



BERKSHIRE
WORKFORCE BOARD



HAMPDEN COUNTY
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FRANKLIN HAMPSHIRE
WORKFORCE BOARD

Five Year Manufacturing Plan

2019-2023

West Region

A Regional Planning Blueprint Implementation
Initiative of the Massachusetts Workforce Skills
Cabinet

The **Five Year Manufacturing Plan- 2019-2023** for the **West Region** was produced by the MassHire Workforce Boards of Berkshire, Franklin-Hampshire, and Hampden Counties. The Plan was a deliverable in the Advanced Manufacturing Training Program funded by the Massachusetts Executive Office of Housing and Economic Development (EOHED).

The development of the **Five 5 Year Manufacturing Plan** was informed by technical assistance from regional advanced manufacturing companies, the Western Massachusetts Chapter of the National Tooling and Machining Association (WMNTMA), regional educational institutions, and selected collaborators and partners.



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October 2019

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INTRODUCTION

Technology enabled advanced manufacturing is a priority industry in the West Region of Massachusetts. The advanced manufacturing companies in the West Region are primarily supplier small and medium sized enterprises (SMEs) that are part of a supply chain that is primarily engaged in producing precision mechanical parts, components, and sub-assemblies utilizing high technology equipment, lean manufacturing, and world class technology development.

New manufacturing process technologies and competitive pressures within their existing supply chains requires companies to have a technologically relevant incumbent workforce and a sustainable pipeline of new employees. Currently, the companies in the West Region continue to experience a critical shortage of qualified employees in targeted occupational classifications along their employment continuum, and this reality is constraining their future growth and expansion.



In order to respond to this challenge, the West Region has developed the **Five Year Manufacturing Plan- 2019-2023**, that identifies short-term solutions and long-term strategies that are focused on implementing workforce development programs and activities that will accomplish, in part, the following:

- ✚ Increase the utilization of current training capacity in selected manufacturing pathway programs/courses at both the community college and vocational technical high school levels.
- ✚ Create skills enhancement pathway programs for incumbent employees in priority occupations.
- ✚ Develop and implement a recruitment plan that will increase new pipeline program enrollment from broader segments of the population.
- ✚ Expand Registered Apprenticeship as a job creation model and implement MA Registered Apprentice Tax Credit.
- ✚ Increase public and private funding levels to sustain and scale innovative and flexible training programs.

The West Region partnership will design and implement work tasks that will ensure that training curriculum content is aligned with industry needs, employability readiness skills are embedded into the curriculum, and career awareness initiatives that educate individuals on the viability of advanced manufacturing as a personally and financially rewarding career pathway are clearly articulated.

Successful implementation of the Five Year Manufacturing Plan will require continued commitment and engagement, sustainable funding, leveraging of regional assets, and a willingness to be innovative and take prudent risks. Throughout the next five years, economic and business conditions will change and will require on-going dialogue and deliberation to ensure that the Plan reflects current economic and business realities.

Please join us in the exciting work ahead.

OVERVIEW

The **Five Year Manufacturing Plan- 2019-2023** for the West Region has been developed by the MassHire Hampden, Franklin-Hampshire, and Berkshire Workforce Boards in collaboration and consultation with selected regional advanced manufacturing companies, educational institutions, and state and regional partners.

The Plan is part of the Regional Planning Blueprint Implementation process and is grounded in using real-time labor market data to inform decision making that will result in the implementation of sustainable and innovative workforce development practices and programs.

The Plan is divided into the following seven Sections:

1. Demand Deep Dive
2. Supply Deep Dive
3. Gap Analysis
4. S.W.O.T. Analysis
5. Challenges and Priority Setting
6. Strategies and Solutions by Priority Challenges
7. State Contribution

The Plan analyzed regional demand and supply data, assessed the strengths, weaknesses, opportunities, and threats inherent to the regional manufacturing training system, evaluated the present capacity and infrastructure of the regional secondary and post- secondary educational institutions, and developed practical solutions to attract, develop, and retain an appropriately sized workforce in five (5) priority occupational classifications.



The Five Year Manufacturing Plan can be viewed on the respective web sites of the West Region MassHire Workforce Boards. The Plan is also available on the web site of the Western Massachusetts Chapter of the National Tooling and Machining Association at <http://www.wmntma.org>

Section One

Demand Deep Dive- Sector Detail

Manufacturing Sector	Business Types	Key Regional Employers
	Precision Turned Product Manufacturing (332721)	Advance Manufacturing VSS Cadence/Tell Tool Peerless Precision Decker Machine Works Berkmatics
	Small Arms, Ordnance and Ordnance Accessories (332994)	Troy Industries Smith & Wesson Savage Arms Yankee Hill Machine
	Saw Blade and Hand Tool Manufacturing (332216)	Stanley Black and Decker
Machine Tool Equipment Manufacturing (333)	Machine Tool Manufacturing (333517)	The du Mont Company-Hassey Savage Kennametal L.S. Starrett
Transportation Equipment Manufacturing (336)	Motor Vehicle Gasoline Engine/ Engine Parts (336310)	U.S. Tsubaki Automotive Lenco Armored Vehicles
Computer / Electronic Product Manufacturing (334)	Search, Detection, Navigation Guidance (334511)	L3 KEO B&E Group Smith's Interconnect General Dynamics
Miscellaneous Manufacturing (339)	All Other Miscellaneous Manufacturing (33999) Medical Equipment & Supplies Manufacturing (33911)	Mestek CRRC Bete Fog Nozzle Marox Corp Onyx Specialty Interprint Jarvis Surgical
Plastics Product Manufacturing (3261)	Plastics Product Manufacturing (3261)	Pelican Products Universal Plastics Apex Resource Technology Boyd Technology Cavallero Plastics
Repair and Maintenance (811)	Commercial and Industrial Machinery and Equipment Repair and Maintenance (811310)	Associated Electro- Mechanics GL&V

North American Industry Classification System (NAICS) Code

Demand Deep Dive

Occupation Name & SOC Code	Educational Requirements	Projected Employment Base	Demand STAR	Supply Gap (Ratio)	Training Target Based on Supply Gap		Key Regional Employers
					2023 Projected Training Target Enrollment (Seats)	2023 Supply Gap	
						Ratio	
					2023 Projected Employment Base		
Production Worker (Machinist) SOC: 51-4041	<input checked="" type="checkbox"/> Less than Bachelors ___ Associate <input checked="" type="checkbox"/> Certificate (Credit) ___ Non-Credit Training <input checked="" type="checkbox"/> High School <input type="checkbox"/> Bachelors <input type="checkbox"/> Masters	3	134	-131	41	-95	L3 KEO Smith's Interconnect B&E Group General Dynamics

