Budget

Columbus City Schools (043802) - Franklin County - 2017 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (124)

U.S.A.S. Fund #: 466

Plus/Minus Sheet (opens new window)

Object Code / Purpose Code	Salaries 100	Retirement Fringe Benefits 200	Purchased Services 400	Supplies 500	Capital Outlay 600	Other 800	Total
Instruction	0.00	0.00	90,000.00	0.00	421,000.00	0.00	511,000.00
Support Services	24,150.00	4,830.00	90,000.00	27,000.00	0.00	0.00	145,980.00
Governance/Admin	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Prof Development	0.00	0.00	328,000.00	0.00	0.00	0.00	328,000.00
Family/Community	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Safety	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Facilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transportation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Indirect Cost						10,419.46	10,419.46
Total	24,150.00	4,830.00	508,000.00	27,000.00	421,000.00	10,419.46	995,399.46
						Adjusted Allocation	0.00
						Remaining	-995,399.46

Application

Columbus City Schools (043802) - Franklin County - 2017 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (124)

Please respond to the prompts or questions in the areas listed below in a narrative form.

A) APPLICANT INFORMATION - General Information

1. Project Title:
Columbus Advanced Engineering and Automation 5-12 STEM Program

2. Project Tweet: Please limit your responses to 140 characters.
Columbus City Schools public-private partnership to develop and launch district-wide Advanced Engineering & Automation 5-12 STEM Program.

This is an ultra-concise introduction to the project.

3. Estimate of total students at each grade level to be directly impacted each year.

*This is the number of students that will receive services or other benefits as a **direct result** of implementing this project. This does not include students that may be impacted if the project is replicated or scaled up in the future. It excludes students who have merely a tangential or indirect benefit (such as students having use of improved facilities, equipment etc. for other uses than those intended as a part of the project). The Grant Year is the year in which funds are received from the Ohio Department of Education. Years 1 through 5 are the sustainability years during which the project must be fiscally and programmatically sustained.*

Grant Year

Pre-K Special Education	K	1	2	3
4	50 5	50 6	3200 7	3300 8
200 9	100 10	75 11	75 12	

Year 1

Pre-K Special Education	K	1	2	3
4	75 5	75 6	3200 7	3300 8
275 9	150 10	125 11	100 12	

Year 2

Pre-K Special Education	K	1	2	3
4	100 5	100 6	3200 7	3300 8
275 9	175 10	125 11	100 12	

Year 3

Pre-K Special Education	K	1	2	3
4	125 5	100 6	3200 7	3300 8
300 9	200 10	150 11	125 12	

Year 4

Pre-K Special Education	K	1	2	3
4	125 5	125 6	3200 7	3300 8
300 9	200 10	225 11	200 12	

Year 5

Pre-K Special Education	K	1	2	3
4	150 5	150 6	3200 7	3300 8

300 9	200 10	225 11	200 12

4. Explanation of any additional students to be impacted throughout the life of the project.
This includes any students impacted indirectly and estimates of students who might be impacted through replication or an increase in the scope of the original project.

Due to the fact that the district serves nearly 51,000 students annually, it is highly likely that the impact could exceed the number of students being directly served through the robotics programming, coursework and technology integration. In addition, Columbus City Schools (CCS) is partnering with Motoman to design and co-develop the 1-year robotics STEM/CTE course curricula and LMS integration during the grant year. The district will then serve as the preferred Motoman teacher training/PD provider in Ohio. This will enable the district and project to reach students through teacher PD, at an exponential rate during the sustainability period of the project. As part of the replication and expansion efforts through teacher PD providing, it is estimated that an additional 15,000 students could be impacted through the train-the-trainer and PD provider efforts with an average teacher PD cohort of 20 teachers (20 teachers x 150 students x 5 years).

5. Lead applicant primary contact: - Provide the following information:

First and last name of contact for lead applicant
Andrea Richardson, Supervisor State and Federal Programs

Organizational name of lead applicant
Columbus City Schools

Address of lead applicant
270 East State Street, Columbus, OH 43215

Phone Number of lead applicant
614-365-5733

Email Address of lead applicant
arichardson10082@columbus.k12.oh.us

Community School Applicants: After your application has been submitted and is in Authorized Representative Approved status an email will be sent to your sponsoring entity automatically informing the sponsor of your application.

6. Are you submitting your application as a consortium? - Select one checkbox below

☐ Yes

☑ No

If you are applying as consortium, please list all consortium members by name on the "Consortium Member" page by clicking on the link below. If an educational service center is applying as the lead applicant for a consortium, the first consortium member entered must be a client district of the educational service center.

Add Consortium Members

7. Are you partnering with anyone to plan, implement, or evaluate your project? - Select one checkbox below

☑ Yes

☐ No

If you are partnering with anyone, please list all partners (vendors, service providers, sponsors, management companies, schools, districts, ESCs, IHEs) by name on the "Partnering Member" page by clicking on the link below.

Add Partnering Members

B) PROJECT DESCRIPTION - Overall description of project and alignment with goals

8. Describe the innovative project: - Provide the following information

The response should provide a clear and concise description of the project and its major components. The following questions will address specific outcomes and measures of success.

a. The current state or problem to be solved; and

In Ohio, there is a gap between # of students graduating HS with academic and career interests, skills and qualifications and the growing need for a skilled workforce in engineering, automation and advanced manufacturing. Ohio Means Jobs has estimated that there are 60,000 engineering, automation and manufacturing jobs currently unfilled and 2 million over the next decade nationally are likely to go unfilled due to the skills gap (Deloitte 2015). In order for Columbus City Schools (CCS) and partners to prepare the next generation of interested, skilled and qualified Central Ohio workforce, students will require enhanced access to academic and career-related programs that integrate hands-on learning experiences, personalized learning and industry-recognized certifications in relevant in-demand STEM fields. The key to student achievement is developing personalized competency vs traditional "seat time". Participants will have the real-world skills for the in-demand 21st Century workforce.

b. The proposed innovation and how it relates to solving the problem or improving on the current state.

