Project Narrative

1. Statement of Need

i. Serving the Education and Training Needs of TAA-Eligible Workers

Overview: Montana claims one of the highest per capita Trade Adjustment Assistance (TAA) populations among rural states. To understand the impact of these dislocations it is important to understand that Montana is different. The state has 10% of the population of New York City stretched across an area almost 500 times the size. In the U.S., there are 87.5 people per square mile on average. In Montana there are seven. Most of the state’s population resides in communities, tiny by most states’ standards, separated by hundreds of miles of harsh terrain. In this environment, the loss of 2,153 TAA-workers has coupled with significant recession-related job loss to significantly impact the state.

The impact is not equally distributed. The state’s TAA-impacted workers effectively represent the downsizing of the timber and mining industries over the past two decades, a change that has dramatically shifted the economic base of the forested western third of Montana. Slowly rising from the ashes of the timber industry are robust pockets of advanced manufacturing activity scattered throughout this western region.

The story is different in eastern Montana where new technology has led to astounding growth in the energy field. The Bakken Formation, stretched across North Dakota, Saskatchewan, and eastern Montana, holds more than 2.1 billion barrels of oil. Extraction of oil and gas resources has created a projected need for more than 18,000 new workers in the energy industry alone and another 8,000 in related or supporting industries over the next ten years. This has led to a rapid and foundational shift in eastern Montana’s population and workforce needs, a workforce need already on a huge up-swing due to Canadian oil sands production.

The fundamental challenge for Montana’s public education and workforce systems is this: How do you re-train a widely dispersed group of un-credentialed miners and timber workers for the emerging widely dispersed jobs in advanced manufacturing and the energy fields?
The Strengthening Workforce Alignment in Montana’s Manufacturing and Energy Industries (SWAMMEI) project is a systemic response to rapidly increasing employer demand in these industries. For each of the target occupations, the SWAMMEI project offers TAA-eligible and other adults access to accelerated, technology-enhanced training available to them anywhere in the state. Using a common delivery system, each SWAMMEI stacked credential features interactive, online curriculum that is coupled with consolidated practical training to fulfill each of the trades-oriented programs. The project creates significant efficiencies by utilizing single faculty facilitators to deliver online components to state-wide student cohorts. Students complete the practical portions of the curriculum at Practical Assessment Centers located conveniently throughout the state, if a student’s nearest college does not have the lab resources or faculty to conduct assessments. This systemic approach allows our two-year college system to efficiently improve access and accelerate training for dispersed TAA-eligible populations and meet the urgent needs of employers in these two key industries.
The SWAMMEI project also offers other innovations to support the target populations’ participation in the project. Workforce Navigators will assist students in: assessing current competencies; gaining access to education and workforce programs; applying for financial aid (including that available through the workforce system), and attaining workforce support services. Further, SWAMMEI will employ sophisticated evidence-based coaching strategies and professional coaches to help students overcome hurdles to success and increase completion rates of participants through data-driven approaches to retention. Some well-known common stumbling blocks, like developmental math, will be comprehensively altered to accelerate time-to-completion.

Each stacked credentials has been designed with significant input from industry experts and local employers to meet specific workforce needs. Ninety-five percent of employers engaged in the development of this project have committed to remain involved on advisory committees and sector strategy partnerships, ensuring ongoing improvement and augmentation of the proposed curriculum throughout the project. Where appropriate, SWAMMEI stacked credential programs are closely aligned to National Association of Manufacturers-endorsed (NAM-endorsed) and other industry-recognized credentials and, for three occupational tracks, lead directly into established apprenticeship programs.

Successful implementation of each strategy will dramatically improve the capacity of our two-year college and public workforce system to meet the growing needs in the advanced manufacturing and energy sectors.

**Impact of Foreign Trade**

<table>
<thead>
<tr>
<th>TAA Cert.</th>
<th>Company</th>
<th>Location</th>
<th>Decision Date</th>
<th>Workers Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>64120</td>
<td>Columbia Falls Aluminum Company</td>
<td>Columbia Falls</td>
<td>10/31/08</td>
<td>218</td>
</tr>
<tr>
<td>64233</td>
<td>Sun Mountain Lumber, Inc.</td>
<td>Deer Lodge</td>
<td>11/25/08</td>
<td>60</td>
</tr>
<tr>
<td>64238</td>
<td>Plum Creek MDF, Inc.</td>
<td>Columbia Falls</td>
<td>12/19/08</td>
<td>60</td>
</tr>
<tr>
<td>64535</td>
<td>Tricon Timber, LLC</td>
<td>St. Regis</td>
<td>1/13/09</td>
<td>52</td>
</tr>
<tr>
<td>64737</td>
<td>Stillwater Mining Company</td>
<td>Billings, Nye, Columbus, McLeod</td>
<td>2/18/09</td>
<td>297</td>
</tr>
<tr>
<td>64983</td>
<td>Plum Creek NW Lumber, Inc.</td>
<td>Pablo</td>
<td>2/19/09</td>
<td>139</td>
</tr>
<tr>
<td>70273</td>
<td>Plum Creek MDF, Central Services</td>
<td>Columbia Falls</td>
<td>7/24/09</td>
<td>16</td>
</tr>
</tbody>
</table>
## Companies Receiving TAA Certification in Montana Between 10/31/2008 and 2/19/2013

<table>
<thead>
<tr>
<th>TAA Cert.</th>
<th>Company</th>
<th>Location</th>
<th>Decision Date</th>
<th>Workers Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>70746</td>
<td>Tightline Logging</td>
<td>Potomac</td>
<td>7/21/09</td>
<td>4</td>
</tr>
<tr>
<td>70884</td>
<td>Glacier Line Logging, Inc.</td>
<td>Kalispell</td>
<td>7/30/09</td>
<td>Not avail.</td>
</tr>
<tr>
<td>70318</td>
<td>St. Onge Logging, Inc.</td>
<td>Kalispell</td>
<td>8/4/09</td>
<td>9</td>
</tr>
<tr>
<td>70686</td>
<td>T.B.C. Timber, Inc.</td>
<td>Libby</td>
<td>8/5/09</td>
<td>10</td>
</tr>
<tr>
<td>70342</td>
<td>Plum Creek NW Lumber Sawmill</td>
<td>Columbia Falls</td>
<td>8/18/09</td>
<td>30</td>
</tr>
<tr>
<td>70831</td>
<td>A.W. Pratt, Inc.</td>
<td>Clancy</td>
<td>8/18/09</td>
<td>28</td>
</tr>
<tr>
<td>70847</td>
<td>Intermountain Forest Technology</td>
<td>Columbia Falls</td>
<td>9/18/09</td>
<td>40</td>
</tr>
<tr>
<td>70748</td>
<td>Ureco, Inc.</td>
<td>Columbia Falls</td>
<td>9/18/09</td>
<td>40</td>
</tr>
<tr>
<td>70767</td>
<td>Smurfit-Stone Container, Inc.</td>
<td>Missoula</td>
<td>9/30/09</td>
<td>467</td>
</tr>
<tr>
<td>70803</td>
<td>LT Logging</td>
<td>Eureka</td>
<td>10/2/09</td>
<td>5</td>
</tr>
<tr>
<td>71539</td>
<td>Plum Creek</td>
<td>Columbia Falls</td>
<td>11/12/09</td>
<td>17</td>
</tr>
<tr>
<td>71915</td>
<td>Plum Creek Clearwater Division</td>
<td>Missoula</td>
<td>11/17/09</td>
<td>4</td>
</tr>
<tr>
<td>72478</td>
<td>Hanson Trucking, Inc.</td>
<td>Columbia Falls</td>
<td>2/2/10</td>
<td>40</td>
</tr>
<tr>
<td>71517</td>
<td>Idaho Timber of Montana, LLC</td>
<td>Whitefish</td>
<td>2/16/10</td>
<td>31</td>
</tr>
<tr>
<td>72928</td>
<td>Smith Logging, Inc.</td>
<td>Kalispell</td>
<td>2/24/10</td>
<td>14</td>
</tr>
<tr>
<td>71245</td>
<td>Montana Tunnels Mining, Inc.</td>
<td>Jefferson City</td>
<td>3/11/10</td>
<td>161</td>
</tr>
<tr>
<td>71923</td>
<td>Decker Logging, Inc.</td>
<td>Libby</td>
<td>4/19/10</td>
<td>5</td>
</tr>
<tr>
<td>73502</td>
<td>McFarland Logging</td>
<td>Clinton</td>
<td>5/13/10</td>
<td>5</td>
</tr>
<tr>
<td>73381</td>
<td>Montana Rail Link, Inc.</td>
<td>Missoula, Billings, Laurel, Livingston</td>
<td>6/23/10</td>
<td>81</td>
</tr>
<tr>
<td>73348</td>
<td>Hayes Enterprises, Inc.</td>
<td>Potomac</td>
<td>7/28/10</td>
<td>3</td>
</tr>
<tr>
<td>73859</td>
<td>Watkins Shepard Trucking, Inc.</td>
<td>Missoula</td>
<td>7/14/10</td>
<td>3</td>
</tr>
<tr>
<td>74151</td>
<td>Dick Lucier Excavation</td>
<td>Frenchtown</td>
<td>9/16/10</td>
<td>9</td>
</tr>
<tr>
<td>74356</td>
<td>Industrial Technology Corporation</td>
<td>Missoula</td>
<td>11/12/10</td>
<td>62</td>
</tr>
<tr>
<td>75103</td>
<td>Sun Mountain Sports, Inc.</td>
<td>Missoula</td>
<td>2/14/11</td>
<td>9</td>
</tr>
<tr>
<td>81029</td>
<td>Interstate Brands Corporation</td>
<td>Billings</td>
<td>1/25/12</td>
<td>9</td>
</tr>
<tr>
<td>82089</td>
<td>Lee Enterprises-Billings Gazette</td>
<td>Billings</td>
<td>11/26/12</td>
<td>5</td>
</tr>
<tr>
<td>82291</td>
<td>Lee Enterprises-Helena IR</td>
<td>Helena</td>
<td>2/1/13</td>
<td>1</td>
</tr>
<tr>
<td>82291</td>
<td>Lee Enterprises-Butte MT Standard</td>
<td>Butte</td>
<td>2/1/13</td>
<td>2</td>
</tr>
<tr>
<td>82165</td>
<td>Interstate Brands Corporation</td>
<td>Statewide</td>
<td>2/19/13</td>
<td>254</td>
</tr>
</tbody>
</table>

### Total TAA Workers Impacted in Montana

2,153

## Partnerships with Cooperating State Agencies

Montana’s Office of the Commissioner of Higher Education (OCHE) has been a driving force behind this project, chairing the SWAMMEI Steering Committee. The Montana Department of Labor and Industry (DLI) has been an equal partner, helping prioritize industry focus and strategies most likely to help fill skills training gaps in each participating community. One-Stop Centers, the state’s TAA agencies, are key partner in project implementation, sharing responsibility for implementing the National Career Readiness Certificate (NCRC+)
assessments, expanding apprenticeship opportunities, and sharing Workforce Navigator positions with local

colleges. These navigators are specifically intended to bridge two-year colleges and the public workforce system
to leverage the support services of both systems to best benefit participants. SWAMMEI is the only TAACCCT

project endorsed by Montana’s State Workforce Investment Board (SWIB). The governor’s Department of
Energy was key in identifying the energy-industry partners who could bring the most expertise to the project.

**Education and Training Needs of TAA-Eligible Worker in Communities to be Served**

Ninety-five percent (95%) of Montana’s TAA-eligible workers were displaced from occupations in four major
industry sectors (described below). The table depicts these TAA workers’ average educational attainment and the
related median Montana wages in those occupations. The remaining five percent (5%) of TAA-eligible workers were
displaced from other industries.

