

**Summary** of NCWorks Career Pathways Certification application submitted by the Mountain Area Workforce Development Board. Document has been edited to remove all exhibits submitted in original application.

Career Pathways Title: *Advanced Manufacturing Career Pathways in Maintenance, Production, and Engineering*

Sector: Manufacturing

Prosperity Zone: Western Region

Primary Contact: Nathan Ramsey, Director

Agency: Mountain Area Workforce Development Board (MAWDB)

Phone: (828) 251-6622 ext. 161; (828) 768-3216

Email: [nathan@landofsky.org](mailto:nathan@landofsky.org)

### **Narrative:**

The Local Area has recorded the lowest unemployment rate in NC for the past sixteen consecutive months with over six years of monthly job growth versus the prior year. Part of the strong employment growth in the region has been due to the expansion of the manufacturing sector. Almost 700 manufacturing firms employ over 18,000 individuals in Buncombe, Henderson, Madison and Transylvania Counties. Manufacturing in the Local Area is very diversified and focused on high technology processes and skills. Many of these firms are, as one local economic developer stated, “tech companies that happen to manufacture things.”

Manufacturing in the region includes start-ups like AVL Technologies, L-3, PLI, Silver Line Plastics and others that began as small businesses in the region and today are some of the larger employers in Western North Carolina. Manufacturers in the Local Area are highly diversified. For example, they make automobile and heavy truck components (Linamar, Continental Automotive Systems, Borg Warner Turbo, Borg Warner Thermal, Meritor, Baldor, TE Connectivity, Reich, Atlas Precision, Elkamet, Blue Ridge Metals Group, Kyocera, and more), satellite navigation systems (AVL Technologies), aircraft engine components (GE Aviation), scientific refrigeration systems (Thermo Fisher Scientific), fibrous paper products (Jacob Holm Industries), RFID labels (Smartrac), electrical components (Eaton Electrical), laminates (Wilsonart), cutting tools (Advanced Superabrasives), plastic piping (Silver Line Plastics), key cards (PLI), military parachutes (Mills Manufacturing), military defense components (TE Connectivity and Kearfott Navigation), and other products used all over the world. Many of these firms export a significant percentage of their production to other countries. These firms are all globally competitive in the marketplace with lean and high tech processes as part of their work culture. To survive in global manufacturing, manufacturing firms in the Local Area require a steady pipeline of highly skilled talent.

Manufacturing firms are adding jobs in the region based on data from the NC Department of Commerce Labor & Economic Analysis Division and EMSI. The projected growth in manufacturing employment based on LEAD data will be 6.1% between 2010 and 2020 with

almost 1,000 new jobs. EMSI data shows there are 552 manufacturing firms in the Local Area with 18,181 manufacturing jobs in 2016 with a 10.0% increase in the number of jobs between 2010 – 2015. That 10.0% increase exceeded the national increase of 7.0% in manufacturing jobs. EMSI data indicates that the average earnings per manufacturing jobs in the Local Area is \$63,836. LEAD data indicates an average annual wage for manufacturing jobs in the Local Area at \$49,296 or \$23.70 per hour. The LEAD data assumes a forty hour work week worked the year round and is based on the Quarterly Census of Employment and Wages (QCEW) Program. Understanding that many workers in the manufacturing sector are working overtime, that can help explain the disparity between the LEAD and EMSI data for the Local Area.

Manufacturing firms in the region have expressed significant trepidation in their ability to meet both current and future workforce needs. As a result of these concerns Workforce Development and Education partners develop strategies to address the issue. Reaching out to Employers and listening to their needs has resulted in the creation of two initiatives within the Local Area. These are Employer led efforts.

In Buncombe and Madison counties we have RAMP, *Raising Awareness of Manufacturing Possibilities* and Henderson County has *Made in Henderson County*. Both initiatives work to connect Employers with the workforce of tomorrow, currently in middle and high schools. A great challenge in this effort is to convince parents that the manufacturing of today is not what it was for generations past, and let young people know that they can have a great career in this sector.

Manufacturing employers have also recognized that a significant share of their workforce is nearing retirement age while fewer individuals are pursuing careers in manufacturing and skilled trades. The enrollment in many of the manufacturing and skilled trades focused programs at the community colleges in the region is low while the demand for workers with those skills is very high. Creation of a CCP will allow us to bring additional resources to bear on this problem.

The Mountain Area Workforce Development Board has five target sectors: advanced manufacturing, healthcare, hospitality and tourism, skilled trades, and technology/IT. These sectors were selected by the Board due to their growth in employment and the ability to earn higher wages than the average for the Local Area. The average wage of the Local Area is around \$37,180 per year or \$17.88 per hour based on LEAD, Quarterly Census of Employment and Wages (QCEW) Program.

Manufacturing pays significant higher than the average wage for the Local Area with significant growth projected. Based on announced manufacturing firm expansions and new companies locating in the Local Area, almost 2,000 new manufacturing jobs are projected to be created in the next twenty four months. Manufacturing employers have indicated that workforce availability is one of their top concerns in the Local Area.

