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

Project Name: Industry Partners + 21st Century Facilities = Student Success
Amount Requested: $309,533

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	Participating High School or Middle School Name (add additional rows as needed)	Lead Contact Name	Grade Levels	Student Enrollment
1.	Sutherlin High School	Justin Huntley	9-12	431
2.	Sutherlin Middle School	Terry Prestianni	7-8	200
3.				

Please check all that apply:

_X_ This project directly involves Career and Technical Student Organizations
Please note page of proposal that describes this relationship. Pages: __4, 31__

_X_ This project has a clear connection to STEM
Please note page of proposal that describes this relationship. Pages: __7, 15__

OVERVIEW: PURPOSE AND SCOPE

Sutherlin High School is poised to revitalize its career & technical education (CTE) programs by significantly increasing our ability to prepare students for placement in post-secondary education and careers in 21st century manufacturing and fabrication. This will involve the Agricultural Science & Technology Program of Study – Power, Structure, and Technology pathway; the Manufacturing-Woods program; and the Information-Communication Technology program in an integrated approach to developing skills in students for high-wage, high-demand jobs.

This project is based upon partnerships with local industry members in providing two critical components to students enrolled in these CTE programs: 1) innovative instruction in relevant advanced-technology fabrication skills, and 2) opportunities for experiential learning through internship and placement. Instruction will be done through enhanced curriculum, using relevant technologies. Internship and placement will be a critical component of this project as well, with qualifying students gaining valuable experience and preparation for their future careers.

In working with these potential partners in developing this redesigned program, industry experts identified two areas where students need instruction but the school lacks the ability to do so: advanced fabrication with modern equipment and processes, and experience in computer-numerical-controlled (CNC) processes. The CTE Revitalization grant would be utilized to acquire the equipment necessary to successfully instruct students in these areas. This will be crucial in order to prepare students for participation in experiential learning opportunities with industry partners, as well as entry into post-secondary education programs and careers.

INNOVATION

This CTE Revitalization project brings a great deal of innovation to the existing CTE programs. The move to incorporate a significant amount of instruction in CNC moves the curricula into the 21st century and will align student skills with clear industry needs while addressing Common Core State Standards and STEM components. The use of equipment such as the Lincoln VRTEX virtual welding simulator uses green technology that provides detailed feedback and analysis on abilities and skills. Leaps forward in technology and industry equipment ensures the education is relevant and prepares students for college and career, and can happen at a scale that is impactful.

The commitment of partners to provide presentations and instruction to students in-class on a regular basis is a unique and powerful way to advance instruction for students across the curriculum. This will be a regularly occurring event throughout the year with up to 18 presenters annually. These are more than just guest speakers, but structured, relevant instruction. The presentations will be recorded and uploaded to a CTE program-specific YouTube channel for use with other students, potentially at other schools, increasing the scope of influence of this project.

Another way this project is raising the bar is in creating the process of placement. Requiring students to be proficient in specific skills before qualifying for internships, as well as a rigorous application and interview process, guarantees they are prepared and partners are gaining valuable potential employees. Students will be ready for more than fabrication: problem solving, critical thinking, employability skills, and science, technology, engineering, and math (STEM) skills will all be part of the learning experience.

INTEGRATION

This project integrates two existing Programs of Study and creates a new one in a way that incorporates all three into one well-coordinated, multifaceted, over-arching concept. One innovative feature of this integration is the creation of a single advisory committee that oversees all of programs involved, instead of three separate ones. This collaborative approach moves away from the conventional stand-alone programs that compete for students and fuses these multiple pathways. This will be facilitated by the forward-thinking, nationally-recognized instructors as well as administration who are receptive to business and industry needs and trends.

This integrated strategy carries through the entire project: the grant proposal is to acquire industry-grade, state-of-the-art equipment in CNC and manufacturing-fabrication that will be used to teach these high-demand skills with the help of industry partners providing direct instruction to students, who will be able to participate in experiential learning opportunities with these same partners. The CNC instruction will be cooperative between instructors and across programs – each instructor will be proficient in all the different types of CAD-CAM software and equipment being utilized. Projects developed in each class can involve processes and students from multiple programs, involving technical skill, problem solving, and STEM integration.

The Career & Technical Student Organizations (CTSO's) will engage students in each program and bring them together for student leadership and skill development. This team-approach will trump the competitive nature of elective programs into a true CTE systematic approach. Students can engage across CTSO's and benefit accordingly. Every outcome and component blends together into one cohesive project.

EXPANSION AND GROWTH

The scope and outcomes of this revitalization project will accelerate the growth of CTE at Sutherlin High School and the region, standing as a model and example for the need and value of career and technical education. These innovative approaches will accommodate more students than what is currently possible in our facilities. Students will be attracted to these programs because of the additional capabilities to create and learn with state-of-the-art equipment. The final products that can come from these programs will appeal to students of all types; the ability to see learning come to life in a kinesthetic and visual way is engaging to many. This is additionally true for students typically underserved – economically disadvantaged, nontraditional genders, first-generation college students, those with disabilities, and talented and gifted to name a few. In turn, CTSO participation will increase as more students become involved into these programs.

