

Columbiana County ESC Straight A Grant Addendum – Project Inspire

I. Budget Narrative

Instructional Purchased Services (\$435,380)- This includes hiring an instructor at \$55,000 with \$14,800 in benefits to work at the CCCTC and also provide instruction to students via distance learning at their schools. Two interns will be working @ \$12/hr each for five hours per day for 184 days totaling \$22,080 at the CCCTC to manage print projects being sent from participating school districts. A project director will be paid \$32,500 with benefits of \$5,000. These will all be done through the CCESC. Additionally, the CCCTC will need to purchase HS curriculum @ \$22,500 while each of the 7 school districts will purchase elementary, middle school, and high school curriculum @ \$40,500 (this is for 3 years) giving a total of \$306,000 curriculum costs. This curriculum will be purchased through InventorCloud who partners with YSU.

Supplies (\$270,170) – CCCTC will need the following supplies to set up their room which will have 3 workstations– 1 laptop (instructor) @ \$750, 15 cameras so students can remotely see what is being done with the printers, engravers and CNC machines @ \$100 = \$1,500, 6 computers @ \$750 = \$4,500, 2 - 85” TVs @ \$800 = \$1,600, 2 TV mounts @ \$240 = \$480, 2 video projectors @ \$600 = \$1,200, 2 video projector mounts @ \$140 = \$280, cabling @ \$500, and 2 headsets @ \$90 = 180, totaling \$10,990.

Districts (7) – Each district will have three work stations with each workstation accommodating 2-5 students to complete their projects. Supplies include 6 computers @ \$750 = \$4,500, 2- 85” TVs @ \$800 = \$1,600, 2 TV mounts @ \$240 = \$480, 2 video projectors @ \$600 = \$1,200, 2 video projector mounts @ \$140 = \$280, cabling @ \$500, and 2 headsets @ \$90 = 180. Additionally, each district will have 30 tablets at the elementary school and 30 tablets at the middle school (\$26,000). These will be used to access the InventorCloud curriculum that will be implemented so that within the next three years all students will have been introduced and involved in STEM curriculum. Lastly, each district, including the CCCTC, will need \$2,000 in supplies for 3D printing. This will be an annual cost that we have budgeted increases in FY17-FY20. The total for CCCTC is \$12,990 and each of the 7 districts is \$36,740.

Capital Outlay(\$184,300) - Our capital outlay is primarily used to set up the classroom at the CCCTC production lab that all districts will use for project completion. Included are 4 - 3D printers @ \$2,400 each, which include maintenance agreement, = \$9,600, 4 – 3D printers @ \$1,200 - \$4,800, 2 Laser Engravers to do rapid prototyping for cutting and engraving materials needed to complete projects @ \$17,000 = \$34,000, 1 CNC Router is also used to cut materials and complete the projects the district students will do @ \$20,000, 2 Storm Boxes used to receive projects from the districts and collaborate with other schools in the consortium, with AMI(IC) and the lab at the CCCTC @ \$1,500 = \$3,000, 1 video conferencing unit to teach from the CCCTC to participating districts @ \$7,000, 1 TV and cart @ \$1,250.

Each of the 7 districts will also need a Storm Box to send projects to the CCCTC @ \$1,500 each, a video conferencing unit @ \$7,000 with cart and TV @ \$1,250. Additionally, each of the districts will need 2 recharging carts for their tablets that will be at the elementary and middle schools @ \$2600 each = \$5,200.

Support Services Purchased Serv (\$76,200) – The CCESC will have two items under support services. The ESC will provide 36 days of curriculum/technology support for the teachers involved with the grant @ \$500 per day totaling \$18,000. Specifically, our math and science consultants will help implement STEM at all levels in the school districts. Our technology consultant will also provide training on video conferencing. Additionally the CCESC will contract with Dr. Shawn Fitzgerald to conduct an evaluation of our grant project at a cost of \$10,000.