Even during the depths of the Great Recession, manufacturing employers were having difficulty attracting the skilled talent they needed in occupational areas like maintenance, machining, engineering, and other high-skilled occupations. While some of these in-demand manufacturing occupations may require a 4 year degree or more, many only require some type of post-secondary credential or training. As manufacturers have become more automated, their jobs are requiring higher level of skills than traditional manufacturing in North Carolina like furniture and textiles. For the first time in several decades, the net number of manufacturing jobs in the Local Area is increasing. With the growth in jobs and the increasing number of retirements from the Baby Boom generations, manufacturing employers are experiencing increased challenges in meeting their workforce needs.

Advanced manufacturing employers recognize that the solutions to their workforce challenges will be found as the regional collaboration between Employers, Educators, and Workforce partners grow to better utilize existing resources to meet the need for these high paying advanced manufacturing jobs. Changing perceptions in the Local Area about the career opportunities available in advanced manufacturing will take a **sustained effort by all of these partners**.

Advanced manufacturing career pathways developed as a result of regional employer leadership will offer dislocated workers and others who are seeking the opportunities to meet their goals by pursuing a career in advanced manufacturing.

### **Demand-Driven and Data Informed:**

The MAWDB began collecting data on hiring needs and projections for manufacturing jobs in November 2014, again in June 2015 and in May 2016. The Board has been well aware of the growing need for entry and skilled workers for the broad manufacturing sector in the greater Asheville area.

Manufacturing in the Mountain Area is comprised of metal working/fabrication, plastics processing, ceramics, non-wovens, composites, and technical assembly. The most recent survey completed by 32 of 60 companies across four counties showed a critical need for entry and technical level workers. Between 2014 and 2016, there have been announcements of eleven expansions and three new companies. The combined hiring demand will be 1700+ workers over the next 4 years.

This number does not include all the published and unpublished openings of the 75+ companies with which the board has been in contact. Data from EMSI showed a +8.8 % change in manufacturing in our local area in 2015 and the Asheville Chamber's statistics reflect a +9%

change 2010-2015. EMSI 2014 data shows a +6.8% change in certain manufacturing jobs for 2014-2024. EMSI Q3 2016 data shows a +10% change in manufacturing. Data sources vary by source thus the Board is relying heavily on local surveys, interviews with employers, and job postings.

The Advanced Manufacturing sector is a targeted growth sector as stated in the State's Job Plan and several manufacturing jobs are listed in the Hot Jobs and Star Jobs publications. Advanced manufacturing is also a targeted sector for the Asheville and Hendersonville Chambers of Commerce. (<http://www.ashevillechamber.org/economicdevelopment/avl-5x5>, <http://gohendersoncountync.org/dyn.php?page=target.php>)

### **Employer Engagement:**

The Advanced Manufacturing Sector Initiative has grown out of two local initiatives, *Made in Henderson County* which was formed in 2010 by the Henderson Partnership for Economic Development (HPED) to serve Henderson County, and *Raising Awareness of Manufacturing Possibilities* (RAMP), which was formed in 2013 by the Mountain Area Workforce Board to serve Buncombe and Madison Counties. Each initiative will continue to operate separately but there is understanding that both initiatives will contribute to a regional effort to promote careers in advanced manufacturing.

RAMP has thirteen manufacturers on their leadership committee and over the course of three years (2014-2016) has had fifty manufacturers participate in activities to promote manufacturing careers. RAMP has a strong relationship with A-B Technical Community College (AB Tech) and Madison and Buncombe County and Asheville City Schools, Green Opportunities, Goodwill Industries, NCWorks Apprenticeship, the NCWorks Career Center – Asheville and Madison County Career Center. Since 2014, RAMP activities have reached over 2,000 high school students and 500 teachers, administrators and counselors thorough plants tours, work based learning, career and job fairs, and speakers in schools.

*Made in Henderson County* was established in 2006 to connect manufacturing businesses and the Henderson County School System. The initiative has involved numerous employers in various activities that raise the visibility of manufacturing as a viable career path. Most notable is a video produced by the HPED. <http://madeinhendersoncounty.com/> Employers conduct outreach into middle and high schools and also participate in events organized by BRCC. Since creation by the HPEC in 2006, *Made in Henderson County* has identified 130 manufacturers of which 75 have participated in outreach activities, reaching over 5,000 students and education staff. *Made in Henderson County* in conjunction with BRCC offers summer STEM camps, robotics clubs, job shadowing and internships. Transylvania County has 25 manufacturers of which 12 have been engaged in outreach activities, reaching over 200 students and educators.

The level of employer engagement across the Local Area has been and continues to be strong and will only grow as the board develops a more regional initiative. Employers readily respond to the needs of the high school CTE Directors, the community college's workforce and economic

development staff, the NC Work's Career Center staff, and the workforce board. There are approximately 100+ employers across the four county area that have demonstrated support in promoting the manufacturing initiative. Letters of support from manufacturers and workforce partners for certification of the advanced manufacturing career pathways were received.