The Ohio Assoc. of Community Colleges (OACC) believes competency-based industry-recognized credentials are the key to reducing the difficulties finding skilled and qualified job candidates in growing in-demand engineering and automation STEM careers. According to the Nat'l Assoc. of Manufacturers, 88% of potential employers experience obstacles to finding interested, skilled and qualified candidates for the current and projected vacancies. During grant year, CCS will purchase 6 Motoman STEM Carts co-located in the 6 participating HS sites, 70 MotoSIM Touch, and 150 VEX Robotics and 120 VEX IQ devices deployed and coupled with trained teachers in 20 Elm. and 20 MS within CCS. Up to 11 teachers will also be trained on existing Motoman robotics curricula and instructional integration of devices within the district's CTE pathway. In addition, one of the teachers will also be trained/certified as a master instructor. To create a seamless Elm, MS and HS CTE/STEM pathway and career exploration through the use of VEX robotics programming and curriculum, CCS will partner with Tri-Rivers CC (TRCC) to implement PD with up to 51 Elm, MS and HS educators. The PD will be during 16-17 school year and summer 2017, and will further district-wide capacity to offer and sustain VEX Robotics and VEX IQ Curriculum which is tied to Ohio's new learning standards in math and writing, Next Gen. Sci. Standards and ITEEA Standards for Tech. Literacy. This will empower CCS to provide access to relevant and hands-on STEM programs that will increase students' interests and skills in engineering, automation and adv. manufacturing (mfg) through robotics. In turn, the Motoman-certified HS teachers will be able to fully implement and immerse their students in authentic programs using the robotic devices and technology, ultimately culminating in students earning an industry-recognized credential. In addition, to address the shortfall of students graduating with experiences, interests, skills and industry-recognized qualifications, CCS will partner with Motoman Robotics Division and TRCC to co-develop and launch a comprehensive 5-12 STEM student-centered engineering, automation and adv. mfg. curriculum using robotics. In partnership with Motoman, CCS will collaborate to create a fully customized and first of its kind curriculum/LMS integration, using state-of-the-art technology and devices for implementing a 1-year HS robotics course that culminates in an industry-recognized credential being awarded. This solves a problem for both CCS and Ohio because prior to this project being introduced, there has not been a 1-year course developed to assist trained/certified instructors with teaching a CTE/STEM robotics course, with an embedded LMS platform, resulting in students earning a credential. Thus, CCS educators will be trained on equipment, technology and integration within the CTE pathway, and then certified through intensive PD through Motoman. The HS educators will then be certified to teach and award credentials, upon completion of course work/requirements, to students demonstrating competency in learning and application of concepts through the use of robotics technology. The credentials are directly tied to curriculum developed in partnership with Motoman. The program is curricular and extracurricular, enabling students further exploration of STEM fields through summer camps, robotics contests and events such as VEX Robotics MS and HS competitions, Nat'l Robotics Challenges and SkillsUSA. Knowing or unknowing, during robotics programs, lessons or competitions, students explore the material properties, form and fit, precision measurements, inertia, center of gravity, force, momentum and many other engineering principles. Also, students gain real-world experience by using employability and 21st Century skills such as problem-solving, critical-thinking and career path information (NASA, 2015).

9. Select which (up to four) of the goals your project will address. For each of the selected goals please provide the requested information to demonstrate your innovative process. - (Check all that apply)

☑ a. Student achievement

i. List the desired outcomes.
Examples: fewer students retained at 3rd grade, increase in graduation rate, increased proficiency rate in a content area, etc.

Post-Program Placement (PPP): Baseline: Six (6) CCS participating HS PPP (FY16 Rep. Card), Short-term: By 6/30/17: 6 HS sites will have plan and initiate integration of curriculum and prog. to ensure school exceeds Ohio's PPP Benchmark, Long-term: By 6/30/22, 6 HS sites (FY22 Rep. Card) will increase annually. Industry-Recognized Credential: Baseline: # of Industry-Recognized Credentials in CCS (FY16 Rep. Card) Short-term: By 6/30/17, 6 HS sites will have plan and initiate integration of curriculum and prog. to ensure each school exceeds Ohio's credential benchmark, Long-term: By 6/30/22, # of industry credentials rec'd at participating HS (self-reported) increase by 50%. Engineering & Robotics programs:Baseline: # students participating in eng. & robotics progs, Short-term: By 6/30/17, within 40 Elm & MS sites implement career exploration progs and activities Long-term: By 6/30/22, increase by 50% # of 5-8th graders exposed to STEM/CTE paths via CTE-funded progs. offered at sites.

ii. What assumptions must be true for this outcome to be realized?
Examples: early diagnosis and intervention are needed to support all children learning to read on grade level; project-based learning results in higher levels of student engagement and learning, etc.

Assumption 1: Ohio continues to need adv. manufacturing (mfg.) workforce. Research: OH has 3rd largest mfg. workforce in America and 52 of Ohio's 88 counties are heavily dependent on mtg., according to JobsOhio (April 2015). Adv. mfg. is one of the key industries driving innovation and OH job creation. New tech., materials and mfg. processes have led resurgence in Ohio mfg. Assumption 2: Utilizing robotics and curricula to introduce STEM career exploration in engineering, automation and adv. mfg. will address need to increase the # of CCS grads interested, skilled and qualified for entry into workforce in these fields. Research: Integrating use of robotics into technical and mainstream science/math curricula provides relevant way to explore high-tech careers, and a way to introduce students to technical career pathways. Integrating academic standards and higher level thinking skills associated with robotics provides academic integration for increases student opportunity (NASA, 2015).

iii. Describe any early efforts you have made to test these assumptions (pilot implementation, etc), or how these are well-supported by the literature.

