Project Name: Grant Union Metal Fabrication and Technology Project  
Amount Requested: $194,088

<table>
<thead>
<tr>
<th>Participating High School or Middle School Name (add additional rows as needed)</th>
<th>Lead Contact Name</th>
<th>Grade Levels</th>
<th>Student Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Grant Union JR/SR high School</td>
<td>Curt Shelley</td>
<td>7 - 12</td>
<td>291</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Mat Carter</td>
<td>Owner/Operator</td>
<td>Crown Cattle Company</td>
</tr>
<tr>
<td>4. Matt Edgar</td>
<td>Owner/Operator</td>
<td>Grant County Automotive</td>
</tr>
<tr>
<td>5. Jordon Copley</td>
<td>Oxarc Manager</td>
<td>Oxarc</td>
</tr>
<tr>
<td>6. Eddie Alves</td>
<td>Interim Dean of Career and Technical Education</td>
<td>Treasure Valley Community College</td>
</tr>
</tbody>
</table>
PROJECT OVERVIEW

PURPOSE AND SCOPE OF PROJECT
Grant County School District #3 and its community partners strongly support the proposed revitalization of an Agriculture, Welding and Fabrication Program at Grant Union JR /SR High School (GUJSHS). Previously the program involved up to 120 high school students per year. However, in June of 2012 the CTE instructor was cut to .5 FTE which diminished curriculum opportunities. Reinstating to a full 1 FTE means 291 students, including 7th and 8th graders would benefit from this grant. GUJSHS and its partners propose updating the existing facility and expanding it to include a safer, cleaner, healthier environment with hands-on workspace and new equipment with cutting edge technology. The new updated space would provide opportunities for students to engage in internships with local businesses, for middle school students to participate in virtual welding studies to prepare for hands-on applications they learn in high school, using a CNC Plasma Cutter for engineering and design experiences, and for students in grades 7-12 to begin thinking about and expanding their postsecondary options. This project provides collaborative welding educational opportunities among GUJSHS, local businesses and Treasure Valley Community College (TVCC) to benefit students.

Currently, our CTE program utilizes the Career Education Video (CEV) curriculum. The program scope is an approved program of study, aligned with statewide Agricultural Science and Technology requirements, the NOCTI Assessment, Welding and TVCC standards. Courses would be fully articulated and 11th and 12th graders would have the
opportunity to earn college credit and/or hard wire certification through TVCC. In turn, the welding industry would be provided with a pool of skilled employees.

**SUPPORTING THE OVERALL REVITALIZATION EFFORT**

**A. Innovation**

To improve the student numbers involved in CTE, classes are to be implemented for middle school students for exposure to welding skills, as well as more hands-on classes for high school students, grades 9-12. Middle school classes would be taught with an innovative virtual lab that engages the student and exposes him/her to terminology, practical applications, and virtual welding that is safe and evaluated. The current experiential welding program now exists on a limited basis and includes only grades 9-12. However, the new program encompasses welding education in grades 7-12, with progressive experiences infused with STEM skills. GUJSHS will purchase state-of-the-art equipment, as well as a Lincoln Vertex 360 (virtual welding simulator) and computers and computer software that will engage students through experiential work and meaningful, innovative projects and activities, and engineering/design work samples. The GUJSHS instructor will align content to TVCC welding curriculum so that students may test for competency at TVCC and receive credit and/or hard wire certificates.

The CTE instructor will promote partnerships with local businesses and TVCC. The instructor will attend workshops, trainings, internships, and CTE conferences that ensure he/she is current and skilled in welding instruction. The CTE instructor will become a 1 FTE, which adds three additional class periods to the present schedule.
More students will be exposed to welding training and experiential learning through innovative CTE classes through grades 7-12.

