

**Mayoral Task Force on Career & Technical Education Innovation
Preliminary Recommendations – June 2008**

To provide written feedback, email CTEInfo@schools.nyc.gov by June 19th, 2008

A Citywide Priority: Improving Career & Technical Education for the 21st Century

In his January 2008 State of the City address, Mayor Bloomberg made CTE innovation a city-wide priority, announcing his commitment to improve student outcomes in this area and charging a Mayoral Task Force to report findings and recommendations on ways to improve CTE by June 30, 2008.

To make this vision a reality, the Mayor's Office, and the NYC DOE, working with the Board of Regents convened a task force to recommend how to strengthen Career and Technical pathways in New York City. The task force was charged with recommending policy changes and implementation efforts to ensure that CTE:

- Is rigorous and relevant and prepares NYC students to meet academic and industry-based standards.
- Prepares NYC students for post-secondary and post-scholastic work and training options, including a particular emphasis on integration and articulation with post-secondary degree programs.
- Integrates coursework, work-based learning experiences and hands-on experience so that students develop competencies, skills, and attitudes for success beyond high school and in the workforce.
- Is accessible to all students and equips students to make informed choices about education and work.

The task force first met on March 25, 2008. The task force's next meeting was open to the public on April 30th at the UFT. The task force will meet publicly again on June 12th to hear public comment on the preliminary recommendations.

Over the past year, the DOE has documented and incorporated input from a range of constituents, agencies, and advocates about the need to further expand the range of secondary school offerings, a critical component of *Children First*.

The DOE seeks to expand on what has been achieved over the past five years by strengthening career and technical education to attract more students by enhancing the range of pathways and options that lead directly into meaningful post-secondary educational and/or workforce opportunities for our students. The overarching objective is to transform CTE into a rigorous program that directly aligns to the needs and demands of industry and equips students with the relevant skills and competencies to successfully compete in the 21st century economy.

The New York State Board of Regents have maintained on-going interest in CTE work over recent years, signaled most recently in January, 2008 with a committee meeting focused on improving CTE across the State, and a commitment to review New York State Learning Standards in the context of rising expectations in the 21st century. Creating rigorous and relevant 21st century CTE experiences and increased graduation rates will require ongoing collaboration with the State to

effect innovation and flexibility in key state policy areas.

The City University of New York (CUNY) has partnered in this effort, an extension of its core mission to maintain and expand its commitment to academic excellence and to the provision of equal access and opportunity for students, faculty and staff from all ethnic and racial groups and from both sexes. CUNY has made a deep commitment toward CTE work as part of their efforts to improve outcomes at its 2 and 4 year colleges.

With the additional engagement of industry representatives through the Partnership for New York City and labor leaders a strong coalition has been established and is poised to continue this momentum toward improving Career & Technical Education (CTE) to meet the demands of the 21st century.

The Challenge

While recognizing the many excellent achievements of our existing CTE schools and programs, we must acknowledge that while success rates are improving in current CTE programs, too many students are not making it to graduation. In reviewing recent reports on career and technical education here in New York and nationally, and those prepared over the last thirty years, we have found that the problems and issues encountered continue to hinder the work of schools and the progress of students. Most of the recommendations contained in those reports have never been fully implemented in an effective way.

In particular, there is a need to explore innovative approaches that use the time within a school day in different ways or that award credit based on demonstrated proficiency instead of seat time. Academically rigorous alternatives to the full roster of standardized assessments should be examined as a means to evaluate student readiness for post-secondary success along multiple pathways following high school. A key deliverable of the task is a vision for CTE “demonstration sites,” to serve as pilots for the City and the State to explore the opportunities reflected in the task force recommendations.

The Vision

The vision of the Mayoral Task Force on Career and Technical Education (CTE) Innovation is to transform CTE into a rigorous program that directly aligns to the needs and demands of industry and equips students with the relevant competencies and skills to successfully compete in the 21st Century. This vision is echoed across the country in discussions of 21st century skills, global competition and secondary school reform.

In our vision CTE is a powerful way to increase positive graduation outcomes and prepare far more students for productive futures. CTE can become an educational experience that will engage students and enable them to reach the levels of academic achievement and to develop the personal attributes needed for success in the 21st century economy. Across the country educators, industry, government and civic leaders are searching for ways to organize and enrich middle and high school education to meet the challenge of educating all of our students to substantially higher academic standards than in past generations and to equip students to apply their knowledge and skills in real-world careers where they will need to solve problems and continuously improve their knowledge and skills.

Achieving the Vision

The middle grades should primarily focus on achieving a strong academic foundation in literacy and numeracy, and the academic rigor of that foundation should be sustained and increased. This vision for CTE suggests that career awareness can be a mechanism for bringing relevance to students' academic studies in the middle grades, serving as a as a motivator of academic achievement.

As students successfully meet this foundational threshold, thus demonstrating their readiness for rigorous high school level work, they are provided with a portfolio of high quality secondary school options that put them on a path to realize their educational and life goals.

Prior to selecting a high school option, young students along with their parents must be fully aware of the competencies and course work, that will be needed for successful entry into postsecondary experiences. Their choices should not be limited and must allow students to embark upon a wide range of career pathways.

