APPLICATION COVER PAGE
(Please Print or Type – All Fields Must Be Completed)

Project Name: ***Revitalization of Clackamas County Manufacturing Programs:*** *Creating Capacity to Meet Manufacturing Workforce Needs*
Amount Requested: $324,281

Project Director: Megan Helzerman		
District, School or ESD: Clackamas Career & Technical Education Consortium (Clackamas ESD)		
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District or ESD: Clackamas Education Service District		
Address: 13455 SE 97th Avenue		
City: Clackamas	State: OR	Zip: 97015
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	Participating High School or Middle School Name (add additional rows as needed)	Lead Contact Name	Grade Levels	Student Enrollment
1.	Sandy High School	Debbie Johnson	9-12	1285
2.	Colton High School	Daniel Bolen	9-12	215
3.	Estacada High School	Cheryl Amundson Renton	9-12	589
4.	Molalla High School	Heather Fix	9-12	739
5.	Canby High School	Pat Johnson	9-12	1481
6.	Sabin-Schellenberg Center	Karen Phillips	9-12	3,300

Please check all that apply:

___ This project directly involves Career and Technical Student Organizations
Please note page of proposal that describes this relationship. Page: _____

___ This project has a clear connection to STEM
Please note page of proposal that describes this relationship. Page: _____

Project Overview

Purpose and Scope of Project

The ***Revitalization of Clackamas County Manufacturing Programs****: Creating Capacity to Meet Manufacturing Workforce Needs* project is a regional effort designed to enhance the high school manufacturing programs in Clackamas County. The project strives to 1) Expand the emerging worker pipeline entering the manufacturing industry, 2) Strengthen the alignment of manufacturing programs to postsecondary and industry credentials, and 3) Engage high school programs with the manufacturing industry base in Clackamas County and the greater Portland Metropolitan area.

The project will be facilitated by the Clackamas Career & Technical Education Consortium (C-TEC), with Clackamas ESD as fiscal agent. Grant activities include:

1) Hire a full-time Manufacturing Program Manager to:
    a. Serve as a liaison and create value-added relationships between local manufacturers and high school programs
    b. Provide instructional mentorship to high school manufacturing teachers
2) Expand manufacturing program capacity through the use of industry-based curriculum and equipment at Estacada, Sandy and Molalla High Schools
3) Purchase manufacturing equipment to ensure each program meets the minimum equipment specifications identified in the C-TEC Manufacturing Equipment Inventory
4) Provide instruction to high school manufacturing teachers on the Manufacturing Skills Standards Council Certified Production Technician curriculum and certification

These efforts, combined with the commitment of education, business and industry partners, allows Clackamas County's high school manufacturing programs to make significant contributions to filling critical workforce demand.

Innovation

The ***Revitalization of Clackamas County Manufacturing Programs*** project improves significantly upon the status quo by focusing the content of all Clackamas County's manufacturing programs on a common set of technical competencies. The shared technical competencies provide opportunities to change the relationship between high school manufacturing programs and the local manufacturing industry.

During 2012-13, C-TEC convened the Manufacturing Education Alliance, a group of local manufacturers, workforce, and education partners. The Manufacturing Education Alliance established a Manufacturing Strategic Plan to guide the region's efforts (Appendix 1) and adopted a set of common technical competencies (Appendix 2). The competencies are based on the Manufacturing Skills Standards Council (MSSC), a national industry group that offers entry-level Certified Production Technician certification. The common technical competencies ensure that students leave any of the county's high school programs with a similar core set of skills, regardless of school size.

The shared technical competencies change the relationship between high school teachers and programs to a more collaborative model of teaching. It allows C-TEC to form a community of practice among manufacturing teachers. The community of practice is a venue for collaborating, sharing best practices, and addressing common professional development needs related to teaching the common technical content.

In addition, the project revitalizes CTE by creating stronger relationships between the manufacturing industry and high school CTE programs. The project uses innovative approaches, such as teacher mentoring by manufacturing professionals and alignment to industry recognized credentials to provide opportunities to directly engage industry partners in delivering technical content and instruction.

Integration

Over the last year, the Clackamas Career & Technical Education Consortium (C-TEC) engaged in a strategic planning process with our high school manufacturing programs to ensure they are teaching the academic and technical skills needed to meet the needs of the local manufacturing workforce and community college programs. C-TEC's Manufacturing Strategic plan provides the unifying guidance for the proposed activities in the ***Revitalization of Clackamas County Manufacturing Programs***.

The outcomes and activities of the project are aligned to create strong results. The grant activities support 1) engaging the local manufacturing industry base in the high school programs by creating structured opportunities for mentorship, guidance and support, 2) expanding the pipeline of workers entering the manufacturing industry by increasing capacity of programs, and 3) strengthening the alignment of manufacturing programs to industry credentials and community college programs by aligning to the MSSC Certified Production Technician competencies.