Production Worker (CNC Operator) SOC: 51-4011	<input checked="" type="checkbox"/> Less than Bachelors <input type="checkbox"/> Associate <input checked="" type="checkbox"/> Certificate (Credit) <input checked="" type="checkbox"/> Non-Credit Training <input checked="" type="checkbox"/> High School <input type="checkbox"/> Bachelors <input type="checkbox"/> Masters +	269	329 4	-60 (.81)	397 323	-6 (.98)	Smith & Wesson OMG U.S. Tsubaki Automotive The duMont Company Decker Machine Works TOG Berkmatics
Inspectors, Testers, Quality Control SOC: 51-9061	<input checked="" type="checkbox"/> Less than Bachelors <input type="checkbox"/> Associate <input checked="" type="checkbox"/> Certificate (Credit) <input type="checkbox"/> Non-Credit Training <input checked="" type="checkbox"/> High School <input type="checkbox"/> Bachelors <input type="checkbox"/> Masters +	36	85 3	-49 (.42)	82 80	-5 (.94)	B&E Group DFF Ben Franklin Design & Mfg. Kennametal L.S. Starrett
Supervisors (Manufacturing-Specific) SOC: 51-1011	<input checked="" type="checkbox"/> Less than Bachelors <input checked="" type="checkbox"/> Associate <input checked="" type="checkbox"/> Certificate (Credit) <input type="checkbox"/> Non-Credit Training <input type="checkbox"/> High School	7	30 4	-23 (.23)	10 12	-18 (.40)	Mestek CRRC Bete Fog Nozzle

	<input type="checkbox"/> Bachelors <input type="checkbox"/> Masters +						
CNC Programmer SOC: 51-4012	<input checked="" type="checkbox"/> Less than Bachelors <input checked="" type="checkbox"/> Associate <input checked="" type="checkbox"/> Certificate (Credit) <input type="checkbox"/> Non-Credit Training <input type="checkbox"/> High School <input type="checkbox"/> Bachelors <input type="checkbox"/> Masters +	2	32	-30	33	-3	Troy Industries Viant Jarvis Surgical
			4	(.06)	29	(.90)	
TOTAL		317	610	-293	563	-127	
				(.48)	483	(.79)	

Section Two

Supply Deep Dive Overview

Occupation & SOC Code	Training Provider
<u>Production Worker Machinist</u> <u>SOC: 51-4041</u>	<ol style="list-style-type: none"> 1. Springfield Technical Community College (Incumbent Employees ONLY) 2. Nine (9) West Hub Vocational Technical High Schools with Machine Tool Technology Programs (PM Programs Only) (Incumbent Employees ONLY) 3. Registered Apprenticeship Credential (4,000 Hours)
<u>Production Worker (CNC Operator)</u> <u>SOC: 514011</u>	<ol style="list-style-type: none"> 1. Springfield Technical Community College 2. Berkshire Community College 3. Greenfield Community College 4. Nine (9) West Hub Vocational Technical High Schools with Machine Tool Technology Programs 5. Registered Apprenticeship Credential (2,000 Hours)
<u>Inspectors, Testers, Quality Control</u> <u>SOC: 51-9061</u>	<ol style="list-style-type: none"> 1. Springfield Technical Community College 2. Berkshire Community College (Incumbent Employees ONLY) 3. Greenfield Community College (Incumbent Employees ONLY) 4. Nine (9) West Hub Vocational Technical High Schools with Machine Tool Technology Programs (PM Programs Only) 5. Registered Apprenticeship Credential (4,000 Hours)
<u>Supervisors (Manufacturing)</u> <u>SOC: 51-1011</u>	<ol style="list-style-type: none"> 1. Programs/courses will need to be developed with the Business Departments at either community colleges or four year colleges/universities.
<u>CNC Programmer</u> <u>SOC: 51-4012</u>	<ol style="list-style-type: none"> 1. Programs/courses need to be developed at community colleges for incumbent employees. New credit granting Certificate program should be developed at one of the region’s community colleges. 2. Registered Apprenticeship Credential (4,000 Hours)

Supply Deep Dive Detail: Credential Asset Map-1

Credential Asset Map		NOTES
Occupation & SOC Code	Production Worker (Machinist) SOC: 514041	
Training Provider	<ol style="list-style-type: none"> 1. Springfield Technical Community College (Incumbent Employee ONLY) 2. Nine (9) West Hub Vocational Technical High Schools with Machine Tool Technology Programs (PM Programs Only) (Incumbent Employees ONLY) 3. Registered Apprenticeship Credential (4,000 Hours) 	None of the West Region educational institutions/ training providers have a manufacturing program that results in a Credential as a Machinist. Competencies that are attributed to a Machinist are embedded into the curriculum in programs that have CNC Operator as the primary credential focus. STCC Associate degree program may graduate a select few individuals who could qualify at the entry level Machinist level.
Type of Training	<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line <input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line	
Annual Capacity	<ol style="list-style-type: none"> 1. No discreet manufacturing program that results in a Credential as a Machinist is currently being conducted by the educational institutions/ training providers in the West Region 2. Data not available on number of Incumbent Employees of regional advanced manufacturing companies who may be enrolled in advanced technology courses that are a pathway to Machinist related occupational classification 	

Credential Asset Map		NOTES
No. of Hours	Competencies that can be attributed to a Machinist are embedded into the curriculum in programs that have CNC Operator as the primary credential focus. Hours vary and are contingent upon length of the CNC Operator program	
Type of Credential & Title of Credential	<ol style="list-style-type: none"> 1. Associate Degree/ Mechanical Engineering Technology 2. Registered Apprenticeship 	
Credential Provider	<ol style="list-style-type: none"> 1. Springfield Technical Community College 2. MA Division of Apprenticeship Standards 	West Region has no educational and/or workforce training providers that are completing individuals with a Machinist Credential who can be employed immediately in Machinist occupational classification
Integrated/ Accelerated	<ul style="list-style-type: none"> • Companies hire Machinist by attracting them away from their competitors • Registered Apprenticeship has Integrated Related Technical Instruction 	
Online/ Classroom/ Work-based	<p style="text-align: center;">STCC</p> <p><input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line</p> <p style="text-align: center;">Registered Apprenticeship</p> <p><input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line</p>	Currently no-on- line training program exists that will result in credential attainment
Pell-eligible	YES Mechanical Engineering Technology Associate Degree	

Credential Asset Map		NOTES
	NO Registered Apprenticeship	
Fee	Fees Set by Board of Trustees Associate Degree Fees Contingent Upon Length of Program Registered Apprenticeship	
Employer-validated	Employers Align and Validate Curriculum and Recognize the Credentials	
Stackable	Credentials are Stackable- Registered apprenticeship MAY Not Transfer to College Credit	
Portable	Credentials have Portability but Acceptance may vary by State/ employer	
Credit/ Non-Credit	Associate Degree (College Credit) Registered Apprenticeship Certification (Non-Credit/Credit)	
Gaps	<ol style="list-style-type: none"> 1. West Region Supply Ratio Gap (.02) is significant and demand for Machinist is high across the West Region. 2. West Region educational and/or workforce training programs at all levels are not completing individuals who can be employed immediately in Machinist occupational classification 3. Companies hire experienced Machinists by attracting them away from their competitors. 4. The Machinist position is largely achieved through internal promotion from CNC Operator to Set Up Operator to skilled Machinist, with proven skills in machine set up, G-Code, Programming and 5-axis or more machining learned on the job. A large training gap exists due to a shortage of skilled machinists able to take time away from production to train new employees. 	

Credential Asset Map		NOTES
	5. Many companies would benefit from support in developing registered Machinist apprenticeships to more formally build this skill pathway.	