**B. Integration**

This proposal will incorporate integration of STEM requirements along with the technical skills of the welding trade. Integrating mathematics, reading for information and researching will be employed throughout the curriculum. STEM work samples will be completed and scored. Students who seek the hard wire certification will be tested at TVCC for written and applied skills. STEM skills such as measuring, calculating, timing, and working with angles, gases, and other welding equipment will be integrated into the Agricultural classes. Students who use math and reading skills for a practical purposes are more successful when motivated to use the skills for a real hands-on projects.

GUJSHS and its partners propose updating the current facility and equipment to include a safe, modern, healthy work space that integrates a Welding Fume System to exhaust pollutants, new state-of-the art welders, and the Lincoln Vertex 360 virtual welder. The CNC Plasma Cutter integrates STEM skills in operation resulting in a marketable product for all students in grades 7-12. Students will also be given the opportunity to join FFA which integrates life skills such as public speaking, record keeping and agriculturally related studies such as animal husbandry and horticulture into the curriculum.
C. Expansion and Growth

The CTE Revitalization Grant proposal opens enormous opportunity for expansion and growth in the District’s now lagging program. In June 2010, 1 CTE program was eliminated and then again in June 2012 an additional .5 FTE was eliminated from GUJSHS. The existing Agricultural classes incorporate Agricultural instruction, welding, fabrication and FFA, which are offered to grades 9-12. When fully implemented, the expanded model will include 3 new classes (.5 FTE added). This will increase the opportunities for all students grades 7-12 to participate in CTE classes. The program would provide a CTE class environment for students in all grade levels to work with peers and professionals. Expanding the CTE offerings to middle school students provides the chance to become involved earlier and to begin making choices to follow the sequence of classes through graduation. Ultimately this will result in a career choices and skills upon graduation that are currently not available. Growth is expected due to the expansion of the agricultural offerings and the quality of the curriculum.

D. Experiential Learning

Students in the CTE classes are exposed to personal, technical, STEM, and professional skills needed to be successful in welding technology and fabrication, a high-demand, high-wage occupation. The American Society of Welders reports that “the average age of welders today is 55, meaning that by 2018; there will be a need of 500,000 new welding jobs”. CTE welding students will complete hands-on lessons,
activities and projects, leading to STEM work samples. Students will engage in important and focused skill practices in planning, designing, and welding. Improved standards of technical and academic content, aligned with TVCC curriculum, will be offered. Students desiring to earn the hard-wire certificate will be tested at TVCC or other American Welding Standards certified testing sites. In order to pass the rigorous expectations of tests, experiential learning will be offered, both by CTE instructors, and professional business partners. Sequencing the progression of skills will keep students engaged and continuing to work on technical skills for up to six years. Community partners will provide opportunities for job shadowing, internships and school-to-work situations. Working beside professionals in the field and taking field trips to watch innovative work procedures will be part of the curriculum. Opportunities to enter welding competitions, such as those sponsored by FFA or Shop Skills competitions at TVCC, will be offered to all classes. Middle School students will have additional opportunities both through curriculum and competitions that do not exist at their grade level. This program prepares students for graduation and the work force.
GRANT NARRATIVE

PROJECT DESCRIPTION:

A. Project Outcomes and Progress Markers

To improve and revitalize the CTE, Grant Union JR/SR High School (GUJSHS) proposes the following outcomes and markers:

1. **Increase the CTE teacher from .5 FTE to 1 FTE.**

   The CTE program was cut in 2012 to .5 FTE, leaving only 3 classes in the agriculture, welding and fabrication. The new model calls for reinstating 1 FTE which allows for the addition of three more classes to the curriculum. This opens the CTE classes to middle school students and all students of high school level. Classroom instruction will be augmented by a partnership with industry-employed welders who will provide 9 hours per week of instruction. Wages would be reimbursed with grant funds. Other business partners will provide guest speakers, welding supplies, equipment training, job shadows, technical expertise, mentorships, work experiences, and advisory involvement. The instructor will be expected to train for content-aligned certification and to teach to Oregon Skill Sets, Agricultural Standards Performance Indicators, and content that leads to college credit and/or certification. The teacher would counsel and encourage students to work for the highest level of certification or college credit he/she is capable of attaining. The CTE teacher also would advise the FFA organization and open it to middle school students, whereby all student groups could be
exposed to career opportunities. The teacher will plan content that prepares students with marketable skills in the welding field.