The ability to connect students, parents, and community to this project will also facilitate the growth and expansion of CTE. Components such as the VRTEX system are easily displayed for the public to see. CNC is an intriguing process that can be used to fabricate high-quality products that will create interest and prestige for students and the program. The commitment of partners validates and enhances what is happening in the classroom and laboratory. All of this can be communicated to the target audiences in a variety of ways that will not only explain the benefits of CTE but will increase support from community individuals and organizations that can lead to these same successes influencing programs in other school districts, furthering strengthening the positive educational and economic impact this project can have.

EXPERIENTIAL LEARNING

An innovative, integrated approach to instruction in CNC and advanced technologies is half of this project, and the significant expansion of experiential learning is the other. While students gain experience from project-based learning, this is limited compared to where industry partners can take them. The development of internships, job shadows, and industry tours will be the only program like it currently within the school. Every student will complete a minimum ten-hour supervised experience yearly.

Several partners have committed to providing opportunities for in-class projects that will develop problem-solving in students and hone fabrication skills. This type of project-based, real-world learning is the hallmark of CTE and valuable, but not always easy to achieve. These opportunities will help students in meeting requirements for graduation, explore pathways, and gain needed authentic learning experiences.

The process of attaining proficiencies and being selected for these placements will be equally as valuable. Students will gain invaluable preparation in attaining future jobs by being trained in completing job applications, developing a resume, and participating in a job interview. These will all be steps in becoming engaged in internship opportunities. We anticipate many of these internships will lead to jobs, either with the partner or other industry members. As well, it helps industry partners identify qualified, capable, and trainable employees.

In short, we expect students completing these programs to stand out as applicants, interviewees, and employees once they enter the workforce. Between classroom curriculum, CTSO engagement, and experiential opportunities, we are confident this will be the result.

OUTCOMES AND PROGRESS MARKERS

The Sutherlin High School CTE Revitalization Project will achieve the following outcomes:

Outcome 1: *Students will gain intermediate and advanced skills in computer operation and design technology through CNC and CAD-CAM instruction.*

Rationale: Today's manufacturing and fabrication involves a great deal of automation, computer-controlled processes, and highly-technical applications. For many of our partners, they are experiencing a workforce shortage that is technically skilled[1] and that can do more than assembly line style work; they need problem solvers who can utilize the advancing technology to complete tasks and achieve goals.

Goals	Project Markers
1.1: CNC instruction will be infused throughout all of the CTE courses in this project *(increases rigor - technical skill)*	- Instructors train with experienced individuals to develop competency in teaching CNC; all instructors become trained by August 2014 - Curriculum is developed and incorporated into all courses by September 2014 - Collaboration ties all three Program of Study curricula in CNC instruction by June 2015
1.2: STEM is integrated into all CNC instruction *(increases rigor - academic content)*	- Partner presentations focusing on STEM related careers in manufacturing and fabrication are included in CTE courses by June 2015 - Inquiry project is developed by September 2014 - All instruction is tied to Oregon CTE Skill Sets and/or Common Core State Standards
1.3: 100% of program completers will be proficient in developing a CNC design and creating it with the appropriate technologies within their CTE Program of Study *(increases career opportunities)*	- Proficiency-based projects and assessments for CNC design and operation are developed with industry and education partners by September 2014 - All program completers are evaluated, beginning with the initial group in June 2015

[1] See Appendix – Part B: Economic Impact/Workforce Development Evidence p56-57

Outcome 2: *Students will demonstrate advanced fabrication skills.*

Rationale: Partners have identified that students need to be proficient in using the equipment found in industry to complete tasks and fabricate products. Providing the opportunity to gain these abilities now makes the student more valuable in the workforce and their skills more employable. These skills are so limited in the workforce currently that some partners have seriously debated opening their own welding schools in order to develop a competent workforce.

Goals	Project Markers
2.1: Industry partners will deliver two presentations per month in the CTE courses that are industry-skill or employability-skill relevant *(improve/sustain partnerships)*	- A schedule of topics and presenters is developed by February 2014 that ties together instruction and industry - Presentations are recorded and posted online for use by other students, instructors, and schools within two weeks of each presentation, creating an online virtual library of industry lessons
2.2: 100% of welding students will demonstrate significant improvement in virtual welding evaluation scores *(increases rigor - technical skill)*	- All students complete pre- and post-assessment using the VRTEX Virtual Welding System - Feedback from VRTEX utilized to focus instruction

Outcome 3: *Students meeting proficiencies will engage in experiential learning opportunities which may include project-learning, job shadows, internships, or supervised experience placement projects.*

Rationale: Experiential learning is the most effective way for students to gain understanding and learning of opportunities for future careers in manufacturing. Because partners are providing placement opportunities, it is important the CTE programs are putting prepared students into those internships; proficiency-attainment will be required in order to participate in these. Supervised Agricultural Experience

(SAE) is already an established and required component for students in other Agricultural Science & Technology pathways; this can be expanded and utilized for students in the Power, Structure, & Technology pathway as well.

