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Abstract

Kentucky is experiencing a critical need for skilled workers as it advances to a leader in advanced technologies in North America. This proposal brings together business leaders, workforce boards, postsecondary institutions, school districts, to address this burgeoning need through an innovative approach by providing high school CTE students the opportunity to enroll in a PTECH-oriented (Pathways in Technology Early College High) school offering STEM curriculum devoted to health and computer sciences.

Program goals include developing a PTECH-like model for CTE students, in grades 11 and 12, pursuing careers in either the STEM field of healthcare or computer science. Commencing in Hazard, Perry County, Kentucky, with two schools designated as rural local education agencies (LEA), and the local community and technical college, which serves seven Appalachian counties in southeastern Kentucky, the program will begin piloting the PTECH model and placing students as apprentices during the first semester of 2019. In years two and three of Kentucky STEM Apprenticeship Program, the model will be institutionalized and replicated in ten additional geographically dispersed locations throughout the Commonwealth.

Program outcomes include creation of intermediary models designed to serve business and industry needs, as well as the placement and management of apprentices; graduation of a minimum of 100 journey workers at each designated location who are skilled in the STEM fields aforementioned; faculty who are trained in best practices in the delivery of STEM and service to CTE students, including special populations; and, parents and communities who are knowledgeable about and embrace STEM apprenticeship as a viable career path.

Project Narrative

With the STEM Apprenticeship grant from the US Department of Education, Kentucky plans to implement a PTECH approach that will play a vital role in upgrading skills, widening opportunities for well-paid careers, reaching disadvantaged geographic areas, and reducing the skills gaps. Kentucky's innovative expansion of the P-Tech model involves incorporating apprenticeships for high school students. If successful, the Kentucky experience can have a significant influence on other P-Tech and quality high school programs across the county by showing the feasibility of including apprenticeships, how to attract sufficient numbers of employers to offer apprenticeships, how apprenticeship components can enhance employability and occupational skills of students, and how the overall model can lead to smooth the transition from school to careers. This Kentucky plan addresses several major concerns about developing high school STEM apprenticeships, including building the appropriate curricula and counseling plans, administering the apprenticeship components, and most importantly, attracting adequate numbers of employer offers of apprenticeships.

Eligibility

The Kentucky Department of Education's Office of Career and Technical Education (CTE) is pleased to submit this application to the United States Department of Education for consideration in the Pathways to STEM Apprenticeship for High School Career and Technical Education Students competitive grant solicitation. Kentucky Revised Statute 156.802 (1)(3)(4) places CTE within the Kentucky Department of Education, Office of the Commissioner of Education, who holds the administrative authority over the management of CTE. The statute further provides that the Commissioner is the designee that enters agreements and contracts with other government entities, thus establishing our eligibility for submission of this proposal.

Priorities and Requirements

Introduction. Using a P-TECH like approach to this solicitation, and drawing heavily from the Carl D. Perkins Career and Technical Improvement Act of 2006, and successful Australian STEM apprenticeship models, Kentucky CTE proposes to commence this project locally in Hazard, Perry County and expand to approximately ten locations statewide in years two and three of the project. The PTECH-like approach is a partnership between the education, business, industry and community sectors focused on supporting young people to make a successful transition from school to work, including to employment opportunities with the school's industry partners. Business and industry leadership represents the convener of the partnership and articulate the framework for the model. Working with rural LEAs, Perry County High School and Hazard Independent High School, the project will promote STEM education and expand apprenticeships for high school CTE students, particularly in the market high demand areas of health care and computer science. Modeling the P-TECH concept, CTE students will simultaneously attend their local high schools aforementioned, but also pursue credited coursework through the Hazard Community and Technical College.

The project will build upon the Kentucky Office of Apprenticeship, a recipient of the U.S. Department of Labor's Accelerator and Apprenticeship USA Expansion Grants, thereby further expanding apprenticeship opportunities in this rural, Appalachian area. Using an intermediary. apprenticeship placement structure, the local workforce board, the Eastern Kentucky Concentrated Employment Project (EKCEP), will assist in placing high school CTE students as apprentices in local health care, information technology, and other relevant market demand businesses as identified by the Kentucky Cabinet for Economic Development. Business partners agreeing to hire apprentices include the Appalachian Regional Healthcare System, Juniper Health, and University

of Kentucky College of Medicine. Other business partners will be identified in or in proximity to Perry County during year one of the project. Competency-based apprenticeships available to students include, but are not limited to: surgical technologist (operating room specialist), medical assistant, medical record and health technologist, health information management hospital coder, emergency medical technician, certified nurse assistant, and computer programmer (see U.S. Department of Labor Rapids 2.0 Database for additional work process descriptions). Unlike time-based apprenticeships, competency-based apprenticeships afford apprentices the opportunity to demonstrate mastery of skills rather merely completing a requisite number of hours.

The project both creates new and builds upon existing partnerships to give high school CTE students promising and meaningful apprenticeship career opportunities in a geographically challenging area decimated by the declining coal industry. Leveraging U.S. Department of Labor funding through the grants aforementioned, the project is further enhanced by employing the expertise of Dr. Robert Lerman, Senior Fellow at the Urban Institute and internationally renowned apprenticeship expert, and Nicholas Wyman, CEO of Skilling Australia, an expert with global experience in PTECH implementation and the development and use of intermediaries to scale apprenticeship. Both individuals serve as consultants through the apprenticeship grants previously awarded to the Kentucky Office of Apprenticeship, and have agreed to collaborate on this endeavor as part of their ongoing work to expand high quality apprenticeship opportunities in Kentucky.

These elements ensure that we have met the U.S. Department of Education's **Absolute Priority** and **Program Requirement 1** for this solicitation. Letters of commitment from the program partners are appended to this narrative thereby meeting **Application Requirements 1 and 2.**

Background and Strategies for Meeting Program Requirement 2-Employer Leadership. In Kentucky, as elsewhere in the United States, scaling the number of apprentices employed remains a primary challenge. Since the inception of the formal Office of Apprenticeship at the Kentucky Labor Cabinet slightly over a year ago, the coordinating team manages to enroll approximately 30 apprentices per month. While it is progress, the incremental, one-on-one approach is slow to meet the burgeoning needs of the Commonwealth's rapidly expanding businesses and industries, which currently boast 200,000 unfilled medium and high skills jobs, with an additional 70,000 unfilled jobs predicted for 2020.

The Kentucky Labor Cabinet began searching for a mechanism to scale apprenticeship in the Commonwealth. How did the Switzerland, Germany, the United Kingdom, Australia and other countries manage to have such a large apprenticeship force employed in business and industry? One answer lies in the role of an apprenticeship intermediary.

With support from the ApprenticeshipUSA Expansion grant and JPMorgan Chase, the Kentucky Labor Cabinet was invited to pursue intensive work with Dr. Robert Lerman and his colleagues, Nicholas Wyman, and Tom Bewick, President and Founder of the Transatlantic Apprenticeship Exchange Forum, with particular emphasis on scaling apprentices in Kentucky through the use of intermediaries. The work commenced during March 2018 and is ongoing throughout the Commonwealth.

Soukamneuth & Harvey clearly define the role of the intermediary as an entity that serves dual customers. They note, "For businesses, intermediaries identify the labor and skill needs of businesses in order to connect businesses to qualified workers. For workers, intermediaries provide training and/or supportive services or broker these services with community agencies to provide to workers" (Soukamneuth & Harvey, 2008: I-2).

Mechanics of an Intermediary in a PTECH-like Structure. The graphic depiction in Figure 1 below illustrates one example of workflow and essential processes in an intermediary. This model emulates the highly successful thirty-year endeavor undertaken by Nicholas Wyman in Australia. A distilled discussion of the process accompanies the graphic in Figure 1.

