



New York State Comptroller
THOMAS P. DiNAPOLI

New York City Department of Education

Career and Technical Education

Report 2019-N-4 | May 2021

Spotlight on Education



Audit Highlights

Objective

To determine if the New York City (NYC or City) Department of Education (DOE) is aligning Career and Technical Education (CTE) programs at the high school level with high-demand, high-growth occupations; ensuring students have reasonable access to CTE programs; and accurately collecting and reporting CTE placement data. The audit covered school years 2015-16 through 2017-18 and examined CTE programs and interviewed DOE officials.

About the Program

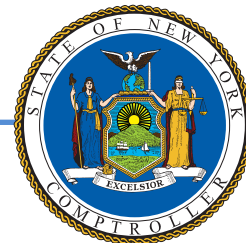
CTE programs (referred to in the past as vocational, occupational, or practical arts education) provide students with academic and technical skills, workplace competencies, and hands-on training to prepare them for future careers in occupational fields. During the 2017-18 school year, DOE offered 278 CTE programs to about 60,000 students at 124 high schools. State, federal, and local law, as well as a mayor's initiative, set guidelines and expectations for CTE programs in NYC. These guidelines and requirements aim to, among other things, provide high school students with access to CTE programs relating to high-growth, high-demand fields in accordance with labor market needs; expand and upgrade delivery and availability of CTE programs; and ensure State plans measure post-graduation placement.

Key Findings

- DOE could not show how existing CTE programs aligned with labor market and student demand. Information provided did not reflect how DOE is overseeing or assisting high schools to align CTE programs with high-growth, high-demand industries. For example, we found that, while the construction industry had expected job growth and relatively high-paying jobs, no significant changes were made in the number of related programs offered.
- CTE programs at some high schools are not accessible to all students. For three high-growth industry programs reviewed, we found school requirements and program admission priorities (based on residence in a particular borough or attendance at a fair or information session) made it difficult or impossible for some students to qualify or attend.
- DOE does not currently report post-secondary placement data for CTE students, as required by the State Education Department (SED).

Key Recommendations

- Evaluate whether CTE programs offered at the schools align with high-demand or high-growth occupations through collaborative interactions and planning with school officials and stakeholders.
- Revise admission program priorities and eligibility requirements to grant students a fair and equal opportunity to apply to and gain acceptance to CTE programs.
- Develop a process to capture and report post-secondary placement data per SED's guidelines.



**Office of the New York State Comptroller
Division of State Government Accountability**

May 20, 2021

Meisha Ross Porter
Chancellor
New York City Department of Education
52 Chambers Street
New York, NY 10007

Dear Chancellor Porter:

The Office of the State Comptroller is committed to helping State agencies, public authorities, and local government agencies manage government resources efficiently and effectively and, by doing so, providing accountability for tax dollars spent to support government operations. The Comptroller oversees the fiscal affairs of State agencies, public authorities, and local government agencies, as well as their compliance with relevant statutes and their observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving operations. Audits can also identify strategies for reducing costs and strengthening controls that are intended to safeguard assets.

Following is a report of our audit of the New York City Department of Education entitled *Career and Technical Education*. The audit was performed pursuant to the State Comptroller's authority as set forth in Article V, Section 1 of the State Constitution and Article III of the General Municipal Law.

This audit's results and recommendations are resources for you to use in effectively managing your operations and in meeting the expectations of taxpayers. If you have any questions about this report, please feel free to contact us.

Respectfully submitted,

Division of State Government Accountability

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Glossary of Terms

Term	Description	Identifier
Advisory Council	Advisory Council for Career and Technical Education	<i>Key Term</i>
Approved program	CTE program that has received SED approval	<i>Key Term</i>
Automate The Schools	DOE student information management system	<i>Key Term</i>
CTE	Career and Technical Education	<i>Key Term</i>
DOE	New York City Department of Education	<i>Auditee</i>
DOL	New York State Department of Labor	<i>Agency</i>
Education Law	New York State Education Law	<i>Law</i>
Endorsement	CTE diploma endorsement	<i>Key Term</i>
IT	Information technology	<i>Key Term</i>
Local Law	Local Law 174	<i>Law</i>
Local program	CTE program that operates outside the SED approval structure	<i>Key Term</i>
OPSR	DOE Office of Post-Secondary Readiness	<i>Office</i>
Perkins Act	Carl D. Perkins Career and Technical Education Improvement Act	<i>Act</i>
SED	State Education Department	<i>Agency</i>

Background

Career and Technical Education (CTE) programs (referred to in the past as vocational, occupational, or practical arts education) provide students with academic and technical skills, workplace competencies, and hands-on training to prepare them for future careers in occupational fields or to pursue a career in college/university. The New York City (NYC or City) Department of Education (DOE) – the nation’s largest public school system, comprising 32 individual school districts and two citywide districts (see Exhibits A and B) – serves approximately 1.1 million students at its more than 1,800 schools. DOE manages the largest CTE portfolio of any school system in the nation. Annually, NYC eighth-grade students submit an application ranking up to 12 high schools they would like to attend. As part of this process, students can indicate their interests in CTE programs.

DOE’s Office of Post-Secondary Readiness (OPSR) manages the City’s high school CTE portfolio. The mission of these CTE programs is to ensure all students graduate career- and college-ready and to provide a high-value strategy that supports students’ post-secondary aspirations and strengthens the City’s economy. CTE programs are made up of electives¹ that expose students to and/or teach them a variety of skills and careers.

In November 2014, the City issued a Career Pathways Report that presented recommendations to reorient and transform workforce development services. One of the recommendations was to improve and expand CTE programs to better support students’ long-term employment prospects. Starting with the 2015-16 school year, a mayoral initiative to strengthen and expand CTE sought to create new programs of study that aligned with in-demand occupations identified and recommended by the Career Pathways Report. The initiative focused on expanding access to CTE programs through innovative CTE instruction delivery, upgrading existing offerings, and examining the availability of sector-specific programs across each of the City’s five boroughs. The initiative created 47 new CTE programs² in schools across the five boroughs, with 9 in the Bronx, 17 in Brooklyn, 8 in Manhattan, 11 in Queens, and 2 in Staten Island. During the 2017-18 school year, DOE offered 278 CTE programs to approximately 60,000 students at 124 of its high schools.

New York State Education Law (Education Law) instructs school districts to provide secondary school pupils access to career education programs commensurate with the interests and capabilities of those desiring and having a need for preparatory training, retraining or upgrading for employment, and develop realistic programs in accord with employment needs in existing and emerging occupations for present and projected employment opportunities. The Carl D. Perkins Career and Technical Education Improvement Act (Perkins Act) is the principal source of federal funding to states for the improvement of secondary and post-secondary CTE programs. It also establishes that state administrators must develop, submit, and implement a state plan to measure student retention in post-secondary education, such as a

¹ Electives are credit-bearing courses not used to fulfill subject-specific credit requirements for graduation.

² Twenty-two of the 47 new CTE programs were created during our audit scope period, with the remaining 25 created in school year 2018-19.

baccalaureate degree program, or placement in military service, apprenticeship programs, or employment.