2. **Purchase and installation of new cutting edge welding equipment**

GUJSHS plans to revitalize the welding shop by purchasing and installing new cutting edge welding equipment and technology for student training and applied learning. The improved shop environment will provide a healthier and safer work training area. A new fume exhaust system, welders and supplies necessary to expose students to industry approved-technology attracts students, especially those who are hands-on-learners, and keeps them engaged in school. Middle School students will have access to a virtual welder software program. The video game-like format engages the student in an interactive environment that is safe. The virtual welder will be used for all grade levels (7-12). A student could enter at the 12th grade with no skills and progress through the training quickly, just as a 7th grader would begin and move through steps on the virtual welder. More students are drawn to CTE programs that offer pathways to employment through applied training of industry-recognized standards with modern equipment. Partnerships with local area businesses and TVCC will help teach students how to properly use the new equipment. The additional capacity for students to earn welding certification justifies the expense of the equipment.
3. **Increased number of students enrolling in CTE classes at GUJSHS**

With the employment of 1 FTE, GUJSHS can offer six CTE classes open to students in grades 7-12, doubling the number in CTE classes from the current 60 to an expected 120 students. All students have the opportunity to elect CTE classes for six years. Underserved students are encouraged to select the hands-on experiences offered in Agricultural classes. Offering motivating CTE classes for the 38% of GUJSHS students who qualify as underserved enhances their chances of staying in school, graduating, and being better prepared for jobs or higher education. Close partnerships with industry will expose students to the expectations and technical skill requirements of future employers in the field. All students will be encouraged to join FFA to enhance speaking skills, technical applications, leadership and social awareness. FFA offers students a club to identify with that is positive and keeps students involved in Agricultural activities beyond the classroom. The increased rigor of the six year program will lead to graduating young people with more self-confidence and industry-ready skills that can be used immediately in high-wage jobs or as college credits. Agricultural Welding and Fabrication students will follow career pathways that incorporate STEM skills into work assignments which help students meet NOCTI and graduation requirements. Learning by doing prepares all students with industry-recognized skills to enter the work force.
4 College credit and/or welding certification from TVCC

College credit can be earned and certification gained through partnership with Treasure Valley Community College. The grant will pay for students to take the certification test. Success in the certifying process is a major marker in accomplishment. Students can begin their academic program with college credits or their careers with significant practical experience. While in high school students are exposed to the same curriculum that will be taught at TVCC. Certification meets graduation requirements at all three diploma levels (regular, extended, and honors).

5. Increased student access to high wage jobs

With the support and help of the industry partners and TVCC and specific CTE class instruction in welding technology; students would be job ready at the time of graduation, or shortly thereafter. Current welders are aging and retiring from the profession, opening opportunities in skilled, technical careers. In fact, www.indeed.com reports that today (10/15/13) there are 279 welding jobs open in Oregon, ranging from $30,000 to $120,000 in salaries. Students aspiring to take these jobs can begin preparing at 7th grade and graduate ready to apply. Welding certificates and college credits earned in class bring the student to industry standards employability. The state needs welders and the new program leads capable young people to graduation and into high paying, meaningful jobs. GUJSHS graduates would be employable locally and state wide.
B. Career and Technical Education Program of Study Design

GUJSHS currently has an approved Statewide Agricultural Science and Technology Program of Study. Over the past six years the program has evolved to include more agriculture and animal science opportunities for students. The added classes of instruction and equipment through this grant would strengthen our program of study. With the addition of technology we will be better able to address the four standards and performance indicators listed in the program of study.

The first standard: **AGPD02.01** Apply principles of operation and maintenance to mechanical equipment, structures, biological systems, land treatment, power utilization, and technology.

The second standard: **AGPD02.02** Apply principles of service and repair to mechanical equipment, structures, biological systems, land treatment, power utilization, and technology.