Supply Deep Dive Detail: Credential Asset Map-2

Credential Asset Map		NOTES
Occupation & SOC Code	Production Worker (CNC Operator), SOC: 514011	
Training Provider	<ol style="list-style-type: none"> 1. Springfield Technical Community College 2. Berkshire Community College 3. Greenfield Community College 4. Nine (9) West Hub Vocational Technical High Schools with Machine Tool Technology Programs 5. Registered Apprenticeship Credential (2,000 Hours) 	
Type of Training	<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line <input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line	
Annual Capacity	<p style="text-align: center;"><u>Reference Training Provider - No. 1</u></p> <p>1-3- Capacity exists at three West Region community colleges to increase enrollment by 20% per year from current levels of approximately 55 graduates each year.</p> <p>4. Capacity to conduct CNC Operator programs at West Hub Vocational Technical High Schools with Machine Tool Technology Programs (PM Programs Only) is contingent upon funding availability. At FY 2019 level funding going forward, West Region can train between 127-155 NEW pipeline individuals in each of the 5 years of the Five Year Plan</p>	

Credential Asset Map		NOTES
	5. Registered apprenticeship has capacity in Years 1-2 of the Five Year Plan to increase capacity by up to 25 new apprentices. Grant funding to offset cost of providing Related Technical Instruction sunsets in October 2020 and may impact any increase to capacity in years 3-5.	
No. of Hours	Hours Range from Associate Degree to 2,000-hour Registered Apprenticeship. EOHED funded programs/courses range from 10 hours to 245 hours.	
Type of Credential & Title of Credential	<ol style="list-style-type: none"> 1. Associate Degree/ Mechanical Engineering Technology 2. Certificate of Completion /CNC Operator 3. Locally Recognized Certificate/ CNC Operator 4. Registered Apprenticeship / CNC Operator 	
Credential Provider	<ol style="list-style-type: none"> 1. Springfield Technical Community College 2. Springfield Technical Community College Berkshire Community College 3. WEST Region Workforce Boards Greenfield Community College 4. MA Division of Apprenticeship Standards 	
Integrated/ Accelerated	<ul style="list-style-type: none"> • Apprenticeship Has Integrated RTI • Associate and Certificate of Completion MAY have Internship Component • Training Modified and/or Contextualized for Adult Learners 	

Credential Asset Map		NOTES
Online/ Classroom/ Work-based	<p style="text-align: center;"><u>Credential Providers 1-3</u></p> <p><input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line</p> <p style="text-align: center;"><u>Credential Provider 4</u></p> <p><input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line</p>	Currently no-on- line training program exists that will result in CNC Operator Credential attainment
Pell-eligible	<p style="text-align: center;">YES</p> <p>Associate Degree/ Mechanical Engineering Technology Certificate of Completion /CNC Operator</p> <p style="text-align: center;">NO</p> <p>Locally Recognized Certificate/ CNC Operator Registered Apprenticeship / CNC Operator</p>	
Fee	<p style="text-align: center;">Fees Set by Board of Trustees</p> <p>Associate Degree Certificate of Completion (College Credit)</p> <p style="text-align: center;">Fees Contingent Upon Length of Program</p> <p>Locally Recognized Certificate Apprenticeship Certification</p>	
Employer-validated	Employers Align and Validate Curriculum and Recognize the Credentials	
Stackable	Credentials are Stackable- Registered apprenticeship MAY Not Transfer to College Credit	

Credential Asset Map		NOTES
Portable	Credentials have Portability but Acceptance may vary by State/ employer	
Credit/ Non-Credit	Associate Degree (College Credit) Certificate of Completion (College Credit) Locally Recognized Certificate (Non-Credit) Registered Apprenticeship Certification (Non-Credit/Credit)	
Gaps	1. West Region has capacity to increase the number of slots for CNC Operators. Currently there is a (.81) Supply Gap Ratio. Bridge programs may be required to further develop math and manufacturing concepts to increase the labor force pipeline. Will need to continue to assess real-time demand, and look to scale current programs to bring Supply Gap Ratio to 1.0.	

Supply Deep Dive Detail: Credential Asset Map-3

Credential Asset Map		NOTES
Occupation & SOC Code	Inspectors, Testers, Quality Control SOC: 51-9061	
Training Provider	<ol style="list-style-type: none"> 1. Springfield Technical Community College 2. Berkshire Community College (Incumbent Employees ONLY) 3. Greenfield Community College (Incumbent Employees ONLY) 4. Nine (9) West Hub Vocational Technical High Schools with Machine Tool Technology Programs <i>(PM Programs Only)</i> 5. Registered Apprenticeship Credential (4,000 Hours) 	None of the West Region educational institutions/ training providers have a discrete Quality Control program that results in a Credential as a Quality Control Inspector/Tester. Quality Control competencies, at various levels of complexity, are embedded into the curriculum in some programs that have CNC Operator as the primary credential focus
Type of Training	<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line <input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line	Mt. Wachusett Community College offers a Quality Technician Training, which is our closest referral.
Annual Capacity	<ol style="list-style-type: none"> 1. No discrete Quality Control program that results in a Credential as a Quality Control Inspector/Tester is currently being conducted by the educational institutions/ training providers in the West Region 2. Data not available on number of Incumbent Employees of regional advanced manufacturing companies who may be enrolled in 	

Credential Asset Map		NOTES
	<p>advanced technology courses that are a pathway to Quality Control Inspector/Tester related occupational classification</p> <p>3. Capacity exists to increase the number of slots in CNC Operator's program which includes curriculum in basic Quality Control competencies</p>	
No. of Hours	Quality control related competencies are imbedded into the curriculum of most CNC Operator programs being conducted by the West Region educational institutions/ training providers. Hours vary from 45-90 and are contingent upon length of the CNC operator program.	
Type of Credential & Title of Credential	<ol style="list-style-type: none"> 1. Associate Degree/ Mechanical Engineering Technology 2. Certificate of Completion /CNC Operator 3. Locally Recognized Certificate/ CNC Operator 4. Registered Apprenticeship / CNC Operator 	<p>1-2. Associate degree and Certificate of Completion programs at community college level MAY be completing individuals who can be employed directly in Quality Control occupational classifications.</p> <p>3. Quality Control Competencies are embedded into the curriculum in the CNC Operator program. Currently, there is No separate Quality Control Credential</p> <p>4. Current West Region Registered Apprenticeship programs are CNC Operators. Quality Control competencies are embedded into the Work Process and RTI of the CNC Operator Apprenticeship program</p>

Credential Asset Map		NOTES
Credential Provider	<ol style="list-style-type: none"> 1. Springfield Technical Community College 2. Springfield Technical Community College Berkshire Community College Greenfield Community College 3. WEST Hub Workforce Boards 4. MA Division of Apprenticeship Standards 	
Integrated/ Accelerated	<ul style="list-style-type: none"> • Apprenticeship has Integrated RTI • Associate and Certificate of Completion MAY have Internship Component • Training Modified and/or Contextualized for Adult Learners 	
Online/ Classroom/ Work-based	<p style="text-align: center;"><u>Credential Providers 1-3</u></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line <p style="text-align: center;"><u>Credential Provider 4</u></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line 	Currently no-on- line training program exists that will result in Credential attainment
Pell-eligible	<p style="text-align: center;">YES</p> <p>Associate Degree/ Mechanical Engineering Technology Certificate of Completion /CNC Operator</p> <p style="text-align: center;">NO</p> <p>Locally Recognized Certificate/ CNC Operator Registered Apprenticeship / CNC Operator</p>	

