</sup> "The Condition of Education - Postsecondary Education - Programs, Courses, and Completions - Undergraduate Retention and Graduation Rates - Indicator May (2018)." Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2001-2002, E.D. Tab. [https://nces.ed.gov/programs/coe/indicator\\_ctr.asp](https://nces.ed.gov/programs/coe/indicator_ctr.asp). Accessed June 11, 2018.

<sup>5</sup> Formed in 2018, the NJSBA Equity Council considers research and best practices in curriculum, educational opportunity, school climate and school district policy to advance student achievement.

<sup>6</sup> The College Board, New York, NY, "College & Career Pathway Today" (presentation, New Jersey School Boards Association Equity Council, Trenton, NJ, May 29, 2018).

<sup>7</sup> *Ibid.*

The task force is expected to issue its final report in the summer of 2018. Its purpose is to:

- (a) Study the current status of education programs and post-secondary training and career opportunities for non-college-bound high school students;
- (b) Identify strategies to expand program options, and
- (c) Recommend appropriate action by local school boards, NJSBA, and other governmental entities involved in education.

The New Jersey School Boards Association is the only state organization of its kind that has undertaken such a project. Creation of the task force was prompted by the same concern expressed by Michael Bloomberg on May 31:

**We have to do more to help both groups—those at risk of dropping out, and those who get a diploma but don’t go on to college—learn skills that they can put to use in the work force, in jobs that won’t be automated out of existence. I’m thinking of jobs in plumbing, automotive mechanics and construction....**

**Almost one-third of new job openings require a skill of some sort—not a bachelor’s degree. And in many cases, employers are struggling to fill these jobs, which hurts economic growth.**

**...few places are teaching skills that are required for new jobs that are in demand, like lab technicians and help-desk operators. These jobs are no less important than jobs that require bachelor’s degrees...<sup>8</sup>**

Career and technical education in New Jersey is provided through three vehicles: 21 county-based CTE school districts; the state’s comprehensive high schools, and community colleges. “As of 2016, traditional district-based high schools [in New Jersey] served about 48,000 students in CTE programs, about 50 percent more than the CTE-specific county vocational schools.”<sup>9</sup>

In its deliberations, the task force has identified several concerns about the provision of CTE:

- A focus by the 21 county-based CTE school on selective college-prep academies in the sciences and technology, reducing options for students who are not immediately college bound;
- A lack of funding for traditional public school districts to provide hands-on CTE programming in the trades, health-related fields, environmental science, information technology, hospitality management and other areas;
- Geographical and demographic disparities in the extent and type of CTE offerings;
- A lack of coordination and communication among K-12 school districts and county CTE districts, leading to a lack of student and parental awareness of available educational opportunities; and
- A need to increase the number of teachers certified in traditional CTE trade areas.

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<sup>8</sup> Bloomberg, “The False Choice That Holds Our Kids Back.”

<sup>9</sup> Smarick, Andy. “The Evolving High School CTE: New Jersey’s Distinctive Approach to Career Education,” American Enterprise Institute, November 2017, 26, <http://www.aei.org/wp-content/uploads/2017/11/The-Evolving-High-School-CTE.pdf>. Accessed June 11, 2018.

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A November 2017 report by the **American Enterprise Institute** on career and technical education in New Jersey described the county-based CTE schools as flexible and responsive to students, local business and industry, and the community. Nonetheless, the report noted that the system may not always meet all needs.

**A school designed to develop employees for certain industries may not be well suited to helping students maximize the number of transferrable college credits they earn. A selective-admission school for high-achieving, college-bound students might end up with a student body that does not reflect its community's racial and economic diversity.<sup>10</sup>**

A recent report by the **Brookings Institute** provides an ideal definition of CTE.

CTE encompasses a wide range of activities intended to simultaneously provide students with skills demanded in the labor market while preparing them for post-secondary degrees in technical fields. Activities include not only specific career-oriented classes, but also internships, apprenticeships and in-school programs designed to foster work readiness.

CTE advocates cite several goals of career-oriented learning experiences. For non-college-bound students, CTE can provide hands-on training that translates directly to attractive careers upon graduation. Work-related or internship-like experiences that are often a part of CTE can teach students the "soft skills" necessary in the labor market. Finally, by integrating academic skills into a "real world" context, advocates claim that CTE can motivate students to attend school more frequently and be more engaged, and therefore improve core academic skills.<sup>11</sup>

To attain balanced CTE program for all students, regardless of where they attend school, the NJSBA task force is considering recommending several strategies:

- Promoting effective communication between county CTE school districts and traditional school districts. Such an effort can lead to productive collaboration and effective partnerships that benefit students from both county and local school districts. It can also inform teachers, parents and students about available educational options.
- Securing financial opportunities for traditional public school districts to expand CTE funding. Federal funding is directed toward the county-based CTE school districts, and not comprehensive high schools. In 2016, a New Jersey pilot program, "Building Capacity for Career Pathways," offered grants for comprehensive high schools. That funding is no longer available.
- Collaborating with business, industry and labor unions to establish apprenticeships, internships and micro-credentialing for students to meet standards related to academic goals and the demands of the labor market.

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<sup>10</sup> *Ibid*, 3.

<sup>11</sup> Jacob, Brian A. "What We Know about Career and Technical Education in High School." Brookings. October 4, 2017. <https://www.brookings.edu/research/what-we-know-about-career-and-technical-education-in-high-school/>. Accessed June 6, 2018.

## **A FOCUS ON COLLABORATION**

A major goal of the New Jersey School Boards Association's current Strategic Plan<sup>12</sup> is for "every New Jersey student to have the tools to be successful in pursuit of their chosen life goals in a safe, healthy, caring climate." Toward that goal, NJSBA has built relationships with a wide range of organizations—within the education community, in higher education, and in the business and non-profit sectors. Three of these initiatives might serve as models—and be part of a strategy—to address the needs of students who are not immediately bound for four-year colleges.

### **NJSBA-U.S. Army Partnership**

For our students, the STEAM areas (science, technology, engineering, the arts, and mathematics) will be key to success in higher education and the workplace. The New Jersey School Boards Association is the only state school boards association with staff dedicated to training and consultation with school districts on STEAM education.

**Each year, NJSBA's STEAM and Sustainable Schools Specialist consults with, and provides training to, school districts throughout the state in the development of policies and practices to establish integrated STEAM education programs in K-through-12 programs.**

The U.S. Army has been a valuable partner in this effort. Through its unique partnership with NJSBA, the Army fully funds the placement of a STEAM education fellow on our staff to assist the Association's STEAM education specialist in training, direct consultation and related activities. For example, the STEAM education fellow participates in the "Are You I-STEAM Ready?" training programs, which take place five times a year. He also coordinates NJSBA's annual STEAM Tank Challenge, co-sponsored by the Army, which this year attracted 400 student teams to design inventions, solve problems, and improve technology.