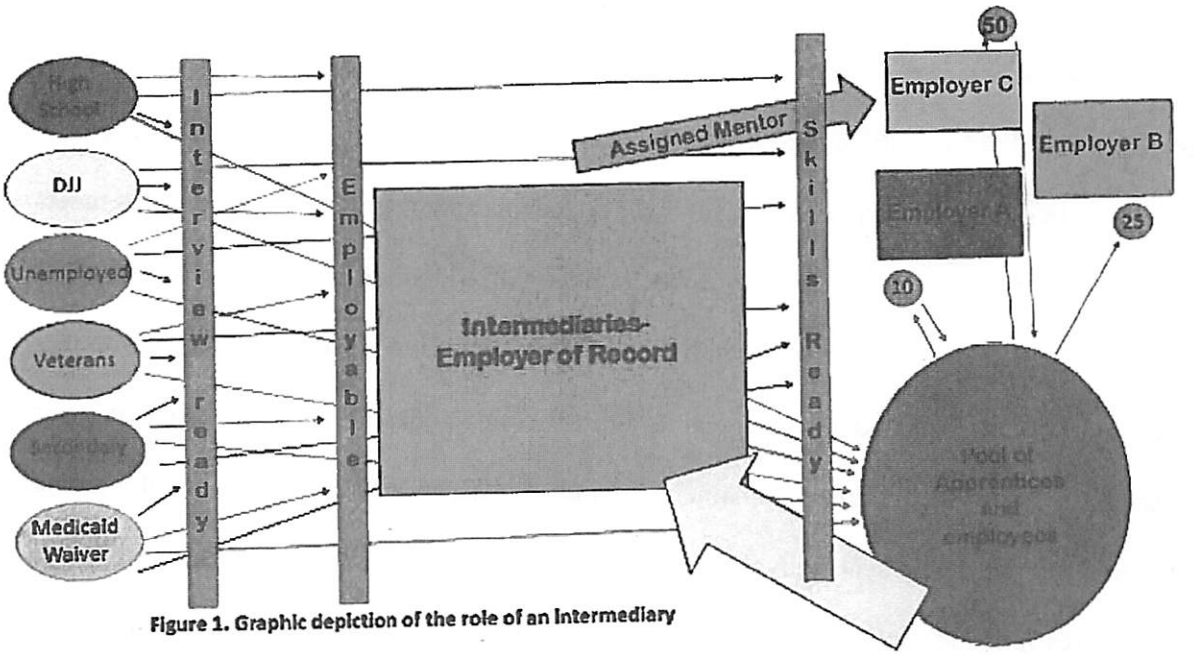

Figure 1. Graphic depiction of the role of an intermediary

An intermediary recruits from a diverse pool of potential apprentices, working to match skills articulated by employers, or employer A, Band C in Figure 1. As depicted, an intermediary works with high schools, including Area Technology Centers housing CTE students, juvenile justice agencies, unemployed individuals, veterans, institutions of higher education to recruit not only CTE students, but also others who may benefit and thrive from participating in apprenticeship programs. This may also entail reaching out to and recruiting special populations such as individuals with disabilities, the economically disadvantaged, women or men for gender-

challenged occupational settings, single parents, displaced homemakers, and individuals with limited English proficiency.

Screening applicants for potential apprenticeship openings and providing required soft skill development are routine functions of the intermediary, who is taking direction from business leaders on an ongoing basis. In addition to developing soft skills appropriate in any business setting, most intermediaries globally employee industry consultants who understand the skills required to meet business and industry specifications. The industry consultants are able to work with required training providers, such as PTECH, career and technical center or community college faculty and, to ensure the curriculum taught to CTE students and other potential employees meets business and industry standards. Industry consultants employed by intermediaries also ensure that curricular materials undergo modification in a timely manner as innovations occur in a particular occupational sector. When Kentucky began its apprenticeship endeavor with the expansion grant as recent as 2016, a common complaint from many occupational sectors involved training instruction that was not in sync with current specifications and as a result the requisite skill levels of employees failed to meet rudimentary standards. In the final report issued by the President's Task Force on Apprenticeship Expansion, recommendation sixteen requires that industry groups have input and describe in detail the standards to be included in the learning experience (President's Task Force Final Report, 2018). Again, business leaders are crucial to the success of CTE students and ultimately the apprenticeship experience by providing ongoing voice, direction, and leadership and by working in tandem with the intermediary.

The intermediary provides each apprentice with a mentor. A mentor and an apprentice sign a contract for the life of the apprenticeship. According to Nicholas Wyman, "Mentors look for and are skilled at spotting —the signs of doubt, fear, and frustration that apprentices like many new

employees (and their supervisors) might have over the course of the placement. This way, they can intervene in a productive and helpful way before problems grow, conflicts occur, and things begin to feel helpless" (Wyman 2015: 150).

Unlike traditional employment agency models, if an apprentice is struggling or fails at a placement, they return to the intermediary, specifically their mentor, for additional training, academic support at the PTECH school, or other services, including wrap-around services such as substance abuse counseling or training in financial literacy. If acceptable to the original placement site, once an apprentice completes the additional training and other requirements identified jointly by the mentor and the employer, the apprentice returns to the original placement. If the original job site will not accept an apprentice back, the individual goes back into the pool of eligible apprentices, and afforded additional opportunities for placement elsewhere.

The intermediary serves as the employer of record until such time that an apprentice completes the apprentice program and earns a journeyperson certification. An intermediary may be occupation specific or offer services to a range of employers. In rural areas, as in the case in Hazard, Perry County, where there are a number of small employers, an intermediary aggregates their needs, eases administrative burdens, particularly as dealing with mostly young CTE student apprentices is not in their bailiwick of human resource expertise, and serve to develop/enhance partnerships with all relevant stakeholders (Milfort Sullivan, 2016).

These functions distinguish the intermediary from other workforce development organizations. There is a focus on high performance strategies that surpass job matching (see Soukamneuth & Harvey, 2008).

Kentucky STEM Apprenticeship Employer Partners.

University of Kentucky/College of Medicine. The University Kentucky Center of Excellence in Rural Health (UK CERH) was established to improve the health and well-being of rural Kentuckians. The Center seeks to find solutions to the area's chronic shortage of healthcare professionals, as well as the residents' poor health status. In support of its mission, the Center houses several academic programs to ameliorate the shortage of health care professionals within rural Kentucky. Over 800 students have graduated from these programs, which include Doctor of Physical Therapy, Medical Laboratory Science program, Bachelor of Arts in Social Work, and Masters of Social Work. In addition, the Center serves as a bridge connecting the Hazard Community and Technical College students to bachelor's and master's degree educational opportunities. Currently, the Center and the community college are planning a community health worker training program for Perry County and Hazard Independent High Schools. This provides opportunities for robust apprenticeship opportunities in the STEM field.

The UK CERH has experience in faculty development, workforce development, and providing academic and training opportunities for students. As an invested stakeholder in the local community, UK CERH is uniquely positioned to facilitate partnerships between community members and other researchers interested in community-based research in rural areas. The UK CERH has experience with planning, implementing, and facilitating community-engaged grants including federal grants from Health Resources and Services Administration, Centers for Medicare and Medicaid Services, and National Institutes of Health.

Appalachian Regional Healthcare Hospitals. Appalachian Regional Healthcare is a not-for-profit health system serving 350,000 residents across Eastern Kentucky and Southern West Virginia. Operating 11 hospitals, multi-specialty physician practices, home health agencies,

HomeCare Stores and retail pharmacies, ARH is the largest provider of care and single largest employer in southeastern Kentucky and the third largest private employer in southern West Virginia.

The ARH system employs nearly 5,000 people and has a network of more than 600 active and courtesy medical staff members representing various specialties. ARH is firmly committed to its mission of improving the health and promoting the well-being of all people in Eastern Kentucky and Southern West Virginia.

As a partner in Kentucky's STEM Apprenticeship Project, Appalachian Regional Healthcare will:

•identify skills and changes necessary in curriculum offered by Perry County and Hazard Schools, and Hazard Community and Technical College;

•participate as a lead partner in planning the 36-moth project;

•attend and engage in stakeholder and community meetings;

•sponsor apprentices;

•and, provide the apprentices with on the job training beyond the STEM and other academic courses available at the high schools and community college.