Credential Asset Map		NOTES
Fee	<p style="text-align: center;">Fees Set by Board of Trustees</p> <p>Associate Degree Certificate of Completion (College Credit)</p> <p style="text-align: center;">Fees Contingent Upon Length of Program</p> <p>Locally Recognized Certificate Apprenticeship Certification</p>	
Employer-validated	Employers Align and Validate Curriculum and Recognize the Credentials	
Stackable	Credentials are Stackable- Registered apprenticeship MAY Not Transfer to College Credit	
Portable	Credentials have Portability but Acceptance may vary by State/ employer	
Credit/ Non-Credit	Associate Degree (College Credit) Certificate of Completion (College Credit) Locally Recognized Certificate (Non-Credit) Registered Apprenticeship Certification (Non-Credit/Credit)	
Gaps	<ol style="list-style-type: none"> 1. Current Supply Gap Ratio of (.42) needs to be adjusted to reflect projected demand in this job classification. West Region needs to modify current program curriculum to increase amount of time committed to training in the use and application of handheld and computerized devices that support the quality control operations of companies. Community colleges in particular need to adjust programing to enhance this technology as a part of their course and degree offerings. 2. Lack of training program equipment and instructional capacity in the vocational schools in quality assurance/control. Trainees should have manufacturing production experience. 	Targeted coursework in Coordinate Measurement Machines (CMM), optical comparators and Geometric Dimensioning and Tolerances is required in addition to QA/QC systems.

Supply Deep Dive Detail: Credential Asset Map-4

Credential Asset Map		NOTES
Occupation & SOC Code	Supervisors (Manufacturing-Specific) SOC: 51-1011	
Training Provider	<p style="text-align: center;"><u>Associate Degree</u></p> <p><u>Business Departments/Schools of Business</u></p> <ol style="list-style-type: none"> 1. Community Colleges 2. Four Year Colleges/Universities 	<p>West Region educational institutions/ workforce training programs at all levels are not organized to prepare individuals for Supervisors occupational classification. STCC Associate degree program not designed toward management positions in manufacturing, but modifications could include elective courses focused on management level job classification pathway.</p> <p>Data not available on number of Incumbent Employees of West Region advanced manufacturing companies who may be enrolled in degree granting/advanced technology courses that are a pathway to Supervisors occupational classification.</p>
Type of Training	<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line <input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line	

Credential Asset Map		NOTES
Annual Capacity	<ol style="list-style-type: none"> 1. No discreet manufacturing program that results in a Credential as a Supervisor is currently being conducted by the educational institutions/ training providers in the West Region 2. Data not available on number of Incumbent Employees of regional advanced manufacturing companies who may be enrolled in advanced technology courses that are a pathway to Supervisor's occupational classification 	
No. of Hours	N/A	
Type of Credential & Title of Credential	Management Degree	Associate Degree program at STCC not designed toward management positions in manufacturing, but modifications could include elective courses focused on management level job classification pathway that may prepare individuals for intern level Supervisory positions in manufacturing.
Credential Provider	<u>Business Departments/Schools of Business</u> <ol style="list-style-type: none"> 1. Community Colleges 2. Four Year Colleges/Universities 	See Note in Type of Credential
Integrated/ Accelerated	Degree programs MAY have Internship Component	

Credential Asset Map		NOTES
Online/ Classroom/ Work-based	<p align="center"><u>Credential Providers 1-2</u></p> <input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line <p align="center"><u>Credential Provider 3</u></p> <input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line	Hands-on Laboratory may be limited to Internship experience
Pell-eligible	YES Management courses/programs will grant college credit. Incumbent employees may not be Pell eligible.	
Fee	Fees Set by Board of Trustees Bachelors or Associate Degree	
Employer-validated	Employers Align and Validate Curriculum and Recognize the Credentials	
Stackable	Credentials are Stackable	
Portable	Credentials have Portability and should be accepted by other States/ and out of West Region employers	
Credit/ Non-Credit	College Credit	

Credential Asset Map		NOTES
Gaps	<ol style="list-style-type: none"> 1. Current Supply Gap Ratio (.23) will be difficult to adjust upward. West Region educational institutions/ workforce training programs at all levels are not organized to prepare individuals for Supervisors occupational classification. 2. Must develop partnership with Business Schools/Departments at the West Region community colleges and/or four-year public institutions to align/develop courses/ programs that create pathways for incumbent employees seeking to transition into supervisory/management related positions. 	

Supply Deep Dive Detail: Credential Asset Map-5

Credential Asset Map		NOTES
Occupation & SOC Code	CNC Programmer SOC: 51-4012	
Training Provider	<ol style="list-style-type: none"> 1. Programs/courses need to be developed at community colleges for incumbent employees. New credit granting Certificate program should be developed at one of the region's community colleges. 2. Registered Apprenticeship Credential (4,000 Hours) 	None of the West Region educational institutions/ training providers have a discrete CNC Programming program that results in a Credential as a CNC Programmer. CNC Programming competencies, at various levels of complexity, are embedded into the curriculum in some programs that have CNC Operator as the primary credential focus
Type of Training	<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line <input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line	
Annual Capacity	<ol style="list-style-type: none"> 1. No discreet CNC Programming program that results in a Credential as a CNC Programmer is currently being conducted by the educational institutions/ training providers in the West Region 2. Data not available on number of Incumbent Employees of regional advanced manufacturing companies who may be enrolled in advanced technology courses that are a pathway to CNC Programmer occupational classification 	

Credential Asset Map		NOTES
No. of Hours	N/A	
Type of Credential & Title of Credential	<ol style="list-style-type: none"> 1. Programs/courses need to be developed at community colleges for incumbent employees. New credit granting Certificate program should be developed at one of the region's community colleges. 2. Registered Apprenticeship Credential (4,000 Hours) 	<p>1-2. Associate degree and Certificate of Completion programs at the community college level MAY be completing individuals who can be employed directly in entry level CNC Programmer occupational classification.</p> <p>CNC Programming competencies are embedded into the curriculum in selected CNC Operator programs. Currently, there is No separate CNC Programmer Credential</p> <p>3.Current West Region Registered Apprenticeship programs are CNC Operators. CNC Programming competencies are not currently embedded into the Work Process and RTI of the CNC Operator Apprenticeship program</p>
Credential Provider	<ol style="list-style-type: none"> 1. Programs/courses need to be developed at community colleges for incumbent employees. New credit granting Certificate program should be developed at one of the region's community colleges. 2. MA Division of Apprenticeship Standards 	
Integrated/ Accelerated	<ul style="list-style-type: none"> • Apprenticeship Has Integrated RTI • Associate and Certificate of Completion MAY have Internship Component 	