As part of this collaborative relationship, NJSBA encourages school districts to inform students and parents about the post-secondary educational and career opportunities available through the U.S. Army and other branches of service.<sup>13</sup> The Army's commanding general for recruitment recently visited NJSBA and affirmed his commitment to replicating this partnership in other states.<sup>14</sup>

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<sup>12</sup> "Vision 2020: Strategic Plan 2018-2020," New Jersey School Boards Association. November 3, 2017. <https://www.njsba.org/wp-content/uploads/2017/12/2018-2020-plan-flat-2-revised.pdf>. Accessed June 12, 2018.

<sup>13</sup> "Praise for NJSBA-U.S. Army Partnership." New Jersey School Boards Association. February 07, 2018. <https://www.njsba.org/news-publications/school-board-notes/february-6-2018-vol-xli-no-25/praise-new-jerseys-military-opportunities-day-2/>. Accessed June 11, 2018.

<sup>14</sup> "Military STEAM Programs Discussed at NJSBA." New Jersey School Boards Association. May 15, 2018. <https://www.njsba.org/news-publications/school-board-notes/may-15-2018-vol-xli-no-39/military-i-steam-programs-discussed-at-njsba/>. Accessed June 11, 2018.



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**Sustainable Jersey for Schools**

NJSBA is a founding partner, with the Sustainability Institute at The College of New Jersey, of Sustainable Jersey for Schools.<sup>15</sup>

**This voluntary certification program has resulted in “greener” schools and classrooms, environmentally astute communities, and healthier environments for the children of New Jersey, while enabling school districts to cut operating costs.**

Launched in 2014, Sustainable Jersey for Schools provides schools with training, financial support and advocacy. Today, the program encompasses 302 school districts, approximately 53 percent of the state’s total. One hundred ninety-four schools have been certified.

Since its founding, Sustainable Jersey for Schools has engaged additional partners, including the New Jersey Association of School Business Officials, the New Jersey Education Association, the New Jersey Principals and Supervisors Association, and the New Jersey School Buildings and Grounds Association. Corporate New Jersey supports the program as well.

A “priority” certification area is Student Learning. It includes a component on career and technical education, which delves into environmental-related areas and promotes student understanding of the core principles of sustainability.

In addition to its commitment to Sustainable Jersey, NJSBA is the only state school boards association with staff dedicated to research, training and consultation in sustainable practices.

**Future Ready Schools—New Jersey**

Launched in 2016, Future Ready Schools—NJ<sup>16</sup> is a collaborative effort of NJSBA, the New Jersey Institute of Technology and the New Jersey Department of Education.

**The program advances digital education in the state’s public schools by fostering best practices and cooperation among schools and providing resources to support teachers in changing instructional strategy.**

This voluntary certification program sets benchmarks in three areas that are essential for a school to be “Future Ready”: leadership; education and classroom practice; and technology and support services. Within the course of a year, NJSBA provides four “Are You Future Ready?” working sessions that engage schools in the program and help them assess their progress in digital learning.

A Future Ready Schools—NJ project coordinator, who is on the staff of the New Jersey Institute of Technology, spends two days per week at NJSBA headquarters. He advises school districts on the certification program and its benchmarks, participates in training programs, and facilitates collaboration among the three founding organizations.

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<sup>15</sup> Sustainable Jersey for Schools. <http://www.sustainablejerseyschools.com/>. Accessed June 12, 2018.

<sup>16</sup> Future Ready Schools - New Jersey. <http://www.frsnj.org/>. Accessed June 12, 2018.

## **MOVING FORWARD**

NJSBA is a federation of all of the state’s local school boards, including those that govern the county-based CTE districts. Our Association, therefore, is well-positioned to help public comprehensive high schools, CTE schools and charter schools meet the needs both of college-bound and non-college-bound students. These initiatives can be modeled after and can draw upon various elements of the U.S. Army partnership, Sustainable Jersey for Schools, and Future Ready Schools—New Jersey. They could involve the following:

- Securing funding for an NJSBA-based consultant, who would guide local school districts in establishing policies and developing educational choices for the non-college bound student or those who are not immediately college bound after high school graduation.
- Identifying resources, including grants, available from the state and federal governments, as well as private funders, to enable comprehensive high schools to develop training programs for the non-college bound student or those who are not immediately college bound;
- Working with employers in identifying the skills required by the labor market and balancing these factors with academic goals and the educational needs of the individual student;
- Facilitating cooperation among traditional public school districts, New Jersey’s 21 county-based CTE districts and community colleges to ensure communication to parents and students about the availability of CTE offerings;
- Working with the state education agency, the business community and labor organizations to establish credentialing for apprenticeships and other work-related experiences.
- With other stakeholders in K-12 and higher education, seek ways to increase opportunities for practitioners of the traditional trades to obtain teaching certification for employment in the public school.





# New Jersey School Boards Association

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## APPENDIX II

### Apprenticeships: A Key to a “Future Ready” New Jersey

Launched in October 2016<sup>1</sup>, Future Ready Schools—NJ is a partnership among the New Jersey Department of Education, the New Jersey Institute of Technology and the New Jersey School Boards Association. FRS-NJ is designed (a) to help educators prepare our students for post-secondary education and careers through the effective use of technology in the classroom and (b) to assist school districts in securing technological services and equipment.<sup>2</sup>

The voluntary school certification initiative is supported by the state’s major education organizations, including the NJEA, the New Jersey Principals and Supervisors Association, the New Jersey Association of School Administrators, the New Jersey Association of School Business Officials, and the New Jersey PTA. Close to 100 school districts have already made a commitment to the program.<sup>3</sup> FRS-NJ certified 63 schools in its inaugural year.<sup>4</sup>

### A Focus on Apprenticeships

Today, the partners in Future Ready Schools—NJ believes that apprenticeships will be critical to the program’s overall goal. A recent report, published by the U.S. Department of Education, underscores the importance of this strategy to our students and the state’s economy.

Labor market projections indicate a growing gap in the supply of qualified employees for middle skills jobs—those that require training beyond high school but less than a four-year degree. Shortfalls are expected to be particularly acute in fields critical to our nation’s economic competitiveness, such as computer technology, nursing, and advanced manufacturing.<sup>5</sup>

The design of Future Ready Schools—New Jersey is guided by task forces, consisting of hundreds of educators, school leaders and other education stakeholders. They created the program’s “Indicators of Future Readiness,” which fall within three categories: education and classroom practice; leadership; and technology support and services. Annually, the task forces evaluate the indicators leading to certification and identify new ones for implementation in the following year.