Goals	Project Markers
3.1: 100% of students enrolled will complete a minimum 10 hour experience in industry yearly *(increase career opportunities)*	- Requirement and guidelines communicated to all CTE students by February 2014 - Documentation of experience completed by every student by June 2014 - All students enrolled in CTE in the 2014-2015 school year document 10 hours or more
3.2: 100% of CTE students will develop a resume and learn how to complete a job application and interview *(increase career opportunities)*	- CTE courses incorporate resumes and job applications into curriculum by June 2014 - Partner presentations focus on employability skills and steps to gain a job at least twice yearly
3.3: 15 students will be placed in summer internships with partners and 15 in after-school experiences *(improve partner relationships)*	- Available internship placements are confirmed by February 2014 - Requirements/expectations for each placement is determined by April 2014
3.4: Students will develop clients, products, and sales through entrepreneurship partnership with other student-run businesses at SHS *(improve workforce readiness)*	- Students will market $4,000 worth of designs and fabrication projects through the Sutherlin FFA Plant Sale by 2015
3.5: Students will experience at least two different workplace environments annually *(increase employability)*	- Students will be part of at least one industry partner on-site tour through course instruction by June 2014 - Students will organize and execute their own individual experience by June 2014

Outcome 4: *Student engagement and involvement within CTE programs will increase.*

Rationale: The move to clear pathways through the curriculum, expanded offerings because of upgraded facilities, and greater opportunities for placement in

college and career programs following high school all mean that student participation can not only increase in terms of number of total students, but also how many credits each student earns while part of the CTE programs.

Goals	Project Markers
4.1: Every SHS student engages in at least one CTE course during high school *(improve student access)*	- Number of middle school students signing up for 9th grade CTE courses will increase by 25% by June 2014 over the previous year
4.2: A minimum of 60% of SHS students are enrolled in two or more credits (two years) of CTE coursework while at SHS *(improve student access)*	- All courses enroll 85% of maximum capacity by September 2014 - All courses achieve 95% projected maximum enrollment for September 2015 by June 2015

Outcome 5: *Students will meet requirements for earning college credit through articulated classes and be prepared for entry into post-secondary education programs.*

Rationale: Oregon's goal of 40-40-20 will be addressed as we support students who will enter into two- and four-year post-secondary programs. Students who earn college credit in high school are more likely to enter and complete a post-secondary program. Many high-skill jobs require training students can begin in high school with dual credit classes. Partnerships with community colleges will make this possible.

Goals	Project Markers
5.1: Every CTE pathway will be articulated with a community college program *(improve workforce readiness)*	- Every CTE pathway aligns with college course objectives by June 2014 - Updated articulation agreements are signed for all three CTE Programs of Study by October 2014
5.2: A minimum of 75% of program completers will earn college credits *(increase student access)*	- Equipment for instruction is acquired by February 2014 - On-site meetings with community college partners are held in SHS facilities by April 2014

	- Aligned curriculum is in place by September 2014 - Students complete authentic assessments of learning to validate college credits

CTE PROGRAMS OF STUDY DESIGN

This project is unique in that it runs across the established two CTE Programs of Study currently at SHS and will create a new Program of Study for the Manufacturing – Woods program. This enhances the project because it will build upon the strengths of each, while integrating them into an aligned, cross-curricular program that will prepare students for a variety of careers and college programs.

This revitalization project will create a new advisory committee who will oversee the Agricultural Science – Power, Structure, and Technology pathway, the Manufacturing – Woods program, and the 3D Design coursework in the Information-Communication Technology program as one integrated "multi-program." This unconventional approach will better utilize their expertise and resources in a more effective manner than the current, traditional setup of advisory committees for each Program of Study. The Manufacturing and Advanced Fabrication Technology advisory committee will be made up of several of the project partners. With manufacturing being the largest employer in Sutherlin, and a clear shortage of qualified workers for high wage jobs[2], this involvement and guidance is key for workforce development.

Sutherlin High School has been an innovative leader in its existing Programs of Study, and will continue to do so. The Agricultural Sciences & Technology (AST) program has nearly doubled in student enrollment in the past six years, creating four

[2] See Appendix – Part B: Economic Impact/Workforce Development Evidence pp56-57

distinct pathways for students to engage in throughout high school and into postsecondary education or the workforce. It became an easy transition to adopt the statewide Program of Study for AST when it was developed. The coursework also incorporates academic content, including offering science credit for some courses. The instructor, Wes Crawford, has received state and national awards for innovative teaching and instructional practices.[3] This type of approach will be implemented with this project as well. Academic content is a natural fit into the advanced, technology-based processes and skills that will be taught.

Articulation is a very successful part of our current Programs of Study, with over 25 credits of college coursework available for students who choose to excel and engage in their selected pathways. Additional opportunities for college credit will be added with the expanded abilities to align the teaching of skills and meet course objectives. It is crucial all students have opportunities to participate in areas where they have interest and will actually benefit from the earned credits, and the learning is rigorous. The new Manufacturing – Woods Program of Study will develop agreements with community college partners to add these opportunities, which are currently not available for students enrolled in those courses.

Because this CTE revitalization project will greatly enhance the capabilities of our facilities through modern equipment acquisitions, authentic assessment of student abilities and learning will be applicable to industry expectations. New technical skill assessments for students in the welding and Manufacturing – Woods courses will be developed and validated through the Program of Study, advisory committee, and

[3] See Appendix – Instructor Biographies p62

regional coordinator. The newly acquired technology will also allow for consistent evaluation in welding processes with the VRTEX virtual welding system.