Juniper Health Care. Juniper Health Care is a Federally Qualified Health Center that served over 10,000 patients in southeastern Kentucky in 2017. Juniper is a fully integrated center providing medical, dental and behavioral health services, employing 90 professional staff members. Increased reliance on technology, particularly as it relates to electronic health records,

demands that candidates for employment with Juniper are skilled to meet new the level of demand in the health care field. Juniper will work with the Kentucky STEM Apprenticeship Program to:

•identify skills and changes necessary in curriculum offered by Perry County and Hazard Schools, and Hazard Community and Technical College;

•participate as a lead partner in planning the 36-moth project;

•attend and engage in stakeholder and community meetings;

•sponsor apprentices;

•and, provide the apprentices with on the job training beyond the STEM and other academic courses available at the high schools and community college.

The Intermediary. **EKCEP.** The Eastern Kentucky Concentrated Employment Program (EKCEP) helps workers and businesses in Eastern Kentucky meet the challenges and seize the opportunities of today's economy. EKCEP operates the Kentucky Career Center JobSight network of workforce centers, which provide access to more than a dozen state and federal programs that offer employment and training assistance for jobseekers and employers. EKCEP is headquartered in Hazard, Kentucky, and serves a population of nearly one-half million in 23 counties in the Appalachian mountains of eastern Kentucky.

Under the Workforce Innovation and Opportunity Act (WIOA), EKCEP also administers programs that assist individuals looking for work, workers who have been dislocated from their jobs, and economically disadvantaged young people. WIOA assistance ranges from career counseling and job search assistance to paying for tuition and providing on-the job training opportunities.

As a partner in the Kentucky STEM Apprenticeship Program, EKCEP will:

• create seamless collaboration during the course of this 36-month project;

•develop partnerships between business, industry, and community stakeholders to support young people engaged in STEM apprenticeships;

•engage in strategic efforts within our region to advance tech sector opportunities and prepare people to work within the digital economy;

•work collaboratively to ensure project objectives are met while developing new opportunities for Perry County students;

•identify skills and changes necessary in curriculum offered by Perry County and Hazard Schools, and Hazard Community and Technical College; and,

•attend and engage in stakeholder and community meetings;

Postsecondary Education Partner. **Hazard Community and Technical College.** Situated in the foothills of the Appalachian Mountains, Hazard Community and Technical College (HCTC) is one of sixteen community and technical colleges which comprise the Kentucky Community and Technical College System. HCTC serves seven counties in southeastern Kentucky, Breathitt, Knott, Lee, Leslie, Owsley, Perry and Wolfe. This service area has some of the highest poverty rates and lowest rates of educational attainment in the nation. Two of its counties, Perry and Leslie, are located in a federally designated Promise Zone. Unemployment rates in the region are more than double the state and national averages. In fall 2017, HCTC served 3,305 members of the community through workforce, dual credit, and college certificates, degrees and diplomas.

HCTC has extensive experience in faculty development, workforce development, collaboration with business and industry and providing successful academic pathways for students

in high school, traditional and non-traditional categories. HCTC has successfully managed many federal grants from funders such as U.S. Department of Education, Appalachian Regional Commission, U.S. Department of Labor, U.S. Department of Commerce, National Endowment of the Arts, National Endowment of the Humanities, U.S. Department of Health and Human Services, U.S. Department of Agriculture, and Abandoned Mine Lands.

HCTC has well-established relationships with both secondary school systems in Perry County, Hazard Independent and Perry County Central High Schools as well as the proposed business and industry partners, Appalachian Regional Healthcare and Juniper Health. Through workforce development efforts, HCTC partners closely with EKCEP, Inc., the local Workforce Investment Board partner, to connect dislocated workers, including miners, to educational opportunities perfectly situated for retraining. Both proposed HCTC programs, Medical Information Technology and Computer Information Technology, have program advisory councils comprised of local pertinent business and industry which provide guidance and suggestions program improvements, including curriculum, equipment upgrades, and faculty professional development.

As a partner in this grant, HCTC will:

- If funded, assist with curriculum design, paid through these grant funds
- Offer career pathways through certificates, degrees and/or diplomas
- In some cases, provide credentialed dual credit faculty
- Work with secondary schools to credential their existing instructors
- Student services including academic advising and disability services as applicable
- Provide meeting space
- Participate in committees, programs, events, and activities, including community outreach

- If funded, employ a Kentucky STEM Apprenticeship Initiative Convener paid through these grant funds

Background and Strategies for Meeting Program Requirement 2-Barriers to Special Populations. Numerous studies conducted in the United States and abroad reference barriers to participation in apprenticeship by both general and special populations. In general, the analyses share common themes such as distance to employers and training providers, unsure of what subject area to study, lack of information about apprenticeships and career choices, the associated costs, poor grades, gender bias by occupational sector, and lack of transportation (United States Department of Labor, 2015; Colborn, Aspen Institute, 2015; Estyn, 2014; Funk, 2009).

Barriers to participation in programs in Perry County, Kentucky parallel those aforementioned, but in this particular locale are heightened by extreme poverty, geographic isolation, lack of transportation and lack of employment opportunities. The salient characteristics of persistently high levels of poverty and low levels of income in Perry County result from the impact of the drastic decline in the coal industry. The entire service region has higher unemployment, poverty, and free and reduced lunch rates than the state of Kentucky. The county also has lower per capita income and educational attainment rates than Kentucky. According to the Kentucky Center for Education and Workforce 2015 (KCEWS) statistics more than 15% of U.S. residents are living in poverty. In Kentucky, the percentage of residents living in poverty is higher at 18.5%. Perry County has an average poverty rate of 30.09%.

	Town Population		Current Unemployment Rate[1]	Educational Attainment High School Diploma[2]	Educational Attainment Bachelor's Degree[2]	Poverty Rate[2]	Per Capita Income[2]	Promise Zone County (Y/N)	NSLP (Free and Reduced Lunch Rate)[3]
Kentucky			4.4%	84.6%	22.70%	18.50%	$24,802		73.19%
Perry	Hazard, 4,456	27,343	6.70%	74.19%	14.00%	30.09%	$19,697	Yes	100%

Table 1. Kentucky Center for Education and Workforce Statistics

Strategies to overcome student participation in the Kentucky STEM Apprenticeship Program include but are not limited to the following.

1) **Diversify Apprenticeship Occupations & Ameliorate Bias.** As articulated by the U.S. Department of Labor and the Aspen Institute, simply expanding apprenticeship into diverse occupational sectors beyond construction and manufacturing, which have dominated the American apprenticeship experience for decades, promotes increased participation by special populations, especially females. This lessens the opportunity for gender bias by occupational sector (U.S. DOL Office of Disability Employment Report, 2015; Colborn & Jenkins, 2015). It also serves to garner widespread community support as community members come to understand that apprenticeship involves a wide range of occupational sectors and hence opportunities for individuals with diverse backgrounds, career experiences, and skillsets.

The Kentucky Office of Apprenticeship has seen the benefits of expanding apprenticeship into the IT/computer science sector in eastern Kentucky as part of the ApprenticeshipUSA Expansion grant firsthand. Beginning in 2016, the Office of Apprenticeship contracted with an IT company to offer registered apprenticeships in this occupational sector. The applicant response to this new program, and relatively new occupational sector for the Appalachian region was overwhelming and included a mixture of male and female applicants. Of those enrolled in the

program, 87.5% completed the program in spring of 2018. Entering the program as either unemployed or underemployed in minimum wage service sector jobs, the graduates' average salary is currently $39,400 and all work in tech-related fields. The prospects for a quality standard of living are much improved, and the community appreciation and understanding of apprenticeship significantly enhanced (Lusco, 2018; Apprenticeship Connections, 2017). The Kentucky STEM Apprenticeship Program will be able to draw on the data and testimony from this endeavor as we launch the PTECH school concept.