In 9th and 10th grade, the curriculum should be structured so that courses lead to strong core competencies, and so that students can explore and change their post-secondary trajectory without severe consequences early in their high school experience. All students in high school must demonstrate the ability to master rigorous standards of competency, but may follow different pathways to graduation and demonstrate those competencies through a range of assessments. Some students will be ready commit to a pathway as early as 9th grade, while others will wait until later in their high school experience.

As students progress through high school and choose career paths, the academic and career course work must be integrated, centered in a common understanding of competencies students need to be successful after high school. This focus on the integration of academic content with career content in new instructional practices and through experiential learning aims to both motivate and engage students to tackle challenging and rigorous material and to develop cognitive, creative and occupational competencies. Access to this course work must be available to all students. Curriculum and instruction will evolve to promote excellence in 'core subjects', but integrated with 21st Century skills to provide context and relevancy for students by connecting the academic world to the career world.

Pedagogy will use a balanced approach to give students more opportunities to engage in challenging questioning and practice decision-making as well as to solve career-related problems employing their academic skills. Teachers will engage in ongoing and collaborative professional development to stay abreast of industry trends and improve their practice. Technology will serve to facilitate better teaching and learning.

Strong and sustained industry partnerships will connect students to adult role models and signal to students the eventual return on the investment of time and effort in their high school studies. Work-based learning experiences will extend learning beyond the classroom, allowing students to understand the demands of the workplace and see how their academic course work relates to their future goals and opportunities.

A focus on outcomes will shape accountability for schools, partners and students alike. Regents exams in English Language Arts and Mathematics will ensure foundational literacy and numeracy. Beyond these core areas, the City will partner with the State to develop academically rigorous alternative assessments focused on demonstration of competencies in the context of multiple pathways, rather than renditions of content or simple "time-in-seat" measures of credit.

As a desirable, respected, and accessible option for all high school students, CTE will ready students to be successful in the range of post-secondary pathways that lead to success in the workplace and/or in post-secondary education, both immediately after high school and as students' careers evolve along with their industries.

Guiding Principles

The Task Force believes that New York City must embrace a bold, long-term vision for CTE with discrete and sequenced short-term deliverables. This effort must be sustainable in the long term and lay a foundation for future growth. In pursuit of that vision, the Task Force established a context for innovation in Career & Technical Education, based on a set of guiding principles and aspirations:

- An unwavering commitment to continue to increase graduation rates at highly demanding levels.
- Ensuring students graduate ready for post-secondary success. In defining post-secondary readiness, our goals are to:
 - Focus schools and students on the competencies required for post secondary success, in the workplace, in further education, or both.
 - Validate a rigorous pathway to graduation that ensures post-secondary success for students whose chosen career path does not necessarily lead to 4 year college.
- The acknowledgement that post-secondary options must not be limited to 4-year college, and therefore, students need to be prepared to succeed in other meaningful paths beyond high school such as 2-year career and technical degree programs, apprenticeships and technical training.
- The need for consistent rigor and relevancy within all pathways.
- CTE pathways must be developed to meet the needs of students representative of the larger system, and at different points in their educational experience.
 - CTE pathways should primarily target the needs of students before they are disengaged from the system (preventative).
 - Possible linkages between CTE pathway strategies and the DOE's recuperative strategies should also be considered. Building on the DOE's Learning-to-Work program, CTE could be a lever to engage "disconnected youth" (defined as students ages 16-21 who are over-age and under-credited, i.e. students who are either drop-outs or at substantial risk of dropping out).
 - CTE strategies must recognize middle school as a key point of disengagement for many students and consider appropriate middle grades strategies to expose students and create pathways to reasonable and realistic post secondary opportunities.
 - CTE should demonstrate the capacity to address the needs of English Language Learners and students with special needs.
 - CTE programs must ensure equitable access to male and female students.
- Strong public-private partnerships are essential to create and expand student opportunities.
- Quality internship opportunities are critical levers both to engagement and to exposure to the rigorous competencies necessary for success in the workplace.
- Creating rigorous and relevant 21st century CTE experiences and increased graduation rates will require ongoing collaboration with the State to effect innovation and flexibility in key state policy areas.

Moving to a Framework for 21st Century Competency

The Board of Regents **P-16 Education: A Plan for Action** calls for all New Yorkers to be prepared for “citizenship, work and continued learning throughout their lives.” In order to achieve this goal we must close the gaps in student academic achievement along the lines of income, race, and ethnicity, and language and disability; and keep up with the growing demands for still more knowledge and skill in the face of increasing competition in a changing economy. A key strategy embraced by the Regents and the State Education Department to address these two challenges is the periodic review of the New York Learning Standards.

New York State Learning Standards have established a solid foundation from which to build pathways to post-secondary success. Current NY State Learning Standards reflect a blend of competency and content-based standards, measured through a combination of seat-time requirements and standardized tests in the areas of: English Language Arts; Mathematics, Science and Technology; Career Development and Occupational Studies; Social Studies; the Arts; Foreign Language; and Health, Physical Education, and Family and Consumer Sciences. [*See Appendix*]

Beginning with the review of English language arts standards earlier this year and moving this summer to the career development standards, the Board of Regents and the State Education Department have created an unprecedented opportunity to partner with the State to move beyond existing standards to a 21st century system that can ready all students for post-secondary success. Flexibility to explore competency-based models outside of current content and seat-time requirements that emphasize competency demonstration should be considered. Rigorous alternatives to the full roster of Regents assessments should be examined.