The two components of this project will help provide student support services through both the instruction by industry partners in the classroom and curriculum, as well as the career learning and exposure to opportunities through the experiential learning activities. This will be coupled with career preparation and planning through the CTE programs, and will be a valuable result of this project – helping students realize the many opportunities they have for future careers and employment.

UNDERSERVED STUDENTS

We will benefit several groups of underserved students through the implementation and continuation of this project. SHS defines underserved students as primarily free-and-reduced lunch qualifying, and first-generation college going students; other groups of traditionally underserved students are identified here as well. Many of these groups are currently being served through these programs, and the revitalization will increase and expand their benefit; targeted efforts to increasing and maintaining their engagement are integral for expanding the influence of this project. These populations and strategies for engagement are described in the table below.

Group	Activities	Rationale
Economically-disadvantaged students (free and reduced lunch)	• Advanced technology skill training • Local experiential learning opportunities • Job placement • Dual credit courses	Providing opportunities for these students to gain skills, be engaged in job training and placement, and put them on the path for post-secondary education will make it more likely they will attend college and enter into these careers

First-generation college-going students	• Dual credit courses • Connections to college instructors • Exposure to careers requiring college degrees	Dual enrollment in community college will lead to college credits, resulting in greater likelihood of college attendance[4]
Non-traditional genders	• Integrated instruction and activities across programs • Targeted recruitment to female students • Recruit industry partner instructors representative of non-traditional genders	Continued cross-connections between courses will introduce these groups to the opportunities available; advanced students who are of these underrepresented genders will be involved in presentations for recruitment as well as help mentor new students who enter the programs
Talented and Gifted (TAG) students	• Opportunities for advanced fabrication and design in 3D CAD-CAM • Application of STEM learning • Connection to STEM partners	We often focus on students with challenges, but we forget about students who are challenged by the lack thereof. Creating ways for these students to apply their abilities in areas that have no ceiling is valuable – they can go with it as far as they wish.
Students with disabilities	• Partnership with SPED instructors • Differentiated instruction	Hands-on learning with incorporated academic skills creates opportunities for these students to succeed along with every student

OREGON DIPLOMA CONNECTIONS

These CTE Programs will help students earn the diploma in a variety of ways. The first way will be with credits required for the diploma; SHS outlines three credits that are met by CTE courses. The expanded capabilities in this project will accommodate more students and be more applicable to a greater variety of career interests.

[4] "Dual Enrollment: A Pathway to College and Career Readiness." AdvancED |. N.p., n.d. Web. 22 Oct. 2013.

Beyond this, there are a great number of ways that this CTE revitalization project will benefit students in preparing to earn the Oregon Diploma. The most important is with Personalized Learning. The pathways established and/or strengthened create clear options for students in developing their educational plan and profile. The connections to post-secondary education and careers are invaluable, and will be the strongest in the school. There will be numerous possibilities for career related learning experiences (CRLEs) – the strong emphasis on experiential learning along with the requirement for every student to document ten hours of experience will easily meet the expectations and needs for CRLEs for students. As well, the contextual nature of CTE allows for extended application of learning in a real-world, authentic manner that makes education more valuable to participants and better prepares them for life after SHS.

We expect our CTE programs to also benefit students in attaining Essential Skills and meeting Common Core State Standards. Our instructors do an effective job of incorporating reading, writing, and mathematics into the contextual learning of manufacturing and fabrication. Research shows students engage better in reading, writing, and math when it applies to areas of their interest[5]. The advances this project will make create more opportunity for the inclusion of technical reading and writing, and applications of math – particularly geometry and some algebraic functions in CNC processes. Instructors will work with math and writing instructors to best incorporate these aspects. This will be supported by STEM partners and will make connections to careers. As we approach implementation of the Smarter Balanced assessments, applied learning is crucial. As well, the other essential skills that have not become

[5] Johnson, Elaine B. Contextual Teaching and Learning: What It Is and Why It's Here to Stay. Thousand Oaks, CA: Corwin, 2002.

graduation requirements will be supported, particularly the speaking and listening, technology use, community engagement, and personal management/teamwork skills.

SUSTAINABILITY AND COMMUNICATION

Sustainability of the Programs - This project will be easily sustained by the school district and its partners. One of the best attributes of the design of this proposal is that it will live on well past the grant funds requested in this application. We are confident this revitalization will last for years to come, benefitting thousands of students over the course of its implementation. This proposal depends upon the grant for the acquisition of state-of-the-art, industry-grade equipment for teaching fabrication and CNC processes. Our partners will provide expertise, training, and direct instruction for many years.[6] Professional development opportunities will be supported through Perkins funds and industry partners. Materials will be donated by local partners as well. The experiential learning opportunities will be coordinated through the instructors of each program. Clearly, this project is poised to be a long-term and revolutionary improvement in the preparation of CTE students for college and career – the key will be the initial facility set-up that this grant can make possible.

SHS currently has three highly qualified, innovative, and nationally-recognized[7] instructors who are engaged in the areas described by this proposal. Even with the significant decreases in statewide funding, the school has been committed to staffing these positions, although they have not all been full-time as student participation has fluctuated. The revitalization effort will increase participation in all three CTE programs

[6] See Partner Commitment Letters for specific statements of long-term commitment pp38-53
[7] See Appendix – Part D: Instructor Biographies pp62-64

of study, and the school is committed to providing the full-time faculty to teach these courses. The industry instructors are all in-kind donations by the partners, and will create no real cost to the school district beyond materials.