The third standard: **AGPD03.03** Examine structural requirements to estimate project costs.

The fourth Standard: **AGPD03.04** Develop skills required to use construction/fabrication equipment and tools.

With purchased equipment listed in the grant application students would gain advanced skills in all four standards.
In the past our program has placed students into the workforce, however, the increased skills and knowledge that this grant affords creates additional capacity to place students directly into the work force.

C. Underserved Students

Underserved students are encouraged to enroll in CTE and FFA classes. The specifics of these students are 12 Hispanic, 14 Indian, 3 black, 55 in special education, 4 in a 504 health impaired program and 38% that qualify for reduced or free lunch. The revitalization of the Agricultural, Welding and Fabrication program opens up additional opportunities for successful academic and practical experiences for students who have traditionally struggled in the regular classroom environment. Underserved students are more likely to remain engaged in a path to graduation and complete their high school career with employable skills. For example, an added benefit to the program is that the students can gain STEM skills, reading and speaking skills which are integrated into CTE classes and required for high school graduation.

D. Diploma Connection

GUJSHS students meet core academic credit requirements through three diploma options of modified, the regular, and the honors. Each of the GUJSHS diploma options require between one and three credits of CTE or related classes. Adding three additional class periods will enable more students to meet core academic requirements through the Agricultural venue.
The revitalization and expansion of the Agricultural, Welding, and Fabrication program and FFA at GUJSHS offers academic skills training as well as career preparation, such as interviews, interpersonal relationship awareness, and technical applications. These activities do require reading, and STEM skills, and the development of writing, speaking, and oral presentations. Career related learning experiences support Essential skills necessary to meet graduation requirements. Extended application of these skills is evident in the completion and presentation of The Senior Project, another graduation requirement, which may include projects or products produced in the CTE classes. Students may co-enroll in TVCC classes and earn college credits in welding while earning high school credits at GUJSHS.

E. Sustainability and Communication

Sustainability of the new program is dependent upon success in the eyes of the community and continued participation of industry partners. Noticeable growth in the numbers of students continuing in the Agricultural classes through the years of the grant, as well as success in the matriculation of job ready graduates, or of numbers continuing on to higher education will merit sustainability consideration by board and administration. Communication with the public and parents via web page, journalistic news reports and features, and radio announcements raise the awareness of the program’s successes. Open house events that feature the new equipment and student produced products serve as catalysts to public approval and support. Show casing by-products of the Ag Welding and Fabrication classes at county fair, local events, FFA skills contests keep the communication lines flowing and positive. Collecting and
publishing data related to student outcomes on test scores, gaining welding
certifications, and meeting graduation requirements merits program sustainability.
Bringing the suggestions and critiques of industry partners to the discussion table opens
the doors for more enrichment from the business community and their continued
support. Economic recovery in this area and the rise of student numbers in the school
itself, along with positive feedback on the program is the key to sustainability.

F. Activities and Timeline

With the advancement of this program students will have the ability to grow through the
program and consequently be more prepared for the workforce and post-secondary
applications. Utilizing the cutting edge technology procured in this grant with give the
students within the CTE program more opportunities to connect with STEM and
increase the academic crossover opportunities within the school, by incorporating
reading, writing, and STEM into the curriculum. Students will be better prepared for
career and college with the added opportunities that this grant offers. Following is the
pathway for students within this program:

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th Grade</td>
<td>Introduction to Metals, Predicting Elemental Trends, Measuring Skills, Basic Blue Print Production</td>
<td>Introduction to Welding, Virtual Welding Simulator with ARC Welding</td>
<td>Virtual Welding Simulator with MIG Welding</td>
<td>Metal Shop Safety, Welding Safety, Begin Basic ARC Welding</td>
</tr>
</tbody>
</table>