CCCTC will have costs associated with preparing the lab, such as wiring and ventilation. InventorCloud will do the install of equipment @ \$3100 at the CCCTC. CCCTC will also have room renovations estimated @ \$5,500 to update electrical and ventilation for lab equipment. Maintenance on the video equipment will cost \$1,800. Each district will also have \$5,400 for installation and maintenance to include pre district costs of: AST \$1,100 for installation of HS lab, \$1,900 for setup of district tablets, cart, etc, and maintenance costs of \$2,400. Total District costs of \$37,800, CCCTC of \$10,400, and ESC of \$28,000.

Purchased Services PD (\$9,200) – Training by AST is set for 3 teachers per district (1 elem, 1 MS, 1 HS) plus 1 for the ESC, 1 for CCCTC totaling 23 staff @ 4 days @ \$100 stipend per day = \$9,200. Additional PD will be provided with each year that districts purchase the IC curriculum as PD is built in.

Additional items that need addressed concerning the budget:

- 1) 3D printer supplies – each district and the CCCTC have supplies built in each year in the FIT starting at \$2,000 and increasing to \$2,500 in FY 20. We have based these on cost data provided by IC as we are modeling a lab at Choffin Career and Technical Center in Youngstown, Ohio that has been in operation for 3 years serving 33 schools last year. Our 3D printers are filament so as to save operating costs as compared to the expensive powder printers. Additionally, all projects that are printed no larger than 2'x2'x2' to save on time and materials. One of our districts, Crestview, piloted the IC course last year, so we also knew their costs.
- 2) Cost of college credits – IC works with Youngstown State University and Eastern Gateway Community College so that students can receive college credit. Columbiana County school districts have participated in Seniors 2 Sophomores post secondary program for the past six years through Kent State University as well as having dual credit through YSU and EGCC. Our districts currently pay \$122 per credit hour at KSU as our students attend classes on campus in Salem and East Liverpool. We actually anticipate that our districts will save money here although we could not quantify this to actually put it in the grant. We believe this because we will now be able to offer college credit to our students at the high school at a cost of only \$49 per credit hour. However we have no way of substantiating this.
- 3) Bandwidth – Although video conferencing and the collaborative work that will occur between our districts and the CCCTC does require robust bandwidth, 8 of our 10 districts are connected via fiber through their Data Acquisition site (ACCESS). Lisbon and Southern are not on the fiber network but both have done video conferencing in the past and Lisbon doubled their bandwidth from 100 to 200 MB for FY15. Additionally, the compression software used by IC has created no issues for the 33

schools connected to Choffin. The CCESC has also done many elementary school video lessons with no bandwidth issues over the last few years.

II. Sustainable Costs

1. Lead district impact table – we have added language to the CCESC impact table that reflects we will have no additional costs associated with this grant from FY 16-FY20.
2. Maintenance agreements – Most of the equipment we will be purchasing will come with maintenance agreements with only a few exceptions. All 3D printers, Storm boxes, etc, associated with IC will have maintenance as long as districts are purchasing IC curriculum, which each district does for the life of the grant (I will attach the IC agreement that states they will maintain all IC equipment). All computers and tablets will come with a three year warranty as well. We will be purchasing the warranty for the video conferencing equipment when we purchase it. Each of our districts also has a technology person that will oversee any repairs or warranty work with the support of the CCESC.
3. Professional development (training), on-going support for teacher, technology, personnel and administrators, and customer service are provided by *Inventorcloud* (IC) as part of the cost of the curriculum program. There is NO additional cost for these items as long as the districts are part of the IC Project Inspire program and purchasing curriculum.

School staff who teach and support the IC program (administrators, technologists, coaches, etc.) will receive training both in the summer before the school year and during the school year; IC staff will work with technologists from each district and the CCESC in the operation of the equipment and implementation of the program. All of this is included in the cost of the IC program.

After year one, the program will be evaluated by Dr. Shawn M. Fitzgerald of Kent, OH. Dr. Fitzgerald will complete the outside evaluation at a cost of \$10,000.00.

