

# RevUp: Empowering Montana's Workforce

## Implementation Evaluation Report

*Prepared under contract to*  
Great Falls College Montana State University

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## Executive Summary

Montana's third round of the Trade Adjustment Assistance Community College and Career Training (TAACCCT III) grant program, RevUp, included 13 two-year colleges from across the state. The consortium's foci were to develop short-term credential programs in advanced manufacturing, energy, and related fields; implement comprehensive support services geared to the needs of students in these programs; and align the programs with Montana's workforce system and labor force needs.

RTI International conducted a third-party evaluation and collected data on each of the project's components, including the development of online training options, the redesign of manufacturing and energy programs, new student services, and connections with apprenticeship and sector strategy initiatives. The RevUp evaluation was guided by the following goals set by RevUp project leadership:

- Document change in institutional capabilities in delivering educational and career training programs.
- Measure student performance in RevUp programs (e.g., enrollments, progress toward completion, graduation rates).
- Document the postcollege outcomes of program alumni and the return on investment for RevUp programs.
- Assess the extent to which RevUp programs are meeting labor force and employer needs.

To meet these goals, the evaluation team developed a set of research questions in collaboration with RevUp leadership and in accordance with U.S. Department of Labor guidance (exhibit ES-1).

**Exhibit ES-1: Research questions**

<b>Impact Evaluation Questions</b>
Do students' educational and labor market outcomes provide evidence for the effectiveness of the RevUp model?
What impact does the "emporium" model for developmental math have on student outcomes?
<b>Program Operations</b>
How is the particular curriculum selected, used, and/or created?
How are programs improved or expanded using grant funds?
What roles do college administrative structures (e.g., some colleges are embedded within larger institutions) and grant leadership play in project implementation and outcomes?
How effective and cost efficient are the student support services implemented or enhanced through RevUp?
What student assessment methodologies are used?
What has been the contribution and value of partners' engagement in program planning and implementation?
To what extent are practices being imbedded into broader institutional policy and practice?
<b>Continuous Improvement</b>
How do the program's components connect to the expressed goals and intended outcomes? How does implementation vary across colleges?
What aspects of the implementation process are facilitating or inhibiting success?
To what extent will policy and practice changes be sustained?
How has coordination and sharing of practices among the consortium members impacted program implementation and outcomes?

The implementation study included two sets of site visits that included all the participating colleges (in 2015 and 2016), interviews with state-level stakeholders and consultants, and program artifact and document reviews. The study also draws upon 2016 surveys of RevUp students and employer partners. The analysis of these data gauged the consortium's progress in implementing the strategies listed in the logic model and meeting the intended outputs in the near term and the outcomes in the longer term. To the extent possible given the limited time available, the evaluation also explored RevUp's impact on students, colleges, and state systems. To assess the effects of the program on institutional capacity, the evaluation examined the extent to which RevUp succeeded in increasing students' earning of industry credentials and other stackable educational certificates; the extent to which RevUp resulted in changes in instruction and student services that are anticipated to continue after the grant; and the type and number of connections between the RevUp programs and industry.

The current draft of the final evaluation report focuses on the implementation analysis described above. The results of the three-part quantitative impact analysis will be added to this report later this year and include (1) a return on investment study that evaluates the effects of earning various credentials on labor market outcomes; (2) a quasi-experimental study using propensity score matching to compare the educational outcomes of students in advanced manufacturing programs before and after RevUp; and (3) a quasi-experimental study using propensity score matching to compare the developmental match outcomes of students who

enroll in developmental math courses at the University of Montana – Missoula and Missoula College before and after implementation of an emporium math program.

## Findings

Montana's original TAACCCT III proposal included several activities that shifted over the course of the project. First, a downturn in the oil and gas industry after the grant began resulted in layoffs and low worker demand. In response, the project changed its focus to specialized and industrial safety training for incumbent energy workers and introduced new programs to meet a growing demand for commercial driver's license training. One college planned to develop a hybrid energy program, but terminated it due to low student and employer demand and initiated a machining program instead.

The above shifts also affected the project's plans to develop online training for both types of training in energy technology. In addition, challenges related to cross-college data sharing, college accreditation, and the procurement and sharing of equipment hindered the development of online programming in advanced manufacturing. Instead, RevUp explored the development of a course sharing system in the state and supported the colleges' implementation of stackable credentials and alignment with industry-recognized credentials.

### ***Stackable Credential Programs***

- Staff members at most of the colleges reported that RevUp's lead and participating college structure provided the support they needed to implement the initiative's educational and student support components. Two of the colleges believed that materials provided by the lead college did not fit their needs and developed their own curricula and implementation plans. According to a 2016 faculty survey, some 60 percent of RevUp faculty reported stronger relationships with colleagues at other colleges as a result of the initiative.
- To link RevUp programs to national industry standards and enhance cross-college program consistency, all the consortium colleges aligned their programs to new industry certifications, provided by organizations such as The National Center for Construction Education and Research, National Institute for Metalworking Skills, Snap-on, FANUC, and the Canadian Welding Bureau. The role of these credentials varied; some programs offered them as an option, whereas others required the certifications for program completion. Although the statewide data system does not consistently collect certification data, 84 percent of respondents to the 2016 RevUp Student Survey anticipated earning one or more certifications prior to graduation.

- For RevUp programs that require a year or more to complete, the project supported the introduction of certificates of technical skills (CTS), which could be awarded after each semester of study. The award of the credentials began slowly (as of December 2016, five of the consortium colleges were awarding CTSs in at least some of their eligible programs). Awards have, however, increased as programs increasingly use CTSs to reward students for skills earned and prevent dropouts.
- As noted, the lack of a system that would allow colleges to easily share student data across campuses hindered the development of online courses and course sharing across campuses. At the initiative of RevUp leadership and the Office of the Commissioner of Higher Education, the colleges worked with the Western Interstate Commission for Higher Education to explore an internet-based course exchange system. Montana's TAACCCT IV HealthCARE program has been working with RevUp leadership to coordinate course sharing activities and build on the foundation laid by RevUp, but the RevUp project has also found a lack of consensus across the system's colleges regarding the need and preferred structure of a data sharing system.

### ***Student Services***

- The RevUp program reached its target for the number of students taking the National Career Readiness Certificate. After the grant ends, Great Falls College plans to continue offering the certificate through its testing centers, and several workforce agencies, including Montana State University in Bozeman, learned about the credential through the grant and plan to offer it to low-skill job seekers to measure skills and build resumes. Other colleges believed that the cost of continuing would be too high without grant support, given the unfamiliarity with and indifference to the National Career Readiness Certificate that they found among employers in their areas.
- InsideTrack coaching services were offered to first-time, first-year students in five of the consortium colleges. The average fall-to-fall retention rate for the colleges' first-time students who received InsideTrack coaching was 60 percent, compared with 50.9 percent among all first-time students. Although undetected differences between coached and noncoached students may be a factor, the results suggest a positive relationship between coaching and student retention. Although none of the colleges are planning to support coaching provided by InsideTrack coaches after the grant, three colleges have sent advising staff to InsideTrack trainings and participated in two InsideTrack training workshops hosted by consortium members. In addition, all workforce navigators (WFNs) received InsideTrack training through the grant, and coaching training was integrated into the online WFN training developed by RevUp.

- All of the colleges that included a workforce navigator in their RevUp program found the position useful for supporting students in career programs (as compared with traditional campus advising, which tends to focus on transfer programs), building connections with employers, student placement, or all three. As of this report, City College has opted to maintain the position, Gallatin College will retain the WFN's case management role with students in technical programs, and Great Falls is exploring using college funds to support a job services employee on campus, at least part time. At most of the other colleges, some WFN functions will be integrated into existing advising departments without the role in student recruitment and business outreach that these positions formerly held under RevUp. In addition, RevUp staff members are developing an online training program on WFN activities for workforce services staff (see below).

### ***Workforce System Connections***

- Through the efforts of WFNs, college-level RevUp staff members have reported that referrals by workforce services to RevUp programs increased during the initiative. Job service managers reported that 70 to 80 percent of the clients who were eligible for a RevUp program and referred to a college went on to enroll.
- RevUp supported the development of sector strategies in manufacturing in several regions in the state, as well as the establishment of the first position jointly funded by the Montana University System and the Montana Department of Labor and Industry (MT DLI), the director for industry-driven workforce development partnerships. The director develops cross-agency initiatives, such as the statewide work-based learning initiative, new apprenticeship programs, and sector strategy initiatives.
- Based on effective WFN practices identified through RevUp, project staff members are working with an instructional designer to develop a training program for workforce services staff. The training program will be hosted on MT DLI's website and will provide guidance on case management, employer outreach, and other services.
- While not part of the original proposal, RevUp conducted a needs assessment and developed an infrastructure to meet Montana's post-employment training needs in consultation with MT DLI. The program draws on the college training programs developed and enhanced under RevUp and the initiative's work to develop sector strategies. This training is part of the state's work-based learning initiative, which combined RevUp and state funds with a National Governor's Association grant supporting the expansion of apprenticeships. To promote post-employment training opportunities to businesses around the state, RevUp is leading the development of a website for the initiative.



## ***Participant Impacts and Outcomes***

- RevUp programs served a total of the 4,831 participants over the grant period (fall 2013 through spring 2017), exceeding the goals set by the project leads at the projects start by 166 percent.
- From fall 2013 to fall 2015, full-time equivalent enrollments in RevUp programs grew by 18 percent, as enrollments across all Montana 2-year colleges declined by 16 percent.
- Fall 2014 to fall 2015 retention rates were higher for RevUp two-year degree programs (67 percent) than for 2-year college two-year degree programs in Montana overall (56 percent).
- The proportion of first-time students who enrolled in fall 2013 and who had left their institution with a certificate of technical skills or associate degree by 2016 was 20 percent among all programs offering these credentials, and 38 percent for RevUp programs. The RevUp graduation rate for this cohort was also higher than the graduation rate for these programs prior to the grant (fall 2010 to spring 2013), which was 28 percent.
- Data limitations prevented the analysis of the causal impact of RevUp programs on student outcomes. The impact analysis using propensity score matching submitted with this report is intended to serve as a template and guide for future analyses by the Montana colleges and the Office of the Commissioner of High Education when more years of data become available. The analysis focused on advanced manufacturing programs consortium wide and developmental math programs at Missoula College and the University of Montana, Missoula because these programs enrolled enough students to support the analysis and because student-level data for these programs was available.
- Although comparable data on workforce navigator activities and outcomes was not available consortium wide, feedback from faculty and students suggest that that navigators provided support that helped students stay enrolled and find employment. As an example, the workforce navigator at Great Falls reduced the dropout rate for the college's 2014–15 welding class from 40 to 20 percent. Through outreach to students who failed to enroll for the associate degree program's second year, the navigator assisted these students in completing the steps that they needed to complete to earn a certificate for the portion of the program they had completed.
- The evaluation team was not able to access labor force employment and wage data for RevUp participants, but worked with the project team to conduct a return on investment study for Montana's two-year college programs. The study design offers an approach to analyze the return on investment for RevUp programs once more

years of employment and wage data on students in these programs become available. The study found that earning an associate degree to result in an average yearly wage increase of \$7,600, and a certificate, \$3,600. The payback period for the costs of earning each of the credentials was found to be 6.5 and 8.5 years, respectively. In contrast, leaving college without a credential was associated with an average yearly wage increase of \$1,200, and a payback period of 14.5 years.

## Conclusions

- Student support services – including coaching, workforce navigators, and developmental education – were a focus of RevUp. Staff interviewed at most (but not all) of the colleges found these supports beneficial and at least half of the colleges noted upticks in student enrollment, retention, and success that they attributed to one of more of these services. Although data from InsideTrack, navigators, and the Missoula College data system cannot provide causal evidence regarding the effects of these supports, the data indicate higher enrollment, retention, and completion rates in RevUp programs relative to other programs and advanced manufacturing programs prior to RevUp.
- In addition to upgrading the targeted programs and aligning programs content across colleges and with industry standards, RevUp laid the groundwork for systemwide changes in Montana postsecondary education.
  - First, the colleges employed Western Interstate Commission for Higher Education's Internet Course Exchange to pilot a system for course sharing across campuses that included sharing advanced manufacturing and entrepreneurship courses across a subset of colleges. Although the lack of course sharing infrastructure and experience limited the reach of the online courses developed for RevUp, college participation in the pilot highlighted the steps needed to offer cross-campus online opportunities to students in the future.
  - Second, RevUp developed models and recommendations for apprenticeship programs offered in partnership with 2-year colleges that have influenced the development of apprenticeships under the Montana HealthCARE TAACCCT program and an apprenticeship program for tribal colleges funded by another U.S. Department of Labor grant.
- During the grant period, RevUp staff implemented new programs, credentials, and services in each of the consortium colleges. After initial implementation in the first year, additional time was needed to integrate the changes into program and institutional systems through course approvals and the awarding new certificates. As a result, the grant period did not allow enough time for students to complete the fully implemented program and enter the labor force. Further research in Montana might

duplicate the studies included in this report to analyze student outcomes once enough time has passed for students to complete the programs and either enter the workforce or pursue additional education.

# Introduction

RevUp Montana has completed over four years of Trade Adjustment Assistance Community College and Career Training (TAACCCT) program implementation. This report reviews project activities, noting successes and challenges and offering recommendations to support the development of promising practices and sustainability.

Since the August 2015 interim report, the RTI International evaluation team has collected data from the 13 participating colleges, state agencies, and RevUp leadership to assess the status of implementation at each college and for the consortium as a whole. The analysis reflects data collected through site visits, interviews, and surveys, and focuses primarily on the design, implementation, and support of grant-funded programs of study. Details on the data used to develop this report are provided in appendix A. The report also presents an overview of the evaluation plan and progress for the analysis of quantitative data examining the impact of the program on student educational and labor force outcomes.

The solicitation from the U.S. Department of Labor (DOL) for grant applications for the third round of the Trade Adjustment Assistance Community College and Career Training Grant Program (TAACCCT III) organized the required grant activities under six core elements: evidence-based design, stacked and latticed credentials, transferability and articulation of credit, advanced online and technology-enabled learning, strategic alignment, and alignment with previously funded TAACCCT projects.<sup>1</sup> The description and analysis included in this report follows this structure, classifying the various components of the RevUp program according to the categories set by the DOL. This approach allows the evaluation team to show how the RevUp project has interpreted the training program development model set by the DOL and how RevUp meets DOL requirements.

In addition to the categories developed by the DOL, the report includes a description of grant management and partnerships, which highlight how the grant work was developed and managed.

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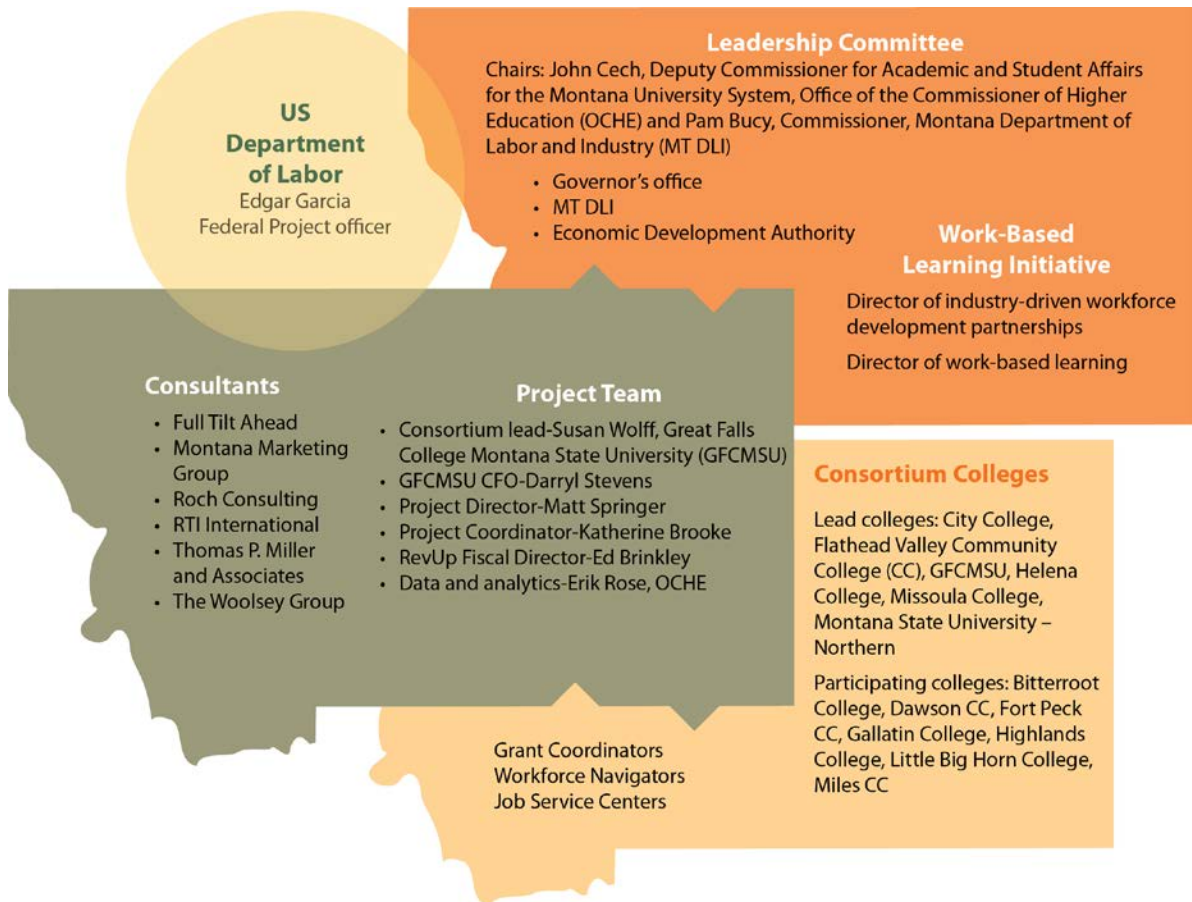
<sup>1</sup> See [https://www.doleta.gov/grants/pdf/taaccct\\_sga\\_dfa\\_py\\_12\\_10.pdf](https://www.doleta.gov/grants/pdf/taaccct_sga_dfa_py_12_10.pdf).