Local Law 174 (Local Law) was enacted in 2016, requiring DOE to annually submit to the NYC Council and post conspicuously on DOE's website a report for the preceding academic year on CTE programs in City schools. The report must include the following:

- Total number of high school-level CTE programs in schools.
- Number and percentage of students at each high school in a CTE program.
- Number and percentage of applicants who listed a CTE-designated high school as their first and second choice in the high school application process.
- Number and percentage of applicants who participated in the high school application process who enrolled in a CTE-designated high school.
- Four-year and six-year graduation rates for CTE-designated high schools.

DOE offers both Approved and Local CTE programs. Only State Education Department (SED)-approved programs (Approved programs) can lead to a CTE Endorsement (Endorsement) on diplomas. Such Endorsements demonstrate that students have met the academic and industry standards of the respective CTE program and can increase the likelihood of obtaining employment in the associated field of study. Local programs provide students with CTE-related skills, but have not obtained the SED approval required to grant students an Endorsement. To receive a diploma with an Endorsement, students must complete a three-part technical assessment for the Approved program, pass all required State assessments, and fulfill all other graduation requirements.

The Department of Labor (DOL) Long-Term Industry Employment Projections are forecasts intended to help individuals make informed education and career decisions and educators and training providers plan for future needs. These projections are forecasted for ten-year periods but are updated every other year. Prior to COVID-19, DOL projected a 14 percent increase in jobs for the City (see Figure 1).

**Figure 1 – DOL Long-Term Industry Employment Projections, 2016–2026
New York City**

NAICS Code	Industry Title	Employment		Net Change	Percent Change
		2016	2026		
11	Agriculture, Forestry, Fishing, and Hunting	440	480	40	9.1%
21	Mining	70	70	0	0.0%
22	Utilities	15,660	16,090	430	2.7%
23	Construction	145,400	168,500	23,100	15.9%
31	Manufacturing	76,120	71,000	-5,120	-6.7%
42	Wholesale Trade	147,550	147,740	190	0.1%
44	Retail Trade	349,300	363,430	14,130	4.0%
48	Transportation and Warehousing	126,700	137,060	10,360	8.2%
51	Information	188,400	202,110	13,710	7.3%
1023	Financial Activities	463,990	490,040	26,050	5.6%
1024	Professional and Business Services	722,760	841,360	118,600	16.4%
61	Educational Services	476,790	542,500	65,710	13.8%
62	Health Care and Social Assistance	770,690	992,400	221,710	28.8%
71	Arts, Entertainment, and Recreation	85,670	100,410	14,740	17.2%
72	Accommodation and Food Services	351,280	424,110	72,830	20.7%
81	Other Services (except Government)	188,790	214,710	25,920	13.7%
9	Government	322,800	337,830	15,030	4.7%
00601	Self-Employed Workers, All Jobs	251,790	275,390	23,600	9.4%
000000	Total All Industries	4,684,200	5,325,230	641,030	13.7%

Note: Employment is rounded to the nearest ten. NAICS = North American Industry Classification System.
Source: New York State Department of Labor, Division of Research and Statistics.

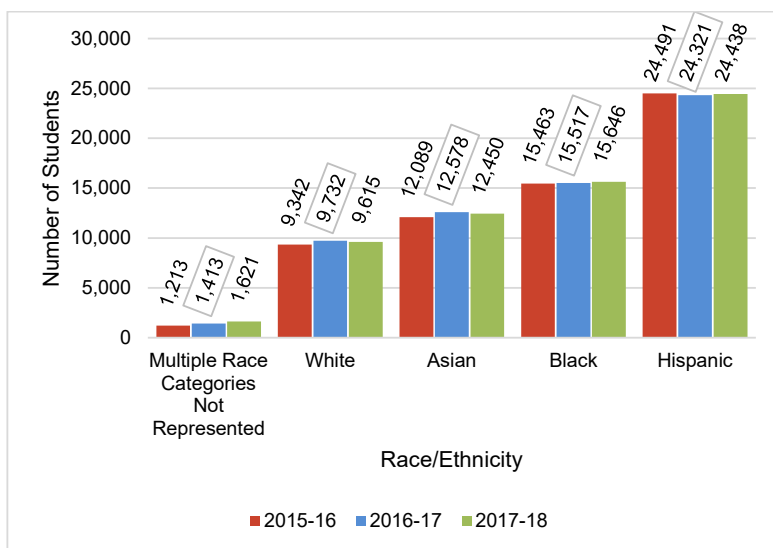
Audit Findings and Recommendations

Historically, DOE, through schools such as Aviation High School, the High School of Computers, P-Tech³ Schools, and other CTE schools and programs in the five boroughs, has provided students with opportunities to apply academic concepts to real-world situations, prepare for industry-based assessments or certificates, earn college credit or advanced standing while still in high school, and increase their awareness and acquisition of a variety of job skills that prepared them for post-secondary education and/or entry into the job market. We found that DOE should do more to prepare students to meet the changing demands of the workforce by improving its oversight of CTE program alignment with labor market demand, increasing the number of available CTE programs, revising program admission priorities and eligibility requirements to ensure students have fair and equal access to the CTE programs, and developing a process to capture and report post-secondary CTE placement data.

Local Law Analysis by Certain Demographics

Local Law requires DOE to disaggregate CTE program data by student race, gender, community school district (i.e., boroughs), and other metrics. Our analysis of the data from the Local Law reports for school years 2015-16 through 2017-18 showed that the number of White, Black, Asian, and Hispanic students enrolled in CTE programs remained relatively the same during each of the three years, with the highest enrollment – over 24,000 – for Hispanic students. This is almost three times the rate of White students (see Figure 2). Similarly, male students outnumbered female students in each of the three years (see Figure 3). CTE enrollment was highest at schools located in Queens and Brooklyn and lowest in Staten Island and the Bronx (see Figure 4).

Figure 2 – CTE Student Enrollment by Race/Ethnicity



³ P-Tech schools: Innovative six-year high school programs that prepare students for college and science, technology, engineering, and mathematics (STEM) careers in certain industries. Students earn high school diplomas and two-year associate degrees at no cost.