Employers have been willing to participate in the following activities: tours (for students, parents, teachers, career center staff), soft skills workshops, surveys, presentations to civic and professional groups, on-the-job training, work-based-learning (job shadowing, internships, apprenticeships, teacher externships), summer camps, advisory councils, event planning, job and career fairs, classroom speakers, donation of material and equipment, competition judges, STEM Club, Robotics Clubs, Project Lead-the Way, company videos, keynote speakers, event sponsors, project-based learning, curriculum development, focus groups, job postings on NCWorks, interviewing candidates, and hiring candidates. In October 2015, BCS, MCS, and Asheville CS, six manufacturers, and the workforce board participated in Manufacturing Day/Week tours. Manufacturing Day will be celebrated in conjunction with Students@Work Week on April 3, 2017. Initial planning for this event has begun and will target middle and high school students, teachers and twelve manufacturers in Buncombe and Madison Counties. Henderson and Transylvania Counties may opt to do something different for Manufacturing Day.

RAMP was established to change the perception of careers in manufacturing and to develop a pipeline of workers for this growing sector in Buncombe and Madison Counties. Over 75 employers, small-to-large, are aware of this initiative and 40+ employers are actively involved in a variety of activities. A RAMP Leadership Committee meets on a quarterly basis and is chaired and vice-chaired by employers. The RAMP Leadership Team is comprised of: 1) Employers - (Printpack Medical, Jacob-Holm Industries, Advanced Superabrasives, Baldor Electric, GE Aviation, Atlas Precision, Silver Line Plastics, Eaton Electric, Borg-Warner, AvL Technologies, TE Connectivity, Reich, and Linamar; 2) Education - CTE Directors of Buncombe and Madison County Schools and Asheville City Schools; 3) AB Tech - Continuing Ed. and Curriculum staff; 4) NCWorks Apprenticeship; 5) Buncombe County Commissioner, 6) MAWDB Director and Business Services staff and 7) NCWorks Career Center staff.

Plans to expand employer engagement in Henderson and Transylvania Counties began with a workforce survey in May 2016 and was followed by two regional meetings in May and June 2016 with participation from four counties.

To gain employer input on knowledge, skills, and abilities needed in advanced manufacturing, the Board held a Hackathon on March 23, 2016. The Hackathon was comprised of five sector workgroups: Advanced Manufacturing, Hospitality/Tourism, IT/Technology, Skilled Trades, and Healthcare.

On April 19, 2016, GE Lighting hosted a meeting to discuss pipeline development for manufacturing. The meeting was attended by nine manufacturers and twenty other workforce partners.

On April 21, sector workgroups comprised of workforce board members, employers, and others met to develop sector strategies for the regional workforce plan. Area employers seek referrals from the high schools, NCWorks Career Centers and community colleges for hiring consideration, internships, and apprenticeships. Employers also provide work-based learning opportunities for high school students.

To increase interest in apprenticeships, the Board conducted a survey of employers in May 2016 to gauge their level of knowledge and interest in apprenticeship. On June 28, the survey results were shared by the State Apprenticeship Specialist and presentations made by three employers: GE Lighting, GE Aviation and Advanced Superabrasives: they have apprenticeships in machining and maintenance.

On September 14, 2016, the Board, A-B Tech, BRCC and NCWorks Apprenticeship hosted a Work-Based Learning Event to better educate employers and the public on apprenticeships and other work-based learning options. The event was held at Western Carolina University's Biltmore Park instructional site in south Asheville.

The number of internships for community college students has risen dramatically over the past three years. Numerous employers provide paid internships, many of which result in the hiring of students.

### **Collaborative:**

Collaboration among employers, the public school systems, economic development, the community colleges, NCWorks Apprenticeship, and the NCWorks Career Centers has existed for several years. With the implementation of NCWorks and Career Pathways there has been a more organized effort to involve more employers and involve a broader base of workforce partners in activities that target high school students and other populations. The Career Pathways grant received Workforce by AB Tech and the NCWorks Career Pathways Planning Grant received by the Mountain Area Board have assisted with expanding outreach to employers and students.

AB Tech and BRCC have been involved in developing short-term training based upon employer input. Recently BRCC developed short-term entry level manufacturing continuing ed. classes to help job seekers and transitional workers get their foot in the door. This is in preparation for the large number of entry level workers needed based upon hiring projections.

The Workforce Board, AB Tech and HTI Staffing have recently established a partnership for training both WIOA eligible individuals and incumbents of HTI for machining positions for Borg-Warner.

The Mountain Area Workforce Board has commitment from the four county chambers of commerce and economic developers to support advanced manufacturing career pathways. In addition, the community colleges have articulations with Appalachian State, Western Carolina Universities, and UNC Asheville and other state universities. WCU has expressed interest in

being a partner of the advanced manufacturing initiative and meetings with WCU's career services department took place on July 7 and August 19, 2016. WCU recently announced the new College of Engineering which will offer a BA in Engineering at their Biltmore Park instructional site in Asheville. (<http://www.wcu.edu/learn/departments-schools-colleges/cet/>). Agreements are found under Articulation and Coordination.