2) **Use Pre-Apprenticeship to Acclimate Students & Bolster Confidence.** The Aspen Center and the U.S. Department of Labor strongly recommend incorporating pre-apprenticeship programs in order to help prepare lesser skilled individuals for an apprenticeship program (Colborn & Jenkins, 2015; DOL, 2015). In the Kentucky Department of Education's Office of Career and Technical Education, the Tech Ready Apprentices for Careers in Kentucky (TRACK) is a youth pre-apprenticeship program in partnership with the Kentucky Labor Cabinet and Workforce Development to provide secondary students with career pathway opportunities into Registered Apprenticeship programs.

This is a business and industry driven program designed to create a pipeline for students to enter apprenticeship training. Employers are able to tailor the program for their specific needs and are able to select the Career and Technical Education courses and students for their apprenticeship pathway. This creates a competitive recruiting environment insuring that employers benefit by gaining future employees that have a good foundation and an interest in that occupation. Additionally, it enables students to receive a nationally recognized credential at little or no cost. At the employer's discretion, students can receive credit for both classroom and on-the-job hours toward the training requirement. There are no costs involved except for the student's wages.

The Kentucky STEM Apprenticeship Program will incorporate and build on the TRACK model in Perry County.

3) **Build Teacher Capacity to Teach STEM-related Subjects and Reduce Barriers for Special Populations.** Following the Carl D. Perkins Act and the Southern Region Education Board's recommendations, the Kentucky STEM Apprenticeship Program will create a cadre of effective teachers who are high quality, sustained, intensive and focused (Perkins Act, 2006; SREB, 2014; see also CTE Colorado, 2008). The Program will also work to provide professional development activities in the STEM Apprenticeship endeavor for teachers that include strategies to support special populations, including a full range of support services that enable them to transition into employment. EKCEP and the employer partners mentioned herein will assist with equal access, placement, and necessary accommodations.

4. **Meaningfully Engage with Parents of STEM Apprenticeship Students.** Involving parents is an essential strategy. It is critical that parents are knowledgeable about and understand the multifaceted benefits of apprenticeship. Parents clearly influence decisions about academics, as well as career choices (Gill, 2015). In Australia, apprenticeship is a large-scale endeavor involving half-million or more apprentices. *Apprenticeship Careers* and other web pages have parent pages, complete with guidebooks to help parents assist their child with decisions about and navigate through an apprenticeship program (Apprenticeship Careers, 2018). Similar parent involvement happens with great rigor at the New York City PTECH, where the superintendent conveyed to Kentucky Education and Workforce Development Secretary Derrick Ramsey that, "the whole family enrolls in PTECH to ensure commitment to academic prowess and ultimately success." The Kentucky STEM Apprenticeship Program will build multiple and substantive pathways for parents to be informed and involved in the three-year endeavor.

5. **Conquer Financial Obstacles to Student Success.** Using ApprenticeshipUSA Expansion dollars, we will offset the costs of the required training instruction during year one of the project by offsetting tuition with grant funds set aside for this purpose. We will also work with EKCEP to leverage WIOA dollars to offset transportation, uniform or technical equipment costs for students thus addressing one of the largest barriers in the Appalachian region and that is access to financial means to participate in programs such as this.

Project Design

The thrust of this proposal is to expand competency-based apprenticeship programs for CTE students dually enrolled in high school and the local community college, through coordination with regional business and industries, the local workforce board, state offices, and national and international consultants (see Figure 2). The proposal begins year one in Hazard, Perry County Kentucky, with statewide expansion of PTECH-like structures to approximately ten additional sites in years two and three. The model is receiving full support from the Office of the Governor, Cabinet Secretary for Education and Workforce Development, Kentucky Office of Apprenticeship, and the Commissioner of Education (see Governor Bevin's support document in Appendix E). It is

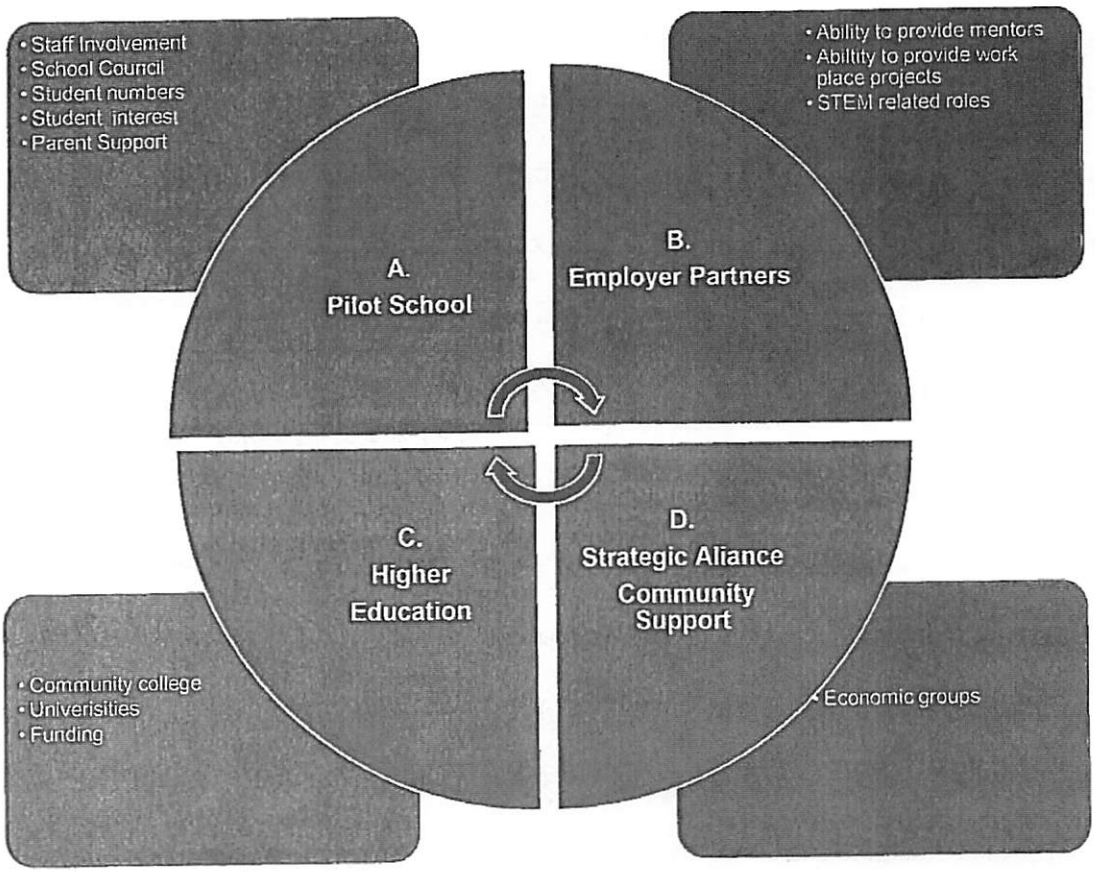

Figure 2. Graphic depiction of the Kentucky STEM Apprenticeship Project

envisioned that this support will result in sustained systemic change in Kentucky's education system.

Key stakeholders include:

- Perry County High School, Hazard Independent High School, Buckhorn High School, School Council, Staff, Students, Parents
- Appalachian Regional Health, Juniper Health Care, the University of Kentucky College of Medicine, Hazard Community and Technical College
- Kentucky Department of Education, Kentucky Education and Workforce Cabinet, Kentucky Office of Apprenticeship

- Local communities within Perry and surrounding counties
- Students and Parents

Objective. The objective of the Kentucky STEM Apprenticeship Program is to pilot test the applicability of key elements of the PTECH-like model within the Kentucky context by establishing learning programs at Perry County High School, Buckhorn High, and Hazard Independent High School. This will be accomplished by:

- Overseeing the implementation of the Kentucky STEM Apprenticeship pilot
- Designing and implementing curriculum and resources to support the delivery of the Kentucky STEM Apprenticeship
- Establishing the infrastructure required to support the delivery of the learning programs
- Managing the delivery and ongoing operations of the program
- Making decisions about the allocation of partnership resources to support the achievement of shared goals
- Supporting the development and implementation of the pilot's local evaluation plan (see sample evaluations tools in Appendix E)
- Monitoring and reviewing pilot outcomes against agreed goals
- Engaging additional steering committee members and expertise where appropriate
- Managing internal and external communications
- Sharing information on the progress of the pilot with the Advisory Committee.