<table>
<thead>
<tr>
<th>Number of Certified TAA: 931</th>
<th>Industry: Timber</th>
<th>Percentage of Montana’s Total TAA Workers: 43%</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAA Major Employers: Plum Creek, Sun Mtn. Lumber, Tricon Timber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Occupations: Loggers, log graders and scalers, sawing machine operators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Educational Attainment: (TAA workers) High School Diploma, On-the-job training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Montana Wages in occupations: $30,780 - $36,260 annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Skills/Experience: Use tools such as saws, wedges and axes, trim and cut logs, maintain tools and equipment, set chokes around logs, work in teams or isolation, set up and takedown rigging wires, apply safety standards, implement instructions from work orders, operate tractors and heavy trucks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barriers to Employment: Occupation-specific technical training, basic math skills, computer literacy, soft skills, safety skills, entrepreneurial skills</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Certified TAA Workers: 458</th>
<th>Industry: Mining</th>
<th>Percentage of Montana’s Total TAA Workers: 21%</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAA Major Employers: Stillwater Mining Co., Montana Tunnels Mining</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Occupations: Mining machine operators, operating engineers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Educational Attainment: (TAA workers) High School Diploma, On-the-job training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Montana Wages in occupations: $41,560 - $52,330 annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Skills/Experience: Run machines that extract a variety of minerals; operate and control equipment; maintain and repair equipment on a routine basis, test and inspect products, services, or processes; undertake instrumentation, work in teams, apply safety standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barriers to Employment: Occupation-specific technical training, basic math skills, computer literacy, soft skills, safety skills, entrepreneurial skills</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Strengthening Workforce Alignment in Montana’s Manufacturing and Energy Industries (SWAMMEI)

<table>
<thead>
<tr>
<th>Number of Certified TAA Workers: <strong>543</strong></th>
<th>Industry: <strong>Manufacturing</strong></th>
<th>Percentage of Montana’s Total TAA Workers: <strong>25%</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>TAA Major Employers: Semitool, Inc., Columbia Falls Aluminum, Smurfit-Stone Container</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Occupations: Industrial Machine Mechanics, Metal Refining Operators, Pulp and Paper Workers, Manufacturing Line Workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Educational Attainment: (TAA workers) High School Diploma, On-the-job training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Montana Wages in occupations: $27,880 - $35,840 annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Skills/Experience: Operate and control equipment determine tools and equipment for job, perform inspection and quality control of product, undertake instrumentation, perform routine equipment maintenance, work in teams, apply safety standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barriers to Employment: Occupation-specific technical training, basic math skills, computer literacy, soft skills, safety skills, entrepreneurial skills</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Certified TAA Workers: <strong>127</strong></th>
<th>Industry: <strong>Transportation</strong> (Timber-Related)</th>
<th>Percentage of Montana’s Total TAA Workers: <strong>6%</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>TAA Major Employers: Montana Rail Link, Inc. Hanson, Trucking, Ureco, Inc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Occupations: Heavy Truck Drivers, Rail Transportation Workers, Rail Engineers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Educational Attainment: (TAA workers) High School Diploma, On-the-job training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Montana Wages in occupations: $30,780 - $38,940 annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Skills/Experience: Drive large trucks and tractor-trailers, communicate using 2-way radios, maintain detailed records, drive with CDL license, inspect and maintain equipment, document/record information, apply safety standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barriers to Employment: Occupation-specific technical training, basic math skills, computer literacy, soft skills, safety skills and entrepreneurial acumen</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Montana Department of Labor and Industry (DLI), 2012

In a 2012 MT Job Service survey of TAA-eligible workers, 84% of respondents indicated an interest in training programs, but 64% felt they would be successful only with significant support services. Related facts indicate they were right. **(1) Remedial Math:** In the last four years, 100% of TAA workers who enrolled in the Montana public postsecondary system tested into remedial-level math. Fewer than 25% of these ever completed a college level math course despite math being a requirement for most degree programs. **(2) Time to Completion:** In part due to the challenges of math, students are taking, on average, 3.5 years to complete two-year programs. That timeline fails to align with the needs of workers and employers interested in getting workers back into the workforce as quickly as possible. **(3) Entrepreneurship Training:** 87.2% of Montana exporters
are small businesses. While empirical studies highlight entrepreneurs as a key catalyst of economic growth, an even larger component of addressing the unemployment challenge is expansion of existing businesses into new markets (using successful entrepreneurial practices) to catalyze job growth in rural areas.

### ii. Evidence of Job Opportunities in the Targeted Industries and Occupations

<table>
<thead>
<tr>
<th>Targeted Industries and Occupations</th>
<th>Industry: Manufacturing (NAICS Code 31-33)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Targeted Occupations</strong></td>
<td><strong>SOC Codes</strong> – based upon employer descriptions of positions</td>
</tr>
<tr>
<td>Machinist/Manufacturing Tech.</td>
<td>51-4040, 51-4011</td>
</tr>
<tr>
<td>Industry Machinery Mechanic/ Electronics Technician</td>
<td>49-9040, 49-9071, 49-2090, 17-3020</td>
</tr>
<tr>
<td>Welders, Solderers, and Brazers</td>
<td>51-4120, 51-4122</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industry: Oil and Gas Extraction (NAICS Code 211)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Targeted Occupations</strong></td>
</tr>
<tr>
<td>Derrick Operators/Service Unit Operators</td>
</tr>
<tr>
<td>Roustabouts and Extraction Workers</td>
</tr>
<tr>
<td>Heavy Equipment Operators/Drivers</td>
</tr>
<tr>
<td>Diesel/Farm Machine Mechanics</td>
</tr>
<tr>
<td>Energy Technicians</td>
</tr>
</tbody>
</table>

The occupations highlighted above are targeted by SWAMMEI specifically because these high-wage jobs are in demand and require skills and experience that align well with the existing skill-set of Montana’s TAA-eligible workers, veterans, and adult-student populations. Labor market information reinforces feedback from local employers suggesting that demand for a trained workforce in the targeted occupations is significant and growing.

With local employers helping design SWAMMEI programs to meet local workforce needs and these

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3 Wage Information Sources: “Local”= employer website listings (May, 2012) and Montana Department of Labor and Industry (DLI), Occupational Employment Statistics (OES) Program; May 2011 data estimates for median region Manufacturing wages; United States Bureau of Labor Statistic data estimates for median region Oil and Gas Extraction wages.
employers’ commitments to hire program graduates, we expect this program will effectively propel the target participants into jobs in the targeted occupations.

### Evidence of Employer Demand for Targeted Industries and Occupations

#### Data and analysis of both current and projected employment opportunities

<table>
<thead>
<tr>
<th>Occupations (SOC codes listed above):</th>
<th>Current Job Openings</th>
<th>Projected Growth in New Job Openings</th>
<th>Current/Local Employer Demand (projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Posted online in Montana in last 12 mos.</td>
<td>2013-2017</td>
<td>2013-2021</td>
</tr>
</tbody>
</table>

#### Advanced Manufacturing Industry

<table>
<thead>
<tr>
<th>Machinist/ Manufacturing Technician</th>
<th>212 postings for machinists and CNC technicians</th>
<th>145 (7%)</th>
<th>277 (12%)</th>
<th>Defiance Machine, Inc., based in Kalispell, MT anticipates hiring 200 manufacturing technicians in the next 10 years as indicated in attached letters of commitment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Machinery Electronics Technician</td>
<td>591 postings for electrical and electronic technicians</td>
<td>1,290 (7%)</td>
<td>2,422 (12%)</td>
<td>At least three large employers (GE, Plum Creek and Boeing) in Montana indicated a growing need for mechanics/ millwrights as indicated in attached letters of commitment.</td>
</tr>
<tr>
<td>Welders, Solderers, and Brazers</td>
<td>271 postings for jobs with welding skills requirements</td>
<td>318 (12%)</td>
<td>598 (22%)</td>
<td>Employers indicate the LMI projections are very low. For example, ADF, based in Great Falls, has clearly indicated a need for 600 welders in the next four years.</td>
</tr>
</tbody>
</table>

#### Total Projected New Industry Jobs in Montana in 2021 = 24,390 (12% growth)

#### Energy Industry – Statistics don’t include North Dakota-based demand; ND demand is mentioned below because the industry pulls workers from MT in significant numbers. Source: ND Job Service LMI Center

<table>
<thead>
<tr>
<th>Operators/Service Unit Operators</th>
<th>25* oil and gas operator postings</th>
<th>113 (9%)</th>
<th>296 (17%)</th>
<th>Wood Group PSN, based in Sidney, MT is hiring 20 workers per week, a percentage of which are operators. ND demand expected to create 8,399 new operator positions by 2020.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roustabouts and Extraction Workers</td>
<td>13* roustabout postings</td>
<td>227 (20%)</td>
<td>578 (50%)</td>
<td>Mitchell Oil Field Service, based in Sidney, MT is hiring 20 entry level workers per week. ND demand expected to drive 6,722 more new positions for these workers by 2020.</td>
</tr>
<tr>
<td>Diesel Technicians /Drivers</td>
<td>83 job postings with for diesel technicians or commercial</td>
<td>689 (0%)</td>
<td>1,784 (2%)</td>
<td>Watkins and Shepard Trucking alone indicates a need for 1,600 more truckers in the next four years in the attached letters of commitment. ND demand</td>
</tr>
</tbody>
</table>

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Understanding of Skills Required in Targeted Industries and Occupations

During development, the SWAMMEI project promoted a critical and mutual understanding of the knowledge, skills, and abilities (KSAs) required to fulfill employer needs in the targeted industries.

All project-related target occupations were analyzed in terms of sixteen knowledge areas, as many skill zones, and the same number of abilities using O*NET resources. This comprehensive analysis of KSAs was cross-referenced with feedback received directly from employers during our ongoing outreach process. To ensure the most accurate picture of the key KSAs for developing and implementing our project activities, SWAMMEI has retained employer commitments to ongoing involvement and continuous improvement of our program design and execution. In initial focus groups and interviews, employers expressed keen interest in being able to hire credentialed workers to reduce turnover and shorten the time from point of hire to full productivity. Industry-recognized credentials will be available and will be integrated into program design for most of the target occupations.

Ongoing Engagement of Employers: As demonstrated in the attached letters of commitment, almost 95% of the employers engaged in outreach efforts have committed to ongoing participation through project advisory committees that will play a hands-on role in the development of curriculum and other deliverables. Furthermore, SWAMMEI will pilot the concept of transforming advisory committees into state-wide sector partnerships.
Evidence indicates that such partnerships are a proven method for sustaining employer engagement.\footnote{Maguire, Freely, Clymer, Conway (2009). \textit{Job Training that Works: Findings from the Sectoral Employment Impact Study}. Public/Private Ventures.}

iii. Gap Analyses  

Analysis of Gaps in Existing Educational and Career Training Programs and System Infrastructure in Montana in Energy and Advanced Manufacturing  

\textbf{Description of community outreach process/gaps analysis:} In a state with only one million people, there are few secrets about which industries are growing. In energy, workforce demand in oil and gas exploration has fundamentally changed the economic and social fabric of the whole region. For the last three years, for instance, over 1,000 workers have \textit{commuted} bi-weekly from the Flathead Valley in northwest Montana to the Williston Basin over 600 miles away to fill some of the tens-of-thousands of new positions in the oil and gas industry. In advanced manufacturing, job growth has been similarly conspicuous. To quantify the prominent job growth in these areas, a three-pronged approach was used in conducting a formal gap analysis.

1) Institutional Researchers using a variety of techniques and data sources conducted a review of workforce demand (focused on high-wage, high-location-quotient occupations that require only short-term training) to identify gaps between the numbers of workers being prepared in a given field and the number needed by employers in the region. They determined significant gaps exist across the energy and advanced manufacturing industries. Analysis conducted through the Montana OCHE (on effectiveness of college programs in aiding students in completing programs, obtaining degrees, acquiring jobs and increasing wages) has been used to scrutinize the efficiency and effectiveness of college programs.

2) The Corporation for a Skilled Workforce (CSW) aided in implementing a business engagement strategy in conjunction with our proposed SWAMMEI project. CSW worked with participating colleges to engage local and regional businesses in a series of face-to-face discussions and interviews to identify areas where present training programs fell short of meeting these employers’ needs. In total, 150 employers contributed by
identifying key skills and competencies and target occupations, establishing goals for individual programs and partaking in hands-on involvement in curriculum development and program design. Colleges also held multiple workshops with public workforce development system partners including regional Job Service One-Stops, local K-12 school districts, community organizations (implementing TAA, WIA and other federally-funded workforce programs) and the SWIB. These meetings and discussions focused on creating training strategies that accelerate entry of TAA-eligible and other unemployed workers into the workforce.

(3) Once the project’s leadership team identified specific occupations and strategies, the team began targeted outreach to previously funded TAACCCT awardees with overlapping project objectives. Eight institutions (listed on page 31-32) provided significant guidance about grant administration, curriculum content, instructional approaches, and industry alignment. All but two of the proposed strategies in SWAMMEI were considerably shaped by previously-funded TAACCCT projects.