# Project Management and Leadership

RevUp leadership and project management are overseen by grant staff with input from state and college leaders. The leadership team is supported by many consultants that perform a variety of tasks, including assisting with marketing of RevUp programs and the meeting of DOL requirements (such as the development of open education resources and evaluation). This section explains how RevUp staff, state leaders, and other individuals and organizations contribute to RevUp and its outcomes.

The core stewards of RevUp are the project team, which includes the project director, project coordinator, and fiscal director (exhibit 1). These staff members work for the project full or part time, and their salaries are funded by the grant. The team also includes Susan Wolff, Chief Executive Officer and Dean at Great Falls College and RevUp Consortium Lead, and Darryl Stevens, Chief Financial Officer of Great Falls College.

**Exhibit 1: RevUp project management structure**



The project team is responsible for day-to-day grant management and communications with stakeholders statewide and RevUp staff in each of the 13 participating colleges. The project supported two full-time positions—typically a grant coordinator and a workforce navigator (WFN)—at each of the six lead colleges and the equivalent of one full-time position at each of the participating colleges. Grant coordinators oversee grant finances and administration in accordance with DOL requirements, such as tracking budgets, managing the purchase of grant materials and equipment for their respective colleges, and preparing quarterly DOL reports. WFNs support the recruitment and job placement of students enrolled in RevUp programs by connecting with outside agencies, such as job services, to identify potential RevUp participants and by making connections with employers to identify workforce needs. WFNs also support student retention by identifying and providing supports that students may need to persist through completion.

Each of the lead colleges directed one or more RevUp activities consortium-wide by providing implementation guidance and support. As the consortium lead, Great Falls led the largest number of RevUp activities, as follows:

- City College: Energy industry stacked credential programs; hybrid/online energy technician programs (with Missoula College)
- Flathead Valley Community College: Hybrid/online stacked credential program in advanced manufacturing (machining, industrial maintenance, industrial electronics)
- Great Falls College Montana State University: Commercial driver's license (CDL) programs; hybrid consolidated stacked credential program in welding and fabrication; comprehensive student support services; National Career Readiness Certificate; WFNs; apprenticeship programs; use of real-time labor data, labor market information, and participant outcome data to align college programs with emerging workforce needs; developmental math instruction; and sector partnerships
- Helena College: Diesel technician programs (with Montana State University–Northern [MSU–Northern])
- Missoula College: Hybrid/online energy technician programs (with City and the corrosion program at Dawson Community College); entrepreneurship program
- MSU–Northern: Diesel technician programs (with Helena)

Site visit and survey data suggest that the lead colleges are the primary points of contact between RevUp consortium colleges, with more limited collaboration across college faculty outside of these relationships. In the 2016 RevUp Faculty Survey, 60 percent of respondents believed they had stronger relationships with faculty at other colleges as a result of RevUp, and 45 percent indicated working directly with faculty at other colleges through RevUp to

give advice or share course content.<sup>2</sup> Interview data suggest that most informal cross-college collaboration occurred primarily between lead and participating colleges, with the exception of CDL faculty.

MSU-Northern and the seven participating colleges, which have lower enrollments than the lead colleges, each had one full-time position. Bitterroot College, Little Big Horn College, and MSU–Northern chose to split the position between a part-time grant coordinator and a WFN. At Miles Community College, a job services employee served as the WFN, and Dawson opted to have a WFN only.

The project team worked with six consultants on various activities (exhibit 2) such as the development of articulation agreements, marketing, assessment of short-term post-employment training options, workforce development strategies, and evaluation.

**Exhibit 2: RevUp project consultants**

<b>Vendor or consultant</b>	<b>Area of focus</b>
<b>Full Tilt Ahead</b>	Support colleges with developing and uploading open educational resources.
<b>Montana Department of Labor and Industry (MT DLI)</b>	Support the director for industry-driven workforce development partnerships position, jointly funded with the Montana University System. Also support a post-employment training coordinator and the pilot of a shared college/job services workforce navigator at Great Falls.
<b>Montana Marketing Group</b>	Develop marketing and communication materials to support student recruitment and industry awareness of industry-recognized credentials.
<b>Office of the Commissioner of Higher Education</b>	With MT DLI, jointly fund the director for industry-driven workforce development partnerships.
<b>Roch Consulting</b>	Develop articulation agreements in the consortium.
<b>RTI International</b>	Evaluate and document RevUp institutional and student outcomes and strategies to improve implementation and meet U.S. Department of Labor evaluation requirements.
<b>Thomas P. Miller &amp; Associates</b>	Conduct a research study on the feasibility of short-term, post-employment training in Montana.
<b>The Woolsey Group</b>	Facilitate sector strategies to support workforce development in manufacturing.

RevUp’s leadership committee includes John Cech, Deputy Commissioner of the Office of the Commissioner of Higher Education (OCHE), and Pam Bucy, Commissioner of the Montana Department of Labor and Industry (MT DLI). OCHE and MT DLI have participated in RevUp systemwide activities. First, OCHE commissioned a prior learning assessment (PLA) task force that recommended a statewide policy passed by the Montana Board of Regents in September 2015. The policy allows students to receive postsecondary credits that count toward a degree or certificate upon assessment of their previous on-the-

<sup>2</sup> A complete list of 2016 RevUp Faculty Survey questions, and response rates for each question, are in appendix B.

job and classroom learning experience through standardized tests, the American Council on Education, the National College Credit Recommendation Service, and faculty-determined assessments. OCHE has also supported the sharing of college courses across institutions in the Montana University System by developing guidance and establishing a contract with the Western Interstate Commission for Higher Education Internet Course Exchange (WICHE ICE), a platform that assists students in accessing online courses at colleges and universities other than their home institutions.

MT DLI has worked with RevUp to support the development of apprenticeships that integrate college degree programs and expand post-employment programs at two-year colleges. In support of these efforts, MT DLI and RevUp jointly fund a director of industry-driven workforce development partnerships who serves as a liaison between MT DLI and OCHE to develop partnerships and align training systems. MT DLI and RevUp also established the role of director of post-employment training to expand apprenticeships and opportunities for two-year colleges to provide on-the-job training for incumbent and new workers in manufacturing and energy. This position is partially funded by RevUp but is an employee of MT DLI. RevUp also currently supports an instructor. MT DLI and RevUp have collaborated to improve the alignment between job services and college programs through technical assistance; a RevUp technical assistance provider has worked with WFNs and job services agencies statewide to connect agency and college employees and support the placement of college students in appropriate workforce system programs.

In addition, high-level college administrators and deans have provided direction for various aspects of RevUp. For example, college leaders informed the development of a data sharing infrastructure for college course sharing. The colleges' chief academic officers have met to develop guidance on course alignment and sharing, promotion of industry credentials, and development of sector strategies in manufacturing.

Grant staff reported general support for RevUp priorities by college administrators and deans. At some of Montana's two-year colleges, which are embedded in the two flagship universities (the University of Montana and Montana State University) and require both college- and university-level approval for programmatic changes and financing, some coordinators believed that the lack of decision-making power at their own colleges and the complexity of the decision-making process limited the changes that could be made under RevUp. For example, alterations to programs or curricula at City require college-level approval and approval from curriculum committees at City, Montana State University Billings (MSU Billings), and Montana State University in Bozeman. Each step can take several months. In contrast, Dawson, which is governed locally, developed the corrosion program and offered it to students within one year.



## Proactive Student Support

In accordance with the TAACCCT grant program requirement that strategies be supported by evidence attesting to their effectiveness, RevUp modeled its student services on the nationally recognized Breaking Through initiative. This initiative helps adult students enter and succeed in occupational and technical degree programs by connecting students with essential services, effectively employing advisors or coaches, and training college staff (Jobs for the Future 2010). In accordance with the Breaking Through model, RevUp developed an integrated set of student supports including WFNs who worked with students and/or employers at all the colleges except Little Big Horn; InsideTrack, a student coaching service offered at five of the participating colleges; and emporium and embedded math instruction offered by Fort Peck Community College, Helena, Missoula, and MSU–Northern.

## Workforce Navigators

WFNs have been implemented by colleges nationwide during the past decade to support nontraditional and other students in accessing and completing community college programs linked to employment. As the name implies, workforce navigators connect students with employers and career development opportunities and may also support student recruitment and retention. Research suggests that the position's effectiveness depends on the quality of the WFN's relationships with students and employer and community partners (Goodman 2014; Rodriguez 2012). RevUp WFNs were expected to engage in (1) student recruitment, (2) student retention activities, and (3) business outreach and job placement, but the time spent on each of these activities varied by college (exhibit 3).

**Exhibit 3: Approximate percentage of time spent by workforce navigators on different job activities during 2015–16 at selected RevUp colleges, by college, spring 2016**

	City	Dawson	Flathead Valley	Gallatin	Great Falls	Highlands	Miles	Missoula	MSU–Northern
<b>Student recruitment</b>	10	20	10	5	20	15	40	25	0
<b>Outreach to business</b>	5	10	0	15	13	10	20	10	15
<b>Advising students</b>	20	10	40	50	20	25	20	15	0
<b>Student follow-up (retention)</b>	10	25	10	10	7	25	20	10	0
<b>Administrative tasks</b>	50	30	30	20	20	25	0	30	20
<b>Other activities</b>	5	5	10	0	20	0	0	10	65

NOTE: Data were not available from Fort Peck and Helena due to personnel changes. Bitterroot and Little Big Horn are not included because project staff at these sites combine workforce navigator and other duties.

SOURCE: 2016 RevUp Workforce Navigator Time Use Survey.

Site visit interviews with college and RevUp staff suggest that WFNs' time was allocated in accordance with their colleges' needs. For example, WFNs did not engage in student recruitment at MSU–Northern, where RevUp programs were either full or had waitlists, but they spent 40 percent of their time on student recruitment at Miles, which started a new CDL program. Business outreach comprised from zero to 20 percent of their time, and student advising from zero to 50 percent. MSU–Northern's WFN reported spending approximately 65 percent of his time on grant activities that he believed were outside of the categories shown, such as getting faculty buy-in, hiring personnel, insuring equipment, applying principles of the grant to other programs of study, and developing new avenues of opportunity to help grow the grant-funded programs.

### **Student Recruitment**

Enrollment in RevUp programs increased by about 33 percent from 2013–14 to 2015–16, compared with an overall decline in two-year program enrollments in Montana of 17 percent (RevUp and Office of the Commissioner of Higher Education 2016). Many factors, including new equipment, marketing campaigns, and faculty, likely contributed to the enrollment growth. Information collected through survey and site visits suggest that WFNs also played a role. Seven of the eight respondents to the RevUp Sustainability Survey of college leaders reported that WFNs had a positive or significantly positive impact on student recruitment in their colleges (RevUp 2017). Similarly, 61 percent of respondents to the 2016 RevUp Faculty Survey reported collaborating with their WFNs on student recruitment.

Information collected during site visits indicated that WFNs assisted with student recruitment by working with job services, assisting prospective students in accessing financial and

other resources, and helping students with the application process. These activities were largely confined to programs that could accommodate many students, but project staff also noted that WFNs might help high-demand and wait-listed programs to recruit underrepresented groups, such as veterans, racial and ethnic minorities, or women, through outreach to veterans' affairs offices, military bases, community services, and other organizations that assist job-seekers.

The 2016 RevUp Student Survey included questions about the role of various individuals in students' decisions to enroll in their programs. A plurality reported speaking with college instructors (37 percent) to determine if the program was right for them, and 18 percent reported speaking to a WFN. Among those who reported consulting multiple individuals, 38 percent selected WFNs as having the greatest impact on their program choices, and 19 percent selected instructors.

### **Student Retention**

*"[Our WFN] is instrumental. I would hate to lose that [role]; she is incredibly helpful."* Student interview, spring 2016

Although data limitations prevent a causal analysis of WFN effects on retention, RevUp students and program faculty described the WFN role as invaluable for helping students remain in school. Using WFN databases, RevUp leadership estimated that the college dropout rate among WFN-supported students is 13 percent lower than that for other two-year college students.

In describing the WFN role in retention, RevUp staff noted that the WFN served as the "go-to" person for navigating all aspects of the college system, from completing applications for admission, applying for financial aid, registering for classes, and providing other support, including referrals to social services, as needed during enrollment. As a result, students could rely on one familiar person and were more likely to receive the support they needed to stay in college. Without this support, students, particularly nontraditional students, tend to give up if required to seek support from multiple college staff members and offices. Moreover, at three of the colleges, the facilities that housed RevUp and other trades programs were some distance from the main campus where advising and other support staff offices are located. Prior to the WFNs, who worked from offices near the RevUp workshops and classrooms, college staff and faculty members noted that few of their students benefited from student services because of the time and effort required for travel and a perception that the advisors at the main campus were only for academic and transfer programs.

Students reported that WFNs helped them meet graduation requirements and helped them with practical matters related to program content. For example, one student reported that the WFN “is a great person to go to for anything, I was doing some custom work and I needed an invoice, and [the WFN] just made me the invoice form. I still use that template.”

At one college, faculty attributed recent improvements in RevUp student retention rates to the WFN’s outreach and targeting of students who stopped attending class. Previous to the WFN, program directors conducted similar outreach to at-risk students but lacked the time to ensure consistent and adequate follow-up. Faculty noted, however, that the larger WFN caseload post-grant will likely preclude this type of follow-up. A WFN from another college described his approach to follow-up and providing support:

**Workforce Navigator Impact on Dropouts**

About 40 percent of Great Falls College’s 2014–15 welding class failed to enroll for the associate degree program’s second year and did not complete the steps needed to earn a certificate for the portion of the program they had completed. As a result, 35 students eligible for a certificate left without any credentials and counted as dropouts. The workforce navigator’s outreach resulted in the award of certificates of technical skills, which could be shared with employers, to 15 of these students as well as the reduction of the program dropout rate for that year to about 20 percent. In the most recent year, the college made the award of the certificate automatic when students complete a semester or more of program work.

We call students [and say], “Hey it’s [WFN] from the college, you have missed some classes. Is there something that I can help you with?” We don’t want them to fail. [Sometimes they have to drop out and explain] “Oh, my child care is gone and my wife had to go to work and or I found another job so stopped attending.” [In those cases,] I ask them to do the formal process of withdrawal.

We had a student enrolled in adult education [who] struggled with math. He grew up on [a] ranch and can weld. He failed math in fall and in spring. In a collaboration with [program instructors] and [the instructor] who oversees math faculty [we figured out a plan] to remediate this young man, and that was successful. That was a success story of collaboration between different departments.

Students echoed the faculty and staff’s appreciation for WFNs: more than 80 percent of respondents to the 2016 RevUp Student Survey rated the support provided by their WFNs on a variety of topics, including tutoring or academic support centers, time management, and locating nonacademic support services, as helpful or very helpful.

Finally, seven of the eight respondents to the RevUp Sustainability Survey of college leaders reported that WFNs had a positive or significant positive impact on student retention in their colleges (RevUp 2017).

## ***Employer Outreach and Student Job Placement***

Prior to RevUp, program directors and faculty typically maintained the colleges' connections with employers through program advisory boards and assisting their students with job placement. Under RevUp, college staff have reported that the WFNs have played a significant role in developing relationships with employers for student placement. Gallatin College faculty, for example, report that WFN industry outreach for placement has allowed faculty members to develop better relationships with employers that are focused on their program content needs.

WFNs maintain employer outreach databases that log employer contacts. RTI's analysis of seven of these databases found that from September 2014 to September 2015, the seven WFNs

- contacted 579 different employers, 92 percent of whom were based in Montana;
- visited 173 employers or 30 percent of those contacted; and
- discussed topics with employers, the most common being similar in frequency and including
  - curriculum feedback;
  - hiring and placement opportunities; and
  - RevUp program opportunities.