In addition to the personnel, the school has shown a commitment to maintaining operating budgets for these programs. Administrators have even sacrificed in other areas to be able to maintain budgets for consumables. Repairs and maintenance are also budgeted items that the school balances between service professionals and their own maintenance staff. These will continue and will be able to cover the increased expenses of additional, advanced machines. As well, the new welding machines in particular will be more efficient, using a great deal less electricity through inverter technology versus the old and outdated transformers.

Materials for instruction and project learning will be sustained through partners' contributions, and income from completed projects and custom jobs taken on. This last approach has the highest potential for innovation and employability skill attainment. It is much more valuable for students to work with customers/community members to design, create, and finish projects that will be utilized; this requires problem solving, people interaction, teamwork, and business skills. The school will support consumables budgets as well.

Sustainability of the Partnerships – the partnerships we have developed in this project are committed for the long term. We are fortunate to have many key contributors with an array of ways to support this program, and this lends to ensuring we do not 'burn-out' any one group or set of individuals. Many hands make light work, and give us the endurance to make this happen for the long-term.

There are several strategies that will be employed to sustain partnerships. All partners will be asked to evaluate the program from their perspective, making sure we are meeting expectations and SHS is providing their end of the commitment. These evaluations will occur in the fall and spring of each school year. The advisory committee will rotate members over time, further engaging more and more partners as it meets three times annually. All project partners will be invited to a yearly dinner that will recognize contributions, reward student success, and share all of the positive impacts the CTE programs are making. Partners will also be highlighted during the Sutherlin FFA banquet, demonstrating to the hundreds of community members present how these businesses and individuals are contributing.

Additional partners will be recruited to the program as well. This will be done through the advisory committee, and will allow for expanded opportunities for student learning both in courses and in placement. The goal is to add three partners each year, while maintaining all current partners. We recognize the time may come when a partner needs to decrease their participation in the future, but by planning to systematically add businesses and organizations to these programs guarantees the longevity and sustainability of the partnerships.

Communication – Keeping partners engaged and up-to-date with the status of the program will be key in sustaining the program. As well, we will keep current and potential students and parents up to date with the benefits and opportunities within the program. We will also effectively engage the community through several strategies that will communicate what SHS and our partners are accomplishing and contributing through the CTE Revitalization. Components of the communications plan are outlined

in the table below.

Target Audience	Medium	Rationale
Current Partners SSD Admin	Newsletter – three times/year	Updates on enrollment, advisory committee business, examples of student success
Current Partners	Individual Meetings – twice yearly	Touching base with each partner individually allows for evaluation of the program/partnership, input, and updating partners with information
Students Parents School Board	CTE Exhibition Night	The CTE Programs will lead the redesign of the traditional spring conferences into an open-house format where CTE Programs will showcase student results and products; designed for current and incoming students and parents
Students Parents Community	Brochures/Flyers	Materials for new and continuing students will explain the pathways established in these programs of study and the benefits of engaging in these courses
Students Parents Partners Community	SHS Website/ Sutherlin FFA Website/Social Media	Established websites for the school and FFA chapter already generate traffic; highlighting opportunities for students, contributions of partners, and success of CTSO activities benefitting from this project will be widely seen
Community	Douglas County Fair FFA Exhibit	Newly developed 'FFA Way' is a centerpiece of the main building at the DC Fair, which will be able to exhibit welding/woods fabrication projects completed by students, as well as displays that explain the many components of the AST program, including STEM. Special focus on this project if implemented.
Community	Press Releases to local media	Periodic press releases will be sent for activities such as the SHS Skills Competition for FFA and SkillsUSA members, highlights of successful placements, results of CTSO competitions, emphasizing student entrepreneurship activities, etc.

TIMELINE OF ACTIVITIES

The activities required for the success of this program are outlined in the table below, along with expected start/completion dates and relevant outcomes.

Activity	Start/Completion	Goals Achieved
Final decisions of curriculum, facilities, and equipment by instructors/ partners	January 2014	Goals - 1.1, 1.2, 1.3, 2.1, 2.2, 5
	Rationale: partners' expertise on instruction, skills, and industry equipment is vital to identifying the equipment that will successfully prepare students for careers	
Equipment acquisition: CNC, state-of-the-art fabrication, relevant support materials, infrastructure upgrades	Jan - Feb 2014	Goals - 1.1, 2.2, 5.1
	Rationale: the technology and equipment this grant supports is paramount in being able to provide instruction in these high-demand skill areas for economic development	
Industry Partner Instruction begins	February 2014	Goals - 2.1, 3.2
	Rationale: this authentic, highly-relevant teaching will accelerate skill-attainment while connecting students to jobs, college opportunities, STEM, and more.	
Initial new Advisory Committee meeting with follow-up communication with partners	February 2014	Goals - 1.3, 2.1
	Rationale: initial meeting will establish protocol and plans, and be communicated to all partners to keep everyone on board	
Industry tours	March - April 2014	Goals - 3.1, 3.5
	Rationale: all students will see opportunities for employment and the application of both technical skills and STEM through visits to industry partners operations	
CTE Exhibition Night is held along with school-wide conferences	April 2014	Goals - 4.1, 4.2
	Rationale: showing off the tangible results of student learning and success will validate learning to community while attracting future students and parents	
Middle School Field Day held at SHS	April 2014	Goals - 4.1, 4.2
	Rationale: exposing MS students to activities and opportunities in these programs increase participation and engagement	
Involvement with Sutherlin FFA Greenhouse entrepreneurship sale	April 2014	Goals - 3.1, 3.4
	Rationale: additional skills in entrepreneurship and	