Credential Asset Map		NOTES
	<ul style="list-style-type: none"> • Training Modified and/or Contextualized for Adult Learners 	
Online/ Classroom/ Work-based	<p style="text-align: center;"><u>Credential Providers 1-3</u></p> <input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Hands-on- Laboratory <input type="checkbox"/> On-Line <p style="text-align: center;"><u>Credential Provider 4</u></p> <input checked="" type="checkbox"/> Hands-on- Laboratory (Work Process) <input checked="" type="checkbox"/> Classroom (Related Technical Instruction) <input type="checkbox"/> On-Line	Currently there are no on-line training programs that will result in CNC Programmer Credential attainment
Pell-eligible	<p style="text-align: center;">YES</p> Associate Degree/ Mechanical Engineering Technology Certificate of Completion /CNC Operator <p style="text-align: center;">NO</p> Registered Apprenticeship / CNC Operator	
Fee	<p style="text-align: center;">Fees Set by Board of Trustees</p> Associate Degree Certificate of Completion (College Credit) <p style="text-align: center;">Fees Contingent Upon Length of Program</p> Registered Apprenticeship Certification	
Employer-validated	Employers Align and Validate Curriculum and Recognize the Credentials	
Stackable	Credentials are Stackable- Registered Apprenticeship MAY Not Transfer to College Credit	
Portable	Credentials have Portability but Acceptance may vary by State/ employer	

Credential Asset Map		NOTES
Credit/ Non-Credit	Associate Degree (College Credit) Certificate of Completion (College Credit) Registered Apprenticeship Certification (Non-Credit/Credit))	
Gaps	<ol style="list-style-type: none"> 1. Current Supply Gap Ratio (.06) must be adjusted upward. Community colleges should take the lead in increasing course/program options focused on CNC programming. Resources in State grant funded programs need to be repurposed to include training programs/ courses in this occupational classification for current Incumbent employees of advanced manufacturing companies. 2. Adult trainees in grant funded evening programs conducted at West Region vocational schools would require two years' minimum experience in CNC milling and turning setup in rough and finish machining. 	Many of the skills and competencies for this occupation crossover to applications, process and manufacturing engineering. In addition, course work in Solidworks, Mastercam, computer-aided design and project management is required. Increased opportunities for incumbent workers.

Section Three

Gap Analysis- Overview

Occupation	Supply Gap (Ratio) Projection	
	2019	2023
Production Worker Machinist SOC: 51-4041 (22%)	-131 (.02)	-95 (.29)
Production Worker CNC Operator SOC: 51-4011 (54%)	-60 (.81)	-6 (.98)
Inspectors, Testers, Quality Control SOC: 51-9061 (14%)	-49 (.42)	-5 (.94)
Supervisors (Manufacturing-Specific) SOC: 51-1011 (5%)	-23 (.23)	-18 (.40)
CNC Programmer SOC: 51-4012 (5%)	-30 (.06)	-3 (.90)
TOTAL	-293 (.48)	-127 (.79)

Gap Analysis Detail

Occupation & SOC Code (% of Demand)	Demand Target	Training Target Based on Supply Gap	Projected Employment Base	Supply Gap (Ratio) By 2023	Notes to Supply Gap																		
	Annual 610																						
Production Worker Machinist SOC: 51-4041 (22%)	134	<table border="1"> <thead> <tr> <th>Training Level</th> <th>Total Projected Annual FTE Enrollment</th> <th>Total Projected Annual Graduates/ Completers</th> </tr> </thead> <tbody> <tr> <td>Community Colleges (NEW)</td> <td>6</td> <td>5</td> </tr> <tr> <td>Community Colleges (INC.)</td> <td>15</td> <td>15</td> </tr> <tr> <td>Company Sponsored (Internal) (INC.)</td> <td>7</td> <td>7</td> </tr> <tr> <td>Registered Apprenticeship (INC.)</td> <td>13</td> <td>12</td> </tr> <tr> <td>TOTAL</td> <td>41</td> <td>39</td> </tr> </tbody> </table>	Training Level	Total Projected Annual FTE Enrollment	Total Projected Annual Graduates/ Completers	Community Colleges (NEW)	6	5	Community Colleges (INC.)	15	15	Company Sponsored (Internal) (INC.)	7	7	Registered Apprenticeship (INC.)	13	12	TOTAL	41	39		-95 (.29)	The West Region educational institutions/ training providers do not have a manufacturing program that results in a Credential as a Machinist. Competencies that are attributed to a Machinist are embedded into the curriculum in programs that have CNC Operator as the primary credential focus. STCC Associate degree program may graduate a
Training Level	Total Projected Annual FTE Enrollment	Total Projected Annual Graduates/ Completers																					
Community Colleges (NEW)	6	5																					
Community Colleges (INC.)	15	15																					
Company Sponsored (Internal) (INC.)	7	7																					
Registered Apprenticeship (INC.)	13	12																					
TOTAL	41	39																					

					select few individuals who could qualify as an entry level Machinist.																							
Production Worker CNC Operator SOC: 51-4011 (54%)	329	<table border="1"> <thead> <tr> <th>Training Level</th> <th>Total Projected Annual FTE Enrollment</th> <th>Total Projected Annual Graduates/ Completers</th> </tr> </thead> <tbody> <tr> <td>Community Colleges</td> <td>90</td> <td>60</td> </tr> <tr> <td>Secondary (Grade 12)</td> <td>119</td> <td>73</td> </tr> <tr> <td>Grant Funded</td> <td>158</td> <td>142</td> </tr> <tr> <td>OSCC (UI)</td> <td>-</td> <td>20</td> </tr> <tr> <td>Registered Apprenticeship (NEW)</td> <td>18</td> <td>16</td> </tr> <tr> <td>Registered Apprenticeship (INC.)</td> <td>12</td> <td>12</td> </tr> <tr> <td>TOTAL</td> <td>397</td> <td>323</td> </tr> </tbody> </table>	Training Level	Total Projected Annual FTE Enrollment	Total Projected Annual Graduates/ Completers	Community Colleges	90	60	Secondary (Grade 12)	119	73	Grant Funded	158	142	OSCC (UI)	-	20	Registered Apprenticeship (NEW)	18	16	Registered Apprenticeship (INC.)	12	12	TOTAL	397	323	-6 (.98)	The West Region educational institutions/ training providers are conducting training programs that result in the graduate/completer attaining a CNC Operator credential.
Training Level	Total Projected Annual FTE Enrollment	Total Projected Annual Graduates/ Completers																										
Community Colleges	90	60																										
Secondary (Grade 12)	119	73																										
Grant Funded	158	142																										
OSCC (UI)	-	20																										
Registered Apprenticeship (NEW)	18	16																										
Registered Apprenticeship (INC.)	12	12																										
TOTAL	397	323																										
Inspectors, Testers, Quality Control SOC: 51-9061 (14%)	85	<table border="1"> <thead> <tr> <th>Training Level</th> <th>Total Projected Annual FTE Enrollment</th> <th>Total Projected Annual Graduates/ Completers</th> </tr> </thead> <tbody> <tr> <td>Community Colleges NEW</td> <td>22</td> <td>14</td> </tr> </tbody> </table>	Training Level	Total Projected Annual FTE Enrollment	Total Projected Annual Graduates/ Completers	Community Colleges NEW	22	14	-5 (.94)	The West Region educational institutions/ training providers do not have a discreet Quality Control program that results in a																		
Training Level	Total Projected Annual FTE Enrollment	Total Projected Annual Graduates/ Completers																										
Community Colleges NEW	22	14																										