The ***Revitalization*** project connects with broader community needs. The Columbia Willamette Workforce Collaborative (CWWC), supported by data from the Oregon Employment Department and local manufacturers, has identified a need to fill over 33,000 manufacturing jobs in Multnomah, Washington and Clackamas counties by 2020. The CWWC developed the *2013-15 Manufacturing Workforce Plan (Appendix 3)* to address this need. Goal #1 in the plan is "Building a Labor Pipeline by Attracting Interested, Committed Youth". C-TEC has been an integral partner in connecting high school CTE programs to support this goal. The activities funded by the ***Revitalization*** project directly support these community needs and goals.

Expansion and Growth

The ***Revitalization of Clackamas County Manufacturing Programs*** project is designed to expand and grow programs in a number of ways. The grant activities increase the capacity of manufacturing programs at 3 high schools. Grant funds add instructional time by adding .5 FTE at Estacada High School and .25 FTE at Sandy High School. At Molalla High School, C-TEC will add two (2) one-year-long courses taught by Clackamas Community College faculty at the high school. This expansion allows at least 150 additional students to participate in manufacturing education. The grant funds provide the first year of expansion, while all 3 school districts have committed to support the expanded programs after grant funding ends.

The grant also funds program growth in the area of expanded partnerships and connections to the manufacturing industry. The grant provides a full-time Manufacturing Program Manager position to serve as a liaison to support the manufacturing teachers in building and sustaining industry engagement. The Workforce Investment Council of Clackamas County (WICCO) will employ the Manufacturing Program Manager, thereby creating an environment in which the workforce and industry partners will take a stronger ownership role in shaping the position and relationships that result.

The relationship between C-TEC, WICCO, and the Columbia Willamette Workforce Collaborative (CWWC) expands the impact of the grant beyond Clackamas County. C-TEC and the CWWC have already begun working with the CTE programs in Multnomah and Washington counties to align manufacturing education across the greater metropolitan region. While the grant funds the first 18 months of the Manufacturing Program Manager position in Clackamas County, C-TEC is working with partners to expand the impact and continue support beyond the life of the grant.

Experiential Learning

The ***Revitalization of Clackamas County Manufacturing Programs*** activities promote experiential learning with a high degree of alignment to real-world manufacturing problems and settings. The project aligns to the MSSC competencies to ensure that high school programs are addressing the wide range of manufacturing skills in a comprehensive, hands-on manner. The competencies include Manufacturing Process and Design, Production, Maintenance Installation and Repair, Supply Chain Logistics, Quality Assurance/Continuous Improvement, and Health & Safety.

C-TEC, with input from Clackamas Community College and industry partners, identified a minimum level of equipment each high school program should have to adequately teach the competencies in a hands-on manner. C-TEC is in the process of conducting an equipment inventory of programs to determine the level of need (Appendix 4). Local funds are being used to fund mini-grants to acquire a portion of the equipment needs identified by the C-TEC Manufacturing Equipment Inventory. In addition, C-TEC will seek grants and leverage partnerships to support each program in acquiring the remaining minimum level of equipment. The ***Revitalization*** grant supports a small portion of the equipment acquisition.

C-TEC programs provide a variety of opportunities for students to experience multiple aspects of the manufacturing industry. These opportunities include Manufacturing Career Days, Career Road Trips, job shadows and internships with local manufacturers. The ***Revitalization*** grant funds support the expansion of these opportunities by funding a Manufacturing Program Manager whose primary responsibility is creating these opportunities and expanding experiential learning opportunities based in real-world manufacturing projects or settings.

Project Description

Project Outcomes and Progress Markers

Outcome		Progress Markers
1a	Strengthen business and industry connections to offer additional manufacturing Career Related Learning Experiences for students	▪ Workforce Investment Council of Clackamas County will employ a Manufacturing Program Manager by February 2014 ▪ Clackamas County high school manufacturing programs will increase the number of students participating in career related learning experiences (job shadows, career days, internships, and industry tours) by 25% by June 2015
1b	Improve manufacturing teaching methodology to better prepare students for careers in the manufacturing industry	▪ Manufacturing Program Manager will create a structured industry mentor program with identified goals and implementation strategies by September 2014 ▪ C-TEC will create a community of practice with participation from high school and community manufacturing teachers to share best practices and identify common professional development needs ▪ C-TEC will complete review and alignment of high school and college curriculum to the MSSC standards by February 2015 ▪ Clackamas County high school manufacturing teachers will identify at least two best practices strategies for teaching the MSSC competencies by August 2014
2	Expand the pipeline of qualified young workers entering the manufacturing industry by increasing the capacity and scope of high school manufacturing programs.	▪ C-TEC will increase the number of students participating in Clackamas County high school manufacturing programs by at least 150 students by June 2015 ▪ C-TEC high schools will collectively add at least 3 credit-based college manufacturing classes by June 2015
3	Upgrade instructional laboratories for high school	▪ Clackamas County High School manufacturing programs will demonstrate at

	manufacturing programs to better align with industry standard equipment	least a 50% increase in meeting C-TEC's minimum equipment standards, as evidenced by the Manufacturing Equipment Inventory by June 2015
4	Improve the alignment of manufacturing skills taught in high school manufacturing programs to better support industry demand	▪ At least 7 Clackamas County high school manufacturing teachers will complete the MSSC Certified Production Technician Instructor Training by October 2014 ▪ Clackamas County high school manufacturing teachers will demonstrate an increased alignment to the MSSC competencies as evidenced by a 25% improvement on the MSSC Asset Inventory by June 2015 ▪ Clackamas County high school manufacturing programs will demonstrate a 10% increase in college credits or industry credentials awarded to students by June 2015