The assumption that Ohio continues to need advanced manufacturing workforce is evidenced by the overwhelming number of STEM-related jobs that are going unfilled, particularly those that are in the engineering, automation and advanced manufacturing fields. For several years, CCS has partnered with a number of community, business/industry and higher education partners to spur increased student interest and skill attainment related to utilizing robotics to catalyze student persistence in the STEM disciplines. These partners continue to be committed and invested in the increase of students' participation in robotics course work, programs and career exploration as a hook to increase interest, skills and qualifications to enter the growing STEM career fields in Ohio. According to the American Society for Engineering Education (ASEE) (2015), positive perspective towards high-tech college and career pathways is supported by the use of robotics as a tool to engage students. Many times students are unaware of the interesting, high-tech, and well paid nature of jobs in fields such as advanced manufacturing, and early exposure can help dispel the myths of "dirty work: which still cloud perceptions of today's modern advanced manufacturing environment. Hands-on, problem-based learning activities such as those featured in robotics programs and camps for students and workshops for teachers can provide practical experiences that positively influence a student's academic

pursuit of STEM. Learning coupled with "hands-on" activities and applications with robotics helps put practical meaning behind STEM school curriculum. In addition, research shows robotics activities provide a way for teachers and students to integrate technology and engineering into secondary technical, science and math classes, and provides a relevant way to explore high-tech careers and introduce students to technical career pathways (ASEE). Integrating academic standards and the higher level thinking skills associated with robotics provides an academic integration that can increase opportunities for students. Using robotics curriculum, students encounter program-based learning activities where they learn to design, troubleshoot, build, test and evaluate the actions of their robot. Are robots not performing as anticipated? It's all part of the process. Failure can be an important part of the learning process. Robot simulations teach CCS students that failing does not mean giving-up; it means troubleshooting and redesign. A variety of math applications such as algebra, geometry and trigonometry are involved in programming robots and discovering more efficient designs. (NASA, 2015).

iv. List the specific indicators that you will use to measure progress toward your desired outcome.
These should be measurable changes, not merely the accomplishment of tasks. Example: Teachers will each implement one new project using new collaborative instructional skills, (indicates a change in the classroom) NOT; teachers will be trained in collaborative instruction (which may or may not result in change).

Formative indicators: Pre/Post surveys - classroom-level implementation and understanding of short- and long-term goals; Qual. eval of classroom-level sharing of best practices to support curriculum integration across sites; and Qual. eval of classroom strategies for student exposure to STEM career pathways across site. Summative indicators: HS sites Post-Program placement (FY22 Report Card) annual increase; 50% increase in credentials earned at HS sites (self-reported); Increase CCS students in 5th-8th grade exposed to STEM/CTE career pathways in CTE-funded programs offered in Elm. or MS; # teacher participation in PD and deployment in school; # industry-credentials offered to CCS students; # students participating in Elm and MS engineering and robotics programming; and # CCS students in 5th and 8th grade exposed to STEM/CTE career pathways through CTE funded programs being offered at participating sites. Budget is aligned with student impact and is designed to be revenue neutral.

v. List and describe pertinent data points that you will use to measure student achievement, providing baseline data to be used for future comparison.

Teacher participation in PD and deployment in their schools; Teacher survey responses related to implementation and understanding of project goals # of industry-credentials earned at participating HS sites; # of students participating in elementary and MS participating in engineering and robotics programming; # students participating in Elm and MS engineering and robotics programming; # of students in 5th and 8th grade exposed to STEM/CTE career pathways through CTE funded programs being offered at participating sites; and Participating HS sites' Post-Program placement increases annually.

vi. How are you prepared to alter the course of your project if assumptions prove false or outcomes are not realized?

It is highly unlikely that the assumptions prove false or outcomes not realized, because the project team and evaluation team at the PAST Foundation will meet monthly during the grant year and quarterly during the sustainability year 1 (Project year 2) and modify the project plan accordingly when issues arise. A large majority of the project activities during the grant year will include purchase of robotics technology and curricula as well as building internal capacity among CCS teachers to provide career exploration and STEM/CTE integration programs and coursework using robotics. This internal capacity will be built through district-wide grade 5-12 teacher training/PD and strategic partnerships with TRCC and Motoman as external partners as well as positioning early adopters within CCS to serve as certified/trained teachers that will facilitate spread throughout the district and beyond. The project team specifically includes partners and internal stakeholders who have vested interests in the success of the project and the desired outcomes. The project team will meet at least monthly during the grant year and quarterly thereafter to review pertinent data and information and assess progress toward benchmarks and outcomes. Should adjustments be required, the project team will utilize the data and information to make strategic project decisions and report back to all stakeholders. These decisions will be based upon the formative and summative assessment data provided in collaboration with the evaluation team throughout the project.

☐ b. Spending reductions in the 5 year forecast

i. List the desired outcomes.
Examples: lowered facility cost as a result of transition to more efficient systems of heating and lighting, etc.; or cost savings due to transition from textbook to digital resources for teaching.

ii. What assumptions must be true for this outcome to be realized?
Example: transition to "green energy" solutions produce financial efficiencies, etc.; or available digital resources are equivalent to or better than previously purchased textbooks.

iii. Describe any early efforts you have made to test these assumptions (pilot implementation, etc), or how these are well-supported by the literature.

iv. Please enter the Net Cost Savings from your FIT.

v. List and describe the budget line items where spending reductions will occur.

vi. How are you prepared to alter the course of your project if assumptions prove false or outcomes are not realized?

☐ c. Utilization of a greater share of resources in the classroom

i. List the desired outcomes.
Example: change the ratio of leadership time spent in response to discipline issues to the time available for curricular leadership.

ii. What assumptions must be true for this outcome to be realized?
Examples: improvements to school and classroom climate will result in fewer disciplinary instances allowing leadership to devote more time to curricular oversight.

iii. Describe any early efforts you have made to test these assumptions (pilot implementation, etc), or how these are well-supported by the literature.

iv. Please provide the most recent instructional spending percentage (from the annual Ohio School Report Card) and discuss any impact you anticipate as a result of this project.
Note: this is the preferred indictor for this goal.

v. List any additional indicators that you will use to monitor progress toward your desired outcome. Provide baseline data if available.
These should be specific outcomes, not just the accomplishment of tasks. Example: fewer instances of playground fighting.

vi. How are you prepared to alter the course of your project if assumptions prove false or outcomes are not realized?