Figure 3 – CTE Student Enrollment by Gender

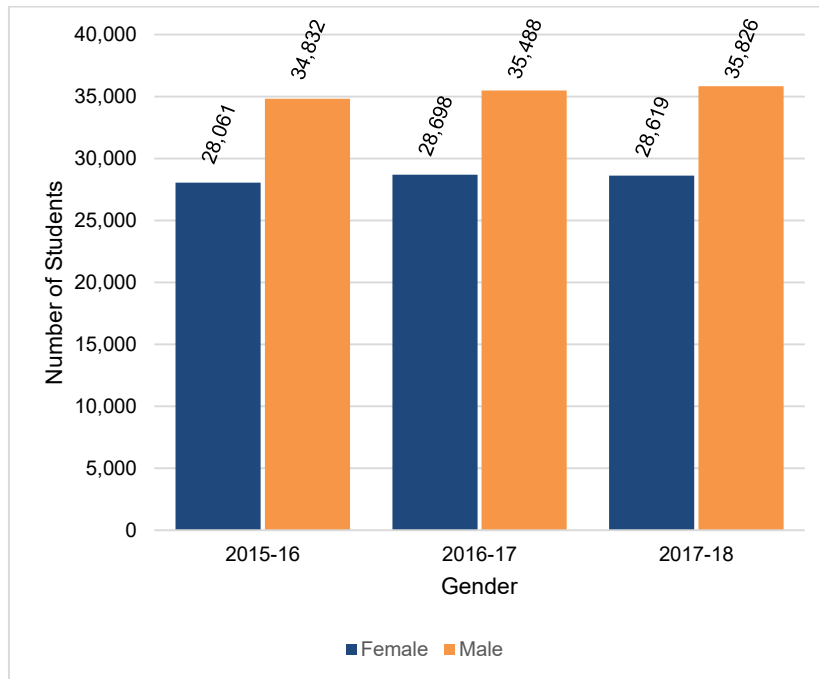
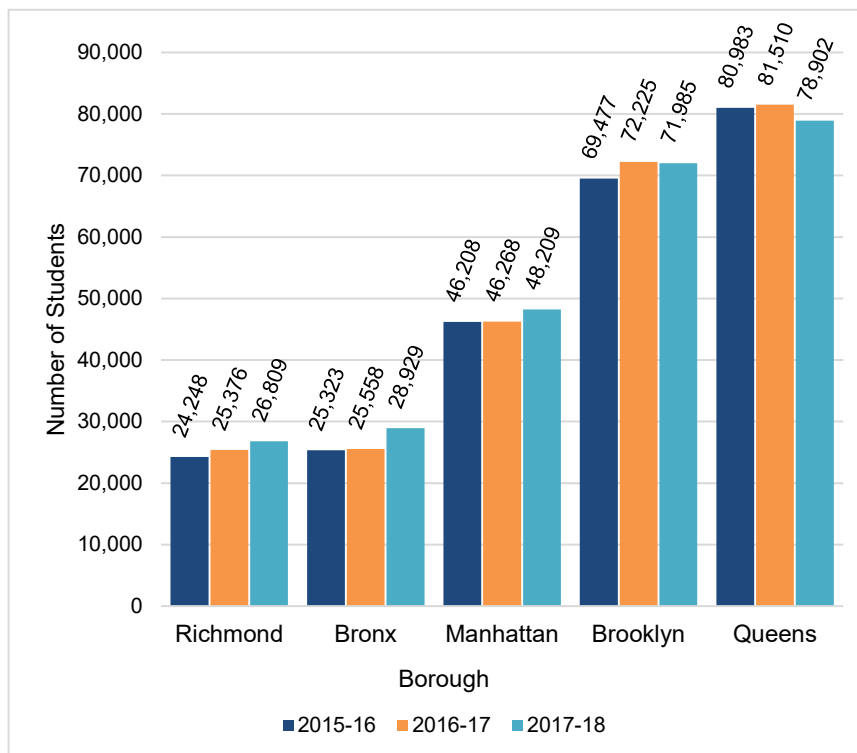


Figure 4 – CTE Student Enrollment by Borough*



* The official name of Staten Island is Richmond County.

CTE Program Alignment With Labor Market Demands

OPSR manages the City's high school CTE portfolio, which is made up of electives that expose students to and/or teach them a variety of skills and careers and align programs with labor market and student demands. OPSR works with an Advisory Council for Career and Technical Education (Advisory Council), which consists of high-level volunteers from business and industry. Some industry partners, including the Metropolitan Transportation Authority, Toyota, CISCO, and IBM, serve in an advisory capacity. They review CTE curriculum, align programs with labor market demand, provide externships for teachers, facilitate relationships with other businesses, provide equipment, and may offer internships to eligible students, thus allowing them to obtain practical training.

According to DOE, OPSR serves in an advisory capacity, supporting participating schools' decision-making efforts in the development and implementation of CTE programs. We met with OPSR officials, who advised that labor market information is provided to the schools during Industry Commission⁴ meetings and professional development days, via information on their website, and through their Success via Apprenticeship⁵ program. They asserted that it is up to individual schools, generally principals, to decide how to administer their programs, adding that DOE does little to assist with or oversee this alignment. While these steps provide information to the schools for decision-making purposes, they do not demonstrate how DOE works with schools or oversees schools' plans to align CTE programs with high-growth, high-demand industries.

Both the Career Pathways and DOL reports identified Construction as having expected job growth and relatively high-paying jobs. We reviewed Local Law data for the Architecture and Construction CTE programs offered citywide for school years 2015-16 through 2017-18, but found no significant changes in the number of programs offered in Architecture and Construction. While three new Architecture and Construction programs were added during this three-year period, two were dropped, resulting in a net addition of only one program during the review period. More collaborative efforts among DOE, school officials, and stakeholders, including industry partners, could result in greater assurance that school plans are supported and CTE programs are aligned with labor market demand. Lack of support creates the risk that labor market and student needs will not be met and that an adequate number of programs that lead to high-growth, high-demand careers will not be available to high school students.

⁴ Industry Commission: Eight Industry Commissions are subcommittees of the Advisory Council. Commission meetings focus on topics such as curriculum and discussion of labor market trends.

⁵ Success Via Apprenticeship: Collaboration among DOE, United Federation of Teachers, and CUNY designed to prepare highly motivated graduates of CTE high schools to become CTE teachers.

Recommendation

1. Evaluate whether CTE programs offered at the schools align with high-demand or high-growth occupations through collaborative interactions and planning with school officials and other stakeholders.

Student Access to CTE Programs

The Education Law states that the Board of Education for each school district shall provide access to programs of career education, commensurate with the interests and capabilities of those desiring and having a need for preparatory training, retraining or upgrading for employment, and develop realistic programs in accord with employment needs in existing and emerging occupations for present and projected employment opportunities. Our review found that student access to CTE programs can be restricted based on where they live, as well as the location of the programs.

DOE provides CTE program information to students considering which high school to attend. Information is provided through borough-based high school fairs, an annual citywide CTE high school fair, open houses for middle school students and their parents, and an online digital High School Directory. To test for CTE program availability, we reviewed three career clusters – Information Technology, Architecture and Construction, and Health Science. These clusters were identified in the Career Pathways Report as offering the strongest prospects for economic mobility. According to 2017-18 Local Law data, the three clusters offered a combined total of 101 CTE programs, of which 57 (56 percent) were offered at schools with eligibility requirements and/or admission priorities that restricted which students could attend.