**Results of gap analysis:** Industry representatives helped highlight three distinct levels of deficiency during the gaps analysis: (1) **system-level gaps** that span the state’s entire educational system; (2) **industry-level gaps** wherein the workforce needs in specific industries significantly exceed the state’s ability to supply trained workers in those industries; and (3) **institution-level gaps** wherein individual institutions have instructional or infrastructural limitations. All of these gaps impact Montana’s ability to effectively serve TAA and other low-skilled adult populations and are more specifically addressed below.

**Identified Gaps and how gaps impact ability to effectively serve TAA-eligible and other adults seeking education or career training**
**System-Level Gaps**

**Time to Completion** — As documented by Complete College America, “time is the enemy of college completion.” In general, Montana’s trades-oriented training programs take too long to complete, requiring occupationally irrelevant coursework. Unlike skill certification credentials, non-degree credentials are what are usually needed/required for targeted occupations. Worker advocate groups, employers and the public workforce system all embrace shorter, more specific training aligned to employer needs.

**Developmental Math** is the most significant time sinkhole in higher education. The average Montana student who enrolls in developmental math never completes a course of study. Analysis of the 2010 student cohort demonstrates that developmental math students were 5 times less likely to earn 30 semester credits in one academic year than other students. Barely 50% of developmental math students earn even 15 credits in one academic year7 (compared with 72% with all other students).

**Factors that contribute to attrition** — A recent report analyzed studies that engaged a total of nearly 17,000 students – including students who had attended and left a number of institutions in Montana – about why they left a school6. Their findings: “four major reasons for departure account for 84% of the attrition rate: 1) College doesn’t care; 2) Poor service and treatment; 3) Not worth it; 4) Schedule (not being able to find courses to suit their needs).” Most Montana campuses lack cost-effective, specialized support services such as evidence-based coaching to engage, enable, and motivate students to persist through the non-academic challenges that impact credential attainment. Furthermore, colleges need channels for receiving ongoing and current information about student-perceived (and under-perceived) barriers to persistence and attainment. A primary function of comprehensive support services will be to note/report such barriers and to effect broad improvements through

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6 [http://www.completecollege.org/docs/Time_Is_the_Enemy.pdf](http://www.completecollege.org/docs/Time_Is_the_Enemy.pdf)
7 MUS Data Warehouse. Report compiled by OCHE 2013 on developmental math outcomes in MUS.
organizational awareness and tracking of barriers and remedies.

Education in rural/frontier environments — Providing sufficient trades-oriented educational opportunities to students and workers in rural/frontier communities is very challenging. Employers in these areas compete in the same global marketplace as everyone else to attract needed high-skill workers. However, the aggregate demand of all businesses in these communities is still minute, with a need for only 1-2 workers per year. For higher-education institutions in these communities; however, the high cost of starting and operating local trades-oriented programs for a relatively small number of students is not financially sustainable.

**Industry-Level Gaps**

Use of Labor Market Information — The two-year college system has no centralized analysis of current training programs in comparison to current job listings or projected occupational openings. A few colleges have institutional researchers with the capacity to conduct this analysis in their own college districts — most do not. This results in a lack of data to proactively align training programs with emerging occupations and industries.

Alignment with Industry Needs — (1) There is an almost inexhaustible need for regional oil and gas workers, particularly for entry-level roustabout, operator and heavy-truck driving occupations. Yet, no training programs in the state aim to provide the necessary skills to prepare workers for these occupations. Additionally, high salaries in North Dakota’s oil and gas industry have absolutely stripped colleges throughout eastern Montana of diesel technology instructors. Demand is desperate but there remains an inability to supply workers.

(2) In manufacturing, Montana’s training programs are antiquated, utilizing out-of-date technologies and lacking the depth of study required by industry. Training for welders, machinists, industrial mechanics, and electronics personnel is insufficient or, in most cases, lacking entirely. Specifically, employers found that local workers lack: [a] occupation-specific technical training for specific manufacturing occupations; [b] fundamental math skills; and [c] team-oriented soft skills. Currently, Montana businesses are forced to recruit out-of-state.
Entrepreneur Training: Industry representatives pointed out that the majority of local manufacturing companies are small and need enhanced entrepreneurial skills that would allow them to effectively expand their businesses and create job opportunities for lower-skilled workers. Additionally, target population members trained as truck owner/operators would benefit from e-ship training to launch their independent operations.

**Institution-Level Gaps**

**Limitations in faculty expertise** — (1) Most of the state’s manufacturing faculty, including welding instructors, have not yet embraced newer industry and instructional technology resulting in two specific gaps: [a] an absence of online training accessible to students in remote areas, and [b] training that lacks the technological sophistication required by globally competitive manufacturing businesses. (2) Despite research demonstrating the educational benefits of non-traditional math instruction, more than half of the 2-year college math faculty lack experience with those models and no college in Montana offers a fully implemented “Emporium model” of developmental math.

**Limitations in curriculum content and quality** — *Energy:* There are no programs that focus on preparing workers for the mass of entry-level positions in the oil and gas industry. *Manufacturing:* Again, present programs lack the technical depth and sophistication sought by local employers. We heard this consistent message during outreach related to SWAMMEI. *Math:* The quality and content of present math courses are limited in meeting needs of the target population. In the last three years, 100% of Montana’s TAA-eligible workers came to college without foundational math skills required for success in a manufacturing environment, yielding attrition rates close to 35%. Completion of a college-level math course is required for almost every college degree program, but 45% of recent TAA-eligible students have not attempted a math class. Fewer than half who attempted a remedial math course have gone on to attempt a college level math coursework, meaning that completing and moving beyond remedial math education remains a barrier for roughly 75% of Montana’s TAA population.

**Limitations in facility infrastructure** — Facility insufficiencies at Montana colleges consist of three recurring
voids: [a] many smaller schools lack lab space and/or appropriate equipment to support training programs in manufacturing and welding; [b] some colleges with appropriate lab space lack the appropriate HVAC systems to safely accommodate expansion of their programs; [c] colleges looking to operate math labs to support an Emporium model of math instruction lack appropriate lab space to accommodate this model of instruction.

Need for specialized equipment — Manufacturing: The SWAMMEI project’s success depends upon the ability of our students to access comprehensive “Practical Skills Assessment Training Centers” where they can complete the hands-on components of their online training programs. These centers, therefore, each need a comprehensive set of training equipment/learning systems (such as Amatrol® learning systems) sufficient to conduct a breadth of practical assessments. Also, some institutions require specialized equipment to conduct aspects of the hands-on training on campus, such as industrial lathes, welders, modern CNC machines and manufacturing industry software (e.g., Solidworks™). Some colleges are also building fabrication laboratories for students at the advanced end of training interested in product-based entrepreneurship, including water jets, 3D printers and plasma cutters. Energy: Some colleges will require additional trucks to conduct CDL, heavy operations and diesel mechanics training expanded by this project. Diesel training will also require specific training equipment including powertrains, diagnostic kits, trainers, hydraulic equipment, and engines.

2. Methodology and Work Plan
   i. Evidence-Based Design

   Review of Evidence
   The most comprehensive evidence-based strategies to address challenges faced by low-skilled adult students are found within the Breaking Through initiative’s framework of “high leverage” strategies. Breaking Through (BT) currently works directly with 41 community colleges in 22 states (including some colleges involved in the SWAMMEI consortium) to implement broad educational strategies: (a) providing comprehensive support

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9 BT is a collaboration between Jobs For The Future and the National Council for Workforce Education with funding from sources including the Bill and Melinda Gates and Charles Stewart Mott foundations.
services, (b) accelerating the pace of learning, (c) creating labor market payoffs, and (d) increasing pathways into college, particularly for low-skilled workers. Research demonstrates that implementation of individual BT strategies leads to significant gains in student retention, success and completion. The impact of these strategies is enhanced further when integrated in a collective synergistic approach. With significant overlap between BT strategies and the Core Elements proposed by U.S. DOL in its TAACCCT III SGA, the Montana consortium has utilized the BT “high leverage strategies” framework in developing this project to: (1) identify areas where colleges currently lack BT best practices and (2) develop strategies/activities to improve student outcomes. Collectively, and without redundancy, these strategies will help accelerate the pace of student learning, improve the design of programs for low-skilled workers, and increase labor market payoffs for students.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Review of Evidence for Program Design</th>
<th>Use of Evidence in Program Design</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stackable Certificates</strong></td>
<td><strong>Strong Evidence</strong>: Traditional 2-year degree programs do not serve low-skilled workers well as evidenced by national completion rates that hover around 20 percent at community colleges. BT emphasizes shorter-term trainings (i.e., certificates, credentials) as “essential” for low-skilled adults to advance in the labor market. Further, numerous studies make it clear that certificate programs are more relevant to employers, and students are better prepared when employers are highly engaged in the curriculum development process.11</td>
<td><em>(Activity 1.1, 1.2, 1.3, 2.1, and 2.2)</em> The main thrust of this proposal is the replication of latticed and stackable certificate programs in the energy and advanced manufacturing industries, a strategy promoted by BT research, large national nonprofits, and the U.S. Department of Labor (DOL).</td>
</tr>
<tr>
<td><strong>Apprenticeships</strong></td>
<td><strong>Moderate Evidence</strong>: Apprenticeship and pre-apprenticeship opportunities have been demonstrated to both reduce unemployment through better employer alignment and to increase opportunities for underserved populations.12</td>
<td><em>(Activity 5.3)</em> Apprenticeships will be integrated into stacked and latticed credentials for welders, industrial electronics, and diesel technician tracks (possible pre-apprenticeship in machining).</td>
</tr>
</tbody>
</table>

| 3-Course Entrepreneurship | Moderate Evidence: Entrepreneurship-specific education has been demonstrated in multiple studies to increase the likelihood that a student will start his/her own business (~25% more likely), develop new products, and earn significantly higher wages than students with only business training.  
(Activity 3.1) SWAMMEI makes an existing 3-course entrepreneurship endorsement available to students throughout Montana. |
| Fabrication Laboratories | Preliminary Evidence: While access to rapid prototyping equipment and comprehensive machine shops has been demonstrated to help product-based entrepreneurs enhance their businesses, research on the impact of “fab labs” is scarce.  
(Activity 3.2) Helena and FVCC will initiate product-based entrepreneurial opportunities in manufacturing by initiating fabrication laboratories. |
| Sector Strategies | Strong Evidence: a three-site random assignment study of sector-focused training found participants earned 18% more than controls over a 24-month period. Results led the authors to recommend that states invest in employment-linked job training programs. Partnerships among workforce system, educational institutions and employers enhance employment and wages.  
Montana Manufacturing Extension Center will oversee a state-wide sector strategy for manufacturing. A state-wide advisory committee will also be created to spur opportunity for entrepreneurs. |
| Comprehensive Support Services: | Innovative institutions are taking various approaches to providing comprehensive supports.  |
| Coaching | Strong Evidence: Coaching is a more cost-effective method of achieving retention and completion gains compared to other intervention strategies. In a key large-scale study involving more than 8,000 coached students, across years and a variety of institutions, coaching has been shown to increase retention and completion rates consistently by more than 10%.  
The research on the subset of seven well-executed lotteries (described in the key study) meets the Dept. of Education’s What Works Clearinghouse evidence standards “without reservation.”  
(Activity 4) Replicating successes of TAACCCT awardees (like the Alabama PAVES consortium), SWAMMEI will integrate use of remote coaches to support retention of participating students. Key insights gained during regular student coaching meetings will be shared among consortium institutions and within departments/offices to address participant- and coach-identified barriers to persistence. SWAMMEI will engage coaching subject matter experts to design and implement a successful, sustainable coaching program model. |