Career and Technical Education Program of Study

Revitalization of Clackamas County Manufacturing Programs enhances existing career and technical education programs of study by strengthening and expanding career pathways in manufacturing. Six Clackamas County high schools currently have Oregon Department of Education approved manufacturing CTE Programs of Study. In addition, Clackamas Community College (CCC) hosts a Regional High School program for high school students in manufacturing or welding at CCC. C-TEC is implementing strategies to strengthen all 7 manufacturing programs.

Over the past year, C-TEC worked with industry, workforce, high school, and community college representatives to develop a Manufacturing Strategic Plan to guide its efforts. The plan established a common set of competencies, based on the MSSC's Certified Production Technician, that all high school manufacturing programs can

address, regardless of program size and capacity. The MSSC competencies also align to the goals and strategies of the Columbia Willamette Workforce Collaborative's *2013-2015 Manufacturing Workforce Plan* (Appendix 3). The CWWC is a collaborative effort of the 3 Local Workforce Investment Boards that represent 5 counties in the greater metropolitan Portland area, including Clackamas County.

With broad support from industry and workforce partners, C-TEC is now implementing strategies to align program content to the MSSC competencies by investing in equipment and professional development. C-TEC has dedicated significant resources from its Carl Perkins grant to support the improvement efforts. The ***Revitalization*** grant activities leverage Perkins and industry support to acquire updated equipment, provide professional development to teachers on the MSSC's curriculum, expand the capacity of programs at 3 high schools, and support the creation of new and sustainable relationships between high schools and industry.

Programs of study aligned to the MSSC competencies provide students with multiple options to pursue a career pathway to further education and careers. The competencies provide a base level of instruction in all areas of manufacturing; including Manufacturing Process and Design, Production, Maintenance Installation and Repair, Supply Chain Logistics, Quality Assurance/Continuous Improvement, and Health & Safety. The instruction is aligned to an entry-level industry certification, which allows a student to directly enter the workforce as a production worker. However, it is a broad overview of manufacturing that provides many opportunities for students to continue in postsecondary education to pursue careers in machining, welding, engineering, logistics, quality assurance, or other manufacturing related careers.

The Manufacturing Strategic Plan and ***Revitalization*** grant activities support academic, technical, and employability skills. The MSSC competencies target the "Industry-Wide Technical Competencies" of the Department of Labor's Advanced Manufacturing Competency Model (Appendix 5). These competencies are only possible when built upon a foundation of skills that include Academic Competencies and Workplace Competencies (such as teamwork, problem solving, etc).

In order to ensure that academic content is integrated and supported by the manufacturing programs, the Manufacturing Strategic Plan includes plans to track the academic performance of manufacturing students, based on performance on statewide academic assessments of Reading, Writing and Mathematics. The National Career Readiness Certificate (NCRC) will also be explored as an opportunity to verify employability skills and offered within manufacturing programs when appropriate.

C-TEC's efforts to expand manufacturing programs at 3 high schools provide an opportunity for additional students to be introduced to careers in manufacturing while also offering more advanced manufacturing classes. All 3 programs targeted for expansion plan to offer additional introductory sections, to expand the pool of students in manufacturing. They also plan to add at least one additional advanced course, aligned to community college content and offering college credit. These courses will be developed in conjunction with CCC during the remainder of 2013-14 and ready for implementation during the 2014-15 school year. The model of providing CCC courses at Molalla High School ensures that college credit is already embedded in the design.

The multiple career pathways offered through the program of study design are all linked to high wage and high demand careers locally and statewide. Data from the

Oregon Employment Department presents a dire need for manufacturing workers. From 2010-2020, Oregon expects a 15% growth in high-wage[1] manufacturing jobs, in addition to more than 37,000 replacement openings. The three Oregon counties in the Portland metropolitan area expect a similar growth rate with over 33,000 total manufacturing openings (growth and replacement) expected by 2020. As a result, manufacturing employers in the Portland metropolitan area are understandably concerned. That is why the Columbia Willamette Workforce Collaborative identified, "Building a Labor Pipeline" as the #1 goal in its *2013-15 Manufacturing Workforce Plan*.

Underserved Students

The manufacturing CTE programs of study within this project serve a variety of underserved populations. The primary populations targeted for inclusion in these manufacturing programs include economically disadvantaged, females, and first generation college students. The schools planning for program expansion with grant funds: Estacada, Sandy, and Molalla are primarily in rural communities with high levels of poverty. The Free and Reduced Lunch count represents 55.2% of the high school population in Estacada, 47.6% in Molalla, and 43.5% in Sandy. Females are traditionally underserved in manufacturing programs and Clackamas County high schools are no exception. C-TEC and the high school programs included in this grant will implement strategies to engage more females in the programs.