	employability gained through community engaging activity; also sustains program through funds
Local CTSO Skills Competition	May 2014 Goals - 1.3, 2.2, 3.2 *Rationale: opportunities for students to engage in CTSO's through the demonstration of skills*
Summer Internship Placement begins	June 2014 Goals - 3.3 *Rationale: these experiences will train future workforce participants as they work with partners*
Second Advisory Committee meeting with subsequent communication with partners	June 2014 Goals - 1.3, 2.1 *Rationale: review of initial semester, project status, plans for changes/expansion into fall 2014*
Advanced professional development/training for instructors through conventional avenues and with local partners	June – August 2014 Goals - 1.1, 1.2 *Rationale: maximize capabilities of new technology, equipment in the instruction by preparing instructors with the help of professional development, partners*
FFA Way Display at Douglas County Fair communicates entire project to public	August 2014 Goals - 4.1, 4.2 *Rationale: communication of project gains and outcomes to the general community through the exhibition of student production and success will expand influence of CTE*
Industry instruction begins with new school year	September 2014 Goals - 2.1 *Rationale: full implementation of all capabilities from the beginning of the year, with all partners engaged, instructors trained, and equipment acquired/installed will be impactful*
Participation in SkillsUSA, FFA competitive and leadership events	April-May 2015 Goals - 3.2, 3.4 *Rationale: advancement of participation at local level to regional and state competitions/activities in newly expanded areas included in this project will increase student skill*
Students complete initial TSA/ other evaluations	May 2015 Goals - 1.3, 2.2, 5.2 *Rationale: data will demonstrate student skill attainment, gains in learning, and employability and be used for next year*
End of year evaluation	May 2015 Goals - all *Rationale: full-year evaluation, final reports to ODE and preparation for continued implementation in 2015-2016 school year with partners*

EVALUATION

The success of this project will be evaluated and measured using the following methods and strategies.

Method	Goals/Markers	Rationale
Technical Skill Assessments (TSA) *Spring 2014, 2015, continued annually*	Goals 1.3, 2.2	Current and newly-developed TSA's will indicate student skill-attainment and learning in fabrication, CNC, and related industry skills.
Student Surveys *Jan 2014, June 2014* *Sept 2014, June 2015*	Goals 4.1, 4.2	Student insight will provide data on how well the participants are engaged and gaining from the course. Pre- and post-surveys will track changes in perceptions regarding careers and opportunities
Partner Surveys/ Interviews *Spring 2014, Fall 2014, continued annually*	Goals 1.1, 2.1, 3.1	The expertise provided by partners will let us know how well partners are being served as well as use their perspective in evaluating the student learning and outcomes
Industry Shop Visits *Regularly beginning March 2014*	Goals 1.1, 2.1	Industry partners during class time will evaluate student performance, be able to make recommendations for change
Review of Student Experience Documentation *June 2014, January 2015, continued regularly*	Goals 3.1, 3.2, 3.4	A careful review of the documentation of student experience hours, reflections, and learning will determine the efficacy of the industry experience students gained, whether through direct placement, job shadow, out-of-class projects, etc.
Intern Evaluation *August 2014, December 2014, continued regularly*	Goals 3.2, 3.3	An assessment tool will be developed to evaluate the performance and preparedness of interns placed with partners
Parent Surveys *Spring 2014, Fall 2014* *continued semi-annually*	Goals 4.1, 4.2	Parent surveys will report on the effectiveness of the communications and student success

Skill Performance Assessment by Collegiate Partners *Spring 2014 continued annually*	Goals 2.2, 5.1, 5.2	College partners evaluating student performance of program completers will ensure students are meeting expectations and are prepared to enter into post-secondary programs
National Program Quality Standards (NPQS) Evaluation *Fall 2014*	Goals 1.2, 3.1	This validated tool of the National FFA Organization will be used in coordination with Oregon State University Agricultural Education faculty to strengthen the overall program

PARTNERSHIPS

Partnerships are the second key to this CTE Revitalization project. The ability to bring in industry experts on a regular basis for instruction has the potential to move the level of education and training happening in these CTE courses to a much more effective level. This instruction serves both students and industry, as the learning will prepare students for placement in experiential learning opportunities where they can purposefully contribute through the applications of these gained skills.

Our partners are providing a significant amount of time and effort to make this possible. This leverages the equipment acquisition the CTE Revitalization grant would make possible so this training can happen, and pushes this project beyond just a simple tool-buying endeavor to a comprehensive, game-changing evolution that will literally provide a future for many Sutherlin High School students.[8]

Great Northern Trailers – This Sutherlin-based, custom trailer manufacturer has committed to providing multiple opportunities for CTE students. This includes in-class instruction, providing expertise and material for projects student can fabricate, and

[8] See Partner Letters of Commitment pp38-53

placement positions for after-school and summer. Much of the design for internships and job opportunities has been developed with their guidance.