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<sup>1</sup> "Future Ready Schools-NJ Launches at Workshop." New Jersey School Boards Association. November 01, 2016. <https://www.njsba.org/news-publications/school-board-notes/november-1-2016-vol-xl-no-12/future-ready-schools-nj-launches-workshop/>. Accessed June 25, 2018.

<sup>2</sup> Future Ready Schools - New Jersey. <http://www.frsnj.org/>. Accessed June 25, 2018.

<sup>3</sup> Future Ready Schools - New Jersey. <http://www.frsnj.org/district-commitment>. Accessed June 25, 2018.

<sup>4</sup> "Future Ready Schools-NJ Honors First Certification Recipients." New Jersey School Boards Association. November 08, 2017. <https://www.njsba.org/news-publications/school-board-notes/november-8-2017-vol-xli-no-13/future-ready-schools-nj-honors-first-certification-recipients-2/>. Accessed June 25, 2018.

<sup>5</sup> "Opportunities for Connecting Secondary Career and Technical Education (CTE) Students and Apprenticeship Programs." U.S. Department of Education, Office of Career, Technical and Adult Education | Advance CTE. June 01, 2017. [https://cte.careertech.org/sites/default/files/files/resources/Opportunities\\_Connecting\\_Secondary\\_CTE\\_Apprenticeships.pdf](https://cte.careertech.org/sites/default/files/files/resources/Opportunities_Connecting_Secondary_CTE_Apprenticeships.pdf). Accessed June 25, 2018.

**For 2018-2019, “providing a high school apprenticeship program” is expected to be added to the indicators of the Future Ready Schools—NJ certification program.**

### 2013 White House Initiative

Future Ready Schools-NJ has its roots in the “Future Ready District Pledge,” part of the federal “ConnectED to the Future” initiative, launched by President Barack Obama in 2013.<sup>6</sup>

“Technology has the potential to transform education in America, allowing students to learn more, to do so at their own pace, and to develop the knowledge and skills employers demand,” reads a report on a November 2014 summit of education leaders hosted by the White House to discuss the initiative.<sup>7</sup>

The National Future Ready Framework, developed by the Alliance for Excellent Education, serves as an organizational umbrella for all discussions and decisions related to the use of technology in the classroom. It also guides the technical, professional and leadership support needed to ensure the most effective and efficient Future Ready practices. The elements of the national framework are reflected in FRS-NJ’s three indicator groupings: education and classroom practice; leadership; and technology support and services.<sup>8</sup>

### Colorado “CareerWise”

To be released this summer, the New Jersey School Boards Association’s study, “Educational Options for Non-College Bound Learners,” will cite Colorado’s “CareerWise,”<sup>9</sup> the nation’s first statewide youth apprenticeship program, as a model for the state and local school districts. The program, which began in the fall of 2017, is based on the Swiss apprenticeship model.<sup>10</sup>

An initiative of Colorado Governor John Hickenlooper, this public-private partnership provides three-year apprenticeships to students, starting in their junior year of high school and leading to industry credentials and associate degrees. By 2027, the program will offer 20,000 apprenticeship opportunities, according to the governor.

CareerWise is a stand-alone nonprofit that acts as an intermediary to assist businesses in meeting their talent needs through paid apprenticeships - beginning in high school.... CareerWise Colorado believes business associations and professional organizations should identify core competencies and skills necessary for success in the workplace. Career pathways include jobs in Financial Services, IT, Health Care, Advanced Manufacturing, Business Operations and Hospitality.<sup>11</sup>

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<sup>6</sup> “FACT SHEET: ConnectED to the Future.” National Archives and Records Administration. <https://obamawhitehouse.archives.gov/the-press-office/2014/11/19/fact-sheet-connected-future>. Accessed June 25, 2018.

<sup>7</sup> “[Archived] White House ConnectED to the Future Convening.” Office of Educational Technology. <https://tech.ed.gov/superintendentsummit/>. Accessed June 25, 2018.

<sup>8</sup> Future Ready Schools - New Jersey. <http://www.frsnj.org/indicators>. Accessed June 25, 2018.

<sup>9</sup> NewsHour, PBS. “Colorado Apprenticeship Program Turns the Factory Floor into a Classroom.” PBS. August 30, 2017. <https://www.pbs.org/newshour/show/colorado-apprenticeship-program-turns-factory-floor-classroom>. Accessed June 25, 2018.

<sup>10</sup> “Swiss Apprenticeships – A Model for Colorado.” Colorado Succeeds. April 23, 2018. <https://coloradosucceeds.org/work-based-learning/swiss-apprenticeships-a-model-for-colorado/>. Accessed June 25, 2018.

<sup>11</sup> “Colorado’s Swiss Apprenticeship Model: A Letter from Governor Hickenlooper,” Undated. [https://www.colorado.gov/pacific/sites/default/files/CO\\_Swiss\\_Apprenticeship\\_Model.pdf](https://www.colorado.gov/pacific/sites/default/files/CO_Swiss_Apprenticeship_Model.pdf). Accessed June 25, 2018.

### **An Opportunity for an Effective Partnership**

As a federation of the state’s local boards of education, the New Jersey School Boards Association is ideally positioned to serve as partner with the New Jersey Department of Education, the Department of Labor, the Governor’s Office and the New Jersey Business Action Center in advocating for—and implementing—the apprenticeship concept in our state’s public schools.

For the next fiscal year, NJSBA has established a goal to raise awareness of the positive impact of high school apprenticeships on students’ post-secondary education and careers, identify best practices and inform members about the New Jersey Apprenticeship Network, an initiative of Governor Phil Murphy. The goal reflects the findings of NJSBA’s upcoming report on educational options for non-college-bound learners and, significantly, is based on the Association’s 2018-2020 Strategic Plan.

Future Ready Schools—NJ will play a leading role in meeting this goal. With its strong focus on public-private partnerships and collaboration among higher education, K-12 and CTE school districts, and the business community, FRS—NJ will serve as an important forum to advance apprenticeships in our state.

The New Jersey School Boards Association stands ready to explore additional ways in which it could work with the Administration, the business community and higher education to advance post-secondary education and career opportunities through the New Jersey Apprenticeship Network.