☐ d. Implementing a shared services delivery model

i. List the desired outcomes.
Examples: increase in quality and quantity of employment applications to districts; greater efficiency in delivery of transportation services, etc.

ii. What assumptions must be true for this outcome to be realized?
Example: neighboring districts have overlapping needs in administrative areas that can be combined to create efficiencies.

iii. Describe any early efforts you have made to test these assumptions (pilot implementation, data analysis etc), or how these are well-supported by the literature.

iv. List the specific indicators that you will use to monitor progress toward your desired outcomes.
These should be measureable changes, not the accomplishment of tasks.
Example: consolidation of transportation services between two districts.

v. List and describe pertinent data points that you will use to evaluate the success of your efforts, providing baseline data to be used for future comparison.
Example: change in the number of school buses or miles travelled.

vi. How are you prepared to alter the course of your project if assumptions prove false or outcomes are not realized?

10. Which of the following best describes the proposed project? - (Select one)

☐ a. New - Never before implemented

☐ b. Existing - Never implemented in your community school or school district but proven successful in other educational environments

☐ c. Replication - Expansion or new implementation of a previous Straight A Project

☑ d. Mixed Concept - Incorporates new and existing elements

☐ e. Established - Elevating or expanding an effective program that is already implemented in your district, school or consortia partnership

C) BUDGET AND SUSTAINABILITY

11. Financial Information: - All applicants must enter or upload the following supporting information. The information in these documents must

correspond to your responses in questions 12-19.

a. Enter a project budget in CCIP (by clicking the link below)

Enter Budget

b. If applicable, upload the Consortium Budget Worksheet (by clicking the Upload Documents link below)

c. Upload the Financial Impact Table (by clicking the Upload Documents link below)

Upload Documents

The project budget is entered directly in CCIP. For consortia, this project budget must reflect the information provided by the applicant in the Consortium Budget Worksheet. Directions for the Financial Impact Table are located on the first tab of the workbook. Applicants must submit one Financial Impact Table with each application. For consortium applications, please add additional sheets instead of submitting separate Financial Impact Tables.

995,399.46 12. What is the amount of this grant request?

13. Provide a brief narrative explanation of the overall budget.
Responses should provide a rationale and evidence for each of the budget items and associated costs outlined in the project budget. In no case should the total projected expenses in the budget narrative exceed the total project costs in the budget grid.

A majority of the project costs are associated with one-time capacity-building efforts, including teacher professional development/training that will provide district-wide train-the-trainer capacity at all grade-levels, as well as curriculum development, instructional equipment and supplies. $508,000 in PURCHASED SERVICES: including a $278,000 PD contract with Motoman to train the10 HS teachers (2 weeks) and one (1) master instructor (4-weeks) PD/training on robotics engineering integration and credentialing students with industry-recognized credentials on developed curriculum (June 2017). ($1,650/teacher x 10 teachers: $16,500) and ($20,500/master instructor) and $241,000 (instruction) for Motoman curriculum co-development and LMS deployment; $90,000 (instruction) contract with IST Ohio for partnering to develop and integrate VEX curriculum; a $50,000 PD contract for TRCC to provide intensive teacher PD/training with 50 elementary, middle and high school educators (May-June 2017) ($1000/teacher x 50: $50,000) and $90,000 multi-year contract with the PAST Foundation, subject to internal bid requirements to manage and administer evaluation components of the grant through life of the project. This is approximately 10% of the total programmatic costs of the grant which is considered industry standard for the specified work. This is allowable per guidance provided by ODE. $421,000 CAPITAL OUTLAY: $240,000 for 6 Motoman STEM Carts ($40,000/cart) and $25,000 for 50 MotoSIM Touch ($500/unit), and $156,000 with IST Ohio for 150 ($800/device) VEX Robotics (MS & HS) and 120 ($300/device) VEX IQ (Elm.) $27,000 SUPPLIES: for (support services) internal/external marketing with students, educators and community partners during grant year only. $24,150 SALARIES and $4,830 BENEFITS ($28,980 total) for internal CCS project management and reporting during grant year only (Support Services) $10,419.46 in OTHER indirect costs

14. Please provide an estimate of the total costs associated with maintaining this program through each of the five years following the initial grant implementation year (sustainability costs). This is the sum of expenditures from Section A of the Financial Impact Table.

0.00 a. Sustainability Year 1

0.00 b. Sustainability Year 2

0.00 c. Sustainability Year 3

0.00 d. Sustainability Year 4

0.00 e. Sustainability Year 5

15. Please provide a narrative explanation of sustainability costs.
Sustainability costs include any ongoing spending related to the grant project after June 30, 2017. Examples of sustainability costs include annual professional development, staffing costs, equipment maintenance, and software license agreements. To every extent possible, rationale for the specific amounts given should be outlined. The costs outlined in this narrative section should be consistent and verified by the financial documentation submitted and explained in the Financial Impact Table. If the project does not have sustainability costs, applicants should explain why.

There are no sustainability costs related to implementation of the project. Throughout the life of the grant, CCS has considered several expenditure areas that might be increased as a result of the project. During the grant year, in an effort to eliminate sustainability costs, CCS will partner with Motoman and TRCC to provide intensive and capacity-building teacher training/PD during the grant year (up to 51 teachers) on utilizing the purchased devices as well as integrating them along with existing STEM/CTE engineering, automation and advanced manufacturing curricula/pathway. These teachers will be utilized to sustain the district-wide 5-12 STEM implementation through train-the-trainer model, within the existing district PD schedules. This will eliminate potential substitute and stipend costs. In addition, during grant year, CCS will partner with Yakawasa America - Motoman Robotics Division to create the first-of-its-kind 1-year robotics STEM/CTE course curricula/LMS integration, which will leverage the trained/certified CCS teachers and master instructor for piloting and scaling. Once completed and piloted in CCS, the district will serve as the "preferred" training and PD provider for the Motoman's 1-year course curriculum/LMS integration for all of Ohio for a set period of time (i.e. 5 years), further sustaining internal/external capacity at no additional cost to the district.

0 16. What percentage of these costs will be met through cost savings achieved through implementation of the program?

Total cost savings from section B of the Financial Impact Table divided by total sustainability cost from section A of the Financial Impact Table. If the calculated amount is greater than 100, enter 100 here.