As was the case with student recruitment, the 2016 RevUp Faculty Survey found that WFNs worked with college faculty on student job placement; 55 percent of faculty members reported collaborating with WFNs to help their students with job applications, and 60 percent worked with WFNs to connect students to employers. The 2016 RevUp Student Survey results also suggested roles for both WFN and faculty in student placement (exhibit 4). When respondents were asked who at the college assisted them with finding employment, the largest percentage (42 percent) selected the WFN, followed by college faculty (40 percent).

**Exhibit 4: Student responses regarding individuals who assisted with their job search, spring 2016**

Role	Percentage of respondents
Workforce navigator	42
College faculty	40
One or more other students	20
Someone else at this college	7
College career services office	7
No one at the college did this	29

*n* = 253

SOURCE: 2016 RevUp Student Survey.

### ***Sustainability of the Workforce Navigator Position***

All but two of the RevUp colleges opted to continue support for the WFN position through the grant's end in March 2017. Of the two not continuing, Gallatin's WFN is currently supported by funds from the college, and the college plans to support this position indefinitely, and Fort Peck was unable to staff the position. In terms of sustaining this position beyond the grant period, three of the six colleges that participated in the 2016 site visits discussed integrating the WFN position into campus academic advising services. At the other three colleges, two would like to keep the WFN role in some form, and the third was unlikely to retain the position due to past difficulties in finding qualified staff.

#### **Post-Grant Sustainability**

In the Gulf Coast IT Consortium TAACCCT grant, workforce navigator success stories led college administrators to seek funding to retain the navigator position with a 25 student/semester caseload, which the consortium found to be optimal. Workforce navigator responsibilities are similar to those in RevUp.

For more information, see <http://occr1.illinois.edu/docs/librariesprovider4/tci/strategies-for-transformative-change/gulf-coast-it.pdf>.

Grant leadership has noted that moving the WFN position to academic advising departments will likely mean alignment with traditional advising practices, with less employer outreach and case management support. Site visit data suggest that traditional academic advising has been influenced by WFNs' program specialization and case management approaches but that the effects of this influence on advising practices have been limited by staff members' locations in different sites, work with different populations of students, and few opportunities for contact.

As an alternative, RevUp leadership developed a proposal for MT DLI and the colleges to jointly fund WFNs with territories that would cover the state after the grant ends. Although this proposal was not implemented, MT DLI leadership has asked RevUp to provide WFN training resources to workforce services staff. In response to this request, RevUp is working with an instructional designer to develop an online training program for job services staff on WFN activities applicable to Montana and other states. MT DLI plans to offer the training

through their website. In addition, RevUp has hired Dan Dobyms, former WFN at Helena, to conduct a statewide listening tour with job services staff for the remainder of the grant. Dobyms will visit job service offices around the state to (1) strengthen the relationship between colleges and job services, (2) discuss the future of the WFN position, (3) discuss potential roles for WFN practices in job services, and (4) provide job services staff with information on HELP-Link, a program that offers training and employment services for Medicaid enrollees.<sup>3</sup>

## InsideTrack Coaching

Beginning summer 2014, InsideTrack has provided coaching services to students at five colleges: City, Flathead Valley, Great Falls, Missoula, and MSU–Northern. Individual colleges had final say over which students they invited to participate, but most of the students who received the service were first-time and full-time degree seeking students. From summer 2014 to fall 2016, eight InsideTrack coaches conducted 5,229 meetings—defined as meaningful exchanges, with students by email, phone, or text—with 2,429 students. Exhibit 5 shows the breakdown of students coached at the individual colleges from summer 2014 through fall 2016.

**Exhibit 5: Students coached, by college, summer 2014 to fall 2016**

College	Number of students coached
City	465
Montana State University–Northern	529
Missoula	484
Great Falls	710
Flathead Valley	241
<b>Total</b>	<b>2,429</b>

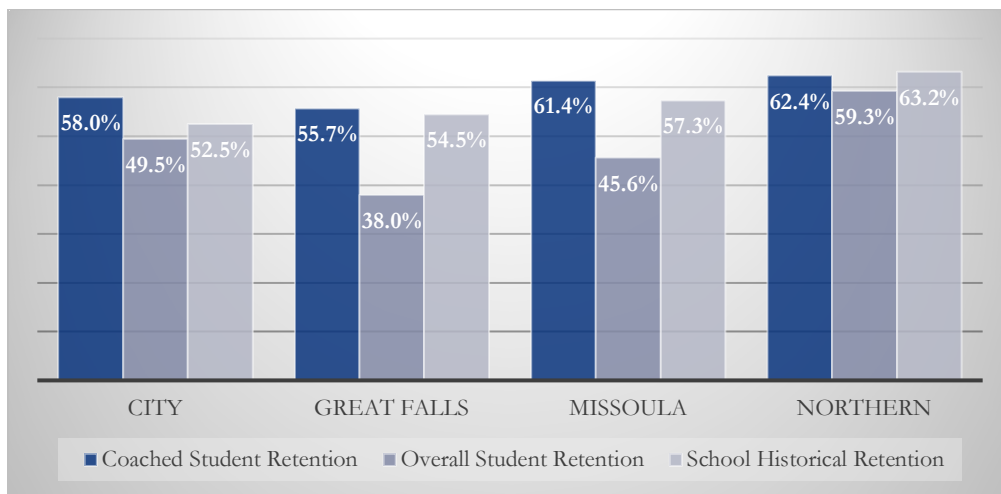
SOURCE: InsideTrack.

Across four of the five colleges for which retention data were available, coached students had higher fall-to-fall retention rates from 2015 to 2016 than all students (exhibit 6). Specifically, the average fall-to-fall retention for first-time students who received InsideTrack coaching across the four participating colleges was 60 percent, compared with 50.9 percent among all first-time students over the course of the coaching program. Fall-to-fall retention rates of first-time students who were coached were also higher than those of all first-time students within each college, but the magnitude of the difference varied by institution.

<sup>3</sup> For more information, see <https://governor.mt.gov/Newsroom/ArtMID/28487/ArticleID/3103>.

With the exception of MSU–Northern, coached student retention rates were also higher than the colleges' historical retention rates, which exceed recent retention rates in part due to changed economic conditions; in many communities, the low unemployment rates in recent years have reduced the likelihood that individuals will enroll or stay in school (Hillman and Orians 2013). The results suggest a positive relationship between coaching and student retention but cannot show that coaching *caused* the differences in retention rates, since the analysis does not account for other factors that might influence student outcomes, such as differences in motivation and ability between coached and noncoached students. For example, it may be that more motivated or able students choose to participate in coaching, since coaching requires students to engage with their coaches, and thus may benefit those students most receptive to help. However, prior research using causal analysis found positive effects of student coaching on student persistence and also found coaching to be more cost effective than some forms of financial aid for supporting completion (Bettinger and Baker 2014).

**Exhibit 6: 2015–16 fall-to-fall retention rates among coached and all first-year students, and eight-year average retention rates among first-year students prior to RevUp, by college**



NOTE: All students were first-time students to their institutions (first-time college students or transfers to the institution). Overall student retention is the fall 2015 to fall 2016 retention rate among all first-time students (coached and noncoached). School historical retention is the average year-to-year retention rate among first-time students over the eight-year period (2005–13) prior to RevUp.

SOURCE: InsideTrack.

RTI collected data on coaching through interviews, site visits, and student surveys. The 2016 RevUp Student Survey<sup>4</sup> indicated that 37 percent of RevUp students in the participating colleges reported receiving coaching from InsideTrack. Among those that did not participate in coaching, 50 percent indicated that they did not do so because they were not aware of the

<sup>4</sup> The InsideTrack questions in the spring 2016 student survey were only given to RevUp students from the five colleges that participated in coaching. However, not all RevUp students at the five colleges were eligible for coaching, and the survey did not capture information from non-RevUp students who participated in coaching.



service (e.g., were not contacted because they were not eligible), and 23 percent reported that they believed they did not need coaching.

College staff members' remarks about their experiences with InsideTrack coaching during site visits were generally positive. Although they had initial concerns about students being advised by people outside of the school, advising staff in one college described InsideTrack as beneficial for helping keep students in school. Staff noted that academic advisors have large caseloads and focus on programmatic issues, whereas InsideTrack coaches can address life skills and offer more frequent support. Staff also appreciated feedback from coaches on the challenges reported to them by students, such as concerns that students at Missoula had about the college's new math lab. InsideTrack coaches consulted with Missoula math instructors on a strategy to address the students' concerns, and the coaches shared information about the resulting changes in subsequent contacts with students.

Staff did note that some students were initially suspicious of InsideTrack coaching and found the coaches' frequent outreach excessive. The latter view was echoed in RTP's interviews with the InsideTrack coaches, who described Montana students as "fiercely independent," in comparison with students from other states, and initially skeptical of the idea of getting coaching help, especially from a stranger. To address students' concerns, coaches altered their approach, relying more on text messages for initial contacts, and spent time developing trust and ensuring students that they didn't intend to tell them what to do. One coach noted that after two to three meetings, student perceptions shifted.

The Montana colleges did not participate in all the InsideTrack data analytics services but did share with the organization student data, such as gender, age, high school GPA, zip code, and current grades at the college. InsideTrack staff believed that the lack of data might have undermined the program's benefits, since coaches could not easily identify struggling students for more proactive coaching or assess the effects of coaching by student gender, age, or online learning participation. Additionally, OCHE initially required an "opt-in" enrollment process that required students to give their consent to be contacted and to participate, which resulted in low enrollment numbers. The time required to implement the process also meant that some students dropped out of college before coaching was offered. Once four of the colleges switched to a process that allowed coaches to contact all eligible students, who could then decline further contact if not interested, enrollment numbers increased.

## ***Sustainability***

RevUp staff provided information on the impact of both WFNs and coaching on student recruitment and retention. Despite the potential for these strategies to increase college enrollments and revenue, in site visit interviews, college staff shared that the cost of

InsideTrack was too high for the program to be sustainable, particularly with declining enrollments and immediate concerns about budget shortfalls. Although coaching may not continue, several of the colleges have pursued InsideTrack training for staff members on adapting coaching strategies in their work. At the request of participating colleges, InsideTrack hosted a two-day training in February 2016 for WFNs and advising staff on coaching methods. During a site visit, advising staff at City reported that the training was useful and, based on this experience, the college has invited InsideTrack to hold another training on its campus. In addition, RevUp leadership supported additional training at Missoula and Great Falls in fall 2016, which was attended by RevUp staff from many colleges.

## Developmental and Technical Math

A subset of RevUp colleges implemented new approaches to developmental and technical math instruction during the grant. Five colleges—Fort Peck, Little Big Horn, Helena, Missoula, and MSU—Northern—revised or enhanced their developmental or technical math courses (exhibit 7).

**Exhibit 7: Summary of RevUp math strategies**

College	Summary of math strategies
<b>Fort Peck</b>	Fort Peck began a pilot of an emporium math model in August 2014. In contrast to other Montana colleges, Fort Peck found that the emporium approach was not well suited to their students' needs and did not improve developmental math outcomes.
<b>Helena</b>	Helena's work was focused on technical math. Program staff developed teaching modules customized for each technical program for the college's online and face-to-face technical math courses. While the course has been well received, the college is unsure whether the instructor position needed to teach the new content is sustainable.
<b>Little Big Horn</b>	Little Big Horn initiated the use of the EdReady online math program to prepare students for college-level math and purchased computers for an on-campus math lab.
<b>Missoula</b>	Missoula implemented a new emporium math program using a renovated math lab in fall 2015. As of the end of fall semester 2016, the program had served 1,200 students.
<b>Montana State University—Northern</b>	Montana State University—Northern adopted an integrated tutor who is embedded in diesel classes and works with students on applied math skills tied to program content.

The developmental math activities were designed to help students quickly acquire the skills needed to pass a college-level math course, which a growing body of research evidence has found to be a key predictor of degree completion (Caccagno et al. 2007, Jaggars and Stacey 2014). Missoula hosted a best practices-sharing meeting in June 2015 with consortium math faculty in the new lab to highlight the college's new math lab and emporium program. Most consortium colleges were in attendance. RTI will assess the impacts of developmental math shifts on student outcomes and has begun collecting data on student outcomes (the colleges included in the study will depend on data availability and quality). The study will include a quantitative analysis comparing the developmental and college-level math outcomes of students before and after the intervention in Missoula if historical data are available, and, if feasible, a comparison of technical math results among students in RevUp programs (who received either tutoring or specialized instruction in math) and students in other technical programs.

**Math Tutoring and Pass Rates at Montana State University–Northern**

In fall 2015, the embedded math tutor at Montana State University–Northern collected data on students in M095 (Intermediate Algebra), M111 (Technical Math), M145 (Math for Liberal Arts), and M121 (College Algebra) who sought his help outside of class. The classes had an overall combined pass rate of 62 percent versus 74 percent for tutored students. According to the embedded instructor, “They see me [in class] and seeing me is half the battle. It’s so hard for students to ask that they need help.”

## RevUp Program Development

For advanced manufacturing in Montana’s public two-year colleges, RevUp sought to improve the program quality and cross-college consistency, connect programs to industry standards, and increase flexibility for students by implementing short-term certificates of technical skills (CTSs) and industry-recognized credentials and certifications (IRCs). These program components mirror concurrent efforts in other states to use IRCs to integrate workforce competencies in postsecondary programs (Advance CTE 2016). In addition, RevUp has worked with short-term CDL and energy programs and is developing short-term training aimed at incumbent manufacturing and energy workers that will connect with modularized components of the colleges’ RevUp programs. Most of the programs that participated in RevUp also updated their facilities and equipment. When respondents to the 2016 RevUp Faculty Survey were asked to summarize the effects of RevUp on their programs, 88 percent agreed that students are better prepared to work in their chosen industries since their programs’ involvement with RevUp.

## Stacked and Latticed Credentials

RevUp's one-semester CTSs are designed to allow students to focus on the credentials and skills they need and avoid repeating content, even if program attendance is interrupted by periods of work. With this approach, students who need to leave school after one semester will earn one or more credentials that can be included in a resume and readily linked with further credentials in the future. CTSs are also intended to acknowledge students' accomplishments on the pathway to a degree and smooth program reentry for dropouts, at the same or another institution, benefits that future research might also explore. Although data on the effects of these types of credentials is limited, national studies suggest that holders of educational certificates earn higher wages than workers with no postsecondary credentials, particularly when combined with an IRC (Ewart and Kominski 2014; Belfield and Bailey 2017). The concurrent effort to integrate IRCs into program curricula (exhibit 8) addresses several of the following RevUp program development goals:

- **Statewide curriculum alignment:** IRCs provide a consistent set of learning objectives and content across college programs that facilitate faculty collaboration and student transfer.
- **Competency-based placement:** In combination with modularized courses, IRCs can help place students with prior education or work experience at the appropriate level of a training program (based on their competencies) and avoid the duplication of course content.
- **Credit for prior learning:** IRCs and IRC assessments can be used to award credit for prior learning.
- **Benchmarking of student skills to industry standards:** IRCs indicate how student skills compare to national standards set by industry.
- **Apprenticeship:** IRCs could contribute to the development of apprenticeships and assist in the articulation of apprentices to other training programs.

Changes in IRC programs have resulted in implementation adjustments over the course of the grant; for example, The National Center for Construction Education and Research (NCCER) is phasing out welding credentials for the completion of individual modules in favor of a comprehensive certification, which has led RevUp programs to shift to credentials offered by the Canadian Welding Bureau (CWB), which offers a modularized training and credential system.

**Exhibit 8: Integrated industry-recognized credentials, by program**

<b>Program</b>	<b>Credentials</b>
<b>Gas and oil</b>	National Center for Construction Education and Research (NCCER), and others
<b>Commercial driver's license</b>	License
<b>Diesel</b>	Snap-on, <sup>1</sup> National Coalition of Certification Centers (NC3), Associated Equipment Distributors
<b>Energy tech</b>	NCCER; registered apprenticeship
<b>Machining</b>	National Institute for Metalworking Skills (NIMS), FANUC
<b>Industrial maintenance</b>	NIMS / Electronics Technicians Association (ETA)
<b>Welding</b>	NCCER; Canadian Welding Bureau (CWB), <sup>2</sup> American Welding Society (AWS)
<b>Industrial electronics</b>	ETA

<sup>1</sup> The Snap-on credential is a single rather than ladder credential. The diesel program at one college is deciding whether to align the curriculum with the National Association of Railways Studies.

<sup>2</sup> One welding program offers both NCCER and AWS for welding, because program staff members believe that more credentials are better for students when seeking jobs. Due to a change in the NCCER credentialing system, many colleges are transitioning to credentials offered by CWB.

Exhibit 9 provides an overview of the programs developed during RevUp as of spring 2016, including the number of programs that were proposed and implemented, whether the program awards IRC and CTS credentials, and progress towards the programs' enrollment goals.<sup>5</sup> For example, RevUp implemented two of the four proposed gas and oil programs and all 12 of the proposed welding programs. All 12 of the welding programs are aligned with IRCs and seven offer CTSs. Both the industrial maintenance and the welding programs are on track to meet the statewide participant goal.