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<table>
<thead>
<tr>
<th>Workforce Navigators</th>
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<tr>
<td><strong>Moderate Evidence:</strong> Specific 1-on-1 strategies of student support have been shown to be more cost-effective (than other intervention methods) in achieving retention and completion gains, other educational outcomes, increasing retention and completion rates by more than 10%.&lt;sup&gt;19&lt;/sup&gt; <strong>(Activity 5.1)</strong> Public workforce system partners and colleges agree to utilize Workforce Navigators to recruit, assist and guide participants and perform assessment using the NCRC®. This replicates strategies that have demonstrated significant results in previously-funded TAACCCT consortium projects in Washington&lt;sup&gt;20&lt;/sup&gt; and elsewhere (MOTT College, MI).</td>
</tr>
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<tr>
<th>Creating Pathways to College: Colleges that integrate adult education, workforce development and non-credit programming into developmental programming are seeing increases in learning gains.&lt;sup&gt;21&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Moderate Evidence:</strong> Many colleges involved in BT (and previously-funded TAACCCT projects) utilize WorkKeys® assessments and KeyTrain® products to funnel students into appropriate career paths and allow them to address soft-skill and technical voids through outside-the-classroom training&lt;sup&gt;22&lt;/sup&gt;. Soft skill training has been demonstrated to prepare employees better than hard-skills training alone.&lt;sup&gt;23&lt;/sup&gt; The NCRC, a WorkKeys®-based certificate, used in dramatically different ways by different agencies, is used in over 25 states. SWAMMEI replicates the implementation strategy of the previously TAACCCT-funded Spokane Area Workforce Council which has consistently demonstrated in well-designed experiments that their NCRC delivery model leads to improved employment outcomes. <strong>(Activity 5.2)</strong> Public workforce partners and the college have committed to replicate utilization of the NCRC component of the WorkKeys® system in assessing participants for this project, a strategy that has demonstrated significant results in states like Georgia and Washington where the product is used across the workforce system.</td>
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<tr>
<th>National Career Readiness Certificate®</th>
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<tbody>
<tr>
<td><strong>Moderate Evidence:</strong> Review of moderate to strong findings from 34 papers reach different conclusions about online learning with some studies finding that online coursework may hinder progression for low-income students, and a recent meta-analysis of high-quality studies suggested that online learning yields similar or better outcomes than does face-to-face learning.&lt;sup&gt;24&lt;/sup&gt; The focus of SWAMMEI is creating online/hybrid stackable credential programs that utilize a common technology platform that allows faculty with access to best-practice synchronous/ asynchronous teaching platform (e.g., Elluminate).</td>
</tr>
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<sup>19</sup> Karp, M. (2011). Toward a new understanding of non-academic student support: Four mechanisms encouraging positive student outcomes in the community College Research Center.

<sup>20</sup> Conversations with Spokane Area Workforce Development Council's Director Dawn Karber on April 24, 2012, and Mott Community College's Judith Cawhorn on March 20, 2012.

<sup>21</sup> Ibid, 2


### Accelerating the Pace of Learning:
There is strong evidence that extending the time-to-completion is the primary contributor to college attrition.  

<table>
<thead>
<tr>
<th>Prior Learning Experience</th>
<th>Strong Evidence: Students who earn credit through the Council for Adult and Experiential Learning’s (CAEL) prior learning assessment have higher graduation rates, better persistence and lower time-to-degree completion than those who do not earn such credit.</th>
<th>SWAMMEI is replicating CAEL’s well-utilized evidenced-based “Ten Standards” to guide recent prior learning assessment (PLA) policy and procedure development.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redesign Developmental Math</td>
<td>Strong Evidence: Others suggest that there are a variety of models for redesigning developmental education that colleges can employ, including Supplemental, Replacement, Emporium, Fully Online and Buffet. Multiple research studies indicate that the I-BEST model, which contextualizes developmental learning within career-oriented gateway courses, has significant positive impacts on credit hours earned, award completion, and attainment of basic skills.</td>
<td>(Activity 6) SWAMMEI curriculum will replicate the I-BEST model in key gateway courses for the advanced manufacturing program tracks in Technical Math I and II, integrating instruction of developmental education into a contextualized framework as a strategy demonstrated to increase learning outcomes and completion rates in Washington State.</td>
</tr>
<tr>
<td>Emporium Model of Developmental Math</td>
<td>Strong Evidence: The Emporium model is a highly-structured, computer-aided and student-centered approach to developmental math that emphasizes interactive learning, immediate feedback, and self-pacing. Institutions that have used the Emporium models report a 51% increase in completion of developmental math courses, a 25% increase in completion of college-level math courses and a 30% reduction in the cost of instruction in two-year colleges. In addition, the Emporium model emphasizes inclusion of many of the “strong” evidence-based pedagogical elements (listed below with its research backing) included in other research and is further supported by “preliminary” evidence from the growing number of institutions.</td>
<td>(Activity 2.1 and 6) SWAMMEI allows six colleges to transition their traditional didactic developmental math model into a computer-based Emporium-type model replicating use of proven cutting-edge software that longitudinal NCAT research has consistently demonstrated leads to learning and cost improvements (including TAACCCT-funded projects).</td>
</tr>
</tbody>
</table>

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29 Program in Course Redesign: Project Descriptions Sorted by Model. [http://www.thencat.org/PCR/Proj_Model.htm](http://www.thencat.org/PCR/Proj_Model.htm)
ii. Stacked and Latticed Credentials

Industry Engagement to Identify Credentials

Fifty-seven (57) businesses, industry associations, and business advocacy groups have committed support to SWAMMEI. Employers and industry representatives were intimately involved in identifying gaps in the present training system, designing proposed programs, and committing (by an impressive majority—95% of engaged businesses) to stay involved through the duration of the project. One key to their ongoing involvement in project advisory committees will be fleshing out the curricular details of the proposed programs aimed at identifying: (1) how the curricular track overlaps with preferred industry-recognized credentials and (2) which components of these hands-on training programs can effectively be delivered online. In identifying nationally-portable credentials in advanced manufacturing, industry representatives will continue exploration of specific Manufacturing Institute-endorsed credentials like the NCRC, American Welding Society’s (AWS) welding certifications, and National Institute for Metalworking Skills (NIMs) credentials.

To address employer needs interdependently across Montana, SWAMMEI will also create three state-wide sector strategy councils to develop industry and solution-oriented sector strategy. Montana Manufacturing Extension Center (at MSU) will oversee the manufacturing sector strategy; other project staff will oversee sector strategies focused on energy and entrepreneurship.

Plans to Stack and Lattice Credentials

SWAMMEI creates an entire ecosystem of stackable and interwoven credentials. The certificate programs included in the SWAMMEI project are specifically designed to link together and build off of one another to create a set of transparent career pathways. While some courses and industry-recognized components of the project tie in seamlessly with other local and regional initiatives (e.g., the proposed NCRC strategy mimics one utilized for all students entering the aviation pipeline in Washington State), this project will fill a noticeable void.

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in both manufacturing and energy training programming in Montana.

The tables on page 21 and 22 demonstrate the interconnection of the proposed curriculum “stacks” in each targeted industry. Each stack labeled “Level” represents a 16-29 credit certificate program (the “Oil and Gas Fundamentals” track is a non-credit exception). Students completing two certificates would be able to earn a Certificate of Applied Science (CAS) degree and those completing 3-4 stacks would be well situated to earn an Associate’s degree with another semester of study focused on general education.

As demonstrated in the tables, many of the occupational tracks align with a well-established NAM-endorsed industry-recognized credential or credentialing body, making training programs as portable across the nation as possible at each level of achievement. All these stacks will become approved certificates in the common-course-numbered MUS System within 12 months of the SWAMMEI project start date.

Prior Learning Assessment (PLA)

CAEL is the unquestioned leader of prior learning assessment. Montana has adopted CAEL’s “Ten
Standards” for assessing learning and leveraging multiple approaches to PLA. Utilizing the American Council on Education (ACE) recommendations for military credit, the Montana Board of Regents approved awarding credit for courses completed in military service schools and training programs at the associate degree level. Any student can challenge courses based on work completed through private study or coursework completed at non-accredited institutions with course challenges considered on an individual basis by instructors (with multiple mechanisms available to evaluate students, including portfolio-based assessments for course-challenges). Students can also request substitute courses from Montana colleges when they believe they can demonstrate proficiency in a given required course. Colleges also accept College Level Examination Programs (CLEP) general and subject exams, awarding credit based on the ACE recommendations for both AP and CLEP. Furthermore, participating Montana colleges recently completed CAEL’s Adult Learning Focused Institution
(ALFI) tool, which will inform any necessary changes to college policies. Coaching may also dovetail with the PLA processes to increase credit attainment. Coaches will be uniquely positioned to help campuses and students recognize potential eligibility for students to pursue benefits of PLA. The Montana University System adheres to prior learning standards established by the Northwest Commission on Colleges and Universities.

iii. Transferability and Articulation

Transition from Non-credit to Credit-bearing Courses

SWAMMEI creates efficiencies across two-year college and public workforce systems by creating a single stacked credential program (in each of several occupational tracks) with the same numbering, titles, and prefixes at each participating college. Montana’s statewide Common Course Numbering (CCN) initiative has made the student transfer process transparent and seamless across the Montana University System (MUS), which includes the five Montana State University campuses, six University of Montana campuses, Montana’s three community colleges and seven tribal Colleges. The CCN policy ensures that all such equivalent courses will be accepted in transfer as if they had been taken at the receiving campus. SWAMMEI takes this project a step further. Almost every respective SWAMMEI course will be taught by a single instructor, teaching a cohort of students from across all participating colleges simultaneously. That is, courses across participating institutions will be commonly titled and numbered as they are in fact the same courses. Multiple MUS policies allow students entering or exiting the SWAMMEI project with competencies to receive credit and avoid inefficient replication of training. For example, the State of Montana has a robust apprenticeship program engaging 518 sponsoring employers in 50 different occupations. The consortium leadership team has also worked with the State Director of Apprenticeship and Training Programs to identify areas where occupational tracks in welding, diesel mechanics and industrial maintenance could articulate into existing apprenticeship programs. This reduces the number of hours and training modules required to complete apprenticeship programs (e.g., reducing apprenticeship requirements by 3,000 hours and reducing the modules to be completed from 25 to 10). The project director
will work with the State Registered Apprenticeship Program to create a pre-apprenticeship program in manufacturing. Further, for students continuing into for-credit Process and Power Plant programs (City College), education from the non-credit SWAMMEI oil and gas training programs (safety, rigging, etc.) will be provided 3-5 credits for competencies already gained (this articulation understanding may also be extended from Bismarck State College into their Petroleum Technician program).

The table below describes these articulation strategies for transfer in greater detail.

<table>
<thead>
<tr>
<th>Name of Partner Institution</th>
<th>Steps</th>
<th>Approval Necessary</th>
</tr>
</thead>
<tbody>
<tr>
<td>FVCC</td>
<td>Approval of Manufacturing Tracks</td>
<td>FVCC Curriculum Committee and Montana Board of Regents</td>
</tr>
<tr>
<td>6/1/14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFC</td>
<td>Approval of Welding Tracks</td>
<td>GFC Curriculum Committee and Montana Board of Regents</td>
</tr>
<tr>
<td>6/1/14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSU-N</td>
<td>Approval of Diesel Technology AAS</td>
<td>MSU-N Curriculum Committee and Montana Board of Regents</td>
</tr>
<tr>
<td>6/1/14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MC</td>
<td>Approval of Energy Track</td>
<td>MC Curriculum Committee and Montana Board of Regents</td>
</tr>
<tr>
<td>6/1/14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montana Registered</td>
<td>Articulation of credit hours and training from curricular tracks into</td>
<td>Montana Registered Apprenticeship Program</td>
</tr>
<tr>
<td>Apprenticeship Program</td>
<td>existing apprenticeship opportunities in welding, industrial</td>
<td></td>
</tr>
<tr>
<td>(non-consortium)</td>
<td>maintenance and diesel mechanics</td>
<td></td>
</tr>
<tr>
<td>12/1/14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montana Registered</td>
<td>Exploration and development of an articulate apprenticeship program</td>
<td>Montana Registered Apprenticeship Program</td>
</tr>
<tr>
<td>Apprenticeship Program</td>
<td>in manufacturing, if possible</td>
<td></td>
</tr>
<tr>
<td>12/1/14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TREND (previously TAACCCT-funded consortium)</td>
<td>Formalize articulation of SWAMMEI non-credit oil and gas program into for-credit Process and Power Plant programs</td>
<td>City College (Bismarck State College)</td>
</tr>
</tbody>
</table>