Preparing students for success in the 21st century requires consideration of additional skills and competencies reflective of challenges of an increasingly technological and global community. Crafting a vision of the “21st Century Graduate” and comparing it with current standards is a natural launching point for this work. Collaboration with the State to develop alternative assessments and curricular experiences that will promote and measure attainment of those standards is critical. We begin with an articulation of competencies embodied in a 21st century graduate ready for post-secondary success. That graduate will be able to demonstrate both “core” and “enhanced” competencies, as articulated below:

Core Competencies: All graduates should be able to:

- Perform mathematical operations well enough to use both arithmetic operations, and logic and symbols to solve problems.
- Read complex material with fluency and comprehension, and communicate effectively in writing and orally.
- Utilize and be familiar with modern technologies to retrieve information, to analyze data and to communicate formally and informally.
- Evaluate evidence and the logic of an interpretation or argument; make inferences and judgments in real-world contexts.
- Organize themselves for learning.
- Plan for what's coming next in education or work.
- Work effectively on teams with a collaborative attitude.
- Demonstrate leadership skills.
- Improvise.
- Synthesize and analyze information to develop solutions and action plans.
- Determine what's good enough when it comes to their effort and the quality of their work and have high expectations for themselves.
- Take responsibility for and assess the ethical implications of their actions.

With additional experience and maturity, all graduates should be prepared to expand and strengthen these core competencies as they go on to work or further education. All students should have the level of core competencies that allow them to continuously learn. Graduates today can anticipate that they will need to change jobs several times over their careers and that any entry-level job will also have changing, and more challenging, requirements over time. Therefore, core competencies are just the foundation upon which students can pursue opportunities for work, further education and/or training.

All graduates must be prepared to do what he/she needs to do to be successful in the initial responsibilities of a first job or in required introductory-level courses in a postsecondary institution. The specific skills and knowledge needed for work and further education vary depending on the type of job and the type of postsecondary institution. Students will have to make choices about the pathway they choose.

Pathways must adapt standard courses of study to reflect the particular demands of possible next steps. To the extent that the demands on graduates vary, it will be necessary to insure that graduates have the particular kinds of competencies that are most appropriate for what they intend to do after graduation and that are relevant to their own self-conception of their future. These enhanced competencies for each pathway are described below.

Enhanced Competencies: Work

- Some graduates will seek employment immediately after high school graduation. Since the nature of jobs varies so much, the specifics of the necessary skills and knowledge beyond the core graduation requirements will vary as well. The specification of those competencies will require extensive and ongoing consultations and agreements with knowledgeable representatives of the actual employers as a starting point for implementation efforts.

- However, in general, graduates should possess the skills needed so that they can efficiently and independently perform routine tasks and so that they can perform non-routine tasks satisfactorily when they are provided guidance and assistance. They should also be competent enough to receive a satisfactory evaluation of their performance prior to the end of their first year on the job.

Enhanced Competencies: Education

- The demands of various programs typically vary according to the nature of the coursework required for completion. By way of example, programs that have a significant engineering component will require greater proficiency and more extensive course taking in mathematics than programs in human services. The specification of the necessary competencies will therefore have to be made at the level of the program of study, rather than the institution. This will require extensive consultations and agreements with knowledgeable representatives of the actual institutions as a starting point for implementation efforts.
- However, in general, graduates who enter a program at the certificate, associate degree or bachelor degree levels should be prepared to enter into fully credited coursework with no need for remediation in reading, writing or math. Graduates should also be sufficiently well prepared so that they are able to complete an associate degree in no more than three years or a bachelor's degree in no more than six years.

Preliminary Recommendations

The effort to realize this vision for Career and Technical Education and graduate students ready for the range of post-secondary pathways, has implications for State policy, the City's Department of Education, Industry and Higher Education. Recommendations to advance this work are below.

1. General Recommendations:

Effective CTE pathways should embody the following attributes and design characteristics as they are conceived and executed:

- CTE schools should be built on the existing principles of effective schools. [*See Appendix*]
- Consideration should be given to various configurations and sizes of schools. In light of findings about school designs that are effective for students entering high school with academic challenges, these should include programs within the existing and emerging portfolio of options, including two-, four- and six-year programs, as well as "pre-academy" program for middle schools, and integration and articulation into community colleges.
- CTE Programs of Study differ from industry to industry but share common elements; including:
 - A cohesive sequence of academic courses paired with CTE courses and integrated content as appropriate, building to both basic and enhanced competencies
 - Specific mechanisms that connect the entire high school program to a related industry and postsecondary pathway.
 - Designed to culminate with a recognized credential or certificate and explicit post-secondary opportunities.