<sup>5</sup> Implemented programs include programs in which two or more courses were substantially revised (welding at Helena) or that were newly developed as part of RevUp (machining at Gallatin).

**Exhibit 9: RevUp program development and enrollments, fall 2016**

Program area	Number of programs (implemented/ proposed)	Industry-recognized credentials	Certificates of technical skill	Actual enrollment/ target enrollment numbers
Gas and oil	2 of 4	Yes	n/a	253/351 (72%)
Commercial driver license	10 of 7	Yes	n/a	388/261 (149%)
Diesel	3 of 2	Yes	0 of 3	627/643 (98%)
Energy tech	1 of 2	Yes	1 of 1	94/261 (36%)
Machining	8 of 9	Yes	5 of 8	251/226 (111%)
Industrial maintenance	3 of 5	Yes	3 of 3	48/40 (120%)
Industrial electronics	3 of 5	Yes	3 of 3	121/106 (114%)
Welding	12 of 11	Yes	7 of 12	1232/725 (170%)
Other "Participants" (those in grant-funded non-technical courses)				1468
<b>Overall (includes participants and individuals being served through student services)</b>				<b>4,482/3,419 (131%)</b>

n/a = Not applicable (programs too short for certificates of technical skill)

SOURCE: Montana Office of the Commissioner of Higher Education.

The implementation process has multiple steps that include faculty professional development, curriculum revisions, official approval, and finally, support for faculty and staff to build awareness and understanding of the new credentials. Sixty percent of the respondents to the 2016 RevUp Faculty Survey indicated they had earned new IRCs through RevUp. Curriculum revisions and approvals were completed during the 2015–16 academic year. As of June 2016, only 30 CTSs had been awarded statewide, which college and RevUp staff attributed to fee (typically about \$80) and paperwork requirements and low awareness among college staff and students. In fall 2016, both Highlands College and Great Falls automated the awarding of CTSs for students who complete the requisite number of credits, and City adopted the credential in welding. These changes and growing awareness will likely increase CTS awards in the future. Although Montana's postsecondary data system does not collect data on IRCs,<sup>6</sup> 75 percent of respondents to the spring 2016 RevUp Student Survey reported earning one or more IRCs during their programs, and 85 percent expected to do so before graduation.

Data limitations and the grant time frame, therefore, prevent a quantitative assessment of the effects of the new credentials on student educational and workforce outcomes, but interim

<sup>6</sup> Since certifiers typically send the results of certification assessments to students rather than educational entities, the documentation of IRC awards has been a continuing challenge for education programs, reflecting a national challenge (Texas Workforce Investment Council 2015).

indicators suggest that the impact will likely vary by program. Site visit data revealed mixed reaction to the changes. Some faculty members found the IRCs to be poorly matched to local skill needs or insufficiently rigorous, whereas others believed that students with more certifications would have an edge in the labor market. College staff and employers said that a CTS earned after one semester of study would likely be insufficient for employment and that the value of credentials varies by industry, as suggested by the results of the fall 2015 RevUp Employer Survey. When the 42 respondents to the survey were asked whether their company required its workers to have a college certification/degree, an IRC, both these credentials, or neither, 62 percent said neither, and 24 percent favored the IRC.

Welding faculty, for example, explained that employers certify new employees through the American Welding Society (AWS) after hire, even if the new employees held an individual AWS certification when they applied. Machining faculty shared that Montana's small and often self-taught manufacturers are typically indifferent to National Institute for Metalworking Skills (NIMS) certifications but acknowledged that the certifications may benefit students who leave the region or seek employment with larger firms, such as Boeing and Anderson Steel. MSU-Northern's diesel program offers National Coalition of Certification Centers (NC3) and Snap-on IRCs and is building an NC3 certification lab, but faculty reported low employer interest in NC3 IRCs. Employers are most enthusiastic about the professionalism and safety training included in the program's new foundations of diesel class.

Faculty also benefited from professional development through the RevUp grant. Exhibit 10 displays additional training opportunities and certifications/credentials faculty received as part of the RevUp grant.

**Exhibit 10: Number of faculty participating in training or professional development and earning certifications or credentials through RevUp, as of fall 2016**

Training type	Number of faculty who participated	Number of faculty who earned certifications or credentials
National Center for Construction Education and Research	6	5
National Coalition of Certification Centers Certifications	4	7
National Institute for Metalworking Skills	1	6
National Association of Publicly Funded Truck Driving Schools	1	
American Welding Society	1	3
Advanced computer-aided manufacturing programming	1	
Bring Your A Game to Work	1	
Electronic driver logs	1	
FANUC	1	1
Oregon job shadowing – thermal transfer	1	
3D printer	1	1
Simulator	1	1
Canadian Welding Bureau welding supervisor	1	1
Drug awareness supervisor		2
EdReady training	1	
Conference attendance	3	
None	4	4

Note: Respondents could select more than one response.  
SOURCE: 2016 RevUp Faculty Survey.

## Technology and Equipment

Five of the six colleges visited in spring 2016 had purchased new equipment, and 84 percent of the respondents to the 2016 RevUp Faculty Survey reported using equipment purchased through RevUp. For some programs, such as manufacturing at Gallatin, the equipment was needed to create the program. At other colleges, funds were used to update existing equipment and facilities in accordance with current industry practice. Instructors indicated that the new technology and upgrades enhanced their ability to meet local employer needs. Two large companies in Helena (Boeing and Pioneer), for example, use FANUC machines instead of Haas, so Helena purchased three FANUC machines. Equipment updates were consistently reported by instructors and administrators as one of the most impactful programmatic changes brought by RevUp in terms of program-industry alignment. As one instructor at MSU–Northern explained, “So the new equipment, the truck and the brake trainers—you



can't imagine how much that added to the labs. And the lectures are important but it's the hands-on labs that will make or break the students. And if you can't supply basically cutting edge-type technology... If I can't provide that stuff to my students when they get out to our employers, our employers are not happy. So at the end of the day it's the employers we have to make happy. They notice within even one semester how much further I've come with my labs."

In addition, three CDL programs purchased CDL simulators, which have helped students understand how and when to shift gears while saving wear and tear on the program's trucks. A major expense of CDL programs is maintaining a functioning truck for student practice. If students can learn to shift on the simulator rather than the actual truck, it reduces maintenance costs. The simulators also help students understand how to modify their driving under adverse conditions. Students can experience ice, wind, or snow in simulation before encountering these potentially dangerous conditions on the road.

According to the majority of RevUp faculty surveyed in 2016, they have experienced changes to courses or programs due to RevUp. Exhibit 11 below shows the types of changes experienced.

**Exhibit 11: Faculty responses regarding changes experienced**

Which of the following changes to your courses or program have you experienced as a result of RevUp?	Number of faculty
Teaching new courses created because of RevUp	13
Teaching courses revised to better align with RevUp	19
Teaching courses that integrate new vendor-provided content	11
Renovations to teaching facilities because of RevUp	8
No changes	3

Note: Respondents could select more than one response.

SOURCE: 2016 RevUp Faculty Survey.

## Prior Learning Assessment

The RevUp program sought to replicate the Council for Adult and Experiential Learning's "Ten Standards" to guide prior learning assessment (PLA) development in RevUp programs and build on prior statewide efforts to award credit for military experience. With RevUp project staff input, the Board of Regents passed a statewide PLA policy in September 2015 that allows students to receive academic credit for prior learning that counts toward a degree or certificate. The policy recognizes two categories of PLA: instructional (learning from classes, not in two- or four-year institutions, such as training associated with IRCs) and experiential learning (learning outside of a traditional classroom). The policy places no limit on academic

credit award for instructional PLA, but credits from experiential learning PLA cannot exceed 25 percent of credits required for the degree or certificate. Once approved by faculty, students can receive grades and credits toward their degrees or certificates as if they had acquired the credits at their institutions as well as transfer the credits to other institutions. Fees for PLA credits reflect the cost of operating the PLA program, rather than the fees for course-based credit awards. The policy promotes greater consistency in the awarding of credits for prior learning, but individual colleges still must develop their own policies and train their staff and faculty to implement PLA.

In addition, RevUp is using certifications as PLAs by modularizing advanced manufacturing course content with IRCs and allowing students to skip the modules for which they are already certified. The IRC-based modules also facilitate awarding credentials by providing assessments for students with industry experience, which can be used to test their scales and determine the appropriate place for them in a program. IRCs are also revenue sources for the college, which can charge for assessments. RevUp project staff are also working to integrate PLA in apprenticeship programs, reflecting the DOL's promotion of PLA credits for current and past apprentices as an accelerated route to college credentials in their fields and a gateway to a four-year degree. The joint MT DLI and RevUp director of industry-driven workforce development partnerships has been working with colleges to develop these programs, including Montana college opportunities for PLA credit awards in the national clearinghouse of credit-for-apprenticeship opportunities under development by the DOL. The clearinghouse will serve as a resource for employers and prospective students.

## Transferability and Articulation of Credit

TAACCCT grants promote the transferability and articulation of academic credit among institutions within and across state lines and through linkages to programs outside of colleges, such as workforce systems, post-employment training, and apprenticeship. RevUp includes efforts to develop apprenticeship programs that offer academic degrees and credentials, establish articulation agreements across colleges, and promote online learning and course sharing.

### ***Apprenticeship***

RevUp has partnered with state agencies and staff from two other grants (including Montana's DOL apprenticeship grant) to expand apprenticeship opportunities under the umbrella of the state's work-based learning initiative, which also includes a post-employment training program. As a result of these efforts, the number of existing union apprentices has grown, and RevUp has also contributed to efforts to facilitate articulation agreements between two-year college and apprenticeship programs that would reduce the number of on-

the-job and instructional hours required to complete apprenticeship programs for graduates of the articulated college programs. Apprenticeships integrate college coursework to improve the formal instruction component of these programs, thereby addressing employers' past concerns about instructional quality, and offer apprentices the opportunity to earn associate degrees. To this end, RevUp leadership has worked with college and state agency representatives to establish two new apprenticeships:

- An electrical technology apprenticeship program between Flathead Valley and eight employer partners that integrates curriculum from the Flathead Valley electrical technology program and allows apprentices to receive related instruction requirements while they earn their CTSs from Flathead Valley.
- A new welding and metal fabrication pre-apprenticeship and apprenticeship. The pre-apprenticeship program integrates Great Falls' one-semester CTS and two-semester welding and metal fabrication Certificate of Applied Science (CAS). Students who successfully complete the CTS/CAS enter an employer-sponsored apprenticeship (upon employer approval). The apprenticeship includes additional Great Falls coursework and one year of full-time on-the-job training.

City is working with the Montana Registered Apprenticeship Office to align the outcomes of its energy technology programs with apprenticeship programming.

RevUp also participated in the development of accelerated pathways from college programs to established union-led apprenticeship programs. Under these agreements, students who have completed an agreed-upon portion of a program's coursework can enter an apprenticeship with reduced instructional and on-the-job-training hour requirements.

- MSU Billings entered into formal agreements with the Montana Electrical Joint Apprenticeship Training Committee wherein National Joint Apprenticeship and Training Committee (NJATC) linemen and wiremen who complete any NJATC course are awarded a corresponding number of credits towards an MSU Billings degree through PLA.
- Great Falls, City, and Montana's Department of Corrections piloted a pre-apprenticeship program for inmates that created a pathway into both colleges' programs and several unions' training programs as endorsed by the Montana Building and Construction Trades Council.

Finally, RevUp has consulted with Montana's TAACCCT IV program, HealthCARE, which is developing apprenticeship-type programs in health care fields.

## ***Cross-College Articulation***

RevUp has established formal program articulation agreements that allow the use of credits earned in one college to meet program requirements in another college. Prior to RevUp, just two of the consortium colleges had articulation agreements covering a small number of programs that had been developed by faculty. Under RevUp, Roch Consulting assisted faculty with the labor-intensive program review and comparison process needed to develop articulation agreements for all RevUp programs. For each agreement, Roch Consulting created a crosswalk for the learning outcomes of each college's program (a process facilitated by the programs' recent adoption of the same IRCs). In accordance with current state policy, RevUp created separate agreements for each college and program; for example, Missoula and Helena have separate agreements for their welding and advanced manufacturing (machining) programs.

To date, the project has created articulation agreements for RevUp between the consortium colleges' welding and machining programs. The colleges then decide whether to adopt these agreements to allow students from other colleges to articulate into their programs and vice versa. Each articulation agreement will have two parts: The first part compares the two colleges' programs and the process to transfer students within the same program. The second part is a roadmap of the two programs' learning outcomes semester by semester, which can be used to determine appropriate PLAs for transfer students. This information will inform the development of a tool to facilitate the award of credit for PLA as part of the articulation process.

## ***Advanced Online and Technology-Enabled Learning***

TAACCCT promotes the incorporation of online and/or technology-enabled learning strategies into program design. Online and technology-enabled (including hybrid, or a blend of online and classroom instruction) programs provide an opportunity for students to balance the competing demands of work and family with acquiring new knowledge and skills at a time, place, and/or pace that is convenient for them. As posed by the DOL, strategies in this area might include rolling and open enrollment processes, modularized content delivery, simulated assessments and training, and accelerated course delivery. RevUp has addressed this TAACCCT requirement through the purchase of simulated CDL learning equipment on some campuses and the creation of online coursework open to students from around the state through course sharing. Course sharing allows students at one Montana two-year college to take courses at another college without having to apply for admission, allows such courses to be covered by financial aid, and results in the automatic application of any credits earned to students' transcripts at their home institutions.

RevUp proposed the expansion of online learning opportunities to expand student access to remote areas and avoid the need for program duplication across colleges, echoing initiatives in other states, such as the California Community College Online Course initiative and Washington State Board for Community and Technical College's Direct Course Sharing system.<sup>7</sup> Initial plans included the development of online programs in energy technology and entrepreneurship and hybrid programs in manufacturing (machining and industrial maintenance), industrial electronics, and diesel mechanics. Missoula developed a three-course certificate program in entrepreneurship first offered in summer 2016 and has enrolled a total of nine students from other colleges through course sharing to date.

For manufacturing, Flathead Valley developed online versions of its TAACCCT II advanced manufacturing program so that students from around the state could complete the program's coursework online. The original plan was for students to complete hands-on assessments and labs in facilities located at City, Flathead Valley, Helena, and MSU–Northern. Due to equipment procurement and transfer issues, Helena chose not to participate and OCHE did not include City and Highlands College in its pilot of the WICHE ICE course sharing system, which was limited to five institutions. As a result, students from other campuses did not participate in the online version of Flathead Valley's program until a pilot conducted with Missoula students in 2015–16. According to project staff, the pilot received mixed reviews from students and staff, with some students frustrated by a lack of faculty support.

Course sharing also encountered administrative challenges associated with college accreditation and student records. In the accreditation process, the student's "home" college is responsible for course content and instruction, even when the course is offered by another college. To meet this and other requirements, home colleges would need to approve programs taught by other colleges, by their own internal and external processes, to list the programs in their catalogues and promote them to its students. In addition, the regional accreditor, the Northwest Commission on Colleges and Universities, would need to approve the courses and program at a cost of about \$1,000 for each college seeking to offer the program.

Montana lacks a statewide system for colleges to share the data needed for cross-college enrollments, such as course grades and financial aid information. The number of students participating in course sharing has historically been low, and when needed colleges have used time-intensive ad hoc approaches for exchanging student data. In collaboration with college leaders and OCHE, RevUp proposed simplifying the administration of course sharing using WICHE ICE, an internet-based course enrollment system. WICHE ICE facilitates course

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<sup>7</sup> For the California project, see <http://ccconlineed.org/>; for information about Washington State, see <http://www.sbctc.edu/colleges-staff/programs-services/elearning-open-education/shared-course-information.aspx>.

sharing by enabling the exchange of student data and financial aid information through a secure, online database. OCHE is currently piloting the system with five colleges for course sharing in advanced manufacturing, entrepreneurship, and diesel. In the RevUp Sustainability Survey, most of the college leaders indicated that expanded course sharing could benefit students in the state, but their responses also suggested that the lack of consensus on a course sharing model (five of eight responses) and the need for course sharing (four of eight responses) may continue to hinder the expansion of course sharing options (RevUp 2017).

Another challenge to online programs was ambivalence among RevUp faculty members regarding the appropriateness of online learning for their fields, many of which require intensive hands-on instruction. Even hybrid courses that combine online and on-site instruction would, according to some faculty interviewed by the evaluation team during site visits, leave students lacking skills that require consistent day-to-day lab time to acquire. However, faculty from most programs were also able to identify classes that would work well online, such as blueprint reading and welding symbols, and agreed that online offerings would increase the program's flexibility for working students. Faculty skepticism may fade over time, but interview feedback suggests that faculty members may have been reluctant to promote online learning to their students in the short term. Faculty also noted that online courses might work best in nonmanufacturing programs and mentioned Montana's current efforts to explore online options for health care (under development for the state's TAACCCT IV grant), early childhood education, and general education courses as examples.