Early activities in establishment include:

- Target STEM related industries in the southeastern Kentucky region to join the Kentucky STEM Apprenticeship Pilot.
- Map suitable qualifications pathways and identify all relevant required training instructor providers. Identifying providers who are able to deliver the training, the cost of providing the training, the availability of funding to cover the training costs and the number of interested students.
- Form a STEM Apprenticeship Steering Committee with Eastern Kentucky Concentrated Employment Program CEO/President as the Chair, produce terms of reference and update them to reach agreement with the group and schedules all meetings producing agendas and minutes for the committee's reference.

Tech Ready Apprentices for Careers in Kentucky (TRACK) Youth Apprenticeship Model Implementation and Application:

The TRACK model has proven itself effective in many different sectors. It is a consistent model in any program area compromised of a minimum of three (3) CTE course paired with a paid cooperative education placement. For this initiative, we have created a scalable model for each identified occupation allowing the student to earn dual credit.

Employers will need to work with both the secondary and post-secondary institutions in developing the competencies that can be attained throughout each course and applied to the apprenticeship.

An Associates of Applied Science degree has been selected. Any applicable dual credit academic courses can be implemented at any time throughout the PTECH model. The first three CTE courses below should be taken as freshmen and sophomores allowing for optimal scheduling time for work-based learning junior and senior year. This will permit the student time to demonstrate mastery and attain credit for apprenticeship competencies.

Identified Occupations:

Surgical Technologist: Principles of Health Science, Medical Terminology, Allied Health Core Skills (emphasis on surgical tech), and Cooperative Education Course

Medical Assistant: Principles of Health Science, Medical Terminology, Allied Health Core Skills (emphasis on medical assisting), and Cooperative Education Course

Medical Record and Health Technologist- Principles of Health Science, Medical Terminology, Medical Office Procedures and Cooperative Education Course

Health Information Management Hospital Coder- Principles of Health Science, Medical Terminology, Medical Office Procedures and Cooperative Education Course

Emergency Medical Technician- Principles of Health Science, Medical Terminology, Emergency Medical Technician (partner with the local EMT provider for this course) and Cooperative Education Course

Certified Nursing Assistant- Principles of Health Science, Medical Terminology, Medicaid Nurse Aide and Cooperative Education Course

Computer Science and/or Computer Programming pathway, are not available at the pilot high schools. Hazard Community and Technical College could offer the dual credit courses.

- CIT 105 (Introduction to Computers)
- CIT 111 (Computer Hardware and Software)
- CIT 120 (Computational Thinking)

Program activities. Stakeholder alliance and networking strategy recognizes the need to nurture and develop relationships with key stakeholders. By engaging with key stakeholders and listening to their needs, issues and concerns, we will be able to better define the pilot's direction and make decisions to develop more robust and sustainable outcomes.

- Supports the school superintendents by meeting on a regular basis, attending staff meetings and school council meetings as required. Development and updating of a three-year STEM Apprenticeship plan
- Meeting with the local school boards as required
- Establish and Chair the Communications committee to support the school enrolment strategy and ongoing promotion of the Kentucky STEM Apprenticeship Program
- Work with local schools to establish and participate in a working group of college staff, i.e., incorporating soft skills with existing curriculum, evaluating the suitability of integration of the Core Skills for Work framework and identifying existing support services for students. Facilitate staff visiting each Industry partner's workplace to gain further understanding of the Industry stream and to assist in the planning of the Industry visits.
- Development of key activities map for the duration of the program including curriculum and employer activities.
- Assists in the facilitation of student and parent Kentucky STEM Apprenticeship information events. Organizing the feeder elementary schools parent information evening, which included marketing materials and a presentation by at least one Industry partner.

- Research, develop and organize training programs for mentors employed by the intermediary
- Meet with local community organizations on a regular basis. Ensures local and state government officials are informed regularly of progress verbally and in writing. Attending meetings as required.
- Meets regularly and supports employer sponsors in the program including a review of their participation
- Development of alliances with new stakeholders which may assist the Kentucky STEM Apprenticeship in furthering its objective
- Meetings with education and training providers to explore training delivery. including but not limited to online meetings, web conferencing, communities, file sharing, networking, collaborating, instant messaging and more
- Project leadership will also develop and manage other social media, such as a twitter account, and a linked in account (to capture the interest of business) bearing the learning program's name. These will be used to promote and garner support for the program.

Outcomes. The intended outcomes of the STEM pilot are the establishment of self-sustaining education, industry and community partnerships to implement learning programs in Perry County. The partnership extends beyond secondary school to community colleges, and supports young people (in particular those who are disadvantaged) to achieve a post-school STEM related qualification and enter employment and/or further education in a STEM related field.

Project Management

The project management plan consists of baseline performance measures, roles and responsibilities of key stakeholders, scope statement, external dependencies, timelines, staffing plan, and milestones.

1. *Performance Measures.* The project management team will collect data during the grant period as outlined in the Department of Education's solicitation pertaining to

a. The total number of CTE students enrolled in project activities during the grant performance period, including students enrolled in apprenticeship programs.

b. The total number of CTE students who are identified as member of a Special Population as identified in the solicitation.

c. The total number of CTE students who are enrolled in high school and participating in Apprenticeships who complete high school.

e. The total number of CTE students enrolled in high school and participating in Apprenticeships who earn postsecondary credit.

In addition to these measures, as part of the PTECH model, the Kentucky Program will also collect data regarding:

f. The total number of CTE students who complete an apprenticeship certificate program in either the STEM medical or computer science field.

g. The total number of CTE students who attain status of a journeyworker in either the STEM or medical or computer science field.

h. The total number of CTE students who register for credentialing in a four-year institution as a result of participating in a STEM apprenticeship program.

2. *Roles and Responsibilities.*

a. **Project Sponsor.** The Kentucky Department of Education, Office of Career and Technology Education owns the Kentucky STEM Apprenticeship Program. The Commissioner of Education will review and approve all aspects of the program.

b. **Designated Business Leaders.** Business partners for the program include the University of Kentucky College of Medicine, Appalachian Regional Healthcare Hospitals, and Juniper Health. Business partners have agreed to adhere to the U.S. Department of Labor's Registered Apprenticeship standards for competency-based apprenticeships in the STEM fields of healthcare/medical and/or computer science. They will hire and provide on the job training for the CTE apprentice students and work with the intermediary to ensure student success. Please see attached letters of commitment from business partners.

c. Project Manager. The Project Manager, with input from the Project Sponsor and other stakeholders, will execute and control the Kentucky STEM Apprenticeship Program. The Project Manager will be hired upon receipt of a notice of funding award nd report to the Supervisor of Apprenticeships.

3. Project Team (including End Users). The Project Team consists of the intermediary who is the Executive Director of the Eastern Kentucky Concentrated Employment Program, the President of the Hazard Community and Technical College and relevant department chairs, Superintendents from Hazard Independent and Perry County High School, the Principal from Buckhorn High School (an extremely remote rural school under the Perry County School District),

the Executive Director of Kentucky Education and Workforce's PTECH model, the Kentucky Office of Registered Apprenticeships, CTE experts from the Kentucky Department of Education, external consultants from the Urban Institute, a community representative, a parent representative, and a CTE student representative at the high school and two-year college level. CVs for Dr. Wayne Lewis, Interim Commissioner of the Kentucky Education Department, Dr. Jennifer Lindon, President of the Hazard Community and Technical College, Dr. Robert Lerman, Senior Fellow for the Urban Institute, and Nicholas Wyman, Founder and CEO of Skilling Australia are attached for consideration in Appendix D.