C-TEC plans to implement targeted outreach efforts to attract economically disadvantaged and female students into the high school manufacturing programs. Manufacturing programs will ensure that recruitment materials portray images of equal

[1] 2011 Average Manufacturing wage in Oregon = $60,174. *Source: Oregon Employment Department*

gender representation. Schools will use student peer recruiters that include females and various socio-economic groups during targeted outreach opportunities, such as 8th grade presentations during forecasting. Outreach will also be conducted through programs that serve economically disadvantaged students, such as the Workforce Investment Act youth program. Two C-TEC schools, Clackamas Community College and Molalla High School, have female manufacturing teachers. C-TEC will utilize their unique perspective to better connect with additional female students.

The Manufacturing Program Manager funded by the grant will also utilize strategies to better serve economically disadvantaged and female students. The Manufacturing Program Manager will connect manufacturing industry representatives that come from economically disadvantaged backgrounds, were first generation college students, or are female with groups of students that need support. Mentors will be able to share their stories and backgrounds, and students will be able to see themselves in the professionals while seeing a pathway to a successful future.

First generation college students are a primary target population for the grant activities. The principal strategy for engaging first generation college students in the Manufacturing programs of study is the use of Career Pathways. The manufacturing programs of study provide a clear pathway to college and career opportunities, and are articulated between high school and community college. Program expansion activities funded by the grant will expand the number of articulated college credit courses offered.

Students that complete a manufacturing program have the opportunity to earn multiple college credits and start on a pathway to several postsecondary certificate and degree options in Manufacturing and Welding at Clackamas Community College. CCC

is also in the process of developing the capability of offering the MSSC Certified Production Technician certification.

C-TEC is developing pathway resources that will enhance the advising and counseling support for career pathways. These resources include web tools and materials that better illustrate the connection between the high school component of a program of study, certificates and degrees offered at the community college, and where they overlap. C-TEC is also establishing a College Connections Cadre to increase communication between high school and community college advising staff. All these efforts will support first generation college student's progress on a career pathway.

Diploma Connections

The ***Revitalization of Clackamas County Manufacturing Programs*** project includes multiple strategies that integrate diploma requirements into the manufacturing CTE programs, including strong integration of academic skills in manufacturing classes, personalized learning, and opportunities for career related learning experiences.

All the manufacturing programs involved in the grant funded activities are ODE approved CTE Programs of Study. One requirement of an approved Program of Study is that programs integrate rigorous academic content within its technical content. For over 5 years, C-TEC has supported integration of academic content into its CTE programs by hosting an annual professional development opportunity for CTE teachers to work with academic content teachers in Math, Literacy and/or Writing. The workshops result in academic enhanced lesson plans that are aligned to academic standards, but based in technical content. For example, writing enhanced lesson plans in manufacturing may include documenting project planning, researching and writing a

report about safety and industrial accidents, etc. The academic reinforcement in CTE content provides students with context for academic skills and supports performance on the statewide academic assessments used to demonstrate Essential Skills.

The manufacturing programs and ***Revitalization*** grant activities also prioritize personalized learning and provide students with opportunities to pursue their personalized education plan and profile. The personalized education plan and profile is a process for students to plan, monitor, and manage their own learning and career development in high school, while planning for life after high school. Manufacturing programs, and the multiple career pathways they lead to, provide opportunities for personalized learning. The grant activities increase the course offerings so that students can move further along their career pathway prior to leaving high school.

The expansion and strengthening of relationships with industry partners for Career Related Learning Experiences is the grant's most significant connection to diploma requirements. The Manufacturing Program Manager will work with companies throughout the region to develop and offer new opportunities for students to experience careers in manufacturing through career days, industry tours, job shadows, internships, or in-class experiences based on real manufacturing problems. The Manufacturing Program Manager will support the development of sustainable relationships with manufacturers that will result in Career Related Learning Experience opportunities beyond the life of the grant.

Sustainability and Communication

The ***Revitalization of Clackamas County Manufacturing Programs*** project utilizes a variety of strategies for sustaining the work beyond the life of the grant. The activities funded by the grant are in support of a greater, ongoing effort to improve the

high school manufacturing programs in the region. These efforts will continue well beyond the life of the grant. The strategy predominantly utilized in the manufacturing effort is the building of a coalition that includes industry, workforce and education partners, called the Manufacturing Education Alliance. C-TEC worked with the Manufacturing Education Alliance to establish the Manufacturing Strategic Plan that is anticipated to take 3-5 years to accomplish.

C-TEC has convened the Manufacturing Education Alliance several times to gather input, build consensus, set direction, and plan implementation strategies. The activities funded by the ***Revitalization*** grant assist the Clackamas County region in reaching its goals. C-TEC plans to convene the Manufacturing Education Alliance at strategic points during the life of the grant to communicate plans, solicit input, verify alignment with broader regional efforts, and inform partners about activities and accomplishments.