17. Please explain how these cost savings will be derived from the program.
Applicants who selected spending reductions in the five-year forecast as a goal must identify those expected savings in questions 16 and 17. All spending reductions must be verifiable, permanent, and credible. Explanation of savings must be specific as to staff counts; salary/benefits; equipment

costs, etc.

The project is revenue neutral from a direct cost perspective only, as there will not be ongoing sustainability costs associated with the district's implementation and sustaining the program during the five years of the grant. The project was designed with one-time costs and capacity-building training/PD that will impact the district's capacity to deploy devices and STEM/CTE programming district-wide without sustainability costs or direct cost-savings.

100 18. What percentage of sustainability costs will be met through reallocation of savings from elsewhere in the general budget?

Total reallocation from section C of the Financial Impact Table divided by total sustainability cost from section A of the Financial Impact Table
Note: the responses to questions 16 and 18 must total 100%

19. Please explain the source of these reallocated funds.
Reallocation of funds implies that a reduction has been made elsewhere in the budget. Straight A encourages projects to determine up front what can be replaced in order to ensure the life of the innovative project.

The project is 100% revenue neutral from a direct cost perspective only, as there will not be ongoing sustainability costs associated with the district's implementation and sustaining the program during the five years of the grant. The project was designed with one-time costs and capacity-building training/PD that will impact the district's capacity to deploy devices and STEM/CTE programming district-wide without sustainability costs or the need for reallocation of funds to sustain the project.

D) IMPLEMENTATION

20. Please provide a brief description of the team or individuals responsible for the implementation of this project, including other consortium members or partners.

This response should include a list of qualifications for the applicant and others associated with the grant. Please list key personnel only. If the application is for a consortium or a partnership, the lead should provide information on its ability to manage the grant in an effective and efficient manner. Include the partner/consortium members' qualifications, skills and experience with innovative project implementation and projects of similar scope.

Enter Implementation Team Key Personnel information by clicking the link below:

Add Implementation Team

For Questions 21-23 please describe each phase of your project including its timeline, and scope of work.

A complete response to these questions will demonstrate awareness of the context in which the project will be implemented and the time it will take to implement the project with fidelity. A strong plan for implementing, communicating and coordinating the project should be apparent, including coordination and communication in and amongst members of the consortium or partnership (if applicable). Not every specific action step need be included, but the outline of the major steps should demonstrate a thoughtful plan for achieving the goals of the project. The timeline should reflect significant and important milestones in an appropriate time frame.

21. Planning

a. Date RangeAugust 2016- October 2016

b. Scope of activities - include all specific completion benchmarks.

Upon award: project team notification, media releases, board approvals/contracts signed; planning team will be convened, identified participating schools will be notified and teachers recruited for project-related training/PD, finalize student recruitment & evaluation plan. Create a schedule for the project leadership & partnership team meeting schedule during the planning and implementation period(s) to ensure all project activities are achieved; Sept/Oct. 2017: create a plan of action, partnership agreements/documentation, determine teacher needs, asset inventory, equipment/facility installation needs and reassurance that facility and electrical needs are sufficient for equipment, register HS instructors in Motoman-sponsored PD/training and credentialing, recruit & register elm & MS instructors in TRCC training/PD on VEX curriculum & robotics integration, collaborate with CCS facilities/maintenance department to proceed with facility updates/changes for equipment installation, hold initial project leadership & partner meeting (September 2017), work with equipment vendors to identify order & delivery schedules, submit final evaluation plan to ODE, setup quarterly evaluation benchmarks & schedule to demonstrate success equipment & services provided within timeline. Board contracts approved for equipment purchases, curriculum development services, evaluation & professional development. Communication plan/key stakeholder engagement & consent from all required leaders & partners. The project leadership & partner team will coordinate project outcome, ensure strong communication & capacity to manage scope of work.

22. Implementation(grant funded start-up activities)

a. Date RangeOctober 2016 - June 2017

b. Scope of activities - include all specific completion benchmarks

Oct.-Dec 2017: Elm, MS & HS instructors recruited to participate in training/PD & be credentialed during 2016-2017 school year & summer 2017; training schedule set for all professional development in collaboration with partners; Motoman STEM carts ordered/delivered to the six (6) participating HS/CTC sites within district, MotoSIM Touch devices ordered/delivered, VEX Robotics VEX IQ devices are ordered/delivered for implementation in elm/MS sites; CCS project leadership & Motoman begin work on co-designing customized one-year robotics courses curriculum/LMS integration portion of the project, project leadership & TRCC design VEX robotics training/PD curriculum; project leadership & partners design career exploration/robotics programs to develop career exploration/awareness among elm/MS students; project leaders & team meet monthly to ensure progress toward project outcomes. Jan-June 2017: all equipment is ordered/delivered to Elm, MS & HS sites; training is conducted with 5-12 teacher groups during school year & summer 2017; Motoman completes PD & credentialing of instructors to provide instruction/curriculum while integrating robotics to build student interests, skills & knowledge leading to an industry-recognized

credential; CCS project team & Motoman complete development of customized 1-year robotics curriculum/LMS integration within the six (6) HS sites; students participate in-school career exploration & robotics programs; continuation of project coordination, marketing and communication activities and board reports; project leadership & partners will continue to meet monthly to ensure progress toward project outcomes, including eval. team quarterly.

23. Programmatic Sustainability (years following implementation, including institutionalization of program, evaluation and communication of program outcomes)

a. Date RangeJuly 2017 - June 2022

b. Scope of activities - include all specific completion benchmarks

Through thoughtful programming and PD offering during the grant year, coupled with significant investments in state-of-the-art equipment (one-time) as well as customized curriculum/LMS integration, the project is well-positioned to be sustainable far beyond the grant year. July 2017-June 2018: the trained Elm, MS and HS teachers will continue implementation of VEX IQ, VEX Robotics, and Motoman PD/curriculum with devices in schools. A subset of trained/certified HS teachers will pilot and scale Motoman 1-year STEM/CTE robotics course and LMS integration in schools. Evaluation team will continue to collect and report upon formative and summative data points, with annual report(s), including structured focus groups, surveys, and interviews. Project team will meet qtlry to review progress of program toward desired outcomes and decide upon plan adjustments, when applicable. CCS will communicate with ODE regularly and continue to report progress to the district board and other interested stakeholders. 2018-2022: CCS teachers will fully implement (grades 5-12) the STEM/CTE curriculum with fidelity and trained/certified HS teachers are implementing 1-year robotics course curriculum, as well as conducting internal/external training/PD to sustain capacity to implement. Evaluation team continue to collect pertinent data points and report preliminary analysis to project team. Final summative eval report will be submitted August 2020. Cumulative summative reports will continue annually through June 2022. Qtrly formative assessments/reports will continue through June 2020. Project team will continue to meet annually to assess progress toward project outcome and adjust activities when appropriate. The project team will provide an annual report to the district board and other interested stakeholders.