2. Recommendations for State Policy:

- **Alternative Assessments:** The goal of alternative, context-specific assessments for career and technical education has been an elusive goal nationally, particularly within the constraints of NCLB. The Board of Regents has provided national leadership in firmly establishing the principle that all students need to be held to the same rigorous standards for graduation. As the Regents review current standards, they should now also consider alternative methods of measuring competence, without compromising or lowering standards. The Regents should consider:
 - A commitment to rigorous, alternative assessments, recognizing that some required Regents exams measure competency through a specific set of content, and equally important competencies could be measured through parallel, context specific content derived from the industry pathway.

As a result, the task force recommends:

- An acknowledgement and continued commitment to the English language arts and mathematics Regents exams as a foundational requirement for all students and an authentic measurement of core competencies.

- Consideration of other types of assessments to supplement and complement the traditional standardized tests that measure student performance in specific content areas through other forms of performance-based assessment. Specifically:
 - Development of carefully designed alternative assessments that are as equally rigorous as the traditional assessments, and measure the attainment of core competencies and enhanced competencies through alternative and relevant content.
 - We should recognize the need for ongoing City-State collaboration in the development of alternative assessments that incorporate employability skills into local assessments that are supported and monitored by the state.
 - Jointly advocate at the national level for leadership and support for and the development of alternative assessments, inclusive of soft and contextualized skills.
 - In the event that rigorous alternative assessments cannot be developed in a timely manner, students will still be expected to meet existing Regents graduation and testing standards.
- **Flexibility in Seat-Time Requirements:**
 - Moving beyond seat-time requirements to the demonstration of competence for the awarding of credit is consistent with New York State’s outcome and standards driven system. Recognizing prior State efforts to encourage innovation and provide flexibility up to 7.5 integrated units, we recommend additional flexibility in the use of time - up to 11 of 22 credits required for graduation - should be explored, with appropriate controls and monitoring by the State.
 - This would allow for innovative models of integrated teaching and learning to emerge, particularly in the 11th and 12th grade as programs of study become more industry specific. These models may include work-based learning and other integrated curricula where students could be awarded credit based on demonstration of competencies across multiple standards areas in the context of the career path and program of study.
- **CTE Teacher Certification**
 - To facilitate the recruitment of individuals with significant industry experience in target areas, State licensing procedures for CTE licenses should establish a general foundational license for CTE teachers, and recognize and support the need for ongoing industry specific training and experiences to qualify or maintain standing in specific industry areas.
 - All CTE teachers, demonstrating general and foundational qualification in career education, should be expected to enhance their knowledge and skills in regular intervals through applied practice, particularly in fields that reflect dynamic technological advances.

3. Recommendations for NYC Department of Education Policy

- **Integrated curriculum, teaching and learning.**
 - Development of competency-based curriculum and experiences that provide evidence of academic and technical integration including.

- Development of CTE curriculum and innovative instructional practices will require principals and teachers to redesign and create new courses and new teaching methods and develop curriculum based on mastery of key ideas and concepts, core facts and procedures and capacity for creativity and innovation.
- Provide appropriate, ongoing and embedded professional development to facilitate collaboration among teachers toward effective implementation of an integrated curriculum.
- Enhance middle school curriculum to promote career exploration and awareness, and ensure that families are equipped with information on pathway options in high school.
- **Department accountability measures**, including the Annual Progress Report and School Quality reviews should be reflective of CTE outcomes.
 - NYC DOE School Progress Reports should recognize and weight Regents Diplomas with the Technical Endorsement.
 - NYC DOE School Quality Reviews should be enhanced to include mechanisms for assessing data-based decision making on the quality of CTE elements within the school program, including the efficacy of partnership efforts and teacher collaboration around competencies.
 - Post-secondary transition should be tracked and integrated into overall accountability efforts, inclusive of students transitioning to college, work or training programs. This will require strong collaboration with higher education and industry. This is a significant challenge, but is critical to hold the system and schools accountable to student readiness for post-secondary success.
 - Accountability metrics reflect the metrics developed to evaluate student readiness for post-secondary success and the specific metrics of the multiple pathways.
- **Teacher Recruitment**
 - Department human resource efforts must ensure an adequate supply of qualified professionals. Beyond recruiting recent college graduates, individuals with significant industry experience in target areas, and representing diverse backgrounds should be recruited, prepared and supported for professional licensing preparation programs where workforce shortages are imminent.
 - The NYC DOE should conduct a review of current titles for career education teacher licenses to assure continued alignment with updated State titles recognized for purposes of State program approval.

4. Recommendations for Industry and Partnerships

A proven element in the success of CTE programs is an active and well integrated connection to the world of work. Properly managed partnerships between educators and industry can ensure the continued relevancy of CTE programs, assist in the recruitment and development of a well-motivated and prepared corps of CTE teachers and provide work-based learning opportunities and resources for students and their schools. The CTE effort should reach

beyond the educational sphere to find allies and supporters, so the responsibility is not with education officials alone.