C-TEC's Manufacturing Strategic Plan also aligns with the sector strategies efforts of several regional workforce development entities including Workforce Investment Council of Clackamas County (WICCO) and the Columbia Willamette Workforce Collaborative (CWWC). C-TEC representatives meet at least quarterly with WICCO and twice per year with CWWC to update progress on goals, share resources, identify leverage points, and support each other's efforts.

During the 2013-14 school year, C-TEC representatives will join local administrators and teachers to report to the school boards in Colton, Estacada, Molalla River and Oregon Trail School Districts about plans to expand the Manufacturing programs at the high schools in those districts. These presentations will include labor

market information and other data to support the ongoing need for manufacturing programs. C-TEC representatives will return in spring of 2015 to present the accomplishments of the grant, including student and industry partner testimonials.

Financial Sustainability

Education, workforce and industry partners have discussed the activities in the grant and are committed to sustaining the activities of the grant after the grant ends.

1) Hire a Manufacturing Program Manager – the ***Revitalization*** grant funds this full-time position at the Workforce Investment Council of Clackamas County for 18 months. The impact of this position will be recorded and evaluated. Partners will pursue alternative ways of funding or structuring this position, once the grant is done, to have the greatest impact with the smallest investment. Alternatives include expanding the Manufacturing Program Manager position to serve the schools within the Columbia Willamette Workforce Collaborative. This approach would establish a single point of contact for manufacturers in the greater metropolitan area, but distribute the cost more broadly. Additional alternatives include seeking grants or structuring the position to be supported by industry
2) Expand programs at Estacada, Molalla and Sandy High Schools – The 3 school districts identified for program expansion have committed to continuing to fund the expanded programs after the conclusion of the grant. The grant period provides the initial investment to grow, strengthen, and align the programs to postsecondary and industry certifications during the first 18 months. The student demand for these programs is expected to be high, based on previous forecasting. The 3 school districts are confident the resources can be found to sustain the expanded programs

3) Purchase manufacturing equipment – All participating school districts are committed to providing ongoing maintenance and repair for the equipment purchased with the grant. C-TEC's effort to ensure a minimum level of manufacturing equipment in all manufacturing programs is an ongoing effort that will last beyond the life of the grant. C-TEC has committed Carl Perkins funds to this effort, and will seek additional grants and leverage partnerships with manufacturers to meet the equipment goals.
4) Provide Manufacturing Skills Standards Council (MSSC) instructor training – The grant provides the initial instructor training to align to the high school curriculum to the MSSC competencies. C-TEC and the participating high schools will continue to support the professional development of teachers and implementation of the MSSC competencies through investment of Carl Perkins funds, district resources, and leveraging potential activities of the Columbia Willamette Workforce Collaborative.

C-TEC and its partners are working toward a common Manufacturing Strategic Plan. The ***Revitalization*** grant activities support the goals in the plan. At the conclusion of the grant, C-TEC schools will continue to improve programs through Carl Perkins resources, district investments, or partnerships with industry and workforce partners.

Sustaining Partnerships –

C-TEC recruited partners from several sectors to form the Manufacturing Education Alliance and develop the Manufacturing Strategic Plan including secondary schools, workforce development, community college, and the manufacturing industry. In addition to the Manufacturing Education Alliance, the grant efforts require regular communication with school boards, district and school administrators, WICCO, the Columbia Willamette Workforce Collaborative, manufacturing employers, and other CTE consortia within the Portland metropolitan region. C-TEC will utilize a comprehensive

Communications Plan, outlined below, to communicate regularly with partners to gather feedback, report grant activities, and progress towards its manufacturing goals.

Grant Communications Plan –

December 2013
▪ Announce grant award via media, education communication channels, and local education committees (e.g. C-TEC, Curriculum Advisory group, Superintendents) ▪ Establish website to maintain all resources, documents, and Career Related Learning Experience opportunities in a central location - *www.clackamascareers.com/manufacturing*
January/February 2014
▪ Convene Manufacturing Education Alliance with high school manufacturing teachers to 1) launch program activities, 2) establish Manufacturing Program Manager school visitation schedule and communication channels, 3) identify priority focus areas for Manufacturing Program Manager ▪ Develop and implement communication strategies for Estacada, Molalla and Sandy High Schools to inform parents and recruit students to expanded programs during forecasting using peer-to-peer outreach and other strategies
March/April 2014
▪ Visit school board meetings in Colton, Estacada, Molalla River and Oregon Trail school districts to present grant activities ▪ Present grant goals and activities to Workforce Investment Council of Clackamas County board meeting ▪ Present grant goals and activities to Columbia Willamette Workforce Collaborative Manufacturing Panel
May 2014
▪ Convene Manufacturing Education Alliance to update on project activities, seek input and support, develop strategies to increase Career Related Learning Experiences ▪ Communicate grant activities to Mt. Hood and Portland partners, identifying opportunities for partnership to further the “reach” of grant activities
October 2014
▪ Provide interim report on grant activities to Workforce Investment Council of Clackamas County and Columbia Willamette Workforce Collaborative
December 2014
▪ Provide 1st term report to C-TEC Steering Committee, Superintendents and Manufacturing Education Alliance
April 2015
▪ Report grant activities at OACTE conference ▪ Report grant outcomes at Colton, Estacada, Molalla River and Oregon Trail school

board meetings to maintain support for sustainability
May 2015
▪ Report grant activities and finalize sustainability efforts with Manufacturing Education Alliance, Workforce Investment Council of Clackamas County, and Columbia Willamette Workforce Collaborative
June 2015
▪ Provide written report of grant accomplishments and next steps to all stakeholders