E) SUBSTANTIAL IMPACT AND LASTING VALUE

24. Describe the expected changes to the instructional and/or organizational practices in your institution.

The response should illustrate the critical instructional and/or organizational changes that will result from implementation of the grant and the impact of these changes. These changes can include permanent changes to current district processes, new processes that will be incorporated or the removal of redundant processes. The response may also outline the expected change in behaviors of individuals (changes to classroom practice, collaboration across district boundaries, changes to a typical work day for specific staff members, etc.). The expected changes should be realistic and significant in moving the institution forward.

Please enter your response below:

CCS mission: "each student is highly educated, prepared for leadership and service, and empowered for success as a citizen in a global community." CCS is committed to shifting the way we go about teaching and learning in the district while being responsive to growing workforce demands of the community/business. Students today are highly engaged through tech as early as age 2, yet for far too long we have not looked at educating these students any different than how their parents and grandparents were taught. This project will empower CCS instructors to provide students with relevant content and techniques using state-of-the-art curriculum/devices, with real-life simulators and authentic tasks using hands-on strategies to build & operate robotics and automation equipment, design & build parts and share these concepts with classmates, instructors and more importantly industry stakeholders. These activities will be CTE/STEM related and address high academic standards across STEM-related disciplines. Through this project, CCS and partners will leverage increased internal capacity to provide students with hands-on, real-life activities in the classroom using identical equipment as counterparts working in the field. Additionally, CCS expects this is the first-time for a district-wide STEM initiative that will be implemented throughout the learning spectrum and truly builds an integrated career pathway from Elm, MS, HS and into a related career applying the engineering, automation and adv.manufacturing learning. In turn, the unique partnership with Motoman as well as TRCC will enable the district to build internal capacity among the instructors to sustain the continued student growth in using robotics to spark a STEM career pathway. The partnership with Motoman will produce the first 1-year integrated robotics curriculum that will position CCS to other interested Ohio districts, schools and educators during the sustainability years of the project.

25. Please provide the name and contact information for the person and/or organization who will oversee the evaluation of this project.

Projects may be evaluated either internally or externally. However, evaluation must be ongoing throughout the entire period of sustainability and have the capacity to provide the Ohio Department of Education with clear metrics related to each selected goal.

Please enter your response below:

Dr. Monica Hunter, Director of Research - PAST Innovation Lab (mhunter@pastfoundation.org)

26. Describe the overall plan for evaluation, including plans for data collection, underlying research rationale, measurement timelines and methods of analysis.

This plan should include the methodology for measuring all of the project outcomes. Applicants should make sure to outline quantitative approaches to assess progress and measure the overall impact of the project proposal. The response should provide a clear outline of the methods, process, timelines and data requirements for the final analysis of the project's progress, success or shortfall. The applicant should provide information on how the lessons learned from the project can and will be shared with other education providers in Ohio. Note: A complete and comprehensive version of the evaluation plan must be submitted to ODE by all selected projects.

The overall plan for evaluation involves both formative (qualitative) and summative (quantitative) evaluation. Use of both formative and summative evaluation is intended to aid the project in determining effective modifications during the course of the grant, regularly assess the

fidelity to project goals and outcomes, identify constraints encountered that may pose threats to validity within the implementation process, and review evidence of change and impact. Evaluation will be embedded within the project from planning to completion to assure the project is focused and responsive. Quarterly evaluation reports to the project team beginning in fall 2016 will provide timely review of interim findings, and annual reports will begin October 1, 2017. The final formative evaluation report will be submitted by August 15, 2020. Cumulative summative evaluation reports will continue annually through June 2022. Formative evaluation will use a mixed-methods approach, involving qualitative and quantitative assessments, producing quarterly reporting and real-time data to the project team during planning and start-up activities in the grant year (2016-17), and continue through June 2020. Formative evaluation will combine key informant interviews, focus groups, and online surveys, capturing the voice of teachers and Elm, MS and HS administrators at participating sites to identify enabling strategies that emerge in early stages of the project, and constraints encountered. Structured focus groups with teachers will be conducted years 1 and 2 to establish in-depth, thematic understanding of presence/absence of progress in attaining project outcomes that can be quantitatively translated to prioritize effective strategies for broader deployment across school sites. Pre/post surveys will be employed in years 1 to 3 to track change over time associated with implementation at the classroom level, including teacher understanding of short-term and long-term goals, sense of empowerment for successful implementation of the curriculum/credential program and sharing of best practices, and sharing strategies for increased student exposure to STEM/CTE career pathways and participation in career exploration activities. Summative evaluation will track metrics during the grant period associated with student achievement factors detailed in question #9. These include Post-Program Placement, industry-recognized credentials issued to students, increased number of engineering and robotics courses offered, increased number of students participating in the program, and increased student exposure to STEM/CTE career pathways and career exploration activities offered at participating sites. Metrics on numbers of CCS 5-12 teachers receiving PD during the project will also be tracked. A metric tracking instrument will be designed in the grant year and will be used to measure project results throughout the grant period to June 2022. A complete and fully detailed evaluation plan will be submitted by October 2016. Quarterly meeting and reporting will be designed to provide regular communication with the project team to present data derived from a multi-faceted approach to assess corrective actions that can amplify desired change and address constraints. Annual evaluation reporting through June 2020 will provide an assessment of progress toward attaining project outcomes during successive phases of implementation, and present recommended actions to inform modification during succeeding years of the grant. Summative evaluation will continue to track participating schools through June 2022, reporting quantitative findings using the metric tracking instrument now familiar to project schools. The information garnered from the evaluation of the project will be shared through a published report available online digitally and through presentations at professional meetings related to K-12 STEM education, and applied research and evaluation in STEM education.