## Strategic Alignment

DOL guidance states that TAACCCT projects must align their programs with at least four types of key stakeholders: (1) governors, (2) employers and industry, (3) the public workforce system, and (4) philanthropic organizations, business-related and nonprofit organizations, community-based organizations, and labor organizations. Alignment with these stakeholders is envisioned to assist in the development of education and training models; provide benefits not funded by these grants, such as tuition assistance and wage subsidies; and support program sustainability. At the center of RevUp's approach was the development of sector strategies to connect industry with educational institutions and workforce development agencies throughout the state to ensure that training programs meet employer needs (Ziegler 2015; Woolsey and Groves 2013). Although research on sector strategies is limited, several studies suggest that the approach has the potential to improve worker skills and enhance business performance (Maguire et al. 2010; Conway et al. 2007).

## State and Regional Sector Strategies

RevUp worked with the Montana Governor's Office on the development of sector strategies aligned with the state's Key Industry Networks (KINs) that were developed through the governor's Main Street Montana project.<sup>8</sup> KINs include a limited number of industry representatives at the state level, whereas sector strategies are designed to be business-led and focused on regional cooperation. The goal of this combined effort was to increase formal and informal communication between employers and the public workforce system and establish mutual support opportunities for RevUp colleges and Montana employers. For sector partnerships, RevUp contracted the Woolsey Group, a research and technical assistance firm that specializes in sector strategies, to work with the Governor's Office and seven Montana regions. The focus was in four areas, Kalispell, Bozeman, Billings, and Lewistown, with more limited support for Bitterroot, Missoula, and Great Falls.

In an interview describing its work, the Woolsey Group noted encountering an unusually high level of distrust in Montana relative to other states that the organization has worked with. This distrust posed an initial obstacle to sector strategy development and led to a series of planning sessions in 2015 and 2016 for businesses, workforce system representatives, and educators to build relationships. In addition to planning meetings, many MT DLI and other state-level staff members connected with workforce development attended a sector partnership conference in Arizona in early 2017.

RevUp staff promoted the effort and encouraged participation in numerous statewide meetings addressing how industry and state agencies can better serve Montana workers and promote economic development. RevUp staff members shared information about training opportunities and IRCs, and their presentation at the governor's 2016 symposium sparked interest among colleges and others in offering credentials offered by the CWB. RevUp also participated in the Main Street Montana workforce meeting in August 2016, which addressed connection with KINs and the formation of industry partnerships at the local, regional, and state levels. Finally, RevUp leadership and MT DLI presented on sector strategies at the Montana manufacturing extension meeting in October 2016, which was attended by 300 people, 90 percent of whom were from businesses. Meeting attendees expressed an interest in expanding sector partnerships, using the successful Bozeman example as a model.

Following this final meeting, RevUp leadership contributed to a plan for continuing and expanding sector strategy work under the State Workforce Innovation Board (SWIB) in accordance with the Workforce Innovation and Opportunity Act (WIOA). Under this plan, the SWIB will create two standing committees comprising representatives from each of Montana's primary industries. The activities of these committees would be directed by the

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<sup>8</sup> For more information about the Main Street Montana project, see <http://mainstreetmontanaproject.com>.

state governor. To collect information on the concerns and priorities of Montana's employers, the standing committee representatives would work with the KINs, which will gather input from regional sector partnerships. To assist in the launch of this strategy, RevUp planned a sector strategy training academy for state agency and other staff led by the Woolsey Group in March 2017. The training was postponed by six months at behest of MT DLI, which asked for more time to coordinate with WIOA core partners before moving forward.

## College-Level Employer and Industry Connections

WFNs and faculty have played a large role in RevUp's employer outreach. As noted earlier, most WFNs engage in employer outreach as part of their work in student employment placement, but other types of connections have also emerged. Employers in Highlands, for example, have provided funds for equipment and contributed to curriculum development for the college's aerospace welding program. In response to employer feedback, faculty added behavioral and skills testing to the program to identify skill gaps and ensure that students have the necessary competencies. At Dawson, the WFN held an oil and gas and welding symposium with local businesses that sparked the development of the college's corrosion program, which would connect students to a more sustainable career path than oil and gas production, with its boom and bust cycles. Helena developed a partnership with Helena Sand and Gravel, which hires many of the college's CDL graduates, to use its trucks for CDL training. The Great Falls welding program has initiated a new mandatory class: "Becoming a Successful Student" addresses soft and organization skills in response to employer feedback. The program also used employer feedback to develop their tier 3 and tier 4 curricula.

Feedback from both RevUp program faculty and employers provide further evidence of the links between the colleges and employers. Eighty-eight percent of respondents to the 2016 RevUp Faculty Survey said they believed their programs were more responsive to the interests and needs of their industries since RevUp began; 90 percent indicated that their programs were more up-to-date and better reflected industry standards; and 78 percent believed they had stronger relationships with industry partners. Sixty-eight percent of the respondents also reported that they expanded the number of contacts they had with industry partners in their areas under RevUp.

In the fall 2015 RevUp Employer Survey, 70 percent of respondents reported that they collaborated with one of Montana's two-year colleges, and 45 percent were members of RevUp program advisory committees. All respondents agreed that the workers hired through their local colleges showed career advancement potential; 92 percent said the workers had the specific technical skills needed to do their jobs; 73 percent said the workers were ready to work on day one and could communicate clearly in writing; and 81 percent agreed the workers had



adequate oral communication skills. When asked when they worked with a college on hiring needs, 78 percent of the survey respondents said that they worked with a college both before and after hiring needs arose.

## Post-Employment Training

The 2015 RevUp Employer Survey included questions about employers' training needs and their interest in short-term training (less than four weeks) for incumbent workers. The survey results suggested high employer interest in short-term training offered by the public workforce training system, with 73 percent of employers reporting that they were interested or somewhat interested in trainings aimed at increasing the knowledge, skills, and abilities of their current workforce. The largest training gaps reported were for welders, machinists, commercial vehicle drivers, industrial electricians, and diesel technicians. Additionally, Thomas P. Miller & Associates' analysis of short-term training needs in Montana indicated that employers are willing to pay over \$1.1 million for unmet training needs for welding technicians and fabricators over the next five years. In partnership with RevUp, MT DLI is offering post-employment training as part of Montana's work-based learning initiative. The project will include a marketing and outreach campaign in fall 2016 and free, IRC-based training. To generate interest in the program, RevUp is working with employers to have their employees take the CWB's welding and fabrication assessment. RevUp is also providing CWB training to current college faculty to expand colleges' capacity to offer CWB training to employers.

Ultimately, RevUp hopes that post-employment training will be modularized portions of credit-based programs offered as continuing education, along with CWB certification and other IRCs. The modularized approach would connect the training to degree-bearing programs, offering opportunities for participants to apply their learning to college certificate and degree programs. The program, however, also offers stand-alone training to meet employer needs.

Challenges to this approach include the need for consistent and ongoing employer outreach and difficulties in developing sustainable training for small employers. The prevalence of small employers in the state highlights the need for a statewide system if such training is to be sustainable over time. For example, leadership at Helena noted in a site visit that post-employment training involved a lot of employer outreach, and leadership at Great Falls underscored the importance of discussing costs with employers. Additionally, both Gallatin and Highland reported difficulties establishing post-employment training for their primary base of small employers because of limited demand.

## Workforce System Connections

In addition to the statewide sector partnership initiative that includes the State Workforce Investment Boards and the participation of local workforce agencies, RevUp connected with the workforce system through its lead role in the development of Montana's work-based learning initiative. Project staff members are assisting with the development of the initiative's website and developing an online training module on WFN best practices intended for job service center, state agency, and college staff in Montana and other states.

RevUp staff at the college level have also established connections with local workforce services agencies. At several of the colleges, WFNs have met with workforce services staff members and attended their meetings to gain an understanding of local workforce needs as well as provide information about RevUp programs and training opportunities for unemployed and incumbent workers through the colleges. As a result, workforce services referrals have increased at many of the colleges.

In addition to offering targeted training to incumbent workers, RevUp is currently offering welding training to inmates from Montana Women's Prison near Billings through a multi-organization partnership that includes City, Great Falls, MT DLI, Montana Correctional Enterprises, and Billings Adult Education. The training is provided by the Great Falls welding instructor and uses RevUp's mobile welding unit to provide instruction on-site that offers IRCs. In December 2016, 10 women completed the training and were certified.<sup>9</sup>

## Gianforte Scholarships

In 2014, the Montana-based Gianforte Family Foundation provided \$500,000 to support student scholarships. RevUp staff members in the consortium colleges work with college faculty to connect with prospective and current students and encourage them to apply. The scholarship covers up to 50 percent of tuition for certificate and two-year degree programs that lead to jobs in manufacturing, such as welding or machining, with a priority for veterans and lower-income applicants. Since the scholarship program was launched in spring 2015, 467 students in RevUp programs have received a total of 655 semester-long scholarships, of which 163 were awarded scholarships for the current semester (spring 2017). The foundation provided \$250,000 to continue the program through fall 2018.

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<sup>9</sup> For more information about the project's graduates, see [http://billingsgazette.com/news/local/welding-class-graduates-at-montana-women-s-prison-in-billings/article\\_4c547067-4fd7-594b-a064-8c9ebce067ae.html](http://billingsgazette.com/news/local/welding-class-graduates-at-montana-women-s-prison-in-billings/article_4c547067-4fd7-594b-a064-8c9ebce067ae.html).

## Alignment With Other TAACCCT Projects

The RevUp project has established connections to other TAACCCT projects, both in other states and within Montana. At the national level, RevUp leadership initiated and funded the TAACCCT Directors' Forum, an active online discussion forum that includes about 220 people nationwide. Responsibility for the forum passed to Jobs for the Future at the end of RevUp's project period. RevUp staff members have also communicated with project staff from Colorado's TAACCCT grants and visited the participating colleges several times. Staff members from the project in Pueblo Colorado have assisted with questions relating to the implementation of manufacturing-related programs. RevUp is also connected with Montana's other two TAACCCT grants, the round II grant awarded to Flathead Valley for its Amplifying Montana's Advanced Manufacturing and Innovation Industry (AMAMII) project and the round IV consortium project, HealthCARE (Creating Access to Rural Education) Montana. This alignment has allowed the state to (1) leverage existing work and (2) tweak current work to understand the most effective, most sustainable practices.

**Advanced manufacturing curriculum:** Flathead Valley upgraded equipment and developed a two-year advanced manufacturing curriculum through the AMAMII grant. Building upon this work through RevUp, Flathead Valley adapted this curriculum for online instruction and has enrolled students from other colleges in a hybrid program that combines online learning with lab time.

**WFNs:** The WFN role was first introduced in AMAMII, which hired three WFNs and piloted the recruitment, retention, case management, and job placement aspects of the role. RevUp leveraged this work by funding a WFN at each of the participating colleges. Based on lessons learned from earlier WFN models, HealthCARE Montana has sought to promote the sustainability of the role by spreading its functions across three different positions—regional career coaches focused on student recruitment and program placement, regional workforce coordinators focused on employer relationships and job placement, and transformation specialists at each college for student retention, case management, and grant management.<sup>10</sup> The career coaches and workforce coordinators are based at regional health education centers and work with three to five campuses. The assumption is that by having these roles located outside of the colleges, multiple organizations would benefit and could work together to fund the position when the grant concludes.

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<sup>10</sup> In RevUp, each college also has a grant coordinator responsible for grant management. In HealthCARE Montana, the transformation specialists assume this role.

**Course sharing:** Much like RevUp, HealthCARE Montana emphasizes online training and is working with RevUp leadership to understand the best way to coordinate the administration of course sharing. In interviews, stakeholders from both projects shared that they felt course sharing makes more sense for health care and allied health than manufacturing because the content is more appropriate for online instruction. Interviewees also believed HealthCARE Montana will not have to develop a new course sharing approach but could instead benefit by the groundwork laid by RevUp.

**Sector strategies:** RevUp drew on the experience of TAACCCT projects in Colorado and Washington to develop the initiative's approach to developing sector strategies in advanced manufacturing. The consultant for this portion of RevUp's work, Lindsey Woolsey, also assisted with sector strategies in those states.

## Quantitative Analysis of Student and Programmatic Outcomes

Initial descriptive analyses of data on RevUp student outcomes suggest some promising trends. Data from OCHE indicate an enrollment increase of 24 percent across all RevUp programs, compared with a 13 percent decline across all two-year programs in Montana over the same period. In terms of completion and retention from the same data source, 68 percent of students in RevUp programs who first enrolled in fall 2014 either earned a credential or returned for a second year, compared with 61 percent of students across all two-year programs. Since students could first enroll in programs developed or revised under RevUp in fall 2014, most have not had enough time to graduate and spend enough time in the labor market to conduct an income analysis. However, respondents to the spring 2016 Student Survey who reported finding a job after their programs reported average pre-program incomes of \$14/hour, compared with \$22 after the program, or the equivalent change in average annual wages from \$29,000 to \$46,000. Since a small proportion of students reported employment in the survey, these results should be regarded as preliminary.

RTI has three quantitative analyses of RevUp student outcomes planned for the final year of evaluation activities through September 2017 (exhibit 12). The first, a study of the program's impact on student outcomes, is a quasi-experimental analysis of student educational outcomes, including graduation, employment, and earnings, for participants in RevUp programs

at all or most of the consortium colleges.<sup>11</sup> This analysis will use propensity score matching to select a comparison group and compare the outcomes of RevUp students with those of students in the same or similar programs who graduated prior to RevUp implementation. RevUp has requested student-level data for students enrolling in the target programs in 2010 or later. Students who were enrolled in the target programs before and after the implementation term of fall 2014 will be excluded from the analysis. The analysis of labor market outcomes will be limited to students for which at least six months (two quarters) of post-program labor market data are available. Accordingly, the sample will only include students who graduated or left their programs at the end of spring 2016 to accommodate the six-month lag in MT DLI data (e.g., data for December 2016—six months after leaving the program—will become available in June 2017).

**Exhibit 12: RevUp quantitative outcome studies**

Study	Description	Timeline
Impact study	Quasi-experimental cohort comparison analysis comparing the educational and workforce outcomes of students in RevUp programs before and after RevUp implementation in fall 2014.	Interim data, fall 2016 Final data, July 2017 Draft report, August 2017 Final report, September 2017
Developmental math study	Quasi-experimental cohort comparison analysis comparing the math outcomes of developmental math students at Missoula College before and after implementation of the RevUp-funded math lab and emporium-style program in fall 2015. Possible descriptive analysis of math outcomes at Helena College and Montana State University–Northern.	Data request, review, and delivery in winter 2017 Analysis spring 2017 Draft report April 2017 Final report, March–April 2017
Return on investment study	A difference-in-differences analysis that compares the employment outcomes of students before and after participating in a program with those of similar students who do not participate. The study will also calculate the number of years students require to recover their college investment (tuition, fees, and forgone earnings).	Data delivery in September or October 2016; update February 2017 Analysis November 2016–March 2017 (depending on data availability) Draft report, March 2017 Final report, April 2017

For the quantitative outcomes study, RTI received an initial delivery of data from OCHE in spring 2016. RTI reviewed these data and submitted a revised request for updated data in June 2016. The new data should address issues found with the first data delivery, which included two separate datasets that could not be matched and more recent data. The new data are expected in spring 2017. Once received, RTI will do a quality check of data, address any remaining data questions with the OCHE data analyst, and finalize the analysis plan for the

<sup>11</sup> The number of colleges included in the study depends on data availability. The tribal colleges Fort Peck and Little Big Horn, for example, do not submit individual student records to OCHE. The OCHE higher education system also does not distinguish between students enrolled in Missoula and Bitterroot since Missoula is the college that awards degrees for both.

final data delivery in July 2017. RTI has also contacted Helena and MSU–Northern to develop an analysis plan for their RevUp math programs. Unlike Missoula's program, however, these programs are limited to technical education students. Depending on data availability, this study will likely use descriptive statistics to compare the grades and pass rates of technical math students before and after the implementation of the new math strategy in each college.

The RevUp team has requested a separate analysis of developmental math student outcomes (including developmental course completion, college math enrollment, and college math completion) for Missoula, which implemented a new math lab and an emporium-style developmental math program under the grant. This study will compare math outcomes of Missoula and the University of Montana students (the program serves both institutions) who participated in developmental math under the grant with similar students who participated in developmental math prior to fall 2015, when the new developmental math program was implemented.

The goal of the return on investment study is to measure the benefits and full costs of programs or credentials offered by Montana's two-year public colleges. The benefits associated with additional education are reflected in higher wages. The full cost of additional education includes tuition and fees as well as the wages students give up during college attendance. To measure benefits and costs, the study uses historical student-level wage and education data for students who attended any of six two-year colleges in Montana from 2001 to 2014.<sup>12</sup> The dataset includes quarterly wages for each student in the sample before, during, and after their two-year college attendance, as well as information about the type (part-time versus full-time) and length of enrollment for each student and the credentials earned.