A kickoff meeting will be held upon notice of funding for purposes of reviewing the business vision and strategy, roles and responsibilities, reaffirming team commitment, the team decision-making process, and assignment of tasks to subgroups.

Regularly scheduled meetings must monitor the progress of the STEM Apprenticeships being offered by the PTECH model to ensure the program is on track to meet desired outcome and performance measures. Meetings should also address avenues to ensure long-term sustainability beyond state and federal funding sources.

4. External Dependencies. The project is dependent upon ongoing work with the Urban Institute and consultants under the ApprenticeshipUSA Expansion Grant. The Kentucky Education and Workforce Cabinet received an award from the U.S. Department of Labor to support this work through September 30, 2020.

5. Scope Statement. The PTECH program focus is designed to provide flexible, individualized scheduling that allows students the opportunity to earn a high school diploma, industry-recognized credentials, an Associates degree, and in engage in an apprenticeship starting in grade 11.

6. Timelines. Following the Australia's successful PTECH-like model, we anticipate a 36-momth schedule will approximate the model timeline below (Davies, 2018).

Kentucky STEM Apprenticeship Program					
Activities	**2018-2019 November-October/Quarters**				**Responsible Parties**
	1	**2**	**3**	**4**	
Formalize partnerships with MOA				X	Commissioner KY DOE
Hire Program Director				X	STEM Steering Committee
Develop Activities Map for 3 Yrs.				X	STEM Steering Committee
Hire Curriculum Writer- Align	X				Program Director w/ Steering Com.
Student Parent Information Events	X	X	X		KDE, Steering Com., EXCEP
Training for Apprentice Mentors	X			X	EXCEP, Urban Institute
Curriculum Writing/Alignment	X	X			Curriculum Writer, Faculty
Apprenticeship Placement	X	X	X	X	EKCEP, Business Leaders, Mentors
Ongoing meetings with government	X	X	X	X	Director, EKCEP
Meet/involve new stakeholders	X	X	X	X	Director, Committee Members
Market/Manage Social Media	X	X	X	X	KDE, Workforce, Director
Attend USDOE Conference			X		Commissioner, Steering Member
Conduct a review of student data			X		Faculty, Director, Steering Com.
Increase Student Support as Needed	X	X	X	X	Faculty, Intermediary
Assess Business Satisfaction			X		Director, Commissioner
Update Skills Map for New Industry			X		EKCEP, Industry Consultants

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Budget Narrative-

i. Personnel-

The Kentucky Department of Education will hire one (1) full-time Project Manager for the purpose of carrying out the STEM Apprenticeship Program in conjunction with the Perry County stakeholder team (see pp. 24-25 of narrative). The Manager will work 37.5 hours per week, for a monthly salary of $3,555. The annual salary of the Manager is $42,660.00, and the percent of participation is 100%. The salary derives from the Commonwealth salary schedule for the assigned titles. Salary reflects a 36-month project period.

A curriculum writer will also be hired for the project (FFTL) at a rate of $45.00 per hour for a duration of four months for each year of the project for a total of $27,000 per year and $81,000 for the life of the project. There are no benefits attached to this position.

The total for Personnel per year of equals 69,662. The total for the life of the grant is $208,986.

ii. Fringe Benefits-

Employment benefits include the employer's share of FICA, retirement, health and life insurance. Employer's share of FICA equals the employee's salary less employee share of retirement, employee share of health insurance, and employee share of flexible spending. FICA is calculated by multiplying the gross salary by .0765, for a total of $3,263.49. Retirement is calculated by multiplying the gross salary .8343, for a total of $35,591.24. Employer share of health insurance is based on the type of plan that was chosen by the employee. An annual average amount of $12,750.00 was applied to the grant budget, for a total of $38,250. Finally, life insurance is calculated at a rate of $14.00. per year.

The total cost for Fringe Benefits for the Project Manager is $45,243.73. The total cost for benefits for the life of the project totals $135,731.19.

iii. Travel

It is estimated that the Commissioner and Project Manager will travel to New York to visit PTECH schools. Two members of this team will also attend the Annual STEM Apprenticeship meeting to be held in Washington DC as required by the solicitation. Conference registrations are estimated at $800.00, flights $300.00, lodging $350.00, meals $44.00, and ground travel $50. Total estimated costs for the site visits and conferences total $3,696.00 for one year of the project and $11,088 for the life of the project.

Instate PD Meetings.

It is estimated that instate PDs for STEM faculty will be held for each year of the project. Travel is estimated at $300., materials are estimated at $300., and printing is estimated at $1000, for a total of $1,600 per year or $4.800.00 for the life of the grant.

iv. Supplies

Drawing from last year's Apprenticeship project expenses, the cost for miscellaneous office supplies for the continuation cycle is estimated at $11,000.00 per year for a total of $33,000.

Pathways to STEM Apprenticeship for

High School Career and Technical Education Students

APPENDIX A: Application Requirements Checklist

Pathways to STEM Apprenticeship for

High School Career and Technical Education Students

APPENDIX B: Letters of Commitment from Postsecondary Partners

OFFICE OF THE PRESIDENT

Dr. Jennifer Lindon, President/Executive CEO
One Community College Drive
Hazard, KY 41701
Telephone: (606) 487-3100
or 1-800-246-7521, Ext. 73100
Fax: (606) 487-0631
www.hazard.kctcs.edu

July 10, 2018

Dr. Wayne D. Lewis
Commissioner of Education
Kentucky Department of Education
300 Sower Blvd, 5th Floor
Frankfort, KY 40601

Dear Dr. Lewis:

Thank you for the opportunity to participate in Kentucky's Pathway to STEM Apprenticeship for Kentucky's high school career and technical education students. I am writing to express my sincere commitment to participate in the endeavor and to discuss Hazard Community and Technical College's (HCTC) specific role in the 36-month project. Using the PTECH-like model to further develop partnerships between business and industry, and community stakeholders to support young people engaged in STEM apprenticeships is a necessity in the southeast region of Kentucky.

Situated in the foothills of the Appalachian Mountains, Hazard Community and Technical College is one of sixteen community and technical colleges which comprise the Kentucky Community and Technical College System. HCTC serves seven counties in southeastern Kentucky, Breathitt, Knott, Lee, Leslie, Owsley, Perry and Wolfe. This service area has some of the highest poverty rates and lowest rates of educational attainment in the nation. Two of its counties, Perry and Leslie, are located in a federally designated Promise Zone. Unemployment rates in the region are more than double the state and national averages. In fall 2017, HCTC served 3,305 members of the community through workforce, dual credit, and college certificates, degrees and diplomas.

HCTC has extensive experience in faculty development, workforce development, collaboration with business and industry and providing successful academic pathways for students in high school, traditional and non-traditional categories. HCTC has successfully managed many federal grants from funders such as U.S. Department of Education, Appalachian Regional Commission, U.S. Department of Labor, U.S. Department of Commerce, National Endowment of the Arts, National Endowment of the Humanities, U.S. Department of Health and Human Services, U.S. Department of Agriculture, and Abandoned Mine Lands.

HCTC has well-established relationships with both secondary school systems in Perry County, Hazard Independent and Perry County Central High Schools as well as the proposed business and industry partners, Appalachian Regional Healthcare and Juniper Health. Through workforce development efforts,

HCTC partners closely with Eastern Kentucky Concentrated Employment Program, Inc., the local Workforce Investment Board partner, to connect dislocated workers, including miners, to educational opportunities perfectly situated for retraining. Both proposed HCTC programs, Medical Information Technology and Computer Information Technology, have program advisory councils comprised of local pertinent business and industry which provide guidance and suggestions program improvements, including curriculum, equipment upgrades, and faculty professional development.