27. Please describe the likelihood that this project, if successful, can be scaled-up, expanded and/or replicated. Include a description of potential replications both within the district or collaborative group, as well as an estimation of the probability that this solution will prove useful to others. Discuss the possibility of publications, etc., to make others aware of what has been learned in this project.

The response should provide an explanation of the time and effort it would take to implement the project in another district, as well as any plans to share lessons learned with other districts. To every extent possible, applicants should outline how this project can become part of a model so that other districts across the state can take advantage of the learnings from this proposed innovative project. If there is a plan to increase the scale and scope of the project within the district or consortium, it should be noted here.

The Columbus Advanced Engineering and Automation 5-12 STEM Program is designed to specifically to build internal capacity through an integrated and pipeline approach to scaling and expanding preparation of the next generation of interested and qualified Central Ohio workforce. The likelihood that this project will be scaled-up, expanded and/or replicated is very strong because it was designed to do just that throughout the CCS district. This project takes proven VEX IQ/Robotics and Motoman robotics technology coupled with integrated curricula, and not only increases student access to personalized learning but builds teacher capacity through intensive training/PD. In addition, for targeted PD, CCS will partner with TRCC which launched and continues to expand the RAMTEC projects in Ohio, funded in Straight A rounds 1 and 3. This will increase likelihood of successful implementation as well as expansion, both in CCS and elsewhere in Ohio. Once trained/certified, CCS teachers and master instructor will have capacity to credential program completers with industry-recognized credential as well as impact the district's adult population through the district's adult education programs. To further expand the project's impact, the CCS will partner with Motoman to develop a first-of-its-kind 1-year robotics course curricula/customized LMS integration. Once developed and piloted, Motoman has agreed to continue the partnership with CCS through leveraging the district's trained/certified teachers to exclusively train other educators from throughout Ohio on newly-developed Motoman 1-year robotics course curricula and LMS integration. This will greatly expand the district's capacity to both sustain and expand the project district-wide and to teachers across Ohio. CCS will partner with Motoman, an int'l company, and TRCC to co-present results at various statewide, and possibly national conferences, throughout the life of the project.

By virtue of applying for the Straight A Fund, all applicants agree to participate in the overall evaluation of the Straight A Fund for the duration of the evaluation time frame. The Governing Board of the Straight A Fund reserves the right to conduct an evaluation of the project and request additional information in the form of data, surveys, interviews, focus groups and other related data on behalf of the General Assembly, Governor and other interested parties for an overall evaluation of the Straight A Fund.

PROGRAM ASSURANCES: I agree, on behalf of this applicant, and any or all identified consortium members or partners, that all supporting documents contain information approved by a relevant executive board or its equivalent and to abide by all assurances outlined in the Straight A Assurances (available in the document library section of the CCIP).

Andrea Richardson Supervisor, State and Federal Programs Columbus City Schools

Consortium

Columbus City Schools (043802) - Franklin County - 2017 - Straight A Fund - Rev 0 - Straight A Fund

Sections

Consortium Contacts

No consortium contacts added yet. Please add a new consortium contact using the form below.

Partnerships

Columbus City Schools (043802) - Franklin County - 2017 - Straight A Fund - Rev 0 - Straight A Fund

Sections

Partnerships							
First Name	**Last Name**	**Telephone Number**	**Email Address**	**Organization Name**	**IRN**	**Address**	**Delete Contact**
Ritch	Ramey	7403608156	rramey@trcc.edu	Tri-Rivers Career Center (TRCC)		2222 Marion Mount Gilead Road, , Marion, OH, 43302	
Robert	Graff	937--716--4990	bob.graff@motoman.com	Yaskawa America, Inc - Motoman Robotics Divsion		100 Automation Way, , Miamisburg, OH, 45342	
Dr. Monica	Hunter	805-704-1355	mhunter@pastfoundation.org	The PAST Foundation (aka PAST Innovation Lab)		1003 Kinnear Road, , Columbus, OH, 43212	

Implementation Team

Columbus City Schools (043802) - Franklin County - 2017 - Straight A Fund - Rev 0 - Straight A Fund

Sections

Implementation Team								
First Name	**Last Name**	**Title**	**Responsibilities**	**Qualifications**	**Prior Relevant Experience**	**Education**	**% FTE on Project**	**Delete Contact**
Ritch	Ramey	RAMTEC Ohio Coordinator at Tri-Rivers Career Center	Assist internal CCS stakeholders and external partners in coordinating CCS teacher training and providing intensive PD related to integrating engineering and automation curriculum and devices into a K-12 career pathway.	Certified Project Lead the Way (PLTW) teacher, Digital Electronics, Computer-integrated manufacturing (CIM) and engineering design and development instructor.	Coordinated the development and implementation of the statewide RAMTEC Advanced Manufacturing and Robotics training program. Oversaw the statewide advisory committee. Collaborated with RAMTEC facility and industrial partners to implement and develop PD and certification programs for instructors. Direct, develop and implement student work based robotics camps. Developed and oversaw certification process for RAMTEC facilities and Tri-Rivers Career Center (TRCC) coordinators and staff.	BS- Adv.Tech Education (BGSU), AAS in Engineering (Marion Tech. College), Ohio Voc. Certified Engineering Instructor.	10	
Pegeen	Cleary Potts	Executive Director of CCS Office of Career-Technical Education	On behalf of the CCS Superintendent, provide overall project oversight for the project management and programmatic completion.	Administrative leader, past grant oversight, oversee budgets, training and staff development quality control and scheduling.	Supervise over 100 employees and in charge of approximately 15,000 CTE students and 3000 adult students. Also in charge of Project Connect which ensures the educational rights of all homeless children in Central Ohio. Last year, over 3000 students were serviced by the Project Connect. Responsible for compliance of CTE grants. Worked in School Improvement for two years to assist staff with their craft of teaching. Led and supervised the "School Rounds",	BA in Business Administration from Ohio Dominican, Teaching Certification from OSU, Masters in Education Administration from OSU.	10	