Activities and Timeline

1) Hire a full-time Manufacturing Program Manager (Appendix 6) to:

   a. Serve as a liaison and create value-added relationships between local manufacturers and high school programs

      Rationale: Grant funds will employ a full-time Manufacturing Program Manager with the Workforce Investment Council of Clackamas County to facilitate the development of relationships between the manufacturing industry and high school manufacturing programs. The Manufacturing Program Manager position will spend approximately ½ their time supporting ***Outcome 1a*** - Strengthen business and industry connections to offer additional manufacturing Career Related Learning Experiences for students.

   b. Provide instructional mentorship to high school manufacturing teachers

      Rationale: Clackamas County high school manufacturing teachers identified a common set of technical competencies and used an instructional asset inventory to evaluate the extent to which their programs address the competencies. The asset inventory identified some gaps in curriculum and instruction, especially in the areas of Production Planning and Logistics. The Manufacturing Program Manager will provide, or coordinate with local manufacturers to provide, instructional mentorship focused on gaps identified in the technical

competencies. The Manufacturing Program Manager will spend approximately ½ their time providing instructional mentorship and developing a community of practice to support ***Outcome 1b*** - Improve manufacturing teaching methodology to better prepare students for careers in the manufacturing industry.

2) Expand manufacturing programs by increasing program capacity at Estacada, Sandy and Molalla High Schools

   Rationale: Estacada, Sandy and Molalla High Schools currently have manufacturing programs of study that are part-time. The part-time status limits student access, program content, and the scope of the program. Grant funds will support the expansion of these 3 programs by increasing the part-time staffing to full-time at Estacada and Sandy High Schools. Molalla High School's manufacturing teacher is already full-time, but teaches another subject part-time. As a result, the grant will support expanding the manufacturing program at Molalla High School by bringing Clackamas Community College faculty to campus to offer two manufacturing courses. Expanding programs at these 3 high schools supports ***Outcome #2 -*** Expand the pipeline of qualified young workers entering the manufacturing industry by increasing the capacity and scope of high school manufacturing programs.

3) Purchase manufacturing equipment to ensure each program meets the minimum equipment specifications identified in the C-TEC Manufacturing Equipment Inventory

   Rationale: As part of the Manufacturing Strategic Plan, C-TEC teachers identified a minimum amount of manufacturing and welding equipment that programs need to adequately teach the manufacturing competencies. The grant supports manufacturing programs acquiring equipment or upgrading facilities to meet unmet

needs on the C-TEC Manufacturing Equipment Inventory (Appendix 4). Purchasing equipment supports ***Outcome #3 -*** Upgrade instructional laboratories for high school manufacturing programs to better align with industry standard equipment

4) Provide instruction to manufacturing teachers on the Manufacturing Skills Standards Council's (MSSC) Certified Production Technician curriculum and certificate

Rationale: The Manufacturing Strategic Plan is based on aligning programs to the MSSC's Certified Production Technician competencies. MSSC's 3 day instructor training will provide high school teachers with the knowledge to effectively compare their programs to the competencies and develop strategies to add any new content needed to adequately address the competencies. The MSSC's instructor training tied to an entry-level industry certification supports ***Outcome #4*** - Improve the alignment of manufacturing skills taught in high school manufacturing programs to better support industry demand

Timeline

January 2014	▪ Hire Manufacturing Program Manager ▪ Develop recruitment materials and processes for 3 expanded manufacturing programs
February 2014	▪ Manufacturing Program Manager visits manufacturing programs to conduct needs assessment and begins outreach to businesses
March 2014	▪ 3 high schools recruit students for expanded manufacturing programs ▪ C-TEC completes prioritization of equipment needs and begins purchasing equipment ▪ C-TEC finalizes dates for 3-day MSSC professional development during the summer
April-June 2014	▪ Submit 1st quarterly report ▪ Expanded manufacturing programs work with CCC to establish Advanced College Credit agreements for new manufacturing courses ▪ Clackamas Community College negotiates with Molalla High School and finalizes course offerings for 2014-15 ▪ Manufacturing Program Manager convenes Manufacturing Community of Practice to share best practices and identify needs