According to the same data, high schools throughout the City offered 55 programs in the Information Technology industry cluster.⁶ One of these programs, Computer Systems Networking and Telecommunications, was offered at six high schools – three in Queens and one each in the Bronx, Brooklyn, and Manhattan. This program was not offered in Staten Island. According to the 2018 High School Directory, two of the six schools that offered this program listed admission as open to all City students. However, each program had admission priorities, as follows:

- The Bronx program/school gave first priority to continuing eighth-graders, second priority to current district students or residents, third priority to Bronx students or residents, and last priority to residents citywide. Ninety-nine percent of offers from this program went to Bronx students, making it difficult for students from other boroughs to participate.
- The Manhattan program gave first priority to Manhattan students and second priority to other NYC residents. However, all offers from this school went to students who attended Manhattan schools.

⁶ The Information Technology industry cluster includes programs such as Computer and Information Sciences, Computer Graphics, Computer Systems Networking and Telecommunications, Data Processing Technology/Technician, and Web/Multimedia Management and Webmaster.

According to 2017-18 Local Law data, high schools throughout the city offered 18 programs in the Architecture and Construction industry cluster.⁷ One of these programs, Carpentry/Carpenter, was offered at two high schools – one in the Bronx and the other in Staten Island. The program was not offered at high schools in Queens, Brooklyn, or Manhattan. According to the 2018 High School Directory, both schools listed that admission was open to all City students. However, the Bronx program gave first priority to Bronx students, and the 2018 High School Directory indicated that 99 percent of its offers went to Bronx students, indicating that this particular program was not truly accessible to students living in other boroughs and magnifying the concern that commuting time may be a factor when students and families choose a program. If one program gives priority to borough students and the other program is relatively far away, in this case in Staten Island, students' choices may be limited.

According to the 2017-18 Local Law data, high schools throughout the City offered 28 programs in the Health Science industry cluster.⁸ The Veterinary/Animal Health Technology/Technician and Veterinarian Assistant program was offered at only two high schools – one in Brooklyn and the other in Queens. According to the 2018 High School Directory, the Brooklyn school was open only to Brooklyn students. The Queens school was open to all City students; however, first priority was given to Queens students who signed in at a fair or information session, second priority to all City students who signed in at a fair or information session, and third priority to other students from Queens. The lowest priority was given to City students who met none of the other criteria. The 2018 High School Directory indicated that 89 percent of offers from the school in Queens went to students from Queens who met the first priority, and 11 percent went to students who met the second priority. Students from other boroughs had no opportunity to pursue this program because there were only two veterinary science CTE programs in the City.

DOE officials explained that they provide access to industry clusters as opposed to individual programs. They noted that many CTE career pathways within an industry cluster share curricula, as well as the technical and employability skills needed to prepare for college and careers. Officials added that this is not the first time they heard that school eligibility and geographic admission priorities are restrictive. They advised us that they are working with the schools to address eligibility and priority issues. However, if a student is interested in exploring or pursuing a career in the veterinary field, that student may not be interested in the other health science programs in that cluster. We assert that overly restrictive eligibility and admission priorities minimize the goal of increased access to CTE programs, which prepare students for future careers and/or continued career development in college/university.

⁷ The Architecture and Construction industry cluster includes programs such as Architectural Engineering Technology, Carpentry/Carpenter, Electrician, and Plumbing Technology/Plumber.

⁸ The Health Science industry cluster includes programs such as Clinical/Medical Laboratory Assistant, Dental Laboratory Technology/Technician, Emergency Medical Technology/Technician (EMT Paramedic), Nurse/Nursing Assistant/Aide and Patient Care Assistant, and Veterinary/Animal Health Technology/Technician and Veterinarian Assistant.

Industry Partners

During the week of December 14, 2020, we interviewed seven industry partners to discuss their involvement with DOE's CTE programs. They stated that DOE offers "great" CTE programs, but added that classroom time appears to be insufficient for the commercial related/occupational programs. They advised that certain areas should be improved. For example:

- Increase the number of CTE programs and locations.
- Increase the number of students in CTE programs.
- Increase the amount of hands-on training.
- Offer more robust programming.
- Offer programs in all schools and make them accessible to students.
- Increase buy-in by school principals who seem to emphasize academic programs over CTE programs.

We discussed these concerns with DOE officials, who advised that CTE programs are electives and are one of the many options offered to high school students. Further, budgetary constraints, specific course requirements for graduation, and limited instructional hours for elective courses – just 7 of the 44 credits required for graduation – prevent all students across the five boroughs from being offered the same menu of elective programming opportunities. They further advised that, when school principals are evaluating elective programming options that need to be implemented in their schools, they need to consider the trade-off between offering CTE courses versus other similar programming to their student body.

Recommendations

2. Revise admission program priorities and eligibility requirements to grant all City students a fair and equal opportunity to apply and gain acceptance to the CTE programs of their choice.
3. Conduct an analysis to determine whether the number of CTE programs can be increased.

Accuracy of Student Placement Data

The Perkins Act includes requirements for core indicators, including post-secondary placement data, to assess state and local progress in improving the secondary and post-secondary outcomes for CTE students. The Perkins Act advises states to develop plans to measure student retention in post-secondary education, including transfers to a baccalaureate degree program or placement in military service, apprenticeship programs, or employment. According to the SED website, to meet this requirement, they collect data on CTE students who have completed at least four

credits of CTE coursework and left secondary education the previous year. Between October 1 and December 31 of each program year, the school district is required to survey students who participated in Approved programs.

We interviewed DOE officials and determined that placement data reported by DOE to SED during the 2015-16 through 2017-18 academic school years was collected prior to graduation, rather than after graduation – that is, during the October 1 and December 31 survey period, as required. According to DOE officials, post-secondary information is collected prior to graduation as part of the graduation certification and discharge process. They added that, typically, a guidance counselor or other school employee discusses post-secondary plans with the student and enters the plan in Automate The Schools, DOE’s student information system. Each school principal is responsible for the accuracy of this information, which is then compiled to prepare the post-secondary placement data report. Collecting and reporting planned – rather than actual – placements create the risk that neither DOE nor schools have accurate information needed to administer and improve CTE programs that meet student and labor market needs.

We identified additional risks to the accuracy of this information. DOE’s Information Technology (IT) Office is responsible for retrieving and compiling the post-secondary placement report data. OPSR officials indicated they did not review these post-secondary placement reports for accuracy, adding that, because the data is self-reported by students, they would not be able to check its accuracy. Additionally, IT Office officials advised that they do not edit the data; they report it as submitted and no one checks the work done by their office. DOE reports placement data for all students who reach concentrator status.⁹ However, effective with the 2019-20 school year, only data for Approved programs is required to be reported to SED.

DOE officials explained that schools have a process for obtaining information about actual – rather than projected – student placement. Specifically, they receive data about students who are enrolled in colleges or universities approximately one year later, which the schools then use to update their records. However, this information is not reflected in the placement data report previously submitted to SED. Following the SED process of collecting data on CTE students who left secondary education the previous year and surveying students who participated in programs between October 1 and December 31 of each program year would result in more accurate information.

Recommendations

4. Develop a process to capture and report post-secondary placement data per SED’s guidelines.
5. Review placement data submitted by schools prior to submission to SED to ensure overall accuracy and completeness.
6. Meet with other large school districts in the State to discuss challenges and best practices for collecting post-secondary placement data from students.