The evaluation team will use the enrollment data along with posted tuition and fees for each school to calculate the direct costs of education for each student. The team will then compare student wages before and during enrollment to measure foregone earnings (i.e., the wages each student gives up) during college attendance. Finally, the team will compare student wages before and after two-year college attendance to measure the benefits of different programs or credentials. Once the benefits and costs are measured, the team will calculate the return on investment by showing how many years it takes to recover the investment in the program or credentials.

By estimating the return on investment, the study will provide students and other stakeholders with information that can inform education investments. In the context of the RevUp

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<sup>12</sup> The colleges included in the study are City, Great Falls, Helena, Highlands, MSU–Northern, and Missoula. These are the only colleges with student data available for the study time frame.

program, this information will also inform educators and policymakers about the value of various community college credentials offered to Montana students.

## References

- Advance CTE. 2016. *Credentials of Value: State Strategies for Identifying and Endorsing Industry-Recognized Credentials*. Silver Spring, MD: Advance CTE.  
<https://careertech.org/resource/credentials-of-value>.
- Belfield, Clive, and Thomas Bailey. 2017. *The Labor Market Returns to Sub-Baccalaureate College: A Review*. New York: Center for Analysis of Postsecondary Education and Employment, Columbia University.
- Bettinger, Eric P., and Baker, Rachel B. 2014. The Effects of Student Coaching: An Evaluation of a Randomized Experiment in Student Advising. *Education Evaluation and Policy Analysis* 36(1): 3–19.
- Calcagno, Juan Carlos, Peter M. Crosta, Thomas Bailey, and Davis Jenkins. 2007. Stepping Stones to a Degree: The Impact of Enrollment Pathways and Milestones on Community College Student Outcomes. *Research in Higher Education*, 48(7): 775–801.
- Conway, Maureen, Amy Blair, Steven L. Dawson, and Linda Dworak-Muñoz. 2007. *Sectoral Strategies for Low-Income Workers: Lessons from the Field*. Washington, DC: The Aspen Institute, Workforce Strategies Initiative. <http://dev.aspenwsi.org/wordpress/wp-content/uploads/07-014.pdf>.
- Ewart, Stephanie, and Robert Kominski. 2014. *Measuring Alternative Educational Credentials: 2012*. Washington, DC: U.S. Department of Commerce, Economics and Statistics Administration.
- Goodman, Sandy. 2014. *College and Career Navigator Trainer Manual (DRAFT)*. Boston: Jobs for the Future. <http://www.jff.org/sites/default/files/NCTN-manual-TrT-Navigators.pdf>.
- Hillman, Nicholas S., and Erica L. Orians. 2013. Community Colleges and Labor Market Conditions: How Does Enrollment Demand Change Relative to Local Unemployment Rates? *Research in Higher Education* 54: 765–80.
- Jaggars, Shana S., and Georgia W. Stacey. 2014. *What We Know About Developmental Education Outcomes*. New York: Columbia University, Teachers College, Community College Research Center.



- Jobs for the Future. 2010. *The Breaking through Practice Guide*. Boston: Jobs for the Future.  
[http://www.jff.org/sites/default/files/publications/BT\\_Documentation\\_June7.pdf](http://www.jff.org/sites/default/files/publications/BT_Documentation_June7.pdf).
- Maguire, Sheila, Joshua Freely, Carol Clymer, Maureen Conway, and Deena Schwartz. 2010.  
*Tuning into Local Labor Markets: Findings from the Sector Employment Impact Study*. Philadelphia: Public/Private Ventures. <http://ppv.issuelab.org/resources/5101/5101.pdf>.
- RevUp. 2017. *RevUp Sustainability Survey: College Chief Executive Officer Aggregate Responses*. Great Falls, MT: RevUp.
- RevUp and Office of the Commissioner of Higher Education. 2016. *WFN Data Synopsis*. Helena, MT: RevUp and Office of the Commissioner of Higher Education.
- Rodriguez, Kendra S. 2012. *College and Career Navigator Reference Guide*. Denver: Colorado Community College System.
- Texas Workforce Investment Council. 2015. *Tracking Industry-Based Certifications: Promising Practices in Capturing Data on the Workforce Supply of Industry-Certified Workers*. Austin, TX: Texas Workforce Investment Council. [https://gov.texas.gov/uploads/files/organization/twic/Industry-Based\\_Certifications.pdf](https://gov.texas.gov/uploads/files/organization/twic/Industry-Based_Certifications.pdf)
- Thomas P. Miller & Associates. 2016. *RevUp Montana Comprehensive Feasibility Study*. Indianapolis, IN: Thomas P. Miller & Associates.
- Woolsey, Lindsey, and Garret Groves. 2013. *State Sector Strategies Coming of Age: Implications for State Workforce Policymakers*. Washington, DC: National Governors Association.
- Ziegler, Jessica. 2015. *Sector Strategies: Aligning the Skills of the Workforce with the Needs of Employers*. Princeton, NJ: Mathematica Policy Research.

## Appendix A: College Profiles

**Bitterroot College**

RevUp Activity	Current Status
<b>Student Support</b>	
<b>Workforce navigator</b>	Bitterroot’s WFN focused on building employer relationships. The WFN also served as grant coordinator and performed administrative duties; advising staff and program faculty were responsible for advising and job placement. In addition, the WFN supported the recruitment team, which focused on recruiting high school and nontraditional students. As of this report, the college had not identified funds to maintain the WFN position.
<b>InsideTrack coaching</b>	N/A
<b>Developmental math</b>	N/A
<b>Programs Development and Implementation</b>	
<b>Welding</b>	
<b>New or enhanced</b>	New—Bitterroot created new one- and two-year welding programs. All welding classes were taught at night and took place at the local high school.
<b>Certificate of technical skills</b>	No
<b>Industry-recognized credentials</b>	NCCER, AWS
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Commercial Driver’s License</b>	
<b>New or enhanced</b>	New—The college created a CDL program that offers a CDL credential through a 160-hour (four-week) program. As enrollment grew, the college purchased an additional truck and hired one full-time and one part-time instructor. The instructors at Bitterroot partner with other colleges (i.e., City and Great Falls) to offer CDL instruction in different parts of the state.
<b>IRC offered</b>	CDL
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
Bitterroot did not offer online courses or engage in course sharing.	
<b>Employer Relationship Highlights</b>	
College staff are putting together a welding advisory council to inform the development of the welding program.	
<b>Accomplishments</b>	
College staff and leadership consider the growth of Bitterroot and establishment of the two programs, CDL and welding, to be significant accomplishments. Sharing of CDL curriculum has been the basis of many other programs (City, Missoula, Highlands, etc.).	
<b>Sustainability</b>	
<b>Staffing:</b> At this time, there are no identified funds to continue the WFN position. As of September 2016, the University of Montana had not agreed to fund the welding instructor position next year.	
<b>Programs:</b> The welding program may not continue unless the University of Montana allocates funding to Bitterroot for the instructor position. College leadership believes that the CDL program will continue because it is a continuing education program (noncredit) and is already self-sustaining.	

*City College at Montana State University Billings*

RevUp Activity	Current Status
<b>Student Support</b>	
<b>Workforce navigator</b>	The WFN works with City College recruiters, attends events, and meets regularly with students to support student recruitment and retention. The WFN spends every Monday at the Billings Job Services Workforce Center with the career coach from the HealthCARE Montana grant. The college is considering retaining the position after the grant ends. During the course of the project, City had difficulty hiring and sustaining a WFN. The current WFN was hired in July 2016.
<b>InsideTrack coaching</b>	Some 465 students received InsideTrack coaching. The retention differential between coached and all first-year students in the college in 2015–16 was 8.5 percent. Advising staff reported that InsideTrack is beneficial to students as an additional support mechanism to keep them in school; coaches can focus more on life skills than traditional college advisors, who focus on academic advising.
<b>Programs Development and Implementation</b>	
<b>Welding and Metal Fabrication</b>	
<b>New or enhanced</b>	Enhanced—The college modified the curriculum, revised courses, and purchased a welding simulator that connects to a projector and allows students to simulate welds without using materials (i.e., rods) as the instructor provides feedback. This process saves money while helping students gain skills. City also offers noncredit workforce training classes in welding to incumbent workers.
<b>Certificate of technical skills</b>	Yes—City initially implemented an application process for the CTS, but few students were aware of or requested the credential. Consequently, college staff reviewed transcripts to identify students who did not receive a CTS but were qualified and encouraged them to apply, resulting in the award of 21 credentials. The college has since eliminated the CTS fee and application, and the credential is now automatically posted on students' transcripts when earned.
<b>Industry-recognized credentials</b>	NCCER, AWS
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Commercial Driver's License</b>	
<b>New or enhanced</b>	New (fall 2014)—The CDL program includes six weeks of instruction. Initial difficulties with students scheduling driving test appointments were resolved by an arrangement with the licensing bureau to schedule tests as soon as students register for the course.
<b>Industry-recognized credentials</b>	Montana Type 1 or 2 Certification Class A License
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Sustainable Energy Technician</b>	
<b>New or enhanced</b>	New—The program director used curriculum provided by Missoula to develop the program. The instructor rearranged Missoula's course sequencing to fit City students' needs by including developmental math before the required college-level math. In addition, the instructor changed the teaching of E-tech 101 and 103 from the same to sequential semesters to ensure that students have the skills needed for the second course. Billings has also initiated development of an apprenticeship program for the Sustainable Energy Technician program.

RevUp Activity	Current Status
<b>Certificate of technical skills</b>	No
<b>Industry-recognized credentials</b>	NCCER
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Oil and Gas</b>	
<b>New or enhanced</b>	New—The college piloted a program, but a downturn in the oil and gas industry in eastern Montana has caused a lack of demand, thus the college is not currently offering the program as a stand-alone one. The college does offer some related safety training, including Occupational Safety and Health Administration (OSHA) and CPR. Training modules from this program are slated for inclusion in the statewide post-employment training initiative.
<b>Certificate of technical skills</b>	No
<b>Industry-recognized credentials</b>	Safeland USA, National Commission for the Certification of Crane Operators (NCCCO), Forklift, Confined Space, and JLG Industries.
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Process Plant Technology</b>	
<b>New or enhanced</b>	New—The college established a four-semester program that leads to an Associate of Applied Science degree. Staff later added credentials to the program to focus on the downstream side of refining rather than the upstream side of production.
<b>Certificate of technical skills</b>	No
<b>Industry-recognized credentials</b>	OSHA 10, NCCER, Boiler Operator Certificate
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
City does not offer online courses or participate in course sharing.	
<b>Employer Relationship Highlights</b>	
College administrators participated in area employer visits and events and noted that most potential students want to train close to home after graduating. Instructors have industry relationships with specific partners. The college also assisted with the development of sector partnerships in the Billings area.	
<b>Post-employment:</b> The college worked with a local welding company to develop a short noncredit program for incumbent workers. These classes are held mid-week in the evening. In addition, the college started an ongoing partnership with Stillwater Mining, JoyGlobal, and Parker Hannafin to train incumbent workers and City students in diesel technology and hydraulics.	
<b>Accomplishments</b>	
The college highlights several accomplishments stemming from its participation with RevUp, including the (1) greater alignment of programs with industry needs, (2) introduction of the CDL program, (3) new equipment purchased as part of	

RevUp Activity

Current Status

RevUp to increase the capacity of the welding program, and (4) the process plant technology program. The college has also established an apprenticeship program in energy technology.

Sustainability

**Staffing:** The college plans to change the WFN position after the grant ends to include more administrative work (e.g., front line meeting with students, database management, and scheduling) because staff members anticipate that the volume of case management work post-grant would not be enough to sustain the position.

**Programs:** The administration anticipates that the credit-bearing welding program will be sustainable. The noncredit workforce training courses will be sustained as needed to support local industry. The CTS welding program seems to be sustainable in the short term but not in the long term. The administration is uncertain if the energy technician program will continue because current enrollment (13 students) is below the enrollment minimum for sustainability. If the program continues, the college may discontinue the NCCER certifications since they appear to be of low value among employers, who favor journeyman electrician licenses for new hires. The cost for the CDL program is high and the college has had difficulty recruiting students. Currently, the administration does not know if it will be financially sustainable but is considering options to make the program viable, such as combining for-credit and noncredit components.

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**Dawson Community College**

RevUp Activity	Current Status
<b>Student Support</b>	
<b>Workforce navigator</b>	The current WFN started in February 2015 and has been heavily involved in industry outreach and cultivating relationships with employers, student recruitment through job services, and providing support for students.
<b>InsideTrack coaching</b>	N/A
<b>Developmental math</b>	N/A
<b>Programs Development and Implementation</b>	
<b>Welding</b>	
<b>New or enhanced</b>	<p>Enhanced—The welding program was enhanced during the grant period to better align with the needs of local industry. Dawson purchased equipment, including an iron worker, welding machine, welding truck, band saw, and grill press. Curriculum revisions included the elimination of some courses and the introduction of new sophomore-year classes, such as aluminum welding processes and welding, measurement, and trade tools that are unique in the state. In addition, faculty significantly revised the pipe welding and metal fabrication II classes and added a freshman flux core arc welding class.</p> <p>New—The three-semester corrosion program is in its first semester and is one of only three corrosion programs offered in the country. The idea for the program emerged from an oil and gas and welding symposium that the WFN coordinated with local industry. During the event, industry representatives defined corrosion and described their need for training. To create the program, Dawson consulted with corrosion program staff from other colleges and individuals from business and industry. The college also hired a curriculum developer to create a curriculum tailored to local needs.</p>
<b>Certificate of technical skills</b>	Yes
<b>Industry-recognized credentials</b>	NCCER, AWS, National Association of Corrosion Engineers
<b>Number of participants</b>	Some 47 participants through fall 2016; six in the first semester (fall 2016) of the corrosion program.
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
The college administration recognizes the benefits of online learning and course sharing, especially for a college of Dawson's size and relative isolation, but these activities were not implemented under RevUp. Dawson was not included in OCHE's course sharing pilot program.	
<b>Employer Relationships</b>	
Both the WFN and college administration mentioned positive relationships with employers and industry. Following the symposium that resulted in the corrosion program, the college has continued to communicate with corrosion industry partners on a weekly basis.	

RevUp Activity	Current Status
<b>Accomplishments</b>	
<p><b>Corrosion program:</b> College staff members report that this three-semester program has generated praise and interest from other institutions, particularly since Dawson was able to develop and implement the program in less than two years. The administration is optimistic about the program's ability to attract new students because it is one of only three in the country.</p> <p><b>Industry connections:</b> College administrators and the WFN highlighted industry relationships as a major accomplishment of the RevUp grant and stated that the relationships will continue after the grant ends.</p> <p><b>Certificates of technical skill:</b> The college administration found CTSs to be a helpful marketing tool, especially for nontraditional students. The administration hopes to expand CTSs to other programs, starting with corrosion.</p> <p><b>Workforce navigator:</b> The WFN indicated that the autonomy she experienced in her job during the RevUp grant allowed her to develop efficient, streamlined processes for working with employers and students. College administrators noted that the WFN position has been instrumental in fostering industry partnerships, recruiting and onboarding students, and providing student support.</p>	
<b>Sustainability</b>	
<p><b>Staffing:</b> Dawson will maintain the faculty who were partially funded through RevUp funds during the grant. The WFN is transitioning into a new position, but college leadership intends to continue WFN activities through a different position.</p> <p><b>Programs:</b> Dawson will continue the corrosion program through its first two-year cycle and assess the program's sustainability at that point. Dawson has additional changes planned for the welding program, which enrolled its largest starting class since RevUp began in 2016. Dawson also received a \$50,000 grant from industry to sustain the program.</p>	



**Fort Peck Community College**

RevUp Activity	Current Status
<b>Student Support</b>	
<b>Workforce navigator</b>	WFNs advised students, assisted with job placement, and worked with the Wolf Point Job Service center and the Tribal Employment Rights Office (TERO) program to recruit students for the college's programs. Two different people served in the WFN position during the grant, and the last WFN left at the end of 2016.
<b>InsideTrack coaching</b>	N/A
<b>Developmental math</b>	Fort Peck implemented an emporium model of instruction for developmental and technical math with computer-based instruction under a TAACCCT I grant. However, staff observed no change in student pass rates and learned that students prefer face-to-face instruction. As a result, Fort Peck discontinued the emporium model and instead allowed students to enroll in remedial and college-level math concurrently rather than requiring them to pass remedial classes prior to college-level math courses.
<b>Programs Development and Implementation</b>	
<b>Welding</b>	
<b>New or enhanced</b>	Enhanced—The college embedded the NCCER curriculum into their welding courses. The college purchased new equipment and simulators and upgraded their welding facility's ventilation system. These changes supported the doubling of welding program enrollment during the grant period (from about six to 12 students).
<b>Certificates of technical skills</b>	No
<b>Industry recognized credentials</b>	AWS
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Commercial Driver's License</b>	
<b>New or enhanced</b>	Enhanced — Fort Peck hired a new instructor for the CDL program and added additional certifications (Class S for coach bus driving) to meet local school and community needs.
<b>Industry-recognized credentials</b>	CDL; Hazardous Materials and Business License (or B-endorsement)
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
Fort Peck has established a new course sharing relationship with MSU–Northern for the one-year diesel program. Through this arrangement, Fort Peck students enroll in MSU–Northern's program and attend classes over video conference. Fort Peck is planning to take students to the MSU–Northern campus for labs once a month.	
<b>Accomplishments</b>	
CDL and welding program improvements including new equipment and certifications have, according to program staff, improved the quality of instruction and enabled the college to serve more students. Both these programs had wait lists prior to the grant, and since RevUp the programs have been able to train wait-listed students more quickly.	
<b>Sustainability</b>	
<b>Staffing:</b> Fort Peck decided not to continue the WFN role, after the most recent WFN left, due to a lack of qualified applicants. The college plans to continue its relationships with Job Services and TERO.	
<b>Programs:</b> The CDL and welding programs will continue at Fort Peck.	