		<table border="1"> <tr> <td>Secondary Grade 12</td> <td>16</td> <td>9</td> </tr> <tr> <td>Grant Funded (NEW)</td> <td>20</td> <td>15</td> </tr> <tr> <td>Registered Apprenticeship (NEW)</td> <td>4</td> <td>4</td> </tr> <tr> <td>Community Colleges (INC.)</td> <td>9</td> <td>9</td> </tr> <tr> <td>Grant Funded (INC.)</td> <td>6</td> <td>6</td> </tr> <tr> <td>Registered Apprenticeship (INC.)</td> <td>5</td> <td>5</td> </tr> <tr> <td>OSCC (UI)</td> <td>-</td> <td>18</td> </tr> <tr> <td>TOTAL</td> <td>82</td> <td>80</td> </tr> </table>	Secondary Grade 12	16	9	Grant Funded (NEW)	20	15	Registered Apprenticeship (NEW)	4	4	Community Colleges (INC.)	9	9	Grant Funded (INC.)	6	6	Registered Apprenticeship (INC.)	5	5	OSCC (UI)	-	18	TOTAL	82	80		<p>Credential as a Quality Control Inspector/Tester. Quality Control competencies, at various levels of complexity, are embedded into the curriculum in some programs that have CNC Operator as the primary credential focus. Employees in this occupational grouping tend to be experienced production machine operators' whose technical skills and attention to detail prepared them to transition into QC related positions.</p>
Secondary Grade 12	16	9																										
Grant Funded (NEW)	20	15																										
Registered Apprenticeship (NEW)	4	4																										
Community Colleges (INC.)	9	9																										
Grant Funded (INC.)	6	6																										
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<p>Supervisors (Manufacturing-Specific) SOC: 51-1011 (5%)</p>	<p>30</p>	<table border="1"> <thead> <tr> <th>Training Level</th> <th>Total Projected Annual FTE Enrollment</th> <th>Total Projected Annual Graduates/ Completers</th> </tr> </thead> <tbody> <tr> <td>Community Colleges/ 4 Year</td> <td>10</td> <td>8</td> </tr> <tr> <td>OSCC (UI)</td> <td></td> <td>4</td> </tr> </tbody> </table>	Training Level	Total Projected Annual FTE Enrollment	Total Projected Annual Graduates/ Completers	Community Colleges/ 4 Year	10	8	OSCC (UI)		4	<p>-18 (.40)</p>	<p>West Region educational institutions/ workforce training programs at all levels are not organized to prepare individuals for Supervisors occupational</p>															
Training Level	Total Projected Annual FTE Enrollment	Total Projected Annual Graduates/ Completers																										
Community Colleges/ 4 Year	10	8																										
OSCC (UI)		4																										

		TOTAL	10	12	<p>classification. Degree granting programs at community college level are not designed toward management positions in manufacturing. Data not available on number of incumbent employees of West Region advanced manufacturing companies who may be enrolled in degree granting/advanced technology courses that are a pathway to Supervisors occupational classification.</p>
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Occupation CNC Programmer SOC: 51-4012 (5%)	32	Training Level	Total Projected Annual FTE Enrollment	Total Projected Annual Graduates/ Completers	-3 (.90)	None of the West Region training providers have a discreet CNC Programming program that results in a Credential as a CNC Programmer. CNC Programming competencies, at various levels of complexity, are embedded into the curriculum in some programs that have CNC Operator as the primary credential focus
		Community Colleges (NEW)	15	12		
		Registered Apprenticeship (NEW)	3	3		
		Community Colleges (INC.)	12	11		
		Company Sponsored (Internal)	3			
		TOTAL	33	29		
		TOTAL	610	TOTAL		

Section Four

Strategy- SWOT Analysis

Strengths of the Manufacturing Training System

1. Broad industry- education partnerships led by committed business owners resulting in a small number of sector-developed training programs for selected high demand occupations.
2. Systemic strategic planning and program implementation based on real-time regional industry demand vs. supply data.
3. Geographically balanced regional educational/training infrastructure of vocational technical high schools and community colleges that offer credentialed manufacturing pathway programs and/or courses and have capacity to deliver high quality and industry aligned training to both new pipeline AND incumbent employees in priority occupational classifications.
4. Continued investment by the State and educational institutions in instructional equipment and tooling that is aligned with industry needs and requirements.
5. Competent and sufficient instructional staff to deliver programs/courses.
6. Companies with long standing, positive relationships with West Region workforce boards and economic development entities.

Weaknesses of the Manufacturing Training System

1. Capacity underutilization in selected manufacturing technology pathway programs at West Region community colleges.
2. Varied levels of flexibility within regional educational institutions to adapt training and schedules to respond to future industry conditions and requirements.
3. Lack of career pathway programs/ training for entry-level Supervisory and mid-level management positions.
4. Curriculum for training in new and diverse manufacturing skills is not widely available.
5. Absence of long-term, comprehensive recruitment plan and shortage of sustainable resources to implement a marketing plan to attract young individuals and women to both training and careers in advanced manufacturing.
6. Public transportation system with limited routes and off-shift and weekend work schedules limiting job seeker access to employment opportunities.
7. Lack of structured internal training pathways and mentoring at some companies impacts ability to retain existing employees over time.

8. Wage differentials between southern and northern areas of the Pioneer Valley impact placement activity in companies conducting business in the northern tier.

Opportunities for the Manufacturing Training System

1. Existing partnerships between West Region educational institutions and employers provide opportunity to develop innovative approaches to creating a more coordinated and regional training eco-system.
2. Disruptive technologies may create new occupational groupings and different competencies necessitating new training programs/courses for new pipeline and incumbent employees.

Threats to the Manufacturing Training System

1. Uncertainties in sustaining public funding for training create challenges to mitigating current and projected supply gap in all priority occupations.
2. Federal immigration policies may limit supply of available adults for training for new pipeline positions.
3. Aging workforce resulting in loss of institutional knowledge and advanced technical skills.
4. Strong economy and shrinking supply pool of available and qualified individuals for new pipeline training programs will require development of comprehensive marketing and outreach and recruitment plan.
5. Geo-political forces that cause disruption in companies supply chains may result in production issues that impact pace of hiring and require re-setting of focus, direction, and timing of training programs.
6. Planned retirement of faculty/ instructors over the next 5 years may threaten capacity to maintain or scale training programs.

Section Five

Challenges and Priority Setting

Challenge	Priority	Description of Challenge	Impact
Training	1.	<ol style="list-style-type: none"> 1. Significant current Supply Gap Ratios (.02-.81) in five West Region priority occupational groupings. 2. Underutilization of current training capacity in selected manufacturing pathway programs/courses at both the community college and vocational technical high school levels. 3. Varied levels of flexibility within regional educational institutions to adapt training and schedules to respond to future industry conditions and requirements. 4. Lack of a coordinated and integrated training plan to provide continuous improvement programs or courses for incumbent employees. 5. Curriculum for training in new manufacturing occupational skills is under development and not widely available. 	<ol style="list-style-type: none"> 1. Preventing companies from growing current book of business and competing for more value-added work. 2. Unused training capacity negatively impacting supply of new employees. 3. Skills Gaps in middle skills occupational positions impacting companies' ability to efficiently perform more value-added work within existing supply chains 4. Creating a barrier for incumbent employees to access career pathways to higher technical and better paying employment positions. 5. Slowing ability of educational