- **Target Growth Industries:** The priority of CTE programs will continue to be the preparation of students for careers that will offer a good starting salary and provide advancement opportunities. Industry should assist the DOE in identifying current and future growth industries and careers. In this connection, industry has identified, and the Task Force recommends, that immediate efforts should focus on sector opportunities in health, finance and information technology, hospitality and tourism, and construction, with emphasis on the “greening” of construction practices. Cross sector collaboration, particularly among education, industry, labor and workforce development systems will be essential to align future economic needs to program development
- **Industry Leadership and Organization:** Without exception, every CTE school and program should partner with industry. Industry partnerships are essential to program success and enhanced student motivation and achievement.
 - Industry partnerships should be organized by sector at the citywide level around major industry associations, key employers and labor organizations, and other industry leaders. Each industry sector should identify a lead association or organization to convene the interests, resources and opportunities of the industry toward supporting CTE pathways. The DOE should build on the existing established network of industry partnerships that currently operate. The Automotive industry has demonstrated sector-based leadership by convening industry resources and efforts in support of school level initiatives to meet emergent automotive industry work force needs.
 - The current CTE Advisory Council and associated industry commissions should be restructured to enhance their capacity to deal effectively with the reforms and innovations recommended in the Task Force Report. A restructured CTE Advisory Council should coordinate and align existing supports and resources across agencies and sectors. This means permanent liaisons to CTE amongst local chambers and industry associations, and representation on the city Workforce Investment Board and Youth Council.
 - School-based partnerships should continue to be developed, and better coordinated with overall citywide sector based efforts, creating two-way linkages between schools and workplaces across the five boroughs.
- **Empower Industry to Define Sector-Specific Skills:** Although underlying competencies may be similar, because the nature of jobs across industry sectors varies so much, the specifics of the necessary skills and knowledge for both entry-level jobs and for advancement pathways will vary as well. The specification of those skills will require extensive consultations and agreements with knowledgeable representatives of the actual employers. This effort should be prioritized to target industries and inform development of curriculum and assessments to address identified competencies.
- **Sustaining Effort and Tracking Results:** CTE has great potential to serve the job needs of city employers and build pipelines of skilled workers within multiple labor markets. Tracking ongoing needs and outcomes relative to industry needs should be embraced by both the DOE and industry partners.

- The DOE should aggregate and articulate school needs relative to industry engagement in CTE, including projections of internship needs, teacher externship demand and schools requiring external validation in the State Program Approval Process.
- The City and industry leadership should develop metrics to assess partnership and industry contributions in meeting short-and longer-term goals, as well as to plan for subsequent year involvement goals.
- **Expand and Strengthen Support for Work Based Learning Opportunities:** Quality internship opportunities are critical to student engagement. Public-private partnerships to create and expand opportunities will be important.
 - Adopt and consistently apply the standards of high quality work-based learning expectations and standards.
 - Define quantifiable annual targets for internship development across schools/programs.
 - Define a systematic approach to measuring the demand/need for work-based experiences (internships), and industry capacity to meet demand throughout the system. Systems to track industry results relative to expressed need afford the opportunity to recognize outstanding contributions, while also identifying gaps in capacity to support specific pathways so they can be addressed.
 - Commit to participating in meaningful student review as part of internships, to signal the importance of relevant competencies and skills

5. Recommendations for Higher Education

- **Increased emphasis on successful student transitions:** CTE programs in high schools should be carefully aligned with all of the academic demands of programs of study at the associate degree level; graduates of CTE programs must be prepared to succeed in college-level occupational courses and in the general education courses that are required for degree completion; CUNY should work with DOE staff to insure an adequate understanding of the form and content of college-level work.
- **Development and Alignment:** CUNY should consider the development of new programs of study aligned with new CTE programs in the high schools; as CUNY plans for its new community college, its pre-college components should be deeply embedded in CTE programs and schools; programs of study in CTE schools and programs should be oriented to those being offered in the new college; joint efforts should be undertaken to increase the enrollment of CTE students in College Now courses.
- **Develop new school models:** CUNY and the DOE should work together to develop career-focused early college schools that enable high school students to earn substantial numbers of college credits after they have demonstrated their readiness for college-level work.
- **Emphasize articulation.** CUNY and the DOE should cooperate on the strengthening of articulation agreements between CTE schools and programs and next-step programs at the college level.
- **Tracking student transitions into post-secondary studies:** CUNY and the DOE should cooperate on the development of sophisticated tracking processes to insure that high schools know how well their graduates perform and that they are able to use data on postsecondary readiness and achievement to inform curriculum and instruction

6. Recommendations For Informing Student and Family Choice

- **Middle School Curriculum:** Promote career exploration and awareness across the middle school curriculum to assist students in making informed choices related to education and career planning, and in particular, selection of high school options during the 8th grade. This should not be a return to the old models of separate career skills courses, but rather a re-imagining of how career awareness can be infused throughout the middle school years.
- **Demonstrated Student Interest:** Expand mechanisms for students to demonstrate interest in particular CTE schools during the high school admissions process and student selection process. To avoid the potential for tracking students, the NYC DOE must continue to improve its efforts to honor students' preferences in the high school admissions process, and to ensure that every CTE student has demonstrated interest in their program of study prior to enrollment.
- **Student Selection - Equity of Access:** Ensure that CTE school populations are reflective of overall system demographics including ethnicity, academic skill level, gender and learning and language needs. Diminish over time the reliance of some CTE high schools on selective admissions screens.
- **Create Transfer Options:** While high school pathway decision-making is supported by enhanced middle school efforts, students should still be able to exit CTE High Schools or pathways where their interest in the pathway has waned; or to enter CTE schools after 9th grade when their interest emerged following initial enrollment in another school. It should be recognized that such choices may have consequences for on-time graduation.
- **Limit enrollment:** In CTE programs of study, limit enrollment after the start of the 11th grade in order to protect the coherence of the program of study, and to ensure that students can meet technical requirements prior to on time graduation. Systems must be in place to refer late-decider students instead to the sets of courses that will prepare them broadly for careers in their area of interest and provide guidance, counseling and opportunities for internships.