## **Career Awareness:**

### Career Advising at the Middle and High School Levels

The Career Pathways Grant awarded to AB Tech in 2014, was successful in reaching over 600 high school CTE/CCP students in eight high schools in Buncombe and Madison Counties between 2014 and 2016. The outcome has been the identification of over 300 high school students with interest in considering manufacturing as a career. Work is currently underway to enroll high school graduates in a program of study at A-B Tech. Summer STEM Camps are offered at AB Tech and BRCC for middle and high school students along with professional development workshops for educators.

Career advising in the middle and high schools varies by school system and is well covered by the utilization of: school counselors, career development coordinators, CTE teachers, cross-curriculum teachers, career pathways documents, the CFNC website, CTE Advisory Councils, student leadership academy, Career and Technical Student Organizations, GE Engineering Day or other company-sponsored events, virtual job shadowing, CTE lesson of the month, and WBL activities.

Short-term or time limited work-based learning activities across the five school systems include: job shadowing, internships, structured field trips for students (Madison, Buncombe and Henderson Counties), summer internships, Students@Work, Minority Medical Mentoring Program, Mission Possible, and industry guest speakers.

### Career Advising in the Community Colleges

At AB Tech all college students are encouraged to start with Career Exploration Part I. Part I consists of Human Metrics (free, quick personality assessment) and Career Coach to determine a Holland Code. Students complete homework in the form of answering pertinent questions about their goals, expectations, desires, and personality and complete additional assessments. In Part II, students explore their top interests using local data, Career Coach, ONET, CFNC and informational interviews for research. Students focus on programs within AB Tech that provide the training they need for the career(s) in which they are interested. Students meet with a counselor as many times as necessary to make a decision on a program of study. "Traditional" students and "adult-learners" receive the same services.

AB Tech offers work-based learning in the form of internships and co-ops. Students are screened by the Workplace Learning Coordinator and placed with employers in their area of interest. Many work-based learning opportunities are incorporated as a part of the student's program of study, however voluntary opportunities are also available. Placements are also available for continuing education students in certain programs, such as machining and

industrial maintenance. In many cases, these placements lead to long-term employment for students.

AB Tech serves over 2,000 students per year in the Human Resources Development Program. This program, offered in every college within the North Carolina Community College System, is designed to serve the needs of unemployed and underemployed individuals with employability skills training at no cost to the student. Topics include: 1) assessment of an individual's assets and limitations, 2) development of a positive self-concept, 3) development of employability skills, 4) development of communication skills, 5) development of problem-solving skills, and 6) awareness of the impact of information technology in the workplace.

Blue Ridge Community College provides career services through the NCWorks Career Centers located on their East Flat Rock and Brevard campuses and career counseling through its Student Services Counseling staff and Student Advising Center. The college has counselors in Student Services who specialize in college transfer. BRCC hosts an annual Career Day for area high school juniors that highlights all programs. The NC Works Career Center provides assessment services, workshops, and one-on-one career counseling with a certified career counselor. BRCC has a Work-Based-Learning Coordinator who places individuals in internships and co-ops. Students can earn academic credit while receiving work experience related to their program of study.

AB Tech Career Services: <https://www.abtech.edu/career-development-services/about-career-services>

AB Tech Academic Advising: <https://www.abtech.edu/content/counseling-center/academic-advising>

AB Tech Online Career Coach: <https://www.abtech.edu/career-development-services/career-coach>

Blue Ridge CC Job Seeker Services: <http://blueridge.edu/about-brcc/tcc/henderson-countytransylvaniacounty-ncworks-center/job-seeker-services>

Blue Ridge CC Academic Advising: <http://blueridge.edu/admissions/academic-advising>

Blue Ridge CC Counseling (includes Career Counseling): <http://blueridge.edu/campus-life/student-services/counseling-services>

Blue Ridge CC Online Career Coach: <http://blueridge.edu/careercoach>

AB Tech and BRCC have Employer Advisory Boards that assist with program development. The Boards meet quarterly with College staff to discuss related programs, workforce partners are invited to participate in these information sharing and presentation meetings.

In addition, all individuals can access Career Coach through the BRCC and AB Tech websites. Career Coach provides students with interest inventories, resume preparation, and labor market and career information. Other career advising resources include: My Next Career, College Foundation of NC, and Keytrain for CRC preparation.