⁹ Completion of four hours of CTE coursework.

Other Matters

Impact of COVID-19

In March 2020, DOE closed many of its buildings as a result of the COVID-19 pandemic. In a matter of weeks, schools transitioned from in-person classes to a hybrid of in-person and remote (virtual) classes for the remainder of the 2019-20 school year. The pandemic is expected to have varied implications for CTE programs and students during the 2020-21 school year. We noted that, for the period September 2019 to September 2020, DOL statistics had already reported that private sector jobs in the City fell by 583,800 to 3,478,800. Specifically, losses occurred in leisure and hospitality (225,800); professional and business services (98,500); trade, transportation, and utilities (93,600); educational and health services (71,200); other services (29,500); financial activities (25,300); natural resources, mining, and construction (19,500); manufacturing (12,100); and information (8,300).

According to the Association of Career and Technical Education, the pandemic is seriously affecting students' access to and transition between high-quality career pathways. Device access and connectivity issues have always existed, but changes due to COVID-19 have drawn additional attention to these problems. Further, the way students demonstrate academic, technical, and employability skills will change. Credentialing options such as certifications, licensures, apprenticeship certificates, digital badges, and degrees are important parts of CTE student assessment that could be significantly impacted by COVID-19. Socially distanced in-person, remote, and blended instructional models could all affect how learners demonstrate their knowledge and skills for these credentials and their ability to meet seat time and other requirements. In particular, assessments tied to industry credentials are often administered by a third party. Limited access to testing facilities has slowed down credentialing opportunities for students.

Audit Scope, Objective, and Methodology

Our audit objective was to determine if DOE is aligning CTE programs at the high school level with high-demand, high-growth occupations; ensuring students have reasonable access to CTE programs; and accurately collecting and reporting CTE placement data. The audit covers school years 2015-16 through 2017-18.

To accomplish our objective and assess related internal controls, we reviewed relevant City and State laws and regulations. We reviewed the available DOE Local Law data related to CTE to determine the number of students enrolled in all CTE programs and the number of Approved and Local programs. We also reviewed DOE policies and procedures and SED guidance that relates to CTE programs as well as public reports related to CTE. In addition, we met with DOE and SED officials and conducted site visits to five judgmentally selected high schools to meet with school officials and discuss various aspects of the CTE program. We also interviewed industry partners and other members of the Advisory Council. Schools were closed due to the COVID-19 pandemic, so we were unable to conduct certain fraud tests to ensure schools were accurately reporting CTE information.

As part of our audit procedures, the audit team used Geographic Information Systems (GIS) software for geographic analysis. As part of the geographic analysis, we developed visualizations (see Exhibits A and B) to improve the understanding of our report. Portions of the maps contained in this report include the intellectual property of Esri and its licensors and are used under license. Copyright © 1987-2020 Esri and its licensors. All rights reserved.

Statutory Requirements

Authority

This audit was performed pursuant to the State Comptroller's authority as set forth in Article V, Section 1 of the State Constitution and Article III of the General Municipal Law.

We conducted our performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

As is our practice, we notify agency officials at the outset of each audit that we will be requesting a representation letter in which agency management provides assurances, to the best of their knowledge, concerning the relevance, accuracy, and competence of the evidence provided to the auditors during the course of the audit. The representation letter is intended to confirm oral representations made to the auditors and to reduce the likelihood of misunderstandings. Agency officials normally use the representation letter to affirm that, to the best of their knowledge, all relevant financial and programmatic records and related data have been provided to the auditors. They further affirm either that the agency has complied with all laws, rules, and regulations applicable to its operations that would have a significant effect on the operating practices being audited, or that any exceptions have been disclosed to the auditors. However, officials at the New York City Mayor's Office of Operations have informed us that, as a matter of policy, mayoral agency officials will not provide representation letters in connection with our audits. As a result, we lack assurance from DOE officials that all relevant information was provided to us during the audit.

Reporting Requirements

A draft copy of this report was provided to DOE officials for their review and comment. Their comments were considered in preparing this final report and are included in their entirety at the end of it. While DOE officials generally agreed with the report's recommendations and indicated actions they have taken or will take to implement them, they disagreed with some of our conclusions. We address certain remarks in our State Comptroller's Comments, which are embedded within DOE's response.

Within 180 days of the final release of this report, we request that the Chancellor of the New York City Department of Education report to the State Comptroller, advising what steps were taken to implement the recommendations contained herein, and if the recommendations were not implemented, the reasons why.