During the past four years, IC has created and operated its rapid prototyping lab. Primary equipment in this lab is: 3-D printers, laser cutters/engravers, and CNC machines. During the 2012-2013, 2013-2014 school years, IC has worked with over 35 schools to implement the IC program. The schools utilize the IC lab to build a variety of projects in the program curriculum using the equipment listed above. Based on that experience, IC has determined the following materials costs:

- a. 3D Printing: Material is a plastic filament that comes on a 2.2 pound reel costing \$33.00. Each district(7) will use six reels per year for a total of 42 reels. The lab at the CCCTC will use 30 reels.
- b. Laser, CNC: Material will be wood (plywood and pine) acrylic, and plexiglass or lexan. Plywood will come in 4x8 sheets at an average cost of \$52.00 per sheet. Each district will use 10-12 sheets per school year. Acrylic and plexiglass will also come in 4x8 sheets with an average cost of \$250.00 per sheet. Each district will use 4-5 sheets per school year.
- c. Tools: Each district will need an assortment of tools such as tape measures, screw drivers, files/rasps, hammers, handsaws, sabre saw, drill, drill bits. Total cost will be \$400-\$525.

4. Curriculum license costs – Each district, including CCCTC, will initially purchase 3 years of curriculum from IC. In subsequent years curriculum costs (\$13,500 per district and \$7,500 for CCCTC) can be found under Purchased Services in FY18-FY20 on district FIT. This is a cost that the districts have been told they will need to purchase in order not only to deliver the curriculum, but also provide maintenance on all IC hardware. Districts have budgeted for this sustainable cost.
5. Storm box maintenance – we have shown no cost for this as it is included in the curriculum cost. (Agreement stating this attached)
6. No mention of PD in any impact table - . There is NO additional cost for these items as long as the districts are part of the IC Project Inspire program and are purchasing the curriculum, which we have put in all district FITs.
7. Grant mentions 15 students – the grant does mention 15 students to start this fall but that is 15 students per high school in the fall course for a total of 120 students. We also intend to add another course for the spring semester that can quickly double our students (Crestview, who piloted this program last year had these kind of numbers so we know they are realistic). These numbers only include our high schools. We will also be implementing the IC curriculum in all our elementary and middle schools. As stated in our grant, many of our middle schools will make this a part of their nine week rotations that all students take. Once this is implemented in grades K-12 we will be providing STEM curriculum to every student in all participating districts which will be over 7,000 students – all having access to 3D printing if they choose to do projects at the elementary and middle schools.
8. Not enough costs for distance learning – The Columbiana County ESC has been implementing video conferencing and distance learning for over 20 years. The past few years our Distance Ed consultant not only taught many elementary lessons, but also set up bridging throughout the state to run a project-based learning contest involving many elementary schools. Our fiber network permits this option with little difficulty and our experienced staff has installed and managed distance learning equipment through multiple counties in the state, including the Coalition of Appalachian Learners (COAL) and the Teaching American History Grant (TAH) in the Appalachian counties. We are very comfortable, given our experience with distance learning and IC experience with their learning labs, that we are on target with our costs. The strength of this grant is the sharing of resources that result in minimum costs to our small rural districts. Additionally, I want to point out that we are not doing the more expensive video conferencing rooms, but only purchasing the smaller mobile units.

III. Specific Cost Savings

1. Staff reduction documentation – more detail is provided in the Financial Impact Table update
2. Reducing staff needed to pay for teacher/interns – Districts were planning on cutting staff by retirement attrition with or without the grant. The savings simply permits them to cover the costs of the grant and still save money. Other districts that intended to replace their retiring teachers would use the savings from a lower pay scale of the new teachers to fund this grant. No district was cutting teachers for the single purpose of getting money to pay their grant costs.
3. Saving \$ by not purchasing textbooks – Although we do think that districts could save some money by using the digital curriculum vs texts with other course, we were not able to quantify a specific savings and therefore did not specifically address this in our FITs.