#### Career Advising in the NCWorks Career Centers

All career center staff meet weekly or monthly to discuss workforce topics which include: expansions, new businesses, lay-offs, closures and any new developments. Staff are briefed on current and future workforce demands for specific companies. Guest speakers from area employers present on their company's opportunities and other employment topics. As career pathways are developed and



certified, center staff will be trained by the business services coordinator on the information generated so they can better inform their customers of high demand career options. The career centers provide an array of workshops and assessments. Assessments are available to help individuals understand their skills, interests, abilities, and personality. The career centers also offer software and office skills tutorials and assessments. Assessment results are used for advising individuals. Individuals are also given the option to register for Career Ready 101 and pursue their Career Readiness Certificate. <http://www.keytrain.com/careerready101.asp>; <http://www.act.org/content/act/en/products-and-services/workforce-solutions/act-nationalcareer-readiness-certificate.html>

Outreach materials for the proposed career pathways will be developed by a regional team and distributed to employers and workforce partners for advising and informational purposes. These materials will be developed beginning winter 2016 and distributed January 2017.

#### Career Awareness in Public Areas

AB Tech held an Advanced Manufacturing Open House in August 2016 for students and the general public. Visitors obtained information on advanced manufacturing training and education options. Thirty-two people attended the event. Programs of highest interest included: Industrial Maintenance/Automation, Machining, and Composites which is in alignment with industry needs. Currently 8 students are enrolled in the Industrial Maintenance/Automation class and 10 students are in the Machining Fundamentals class. Historically all unemployed students find employment before or soon after graduation from these programs. Some of the enrolled students are incumbent workers.

The workforce board director has reached out to all high school principals in the local area and has received permission to have a manufacturing careers exhibit at football games this season. Banners have been designed to promote careers and great jobs in manufacturing. In addition, Mountain Area sponsored a booth at the Mountain State Fair September 9-18 to promote manufacturing careers. Eight local employers participated in manning the booth and there were exhibits and demonstrations from AB Tech, BRCC, and Haywood CC. It is estimated that over 2,500 people visited the booth. In January 2017, the Asheville Chamber will hold the Annual Homecoming Job Fair. The workforce board will be involved in recruiting manufacturing vendors for this event.

#### Professional Development

Advising and workforce & economic development staff of the community colleges along with DWS and WIOA staff are encouraged to obtain their Career Development Facilitator Certification. ([http://www.ncda.org/aws/NCDA/pt/sp/facilitator\\_overview](http://www.ncda.org/aws/NCDA/pt/sp/facilitator_overview)) A Career Development Facilitator may serve as a career group facilitator, job search trainer, career resource center coordinator, career coach, career development case manager, intake interviewer, occupational and labor market information resource person, human resource career development coordinator, employment/placement specialist, or workforce development staff person. In Mountain Area, six staff have completed the Career Facilitator Training through DWS and four enrolled in the August 2016 class.

Career center managers involve their staff in job fairs, career fairs, rapid response meetings, employer tours, college tours, and training provided by the NC Workforce Training Center. Staff are selected to attend the NC Partnership Conference and other learning events. Staff also participate in webinars and on-line training as needed. The career center's hold staff meetings on a regular basis to keep staff abreast of business announcements, new programs of study, and workforce events in addition to providing an opportunity for process improvement discussions.

Staff development varies among the school systems. Henderson County Schools provides a Career Academy for Educators in June of each year in which CTE teachers visit multiple business/industry sites in Henderson County. The teachers also tour BRCC and have guest speakers update them on the economy of the county and region. Asheville City Schools has a Teacher Externship and Educators in Industry Programs along with Advisory Councils comprised of business representatives. AB Tech hosts an Innovative Expo for high school teachers and counselors to learn about technology programs. Buncombe and Madison County School Systems organize staff development days around occupational clusters and summer camps for students and teachers/counselors. Buncombe, Madison and Asheville City Schools also have Advisory Councils with manufacturing/STEM representation.

The community colleges offer professional development through workforce and economic development updates, advisory council meetings, workshops, guest speakers and training.

### **Articulation and Coordination:**

There are articulation agreements in place with all five public school systems and the NC Community College System via RACE. This agreement allows high school students to earn college credit through CTE classes and apply them in the Career and College Promise Program or as a stand-alone transfer.

Both AB Tech and BRCC have an articulation policy between Continuing Education and Curriculum Programs. The articulations for coursework are shown in the Education and Training Options spreadsheet.

There are transfer articulation agreements in place between BRCC and Appalachian State for a degree in Brewing and with WCU for a degree in Engineering. AB Tech has a transfer articulation agreement in place with WCU, UNCC, NCSU, and UNCA for Engineering.

Both colleges and the high schools evaluate the need for new articulations on a yearly basis.

### **Work-Based Learning:**

Currently all high schools offer work-based learning opportunities for high school students. WIOA provides monies for paid work experience for in-school and out-of-school youth and on-the-

job training for out-of-school youth. Green Opportunities and Goodwill also provide workbased learning for WIOA eligible out-of-school youth. The workforce board's business services coordinator provides OJT contracts for out-of-school youth, Adults and Dislocated Workers. AB Tech and BRCC have work-based-learning coordinators who work with businesses to provide internships and co-ops for programs of study aligned with manufacturing and other areas of study. Their success rate of internships to hire is high.