Exhibit A

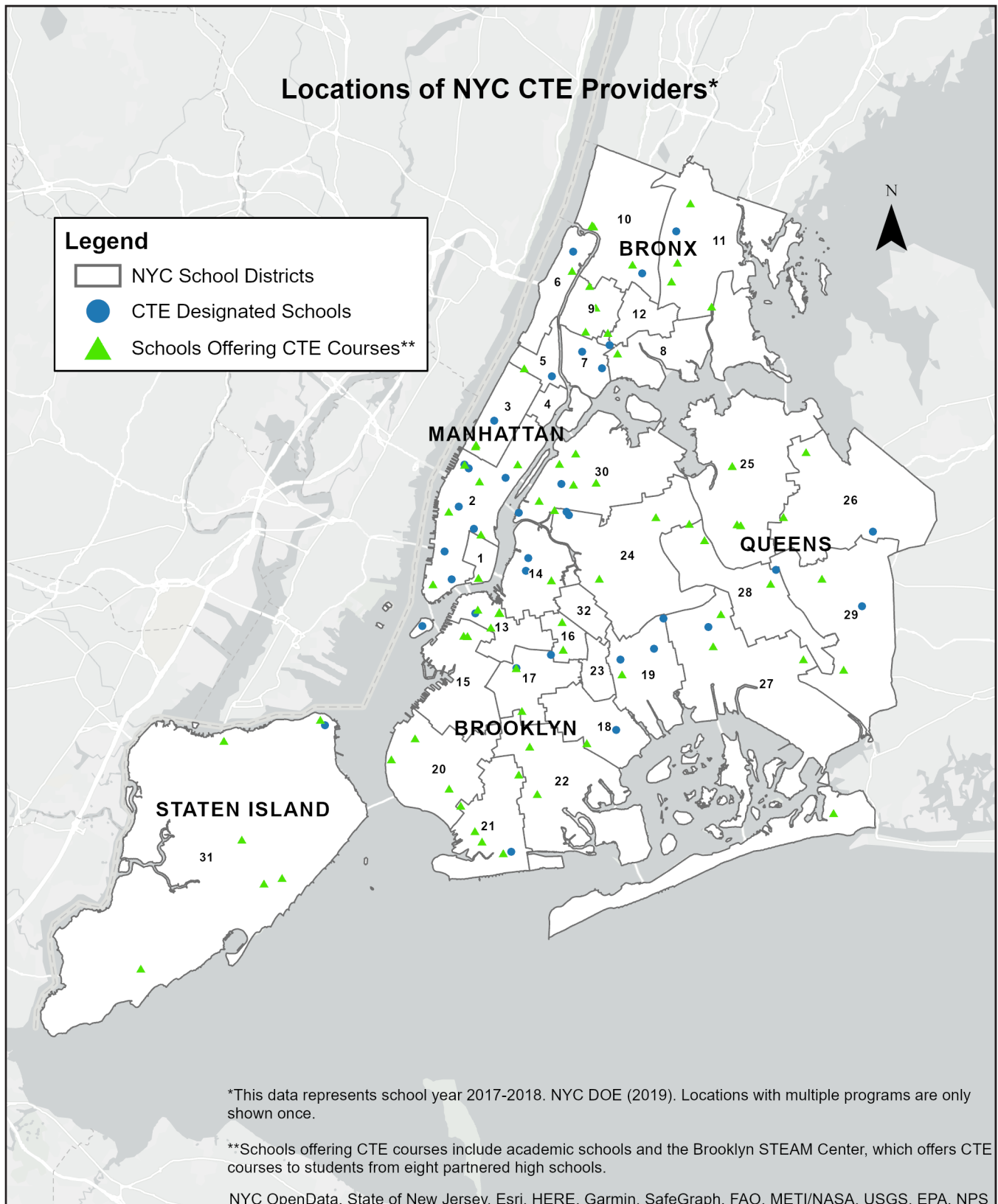
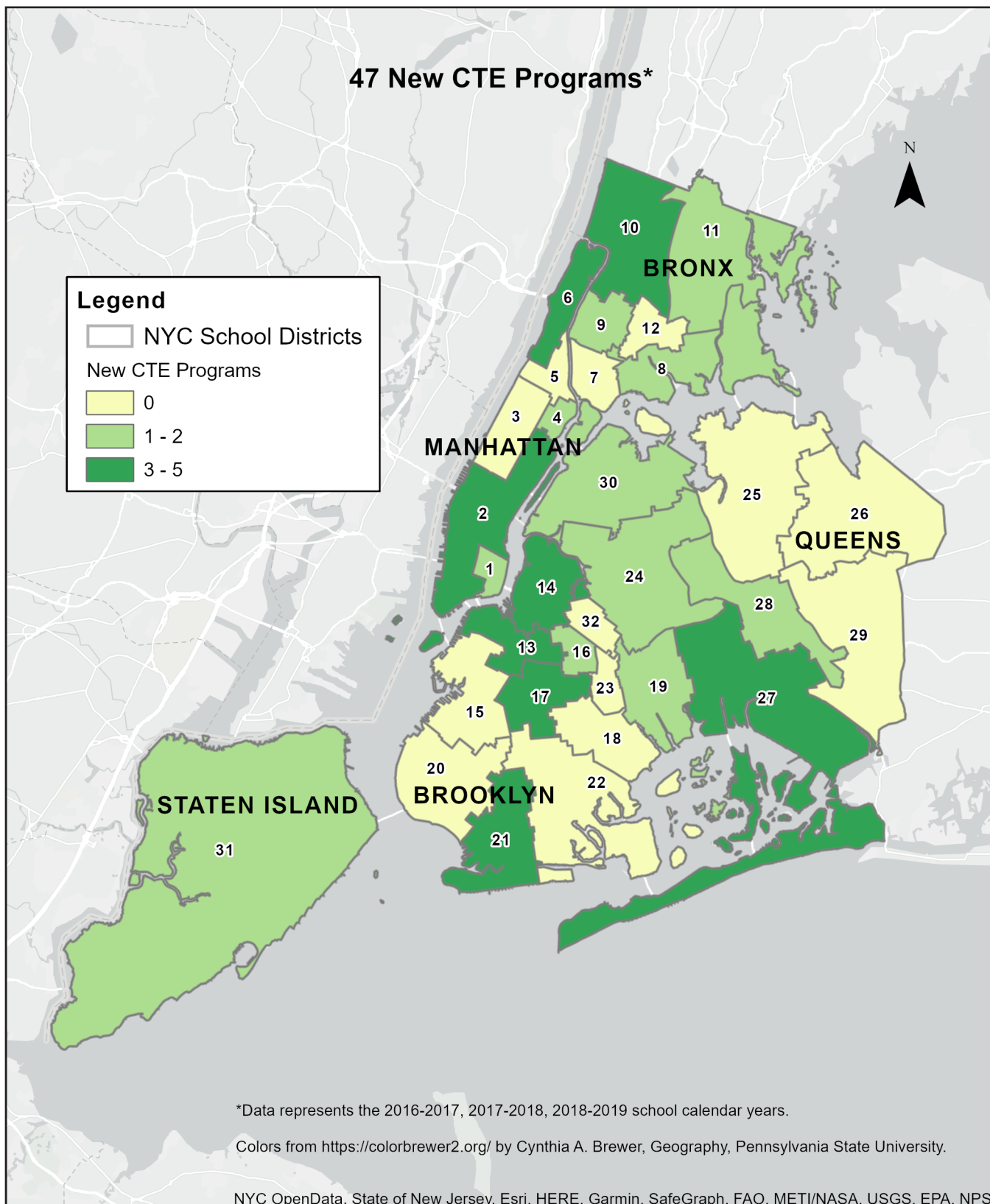


Exhibit B



Agency Comments and State Comptroller's Comments



Office of the Chief Academic Officer
52 Chambers Street | New York, NY 10007

April 14, 2021

Mr. Thomas P. DiNapoli, State Comptroller
Office of the New York State Comptroller
Division of State Government Accountability
110 State Street, 11th floor
Albany, NY 12236

**RE: Career and Technical Education
New York City Department of Education
Report 2019-N-4**

Dear Comptroller DiNapoli,

This letter constitutes the formal response of the New York City Department of Education (DOE) to the recommendations made by the Office of the State Comptroller (Comptroller) in its draft audit report on Career and Technical Education (Report). As the largest school district in the country, the DOE provides the most diverse Career and Technical Education (CTE) offerings intended to meet student interests while preparing students with opportunities to earn industry valued credentials, professional licensure, college credit, advanced standing in postsecondary programs, associate's degrees, apprenticeship opportunities, and, in some cases, entry level employment.

The Comptroller stated that Section 4602 of the New York State Education Law (Education Law), Strengthening Career and Technical Education for the 21st Century (Perkins) Act and New York City Local Law 174 (2016) were the primary basis of the audit criteria. It is important to point out that the Report did not find the DOE's CTE programs out of compliance with the stated criteria, except for a data reporting requirement, addressed further below. Further, the DOE's CTE programs use an updated Career and Financial Management curriculum which supports all students regardless of program cluster or career pathway and it offers a broad catalog of electives with access to a continuum of career awareness, and career development opportunities to support students postsecondary planning and/or transition to the workplace. The DOE is committed to fulfilling the mission of preparing *all* students to graduate college and career ready.

Throughout the course of the audit, the DOE flagged misunderstandings, factual errors and inaccurate assertions made of the DOE's CTE programs and offered clarifications to the auditors. These included the need for assessments of DOE's instructional curriculum changes that would allow the Comptroller to understand how those changes were made to meet advancement in the industries/career paths. Unfortunately, the auditors did not have the necessary pedagogical knowledge to assess that information

and they never requested it.