Challenge	Priority	Description of Challenge	Impact
		<p>6. Absence of career pathway programs/ training for Supervisory and mid-level management positions. Companies and workforce boards are not currently in active partnerships with college-level business programs.</p> <p>7. Second language learners experiencing difficulty bridging from ESOL programs into manufacturing training programs.</p>	<p>institutions/training providers to design and implement training courses and programs</p> <p>6. Shortage of supervisory positions on the factory floor impacts manufacturing process flow and ability to professionally develop and retain new pipeline employees.</p> <p>7. Language barriers shrinking supply of applicants for manufacturing training programs.</p>
Sustainable Funding	2.	<p>1. Uncertainties in sustaining public funding for training and delayed timing in actual operationalizing funding creates challenges to mitigating current and projected supply gap in all priority occupations</p>	<p>1. Restricts ability to sustain 5 Year Plan and compromises regional efforts to sustain meaningful employer engagement over time.</p>
Employer Commitment	3.	<p>1. Supplier SME's currently lack internal resources and structures to develop internal training activities/programs for <u>incumbent</u> employees in selected priority occupational classifications.</p>	<p>1. Creates barriers to developing internal company specific interventions to mitigate current supply gap in Machinist and CNC Programmer classifications.</p>

Challenge	Priority	Description of Challenge	Impact
		<ul style="list-style-type: none"> 2. Absence of clearly defined internal training pathways and mentoring for new employees at some West Region companies impacting incumbent employee retention. 3. Coordination and scheduling barriers exist for smaller West Region companies seeking to effectively utilize the Workforce Training Fund Program (WTFP). 	<ul style="list-style-type: none"> 2. Impacts ability to retain employees over time. 3. Limits SME's ability to upgrade competencies of incumbent employees.
Recruitment	4.	<ul style="list-style-type: none"> 1. Strong economy and a flat unemployment rate creating a shrinking supply of available and qualified individuals for new pipeline training programs. 2. Applicants for employment/ training have significant factors/issues that are barriers to hiring and subsequent employment retention. 3. Absence of long-term, comprehensive outreach and recruitment plan, and shortage of sustained marketing resources to implement a marketing plan to attract individuals in particular, youth and women, to both training and careers in manufacturing. 4. Federal immigration policies may constrain supply of individuals, some with manufacturing experience, available for training for new pipeline positions. 	<ul style="list-style-type: none"> 1. Increases the Supply Gap Ratios in priority occupations and limits the regional labor force participation rate.

Challenge	Priority	Description of Challenge	Impact
Placement	5.	<ol style="list-style-type: none"> 1. Public transportation systems not constructed to respond to flexible industry shifts and weekend work schedules. 2. Geo-political forces may cause disruption in supply chains that, in time, could negatively impact selected company's manufacturing operations. 3. Hiring timelines and needs of West Region employers not always aligned with standard academic/training program calendars and schedules. 4. Employer needs and requirements to hire individuals with prior machining experience limiting access to employment for new pipeline training program completers. 	<ol style="list-style-type: none"> 1. Limits job seeker access to employment opportunities. 2. Impacts production levels, and pace of hiring requiring re-setting of training programs scope, direction, and timing. 3. Results in mismatch in responding to skills gaps particularly in CNC Operator classification..
Regional Training System	6.	<ol style="list-style-type: none"> 1. Embedding the 5 Year Manufacturing Plan into the implementation of the 5 Year Labor Market Blueprints of Regions 1 and 2 will require strategic collaboration and ongoing evaluation. 2. Massachusetts Training Opportunities Program (TOP, Section 30) must be approved and operationalized at the vocational school level. 	<ol style="list-style-type: none"> 1. Manufacturing Plan must be seen as part of 5-year Labor Market Blueprint Implementation strategy or both Regions 1 and 2 in order to obtain broad-based acceptance and implementation.
Instructors	7.	<ol style="list-style-type: none"> 1. Projected faculty/teacher retirements may threaten capacity to maintain or scale pathway programs for both new pipeline and incumbent employees. 	<ol style="list-style-type: none"> 1. Implementation of 5 Year Plan and efforts to scale plan over time dependent upon ability to retain and

Challenge	Priority	Description of Challenge	Impact
		<ol style="list-style-type: none"> 2. Using experienced incumbent employees as instructors for new pipeline evening training programs is not a sustainable or practical training delivery model. 3. Lack of sustainable and predictable funding impedes the ability to recruit, develop and retain skilled instructors to anchor training programs and develop long-term pipeline relationships with employers. 	<p>attract an appropriate level of faculty/ teachers with required technical competencies aligned to skill requirements in priority occupations.</p>
<p>Statewide Training System</p>	<p>8.</p>	<ol style="list-style-type: none"> 1. Lack of consistent and current state-wide demand-supply data. 2. Uncertainties of sustained public funding for training. 3. Absence of coordinated state-wide curriculum for new pipeline training programs. 4. Absence of long-term strategic vision for advanced manufacturing. 	<ol style="list-style-type: none"> 1. Availability of real time data critical part of planning and implementation process over the 5-year life of the Plan. 2. Barrier to mitigating current and projected supply gaps in all priority occupations.

Section Six

Strategies and Solutions by Priority Challenges

Challenges	Priority of Challenges	Strategies and Solutions	Strategies and Solutions Milestone																					
Training	1.	<p>1. The following Supply Gap Matrix summarizes the Supply Gap in the West Regions priority occupations. Solutions and Strategies to mitigate the Supply Gap are detailed in Priority Items 2-8 below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9e1f2;">Priority Occupations</th> <th style="background-color: #d9e1f2;">Supply Gap (Ratio) 2019 Base Year 1</th> <th style="background-color: #d9e1f2;">Supply Gap (Ratio) 2023 Plan Year 5</th> </tr> </thead> <tbody> <tr> <td style="background-color: #d9e1f2;">Production Worker Machinist SOC: 51-4041</td> <td style="text-align: center;">-131 (.02)</td> <td style="text-align: center;">-95 (.29)</td> </tr> <tr> <td style="background-color: #d9e1f2;">Production Worker CNC Operator SOC: 51-4011</td> <td style="text-align: center;">-60 (.81)</td> <td style="text-align: center;">-6 (.98)</td> </tr> <tr> <td style="background-color: #d9e1f2;">Inspectors, Testers, Quality Control SOC: 51-9061</td> <td style="text-align: center;">-49 (.42)</td> <td style="text-align: center;">-5 (.94)</td> </tr> <tr> <td style="background-color: #d9e1f2;">Supervisors (Manufacturing) SOC: 51-1011</td> <td style="text-align: center;">-23 (.23)</td> <td style="text-align: center;">-18 (.40)</td> </tr> <tr> <td style="background-color: #d9e1f2;">CNC Programmer SOC: 51-4012</td> <td style="text-align: center;">-30 (.06)</td> <td style="text-align: center;">-3 (.90)</td> </tr> <tr> <td style="background-color: #d9e1f2;">TOTAL</td> <td style="text-align: center;">-293 (.48)</td> <td style="text-align: center;">-127 (.79)</td> </tr> </tbody> </table>	Priority Occupations	Supply Gap (Ratio) 2019 Base Year 1	Supply Gap (Ratio) 2023 Plan Year 5	Production Worker Machinist SOC: 51-4041	-131 (.02)	-95 (.29)	Production Worker CNC Operator SOC: 51-4011	-60 (.81)	-6 (.98)	Inspectors, Testers, Quality Control SOC: 51-9061	-49 (.42)	-5 (.94)	Supervisors (Manufacturing) SOC: 51-1011	-23 (.23)	-18 (.40)	CNC Programmer SOC: 51-4012	-30 (.06)	-3 (.90)	TOTAL	-293 (.48)	-127 (.79)	Years 1-5
		Priority Occupations	Supply Gap (Ratio) 2019 Base Year 1	Supply Gap (Ratio) 2023 Plan Year 5																				
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TOTAL	-293 (.48)	-127 (.79)																						
		<p>2. Increase West Region’s Annual Enrollment Capacity to conduct New Pipeline Training programs by end of Year 5. (Reference Gap Analysis section for specific details).</p>	Years 2-5																					