7. Recommendations for Family and Public Communications

- **Targeted Communications Effort:** To promote CTE options to students and families in order to grow the pool of interested CTE High School applicants. Efforts should leverage existing industry events and communications channels to promote specific opportunities in targeted industries and schools that assure parents that their children will not be steered to a lower-track, limiting their opportunity to attend college if they choose to do this upon graduation.
- **Promote CTE as an equally rigorous path for city high school students.** Students who pursue career and technical education in high school, and make an informed choice to avail themselves of work opportunities related to what they have learned after graduating, should enjoy the full support of peers, teachers and every aspect of the system. A public education campaign should promote the benefits and respectability of the full range of technical careers.
- **Encourage Gender Balance in Non-traditional Sectors.** Communications and recruitment efforts should reflect and promote opportunities for women across industry sectors in an effort to attract more young women to non-traditional careers.

8. Recommendations to address Resource Implications

- **The DOE’s Fair Student Funding Formulas** should be evaluated to:
 - Ensure appropriate alignment of relevant CTE cost factors including program of study, specialized equipment and materials, and industry specific training and resources to program tiers and eligible portfolio weighting.
 - Consider expansion of the weighting to CTE Programs of Study in comprehensive high schools not designated as CTE High Schools.
- **Capital Resources:** Ongoing CTE equipment needs and facility resources required to meet evolving industry standards associated with CTE Programs of Study must be accounted for both in the Department’s 5-year Capital Plan and in the context of public-private partnerships. DOE capital investments should be thoughtful about the danger of obsolescence, ensuring adequate flexibility from investments and ensuring that industry partnerships support the most technical capital requirements
- **Private Funds:** Establish an “Innovation Fund” to support the development of new CTE schools and the transformation of existing schools to align with expectations of the Task Force and evolving demands of industry, including standards and curriculum development, teacher recruitment and training, facilities design and development, and support for demonstration site planning and launch.

Recommendations 9 & 10 that follow provide the context for the pilot implementation of the proposed policy and practices above.

9. Recommendations for Demonstration Site Planning and Implementation.

Purpose and Structure

- At least three (3) CTE “Demonstration Sites” should be developed to model the opportunities, challenges and outcomes deriving from state policy flexibility in the implementation of innovative CTE school designs. Demonstration sites will serve the explicit purpose of documenting and disseminating promising practices toward improvement of the overall CTE portfolio.
- The elements tested in these models must be used to establish a dashboard of criteria and indicators toward ongoing evaluation and improvement of the existing portfolio of CTE pathways.
- CTE Demonstration sites may include the following possible Type / Structures, dependent on proposals submitted by school teams:
 - New or existing DOE Public School, Grades 9-12;
 - New Charter Public Schools, Grades 9-12;
 - New joint DOE/CUNY Public School with deliberate post-secondary integration (i.e. 9-14 grade structure); and/or
 - An existing large comprehensive high school working in Small Learning Communities (SLC) with CTE pathways.

Design Criteria

The following will be applied to the selection of demonstration sites from among school proposals:

- ***Capacity***: The school planning team must demonstrate:
 - Evidence of the DOE established Elements of Effective Schools (see attachment).
 - Capacity to establish and sustain a professional culture that promotes a rigorous pathway for students to attain the core competencies.
 - A plan for the development of a set of authentic, rigorous, alternative assessments that will determine mastery of core competencies.
 - A plan for curriculum offerings that reflect authentic industry need.

- ***Teaching & Learning***
 - The proposed educational plan must outline the curriculum and experiences that will lead to the attainment of competency-based standards as demonstrated by associated alternative assessments when developed.
 - The proposal must provide a plan for contribution to the State and City's efforts to develop rigorous, alternative assessments toward the attainment of other core competencies and relevant content specific knowledge and skills.
 - The curriculum must provide evidence of academic and technical integration including:
 - Rigorous out-of school, work-based learning experiences that yield credit.
 - The use of dual-credit classes – Regents/career.
 - The use of alternative assessments to determine mastery of relevant competencies.
 - The curriculum must differentiate among core competencies, content and skills to be mastered during the secondary experience and those to be mastered at the post-secondary level or in the workplace. Assessments must be aligned appropriately.
 - The curriculum must address the needs of all students including English Language Learners, Special Education students, and students who are academically struggling.
 - The educational plan must provide a technical pathway(s) that is validated and recognized as relevant by the particular industry sector and yield meaningful employment and/or post-secondary opportunities.