North Star Fabrication and Machine – North Star specializes in high-end, customized fabrication jobs and solutions for all over the United States. They emphasize the need for problem-solvers who can not only follow a plan, but also create solutions for new challenges. The Operations Manager did an evaluation of the current facilities at SHS, with many of the equipment upgrades being based on these recommendations. They also were the first to commit to providing lessons throughout the school year, which has now developed into a multi-partner, sustained endeavor.

Roseburg Forest Products – The largest employer in Douglas County, RFP boasts some of the highest-capacity mills and manufacturing plants in North America. The diverse jobs RFP need to fill makes them very interested in helping to develop potential employees. As well, the engineers and scientists employed by RFP make them a valuable STEM partner. Managers suggested the proficiency-based certification for potential interns, and are committed to providing instructors, materials, and experiential learning. Over 25% of current RFP employees are over 55, and they offer bonuses for new hires in areas this project would prepare students for.[9]

Orenco Systems – The largest employer in Sutherlin designs and manufactures innovative wastewater system solutions. A highly diverse company who does business the world over, they involve a great deal of manufacturing diversity, particularly in CNC processes. Orenco is one of the STEM partners in this project, employing a large number of engineers and scientists engaged in design and research. Orenco will provide instruction/presentations and entry-level placement.

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[9] See Appendix - Part B: Economic Impact/Workforce Development Evidence p57

Woodgrains – Woodgrains is a custom woodworking and cabinet shop in Sutherlin. Within the last eight years the owners have made a leap forward in manufacturing technology, with the majority of the processes being CNC automation. They provide expertise in CNC operations, expertise, and placement opportunities.

Umpqua Community College – Our local community college has proven to be a positive supporter of multiple aspects of the CTE program. The lead welding instructor audited the teaching facilities at SHS and made recommendations for instructional machines and set-up. UCC will also provide instruction/ presentations, evaluation of students preparing to enter post-secondary programs, and college credit articulation.

FCC Commercial Furniture – This local company has a huge national footprint, manufacturing a diverse set of the furnishings that go into commercial restaurants. With expertise in welding, woodcraft, finishing, fiberglass, design, CNC, and more, FCC offers the ability to provide instruction to students, material, and career exploration. FCC also is one of only a handful of local design companies, employing over 30 engineers and designers as well. This opportunity to provide exposure and opportunities to students makes FCC another of our STEM partners.

M & D Enterprises – M & D Enterprises has been a supporter of the program by providing limited material in the past, and is committed to stepping up to be a provider of experiential learning opportunities through student placement, student instruction in CNC operations, and provide development of employability skills.

American Pride Manufacturing – The owner-operator of this Oakland-based manufacturer has committed to providing in-class instruction on a variety of technical and employability skills. American Pride does custom metal work through several types

of processes. This expertise will enhance the abilities of students in fabrication and design. There is also the potential for experiential learning opportunities.

Partnership for Economic Development – this collaboration between Douglas County, Chambers of Commerce, and city governments makes a valuable partner who can help students make connections to employers, as well as help the CTE programs meet economic workforce demands.

Airgas/Miller – The local representatives for Miller Welding equipment are committed to providing education instruction, expertise in industry processes, free consumable material, and support for equipment acquisition. More than just a vendor, they were involved in designing a teaching space and equipment that best serves students and industry partners in what they need a potential workforce to know.

Industrial Source/Lincoln Electric – Another major participant in the welding industries, Lincoln Electric and their local dealers are committed to providing expertise, educational discounts, support and training for the use of the VRTEX system, and curriculum in CNC and welding skills.

Sutherlin Middle School Robotics – A great connection to middle school STEM learning, this group will connect with high school CTE students and programs, and benefit from the advanced technologies and equipment made possible.

Douglas Educational Service District (ESD) – The Douglas ESD is the fiscal agent for Carl Perkins funds and coordinates the consortium SHS is part of. The Regional Coordinator is committed to helping complete the Manufacturing – Woods Program of Study, providing professional development support through training and the allocations of Perkins funds, and overall program evaluation and growth.

CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOs)

CTSO's will be an integral part of this CTE Revitalization project and will be impacted in multiple positive ways. SHS has a strong history of successful student leadership organizations, with both the FFA chapter and FBLA chapter being recognized for their leadership at the state and national level. This project will establish a new CTSO chapter (SkillsUSA) and strengthen student leadership.

Creating a SkillsUSA chapter will create new leadership opportunities, chances for competition, and further connections to community. As well, many of the students who will be engaged in this organization are not involved in other school activities. All three instructors will help to engage students and prepare for events, with one instructor taking the lead advisorship. This CTSO will integrate and collaborate with the other CTSO's, with many students being involved in more than one organization – as they should, as they will gain from the many opportunities each organization will offer.