As a partner in this grant, HCTC will:

- If funded, assist with curriculum design, paid through these grant funds
- Offer career pathways through certificates, degrees and/or diplomas
- In some cases, provide credentialed dual credit faculty
- Work with secondary schools to credential their existing instructors
- Provide student services including academic advising and disability services as applicable
- Provide meeting space
- Participate in committees, programs, events, and activities, including community outreach
- If funded, employ a Kentucky STEM Apprenticeship Initiative Convener paid through these grant funds

Through HCTC's support of this project, the goals and objectives of the Kentucky STEM Apprenticeship Initiative will be successful, ensuring a bright future for Perry County students. I understand this is an extremely competitive grant solicitation, but believe we have a strong base of experienced and committed organizations and individuals from the local community, state government, and private sector to deliver sustainable outcomes.

Please let me know if I can provide any additional information. Thank you for your invitation for HCTC to participate in this project. We are excited to see changed lives.

Sincerely,

Dr. Jennifer Lindon

President/CEO

Pathways to STEM Apprenticeship for

High School Career and Technical Education Students

APPENDIX C: Employer Partner Letters of Commitment

University of Kentucky. | College of Medicine
Center of Excellence in Rural Health

July 10, 2018

Dr. Wayne D. Lewis
Commissioner of Education
Kentucky Department of Education
300 Sower Blvd, 5th Floor
Frankfort, KY 40601

Dear Dr. Lewis:

Thank you for the opportunity to participate in Kentucky's Pathway to STEM Apprenticeship for Kentucky's high school career and technical education students. I am writing to express my sincere commitment to participate in the endeavor and to discuss the UK Center of Excellence in Rural Health's (CERH) specific role in the 36-month project. Using the PTECH-like model to further develop partnerships between business and industry, and community stakeholders to support young people engaged in STEM apprenticeships is a necessity in the southeast region of Kentucky.

The UK CERH's mission is to improve the health and wellbeing of rural Kentuckians. Since its establishment in 1990, the UK CERH has worked to address health disparities in rural Kentucky, accomplishing this through education of health professionals, health policy research, health care service and community engagement. The Center seeks to find solutions to the area's chronic shortage of health professionals and residents' poor health status. In support of its mission, the UK CERH houses several University of Kentucky academic programs, which focus on curbing the health personnel shortages within rural Kentucky. Over 800 students have graduated from these programs, which include Doctor of Physical Therapy, Medical Laboratory Science, Bachelor of Arts in Social Work, and Master of Social Work. In addition, the UK CERH serves as part of the bridge connecting Hazard Community and Technical College students to bachelor and master degree educational opportunities. Currently, the UK CERH and HCTC are in the planning stages of developing a community health worker training program for Perry County Central and Hazard Independent High Schools which will provide apprenticeship opportunities.

The UK CERH has experience in faculty development, workforce development, and providing academic and training opportunities for students. As an invested stakeholder in the local community, UK CERH is uniquely positioned to facilitate partnerships between community members and other researchers interested in community-based research in rural areas. The UK CERH has experience with planning, implementing, and facilitating community-engaged grants including federal grants from Health Resources and Services Administration, Centers for Medicare and Medicaid Services, and National Institutes of Health.

University of Kentucky. | College of Medicine
Center of Excellence in Rural Health

The UK CERH has built strong collaborative, professional relationships and built effective communication processes with our local school systems and community agencies. We will work with Perry County Central and Hazard Independent High Schools, Hazard Community and Technical College, Appalachian Regional Healthcare, Juniper Health, Pikeville Medical, Highlands Regional and Eastern Kentucky Concentrated Employment Program, Inc. to ensure goals and objectives of the Kentucky STEM Project are met and successful thereby ensuring a bright future for Perry County students. I understand this is an extremely competitive grant solicitation, but believe we have a wonderful base of experience and committed agencies and individuals from the local community, state government, and private sector to deliver sustainable outcomes.

Please let me know if I can provide any additional information.

Sincerely,

Frances J. Feltner

Frances J. Feltner, DNP, MSN, RN, FAAN
Director, UK Center of Excellence in Rural Health

Appalachian Regional Healthcare, Inc.
www.arh.org

July 10, 2018

Dr. Wayne D. Lewis
Commissioner of Education
Kentucky Department of Education
300 Sower Blvd, 5th Floor
Frankfort, KY 40601

Dear Dr. Lewis:

Thank you for the opportunity to participate in Kentucky's Pathway to STEM Apprenticeship for Kentucky's high school career and technical education students. I am writing to express my sincere commitment to participate in the endeavor and to discuss Appalachian Regional Healthcare, Inc. specific role in the 36-month project. Using the PTECH-like model to further develop partnerships between business and industry, and community stakeholders to support young people engaged in STEM apprenticeships is a necessity in the southeast region of Kentucky.

Our organization is the largest employer in Southeastern Kentucky and we have experience in employee development, workforce development relationships and economic development in our region. We also have experience working with federal grant and associated timelines and deliverables.

Our agency will work with Hazard High/Perry County High/ Hazard Community and Technical College/ARH/Juniper Health/Pikeville Medical/Highlands Medical/EKCEP/Computer & IT Businesses to ensure goals and objectives of the Kentucky STEM Project are met and successful thereby ensuring a bright future for Perry County students. I understand this is an extremely competitive grant solicitation, but believe we have a wonderful base of experience and committed agencies and individuals from the local community, state government, and private sector to deliver sustainable outcomes.

Please let me know if I can provide any additional information.

Thank you.

Sonya C. Bergman

Sonya C. Bergman

System Director Human Resources

Appalachian Regional Healthcare, Inc.

606-487-7573

Juniper Health

July 10, 2018

Dr. Wayne D. Lewis
Commissioner of Education; Kentucky Department of Education
300 Sower Blvd, 5th Floor
Frankfort, KY 40601

Dear Dr. Lewis:

Thank you for the opportunity to participate in Kentucky's Pathway to STEM Apprenticeship for Kentucky's high school career and technical education students. I am writing to express my sincere commitment to participate in this 36-month endeavor. Using the PTECH-like model to further develop partnerships between business, industry and community stakeholders to provide STEM apprenticeships is a necessity in the southeast region of Kentucky. As the CEO of a primary care healthcare organization, I know that the healthcare industry is forecasted to be a "growth industry", especially in these rural mountain counties that we serve, so having well-prepared students who can enter the workforce in the STEM fields is vital. Assisting in preparing a well-prepared workforce is part of the mission of our organization and a pledge to the communities that we serve.

Juniper Health is a Federally Qualified Health Center that served over 10,000 patients during over 40,000 encounters in 2017 in four counties in southeastern Kentucky. We are a fully integrated health center who provides medical, dental and behavioral health services. We currently employ 90 people and are rapidly growing. Especially since the advent of the use of technology and electronic health records in the primary care fields, we no longer have jobs for folks who have "just" a high school diploma or GED. We desperately need employees to come to us with a high level of preparation and the apprenticeship program proposed in this grant is perfect to help our region fill those gaps that currently exist for new high school graduates. For this program, we would be specifically interested in exploring apprenticeship opportunities for students in fields such as medical coding, certified medical assisting and health IT. At least initially, we could consider one apprenticeship in each field. Our hope is that the program would grow.

We have experience in workforce development in healthcare in our community, as well as having experience working with students from our local ATCs who have chosen healthcare and business tracks of study. Also, because we are grant-funded by HHS (HRSA), we have vast experience working with federal grants and associated timelines and deliverables, so working with this grant will pose no logistical problems for us.

I pledge that JHI will work with any/all grant partners, such as Hazard High/Perry County High/ Hazard Community and Technical College/ARH/Pikeville Medical/Highlands Medical/EKCEP/Computer & IT Businesses to ensure goals and objectives of the Kentucky STEM Project are met and successful, thereby assisting to ensure a path to a brighter future for Eastern Kentucky students. I understand this is an extremely competitive grant solicitation, but know we have a wonderful base of experience and committed agencies and individuals from the local community, state government, and private sector to deliver sustainable outcomes.

Please let me know if I can provide any additional information.