## Flathead Valley Community College

RevUp Activity	Current Status
<b>Student Support</b>	
<b>Workforce navigator</b>	The WFN began his position under a TAACCCT II grant and continued during RevUp. In contrast to other college advising staff, the WFN has an office located in the trades building. The WFN focused on student case management and advising but also assisted with recruitment and retention support. A portion of the WFN's time was supported by TRIO during the grant.
<b>InsideTrack coaching</b>	InsideTrack coaching was initiated at Flathead Valley in spring 2014 and continued through fall 2016. Flathead Valley maintained the opt in process, resulting in relatively lower InsideTrack student participation rates at Flathead Valley compared with the other colleges who tried the service.
<b>Developmental math</b>	Flathead Valley continued the developmental math program developed under the TAACCCT II grant. The college's technical math program was revised under RevUp to better meet the needs of online students.
<b>Programs Development</b>	
<b>Advanced Manufacturing</b>	
<b>New or enhanced</b>	Enhanced—Flathead Valley piloted its revamped advanced manufacturing programs through the college's single-institution TAACCCT II grant and created online versions of these programs. RevUp supported the purchase of new equipment, the addition of a second year to the industrial maintenance program, and revisions to the college's CDL program.
<b>Certificate of technical skills</b>	Yes—Each for-credit program offers the CTS.
<b>Industry-recognized credentials</b>	Yes—Flathead Valley helped align statewide program outcomes around AWS and CWB. The program does not offer NIMS credentials but includes NIMS-related material. Students are prepared through their course work, assessed per the specific IRC requirements, and provided the paperwork to send in their payments to become certified under the different IRCs. In welding and welding fabrication, employers certify students.
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
As stated, Flathead Valley created online versions of its advanced manufacturing programs for RevUp and was engaged in course sharing with Missoula, for the 2015–16 school year, which also included one student from MSU–Northern.	
<b>Articulation Agreements</b>	
Flathead Valley has longstanding articulation agreements with four-year programs and has established articulation agreements for its advanced manufacturing and welding programs with the other RevUp colleges.	
<b>Employer Relationships</b>	
The Center for Manufacturing Advancement at Flathead Valley works on outreach to employers for the RevUp grant, including developing an employer-based manufacturing expo; meeting with advisory committees; developing a pilot education program (in conjunction with Montana Manufacturing Extension Center) to assist small businesses with marketing; offering a Haas demo day at the college that allowed area employers to see equipment purchased under the grant and learn about the programs; and working with employers on work-based learning opportunities. According to project staff, the outreach has increased the employment opportunities available to college graduates. Finally, the region was the first to establish a sector partnership. The partnership was active for many years before recently becoming inactive.	
<b>Accomplishments</b>	
<b>Program development:</b> College staff members count the development of the manufacturing classes and delivering them online among their grant accomplishments, as well as the college's hiring of a curriculum designer. The designer trained faculty members to develop their courses for online delivery and continued to work with them to improve their courses, both on- and offline, over time. The new equipment permitted the program to serve more students, and the simulation equipment allows online students to develop skills prior to their hands-on labs.	

RevUp Activity	Current Status
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**Student support:** The college considers the WFN role to be a success because of the increased assistance to students, who now have support from enrollment through graduation. According to staff, the WFN location in the trades building has increased trades students' access and willingness to take advantage of support services.

**Sustainability**

**Programs:** The programs will continue using face-to-face and online hybrid instruction, although participation by other colleges in the online program through course sharing and the provision of local labs is uncertain. The curriculum designer will continue working with the Flathead Valley faculty using strategies and equipment developed under the RevUp program.

**Staffing:** The college will sustain the WFN and curriculum designer positions, and the WFN position will continue to be housed in the trades building. The Center for Manufacturing Advancement will be absorbed under the trade programs director.

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**Gallatin College Montana State University**

RevUp Activity	Current Status
<b>Student Support</b>	
<b>Workforce navigator</b>	The WFN focused on student retention and job placement. Student recruitment was not a priority because the college had more applicants than it could enroll. Faculty reported that the WFN freed up faculty time by advising students, improved student retention through case management, and played a key role in student job placement.
<b>InsideTrack coaching</b>	N/A
<b>Developmental math</b>	N/A
<b>Programs Development and Implementation</b>	
<b>Machining</b>	
<b>New or enhanced</b>	New—The machining program was newly developed with RevUp funds (fall 2014).
<b>Certificates of technical skills</b>	No—This is a nine-month program that offers a Certificate of Applied Science.
<b>Industry recognized credentials</b>	NIMS
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Welding</b>	
<b>New or enhanced</b>	Enhanced—The college enhanced its program with new equipment and updated its curriculum accordingly. Based on the success of this program, the college is planning on creating a two-year advanced manufacturing program that combines welding and machining and adds advanced manufacturing content (e.g., lean manufacturing).
<b>Certificates of technical skills</b>	No
<b>Industry recognized credentials</b>	AWS
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
Gallatin did not offer online courses or participate in course sharing as part of RevUp but is including online modules from the CWB.	
<b>Employer Relationships</b>	
The WFN position enhanced Gallatin’s existing community relationships and developed new ones. The WFN’s emphasis on industry outreach allowed faculty to develop better relationships with employers. Instead of talking about job placement, faculty members were able to visit employers to discuss curriculum and employer needs.	

RevUp Activity	Current Status
<b>Accomplishments</b>	
<b>Program development:</b> The college administration reported that the machining program developed with RevUp funds was a “gem” to have in the county. The creation of the program established an effective model that the college will apply to all new program development, including in advanced manufacturing and photonics. The college also used RevUp funds to start computer numerical control (CNC) machining training and refine its welding fabrication courses.	
<b>Industry connections:</b> The college developed strong connections with industry during the RevUp grant. The college administration noted that RevUp’s emphasis on employer involvement throughout program creation and implementation is a valuable strategy that the college will continue to use.	
<b>Job placement:</b> Student placement rates were very high and all students who wanted jobs found a position.	
<b>Sustainability</b>	
<b>Staffing:</b> Gallatin will keep the faculty and WFN hired as part of the grant. Going forward, the WFN will do more student advising, have a larger caseload, and spend less time in the community. College leadership noted that a lot of time was spent early on in developing partnerships and that maintaining these partnerships will require less effort.	

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## Great Falls College Montana State University

RevUp Activity	Current Status
<b>Student Support</b>	
<b>Workforce navigator</b>	The WFN position focused on student recruitment, retention (using case management), job placement, and building employer relationships. The WFN also worked at the Job Service Workforce Center in Great Falls part time and worked with college advising staff and faculty to follow up on students and alert them to student needs. At the end of each semester, the WFN assisted students with certifications and graduation paperwork. In fall 2016, the WFN left. The college is piloting a collaboration between the college and the workforce center for job services staff to use WFN activities to support students and increase retention.
<b>InsideTrack coaching</b>	Some 710 students received InsideTrack coaching. The retention differential (coached first-year versus all first-year students in 2015–16) was 17.7 percent. Advising staff members shared feedback from students on their appreciation for having someone to talk to on a weekly basis, which the college advising staff does not have the capacity to do. The staff also considered InsideTrack's use of text messaging with students to be effective and is considering adopting this approach.
<b>Developmental math</b>	N/A
<b>Programs Development and Implementation</b>	
<b>Welding and Welding Fabrication</b>	
<b>New or enhanced</b>	Enhanced—The purchase of additional welding booths increased the number of students (from 17 to 34) in each cohort. The college also created a mandatory eight-week class in the welding program, called "Becoming a Successful Student," in response to employer feedback that focuses on soft skills and academic skills, such as note taking, time management, test taking, and employment preparation (e.g., resume writing). The college developed Tier 3 and Tier 4 welding fabrication courses to expand its existing one-year program into a two-year Associate of Applied Science program in 2015–16 and opened a new fabrication center in fall 2016. The accrediting agency approved Tier 4 in late fall of 2016, and the program will offer Tier 3 by fall 2017.
<b>Certificate of technical skills</b>	Yes
<b>Industry-recognized credentials</b>	CWB, AWS
<b>Number of participants</b>	Some 307 participants as of fall 2016.
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Commercial Driver's License</b>	
<b>New or enhanced</b>	New—Great Falls contracted with a third-party vendor to offer a CDL program last summer in response to local employer interest. RevUp funds supported the marketing of the CDL program, but the vendor supplied the trucks and covered other program costs; no other grant funds supported the program.
<b>Certificate of technical skills</b>	N/A
<b>Industry-recognized credentials</b>	CDL
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
Great Falls currently does not offer online welding classes. Great Falls and Missoula had programs approved for course sharing in entrepreneurship, and Great Falls students are taking the online courses offered by Missoula. Great Falls is also establishing course sharing agreements with Flathead Valley in advanced manufacturing.	

RevUp Activity	Current Status
<b>Articulation Agreements</b>	
<p>Great Falls is reportedly creating an agreement with Helena.</p>	
<b>Employer Relationships</b>	
<p>Great Falls used industry feedback to inform their new welding classes.</p>	
<p><b>Post-employment:</b> The former director of the welding program is developing customized post-employment training for the state. Through RevUp, Great Falls purchased a mobile training facility that has been used to train 12 mechanics or welders in Lewistown and is currently being used to train inmates as welders at the state women's prison. The facility has six welding booths and can accommodate 12–15 students in two cohorts.</p>	
<b>Accomplishments</b>	
<p><b>Program development:</b> Among their grant accomplishments, the college leadership notes the purchase of welding and welding fabrication equipment and the expansion of the welding programs. The additional welding booths, which are appropriate for AWS and CWB testing, will benefit current welding students and post-employment training programs.</p>	
<p><b>Student support:</b> College leadership noted that the WFN position has had a positive effect on the college's ability to support and retain students.</p>	
<p><b>College collaboration:</b> Course sharing with Flathead Valley enabled Great Falls to provide its students the opportunity to enroll in Flathead Valley's advanced manufacturing course, which has been added to Great Falls' course catalog.</p>	
<b>Sustainability</b>	
<p><b>Staffing:</b> Great Falls' new welding instructors were not supported with RevUp funds, but the grant did support a welding testing and training center manager. Great Falls is piloting a new WFN position in partnership with Job Service Workforce Center in Great Falls that will support a job services staff member's use of WFN strategies to provide case management support to students at the college.</p>	

*Helena College*

RevUp Activity	Current Status
<b>Student Support</b>	
Workforce navigator	The WFN focused on recruitment, retention through case management, job placement, and building employer relationships. The WFN left Helena in April 2016, and the college is not expected to fill this position.
InsideTrack coaching	N/A
Developmental math	The math instructor hired for RevUp created a technical math course that can be customized to each program using trade-specific modules. The modules were developed in collaboration with machining, welding, and diesel faculty, and are taught alongside students' trades classes. In the 2015–16 school year, Helena offered the technical math course both in person and online. The college is also in the process of embedding the math curriculum within trades classes, using the math instructor to teach the content.
<b>Programs Development and Implementation</b>	
<b>Welding</b>	
<b>New or enhanced</b>	Enhanced—Welding instructors upgraded and purchased new technology with RevUp funds and updated the curriculum accordingly. Welding faculty members explained that this technology reflects current industry practices, including computerization, and better prepares students to meet employer needs. Program staff also eliminated some courses, combined others, and added robotics via the purchase of sub arc and orbital welders. Helena also introduced evening classes but stopped offering them in the 2015–16 school year. The capacity of the daytime program was increased by about 10 full-time equivalent students.
<b>Certificate of technical skills</b>	No
<b>Industry-recognized credentials</b>	AWS
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Machining</b>	
<b>New or enhanced</b>	Enhanced—Machining instructors upgraded and purchased new technology with RevUp funds. The instructors revised the curriculum to accommodate the new equipment and earned certifications. Helena has focused on credentials that are in demand by the two largest employers in their area. The college also included FANUC-controlled machines and a FANUC robot in both years of the curriculum. The new evening computer-aided manufacturing program was fully enrolled at the start of fall 2016.
<b>Certificates of technical skills</b>	No
<b>Industry recognized credentials</b>	FANUC controller certification. FANUC robotics certification will be available to students starting March 2017.
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]



RevUp Activity	Current Status
<b>Diesel Technology</b>	
<b>New or enhanced</b>	Enhanced—Program staff embedded Snap-on certifications into the diesel technology program and provided instructor training to enable them to certify students. Helena offered evening classes but stopped as of the 2015–16 school year.
<b>Certificate of technical skills</b>	No
<b>Industry-recognized credentials</b>	Snap-on credentials; Amatrol simulators
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Commercial Driver's License</b>	
<b>New or enhanced</b>	New—Helena developed a noncredit CDL class for diesel technology students. As of spring 2016, the college plans to develop a CDL for-credit class and expand the program once dedicated diesel trucks are secured.
<b>Certificates of technical skills</b>	N/A
<b>Industry-recognized credentials</b>	CDL
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
Helena offers hybrid online and in-person classes in machining and diesel technology. The college also offers a fully online technical math class.	
<b>Articulation Agreements</b>	
Helena has articulation agreements with MSU–Northern for diesel technology and welding. MSU–Northern sends its first-year welding students to Helena for their second year. Students can complete Helena's two-year diesel technology program and transfer to the four-year program at MSU–Northern.	
<b>Employer Relationships</b>	
Helena is developing externships or internships with industry in partnership with the Montana Departments of Labor and Industry and Commerce. The college is currently developing memoranda of understanding for internships for second-year machining students with Pioneer and Boeing, and college leadership is working to secure funds. <b>Post-employment training:</b> The college reported plans to provide IRC testing for employers, such as the Snap-on credentials. Helena is starting an apprenticeship program for plumbing and electrical certifications with the support of local employers and MT DLI.	
<b>Accomplishments</b>	
<b>Upgrade of technology and curriculum:</b> According to program faculty and college administrators the equipment upgrades aligned their programs with business and industry needs. One faculty member commented, “[RevUp] brought us up to speed with what the shops are doing,” and another said that the college “would be 10–15 years in the past without the technology.” <b>Technical math:</b> College administrators and faculty shared that the changes made to the technical math program under RevUp allowed students to “understand and get the concepts quickly” and apply them directly to the real world of welding or machining. As a result, some instructors and college administrators reported noticing improvements in students' level of understanding of technical math. <b>Industry connections:</b> Program staff also highlighted Helena's effort to develop industry internships for machining students as an accomplishment of the grant. College leaders stated that participation in RevUp provided leverage to connect to MT DLI and business partners.	
<b>Sustainability</b>	
<b>Staffing:</b> Funding for the technical math instructor position had not been secured at the time of the spring site visit, and the future of the technical math course was uncertain.	