IV. Overall Concerns

1. Underestimated budget – We are very confident that our budget is not underestimated. We have concrete and verifiable costs and expenses from IC. They have implemented a similar project at Choffin Career and Technical Center in Youngstown, Ohio that has included 33 schools sending projects through the IC curriculum. Additionally, one of our districts, Crestview Local, piloted the IC curriculum this past school year (2013-2014). They also sent their projects to Choffin for completion. Thus, we have proven costs over the last three years that we based our grant on. We were also able to document the number of students involved at Crestview, which is of similar size to most of our districts in the grant. With these two models we are confident we can replicate this in Columbiana county and beyond.
2. Number of students vs cost of the grant - the grant does mention 15 students to start this fall but that is 15 students per high school in the fall course for a total of 120 students. We also intend to add another course for the spring semester that can quickly double our students (Crestview, who piloted this program last year had these kind of numbers so we know they are realistic). These numbers only include our high schools. We will also be implementing the IC curriculum in all our elementary and middle schools. As stated in our grant, many of our middle schools will make this a part of their nine week rotations that all students take. Once this is implemented in grades K-12 we will be providing STEM curriculum to every student in all participating districts which will be over 7,000 students – all having access to 3D printing if they choose to do projects at the elementary and middle schools.

Columbiana County ESC Straight A Grant - Project Inspire

Budget Detail

<i>Instructional Purchased Services (\$435,380)</i>					
	Instructor Salary	1	55,000.00	55,000.00	shared teacher for IC curriculum -at CCCTC
	Instructor Ben	1	14,800.00	14,800.00	Benefits for shared teacher
	2 Interns	2	11,040.00	22,080.00	\$12/hr/5 hrs/day/per intern/184 days - at CCCTC
	Proj Dir Salary	1	32,500.00	32,500.00	salary to oversee all aspects of the grant
	Proj Dir Ben	1	5,000.00	5,000.00	benefits for proj dir
	CCCTC curriculum	1	22,500.00	22,500.00	3 years of HS curriculum for CCCTC
	7 districts curr	7	40,500.00	283,500.00	3 yrs of elem and high school curriculum
				435,380.00	
<i>Supplies (\$270,170)</i>					
CCCTC	Instr laptop	1	750.00	750.00	Used at CCCTC by instructor
	Cameras	15	100.00	1,500.00	allow remote students to view printing etc
	Computers	6	750.00	4,500.00	2 computers per workstation - 3 workstations
	TVs - 85"	2	800.00	1,600.00	allow remote students to view lessons
	TV mounts	2	240.00	480.00	place TVs on wall
	Video Proj	2	600.00	1,200.00	whole class viewing
	Video Proj mounts	2	140.00	280.00	mounting of video proj from ceiling
	Cabling	1	500.00	500.00	connecting all equipment at CCCTC
	Head Sets	2	90.00	180.00	for workstations
	Printing supplies	1	2,000.00	2,000.00	3D printing supplies
			subtotal	12,990.00	
Districts	Computers	6	750.00	4,500.00	2 computers per workstation
	TVs - 85"	2	800.00	1,600.00	allow remote students to view lessons
	TV mounts	2	240.00	480.00	place TVs on wall
	Video Proj	2	600.00	1,200.00	whole class viewing
	Video Proj mounts	2	140.00	280.00	mounting of video proj from ceiling
	Cabling	1	500.00	500.00	connecting all equipment at CCCTC
	Head Sets	2	90.00	180.00	for workstations
	Tablets	60	433.33	26,000.00	deliver digital curriculum at elem & middle schools
	Printing supplies	1	2,000.00	2,000.00	3D printing supplies
				36,740.00	