- ***Partnerships***
 - The school proposal must identify the points of integration with and articulation to the relevant post-secondary partner(s).
 - The planning team must demonstrate capacity to establish deep and meaningful engagement with industry including:
 - Coordinating district-wide relationships within industry sectors.
 - Development of a sustainable school based industry advisory council.

- Defining the right win/win for industry and educators and recognizing shared and different goals.
 - Continuous assessment of the wage dimensions of career opportunities.
- ***Student Selection***
 - Student selection criteria should select for demonstrated interest and deliberate choice by students, but not select based on prior academic record. Adequate support structures should be in place to help students reach their full potential.
 - Other student selection screens should only be utilized in the case that a program sufficiently justifies the need for specific competencies aligned with industry expectations prior to enrollment for ongoing student success.
- ***Research, Evaluation & Portfolio Planning***
 - The proposed school model must demonstrate capacity to and identify the methods, tools and resources to be used for ongoing research and evaluation of the model and its elements.

10. Recommendations for Impacting the Existing Portfolio of Schools and Programs

The following should be incorporated into efforts to improve and expand CTE programs of study and ensure that the existing portfolio of schools and programs are aligned to our vision for CTE including closing programs that are not aligned with new and sustainable industry opportunities in CTE.

- ***Build Capacity***: Use the Department accountability structures for portfolio analysis (closure, restructuring & replacement) and the State Program Approval Process to enhance the quality of existing CTE schools and programs.
 - Performance targets should be established to dramatically increase the number of State approved programs over each of the next three years, and to certify all existing programs of study that meet eligible criteria in that time frame.
 - The DOE should continue ongoing collaboration with the State to leverage the Program Approval Process as a capacity building and program improvement process.
 - The CTE team within the Office of Portfolio Development should enhance coaching and general capacity to support cohorts of schools as they move through the process toward approved status.
 - The Department will use ongoing assessment of industry sector needs and the wage dimensions of these opportunities as a factor in portfolio management.
- ***Partnerships***
 - Efforts to reorganize and focus citywide CTE industry sector partnerships efforts should address ongoing needs and support existing schools, as well as demonstrations.
 - Conduct an inventory of existing partnerships linked to CTE schools to provide a baseline from which to gauge the effectiveness of new efforts.
 - Improve the quality and management of existing internship programs, including the LEARN program.

- Work with the Department to do ongoing assessment of the industry sector needs and wage dimensions of these opportunities.
- ***Student Selection***
 - Emerging student recruitment and selection practices should be phased in to existing schools. New requests to have screens applied to school enrollment should encourage equity in access and emphasize student selection criteria that select for demonstrated interest and deliberate choice by students, but not select based on prior academic record.
 - Other student selection screens should only be utilized in the case that a program sufficiently justifies the need for specific competencies aligned with industry expectations prior to enrollment for ongoing student success, and should be applied consistently across similar programs citywide.
- ***Recuperative Efforts: Development of a High School program focusing on disconnected youth and drop out recovery***
 - Identify an existing program or school setting to develop or enhance offerings providing CTE programming and GED preparation, to provide real opportunities to complete an academic program based on contextualized training with an emphasis on the construction trades; health careers, hospitality and food service.
 - The program should build upon lessons learned in the design and implementation of the Multiple Pathways program in re-engaging students who are “overage and under-credited”.
 - All other current programs at the school should be evaluated in the context of current labor market demands to determine necessary adjustments.

APPENDIX

- **Current NY State Standards**
- **Design Characteristics of Effective Schools**

Additional materials will be added in final report, including work-based learning standards

Current New York State Learning Standards

English Language Arts

• **Standard 1: Language for Information and Understanding**

Students will listen, speak, read, and write for information and understanding. As listeners and readers, students will collect data, facts, and ideas; discover relationships, concepts, and generalizations; and use knowledge generated from oral, written, and electronically produced texts. As speakers and writers, they will use oral and written language that follows the accepted conventions of the English language to acquire, interpret, apply, and transmit information.

• **Standard 2: Language for Literary Response and Expression**

Students will read and listen to oral, written, and electronically produced texts and performances from American and world literature; relate texts and performances to their own lives; and develop an understanding of the diverse social, historical, and cultural dimensions the texts and performances represent. As speakers and writers, students will use oral and written language that follows the accepted conventions of the English language for self-expression and artistic creation.

• **Standard 3: Language for Critical Analysis and Evaluation**

Students will listen, speak, read, and write for critical analysis and evaluation. As listeners and readers, students will analyze experiences, ideas, information, and issues presented by others using a variety of established criteria. As speakers and writers, they will use oral and written language that follows the accepted conventions of the English language to present, from a variety of perspectives, their opinions and judgments on experiences, ideas, information and issues.

• **Standard 4: Language for Social Interaction**

Students will listen, speak, read, and write for social interaction. Students will use oral and written language that follows the accepted conventions of the English language for effective social communication with a wide variety of people. As readers and listeners, they will use the social communications of others to enrich their understanding of people and their views.

Mathematics, Science, and Technology

• **Standard 1: Analysis, Inquiry, and Design**

Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.