State Comptroller's Comment – Our report is both factual and accurate. It is based on analysis and verification of information provided to us by DOE, as well as interviews with DOE officials and their industry partners. Auditors relied on not just these experts – who work for or with DOE – to help interpret the information but also quantifiable information. DOE should consider listening to its own partners as well as what data says, and take steps to improve its CTE programming and access. The real issue is that more needs to be done to improve DOE's CTE programming and access.

Another example is the limitations of using three years of data to analyze the alignment of CTE programs with labor market demands and industry trends. The labor market reports and industry trends are based on 10-year projections determined by the U.S. Bureau of Labor Statistics and updated annually. The reason these projections are made so far in the future is relevant since the development of a CTE program is a meticulous process that requires major considerations from the schools, support and guidance from DOE's CTE office and in many cases assistance from other offices to obtain and/or get ready the appropriate spaces, equipment, and staff. In addition, relationships with relevant industry partners, which might take considerable time, needs to be considered to have an effective program. A count of the number of programs created and eliminated within a 3-year period will not result in an accurate and fair assessment of the DOE's efforts in developing programs in emerging markets and meeting market demands and it does not consider the 278 programs that were in existence at that time.

State Comptroller's Comment – Our audit reviewed both existing and new CTE programs. The development of new CTE programs is a meticulous process; however, as noted during the COVID-19 pandemic, emerging issues can have immediate impacts on the labor market. We believe that performing periodic analysis, such as the one we did that covered a three-year period, will provide useful information to DOE and enable DOE officials to maintain program agility by incorporating changing labor market data when developing and/or updating their CTE curricula.

The DOE also found concerning the Comptroller's assertion that participation in CTE programs should be the goal for all students, discounting the myriad of other programs offered by the DOE, which might better align with the students' being college and career ready. These shortcomings hamper the auditors' ability to assess DOE's CTE program in an objective manner.

State Comptroller's Comment – We disagree. We did not assert that participation in the CTE program should be the goal for all students, nor did we discount the myriad other programs offered by DOE. Rather, we recommend that all City students should have a fair and equal opportunity to access the CTE programs of their choice. Moreover, our report's conclusions are based on a fair and objective evaluation of DOE's CTE program.

An additional overarching issue is the assertions made in the report which fail to take into consideration significant factors that contribute to how the DOE manages the portfolio of CTE programs changing needs over time based on internal and external factors—such as funding resources which includes capital funds for major projects, school construction projects to address the need for specialized rooms and installations, capacity and accessibility of facilities, as well as the ability to hire and maintain certified teachers in specific industries and fields.

State Comptroller's Comment – We disagree. We considered the various factors that contribute to managing the CTE program and its limitations. However, these factors do not negate DOE's responsibility to work with individual schools and industry partners to better align

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the CTE programs with labor market demands.

The Report is missing a clear description of the process of how students enroll and participate in the CTE program; instead, it equates the High School Application process to the students' selection and enrollment of a CTE program. There is a distinction between what is known as an admissions program and an instructional program of study. The DOE provides an admissions process whereby students and families may apply to schools of interest through admissions programs. Admissions programs are not solely synonymous with student interest in instructional program offerings since they may serve as a gateway to a menu of program offerings within a school site. Therefore, the high school application process should not be used as the only mechanism to identify the CTE programs that students and parents consider in making their selection of programs to apply to.

State Comptroller's Comment – We are aware that DOE provides students and their guardians with CTE program information at high school fairs, at open houses, and through the High School Directory. However, the high school application process provides an opportunity for students and their guardians to express interest in and select certain CTE programs of their choice.

CTE Program Alignment with Labor Market Demands

In order for a student to graduate with a high school diploma, the student must have earned seven credits in elective courses, which the student can meet through participation in a CTE program or a combination of CTE elective courses. CTE coursework at the secondary level is intended to provide career awareness, exposure and in some cases career development. While CTE programs align to college and career readiness, they are not intended to be the sole workforce development pipeline as research has demonstrated that most students will require education beyond high school to earn a living wage. In addition to CTE courses, the DOE provides opportunities for students to enroll in early college and Pathway in Technology Early College High Schools (*i.e.*, P-TECH) which allow students to explore careers and earn college credits towards completing an associate degree in high-demand careers. The DOE also offers extensive selections of elective courses such as the College Now program where students enroll in college-level courses earning college credits and students may apply these credits toward postsecondary degrees to advance their career pathways. The variety of elective course options have a common goal, which is to help and prepare students in making decisions for their postsecondary plans.

The auditors cited that DOE could not show how existing CTE programs aligned with labor market and student demand and suggested that the DOE does not provide sufficient assistance and support to schools for the alignment of CTE programs with high growth and high demand industries. They stated that the result is that student needs are not being met and that an adequate number of programs that lead to high-growth, high-demand careers will not be available to high school students.

State Comptroller's Comment – We stand by our assertion that DOE did not provide sufficient assistance and support to schools for the alignment of existing CTE programs with high-growth, high-demand industries, and that this creates a risk that labor market and student needs will not be met.

These conclusions are results of the auditors' misguided evaluation and analysis of DOE's CTE programs and fundamental misunderstanding of DOE supports to schools and programs. The DOE has, over the past

several years, deployed additional strategic efforts to enhance its alignment of CTE electives to labor market demand, continue and expand its collaborative efforts with industry partners and other school stakeholders to ensure high quality implementation of CTE programs and supports for all CTE programs towards becoming NYSED approved. Over the course of this audit, despite oral and written explanations of this strategy by the DOE, the auditors continued to misrepresent and understate the DOE's capacity in this area and the effectiveness of its strategy.

State Comptroller's Comment – We considered information that DOE officials provided regarding their strategic efforts. We took the additional audit step of interviewing some of DOE's industry partners to understand the extent of their collaboration with DOE and school officials. Our report gives a fair representation of DOE's CTE capacity and the effectiveness of its strategy.

In addition, the Report fails to accurately describe and consider the structure and level of supports provided by the DOE to school communities and their leaders (*e.g.*, principals, superintendents). The DOE takes a central approach to the management of its educational programs, including CTE programs. The principals are primarily responsible for the operation of the school and program, as they are most suited to make decisions related to the program's offerings while considering the programs' facility and installation requirements, cost and funding resources, availability of qualified teachers, student population needs and other relevant criteria. Schools are provided assistance that will help them make the best decisions and guide them through the necessary process in each of the relevant criteria.

State Comptroller's Comment – We considered the structure and levels of support that DOE provided to school communities and their leaders, acknowledging that principals decide how to administer their CTE programs. However, DOE officials were unable to provide sufficient evidence to demonstrate how they work with schools or oversee schools' plans to align CTE programs with high-growth, high-demand industries.