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#### Additional Resources

- “Future Ready Schools Receives Technology Educators’ Award,” *School Board Notes*, June 5, 2018. <https://www.njsba.org/news-publications/school-board-notes/june-5-2018-vol-xli-no-42/future-ready-schools-receives-technology-educators-award/>
- “Future Ready Schools – New Jersey: The Why, What, and How,” by Jeremy Reich. *School Leader*, January-February 2018. <https://www.njsba.org/news-publications/school-leader/january-february-2018-volume-48-no-4/future-ready-schools-new-jersey-2/>
- “Executive Word: Future Ready Schools NJ Takes Technology to a New Level, by Dr. Lawrence S. Feinsod. *School Leader*, March-April 2017. <https://www.njsba.org/news-publications/school-leader/march-april-2017-volume-47-5/executive-word-future-ready-schools-nj-takes-technology-new-level/>
- “Future Ready Schools—New Jersey,” presentation to New Jersey State Board of Education by Dr. Lawrence S. Feinsod, NJSBA executive director, and Patrice Maillet, NJSBA director of business development, October 4, 2017. <http://www.nj.gov/education/sboe/meetings/2017/October/public/Future%20Ready%20Schools.pdf>

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*Founded in 2014, the New Jersey School Boards Association is a federation of the state’s local boards of education. NJSBA provides training, advocacy and support to advance public education and promote the achievement of all students through effective governance.*







## APPENDIX III

### **County Vocational-Technical School Partnership Grants: Expanding CTE Programs and Partnerships to Meet Student and Employer Demand**

P. L. 2014, C. 73 (A3337/S2228) established the County Vocational-Technical School Partnership Grant Program to spur the creation of new career programs hosted by colleges, local high schools, and other partners in existing facilities. The law was funded with a \$3 million appropriation in fiscal years 2015, 2016 and 2018, and \$1 million in 2017.

The multi-year incentive grants awarded in the first four cohorts have enabled 12 county vocational-technical school districts to launch 23 new and expanded programs that are being phased in to full enrollment over two to four years. When fully enrolled at the end of the grant period, these 23 programs will serve approximately **1600 additional students on an ongoing basis** in new career and technical education programs, while enabling many more students to benefit from new credential and work-based learning options added as a result of new partnerships.

Seven additional partnerships were granted in January 2018, further expanding the availability of career and technical education programs and enhancing the connections between county vocational-technical schools, employers, colleges, and local school districts.

The new programs and enhancements funded by the partnership grants will remain in place long after the incentive funding is expended, resulting in long-term expansion of career and technical education opportunities within existing school, college and employer facilities throughout the state.

#### **Year One Results:**

Seven New Jersey county vocational-technical school districts launched new and expanded career and technical education programs in high-demand industries in September 2015:

**Bergen County Technical Schools** opened Applied Technology High School, a full-time, four-year high school focusing on advanced manufacturing and engineering technology, located on the Paramus campus of Bergen County College. Partners include NJIT, Stryker Orthopedics, Triangle Manufacturing, Sandvik Coromant, the Commerce & Industry Association of New Jersey and the Bergen Workforce Investment Board. Now in its third year, the program enrolls 90 students in grades 9-11. Thirty more students will be added in September 2018 and the new school will be further expanded with a new Health Professions program.

**Camden County Technical School District** created a Law and Public Safety Academy grade 12 option in partnership with Camden County College and the Camden County Police Department. Seniors take their classes at the Camden County Emergency Training Center and CCC, benefitting from an enhanced program that provides significant exposure to real-world law enforcement.

**Hudson County Schools of Technology** created a culinary arts partnership with Harrison High School and Hudson County Community College to enable more students to prepare for careers in the county's booming hospitality industry. Forty students were initially enrolled, with 20 new students added to the program each year, enabling Harrison students to earn college credits and workplace experience in restaurants and other venues.

**Hunterdon County Vocational School District** created a full-time computer science and software engineering program for students from throughout the county at Delaware Valley High School. Partners include Raritan Valley Community College, Kean University, Rutgers University and Rowan University, and the Hunterdon Health Care System. Now in its third year, the program has 67 students in grades 9-11 enrolled, and a final cohort will be added next year.

**Mercer County Technical Schools** opened a four-year, full-time Science, Technology, Engineering and Math (STEM) Academy at Mercer County Community College where students earn up to 34 college credits. Business partners include national and international manufacturers with facilities in the Trenton area, including KNF Neuberger, Palfinger, Nordson EFD, Lawrence Mold and Tool Corporation, and Gaum, Inc. Now in its third year, 75 students in grades 9-11 are enrolled, and a final cohort will be added next year.

**Morris County Vocational School District** launched a shared-time engineering design and advanced manufacturing program for juniors and seniors in partnership with the County College of Morris and NJIT. Business partners include the New Jersey Manufacturing Extension Program, Inc., National Manufacturing Co., Inc., Siemens, the ManufactureNJ Talent Network and the New Jersey Business & Industry Association (NJBIA). The program also has a partnership with NASA in which the NJ students fabricate equipment used in the International Space Station. Forty juniors and seniors are enrolled, and they are earning up to a full year of college credits as part of their unique experience.

**Salem County Vocational Technical Schools** expanded its law and public safety curriculum to create a four-year Law Enforcement/Firefighter/EMT Academy in partnership with Salem County Community College, the Salem County Sheriff's Office, the Salem County Prosecutor's Office, the Salem County Fire Academy and the Salem County Office of Emergency Management. New and existing students are benefitting from the opportunity to earn newly added EMT and firefighter certifications that will prepare them for employment when they turn 18.

### **Year Two Results**

A second round of grants funded in the FY 2016 Budget spurred the launch of five new programs in September 2016:

**Somerset County Vocational & Technical High School (SCVTHS)** launched a program in mechatronics, engineering and advanced manufacturing (MEAM), in partnership with Raritan Valley Community College (RVCC) and local businesses. The 30 students enrolled in the first two classes are learning how to apply mathematical and scientific principles to the design, development and operational evaluation of the technical and physical systems used in 21st century manufacturing. Additional cohorts of students will be added over the next two years.

**Monmouth County Vocational School District** and the **Asbury Park School District** partnered with Brookdale Community College and Kean University to create a STEM Engineering Academy for students at Asbury Park High School. There are about 60 students in grades 9-11 in the new program, and 20 new freshmen will join the STEM program each year.

**The Academy for Environmental Science** is a new four-year, full-time high school program offered through a partnership between the **Morris County Vocational School District (MCVSD)** and **Jefferson Township High School (JTHS)**, where the program is located. Fifteen students from throughout Morris County are preparing for careers in environmental research, policy, compliance, design and law this year, and an additional class will be added each year. Program partners include the Lake Hopatcong Foundation, the Rockaway River Watershed Cabinet, Jefferson Township, Kean University's Center for

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Sustainability Science and a local law firm specializing in environmental issues.