					professional development where all teachers were encouraged to look at their practice and reflect on how to become a better teacher. Worked in the field of CTE education since 1998. Prior to teaching, Pegeen ran a major catering company. While on the executive management team duties included supervision, trainings, event planning, project management, ordering, scheduling and quality control. Since Fall 2014, Pegeen works as Executive Director of Career Technical Education, Workforce Development and Adult and Community Education and oversees budget exceeding 7 million dollars.			
Dr. Monica	Hunter	Director of Research - The PAST Innovation Lab	Dr. Hunter will be responsible for project evaluation research design, management and oversight of data collection, and reporting. This work will be done in collaboration with the project team as well as the Supervisor of State and Federal Programs.	valuation of K-12 STEM school transformation in Ohio since 2007 with (70) school districts involving (197) buildings; formative evaluation of PD to support STEM transdisciplinary problem based learning, blended learning, and school design program implementation at the classroom level for K-12 teachers involving focus groups (600 teachers), and online surveys (1,924 teachers, parents, and other stakeholders); and, conducted (164) key informant interviews with district	Conducted evaluation and reporting on (4) Straight A Fund Innovation Grants - Math Matters, Growing SOIL, FAST Track (2014-15), and SOIL (2013-14). Evaluation of STEM Professional Development and school transition to STEM education, Columbus City Schools (2011-2014). Evaluation and publication of studies on K-12 STEM pilot programs associated with Metro Early College High School, Columbus, OH (2007); Morriss Math and Engineering Elementary School (2009); Dayton Regional STEM	Ph.D. Anthropology, University of California, Los Angeles; B.A. Radio, Television and Film, California State University, Long Beach	15	

				administrators, principals, and building program lead staff. Authored (40) STEM evaluation reports, including (27) on Ohio programs. Presented (10) professional papers on STEM program evaluation since 2010 at local, regional and national conferences. Member, American Evaluation Association.	School, Dayton, OH (2010); Electronic Classroom of Tomorrow (ECOT), Columbus, OH (2014); and, Clean Technologies Early College High School, Ballston Spa, NY (2012-15).			
Kevin	Prenger	CTE Curriculum Coordinator	Day to day management and oversight of grant year project deliverables and activities related to accomplishing the project goals.	Six years of Restaurant Management experience with up to 100 employees. Designed and implemented training programs to increase customer service satisfaction levels, conducted weekly product inventory and ordering procedures to ensure sufficient quantities of products and supplies for operations servicing nearly 4000 customers per week, performed weekly staff scheduling to ensure staffing levels were satisfactory for projected weekly guest counts, performed daily and weekly quality control procedures to ensure food safety and minimize waste. Two years as District Representative for Project Lead The Way providing support to 30 teachers and over 600 students in 19 schools, facilitate ordering to ensure	(See Qualifications Response)	M. Ed. in Business Education, B.S.B.A in Operations Management and Transportation & Logistics	10	

				that teachers have needed supplies, software and equipment for STEM education courses, organizing and scheduling required training and professional development, ensuring all annual requirements are completed by teachers by appropriate deadlines, assisting principals and teachers at each building with scheduling of students in proper courses. District Coordinator for Typing Program Pilot. Organized and facilitated training and implementation of this program in 48 elementary schools and 26 middles schools impacting 26,000 students in grades K-8, provided support for teachers throughout the pilot year of the program, monthly monitoring of school and teacher usage of the program to ensure full implementation to meet district goals. Work collaboratively with our district IT Department to evaluate, purchase and implement new technology and software needed for our more than 40 Career-Tech programs. Work collaboratively with other CTE staff to design, develop and facilitate professional development				

				opportunities for approximately 70 CTE teachers in our district				
Andrea	Richardson	Supervisor of State and Federal Programs	On behalf of the CCS Superintendent, provide compliance and reporting oversight related to project goal completion and assist with the CCS Treasurer to provide overall fiscal oversight for the project and ensuring that the project fiscal compliance and reporting is coordinated with district-wide team.	Budgeting, grants management and administration, compliance and reporting oversight, policy and procedure development, professional development training.	Relevant experience includes providing leadership to assigned department units at Columbus City Schools by guiding and leading cross-functional teams in developing and launching innovative solutions, practices, and processes. Expertise in contracts and grants management, budgeting and planning, identifying financial issues and producing effective solutions developed from a solid background in both private and public sectors to achieve successful results. Skilled in reviewing and interpreting policies, regulation and legislation for Columbus City Schools and The Ohio State University, state and federal levels, performing background research, and providing recommendations. Four years of experience at The Ohio State University in grants management and over 15 years of experience in the private sector in corporate offices working in the areas of accounting and financial management. Adjunct faculty for five years teaching graduate level courses in Policy Studies, Intergovernmental Relations, Economic for Public Administrators.	Doctorate Public Policy & Adm. (ABD), Masters of Sci. Pub. Adm. M.S. in Human Services Mgt, B.A. in Business Adm., A.A. in Financial Mgt	10	

Robert	Graff	Senior Manager for Education (STEM Robotics and Workforce Development) for Yaskawa America, Motoman Robotics Division (North America, Mexico and South America)	Mr. Graff will be the Motoman Project/Grant Manager responsible for working with Columbus City Schools, Honda, RAMTEC and VEX to coordinate all aspect of grant including development, implementation, progress tracking.	As Senior Manager of Education, he is responsible for all aspects of Yaskawa America's educational efforts including Sales, Marketing, Product Development, Curriculum Development, Training and Certifications, Channel Distribution and Initiatives (managing Grants, sponsorships, Education / Industrial robotic collaborations, Workforce Projects, Federal, State and Local Advanced Manufacturing models)	Bob Graff is senior director for Robotics Education and Workforce Development at Yaskawa America Inc. - Motoman Robotics Division. Graff has spent more than 30 years serving the education-technology industry in management, sales, product development, training and consulting including working for leading edge technology education companies as Motoman Robotics, Apple Computer, Pearson, Houghton Mifflin.	Bachelor of Science - University of Cincinnati (Engineering/History)	35	