AB Tech's WBL Coordinator manages internships (non-credit), (co-ops) credit, direct hires, referrals, special projects, apprenticeships, and pre-apprenticeships. Currently the coordinator has 106 interns, 116 Job Placements, 9 Pre-Apprenticeships and 2 Apprentices in manufacturing.

BRCC has 74 internships 7 of which are in manufacturing. Opportunities for internships are available and curriculum changes in Advanced Technology departments will funnel more students into manufacturing internships in the future.

At his time there are 12 manufacturers in Mountain Area that sponsor 59 apprenticing workers.

The Board expects the number of state sponsored apprenticeships to grow slowly and interest in other forms of work-based learning to grow at a faster rate. The Board recently conducted a survey to gauge knowledge of and interest in apprenticeships. The Western Region's Apprenticeship Specialist presented the findings to the MAWDB and will be working with the board's business service coordinator to follow-up with the companies requesting information.

### **Multiple Entry/Exit Points:**

The Advanced Manufacturing Career Pathways in Maintenance, Production and Engineering are designed to serve: high school students, high school graduates, high school equivalency students, out-of-school youth, two and four-year college students, college graduates, veterans, the unemployed and underemployed, dislocated workers, individuals with barriers and disabilities, transitional workers and incumbent workers.

The Advanced Manufacturing Career Pathways make up a multidimensional model with entry and exit points at four levels: entry, intermediate, advanced, and management. Each level has a minimal baseline education and/or experience requirement but these requirements are flexible in some cases. There are multiple job titles at each level and a worker could advance vertically through levels or make lateral moves within a level as part of a career path. Because Mountain Area has such a diverse manufacturing sector, employers prefer to illustrate many options for job seekers and incumbents and thus the career pathway graphic is circular in nature. An individual can enter at the entry, intermediate, advanced or management levels if he/she meets the education/credentialing and work experience requirements. They can also exit at any point.

The proposed career pathways will focus primarily on placing individuals in entry level jobs in maintenance, production, and engineering with the addition of short-term training and

credentials to promote advancement and wage increase. Secondly, the focus will be on referring community college students to intermediate level jobs. And third, the focus will be on advancing incumbent workers through additional education and/or short-term/customized training.

## **Evaluation**

The Advanced Manufacturing Career Pathways will be evaluated on a schedule to be determined by the partners, but at a minimum, yearly. Each partner will be responsible for providing data to the board's business services coordinator for compilation and distribution. The Regional Advanced Manufacturing Steering Committee (to be formed in early 2017) will review the data and offer suggestions for improvement. Each workforce partner was consulted on what they could track.

### High School – Traditional CTE students and In-School and Out-of-School students

- # of CTE concentrators in manufacturing and STEM clusters
- # of credentials earned
- # of work-based learning activities
- # of students that earn articulated credit
- # of articulated credits earned

### Community College

- # of students enrolled in Career & College Promise in advanced manufacturing programs
- # of students enrolled in CE and CU programs
- # of students that complete CE and CU programs
- # of internships/co-ops in advanced manufacturing jobs
- # of job placements
- # of events promoting manuf. Careers

### NCWorks Career Centers

- # of job postings in manufacturing by ONET Group
- # of referrals to manufacturers
- # of services provided to manufacturers by industry
- # of WIOA sponsored short-term and long term training participants
- # of OJTs in manufacturing
- # of events for promoting advanced manufacturing
- # job orders by ONET Group

### Mountain Area Workforce Development Board

- # of local advanced manufacturing meetings (four counties)
- # of regional advanced manufacturing meetings
- # of manufacturing companies participating in advanced manufacturing activities
- # of customer surveys returned
- # of events promoting advanced manufacturing
- # of placements in training or jobs through NEG planning grant

## Employers

# of referrals and hires from programs of study (high school and college)

# of referrals and hires from NCWorks

# of college internships, co-ops, and WBL opportunities

# of NC registered apprenticeships

# of work-based learning events for high school students (job shadowing, Students@Work)

# of events promoting careers in manufacturing (job fairs, tours, speakers in schools, tech camps, social media outreach)

## **Close:**

The Mountain Area Workforce Board is requesting certification of three career pathways for advanced manufacturing in maintenance, production and engineering. The Board has strong support of all workforce partners in its' local area and believes the groundwork has been laid for successful implementation.

## **Other Attachments**

1. Support Letters from Employers
2. Signatures of Workforce Partners
3. Timeline of Advanced Manufacturing Initiative

## **Advanced Manufacturing Career Pathways Timeline**

**December 13, 2013:** Meeting on "Building a Sustained Pipeline of Skilled Manufacturing Workers"

**April 14, 2014:** Manufacturing Week Tours of Advanced Manufacturing Labs at AB Tech with companies and NCWorks Apprenticeship set up in the shop. Employers include Advanced Superabrasives, AVL Technologies, Borg Warner Thermal, Jacob Holm Industries, Baldor Electric, TE Connectivity, Atlas Precision Plastics, GE Aviation, Linamar, Reich, and Silverline Plastics.