The FFA chapter will also be able to infuse many parts of this project into its current activities and new endeavors, creating more opportunities for developing leadership, personal growth, and career success. This will include preparation for participation in career development events (CDE's – competitive activities). As well, students engaged in placement can apply this in the Proficiency Awards program, where they will develop reflections, complete interviews, and share their experiences. This can lead to scholarships and recognition at the local, regional, state, and national level. There are also great ways the products can be incorporated into the highly successful student-run business that involves students year-round in designing an entrepreneurship that has multiple facets and great community exposure.

MIDDLE SCHOOL COMPONENT

Middle school student engagement will be increased through this project by implementing multiple strategies. This will include curriculum and coursework, exposure to and experience with opportunities for pathways in high school, and communication with parents and students.

The major component will be forming a permanent rotation of middle school students through a woods/manufacturing course. This has been sporadically offered in the past; the revitalization project will establish it. This introductory curriculum will allow students to explore manufacturing skills, interests, and opportunities. The advancements in fabrication and technology will engage these highly-kinesthetic learners in a positive way that helps to form their perspectives on possible career paths for the future. However, their participation will be carefully guided through manageable objectives: simple hand-tool use, incorporating math with measurements and conversions, reading plans and instructions, and problem-solving specific situations. While they will not be ready to complete CNC projects or highly-technical projects, this foundation will place them on an accelerated track for when they do enter into the Programs of Study when they arrive at the high school.

The middle school currently has a robotics team program, which will connect with these programs. This will expose these students to opportunities in further education in these areas, provide real-world connections, and provide an avenue for this STEM interest to continue in CNC, CAD-CAM, and 3D design. The middle school instructor is on board with engaging these students in this way, which will expand our influence, recruit to the program, and strengthen the middle school programs.

OUT-OF-SCHOOL SCHOOL COMPONENT

The CTE programs and CTSO's at Sutherlin High School know learning is not limited to class periods. Opportunities for continued instruction and learning with industry partners will increase the impact of this revitalization project.

One strategy that will be implemented will include Friday After Noon Seminars (FANS). Sutherlin has a four-and-a-half day school week, with classes ending at noon on Fridays. This schedule accommodates having industry partners meet with students, help guide and recommend on projects and learning, and even gauge abilities of potential interns and employees. This will happen at least once a month, and gives an expanded period of time for in-depth learning of skills and work on project-based activities. This will be much more than 'open-shop time' but directed and focused.

Another opportunity in the community will be with Habitat for Humanity. SHS is working to establish a local chapter who will be part of the county organization. This summer-time activity will connect students with many people in the community as they learn and apply many skills in numerous trades. As well, the various classes will create components for the newly-constructed houses: the manufacturing-woods courses will build cabinets for the houses, the technology courses will assemble a refurbished computer, and the welding/fabrication students will develop personalized metal furnishings. This learning and exposure for students will be invaluable.

The opportunity for partners to lead educational activities within these upgraded facilities has possibilities for student-learning as well as community instruction to help workforce development and training. Any of these will be beneficial to local industry, employment, and the struggling local economy.

SCALABILITY AND IMPACT

The potential success of this project and implementation of grants funds will resonate with schools throughout the region and state. It will be scalable, provide resources for other programs, create models for placement and training, and be a source of opportunities for teacher professional development and learning.

One innovative way we will provide resources to other schools will be through the recording and distribution of presentations and lessons by industry partners. Students in video editing curriculum will record, cut, and finalize these presentations and publish them to a YouTube account specifically created for these CTE programs. Other teachers, absent students, workforce trainers, and more can use this media to educate, promote, and recruit to the careers in advanced manufacturing, fabrication, and design. The potential impact will be much greater than just the students in these courses.

The scalability of the internship proficiency and placement model allows for multiple schools to adopt such a design with their own partners, or with partners with this project proposal who are of a size to accommodate more experiential learning options. The spread of a similar training and application/selection program ensures consistency, as well as infuses these beneficial exercises in employability skill develop into those programs as well.

The opportunity to train instructors from across the state is another benefit. SHS has been the lead host for statewide in-services, and the opportunity to bring teachers into facilities such as these, with partners to lead trainings as we would have, could be very valuable. This can be done through the regional consortium, statewide teachers association, or even Oregon State University for continuing teacher education.

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.	Jack Trowbridge	President	Great Northern Trailer Works
2.	Seth Vincent	Operations Manager	North Star Fabrication
3.	Jon McAmis	Human Resources Dir	Roseburg Forest Products
4.	Randy Boyer	Owner	Woodgrains Inc.
5.	Preston O'Hara	Human Resources Dir	FCC Commercial Furniture
6.	Mary Heilner	Human Resources Dir	Orenco Systems, Inc
7.	Larry Gurule	President	M&D Enterprises, LLC
8.	Jerry Risk	CEO	American Pride Manufacturing, LLC
9.	Ian Fisher	Instructor	Umpqua Community College
10.	Joan Campbell	Dual Credit Coordinator	Umpqua Community College
11.	Alex Campbell	Executive Director	The Partnership for Economic Development in Douglas County
12.	Steve West	Coach/Science Teacher	Sutherlin Middle School Robotics Team
13.	Cameron Burks Ron Gross	Manager District Manager	Airgas Miller Electric Mfg/Hobart
14.	Randy Looman	Manager	Industrial Source
15.	Dave Ciolek	Representative	Lincoln Electric
16.	Analicia Nicholson	Regional Coordinator	Douglas Education Service District