**Hunterdon County Vocational School District (HCVSD)** partnered with **North Hunterdon High School (NHHS)** to launch a four-year **Biomedical Sciences Academy (BSA)** at the high school. There are 61 freshmen and sophomores enrolled, with additional cohorts added each year. Students exposed to almost 100 different careers in the medical field during their four years in high school. They are also able to earn college credits through the academy's agreements with Raritan Valley Community College and Rutgers School of Health Related Professions.

**Atlantic County Institute of Technology (ACIT)** is preparing high school students for careers in aviation through the **Academy of Aviation Studies**, located on the Mays Landing campus of Atlantic Cape Community College (ACCC). Partners include the Federal Aviation Administration (FAA) William J. Hughes Technical Center, Atlantic City International Airport, and the Stockton University Aviation Research and Technology Park (ARTP). Now in its second year, the program serves 27 students and will add an additional cohort in each of the next two years.

### Year Three Results

The third round of grants funded in the FY 2017 Budget spurred the launch of four additional new programs in September 2017:

**Hunterdon County Vocational School District** opened the Environmental Sustainability and Engineering Academy for full- and shared-time students from throughout the county at Voorhees High School. Students will be able to earn college credits through partnerships with Raritan Valley Community College, Rowan College at Burlington County, Rutgers University, and Centenary University. Industry partners, including the Hunterdon County Parks System, will provide internship opportunities and structured learning experiences.

**Middlesex County Vocational and Technical School District** is offering a new technical theater major for students in the district's School of the Arts on the East Brunswick Campus, thanks to partnerships with McCarter Theatre in Princeton, Rutgers' Mason Gross School of the Arts, NJIT and the International Alliance of Theatrical Stage Employees Local 21.

**Morris County Vocational School District** opened an Academy for Biotechnology at Mountain Lakes High School that is open to students from throughout the county. The STEM program prepares students for postsecondary studies in fields related to the biotechnology industry, with a focus on research and laboratory skills developed through a hands-on, project-based learning model.

**Passaic County Technical Institute** started a new drone technology program at Passaic High School. The Aerospace Engineer for Remote Operations (AERO) project will enable 20 students per year the opportunity to earn stackable credentials in remotely piloted aircraft and Unmanned Aerial System (UAS), along with dual enrollment and Advanced Placement credits, and articulation with college or university aerospace engineering programs.

### Year Four Results

A fourth round of grants funded in the FY 2018 Budget will support the launch of seven new career programs beginning in September 2018:



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**Bergen County Technical Schools** will offer a new program, Health Professions, in partnership with Bergen Community College. The Health Professions Program will offer hands-on, college-level coursework in healthcare. Access to Bergen Community College's state-of-the-art lab facilities will allow students to apply health science content in real-world patient simulations. Students will be given the opportunity to earn college credit and gain clinical experiences through a curriculum that emphasizes science and the human and organizational side of healthcare. The program will underscore the importance of teamwork as essential to patient well-being, provide students a strong foundation in science, and address the health workforce needs of New Jersey and the surrounding region. Graduates will be prepared to enter degree programs in areas including but not limited to health science, nursing, paramedic science, dental hygiene, sonography, and respiratory care. The program will enroll 30 students per year, for a total enrollment of 120 when fully implemented.

**Somerset County Vocational & Technical Schools** is offering a new Restaurant and Entrepreneurial Management (REM) program in partnership with Raritan Valley Community College (RVCC). The program will offer a four-year career pathway emphasizing social, entrepreneurial, technical and academic skills, while preparing youth for employment, starting their own business and advancing their education in restaurant, culinary and catering management. Students will obtain fundamentals in restaurant management by learning industry best practices and progress to overseeing the TradeWins restaurant at SCVTS. Students in the REM program will prepare for immediate employment, post-secondary training, or continue their education in college in the hospitality related fields such as Food and Beverage Management or Business Management at RVCC. Students may exercise their entrepreneurial knowledge by starting their own restaurant or catering service. Students will have opportunities for internships and job shadowing, further enhancing their technical skills. The REM program plans to add 20 students each year for a total of 80 additional students when the program is fully enrolled.

**Camden County Technical School District** is partnering with Camden County College (CCC) to develop a Digital Media Communications career program at the Pennsauken Campus. The grant will allow CCTS to make renovations to the career area, incorporate needed technology, implement dual-credit courses at CCTS, and expand the number of participating students in the Senior Option program at CCC. The program will serve 20 new students the first year, and accommodate 80 students when fully enrolled.

**Morris County Vocational School District** is developing a new program for Cybersecurity and Information Protection (CSIP) in partnership with County College of Morris. This is a shared time program for juniors and seniors. Students will attend CCM's award-winning Cybersecurity Center for two hours and 40 minutes each morning and take classes in cybersecurity and information technology. Over the course of the two-year program, students will earn a minimum of 39 CCM college credits, as well as CompTia A+ and Cisco CCENT certifications. There will be opportunities for students to participate in Cyber Patriot and Ethical Hacking competitions. The program will be able to accommodate 20 additional students per year for a total of 40 students when fully enrolled.

**Hunterdon County Vocational School District** is starting a two-year, shared-time, county wide Heavy Equipment Operators Program in partnership with Voorhees High School District and Hunterdon County Educational Service Commission. The program will also have partnerships with post-secondary institutions to offer dual/articulated college credits into post-secondary degree programs, businesses, and a labor organization to allow students to participate in an apprenticeship option in Operating Engineers.

This program will be the first of its kind in NJ for high school students. The program will provide students with hands-on training opportunities through the use of heavy equipment simulators such as from Simlog and a working site. Students will learn how to operate various pieces of construction equipment including

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backhoes, dozers, excavators & CDL training. Hands-on training will be supplemented with classroom instruction utilizing curriculum such as from National Center for Construction Education & Research's and several industry-recognized credentials including OSHA10. The program will enroll a minimum of 20 students each year, for a total of 40 additional students when fully enrolled.

**The Hudson County Schools of Technology** partnered with the Hudson County Community College to create a new Exercise Science Program that will accommodate 20 to 25 additional students each year for a total of between 80-100 additional students when the program is fully enrolled. Both organizations have committed space in existing facilities, experienced and highly qualified staff and access to many possible structured learning work-based learning opportunities throughout Hudson County. The program will allow for dual enrollment. HCCC has committed to recruiting other comprehensive high schools and replicating the program as well.