**May 2, 2014:** "Raising Awareness of Manufacturing Possibilities" (RAMP) meeting with Shari Phelps with NCWorks Apprenticeship speaking about May 15, 2014 business breakfast with Apprenticeship 2000 with Max Daetwyler Corporation, Kevin Kimrey with AB Tech, Phil Monk with Mountain Area WDB.

**May 15, 2014:** Business Breakfast on Apprenticeship with Walter Siegenthaler of Max

Daetwyler Corporation in Huntersville, NC.

**April 8, 2014:** “Made In Henderson County” releases their video in collaboration with the Henderson County Partnership for Economic Development and Henderson County Schools. <https://www.youtube.com/watch?v=SYRHwDmpb4Q>

**April 9, 2014:** “Made In Henderson County” over 400 8<sup>th</sup> and 9<sup>th</sup> grade students tour ten manufacturing locations including Kiln Drying Systems, UPM Raflatac, Continental Automotive Systems, Cane Creek Cycling Components, Borg Warner Thermal, Diamond Brand, Legacy Paddlesports, Outrider USA, Alpha Tech, Speedflex, and SELEE.

**June 9, 2014:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting to prepare for kick off event to solicit more business participation and present a draft plan with a budget.

**August 12, 2014:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting with Phil Monk with Mountain Area WDB, Clark Duncan and Tim Lampkin with Asheville Chamber of Commerce and Economic Development Coalition, Kevin Kimrey with AB Tech, Christy Cheek with Buncombe County Schools, Chairman David Gantt with Buncombe County Commission, NC House Representative Nathan Ramsey, Barbara Darby with Mountain Area WDB, Superintendent Dr. Tony Baldwin with Buncombe County Schools, AB Tech Applied Technology Dean Vernon Daugherty, Robin Ramsey with US Senator Richard Burr, Madison County Manager Forrest Gilliam, Buncombe County School Board Chairman Bob Rhinehart, Joe Walker with Madison County Schools, AB Tech VP Shelley White, and Rick Elingburg with Asheville NCWorks Career Center. Companies represented include Advanced Superabrasives, GE Aviation, Southeastern Container, Nypro Healthcare, Baldor Electric, Kearfott Corporation, and Thermo Fisher Scientific.

**August 22, 2014:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting follow up to August 12, 2014 meeting, Chris McGraw with NC State University’s Industrial Extension Service is to develop a plan to facilitate gathering business input and encouraging business engagement.

**October 3, 2014:** Manufacturing Day Tours by 66 public schools teachers, counselors, curriculum staff, and career development staff of local manufacturing firms including Advanced Superabrasives, Silver Line Plastics, AVL Technologies, Linamar, GE Aviation, Baldor Electric, Atlas Precision Plastics, and Eaton Electric.

**October 10, 2014:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting discussed Advanced Manufacturing Career Pathways grant application, USDOL Sector Strategies meeting in Atlanta, and visit to Greenville Works. Leadership team identified as Baldor Electric, Advanced Superabrasives, Atlas Precision Plastics, Kearfott Scientific, Plasticard, TE Connectivity, AVL Technologies with 15 other supporting employers.

**November 2014:** 12 manufacturing companies surveyed for workforce needs. Results

presented on December 10, 2014.

**November 7, 2014:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting planning for another large meeting of employers on December 10 at Buncombe County Schools Discovery Academy (STEM high school).

**December 10, 2014:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting reviewed manufacturing employer survey results, growth trends in manufacturing jobs, and employers offered their direction for business engagement. Companies attending included ITS, Reich, Atlas Precision Plastics, Advanced Superabrasives, Baldor Electric, TE Connectivity, AVL Technologies, Silver Line Plastics, PECO, and GE Aviation. Workforce partners attending include Phil Monk, Director of Mountain Area WDB, Barbara Darby, Business Services Coordinator with Mountain Area WDB, Michael Dempsey with AB Tech, Tim Lampkin with Asheville Chamber of Commerce and Buncombe County Economic Development Coalition, Nathan Allison, Principal of Nesbitt Discovery Academy (Buncombe County School STEM high school)

**March 25, 2015:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting with workforce partners and employers including Advanced Superabrasives and Silverline Plastics.

**April 2015:** Nine plastics manufacturing companies surveyed for workforce needs.

**April 16, 2015:** “Made In Henderson County” 411 middle and high school students tour 13 manufacturing companies including Smartrac, Clement Pappas, UPM Raflatac, Legacy Paddlesports, SELEE, Wilsonart, Borg Warner Thermal, The Oriole Mill, Daystar Machining Technologies, Kyocera Precision Tools, Cane Creek Cycling Components, and Alpha Tech. <http://gohendersoncountync.org/blog/2015/04/students-explore-career-opportunities-athenderson-county-manufacturers/>

**May 28, 2015:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting with workforce partners and employers including Baldor Electric, Printpack Medical, Jacob Holm Industries, Atlas Precision Plastics, and Advanced Superabrasives.