iv. Online and Technology-Enabled Learning

Incorporation of Technology into Program Design and Delivery

How Online Learning Programs Will Serve TAA-Eligible Workers: Recognizing that physical access to appropriate training is a primary barrier in our state, SWAMMEI aims to maximize online opportunities for participants in all areas where these mechanisms have promise to effectively engage low-skilled workers, enhancing technology offerings in five major ways to improve success.
(1) SWAMMEI will employ an advanced learning platform (like Blackboard’s Elluminate™) to deliver online content to students for all project-funded online programs across all participating institutions. These platforms allow instructors opportunities for asynchronous and real-time collaboration amongst and between students and instructors, a major enhancement. Such platforms feature two-way audio, multi-point video, interactive whiteboards, application and desktop sharing, rich media, breakout rooms, and session recording allowing educators and students to engage as actively as or more actively than possible in traditional classroom settings, a major advancement for most participating colleges, allowing students 24/7 web-based course access without any other significant infrastructure. (2) The Emporium instructional model relies on cutting-edge software (such as Hawkes’s Developmental Math and ALEKS®, utilized in Hawaii’s TAA-funded project) that integrates elements of game-design and continuous feedback, personalizing course instruction based on a student’s strengths and skills-gaps, as administered through an instructor-designed curriculum. Consistently, Emporium-style models have been shown to lead to improved educational outcomes and completion rates for a variety of students, including those in developmental courses. Thus, transition to this model is critical to serving the needs of TAA-eligible students. Partners pursuing this model are at different points of transition from more traditional delivery methods to a computer-based model; however, they will experience improved transition to this best practices model during the SWAMMEI project. (3) SWAMMEI will bring remote support services to students, providing expert teams of coaches experienced in using phone, e-mail, text, and video technologies as necessary to connect with participants in the most effective and convenient ways possible. Subject matter experts in coaching will help ensure coaches reach and support returning adult learners and those living in rural areas, with an emphasis on engaging technologies essential to the participants’ educational success. Coaches will help students anticipate and overcome household distractions that can seriously impede online learning success. (4) Integrated Online Work Readiness Assessment: Implementation of the NCRC+ (three bundled
WorkKeys® assessments plus soft skills assessment) is a key component to integrating the isolated elements of Montana’s workforce development and economic development system. Utilization of WorkKeys online assessments and training provides a common metric as a skills assessment, an educational advising tool and an effective hiring filter for employers. Because the assessment and training elements are online, the resource is easily accessible to partners working in different physical locations with the same clients. (5) **Manufacturing Simulators:** Evidence is mounting that simulators are increasingly important learning tools, particularly in the field of manufacturing. During the SWAMMEI project, faculty will use virtual and interactive learning systems like those created by Amatrol®, the leading provider of skills-based, interactive technical learning, to reconstruct traditionally-taught course content. All online content resulting in grades will conform to Sharable Content Object Reference Model (SCORM) industry standards. These simulators replicate traditional machinery and facilitate hands-on experiments that stress active problem solving, task-based curriculum, and a risk-free environment. Simulators have several key advantages over real-life equipment, particularly reduction of ongoing depreciation costs for equipment constantly needing replacement. These simulators also allow students to conduct self-assessments independent of instructors.

**Expected Impact of Technology on Program Outcomes**

(1) A common advanced learning platform improves instructional infrastructure at most participating colleges, homogenizes the teaching platform across all TAACCCT-funded strategies and allows students with internet-connected computers to participate in significant new training opportunities. The common platform allows courses and faculty to be shared with student cohorts across the system, decreasing development and implementation costs. (2) **Emporium Model Mathematics:** Research and the experience of other TAACCCT-funded agencies suggest we can anticipate a 15-20% increase in developmental math completion.

rates by transitioning to a technology-enabled Emporium-style model of instruction. For instance, colleges in Hawaii piloting a TAA-funded Emporium model witnessed developmental math completion rates jump from 19% to 37% in the last year. Furthermore, some Emporium models have reduced dropout rates by 50% and allowed students to finish courses four weeks faster. (3) Technology-enabled Coaching: While occasional deviations from expectations are possible due to statistical volatility, student coaching is anticipated—based on both published studies and our interfacing with prior TAACCCT awardees—to help deliver the numerical outcomes included in this application by catalytically connecting students’ short-term task-success and motivation with their longer-term goals, including career planning, job searching, and employment management. By focusing on phone meetings augmented by other communications technologies, coaches will support Outcomes 2, 3, 4, 5, and 7 while maximizing participant benefits from the other Core Elements addressed through SWAMMEI. (4) Integrated Online Work Readiness Assessment: We anticipate that a minimum of 500 individuals per year will be assessed using WorkKeys during the SWAMMEI project. Employers involved in development of this project expressed a need for additional screening in their hiring processes and have committed to piloting the use of the WorkKeys assessment during this project. We anticipate these assessments will play a role in the placement of a minimum of 100 workers during this project and will increase the retention of employees for participating businesses, a metric to be tracked throughout the project. (5) The integration of Manufacturing Simulators in training participants reduces the amount of hands-on training needed by students by replacing the practical components with effective simulations available online and accessible to students wherever they are.

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38 Within percentage point ranges of statistical variance to be forecast at an approximately 90 confidence level, based on the final sample size established.

39 "An employer's use of the National Career Readiness Certificate (or any three or more of the WorkKeys foundational skills assessments) is valid under current professional standards without the need for a local validity study, based on meta-analytic validity generalization research and related research. The cumulative research findings of numerous professionals over many years, including the thirty years of research that has taken place since the Uniform Guidelines were released in 1978, show that [the] WorkKeys [system] meets the requirements for criterion-related validity, content validity, and construct validity, through application of validity generalization research findings and related research.” [http://www.act.org/workkeys/validity.html]
strenthening workforce alignment in montana’s manufacturing and energy industries (swammei)

across the state. thus, students in remote areas are required to spend less time at locations capable of assessing the hands-on components of training, making completion less costly and more feasible.

v. strategic alignment

coordination with governors economic development and wia-wp integrated state workforce plan

this project supports two of four key goals in the state of montana integrated workforce plan: (1) modification of job training programs and post-secondary education to better meet the needs of workers and employers; and (2) re-employment of workers experiencing long-term unemployment due to the recent economic recession. the governor’s office has committed resources to the project in advising and helping develop and refine the entrepreneur educational option. expanding access to and increasing affordability for montana’s two-year colleges has been emphasized over the past several years, due in part to the college!now grant project (funded through montana’s oche by the lumina foundation). the commissioner’s office has driven development of swammei by engaging a consultant to analyze lmi to determine the most appropriate focus for this consortium, heading the steering committee developing the project and working to engage the best mix of consortium members, one-stop centers, the montana dli and private industry.

coordination with employers and industry organizations

during development of this project, over 150 businesses were interviewed in the targeted industries, with many of those businesses also participating in focus groups aimed at identifying gaps in existing training programs. fifty-seven (57) of those businesses have made specific commitments to remain engaged in the project through contributions that include: ongoing assistance in defining program strategy and goals; assisting with curriculum development; utilizing the ncrc as a hiring tool; developing paid pre-apprenticeship programs at participating colleges; participating in sector-focused strategies (manufacturing, energy and entrepreneurship); providing equipment; hiring project participants. specific commitments are captured by employer in the
attached letters of commitment. 95% of businesses have committed to ongoing participation in advisory boards or sector-strategy councils.

**Apprenticeships**

We heard a common refrain from employers in the targeted industries in Montana: increase work-based training. Among various mechanisms across the state, we determined that working with the Montana Registered Apprenticeship Program (MRAP) to align SWAMMEI’s programs with existing apprenticeship programs and designing new pre-apprenticeships should yield the best results.

<table>
<thead>
<tr>
<th>Opportunity (Industry)</th>
<th>Linked SWAMMEI Training</th>
<th>Length</th>
<th>Employers # participants Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Welding (Combination) Apprenticeship (Manufacturing Industry)</td>
<td>Welding, and Welding and Fabrication</td>
<td>2-4 yrs</td>
<td>Hundreds of employers across the state regularly offer apprenticeship opportunities (listed on MRAP website) for welders, diesel mechanics and industrial electricians. During SWAMMEI, project personnel and participating businesses will work with MRAP to explore development of a pre-apprenticeship program in manufacturing that will supply on-the-job training in line with proposed training.</td>
</tr>
<tr>
<td>Registered Diesel Mechanic Apprenticeship</td>
<td>Diesel Mechanics AAS</td>
<td>4 yrs</td>
<td></td>
</tr>
<tr>
<td>Registered Millwright/Industrial Electrician Apprenticeship</td>
<td>Industrial Maintenance; Industrial Electronics</td>
<td>2-4 yrs</td>
<td></td>
</tr>
<tr>
<td>Manufacturing pre-apprenticeship</td>
<td>Machinist Levels II, III, IV</td>
<td>TBD</td>
<td></td>
</tr>
</tbody>
</table>

**Coordination with the Public Workforce System**

Montana’s DLI has been represented on the project steering committee from the start, promoting understanding of the state’s labor climate, advising on appropriate education strategies to address workforce needs and helping define overall project scope. Three SWAMMEI strategies will bridge existing gaps between the public workforce system and participating colleges. 1) The local 2-year college(s) and their Job Service One-Stop Centers will share a cross-trained Workforce Navigator to help students leverage existing funding, support and training services. 2) Workforce Navigators will also administer the NCRC+ to project participants. Provided in both college and One-Stop settings, the tool assesses workers’ existing competencies, enabling navigators to counsel individuals efficiently into appropriate jobs and training programs. 3) The aforementioned alignment of SWAMMEI programs and MRAP apprenticeship programs represents an additional shared strategy.
Coordination with Philanthropic Organizations, Business-related and Other Non-profit Organizations, Community-based Organizations, and Labor Organizations

While countless existing relationships with individual colleges and outside organizations will be leveraged to benefit SWAMMEI participants, four major partnerships impact this project on the systemic level. (1) The project director will work with Montana’s Chamber of Commerce to promote the use of the NCRC+. The success of this tool is based upon the willingness of employers to utilize and understand the certificate in screening applicants. (2) Montana Manufacturing Extension Center (MMEC) will coordinate a state-wide sector-strategy in the manufacturing industry. MMEC will be used primarily to leverage its existing relationships with manufacturing employers across the state. (3) MRAP is closely affiliated with labor organizations (e.g., Plumbers & Pipefitters Local #41 JATC) and industry standards. (4) SWAMMEI aligns its training programs with Manufacturing Institute (an affiliate of NAMs)-endorsed industry-recognized credentials in the appropriate occupational tracks, ensuring that students gain the benefit of nationally transferable credentials.

vi. Alignment with Previously-Funded TAACCCT Projects

This project strategically draws upon TAACCCT successes far beyond Montana. Eight previously-funded grantees have had significant influence in shaping the SWAMMEI project. **Project Administration:** Clackamas CC (OR) has played a large mentorship role in guiding Great Falls College in the development of a feasible grant administration and implementation strategy. SWAMMEI also employs an administrative collaboration model initiated by the Consortium for Healthcare Education Online. **Manufacturing:** SWAMMEI’s manufacturing curriculum replicates the stacked credential program created by Flathead Valley CC (MT) in TAACCCT Round II. However, with guidance from TAACCCT-funded Aims CC (CO), SWAMMEI utilizes technology to replace FVCC’s more traditional curriculum with technologically-enhanced consolidated online courses. **Welding:** Under Round I, Fort Peck CC (MT) consolidated its welding program to a semester. We take this a step further, consolidating FPCC’s existing curriculum down to a 9-12 week program to reduce time to
Coaching: Our plan to secure and enhance student services by engaging coaching subject matter experts builds on models being implemented with success by Round I consortiums (Univ. of Hawaii CCs; PAVES⁴⁰), expanding the geographic reach of this strategy. SWAMMEI modifies the program, however, to hew more closely to the evidence-based model. Innovating more sustainable program designs, we expect individual and institutional impacts and positive effects of coaching to continue beyond the project period, propelling lasting change across Montana colleges and among TAA-eligible participants. To avoid staffing and funding bottlenecks and reduce hurdles to implementation, SWAMMEI reviewed lessons learned by the PAVES consortium. Energy Curriculum: SWAMMEI slightly modifies the non-credit energy-industry curriculum created by the TAACCCT-funded ShaleNET consortium (PA), and supported by the TAACCCT-funded TREND consortium in ND, featuring Safeland USA® and IACD Rigging® training (both have agreed to provide ongoing guidance to consortium colleges).