**Passaic County Technology Institute** partnered with Passaic High School to assist in the creation of a new Computer Science STEM Career Program of Study. It will be open to 40 students per year from non-traditional populations among socioeconomically disadvantaged, Hispanic/Latino, African American, and females, attending Passaic High School (PHS). The program focus of Computer Science, will enhance PHS's current PLTW Gateway middle school offering by developing a scope and sequence that will now continue their Computer Science career and technical education into their high school options. The program's success will be based on PCTI's successful CTE model that creates partnerships between affiliate networks that include our comprehensive high school partner, industry associates, workforce partners, and Passaic County Community College and their Bridges to Baccalaureate university partners. Students' will earn dual enrollment credits and a series of stackable industry credentials; Advanced Placement courses and cooperative learning experiences while attending high school.







STATE OF NEW JERSEY  
DEPARTMENT OF EDUCATION

## **Murphy Administration Announces Vo-Tech Partnership Grants**

**For Immediate Release**

May 7, 2018

**Contact:** Michael Yaple

(609) 376-9072

**Trenton, NJ** – The New Jersey Department of Education (NJDOE) today announced that nearly \$3 million in New Jersey's County Vocational School District Partnership grants will be distributed among seven school districts.

The County Vocational School District Partnership Grant Program is state-funded and supports county vocational-technical school districts that partner with business and industry, comprehensive K-12 school districts, and postsecondary institutions to expand high school students' access and participation in career and technical education (CTE) programs. Grantees must implement the CTE program over three consecutive school years beginning in 2018-19.

Governor Murphy has called for a renewed focus on workforce development, vocational training, and apprenticeship programs so workers will have the skills they need to meet the demands of 21st century employers. It is estimated that 33,000 high school students and more than 6,000 adult students attend New Jersey's 21 county vocational-technical school districts.

"These grant awards demonstrate our commitment to offering multiple career pathways to high school students," said Acting Commissioner of Education Dr. Lamont O. Repollet. "One of our priorities is to increase access to CTE and this grant program provides students with opportunities to obtain an apprenticeship, industry-valued credentials, or dual credit from a postsecondary institution."

The [Notice of Grant Opportunity](#) provides additional information on the NJDOE County Vocational Partnership Grants.

## **APPENDIX IV**

### **Murphy Administration Announces Vo-Tech Partnership Grants/May 7, 2018**

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The selected districts include:

<b>District</b>	<b>Award</b>	<b>Program</b>	<b>Location</b>	<b>Secondary Partners</b>	<b>Postsecondary Partners</b>
Bergen County Technical Schools	\$500,000	Health Science	Bergen Community College	Garfield School District Bergenfield Public School District	Bergen Community College
Camden County Technical Schools	\$500,000	Digital Media Communications	Camden County Technical Schools – Pennsauken Campus		Camden County College
Hudson County Schools of Technology	\$175,780	Exercise Science	Hudson County Schools of Technology		Hudson County Community College
Hunterdon County Vocational School District	\$500,000	Heavy Equipment Operators	Voorhees High School  Hunterdon County Educational Services	Voorhees High School  Hunterdon County Educational Services (facility only)	Raritan Valley Community College  Pennsylvania College of Technology (Penn College)
Morris County Vocational School District	\$330,000	Cybersecurity	County College of Morris		County College of Morris
Passaic County Technical Institute	\$486,852	Computer Science Futures	Passaic County Community College  Ramapo College of New Jersey	Passaic High School	Passaic County Community College
Somerset County Vocational & Technical Schools	\$379,131	Restaurant and Entrepreneurial Management	Raritan Valley Community College  William Paterson University  Johnson & Wales University	Bedminster Township Public Schools  Watchung Hills Regional High School  South Bound Brook Public Schools	Raritan Valley Community College

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New Jersey Council of County  
Vocational-Technical Schools

132 West State Street, Trenton, New Jersey 08608 | (609) 392-6222 | [www.careertechnj.org](http://www.careertechnj.org)

CAREERTECHNJ

### **Manufacturing-Related Programs New Jersey County Vocational-Technical Schools**

**New Jersey's 21 county vocational-technical schools offer a wide range of career programs that have direct application to manufacturing industries in New Jersey.**

- Engineering/STEM
- Computer assisted design (CAD)
- Machine technology and repair
- Logistics and supply chain management
- Welding
- Mechatronics
- Diesel and auto technology
- Computer programming and repair

#### **Programs with a specific focus on manufacturing:**

##### **Bergen County Technical Schools - Applied Technology High School**

Opened in September, 2015, Applied Technology High School provides students with a unique educational experience through a blend of academic high school curriculum, college classes, and hands-on technical education.

With a curriculum centered on “smart machines,” students learn to apply math, science, and technology to hands-on projects in the fields of automation, electronics, and advanced manufacturing. They also learn the essential skills they need to pursue careers in a wide variety of areas, including engineering technology, and benefit from dual-enrollment coursework that allows them to earn advanced standing in several technical associates degree programs at Bergen Community College, including an A.A.S. program in General Engineering Technology.

People with a degree in engineering technology will help fill a critical workforce need: They will be installing, maintaining and supporting the increasing number of automated manufacturing systems that are projected to return much of the production that has been outsourced over the past decade back into factories here in the U.S. Graduates from a two- or four-year program in engineering technology qualify as technicians and seek employment in a variety of sectors including manufacturing, construction, and production design.

**Contact:** Andrea Sheridan, Assistant Superintendent, [andshe@bergen.org](mailto:andshe@bergen.org), 201-343-6000

##### **Burlington County Institute of Technology – Advanced Manufacturing and Fabrication**

Operated through a partnership with Rowan College of Burlington County at BCIT's Medford campus, the new Advanced Manufacturing and Fabrication Program includes a general overview of the manufacturing industry and advanced manufacturing processes, as well as specific coursework in CNC, computer assisted design (CAD), machining, and welding, all aligned with a rigorous academic program.

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BCIT high school students take their classes at the center during the day; in the evenings, adult students receive instruction through a program jointly operated by BCIT and RCBC. Rowan University and industries like Westampton-based Inductotherm are also involved with the program.

**Contact:** Dr. Todd Bonsall, Assistant Superintendent, [tbonsall@bcit.cc](mailto:tbonsall@bcit.cc), 609-267-4226

### **Camden County Technical Schools – Pre-engineering/Industrial Track**

This pre-engineering program enables students to experience applied practices in civil, mechanical, computer, environmental, industrial, and electrical engineering. Students use computers, engineering graphics, testing devices and equipment, and math/science principles in a laboratory setting to solve the real-world problems that confront engineers.