The market data shared with the auditors and the list of CTE programs identified, demonstrate that the DOE CTE programs offer career pathways in all emerging and current industries, which has been achieved with the support offered to schools by the CTE office. The audit's sole focus was in measuring the increase of programs within particular industries, without considering the extensive numbers of existing CTE programs across the city and the update to curricula to address changes in the industries and labor demand. For example, our automotive programs have included curriculum to address the growing demand to service hybrid vehicles through advancements in the use of information technology. Our construction programs have revised curriculum and work-based learning opportunities to include solar energy – an example that the DOE team shared with the auditors. When evaluating the number of programs created for the Architecture and Construction industry, the auditors cited that their analysis concluded that only three CTE programs were created during that period and two others were phased out. This analysis on its own is flawed in as much as it isolated a particular industry without considering the total number of CTE programs in the Architecture and Construction cluster (17 programs across NYC), and netting reduction of programs in other schools without any inquiry or analysis of what triggered the change or whether those were replaced.

State Comptroller's Comment – The audit's sole focus was not in measuring the increase of programs within particular industries. We considered the extensive numbers of existing CTE programs offered to students, including DOE's efforts to align existing and new CTE programs with labor market demand, whether programs were added, and if the new opportunities were in

high-growth, high-demand industries/industry clusters.

The creation of a CTE program in a school district is a multi-effort task that requires meticulous planning and development, so the program is designed to meet SED's approval and include necessary components that addresses the emerging market needs. It also requires input and partnership with outside stakeholders, all of this, is not and should not be done without careful and informed considerations. Of note, the increase of three new programs is a positive outcome for the DOE and its students.

For programs that are in place, alignment to labor market changes may occur through the instructional program as curricula are updated to reflect new industry trends and technical skills requisites. The program can further enhance the student's employability skills through preparation to earn industry credentials and through participation in internships within the career sector. Further, the narrow focus of the Report excludes the schools' other career pathways in this sector that require additional education beyond high school to support students in meeting their postsecondary plans and aspirations beyond high school.

State Comptroller's Comment – We disagree that our focus was narrow. We recognized and considered that there may be other career pathways that require additional education beyond high school.

Student Access to CTE Programs

The DOE disagrees with the auditor's assertion that some high schools are not accessible to all students for the three industry programs they reviewed based on program admission priorities and school requirements.

State Comptroller's Comment – We did not state that some high schools are inaccessible to all students for the three industry programs reviewed. Rather, we noted that priorities and requirements at some schools give preferred admission to their CTE programs based on district or borough residency and/or whether the student was already enrolled at the school.

First, the Report is relying on outdated high school admissions guidance which makes the conclusion inaccurate. As part of our continuous efforts to provide fair and equitable opportunities to all NYC students, the DOE rolled out a new policy where all admissions priorities and eligibility requirements based on districts and catchment areas have been eliminated. Additionally, next year, all admissions priorities and eligibility requirements based on boroughs and zones will be eliminated. Second, the assertion and conclusions in this area are unfounded and again may be the result of the auditors' lack of understanding.

State Comptroller's Comment – We stand by our statement that student access to CTE programs may be restricted. This is based on information in the High School Directory used by students and their guardians that was in effect at the time of our audit. Moreover, in their September 11, 2020 response to our preliminary audit findings, DOE officials indicated they were aware that eligibility and geographic admission priorities are restrictive at some schools. They advised that they are looking to enhance and improve the process. We are encouraged by DOE's revised eligibility requirements.

The DOE has made extraordinary efforts to make the high school application an open and fair process that provides all students across the city the opportunities to apply to programs of their choosing and based on the students' own rankings and other criteria, the acceptance to one of their choices. The DOE CTE programs provide a vast and diverse selection of CTE courses across the city and we offer one of the largest number of CTE courses, if not the largest in the country.

The auditors stated that student access to CTE programs can be restricted based on where they live, as well as the location of the programs. They make this assumption by looking at three industry clusters to measure how many students out of borough, were accepted to these programs. The auditors did not analyze the choices made by these individual students and how those students may have ranked their selection of programs in those industries; further, the conclusion is based on a narrow review of individual programs and its failure to look at an industry cluster—which includes programs that are represented across the boroughs—as a whole. As mentioned in the Report, the DOE provides CTE program information to students considering what high schools to attend, through multiple avenues. High school applicants then list the schools and the corresponding admissions programs of their choice on their high school application. Students may list multiple admissions programs at a school, and each is a distinct choice on their high school application.

State Comptroller's Comment – DOE's assertion that we did not look at how students ranked their selection of programs in the three industry clusters is irrelevant and disingenuous. DOE advises students to review the High School Directory to learn about admissions, among other topics, and to discover schools and programs of interest in relation to where they live. Students then choose a maximum of 12 schools/programs on a high school admissions application – supposedly ranking schools based on their interests. Despite a student's interest, he/she may be hesitant to or will not list and rank schools/programs whose admissions priorities and eligibility requirements for CTE programs offer limited or no chances for admission. The limitations do not provide a fair and equal opportunity for students to participate in CTE programs.

Response to Recommendations

Recommendation 1. Evaluate whether CTE programs offered at the schools align with high-demand or high-growth occupations through collaborative interactions and planning with school officials and other stakeholders.

Response. The DOE agrees with the recommendation to the extent that the DOE already evaluates market trends and demands, and labor data and provides guidance and support with respect to current and developing CTE programs. Further, based on changes to the Perkins legislation, we added a new process to the evaluation of relevant data.

Recommendation 2. Revise admission program priorities and eligibility requirements to grant all City students a fair and equal opportunity to apply and gain acceptance to the CTE programs of their choice.

Response. The DOE agrees with the recommendation to the extent that, our admission's policy has been revised as part of our continuous effort to provide fair and equitable opportunities to all NYC students.

Recommendation 3. Conduct an analysis to determine whether the number of CTE programs can be increased.

Response. The DOE partially agrees to the extent that we will continue to evaluate programs to determine

needs and provide support through labor market information and industry partner guidance to schools to make informed decisions regarding in-demand program areas. The DOE will not change the process that exists which allows Principals to decide which programs will best serve their school communities.

Recommendation 4. *Develop a process to capture and report post-secondary placement data per SED's guidelines.*

Response. The DOE agrees with this recommendation and has developed and implemented a process to capture and report post-high school placement data per SED's guidelines in compliance with the federal Perkins law.

Recommendation 5. *Review placement data submitted by schools prior to submission to SED to ensure overall accuracy and completeness.*

Response. The DOE agrees with the recommendation to review placement data and will continue to ensure accuracy and completeness by using the federally mandated criteria required to identify student concentrators to be surveyed and reported.

Recommendation 6. *Meet with other large school districts in the State to discuss challenges and best practices for collecting post-secondary placement data from students.*

Response. The DOE agrees with the recommendation to the extent it has met and the DOE will continue to meet with other large school districts in the state to discuss challenges and best practices for collecting post-placement data from students.

The DOE stands behind its robust CTE program and will continue to work with its partners and leverage available data to guide enhancements in support of providing comprehensive and industry relevant opportunities for our students.

Sincerely,



Linda Chen
Chief Academic Officer

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