	Districts	7	36,740.00	257,180.00	costs for 7 districts
			Total	270,170.00	
<u>Capital Outlay(\$184,300)</u>					
CCCTC	3D printers	4	2,400.00	9,600.00	printers to project completion with districts
	3D printers	4	1,200.00	4,800.00	printers to project completion with districts
	Laser Engraver	2	17,000.00	34,000.00	to complete projects with districts
	CNC	1	20,000.00	20,000.00	to complete projects with districts
	Storm Box	2	1,500.00	3,000.00	used to receive projects and communicate with schools
	Video conf	1	7,000.00	7,000.00	to allow instruction between schools & provide STEM career experts
	TV and cart	1	1,250.00	1,250.00	needed for video conferencing
			subtotal	79,650.00	
Districts	Storm Box	1	1,500.00	1,500.00	used to communicate projects with schools and between schools
	Video conf	1	7,000.00	7,000.00	to allow instruction between schools & provide STEM career experts
	TV and cart	1	1,250.00	1,250.00	needed for video conferencing
	Tablet Carts	2	2,600.00	5,200.00	allow for anytime, anywhere, access to digital curriculum at ES and MS
				14,950.00	
	Districts	7	14,950.00	104,650.00	
			Total	184,300.00	
<u>Support Services Purchased Serv (\$76,200)</u>					
	Curr/Tech Support	36	500.00	18,000.00	36 days curriculum/technical support
	Grant Eval	1	10,000.00	10,000.00	Used to collect, analyze data and evaluate the grant
CCCTC	IC install	1	3,100.00	3,100.00	set up printers, Engraver, CNC
	Room renovation	1	5,500.00	5,500.00	electrical/ventilation work
	Maintenance	1	1,800.00	1,800.00	maintenance on video equipment
Districts	IC install	7	1,100.00	7,700.00	set up printers, Engraver, CNC
	tablets set up	7	1,900.00	13,300.00	installation, loading, and preparation of tablets
	maintenance	7	2,400.00	16,800.00	maintenance on video and tablets
				76,200.00	
<u>Purchased Services PD (\$9,200)</u>					
	AST (IC) training	3 teachers per district (1 ES, 1 MS, 1 HS), 1 ESC, 1 CCCTC = 23 staff			
		4 days = 92 days			All training of school staff

	Daily Stipend	92	100.00	9,200.00	
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Instr Purch Serv			435,380.00
Supplies			270,170.00
Capital Outlay			184,300.00
Support Services			76,200.00
Purch Serv PD			9,200.00
			\$ 975,250.00

STRAIGHT A FUND - FINANCIAL IMPACT TABLE
Educational Service Center

APPLICANT:	Columbiana County ESC							
IRN (6 digits):	046417							
	FY14	FY16	FY17	FY18	FY19	FY20		
<i>Do not alter any of the shaded cells.</i>	Financial Baseline from the Current Fiscal Year	<p align="center">Since FY15 is the grant year, its expenditures are not required in this table.</p> <p align="center">In the FY16-FY20 columns, ADD only the SUSTAINING COSTS to the appropriate line items (refer to Question 13), and SUBTRACT only the SUSTAINING COST REDUCTIONS to the appropriate line items (refer to Question 14).</p>						
EXPENDITURES - OPERATIONAL	FY14	FY16	FY17	FY18	FY19	FY20		
3.010	Personal Services (Salaries & Wages)	\$ 5,413,543	\$ -	\$ -	\$ -	\$ -	\$ -	
3.020	Fringe Benefits	\$ 2,231,362	\$ -	\$ -	\$ -	\$ -	\$ -	
3.030	Purchased Services	\$ 2,384,720						
3.040	Supplies and Materials	\$ 254,728						
3.050	Capital Outlay	\$ 3,575						
3.060	Intergovernmental	\$ 101,910						
	Total Expenditures - Operational	\$ 10,389,838	\$ -					
EXPENDITURES - DEBT SERVICE	FY14	FY16	FY17	FY18	FY19	FY20		
4.010	Debt Service-Principal-All (Historical Only)							
4.020	Debt Service-Principal-Notes							
4.030	Debt Service-Principal-State Loans							
4.040	Debt Service-Principal-State Advances							
4.050	Debt Service-Principal-HB264 Loans							
4.055	Debt Service-Principal-Other							
4.060	Debt Service-Interest and Fiscal Charges							
4.300	Debt Service-Other Objects							
	Total Expenditures - Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EXPENDITURES - NON-OPERATIONAL	FY14	FY16	FY17	FY18	FY19	FY20		
5.010	Operating Transfers-Out							
5.020	Advances-Out							
5.030	All Other Financing Uses							
	Total Expenditures - Non-operational	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
SUSTAINABILITY	FY14	FY16	FY17	FY18	FY19	FY20		
	TOTAL EXPENDITURES							
	For FY16-20, total expenditures must be cost neutral (e.g. \$0 or less) to prove sustainability.	\$ 10,389,838	\$ -	\$ -	\$ -	\$ -	\$ -	