Thank you,

Karen S. Ditsch, CEO

BREATHITT MORGAN WOLFE

PO Box 690 · Beattyville, KY 41311
phone: (606) 464-0151 · juniperhealth.org · fax: (606) 464-0152

EASTERN KENTUCKY
EKCEP
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July 10, 2018

Dr. Wayne D. Lewis
Commissioner of Education
Kentucky Department of Education
300 Sower Blvd, 5th Floor
Frankfort, KY 40601

Dear Dr. Lewis:

Thank you for the opportunity to participate in Kentucky's Pathway to STEM Apprenticeship for Kentucky's high school career and technical education students.

I am happy to write today to express my sincere interest and commitment for the Eastern Kentucky Concentrated Employment Program (EKCEP)), Inc., to play a specific role and work to create seamless collaboration during the course of this 36-month project. We look forward to developing partnerships between business, industry, and community stakeholders to support young people engaged in STEM apprenticeships. We believe collaboration is key to developing new training and employment opportunities, and ultimately a stronger economy for Eastern Kentucky.

As you may know, EKCEP remains engaged in strategic efforts within our region to advance tech sector opportunities and prepare people to work within the digital economy, including serving as the lead agency for TechHire Eastern Kentucky, an effort to provide accelerated tech opportunities for our region's workforce that otherwise do not exist. EKCEP also operates Teleworks USA, an innovative program that works to connect prospective teleworkers with legitimate remote-work opportunities.

EKCEP also operates the Kentucky Career Center JobSight network of workforce centers, which provides jobseekers an s access to an array of innovative state and nationally recognized workforce programs throughout d employer 23 Eastern Kentucky counties.

Within the Pathway to STEM Apprenticeship project, EKCEP will work collaboratively to ensure project objectives are met while developing new opportunities for Perry County students. I understand this is an extremely competitive grant solicitation, but believe we have a wonderful base of experience and committed agencies and individuals from the local community, state government, and private sector to deliver sustainable outcomes.

Thank you again for inviting EKCEP to be a part of this project. If you have any questions about this letter, please contact me at jwhitehead@ekcep.org or 606.436.5751.

Sincerely,

Jeff Whitehead
Executive Director, EKCEP, Inc.

Pathways to STEM Apprenticeship for

High School Career and Technical Education Students

APPENDIX D: Resumes of Key Personnel

Dr. Wayne D. Lewis, Jr.

6012 Canonero Way ■ Versailles, KY 40383 ■ (859) 948-8516 ■ wayne.lewis@uky.edu

EDUCATION

PhD	Major: Educational Research and Policy Analysis Minor: Public Administration Department of Educational Leadership and Policy Studies College of Education North Carolina State University, Raleigh, NC
Post-Baccalaureate Studies	Major: Special Education-Mild/Moderate Disabilities Department of Special Education and Habilitative Services College of Education and Human Development University of New Orleans, New Orleans, LA
MA	Major: Urban Studies Minor: Public Administration Department of Public Administration and Urban Studies Buchtel College of Arts and Sciences The University of Akron, Akron, OH
BCJ	Major: Criminal Justice City College Loyola University, New Orleans, LA

PROFESSIONAL EXPERIENCE

April 2018-Present	Interim Commissioner of Education Commonwealth of Kentucky
Jan 2016-April 2018	Executive Director, Education Policy and Programs Kentucky Education & Workforce Development Cabinet
June 2016-Aug 2016	Acting Director (Interim Role, June-August) Kentucky Governor's Office of Early Childhood
July 2015-Present	Associate Professor (tenured) Educational Leadership Doctoral Programs Chair (2014-2016) Department of Educational Leadership Studies University of Kentucky
Aug 2009-June 2015	Assistant Professor (tenure-track) Principal Leadership Program Chair (2011-2015), Educational Leadership Doctoral Programs Chair (2014-2016) University of Kentucky

	Affiliated Faculty, African American and Africana Studies Program
Jan 2010-Present	University of Kentucky
	Faculty Director, Black & Latino Male Student Success Initiative at UK
Jan 2012-July 2013	University of Kentucky
	Co-Director, Kentucky P20 Education Policy and Law Lab
Aug 2010-May 2013	Kentucky P20 Innovation Lab, University of Kentucky
2009	Adjunct Professor, School of Graduate Teacher Education Kaplan University (online)
Jan 2007-May 2009	Graduate Teaching & Research Assistant, Educational Leadership and Policy North Carolina State University
Oct 2005-May 2008	Special Education Teacher Longview High School, Wake County Public Schools, Raleigh, NC
Aug 2004-Oct 2005	Special Education Teacher Albert Cammon Middle School, St. Charles Parish Public Schools. St. Rose, LA
Aug 2003-May 2004	Special Education Teacher Booker T. Washington High School, New Orleans Public Schools, New Orleans, LA
Apr 2003-Dec 2003	Research Assistant (Data Collection), Relative Effectiveness of Adult Literacy Interventions (Reali) Study-New Orleans, Loyola University New Orleans
Aug 2002-Dec 2002	Graduate Research/Teaching Assistant, Political Science Kent State University (OH)
Aug 2001-May 2002	Graduate Research Assistant, Public Administration and Urban Studies The University of Akron (OH)

PUBLICATIONS: BOOKS (ACADEMIC)

Lewis, W. D. (2013). *The politics of parent choice in public education: The choice movement in North Carolina and the United States.* New York, NY: Palgrave Macmillan. Available at: http://www.barnesandnoble.com/w/the-politics-of-parent-choice-in-public-education-wayne-d-lewis/1115893024?ean=9781137312075

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PUBLICATIONS: PEER-REVIEWED BOOK CHAPTERS

Lewis, W. D. (2015). Innovations in parental involvement in American charter schools. Inter-University Centre for Education Law, Educational Leadership and Education Policy, University of Pretoria, South Africa.

Lewis, W. D. (2011). The politics of charter school diversity. In E. L. Brown, & P. Gibbons (Eds.), *Ethnicity and race: Creating educational opportunities around the globe.* Charlotte, NC: Information Age Publishing.

Lewis, W. D., & Fusarelli, L. D. (2010). Leading schools in an era of change: Toward a "new" culture of accountability? In S. D. Horsford (Ed.), *New perspectives on educational leadership: Exploring social, political, and community contexts and meaning* (pp. 111-126). New York: Peter Lang Publishing, Inc.

PUBLICATIONS: EDITOR-REVIEWED BOOK CHAPTERS

Lewis, W. D., & Hurst, T. M. (2015). Schools of choice. In K. Lomotey (Ed.), *Contemporary issues for people of color: Living, working and learning: pK-12 and Higher Education.* Santa Barbara, CA: ABC-CLIO.

Lewis, W. D. (2015). Charter schools. In K. Lomotey (Ed.), *Contemporary issues for people of color: Living, working and learning: pK-12 and Higher Education.* Santa Barbara, CA: ABC-CLIO.

Lewis, W. D. (2012). Should school leaders have the primary responsibility for lowering the achievement gap for minority students. COUNTERPOINT. In R. C. Hunter, F. Brown, & S. Donahoo (Eds.), *School governance: Debating issues in American education* (pp. 85-92). Thousand Oaks, CA: Sage.

Lewis, W. D. (2012). Should gender be applied as a diversity criterion in educational programming and placement? POINT. In F. Brown, R. C. Hunter, & S. Donahoo (Eds.), *Diversity in schools (Vo. 7): Debating issues in American education* (pp. 209-214). Thousand Oaks, CA: Sage.

PUBLICATIONS: PEER-REVIEWED PERIODICALS

Jones, W. A., Hutchens, N. H., Hulbert, A., Lewis, W. D., & Brown, D. M. (2017). Shared governance among the new majority: Non-tenure track faculty eligibility for election to university faculty senates. *Innovative Higher Education, 42*(5-6), 505-519.

Young, T. V., Wang, Y., & Lewis, W. D. (2016). Explaining how political actors gain strategic positions: Predictors of centrality in state reading policy issue networks. *Educational Policy, 30*(6), 799-819.