	▪ Manufacturing Program Manager completes inventory of priority program needs ▪ Manufacturing Program Manager coordinates with manufacturing partners to identify summer internship or other professional development for teachers to meet instructional needs
July 2014	▪ Submit 2nd quarterly report ▪ Complete MSSC Instructor Training
August 2014	▪ Finalize equipment purchases and installation ▪ High School teachers update curriculum based on MSSC Instructor Training
September 2014	▪ Students begin participating in expanded high school manufacturing programs ▪ Manufacturing Program Manager convenes Manufacturing Community of Practice to share best practices and identify needs ▪ Manufacturing Program Manager provides high schools with list of Career Related Learning Experiences available during 2014-15
October 2014	▪ Manufacturing Program Manager coordinates celebration of National Manufacturing Day with series of Career Related Learning Experiences offered to students ▪ Submit 3rd quarterly report
December 2014	▪ Collect interim data about student participation in manufacturing programs
January 2015	▪ Submit 4th quarterly report ▪ Begin 2nd trimester of expanded manufacturing courses ▪ Manufacturing Program Manager convenes Manufacturing Community of Practice to share best practices and identify needs
April 2015	▪ Submit 5th quarterly report
June 2015	▪ Collect final data regarding: - Student participation in expanded manufacturing programs - Student participation in career related learning experiences - Updates to C-TEC Manufacturing Equipment Inventory - MSSC alignment instructional asset inventory - College credits or industry certificates earned ▪ Submit Final Grant report

<u>Evaluation</u>

C-TEC plans to gather data at multiple points throughout the grant to guide program decisions and investments. Data sources to measure progress for each Progress Marker are identified in the Evaluation Plan below.

Progress Markers	Evaluation Plan
Outcome 1a *- Strengthen business and industry connections to offer additional manufacturing Career Related Learning Experiences for students*	
▪ Workforce Investment Council of Clackamas County will employ a full-time Manufacturing Program Manager to serve as manufacturing liaison and mentor by February 2014 ▪ Clackamas County manufacturing programs will increase the number of students participating in career related learning experiences (job shadows, career days, internships, and industry tours) by 25% by June 2015	▪ Memorandum of Understanding in place between Clackamas ESD and WICCO ▪ Work Plan developed for Manufacturing Program Manager with specific, measurable targets ▪ Monthly reports from the Manufacturing Program Manager regarding outreach contacts and results ▪ Student participation rates in Career Related Learning Experiences (CRLE) gathered by registrations and sign-in sheets from CRLE events
Outcome 1b *- Improve manufacturing teaching methodology to better prepare students for careers in the manufacturing industry*	
▪ C-TEC will create a structured industry mentor program with identified goals and implementation strategies by September 2014 ▪ C-TEC will complete review and alignment of high school and college curriculum to the MSSC standards by February 2015 ▪ Clackamas County high school manufacturing teachers will identify at least two best practices strategies for teaching the MSSC competencies by August 2014	▪ Industry mentor program plan documented and agreed upon by all key with goals, priorities, and strategies identified ▪ Curriculum maps and instructional asset inventory completed by high school and college programs demonstrating program alignment to the MSSC standards ▪ Community of practice is convened to share best practice lesson plans and strategies aligned to the MSSC competencies ▪ Best practice manufacturing lesson plans compiled on C-TEC project website
Outcome 2 - *Expand the pipeline of qualified young workers entering the manufacturing industry by increasing the capacity and scope of high school manufacturing programs.*	
▪ C-TEC will increase the number of students participating in Clackamas County high school manufacturing programs by at	▪ Student enrollment numbers in manufacturing courses as reported in the student information systems – collected twice during the grant (interim and final)

least 150 students by June 2015 ▪ C-TEC schools will add at least 3 credit-based college manufacturing classes by June 2015	▪ Documented Advanced College Credit Articulation or High School Partnership agreement signed by high school and college partners ▪ Reports of college credits earned by high school students in manufacturing courses in CCC's Datatel system
Outcome 3 - *Upgrade the instructional laboratories for high school manufacturing programs to better align with industry standard equipment*	
▪ Clackamas County High School manufacturing programs will demonstrate at least a 50% increase in meeting C-TEC's minimum equipment standards, as evidenced by the Manufacturing Equipment Inventory by June 2015	▪ Documentation of equipment resources reported by each high school manufacturing program on the C-TEC Manufacturing Equipment Inventory
Outcome 4 - *Improve the alignment of manufacturing skills taught in high school manufacturing programs to better support industry demand*	
▪ At least 7 Clackamas County high school manufacturing teachers will complete the MSSC Certified Production Technician Instructor Training by October 2014 ▪ Clackamas County high school manufacturing teachers will demonstrate an increased alignment to the MSSC competencies as evidenced by a 25% improvement on the MSSC Asset Inventory by June 2015 ▪ Clackamas County high school manufacturing programs will demonstrate a 10% increase in college credits or industry credentials awarded to students by June 2015	▪ Certificates of completion earned by 7 teachers through the MSSC Instructor Training course ▪ Curriculum maps and instructional asset inventory completed by high school and college programs demonstrating program alignment to the MSSC standards ▪ Student performance on the MSSC Certified Production Technician certification assessment or documentation of other industry certification ▪ Reports of college credits earned by high school students in manufacturing courses in CCC's Datatel system

Partnerships (25)

The ***Revitalization of Clackamas County Manufacturing Programs*** project was developed by and requires the commitment of a diverse range of industry, workforce, and education partners to be successful. The primary goal of all the partners participating in the project is to address the growing need to fill the pipeline of workers in the manufacturing sector. Beginning in 2012-13, C-TEC convened the Manufacturing Education Alliance to shape C-TEC's Manufacturing Strategic Plan and, ultimately, the grant proposal.