This program emphasizes problem solving, critical thinking, and the development of strong communication skills and the legal and professional ethics of engineering, and focuses on the engineering practices of designing, analyzing and improving new and existing designs, as well as teaching design and programming.

During their junior year, students have the option to specialize in one of three areas: 1) Computer Integrated Manufacturing (CIM), the design and programming of Computer Numeric Control (CNC) devices, Rapid Prototyping, and 3D Rendering;; 2) Digital electronics, automation and Programmable Logic Controllers (PLCs); or 3) Civil Engineering, Architecture and Computer-Aided Design (CAD).

**Contact:** Patricia Fitzgerald, Superintendent, [pfitzgerald@ccts.tec.nj.us](mailto:pfitzgerald@ccts.tec.nj.us), 856-767-7000

### **Cape May County Technical School District – Manufacturing-Related Programs**

The Cape May County Technical School District's welding program trains students in the use of the oxy-acetylene process, metal cutting, welding, brazing and soldering, with various types of arc welding. High school students have the opportunity to attain an American Welding Society (AWS) certification and college credits.

The district also offers a range of evening arc welding classes for adult skill development through our continuing education division. The district plans to open a new twilight evening post-secondary program that will help adult students gain industry aligned CTE skills and attain additional industry manufacturing certification.

Manufacturing is also infused in the district's Project Lead The Way Curriculum through the addition of 3-D design and printing, utilizing STEM-based curriculum, along with next year's planned addition of laser engraving. From boat-building to bridge construction to computer design and development, manufacturing is alive and well in Cape May County.

**Contact:** Dr. Nancy Hudanich, Superintendent, [nhudanich@capemaytech.com](mailto:nhudanich@capemaytech.com), (609) 465-2161

### **Hudson County Schools of Technology – D-FAB: Design, Fabrication and Mechatronics**

This new program, focused on design, fabrication and mechatronics, will grow the next generation of technology workers through skill development and flexible degree pathways.

With multiple access points and degree/training options for learners from high school through college, the program has been planned and implemented in collaboration with employers such as Eastern Millwork and higher education partners including Hudson County Community College, NJ City University and NJIT. The program will utilize the dual training model employed in Germany, through which students will learn in school and on the job.

**Contact:** Alyson Krone, Assistant Principal, [akrone@hcstonline.org](mailto:akrone@hcstonline.org), 201-662-6809

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### **Mercer County Technical Schools – STEM Academy**

The Mercer County Technical School District launched a four-year, full-time STEM (science, technology, engineering and math) Academy in September 2015, thanks to a \$300,000 county vocational partnership grant from the New Jersey Department of Education. A partnership with Mercer County Community College, the STEM Academy provides Mercer County high school students with an academically challenging and rigorous curriculum that includes a strong manufacturing focus.

The program incorporates Project Lead The Way, an activity-, project-, and problem-based engineering curriculum that includes computer-integrated manufacturing and electronics. Students have the opportunity to earn up to 34 college credits in courses such as computer-assisted design, industrial measurement and machining.

**Contact:** Sharon Nemeth, Principal, Assunpink Center, [snemeth@mcts.edu](mailto:snemeth@mcts.edu), 609-586-5144

### **Middlesex County Vocational and Technical Schools – Pre-Engineering and Manufacturing Technology**

Recognizing the need for a secondary-level advanced manufacturing program in the county, MCVTSs opened a Pre-Engineering and Manufacturing Technology career major in September 2015 at the East Brunswick campus.

Thanks to consultation with businesses and industries across the county and state, this program prepares students to apply basic technical skills and basic engineering principles to the installation, troubleshooting and support of the production process for a wide array of automated manufacturing employers.

The Pre-Engineering and Manufacturing Technology program includes instruction on tools, materials, production process, machine operations, automated line operations, technical and quality control, engineering analysis, instrumentation, programmable logic controllers (PLCs), electronics, hydraulics and pneumatics, process control, computer aided design (CAD), computer-aided manufacturing (CAM), and robotics.

**Contact:** Sean McDonald, Supervisor of Career and Technical Education, [mcdonalds@mcvts.net](mailto:mcdonalds@mcvts.net), 732-257-3300

### **Monmouth County Vocational School District – Advanced Manufacturing & Robotics**

Monmouth County Vocational School District, in partnership with Festo Didactic, Inc., will be offering an Advanced Manufacturing & Robotics shared-time program for high school juniors and seniors in starting in the fall of 2017.

The program will be taught on the site of Festo Didactic Inc., in Eatontown, providing an authentic learning experience. Students will engage in a rigorous curriculum, including an *Introduction to Engineering, Material, Properties & Processes, Engineering Graphics with CAD, Robotics & Automation*. They will also have the opportunity to earn industry-recognized certifications and participate in hands-on experiences and structured internships.

This is a unique opportunity to engage and prepare high school students for careers in advanced manufacturing, engineering and robotics while addressing the recognized skills gap in the manufacturing industry.

**Contact:** Denise Kebeck, Principal, [dkebeck@ctemc.org](mailto:dkebeck@ctemc.org), 732-431-7942.



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### **Morris County Vocational School District – Engineering Design and Advanced Manufacturing**

The Engineering Design and Advanced Manufacturing (EDAM) program offers high school juniors and seniors the opportunity to take classes in engineering, computer science, electronics and other technology applications while earning 32 college credits before high school graduation. Students also earn County College of Morris Certificates of Achievement in Mechanical Computer Aided Drafting and Engineering Technology.

Students take all their classes at the County College of Morris (CCM), where they work in CCM's newly-remodeled engineering while obtaining the key skills they need for careers in this rapidly expanding field.

Program partners include the Manufacture NJ Talent Network, the New Jersey Business & Industry Association, National Manufacturing Company, Siemens HealthCare and the New Jersey Manufacturing Extension Program. These partnerships provide students with work-based learning experiences to gain hands-on training and an inside track to employment opportunities upon program completion.

EDAM graduates also have the option of continuing at CCM to earn an associate's degree in Mechanical Engineering Technology in just one year. Students earning this degree will then be able to transfer to New Jersey Institute of Technology and earn a bachelor's degree in Engineering Technology or a related field.