• **Standard 2: Information Systems**

Students will access, generate, process, and transfer information using appropriate technologies.

• **Standard 3: Mathematics**

Students will understand mathematics and become mathematically confident by communicating and reasoning mathematically, by applying mathematics in real-world settings, and by solving problems through the integrated study of number systems, geometry, algebra, data analysis, probability, and trigonometry.

• **Standard 4: Science**

Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

• **Standard 5: Technology**

Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.

• **Standard 6: Interconnectedness: Common Themes**

Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.

• **Standard 7: Interdisciplinary Problem Solving**

Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.

Career Development and Occupational Studies

• **Standard 1: Career Development**

Students will be knowledgeable about the world of work, explore career options, and relate personal skills, aptitudes, and abilities to future career decisions.

• **Standard 2: Integrated Learning**

Students will demonstrate how academic knowledge and skills are applied in the workplace and other settings.

• **Standard 3a: Universal Foundation Skills**

Students will demonstrate mastery of the foundation skills and competencies essential for success in the workplace.

• **Standard 3b: Career Majors**

Students who choose a career major will acquire the career-specific technical knowledge/skills necessary to progress toward gainful employment, career advancement, and success in postsecondary programs.

Social Studies

• **Standard 1: History of the United States and New York**

Students will use a variety of intellectual skills to demonstrate their understanding of major ideas, eras, themes, developments, and turning points in the history of the United States and New York.

• **Standard 2: World History**

Students will use a variety of intellectual skills to demonstrate their understanding of major ideas, eras, themes, developments, and turning points in world history and examine the broad sweep of history from a variety of perspectives.

• **Standard 3: Geography**

Students will use a variety of intellectual skills to demonstrate their understanding of the geography of the interdependent world in which we live—local, national, and global—including the distribution of people, places, and environments over the Earth’s surface.

• **Standard 4: Economics**

Students will use a variety of intellectual skills to demonstrate their understanding of how the United States and other societies develop economic systems and associated institutions to allocate scarce resources, how major decision-making units function in the United States and other national economies, and how an economy solves the scarcity problem through market and nonmarket mechanisms.

• **Standard 5: Civics, Citizenship, and Government**

Students will use a variety of intellectual skills to demonstrate their understanding of the necessity for establishing governments; the governmental system of the United States and other nations; the United States Constitution; the basic civic values of American constitutional democracy; and the roles, rights, and responsibilities of citizenship, including avenues of participation.

The Arts

• **Standard 1: Creating, Performing, and Participating in the Arts**

Students will actively engage in the processes that constitute creation and performance in the arts (dance, music, theatre, and visual arts) and participate in various roles in the arts.

• **Standard 2: Knowing and Using Arts Materials and Resources**

Students will be knowledgeable about and make use of the materials and resources available for participation in the arts in various roles.

• **Standard 3: Responding to and Analyzing Works of Art**

Students will respond critically to a variety of works in the arts, connecting the individual work to other works and to other aspects of human endeavor and thought.

• **Standard 4: Understanding the Cultural Contributions of the Arts**

Students will develop an understanding of the personal and cultural forces that shape artistic communication and how the arts in turn shape the diverse cultures of past and present society.

Languages Other Than English

• **Standard 1: Communication Skills**

Students will be able to use a language other than English for communication.

• **Standard 2: Cultural Understanding**

Students will develop cross-cultural skills and understandings.

Health, Physical Education, and Family and Consumer Sciences

• **Standard 1: Personal Health and Fitness**

Students will have the necessary knowledge and skills to establish and maintain physical fitness, participate in physical activity, and maintain personal health.

• **Standard 2: A Safe and Healthy Environment**

Students will acquire the knowledge and ability necessary to create and maintain a safe and healthy environment.

• **Standard 3: Resource Management**

Students will understand and be able to manage their personal and community resources.

Design Characteristics of Effective Schools

- Strong leadership and a mission that teachers, administrators, and students know and support.
- A structure, including elements such as reduced teacher load, which ensures that students will be known well by their teachers and other school staff.
- A small team of qualified teachers responsible for a manageable number of students for at least a full school year that has the autonomy necessary to determine what students learn and how and what they need to make regular progress towards graduation.
- High expectations for all students and a standards-based, academically rigorous curriculum that connects what students learn with post secondary education and career goals.
- A structure that fosters the development of authentic, sustained, caring, and respectful relationships between teachers and students and among staff members. Advisories of 10-15 students are one strategy to achieve this goal.
- Alternative assessments for students and teachers and a culture of continuous improvement and accountability for student success.
- A school schedule that promotes interdisciplinary work, teacher collaboration, and reduced teacher loads. This schedule should provide collaborative team planning and professional development time within the regular school schedule so that teachers can form a professional learning community. At the high school level, the schedule should maximize credit accumulation and provide opportunities for students falling behind to recuperate credits.
- A well-defined plan to service the learning needs of the full range of students in the community, including special education students and English Language Learners.
- Connections between what students learn in school to their lives and communities through internships, mentoring experiences, and service learning opportunities.
- Partnerships with students, parents, and community organizations and institutions as key collaborators and stakeholders.
- Ability to direct fiscal resources toward the creation of conditions for effective teaching and learning