Oregon Career and Technical Education Revitalization Grant
Grant Union Junior/Senior High School
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8th</td>
<td>Metal Shop Safety, Virtual Welding Simulator-Advanced Fabrication and Techniques (ARC)</td>
<td>Basic Blueprint Reading and Design, Introduction to Oxy-Acetylene Cutting torch</td>
<td>Skill Development with ARC Welding, MIG Welding, Oxy-Acetylene Cutting torch</td>
<td>Skill Development with ARC Welding, MIG Welding, Oxy-Acetylene Cutting torch</td>
</tr>
<tr>
<td>9th</td>
<td>Metal Shop Safety, Review Welding Safety, Increase ARC Welding and MIG Welding Skills Prepare and Practice for Basic Certifications</td>
<td>Develop Blueprint Reading Skills, Introduce Plasma CNC Cutting Table, Continue Certification Practice for ARC Welding and MIG Welding</td>
<td>Complete ARC Welding and MIG Welding Certification Process</td>
<td>Introduce Mandrel Bender, Begin Developing Blue Prints, and building Projects</td>
</tr>
<tr>
<td>10th</td>
<td>Metal Shop and Welding Safety, Review ARC Welding, MIG Welding, Oxy-Acetylene Cutting Torch, Introduce Plasma Torch Cutting</td>
<td>Introduce TIG Welding, and continue Fabrication of Projects</td>
<td>Increase TIG Welding Skills, and Continue Fabrication of Projects</td>
<td>Utilizing Community Partners Increase Project Production, In Class</td>
</tr>
<tr>
<td>11th</td>
<td>Metal Shop and Welding Safety, Develop Skills with Mandrel Bender,</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
G. Evaluation

On-going and consistent evaluation of the GUJSHS Metal Fabrication and Technology Program is critical for the overall success in meeting our stated outcomes for the program. The data will allow the tracking of key markers and determine if adjustments are necessary to better serve the students in the program.

A key outcome, if the grant is allocated, will be the addition of a .5 FTE allocated toward the CTE 7-8 grade GUJSHS program.
Each year in June the industry partners will be surveyed to determine overall satisfaction with their role, skill level of job shadow participants, satisfaction with connections to the classroom and the safety, maintenance and type of equipment in the shop to determine if they meet industry standards. The data will be reviewed on an annual basis with the goal of continuing quality relationships with current partners while looking to expand the business network.

The total number of students involved in the program will be determined at the end of each school year. The number of college credits earned as a direct result of the program and the number of students receiving welding certification will also be recorded. As part of the overall school system, data will be gathered on post-graduates to determine the effectiveness of meeting 40/40/20 goals for all students. This data will be analyzed to determine what connections exist between students who have completed the GUJSHS Metal Fabrication and Technology program and their post-graduate outcomes. Surveys will be sent to the post-graduates to determine what areas in the school assisted them and what areas could be improved upon to better prepare them for the world of work.

The GUJSHS CTE instructor will learn the industry skills of welding, fabrication and technology to a level that business partners are no longer required to present direct instruction at the conclusion of this grant.

The GUJSHS Metal Fabrication and Technology program will be adjusted based on surveys, data and on-going evaluation of program by the advisory board and administration to fully meet the needs of all students.
PARTNERSHIPS

The Grant Union Metal Fabrication and Technology Project has been designed with the cooperation of multiple businesses and Treasure Valley Community College. Each partner has been consulted prior to the submission of the grant to generate the best possible proposal to assist students in becoming proficient in metal fabrication and technology.

The partners have agreed to various aspects of assisting the program such as:

- Providing a qualified industry standard certified instructor.
- Opportunities for students for supervised on-site job shadows.
- Demonstrate and provide written material in the safe use of all equipment.
- Network with other business partners to aid in providing a variety of real world work experiences.
- Member of advisory board.
- Demonstrate the proper use of new equipment.
- Reduced pricing on consumables and non-consumables.
- Support on-going equipment maintenance.
- Provide additional opportunities for college credit.
- Assist in alignment of curriculum to meet college and industry standards.
All partners are committed to a long term relationship with Grant Union JR/SR High School to assist in improving the program through industry standard equipment upgrades, curriculum aligned with college and industry standards, networking the instructor and students to the business community to provide high-wage jobs that are in high demand.