**Contact:** Shari Castelli, Assistant Superintendent, [castellis@mcvts.org](mailto:castellis@mcvts.org), 973-627-4600 X206

### **Ocean County Vocational Technical Schools – Pre-Engineering Technology and Other Programs**

Pre-Engineering Technology at OCVTS is a STEM-based program of study designed to prepare high school juniors and seniors to apply engineering principles to the digital fabrication process. Areas of study include Computer-Aided Drafting (CAD), and 3D CAD Solid Modeling technologies to design, 3D-Printing Prototyping, Computer-Aided Manufacturing (CAM), Computer Numerical Controlled Machining (CNC) with G-Code Programming, Computer-Integrated Manufacturing (CIM) using Robotics, and Programmable Logic Controllers (PLC).

Additional OCVTS programs which incorporate the fundamentals of manufacturing concepts include:

- Welding, which teaches techniques in shielded metal arc, gas metal arc, gas tungsten arc, and flux cored arc welding as well as oxy-fuel gas and plasma arc cutting with the possible attainment of the American Welding Society (AWS) Certification
- Creative Woodworking and Design program where students learn the fundamentals of woodworking through the use of traditional equipment and hand tools, plus the latest computer numerically controlled (CNC) machinery and software designed to manufacture parts to specification, assemble, and finish work.
- Machine Trades, a four-year apprenticeship program that includes safety, machine operations/layout, precision measurement, shop procedures, and blue print reading/drawing.

**Contact:** Gary MacDonald, OCVTS Supervisor, [gmacdonald@mail.ocvts.org](mailto:gmacdonald@mail.ocvts.org), 732-240-6414

### **Passaic County Technical Institute - Manufacturing Technology and Other Programs**

Passaic County Technical Institute's Manufacturing Technology Program introduces young minds to the in-demand metal fabrication industry. The comprehensive course work is designed to prepare students for entry-level employment opportunities in the manufacturing/machining industry, or to continue on to post-secondary training.

Students work in a state-of-the-art manufacturing training facility that mirrors current industry standards. The working classroom is equipped with a high-tech computer lab offering training in MasterCam, and has an

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impressive production floor equipped with manual lathes, mills, drill presses, surface grinders, and saws. The CNC lab is equipped with state of the art HAAS lathes and mills.

Students are encouraged to explore various career opportunities through job-shadowing opportunities offered through the school's School to Careers Department with the valuable assistance of strong industry partnerships. The program has consistently placed more than 50% of the senior class in successful cooperative education experiences.

An articulation agreement with Bergen Community College allows students to earn 6 credits in Applied Metrology and Machine Tool Principles. Upon completion of the program, students are able to enter the workforce, continue on to post-secondary training or combine both pathways.

PCTI also offers manufacturing-related programs in welding and pre-engineering.

**Contact:** Mark Cacace, School to Careers Coordinator, [mcacace@pcti.tec.nj.us](mailto:mcacace@pcti.tec.nj.us), 973-389-4152

### **Somerset County Vocational & Technical High School – Mechatronics, Engineering and Advanced Manufacturing (MEAM)**

SCVTHS launched a new program for highly-motivated high school students interested in Mechatronics, Engineering and Advanced Manufacturing (MEAM) in September, 2016.

The program is offered through a partnership with Raritan Valley Community College (RVCC), as well as local businesses. It is designed to teach students how to apply mathematical and scientific principles to the design, development and operational evaluation of the physical systems used in manufacturing, and end-product systems designed for specific uses.

As part of the partnership, RVCC offers a minimum of 13 college credits for students who successfully complete the program. Upon graduation from the MEAM program, students will be ready to enter the workforce or pursue further education in highly coveted Science, Technology, Engineering and Math (STEM) careers.

**Contact:** Dr. Chrys Harttraft, Superintendent, [charttraft@scvts.net](mailto:charttraft@scvts.net), 908-526-8900.



## Perkins V: *Strengthening Career and Technical Education for the 21st Century Act*

On July 31, 2018, the president signed the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) into law. This Act, which became Public Law 115-224, reauthorizes the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV). It was approved unanimously by both chambers of Congress, reflecting broad bipartisan support for career and technical education (CTE) programs. Perkins V is largely based on the structure and content of current law, but makes some key changes that will impact the implementation of CTE programs and administrative processes around the country. As the new law was making its way through the reauthorization process, a key area of debate was “Secretarial authority” or the role of the U.S. Secretary of Education (Secretary) in the process of state and local planning and accountability. In Perkins V, we see evidence of the compromise on this issue, with enhanced prohibition language that limits the Secretary’s role and the elimination of the negotiation process between the Secretary and states on performance measure targets. In turn, we also see more specific requirements for setting these targets, including additional stakeholder engagement and expanded definitions.

The new law will go into effect on July 1, 2019, and the first year of implementation will be considered a “transition year.” Eligible agencies will be able to submit a one-year transition plan in spring 2019. Full four-year state and local plans, covering all the requirements of the Act, will then be submitted in spring 2020 (encompassing program years July 1, 2020-June 30, 2024).

### Major Tenets of Perkins V

Perkins V maintains a focus on CTE program improvement, flexibility, and data and accountability. The new law:

- maintains a commitment to driving improvement through programs of study and includes a robust, formal definition of that term
- retains the state governance structure of current law, as well as formulas for local funding flowing to public or nonprofit educational institutions
- updates the federal-to-state formula to ensure states receive no less than their Fiscal Year 2018 funding levels as long as funding is not cut overall (and then providing for equal, ratable reductions for all states)
- increases the allowable reserve fund to 15 percent to spur local innovation and implement programs of study
- introduces a comprehensive local needs assessment that requires data-driven decision-making on local spending, involves significant stakeholder consultation and must be updated at least once every two years
- creates a new competitive grant program within national activities focused on innovation and modernization
- lifts the restriction on spending funds below grade 7 and allows support for career exploration in the “middle grades” (which includes grades 5-8)
- defines who is included in the accountability system by including a formal “CTE concentrator” definition, instead of leaving this definition up to states
- significantly changes the process for setting performance targets by eliminating the negotiations with the Secretary and replacing these negotiations with a new list of requirements for developing targets and including those targets in state and local plans
- shifts the accountability indicators; the most significant changes are the consolidation of the two non-traditional measures into one, and the elimination of the technical skill attainment measure, which is replaced with a “program quality” measure at the secondary level that requires states to choose to report on work-based learning, postsecondary credit attainment or credential attainment during high school
- focuses on disaggregation of data by maintaining the required disaggregation by student populations, requiring additional disaggregation for each core indicator by CTE program or Career Cluster, and referencing attention to this disaggregation and identified performance gaps throughout the Act
- increases the focus on serving special populations with a new purpose of the Act, expanded definition, new required use of state leadership funds, additional consultation and stakeholder involvement, and new GAO study

Updated on August 24, 2018