Manufacturing representatives that included Blount, Enoch Manufacturing, Manutek, Northwest Technologies and others provided background about skills needs, job descriptions, and industry trends. Manufacturers committing to the grant will provide Career Related Learning Experience opportunities, teacher mentorship, and guidance about program content.

Workforce partners include the Workforce Investment Council of Clackamas County (WICCO), Clackamas County Business Alliance, and the Columbia Willamette Workforce Collaborative who serve as conveners and represent the collective voice of business and industry as it relates to education and training needs. WICCO will host the Manufacturing Program Manager position to ensure that it remains consistent with business needs. WICCO and the broader Columbia Willamette Workforce Collaborative have developed the *2013-15 Manufacturing Workforce Plan for the City of Portland, Multnomah, Washington, Clackamas, Cowlitz and Wahkiakum Counties*. WICCO will serve as a liaison between the grant project and the Columbia Willamette Workforce Collaborative to ensure alignment and identify leverage points.

Clackamas Community College (CCC) is a key partner who ensures that the high school programs are leading to industry and postsecondary credentials that lead to high-wage, high demand careers. CCC provides opportunities for high school students to earn college credits and begin a career pathway while still in high school. CCC will contribute significantly to the grant activities by offering manufacturing courses at Molalla High School, providing articulation support to all other high school programs, aligning postsecondary programs to the MSSC curriculum, and evaluating the potential to become a certification and testing site for the MSSC.

High school partners will be implementing the majority of the grant activities. C-TEC's proposal includes 4 high school programs that will be direct recipients of the grant funds – Colton, Estacada, Molalla and Sandy High Schools. These 4 high schools will benefit from the expansion of their manufacturing programs and/or the purchasing of equipment to enhance their programs. In addition, 2 high school programs, Canby High School and the Sabin-Schellenberg Center, are indirect recipients of the grant activities. Their teachers will participate in mentoring activities and alignment to the MSSC competencies, but will not be funded directly by the grant. Commitment letters from these two schools are included in the proposal.

The grant activities would not be possible without the collaboration of all the partners in the proposal. The efforts to strengthen Clackamas County's high school manufacturing programs and work toward C-TEC's Manufacturing Strategic Plan are supported by all the partners. The ***Revitalization of Clackamas County Manufacturing Programs*** project funded by this grant proposal will allow us to make significant progress toward our goals.

Bonus Narrative

Focus on Regional, Statewide or System Changes

The ***Revitalization of Clackamas County Manufacturing Programs*** project is a regional approach that will impact manufacturing programs at 6 high schools and Clackamas Community College. The grant activities support regional strategies for Clackamas County that also contribute to a larger regional effort through the Columbia Willamette Workforce Collaborative's *2013-15 Manufacturing Workforce Plan*.

The grant activities support the C-TEC region's Manufacturing Strategic Plan and provide opportunities for systems change in the way the schools and businesses in the manufacturing sector connect and work together to improve the workforce pipeline. C-TEC and its partners will create a new model of collaboration by agreeing upon a common set of competencies, providing mentorship and professional development to adequately teach the competencies, and personnel to engage manufacturers more directly in the instructional delivery of manufacturing CTE programs.

C-TEC is committed to partnering with the Mt. Hood and Portland area CTE consortia to align programs, leverage professional development opportunities, and pursue additional opportunities to share resources for manufacturing program improvement. C-TEC and the other CTE programs in the region will work together to support the *Columbia Willamette Workforce Collaborative's 2013-15 Manufacturing Workforce Plan*.

C-TEC has laid the groundwork. All the partners are committed. ***Revitalization*** grant funding will make this regional approach possible.

BUSINESS, INDUSTRY, LABOR AND POSTSECONDARY EDUCATION PARTNERS

The following individuals and/or organizations have reviewed, discussed, and agreed to their part in implementing the project proposed in this grant application:

	Name	Title	Organization
1.	Scott Giltz	Dean of Technology Healthcare and Workforce	Clackamas Community College
2.	Kim Parker	Executive Director	Workforce Investment Council of Clackamas County
3.	Julie Hugo	Training Coordinator	Blount, International
4.	Paul Miller	Owner	Manutek, Inc
5.	Paul Young	Community Support Manager	Enoch Manufacturing
6.	Eric Sale	CEO	Northwest Technologies
7.	Peter Watts	President	Clackamas County Business Alliance

A letter of commitment must be included for each partner listed above. A commitment letter addresses what specific resources (financial, in-kind, materials, expertise, etc.) the partner will contribute to the project. The letter also addresses the commitment of the partner beyond the life of the grant. Commitment letters demonstrate a greater involvement in a project than letters of support