*Highlands College of Montana Tech*

RevUp Activity	Current Status
<b>Student Support</b>	
<b>Workforce navigator</b>	The WFN position focused on recruitment, retention through case management, job placement, and building employer relationships. The WFN underwent NIMS training and received two certifications to better understand the student experience.
<b>InsideTrack coaching</b>	N/A
<b>Developmental math</b>	N/A
<b>Programs Development and Implementation</b>	
<b>Welding and Machining</b>	
<b>New or enhanced</b>	New—Highlands enhanced its welding program by combining machining and welding and revamping the curriculum of all courses. Students take machining in the first year and welding in the second year. Highlands also developed a one-semester (now one-year) aerospace welding program. In addition, the college split its existing two-year integrated metals program into 2 one-year programs that can be stacked.
<b>Certificate of technical skills</b>	Yes
<b>Industry recognized credentials</b>	AWS, NIMS, National Career Readiness Certificate
<b>Number of participants</b>	Some 115 total participants (through fall 2016).
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
Highlands did not offer online courses or participate in course sharing as part of RevUp.	
<b>Employer Relationships</b>	
Employers provided funds for equipment and developed the curriculum for the new aerospace welding program. The Butte / Silver Bow region has launched a manufacturing sector partnership to identify ongoing industry needs.	
<b>Accomplishments</b>	
<p><b>Program development:</b> RevUp staff at Highlands focused on developing faculty and equipment, rather than investing in assessment centers and online courses, which it believed was the best approach for the college. Highlands reported that the grant facilitated productive conversations about education at the two-year college level.</p> <p><b>Serving students:</b> Highlands staff noted that two-year college students are often at higher risk of dropping out than students at four-year colleges, need more help, and can benefit from hands-on advising such as that provided by the WFN. The college leadership reported that the WFN served more students than expected because she was able to begin quickly and student interest was high. The college has also instituted the automatic award of the CTS degrees for qualified students.</p>	
<b>Sustainability</b>	
<p><b>Programs:</b> The machining and welding programs will continue after the grant ends.</p> <p><b>Staffing:</b> The college plans to retain the WFN position, albeit with more traditional academic advising and fewer case management responsibilities.</p>	

*Little Big Horn College*

RevUp Activity	Current Status
<b>Student Support</b>	
<b>Workforce navigator</b>	The WFN recruited students through “The Briefs,” a local daily newsletter, and sending a camp crier to locations that may not otherwise get the information, such as senior community centers. The WFN supported retention and job placement by inviting Montana Job Services to set up an informational table at the college and maintaining a working relationship with the TERO. The WFN is currently working to expand the college’s welding and CDL certificate programs to two-year degree programs.
<b>InsideTrack coaching</b>	N/A
<b>Developmental math</b>	Little Big Horn is using the EdReady online math curriculum, and the instructor credits the program with improving students’ math knowledge. The college has purchased new computers for its math lab.
<b>Programs Development</b>	
<b>Welding</b>	
<b>New or enhanced</b>	New—Little Big Horn created a one-year, dual-enrollment welding program with local high schools using the welding curriculum from Great Falls as a template. Little Big Horn is currently working on developing the second-year welding curriculum. New equipment (including a plasma cutter, fabricator, and arc welder) are housed in labs on the high school campuses. Little Big Horn students take the academic component of the welding courses with an instructor at the Little Big Horn campus and move to the high school labs to finish their instruction.
<b>Certificate of technical skills</b>	No. But the college provides a certificate of completion up to the points student leave.
<b>Industry-recognized credentials</b>	AWS
<b>Number of participants</b>	Current: 16 (plus 20 from high schools). The instructor said 16 students are enrolled but only 8 attend consistently.
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Commercial Driver’s License</b>	
<b>New or enhanced</b>	Enhanced—Little Big Horn modified Bitterroot’s CDL curriculum and incorporated training on a semi-truck simulator purchased with grant funds. The college also purchased two new semi-trucks, a flatbed trailer, a belly-dump trailer, and two cattle hauling trailers, and hired an assistant instructor to support the main instructor. The assistant made it possible for the program to serve more students and have them tested.
<b>Industry recognized credentials</b>	CDL
<b>Number of participants</b>	[WILL BE ADDED LATER] (Current: 12 or 13)
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
Little Big Horn is considering expanding online class offerings due to the success of the online math classes.	
<b>Employer Relationships</b>	
Little Big Horn is working with Job Services and TERO to assist with recruiting. The college also developed strong relationships with local companies (Westmoreland and Tribal Transportation) through RevUp activities.	

RevUp Activity	Current Status
<b>Accomplishments</b>	
<b>Innovative outreach strategies:</b> Little Big Horn used culturally appropriate methods for advertising its programs, such as using a camp crier to share information. The camp crier went to a senior community center and spoke to a grandfather who made sure that his grandson would enroll. In addition, camp criers posted on Facebook and in a local daily newsletter.	
<b>Enhanced capacity to provide programs:</b> Little Big Horn signed a memorandum of understanding with two high schools to create a welding program and purchased equipment to support instruction for high school and college students. The CDL improvements resulted in more efficient training, allowing more students to take the driving test. Additionally, Little Big Horn is looking to establish a regional trucking and transportation limited liability corporation (Little Big Horn Transportation, LLC) with the new equipment to sustain the program and support more comprehensive CDL training for students and the community.	
<b>Sustainability</b>	
<b>Staffing:</b> In fall 2016, RevUp staff consisted of a grant coordinator, WFN, CDL instructor and assistant, math instructor, and two welding instructors and one assistant. Once the grant ends, the college expects to fund these staff positions through Title III, a federal program that supports college expenses, including teacher salaries. Other anticipated funding sources include revenue from student enrollment, the U.S. Department of Agriculture endowment fund (which Little Big Horn receives every year), and revenue from Little Big Horn Transportation, LLC, when established.	
<b>Programs:</b> Little Big Horn plans to continue its vocational programming through Title III funding and scale back as needed. The Little Big Horn data collection center will begin tracking students into four-year institutions. The data will be used to strengthen the academic and vocational programs at the college.	

*Miles Community College*

RevUp Activity	Current Status
<b>Student Support</b>	
<b>WFN</b>	WFN responsibilities at Miles were subsumed under an existing administrative position, which had 20 percent time dedicated to RevUp duties, including talking with students and connecting with Miles City Job Service. Another position was dedicated to student recruitment. After the grant ends, the current WFN will continue to focus on enrollment and outreach for the CDL program.
<b>InsideTrack coaching</b>	N/A
<b>Developmental math</b>	N/A
<b>Program Development</b>	
<b>Commercial Driver's License</b>	
<b>New or enhanced</b>	New—Miles developed a five-and-a-half-week CDL program to meet the needs of students who were not able to complete the college's existing one-year combined CDL/heavy ops program. Instructors revised curricula for both programs in response to the purchase of a CDL/heavy ops simulator that allowed students to learn material more quickly and allowed the instructor to offer specialized training (i.e., driving in icy conditions). The curriculum for the CDL-only class was created by consolidating the one-year curriculum and incorporating the simulator training. The college hired a new heavy ops instructor and CDL adjunct instructor through the grant.
<b>Certificate of technical skills</b>	N/A
<b>Industry-recognized credentials</b>	NCCER is embedded in the heavy equipment curriculum, CDL
<b>Number of participants</b>	Some 102 participants as of fall 2016.
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
The WFN noted that Miles has had inquiries about online courses from students, mostly for welding, but was not sure if these students ultimately registered for a class. Miles considered adding a welding program at the beginning of the grant but decided not to move forward due to the cost of start-up and the proximity of two RevUp-funded welding programs in Dawson and City College.	
<b>Employer Relationships</b>	
The WFN works closely with the local job services center, regularly visiting and talking about opportunities for eligible students. The center has recommended approximately 95 students to Miles' programs, and 84 have earned CDL certifications.	
<b>Accomplishments</b>	
<b>Program development:</b> The development of the CDL-only program has allowed the college to reach more students, since many students were not interested in the heavy ops program or could not commit to one year of school. The shorter program meets a short-term employment need in the community.	
<b>Job placement:</b> The WFN played a key role in the placement of students and mentioned that one of the main achievements has been the employability of students, who generally find jobs soon after the program.	
<b>Sustainability</b>	
<b>Staffing:</b> The sustainability of the WFN position and the newly hired faculty is dependent on program enrollment. Only 20 percent of the WFN position is funded through RevUp, therefore, for a few months before the end of the grant, the position will be supplemented by general funds.	
<b>Programs:</b> Enrollment in the heavy equipment course has increased during RevUp, and the program is expected to continue after the grant. The condensed CDL-only course will continue as long as student numbers remain high enough to pay for the instructor.	

*Missoula College*

RevUp Activity	Current Status
<b>Student Support</b>	
<b>WFN</b>	The WFN assisted with recruitment, advising and case management, and job placement. College leadership is considering retaining a similar position to focus on advising and student support for students at the college's west campus location, where most trades programs are located.
<b>InsideTrack coaching</b>	Some 484 students received InsideTrack coaching. The retention differential (coached first-year versus all first-year students in 2015–16) was 15.8 percent. The college advising staff considered the informal support and one-on-one attention provided by InsideTrack to be useful for students and different from the kind of assistance that traditional college advisors can provide.
<b>Developmental math</b>	The college used RevUp funds to develop a math lab and revise the college and university's shared developmental math program. The new program was piloted in summer 2015 and formally launched in the fall. Developmental math instructors now teach one 50-minute class per week, and students are required to visit the math lab for at least four hours a week. At the lab, students complete self-paced, online math assignments and work one-on-one with math instructors to receive targeted support.
<b>Programs Development and Implementation</b>	
<b>Welding</b>	
<b>New or enhanced</b>	Enhanced—The welding program purchased new equipment and embedded NCCER certification standards in the curriculum. The program also added a second cohort and offered evening welding classes.
<b>Certificate of technical skills</b>	No
<b>Industry recognized credentials</b>	NCCER for first and second year, required; AWS
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Machining</b>	
<b>New or enhanced</b>	New—The machining program started in the 2015–16 school year with courses offered both face-to-face and through course sharing with Flathead Valley. For the 2016–17 school year, the college hired a full-time machining instructor and offers face-to-face instruction for all courses.
<b>Certificate of technical skills</b>	Yes
<b>Industry-recognized credentials</b>	NIMS
<b>Number of participants</b>	Four students to date.
<b>Number of credentials awarded</b>	
<b>Electrical</b>	
<b>New or enhanced</b>	Enhanced—Missoula modified the one-semester electrician's helper class by embedding two NCCER credentials.
<b>Certificate of technical skills</b>	Electrician's Helper
<b>Industry recognized credentials</b>	NCCER: 1) Electrical Core and 2) Electrical Level I
<b>Number of participants</b>	[WILL BE ADDED LATER]

RevUp Activity	Current Status
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Entrepreneurship</b>	
<b>New or enhanced</b>	Enhanced—The college currently offers a four-class, one-semester entrepreneurship certificate. These classes are offered online and face-to-face and include entrepreneurship, psychology of selling, advertising, and accounting 101.
<b>Certificate of technical skills</b>	Yes
<b>Industry-recognized credentials</b>	N/A
<b>Number of participants</b>	[To be added]
<b>Number of credentials awarded</b>	[To be added]
<b>Commercial Driver's License</b>	
<b>New or enhanced</b>	Enhanced—A 160-hour noncredit CDL program is offered at the college. The program purchased two trucks that allow students to practice driving while others practice backing up, as well as a regulation-size 53-foot trailer. The CDL classes were open to the community but also tailored to diesel technology and heavy ops students. The instructors also developed a one-on-one refresher course for students who have CDLs but need their skills updated. A vehicle donation from an industry partner provides students with hands-on training driving a loaded truck, and a partnership with Missoula Federal Credit Union assists with financing.
<b>Industry recognized credentials</b>	Class A CDL
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Courses and Course Sharing</b>	
The college offered machining through course sharing with Flathead Valley in the 2015–2016 school year. Missoula students took some of their classes online from Flathead Valley. Starting with the 2016–17 school year, Missoula will offer machining program classes face-to-face. Great Falls students have enrolled in Missoula's entrepreneurship courses through course sharing.	
<b>Employer Relationships</b>	
RevUp programs established strong connections with industry partners that have donated equipment, and recruited employees directly from the programs. The new machining program was created in response to feedback from Missoula Job Services, Missoula Economic Partnership, and employers. The welding program added training in a new welding technique based on employer feedback.	
<b>Accomplishments</b>	
<p><b>Programs:</b> The college leadership credited RevUp with improvements in multiple programs. The developmental math lab has given students the opportunity to complete the program more efficiently and cost effectively. The Precision Machine Technology Certificate of Applied Science fills a void in the Missoula workforce. Faculty embedded the electricity and safety and rigging courses (developed for the discontinued energy technology program) in the college's sustainable construction technology, heavy ops, and facility maintenance programs' curricula. CDL training has become a popular noncredit option for students and community members. Finally, the inclusion of OSHA 30, NCCER, and NIMS credentials in the welding program has, according to faculty, enhanced students' employability. Welding faculty created a training program that enhances graduating students' abilities to meet the skill requirements for Harris Manufacturing, a local employer. Missoula also provided NCCER welding training to secondary school teachers to help them prepare their students for the college's program.</p> <p><b>Student support and retention:</b> The administration recognizes the value of the WFN's role in supporting students. Applicants to the trades programs are often nontraditional students, including many veterans, who need support with admissions, advising, registration, financial aid, dropping/adding classes, and other aspects of college life. According to college staff, the WFN filled</p>	

those needs and improved student enrollment, retention, and graduation rates. The WFN also supported instructors in numerous ways, such as organizing recruitment activities.

**College collaboration:** According to college staff, RevUp provided opportunities for collaboration and relationship building seldom experienced by the two-year system. The resulting course sharing agreement allowed Missoula to serve as the teaching school for several courses related to the trades and other programs available to other colleges, including entrepreneurship.

#### Sustainability

**Staffing:** Missoula intends to secure funds for a WFN-type position, but as of fall 2016, the sustainability of that position was uncertain.

**Programs:** Missoula is not considering continuing InsideTrack coaching because of budget restraints. The welding program hopes to continue offering night courses for one of the two years of the program. All other programs are slated to be sustained, including the math lab.



**Montana State University–Northern**

RevUp Activity	Current Status
<b>Student Support</b>	
<b>WFN</b>	The WFN position focused on student recruitment and building employer relationships. RevUp program faculty and college advising staff provided student support.
<b>InsideTrack coaching</b>	Some 529 students received InsideTrack coaching. The retention differential (coached versus all first-year students in 2015–16) was 5.5 percent. College advisors encouraged students to participate in InsideTrack coaching and did not note a difference in retention between coached and noncoached students in the diesel technology program. Advising staff considered the InsideTrack coaching for advisors to be useful, especially for how to structure one-on-one contact with students.
<b>Developmental math</b>	MSU–Northern hired a math tutor with RevUp funds to support students in the two-year diesel technology program. The tutor describes his role as a “shadow” in the classrooms, providing support if students have questions or need help with math concepts. Occasionally instructors ask him to provide instruction on math concepts. The tutor also holds office hours outside of the class at the college library and provides one-on-one and group tutoring.
<b>Programs Development and Implementation</b>	
<b>Diesel Technology</b>	
<b>New or enhanced</b>	Enhanced—The college purchased new equipment, upgraded existing technology, and revised curricula with RevUp funds to improve the program’s fit with employer needs. A new diesel foundations course was created in fall 2015 for the diesel technology program. All new freshmen and transfer students take the class, which incorporates the new IRC Snap-on credentials and provides soft skills and resume training. The class was developed because the diesel program’s advisory board believed that program graduates lacked professionalism and knowledge of safety. The diesel faculty developed this course with input from the advisory board and employers. Students receive an OSHA certification and an NC3 Snap-on certification at the end of the class. A new instructor was hired in fall 2015 who currently teaches machining, drafting, and diesel classes.
<b>Certificate of technical skills</b>	No
<b>Industry-recognized credentials</b>	NC3 Snap-on credentials. Due to MSU–Northern’s affiliation with NC3, the IRCs are also being offered through the automotive, drafting, machining, and electrical programs. The college is also considering adopting the National Academy of Railroad Sciences credential.
<b>Number of participants</b>	[WILL BE ADDED LATER]
<b>Number of credentials awarded</b>	[WILL BE ADDED LATER]
<b>Online Learning and Course Sharing</b>	
MSU–Northern started course sharing with Flathead Valley in machining. Students are enrolled in Flathead Valley but do lab work and testing at MSU–Northern. The new diesel trainer hired through RevUp has a machining background and will teach the machining class in fall 2016 when the course sharing is taking place. MSU–Northern is also course sharing with Fort Peck. Fort Peck students enroll in MSU–Northern’s one-year diesel program and attend classes via video conference. Fort Peck plans to take students to the MSU–Northern campus to complete the related labs once a month.	
<b>Articulation Agreements</b>	
Helena has articulation agreements with MSU–Northern for the diesel technology and welding programs. MSU–Northern sends its first-year welding students to Helena for their second year. Students at Helena can enroll in the two-year diesel program and then transfer to the four-year program at MSU–Northern.	
<b>Employer Relationships</b>	
The WFN focused on building employer connections and participated in the diesel and auto advisory boards’ meetings. The advisory boards recommended NC3 credentials for the diesel technology program when program staff struggled to find an appropriate IRC in the field.	
<b>Post-employment training:</b> MSU–Northern is beginning to offer post-employment training in NC3 credential training and certification.	

RevUp Activity	Current Status
<b>Accomplishments</b>	
<p><b>Upgrade of technology and curriculum:</b> Both the faculty and college administration stated that the RevUp-supported equipment upgrades improved the alignment of the programs' courses with business and industry.</p> <p><b>Industry Connections:</b> The college leadership believes that Northern has developed stronger industry ties because of RevUp. Although the college has always had industry partners, because of RevUp and the WFN position, the communication in these partnerships has increased.</p> <p><b>Technical math:</b> The faculty members reported that embedding the math tutor in diesel program classes and his understanding the relationship between the diesel content and math concepts improved student learning. As a result, the faculty believe that students are better able to apply math concepts to technical problems. On a practical level, the arrangement allows students to receive help with math-related questions without disrupting the class. The instructors and the tutor also believe that this approach has alleviated any fear of embarrassment for students, who can go to the tutor with a math question instead of raising a hand in class.</p>	
<b>Sustainability</b>	
<p><b>Programs:</b> MSU–Northern is not sustaining InsideTrack coaching.</p> <p><b>Staffing:</b> The math tutor has a contract through the end of the school year, May 31, 2017. As of spring 2016, the college leadership was unsure if the WFN position would be retained.</p>	