**August 10, 2015:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting to plan the kick-off at Jacob Holm Industries. Workforce partners and employers attending include Eaton Electric, Advanced Superabrasives, Jacob Holm Industries, and Silver Line Plastics.

**October 1, 2015:** “Raising Awareness of Manufacturing Possibilities” (RAMP) kick-off at Jacob Holm Industries. Speakers include representatives of Madison County Commissioners, Buncombe County Commissioners, Asheville City, Madison County, and Buncombe County Schools, employer speakers include Advanced Superabrasives and Baldor Electric. Mark Sorrells with Golden LEAF Foundation spoke as well. Over 70 people attended including representatives from over 25 manufacturing employers in the Local Area.

**October 2, 2015:** “Made In Henderson County” over 540 high school students tour 15 different

manufacturing operations including Alpah Tech, Cane Creek Cycling Components, Clement Pappas, Daystar Machining, Elkamet, GE Lighting Solutions (Current by GE), Kiln Drying Systems, MWW, Meritor, Multi Packaging Solutions, Ohlins, SELEE, Smartrac, Wilsonart, and Wirtz Wire EDM. <http://gohendersoncountync.org/blog/2015/10/students-matched-with-manufacturersfor-made-in-henderson-county/>

**October 19, 2015:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting with

**October 29, 2015:** Engineering Day at GE Aviation. Over 60 students from Asheville City Schools, Buncombe County Schools Discovery Academy and Pisgah HS participated.

**November 4, 2015:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting with workforce partners and employers including Atlas Precison Plastics, Eaton Electrical, Advanced Superabrasives, Jacob Holm Industries, Borg Warner Turbo.

**November 9, 2015:** Madison County High School Open House to showcase metals program, students toured Advanced Superabrasives and Printpack Medical.

**February 11, 2016:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting Facebook page is operational, preparing for Advanced Manufacturing Week at AB Tech. Workforce partners and employers attending include Atlas Precision Plastics, Printpack Medical, Eaton Electric, AVL Technologies, TE Connectivity and Advanced Superabrasives.

**March 23, 2016:** Manufacturing sector meeting at Western Carolina University at Biltmore Park as part of the #GreatJobsWNC hackathon. Manufacturing employers from four county region participated.

**April 2016:** MAWDB conducted a survey to gauge knowledge of and interest in apprenticeship. Nine companies responded to the survey.

**April 6, 2016:** RAMP presentation at the NC Employment and Training Association (NCETA) meeting in Greensboro.

**April 19, 2016:** Regional manufacturing sector meeting as follow up to March 23 meeting held at Current by GE in Flat Rock, NC (Henderson County). Workforce partners attending include representatives of AB Tech and Blue Ridge Community College, Economic Development Partnership of NC (EDPNC, NC State University Industrial Extension Service, NC Department of Commerce, and Asheville NCWorks Career Center. Manufacturing employers attending include Sigma Plastics/New Excelsior, UPM Raflatac, Current by GE, Friday Staffing (representing Continental Automotive Systems, Wilsonart, UPM Raflatac, Elkamet), ITS, PECO, Advanced Superabrasives, and HTI (representing Borg Warner Turbo and Borg Warner Thermal).

**May 2016:** 60 manufacturers surveyed in four-county Local Area for workforce needs; 32 returned survey.



**May 18, 2016:** “Raising Awareness of Manufacturing Possibilities” (RAMP) meeting with workforce partners and employers.

**May 27, 2016:** Regional Advanced Manufacturing Meeting held at Biltmore Park. Attendance by nine employers across four counties; career pathways discussed and discussion session followed.

**June 28, 2016:** Shari Phelps 2016 made presentation to MAWDB on NC Works Apprenticeship and shared survey results.

**August 8, 2016:** Meeting with Buncombe and Madison County School CTE Directors and Educators to discuss RAMP and regional advanced manufacturing initiative.

**August 8, 2016:** Focus group with City of Asheville CAYLA youth participants to gauge their knowledge of and interest in advanced manufacturing careers. Chamber participated.

**August 11, 2016:** Meeting with Transylvania Count CTE Director, Career Center Staff, and Henderson County Business Service Staff to discuss regional advanced manufacturing initiative.

**August 19, 2016:** RAMP Leadership Meeting. Discussion of RAMP activities for the upcoming school year and other outreach activities. Four employers attended plus workforce partners.

**September 14, 2016:** MAWDB and NCWorks Apprenticeship sponsored a WBL Summit. Presentations were made by CTE Directors from three school systems, employers who have Registered Apprenticeship Programs, employers who utilized company WBL models, state representatives and WCU staff. The event attracted 104 people and was well received.

**September 9-18, 2016:** MAWDB sponsored three vendor tables at the Mountain State Fair for Advanced Manufacturing outreach. Six employers participated in manning the booth and promoting great jobs and careers. AB Tech, BRCC, and Haywood Tech also manned the booth and provided demonstrations. Estimated 2,000+ people visited the booth which featured a X5 BMW and promoted the automotive manufacturers in the region.