vii. Project Work Plan
Feasible and Realistic Activities and Time frames

<table>
<thead>
<tr>
<th>Activity 1: Implementation of Energy Industry Stacked Credential Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 1.1:</strong> Replicating previously TAACCCT-funded programs, using primarily Open Educational Resources (OER), Activity 1.1 formalizes, approves and implements non-credit oil and gas programs across participating colleges.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participating Colleges: Bitterroot, City College, Dawson CC, Little Big Horn</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start Date: 12.1.13</strong></td>
</tr>
<tr>
<td><strong>End Date: 8.1.16</strong></td>
</tr>
<tr>
<td><strong>Lead College/Key Implementer: City College</strong></td>
</tr>
<tr>
<td><strong>Total Cost:</strong> $1,136,412</td>
</tr>
<tr>
<td><strong>Equipment:</strong> $120,000</td>
</tr>
<tr>
<td><strong>Year 1 cost:</strong> $492,926</td>
</tr>
<tr>
<td><strong>Year 2 cost:</strong> $361,034</td>
</tr>
<tr>
<td><strong>Year 3 cost:</strong> $282,452</td>
</tr>
</tbody>
</table>

**Milestones Year 1:** (a) Hire faculty to formalize curriculum in partnership with industry partners; (b) Procure necessary new equipment; (c) Formalize coordination of Eastern Montana Oil and Gas Industry Advisory Committee to approve curriculum design; (d) Coordinate program schedule across participating institutions; (e) Market to/recruit students into non-credit stacked programs; (f) Market program to industry partners; (g) First cohort enters training program and placed in jobs in summer of 2014 – 7 different training opportunities offered in Year 1 in the state. **Milestones Year 2:** (a) Formalize

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articulation agreement with Bismarck State College Petroleum Technician program; (b) Ongoing implementation of training and placement activities - 11 different training opportunities estimated for Year 2 in the state. **Milestones Year 3**: (a) Assessment of retention and completion rates in comparison to traditional academic tracks; (b) Ongoing implementation of training and placement activities - 11 different training opportunities estimated for Year 3 in the state. **Milestone Year 4**: Ongoing tracking of employment placement and retention rates.

**Deliverables and expected date(s) of delivery to U.S. DOL /hereafter “Deliverables (dates)”:** Approved curriculum and course description for four non-credit oil and gas programs (6.30.14); Oil and Gas Advisory Committee Meeting Minutes (ongoing); Schedule of planned course implementation across the state during the project period (4.01.14)

**Activity 1.2**: Creation, augmentation and approval of curriculum necessary to implement transportation-oriented occupations needed within the oil and gas industry

**Participating Colleges**: Bitterroot, City College, Great Falls, Helena, Fort Peck CC, Highlands, Miles City CC

<table>
<thead>
<tr>
<th>Start Date: 11.1.12</th>
<th>End Date: 9.30.17</th>
<th>Lead College(s) Key Implementer(s): Great Falls College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost: $1,478,440</td>
<td>Equipment: $323,500</td>
<td>Year 1 cost: $559,241 Year 2 cost: $565,335 Year 3 cost: $353,864</td>
</tr>
</tbody>
</table>

**Milestones Year 1**: (a) Hire faculty to assist in expansion of program; (b) Procure necessary new equipment; (c) Market to/recruit students into certificate programs; (d) First cohort enters training program in spring of 2014 and placed in jobs by end of 2014. **Milestone Year 2**: Ongoing implementation of training and placement activities. **Milestones Year 3**: (a) Assessment of retention and completion rates in comparison to traditional academic tracks; (b) Ongoing implementation of training and placement activities. **Milestone Year 4**: Ongoing tracking of employment placement and retention rates.

**Deliverables (dates):** No deliverables expected in conjunction with activity 1.2.1

**Activity 1.2.2**: Creation, augmentation and approval of curriculum necessary to implement hybrid/online diesel technician certificate programs; procurement of equipment and supplies; and tackling necessary renovations.

**Participating Colleges**: MSU-Northern and Helena College

<table>
<thead>
<tr>
<th>Start Date: 11.1.12</th>
<th>End Date: 6.30.17</th>
<th>Lead Colleges/Implementers: MSU-Northern, Helena College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost: $2,726,772</td>
<td>Equipment: $2,008,900</td>
<td>Year 1 cost: $2,322,969 Year 2 cost: $269,232 Year 3 cost: $134,571</td>
</tr>
</tbody>
</table>

**Milestones Year 1**: (a) Hire faculty to assist in curriculum development and implementation of the program; (b) Procure necessary new equipment; (c) Train faculty in use of technology platform; (d) Create and gain approval of new and augmented curriculum in conjunction with state-wide advisory committee; (e) Market to/recruit students into certificate programs; (f) Identify and formalize apprenticeship opportunities; (g) First cohort enters training program in fall of 2014. **Milestones Year 2**: (a) Formalize articulation agreements between new curriculum and MSU-N’s 4-year diesel program; (b) Ongoing implementation of training and placement activities. **Milestones Year 3**: (a) First student cohorts placed in jobs in industry and apprenticeships (b) Assessment of retention and completion rates in comparison to traditional academic tracks; (c) Ongoing implementation of training and placement activities. **Milestone Year 4**: Ongoing tracking of employment placement and retention rates.
Strengthening Workforce Alignment in Montana’s Manufacturing and Energy Industries (SWAMMEI)

### Deliverables (dates):
- Curriculum and course description for new courses and program curriculum (8.30.14); new Diesel Technician AAS program approved (12.1.14) in MUS system

### Activity 1.3:
Creation, augmentation and approval of curriculum necessary to implement hybrid/online energy technician programs, including finalization of curriculum and procurement of equipment and supplies.

### Participating Colleges:
Bitterroot, City College, Dawson CC, Great Falls, Helena, Fort Peck CC, Little Big Horn, Missoula, MSU-Northern

### Table 1:

<table>
<thead>
<tr>
<th>Start Date: 11.1.14</th>
<th>End Date: 9.30.17</th>
<th>Lead Colleges: City College, Helena College, Missoula College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost: $538,898</td>
<td>Equipment: $190,000</td>
<td>Year 1 cost: $171,932</td>
</tr>
</tbody>
</table>

### Milestones Year 1:
1. Align curriculum with industry needs and stacked credential model.
2. Procure necessary new equipment.
4. Create and gain approval of new and augmented curriculum in conjunction with the advisory committee.
5. Renovate classroom space to accommodate new equipment, faculty and supplies.
6. Market to/recruit students into certificate programs.
7. Identify and formalize apprenticeship opportunities.

### Milestones Year 2:
1. First cohort enters training program in Spring of 2015.
2. Formalize articulation agreements into existing AAS energy technician program.
3. Ongoing implementation of training and placement activities.
4. First student cohorts placed in jobs in industry and apprenticeships.

### Milestones Year 3:
1. Assessment of retention and completion rates in comparison to traditional academic tracks.
2. Ongoing implementation of training and placement activities.

### Milestone Year 4:
Ongoing tracking of employment placement and retention rates.

### Deliverables (dates):
- Curriculum and course description for roughly 11 new courses and 11 augmented courses (1.18.15);
- 11 new stackable certificate programs approved (1.18.15) in MUS system; State Energy Sector Partnership Meeting Minutes (ongoing)

### Activity 2:
Implementation of Manufacturing Industry Stacked Credential Programs

### Activity 2.1:
Replicating previously TAACCCT-funded programs, using primarily Open Educational Resources (OER), Activity 2.1 formalizes, approves and implements hybrid/online stacked credential program in advanced manufacturing

### Participating Colleges:
Bitterroot, City College, Gallatin College, Dawson CC, Great Falls, Helena, Little Big Horn, MSU-Northern, Flathead Valley CC

### Table 2:

<table>
<thead>
<tr>
<th>Start Date: 11.1.14</th>
<th>End Date: 9.30.17</th>
<th>Lead College/Implementer: Flathead Valley Community College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost: $3,385,402</td>
<td>Equipment: $1,537,845</td>
<td>Year 1 cost: $2,670,495</td>
</tr>
</tbody>
</table>

### Milestones Year 1:
1. Hire faculty to recreate existing curriculum using curriculum bundles and simulation available through procurement of online material.
2. Coordinate and schedule delivery of hands-on components of curriculum with participating colleges, assessment centers and mobile lab equipment.
3. Procure necessary new equipment.
4. Deliver standard equipment to Assessment Centers.
5. Train faculty members in use of technology platform, simulators and online curriculum.
6. Coordinate a state-wide sector strategy in partnership with Montana Manufacturing Extension Center.
7. Market to/recruit students into certificate programs.
8. Identify and formalize pre-apprenticeship opportunities.
9. First
Strengthening Workforce Alignment in Montana’s Manufacturing and Energy Industries (SWAMMEI)

A cohort enters training program in fall of 2014. **Milestones Year 2:** (a) Ongoing implementation of training and placement activities; (b) First student cohorts placed in jobs in industry and pre-apprenticeships. **Milestone Year 3:** Ongoing implementation of training and placement activities. **Milestone Year 4:** Ongoing tracking of employment placement and retention rates.

**Deliverables (dates):** Curriculum and course description for three occupational tracks (1.18.15). State Manufacturing Sector Partnership Meeting Minutes (ongoing)

**Activity 2.2:** Replicating previously TAACCCT-funded programs, using primarily Open Educational Resources (OER). Activity 2.2 formalizes, approves and implements hybrid consolidated stacked credential program in welding and fabrication aligned to American Welding Society (AWS) certifications.

**Participating Colleges:** Bitterroot, City College, Fort Peck CC, Gallatin College, Dawson CC, Great Falls, Highlands, Helena, Little Big Horn, MSU-Northern, Flathead Valley CC, Miles City CC, Missoula

<table>
<thead>
<tr>
<th>Start Date</th>
<th>End Date</th>
<th>Lead College/ Key Implementer</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1.14</td>
<td>9.30.17</td>
<td>Great Falls College</td>
</tr>
</tbody>
</table>

**Milestones Year 1:** (a) Hire faculty to consolidate existing curriculum into online programming and 9-12 week hands-on training; (b) Coordinate and schedule delivery of hands-on components of curriculum with mobile lab equipment as necessary; (c) Procure necessary new equipment; (d) Train faculty members in use of technology platform, simulators and online curriculum (e) Market to/recruit students into certificate programs; (f) Lease space and make necessary lab renovations; (g) identify and formalize apprenticeship opportunities; (h) First cohort enters training program in fall 2014.

**Milestones Year 2:** (a) Ongoing implementation of training/placement activities; (b) First student cohorts placed in jobs in industry and pre-apprenticeships. **Milestone Year 3:** Ongoing implementation of training and placement activities. **Milestone Year 4:** Ongoing tracking of employment placement and retention rates.

**Activity 3:** Implementation of Entrepreneurship Endorsement

**Activity 3:** Offers existing online curriculum to students at colleges where curriculum is currently unavailable

**Participating Colleges:** Bitterroot, City College, Fort Peck CC, Gallatin College, Dawson CC, Great Falls, Helena, Little Big Horn, MSU-Northern, Flathead Valley CC, Miles City CC, Missoula

<table>
<thead>
<tr>
<th>Start Date</th>
<th>End Date</th>
<th>Lead College/Implementer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.15.14</td>
<td>9.30.17</td>
<td>Flathead Valley Community College</td>
</tr>
</tbody>
</table>

**Milestones Year 1:** (a) First cohort enters training program in fall of 2014; (b) Market to/recruit students into endorsement program; (b) Initiate state-wide sector partnership in Entrepreneurship to advise on augmentations to endorsement curriculum; (c) Train faculty in use of technology platform. **Milestone Year 2:** Ongoing implementation of training and placement activities. **Milestone Year 3:** Ongoing implementation of training and placement activities. **Milestone Year 4:** Ongoing tracking of employment placement and retention rates.

**Deliverables (dates):** State Entrepreneurship Sector Partnership Meeting Minutes (ongoing)
**Activity 4: Provide Comprehensive Student Support Services**

**Activity:** Provide evidence-based academic/personal Student Coaching to support success, maximize student benefit from other Core Elements and strategies, and improve Outcomes 2, 3, 4, 5, and 7.