BONUS SECTIONS

A. Career and Technical Student Organizations (CTSOs)

FFA has been part of the Agricultural CTE classes at Grant Union for 15 years, but only involved grades 9-12. The new model CTE class would recruit and encourage 7th and 8th graders. The FFA members participate in class and prepare for competitions and meetings through instruction of the CTE teacher. Part of the curriculum is devoted to time for FFA related projects and events and helps students meet State Essential Skills requirements. Some class time is devoted to the development of agricultural mechanics and leadership skills. Interest is built by observing more experienced FFA members as they participate in skill & leadership contests, county fairs, state fair, and locally sponsored activities, such as barbecues, tractor driving events, and fund raisers. Seventh and eighth graders would be recruited by older members by invitation to special events, class visitations, speeches, and media promotions. The new welding component offers opportunities to hone skills for welding competitions at TVCC and regional FFA contests. The community recognizes the leadership and skills that are exhibited by the students involved in the FFA and have therefore been very supportive.
Benefits of this student organization are long lasting and students are strongly encouraged to join and take an active part.

B. Middle School Component

GUJSHS recently became a 6 year institution. Prior to the merger of the middle and high schools, the 7th and 8th graders attended school in Mt. Vernon, 8 miles from the high school. With the economy slowing, restricted budgets, and enrollment dropping due to families moving to find employment, the board decided to merge the two schools and occupy one building. This brought 90+ middle school students to the GUHS building. There had not been middle school FFA or CTE classes in the old configuration. Presently there is a wood shop elective available for one semester to 7th and 8th graders. With 1 FTE restored, middle school students would begin the welding component on a virtual level. This would give them exposure to welding terminology, virtual skills, in-class instruction, safe practice, and the opportunity to enter 9th grade with more knowledge and readiness to do hands-on welding. In the new program, students would participate in job shadows, field trips to welding shops, and practice skills that could cause them to consider later choices of career or higher education. It is vitally important to intrigue our underserved students. Basic math, reading and writing are integrated into the problem solving of projects and real application of these skills keeps interest while learning to make a project. The GUJSHS Metal Fabrication and Technology program embedded in the 7-12 Agricultural curriculums would allow for mastery of skills and potential job opportunities upon graduation for students. The course work also may be the very niche that keeps some underserved students attending school and graduating. The 7th and 8th grade students would have the
opportunity to join the FFA club creating more ways to improve and practice skills learned in the Agricultural classes while becoming further engaged in quality activities.

C. Out of School Time Programming

Students in the expanded Agricultural Welding and Fabrication class and members of FFA meet on Fridays (not a regular school day in Grant School District #3) for extra time in the Agricultural classroom or welding lab. The current Agricultural program offers Friday time and occasional evening or weekend time for project work, practice for Agricultural Skills, FFA business meetings, banquets, awards ceremonies, and study.

The CTE instructor is involved with students in the animal science component at county fair (always held in August), as well as tractor driving and animal and soil judging contests to name a few of the events. FFA members who have completed a welding project of merit exhibit their work locally at fair and can take them to other shows such as state fair. Some competitions are held on weekends when students are encouraged to participate to hone skills.
D. Focus on Regional, Statewide or System Changes (7 Points)

Bonus points will be provided for proposals that offer to take the project to a larger audience. Describe how your project is eligible for bonus points under this section. What impact will your proposed project have on a region, the state or the entire CTE system?
E. Science, Technology, Engineering, and Mathematics (STEM)

Projects that integrate CTE and STEM content should be identified on the cover page of the application. The required grant narrative must describe how CTE and STEM are integrated within the project. Integration of CTE and STEM should be accomplished through problem based teaching approaches that promote critical thinking. NO BONUS POINTS ARE AWARDED FOR A PROJECT THAT HAS A CLEAR CONNECTION TO STEM.