**Participating Colleges:** Bitterroot, City College, Fort Peck CC, Gallatin College, Dawson CC, Great Falls, Helena, Little Big Horn, MSU-Northern, Flathead Valley CC, Miles City CC, Missoula

**Start Date:** 3.1.14  **End Date:** 9.30.17  **Lead College:** Great Falls College, subject matter experts

| Total Cost: $1,960,500 | Equipment: $0 | Year 1 cost: $653,500 | Year 2 cost: $653,500 | Year 3 cost: $653,500 |

**Milestones Year 1:** (a) Issue RFP/hire student coaching subject matter experts for support in delivering evidence-based model with high fidelity to strong evidence; (b) Conduct audit of student needs/baseline data on each campus, phased; (c) Train coaches to deliver tailored coaching sessions; (d) Conduct initial coaching of students attending at two sites.

**Milestones Year 2:** (a) Train coaches to improve impact based on recognized patterns among students; (b) Conduct ongoing remote, technology-enabled coaching of cohorts attending at four sites; (c) Receive and act on coach-gained insights about ways to improve student persistence, achievement, and movement toward completion and employment.

**Milestones Year 3:** (a) Conduct ongoing coaching of cohorts from all participating sites; (b) continue receiving and acting on coach-gained insights to improve student success and to improve long-term institutional practices for greater student support. **Milestone Year 4:** Ongoing tracking of employment placement and retention rates.

**Deliverables (dates):** Initial report on progress of student coaching implementation (9.1.14); First assessment of coached student progress/persistence vs. comparison group (6.1.15); Second assessment of coached student progress/persistence vs. comparison group (6.1.16); Comprehensive assessment of coached student success measures (credit attainment rates, retention, program completion rates, and other key outcome measures) vs. comparison group (9.1.17).

**Activity 5: Improve alignment with Public Workforce System, Employers and other Entities**

**Activity 5.1:** Implement the National Career Readiness Certificate as assessment tool for participants

**Participating Colleges:** Bitterroot, City College, Fort Peck CC, Gallatin College, Dawson CC, Great Falls, Highlands, Helena, Little Big Horn, MSU-Northern, Flathead Valley CC, Miles City CC, Missoula

**Start Date:** 3.1.14  **End Date:** 9.30.17  **Lead College:** Great Falls College, subject matter experts

| Total Cost: $63,575 | Equipment: $0 | Year 1 cost: $63,575 | Year 2 cost: $0 | Year 3 cost: $0 |

**Milestones Year 1:** (a) Procure licensure of NCRC products from ACT as satellite site of Spokane Workforce Development Center (SWDC) (b) Professional development consultation provided by SWDC; (c) Initiate assessment and training component of NCRC; (d) Coordinate Public Workforce System Training Advisory Committee; (e) Market/recruit of students and businesses; and (f) Creation of career map(s). **Milestone Year 2:** Explore possible integration of NCRC with existing assessment tools (e.g., COMPASS, TABE and Prove It!, existing occupational/academic skills assessment developed in Montana). **Milestone Year 3:** Assess long-term financial viability of strategy in conjunction with industry partners to assess sustainability of tool. **Milestone Year 4:** Ongoing tracking of employment placement and retention rates.

**Deliverables (dates):** An analysis of the impact of workforce navigators on enrollment at participating colleges (8.30.17)
### Activity 5.2: Hire cross-trained Workforce Navigators to bridge 2-year college and public workforce systems

**Participating Colleges:** Bitterroot, City College, Fort Peck CC, Gallatin College, Dawson CC, Great Falls, Highlands, Helena, Little Big Horn, MSU-Northern, Flathead Valley CC, Miles City CC, Missoula

<table>
<thead>
<tr>
<th>Start Date: 3.1.14</th>
<th>End Date: 9.30.17</th>
<th><strong>Lead College:</strong> Great Falls College, subject matter experts</th>
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<tbody>
<tr>
<td><strong>Total Cost:</strong> $2,030,216</td>
<td><strong>Equipment:</strong> $0</td>
<td>Year 1 cost: $599,166</td>
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</table>

**Milestones Year 1:**
(a) Hire three workforce navigators (two for Flathead County, one for Lincoln County); (b) Provide comprehensive systems training; (c) Professional development on implementation of WorkKeys® and KeyTrain® tools; (d) Assessment of at least 166 workers annually; and (e) Initiate scheduling and provision of career counseling and enrollment services with TAA-eligible, unemployed and incumbent workers, including development of comprehensive cross-agency intake forms. **Milestone Year 2:** Ongoing implementation of assessments and employer outreach. **Milestone Year 3:** Assess long-term financial viability of strategy in conjunction with industry partners to assess sustainability of tool by determining impact of strategy on student FTE and completion rates. **Milestone Year 4:** Ongoing tracking of employment placement and retention rates.

**Deliverables (dates):** Custom project intake forms that provide sufficient information to fulfill funding and training enrollment needs and assessment of potential prior learning credits as navigators will be participant point-of-entry into project (4.1.14)

### Activity 5.3: Align programs with existing apprenticeship programs; create pre-apprenticeship program in manufacturing

**Participating Colleges:** Bitterroot, City College, Fort Peck CC, Gallatin College, Dawson CC, Great Falls, Helena, Little Big Horn, MSU-Northern, Flathead Valley CC, Missoula

<table>
<thead>
<tr>
<th>Start Date: 12.1.14</th>
<th>End Date: 9.30.17</th>
<th><strong>Lead College:</strong> Great Falls College, subject matter experts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Cost:</strong> $0 – Costs of coordination, planning and marketing have been integrated into other strategies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Milestones Year 1:**
(a) Through discussion with Montana Registered Apprenticeship Program (MRAP) Director and key stakeholders, align and articulate proposed SWAMMEI programs and existing apprenticeship programs in welding, diesel mechanics, and industrial maintenance; (b) Explore opportunity with MRAP and key business stakeholders to create pre-apprenticeship program in manufacturing arena; (c) Formalize articulation agreements between training and apprenticeship programs; (d) Initiate marketing of (pre)-apprenticeship programs in appropriate collateral. **Milestones Year 2:** Enroll first students in (pre)-apprenticeship programs; **Milestones Year 3:** Ongoing implementation of (pre)-apprenticeship programs. **Milestone Year 4:** Ongoing tracking of employment placement and retention rates.

**Deliverables (dates):** Template for manufacturing pre-apprenticeship program (12.1.14)

### Activity 5.4: Utilize real-time labor data, LMI, and participant outcome data to align college programs with emerging workforce needs

**Participating Colleges:** All consortium members

<table>
<thead>
<tr>
<th>Start Date: 12.1.14</th>
<th>End Date: 9.30.17</th>
<th><strong>Lead College:</strong> Great Falls College, subject matter experts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Cost:</strong> $1,048,095</td>
<td><strong>Equipment:</strong> $0</td>
<td>Yr 1 cost: $296,416</td>
</tr>
</tbody>
</table>

**Milestones Year 1:**
(a) Hire a Workforce Development Officer; (b) Procure real-time data analysis software license(s); (c)
Develop plan for data acquisition from all participating colleges for Metric Scorecard, formalizing MOU where necessary; (d) Develop reporting template and feedback plan and report to leadership committee on project progress. **Milestones**

**Year 2:** (a) Continue evaluation, assessment and reporting; **Milestones Year 3:** (a) Continue evaluation, assessment and reporting; **Milestones Year 4:** (a) Continue evaluation, assessment and reporting in order to obtain appropriate project data for close-out.

**Deliverables (dates):** Custom reports to all participating colleges about local LMI as related to programs and outcomes.

### Activity 6: Initiate or Enhance Developmental Math Instruction to Reduce Time to Completion

**Participating Colleges:** Bitterroot, City College, Fort Peck CC, Gallatin College, Dawson CC, Great Falls, Highlands, Helena, Little Big Horn, MSU-Northern, Flathead Valley CC, Miles City CC, Missoula

**Start Date:** 3.1.14  
**End Date:** 9.30.17  
**Lead College:** Great Falls College, subject matter experts

**Milestones Year 1:** (a) Adoption of specific software and curriculum design for two developmental math courses; (b) Renovate and set-up of math laboratory space; (c) Hire math lab coordinators and tutors; (d) Enroll first student cohort in some developmental math courses by Fall 2014; (e) Implement faculty professional development activities surrounding Emporium models; (f) Schedule math lab facility staffing and hours of operation. **Milestone Year 2:** Assessment and revision of strategy focusing on obtainment of educational outcomes. **Milestone Year 3:** Assessment and revision of strategy focusing on obtainment of educational outcomes. **Milestone Year 4:** Ongoing tracking of employment placement and retention rates.

**Deliverables (dates):** Supplemental curricular materials associated with delivery of Emporium model (12.1.14); comparative study of success/persistence/completion of Emporium versus non-Emporium students (8.30.16)

**Overall Deliberables:** (f) Assessment report of retention and completion rates for certificate programs versus traditional academic tracks (6.30.16)

$3,867,379 in programmatic costs, as defined in SGA, are included in the funding request that serve all strategies (costs for consortium communication, tracking, reporting, etc.) but are not shown elsewhere in the Work Plan. These costs primarily fund the grant director, fiscal manager, administrative assistance and the costs of administration and are broken out in the budget narrative. (Yr 1: $1,057,874; Yr. 2: $1,094,837, Yr. 3: $1,077,641, and; Yr. 4: $637,026)

### 3. Project Impact

**Analysis of Outcome Projections — Outcome Projections**

<table>
<thead>
<tr>
<th>Projections for Outcome Measures</th>
<th>Year 1: 1,545</th>
<th>Total: 9,389</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total individuals impacted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This non-DOL metric has been included in the outcome measures table and will be tracked during the SWAMMEI project. This metric captures three main categories of individuals significantly impacted by SWAMMEI but not captured within the definitions of other categories. 

1. Workers completing the TAACCCT-funded NCRC (not a certificate or degree program) that are able to enter the workforce directly by demonstrating an appropriate level of competency with their NCRC results. 
2. Students completing grant-impacted developmental math course-work, as required by many TAACCCT-funded programs and almost all degree and certificate programs. 
3. Entrepreneurs utilizing TAACCCT-funded fabrication labs but not enrolled in a course of study. Numbers based on historic enrollment figures and NCRC target numbers.

<table>
<thead>
<tr>
<th>Metric Description</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total unique participants served</td>
<td>432</td>
<td>1,687</td>
<td>1,300</td>
<td>3,419</td>
</tr>
<tr>
<td>2. Total number of participants who have completed a TAACCCT-funded program</td>
<td>210</td>
<td>932</td>
<td>1,187</td>
<td>2,329</td>
</tr>
<tr>
<td>3. Total number of participants still retained in their program of study or another TAACCCT-funded program</td>
<td>0</td>
<td>310</td>
<td>275</td>
<td>585</td>
</tr>
<tr>
<td>4. Total number of participants completing credit hours</td>
<td>1,320</td>
<td>2,801</td>
<td>2,800</td>
<td>6,921</td>
</tr>
<tr>
<td>5. Total number of participants earning credential</td>
<td>8</td>
<td>1,090</td>
<td>1,231</td>
<td>2,329</td>
</tr>
</tbody>
</table>

*↑ Individuals entering an educational program, developed, delivered, offered or improved in whole or in part by grant funds that also terminates in an educational or industry-recognized degree or certificate. These numbers are based upon historic enrollment numbers in similar programs at participating colleges. These numbers include individuals engaged in TAACCCT-funded coaching services that also enroll in any program of study.*

*↑ Individuals earning an educational or industry-recognized degree or certificate in a TAACCCT III-funded program. Targets based upon historic aggregate completion rates at participating colleges.*

*↑ Because of the dramatically reduced time required to complete a TAACCCT-funded stacked certificate program and a project prioritization based on getting workers placed in jobs, there is no good historical data to base this estimate upon. It is believed that students will generally either complete their program of study or drop out completely and therefore estimates are fairly low for this metric.*

*↑ In addition to student completing and students earning credits in TAACCCT-funded degree and certificate tracks, these projections include students enrolled in any TAACCCT-impacted courses including developmental math, entrepreneurship, or receiving coaching but not otherwise engaged in a TAACCCT-funded program. This number is based upon students impacted, therefore, not just those defined as participants under USDOL definitions. Based upon historical aggregate credit hour completion (~75% of attempted course).*

*↑ Estimates are based on historical completion data for programs in the state’s two-year colleges. Because our programs are designed to be shorter than traditional AAS programs and because local partners have indicated need in excess of these*
Strengthening Workforce Alignment in Montana’s Manufacturing and Energy Industries (SWAMMEI)


during the projected outcomes, these projections may prove to be conservative.

6. Total number of participants enrolled in further education after grant-funded program of study completion

| Year 1: 0 | Year 2: 240 | Year 3: 519 | Total: 759 |

Based on historical data of students completing a certificate or degree credential and current transfer rates for CAS, AAS, and Certificate completers into related MUS courses. Typically Credential and AAS programs are not designed to transfer but the state’s CCN program eases transfer for students who decide to pursue a Bachelor’s degree. Also includes students continuing into other grant-funded programs.

7. Total number of participants employed after grant-funded program of study completion

| Year 1: 0 | Year 2: 58 | Year 3: 58 | Year 4 (f.u.): 59 | Total: 175 |

Based on the historic state employment rate of graduates in the second quarter by assessing unemployment insurance wages in the year following their graduation (data typically takes 6 months to retrieve from MDLI). Figures are low as the majority (~70%) of Montana’s trades-oriented two-year students are employed in low-wage jobs at enrollment (= “incumbent workers”) and therefore cannot be included in this estimate. It is assumed that ~25% of unemployed-at-enrollment TAACCCT-funded program completers will gain employment in the first quarter after exit.

8. Total number of participants retained in employment after grant-funded program of study completion

| Year 1: 0 | Year 2: 33 | Year 3: 54 | Year 4 (f.u.): 44 | Total: 131 |

Based on the historic state employment retention rate (~75%) and based upon the previously calculated unemployed-at-enrollment program graduates who gain employment in the quarter following completion who retain employment in the second and third quarters.

Total number of participants employed at enrollment who receive a wage increase post-enrollment

| Year 1: 12 | Year 2: 162 | Year 3: 700 | Year 4 (f.u.): 870 | Total: 1,744 |

Because such a large number of Montana’s trades-oriented students are incumbent (estimated conservatively at ~60%) and the length of time involved, it is estimated 85% of those workers will receive a wage-increase after enrollment in TAACCCT-funded programs.

Balance of Deliverables and Outcomes

As indicated in the first metric category included in the table above, SWAMMEI positively impacts a significant number of individuals by providing the most efficient and cost-effective path to employment possible. Perhaps the biggest innovation SWAMMEI provides is creating the opportunity to share curriculum, faculty and equipment across colleges in our rural/frontier state. This innovation allows us to meet the urgent
but relatively small need for trained workers in specific regions without the need to invest in creating programs in every nook of the state.

ii. System or Process for Tracking and Reporting Outcome Measures

Existing Tracking Procedures

The nine required outcome measures and other outcomes metrics in the Metric Scorecard are regularly tracked by individual colleges in coordination with the Montana DLI and the OCHE through common Banner data tracking software. College databases and the state’s data warehouse contain student unit record level data that allow for tracking a wide range of characteristics including demographic data, enrollment/grades at the course level, students’ status at the time of enrollment (e.g., degree-seeking, full-time, etc.) among a host of other variables. Due to an existing MOU (in place since 2010), students and graduates to Unemployment Insurance (UI) records are routinely cross-referenced to analyze labor market outcomes. Employment outcome measures will be calculated quarterly by matching students’ social security numbers with UI records. Through partnerships formalized in this project, project staff will have access to data from Montana Works, the Montana Workforce Services Division’s automated longitudinal data system which collects and reports data in the areas of services provided (intensive, core, training and supportive services), demographic and socioeconomic characteristics, employment history, outcomes achieved and funds expended in both participant-level data reporting and aggregate data and outcomes for participants identified through workforce system enrollment.

Plan to Address Gaps in Tracking

There is one major gap to address and one major advancement in SWAMMEI that will greatly improve colleges’ ability to utilize data for continuous improvement. The Gap: Three participating colleges (FVCC, FPCC, and LBHC) do not share the banner system utilized by the rest of the MUS. FVCC has an existing MOU similar to that described above that will easily allow data to be tracked concurrently with other colleges. To allow appropriate tracking and reporting in conjunction with the grant, FPCC and LBHC will adopt a data-
sharing MOU with the Montana DLI and OCHE to share student-level data. **The Opportunity:** The Metric Scorecard requirement will greatly enhance participating institutions’ use of data to evaluate and align their programs with emerging workforce demands. A centralized Workforce Intelligence Officer will work closely with the State’s Workforce Agency (MDLI) position to ensure: (1) seamless data collection; (2) current LMI is used in assisting each college to plan for emerging employer needs in their region, using real-time LMI products like Burning Glass®; (3) creation of secondary and real-time labor market reports for job service offices, colleges, economic developers, and municipalities on a regular basis and upon request for any desired geography and timeframe; (4) guidance for on-going collection of primary employer information (designing an on-going process for soliciting information from employers through surveys, focus groups and interviews; (5) coordination of employer engagement among the job service, colleges and economic developers so employers don’t get duplicate requests from a variety of public entities; (6) provision of data support to the sector partnerships, and; (7) development of a process for LMI dissemination among all the stakeholders involved.

This level of institutional research is currently unavailable at most Montana 2-year colleges.

### iii. Using Data for Continuous Improvement

**Plan for Formal Data Review**

There are two main feedback mechanisms built into the SWAMMEI project. (1) **State-wide Industry Sector Partnerships** will provide biannual formal analysis of data and outcomes to inform suggested revisions to grant-funded programs to the grant leadership team. As few faculty are involved in delivery of any singular SWAMMEI program, changes can be implemented rapidly. (2) **The Workforce Intelligence Officer** will create regular semi-annual reports for each consortium member, using significant LMI and Metric Scorecard data to analyze each college’s programs with the projected and real-time job openings in their specific region, allowing sophisticated analysis of program alignment. These reports will be shared with each college’s president and with the Deputy Commissioner for Two-Year and Community College Education for the MUS.
Sustainability Plan

SWAMMEI includes three strategies where data collected during the project will have major impacts on sustainability. [Sustainability of academic programs included in SWAMMEI is assumed, as robust systems of analysis in the college system already exist to evaluate the feasibility and sagacity of continuing educational programs. Similarly, because of positive feedback surrounding the creation of state-wide sector partnerships we expect their continuation after the project period.] Costs of implementing the NCRC+ ($40/participant) will be passed on to businesses or workers/students after piloting the strategy during SWAMMEI. Costs will be absorbed by these entities only if employers utilizing NCRC during the project find it effective in reducing time-to-hire or in increasing retention. Relatedly, it is understood that the Workforce Navigator positions may not be sustainable after the project period; however, these positions will help secure the continued use of the NCRC+ through sufficient outreach to businesses during the project and sustain that strategy. In the event that Workforce Navigators are effective in counseling students to select appropriate training programs and/or secure employment (increasing student FTE or placement rates) the positions might be made permanent in some regions by college or Job Service Management. At first consideration, costs associated with Coaching could prove a hurdle for colleges, yet the activity is designed for continuous improvement in-and-of itself, relying on steady streams of data on student engagement and obstacles. Expected outcomes from coaching (such as boosts in retention and trend-based responses to student needs) may improve adoption of such data-driven strategies, promoting its integration as an economical approach to performance-based funding incentives in future state budgets, while boosting institutional revenues from tuition of students proceeding through their chosen programs with elevated rates of persistence.

4. Organizational Profile and Project Management

Professional Qualifications of Project Director

A full-time (1.0 FTE) SWAMMEI Project Director will be hired during the first quarter of the grant. Initial grant implementation will be overseen by an Interim Project Director (and interim managers at each
participating institution) to ensure adherence to the grant schedule. The Project Director will: serve as central liaison to the other 12 colleges; provide senior-level strategic communication and project management oversight for the implementation of all activities to ensure timely completion within budget; coordinate, develop, collect, and distribute financial and performance data from each partner; and write/file all required reports to the DOL.

Minimum hiring qualifications: Education – Master’s Degree; Experience – three years management and supervisory experience in a similar position; experience leading grants or projects which involve multiple higher education information technology, research, finance, academic, student, and operating systems; collaborating with education, agency and business partners and state system staff; supervising staff, managing budgets, and interpreting and employing applicable laws, rules and regulations; and tracking, monitoring and reporting on project activities. The Project Director will report to Dr. Susan J. Wolff, CEO/Dean of GFC MSU, who has extensive experience in higher education management, including federal grant management. The project management team will also include a Fiscal Manager and a Workforce Intelligence Officer, who will work closely with the MDLI, OCHE, and consortium campuses on gathering, analyzing and reporting data. An administrative assistant will round out the team.

Management Structure

Participation at the highest levels of various state systems will help ensure consistent leadership and communication throughout the project. The Deputy Commissioner of Higher Education, Dr. John Cech, will chair the TAACCCT Leadership Team that will include Commissioner of the Montana Department of Labor and Industry, Pam Bucy, members of industry and key grant staff. This team will meet quarterly to review data, assess progress and make recommendations. Further, the Montana Governor’s office has committed to assisting with the entrepreneur strategy, the Montana SWIB and MDLI have signed a comprehensive MOU committing time and energy in support of the project, including specific outreach and partnership activities to further engage industry partners.
With significant prior experience coordinating Community Based Job Training, Carl Perkins, and other federally funded grants, Great Falls College Montana State University (GFC MSU), the lead agency for the SWAMMEI project, has the staffing, fiscal, administrative and performance capacity to effectively manage a grant of this scope, aided by strong working relationships between consortium members who have previously collaborated (in varying configurations) on numerous joint projects.

The organizational structure (please see attached organizational chart) will ensure key stakeholder input at the Consortium as well as the individual institution level. Each SWAMMEI partner will have a local campus Grant Coordinator (in some cases a responsibility of the TAACCCT-funded Workforce Navigator), who will act as a grant-liaison to the Project Director. **Multiple methods of communication will be used** to ensure effective communication between partners including, bi-weekly **cross-institutional meetings** that will include discussions on trends gathered from project metrics fostering openness and collaboration. These calls will not substitute for personal interaction; rather, grant coordinators will **meet face-to-face each semester** with the Project Director. Collaborative web software will facilitate activity management and knowledge sharing. A SWAMMEI website will alert prospective employers, constituents, and students to training opportunities, events, meetings and information sessions throughout the state will also help inform the public of project progress.

*From previous collaborative grant projects,* the partners know the challenges to and importance of communication. **Following a model** established by the Round II TAACCCT grantee Consortium for Healthcare Education Online (CHEO), SWAMMEI will establish: a Project Management Group **headed by the Project Director,** a Data Group **headed by the Workforce Intelligence Officer,** a Fiscal Group **headed by the Fiscal Manager** and a Workforce Development Group **headed by the Project Director.** GFC MSU will use Constant Contact to send more formal progress reports to grant targeted recipient mailing lists.
System and Processes

GFC MSU and many partner colleges use Banner to manage financial and student records. Banner has a grants module for tracking multi-year projects. SWAMMEI will adapt programmatic and financial reporting forms developed by the aforementioned CHEO project to gather and compile information from consortium partners. Written program reports and documented financial reports will be required quarterly to allow the Project Director to compile them and file a formal report to the DOL. Invoices from consortium partners will be paid upon submission of appropriate documentation and explanation of expenses. Consortium partners will follow federal and State of Montana or tribal procurement regulations.

The Project Director or the Grant Coordinators at consortium member sites will be responsible for approving all grant-related purchases. The Project Fiscal Manager will be responsible for compiling fiscal reports from the consortium partners and reporting to the Department of Labor. The Fiscal Manager also will provide quarterly spending analyses to the consortium partners. The Fiscal Manager will conduct semi-annual desk audits of partner campuses and face-to-face meetings with financial personnel to check records, equipment inventories and financial processes. Financial drawdowns from the federal government are managed by the Great Falls College Controller, providing crucial financial checks and balances.

The most recent grant managed by GFC MSU (Wind MT, CB-18235-09-06-A-40) ended in Feb. 2013 and is in its close-out phase. All reports, fiscal and programmatic, were submitted on time. All reports for Carl Perkins Title IV grants have been submitted on time. The applicant is categorized as a low-risk applicant by USDOL. All consortium members will follow federal procurement regulations as required by the DOL. As per OMB Circular A-21, equipment purchases on a federal grant must have prior approval of the funding agency, the approval of one of the SWAMMEI Director, and three sealed bids for the product/service. Consortium partners who are part of the MUS will follow state and university system procurement regulations. Tribal colleges will follow tribal procurement regulations which closely mirror policies at other MUS colleges.