Challenges	Priority of Challenges	Strategies and Solutions	Strategies and Solutions Milestone
		<ol style="list-style-type: none"> <li data-bbox="646 380 1575 516">3. Create Skills Enhancement Pathways Program for <u>incumbent</u> employees that will increase Annual Enrollment Capacity in the Machinist, Quality Control, and CNC Programmer priority occupations by the end of Plan Year 5. (Reference Gap Analysis section for specific details). <li data-bbox="646 558 1575 695">4. Develop Registered Apprenticeships that will create Annual Enrollment Capacity for <u>incumbent</u> employees in the Machinist, CNC Operator, and Quality Control priority occupations as follows. (Reference Gap Analysis section for specific details). <li data-bbox="646 737 1575 841">5. Develop Bridge Connector programs that create intentional participant flow between the DESE funded ESOL/ABE programs and New Pipeline Training programs. <li data-bbox="646 883 1575 1019">6. Partner with Business Schools/Departments at the West Region community colleges and/or four-year public institutions to align/develop courses/ programs that create pathways for incumbent employees seeking to transition into management positions. <li data-bbox="646 1062 1575 1166">7. Develop on-line credit or non-credit courses at one of the community colleges in Quality Control and/or CNC Programmer occupational classifications. <li data-bbox="646 1208 1575 1312">8. Partner and sub-contract with Advanced Digital Design and Fabrication Lab (ADDFab) at UMass Amherst to provide <u>incumbent</u> employees with training in Additive Manufacturing. 	<p data-bbox="1650 380 1759 406">Years 2-5</p> <p data-bbox="1650 558 1759 584">Years 2-5</p> <p data-bbox="1650 737 1759 763">Years 2-5</p> <p data-bbox="1650 883 1759 909">Years 2-5</p> <p data-bbox="1650 1062 1759 1088">Years 3-5</p> <p data-bbox="1650 1208 1759 1234">Years 2-5</p>

Challenges	Priority of Challenges	Strategies and Solutions	Strategies and Solutions Milestone												
Sustainable Funding	2.	<p>1. Allocate State funding through the Workforce Skills Cabinet at the following levels, and expedite transfer of funding to the West Region to mitigate any time gaps in delivery of administrative and program operational services.</p> <table border="1" data-bbox="821 553 1339 776"> <thead> <tr> <th>Plan Year</th> <th>Funding Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>FY 2019 Level</td> </tr> <tr> <td>2</td> <td>Year 1 Level</td> </tr> <tr> <td>3</td> <td>7% ↑ from Year 2</td> </tr> <tr> <td>4</td> <td>7% ↑ from Year 3</td> </tr> <tr> <td>5</td> <td>Year 4 Level</td> </tr> </tbody> </table> <p>2. Implement Registered Apprenticeship Tax Credit as employer incentive to participate in State Registered Apprenticeship program.</p> <p>3. Utilize Massachusetts Apprenticeship Initiative (MAI) (Expansion Grant-MAE) <u>federal</u> funding to offset costs of Related Technical Instruction for Registered Apprenticeship program.</p> <p>4. Allocate WIOA Individualized Training Account (ITA) funding to increase number of individuals enrolling in One-Year Certificate programs in manufacturing at West Region community colleges.</p> <p>5. Allocate a percentage of any State/Federal funding targeted to manufacturing to develop career pathways programs/courses for <i>incumbent</i> employees to upgrade to the <i>Machinist and CNC Programmer</i> occupations.</p>	Plan Year	Funding Level	1	FY 2019 Level	2	Year 1 Level	3	7% ↑ from Year 2	4	7% ↑ from Year 3	5	Year 4 Level	<p>Years 1- 5</p> <p>Year 2</p> <p>Year 2</p> <p>Years 3-5</p> <p>Years 2-5</p>
Plan Year	Funding Level														
1	FY 2019 Level														
2	Year 1 Level														
3	7% ↑ from Year 2														
4	7% ↑ from Year 3														
5	Year 4 Level														






Challenges	Priority of Challenges	Strategies and Solutions	Strategies and Solutions Milestone
		<p>6. Establish \$600,000 private sector co-investment matching fund account to support annual investments in years 3-5 of \$200,000 to enhance competencies of <u>incumbent</u> employees in priority occupations.</p> <p>7. Continue funding Capital Skills Grant Program to ensure equipment/tooling used in training of unemployed/underemployed and incumbent employees is aligned with industry standards and requirements.</p>	<p>Years 3-5</p> <p>Years 2-5</p>
Employer Commitment	3.	<p>1. Constitute West Region Employer Steering Committee to provide strategic direction and guidance over the life of the Five Year Plan in the following areas:</p> <ul style="list-style-type: none"> ➤ Implement external and internal Skills Enhancement Pathway Programs for <u>incumbent</u> employees ➤ Align training program curriculum with changing industry technology needs ➤ Develop plan to attract manufacturing employees to teaching positions ➤ Leverage funding models to scale successful training program models ➤ Develop a coordinated applicant Outreach and Recruitment Plan ➤ Develop legislative advocacy strategies and actions 	Year 2
Recruitment	4.	<p>1. Recruit from broader segments of the population with a continued emphasis on enrolling participants into New Pipeline Training from the target populations of unemployed, underemployed, women, minorities, youth (19-24), and veterans.</p> <p>2. Work with approved pre-apprenticeship programs to connect individuals, in particular youth, with Registered apprenticeship programs.</p>	<p>Years 2-5</p> <p>Years 2-5</p>

Challenges	Priority of Challenges	Strategies and Solutions	Strategies and Solutions Milestone
		<p>3. Increase the number of <u>incumbent</u> employees enrolling into courses/programs that will mitigate Supply Gap Ratios in the Machinist, CNC Programmer and Supervisor occupations.</p> <p>4. In order to accomplish these strategies, West Region will do the following:</p> <p>A. Allocate increased percentage of funding to broaden and deepen overall <u>recruitment</u> initiatives.</p> <p>B. Commit increased levels of State allotted funding to recruit and enroll <u>incumbent</u> employees in credential granting courses/programs in key Supply Gap occupations.</p> <p>C. Work with Massachusetts Training Opportunities Program (TOP, Section 30) for approval of training delivered through the vocational-technical high schools, which presently do not meet the training vendor requirements for the TOP program.</p> <p>D. Implement a social media <u>plan</u> targeted to outreaching and recruiting broader segments of the population to be enrolled into new pipeline programs.</p> <p>E. Accelerate outreach and recruitment of youth ages 19-24 to increase enrollment levels in New Pipeline Training programs.</p> <p>F. Develop recruitment strategies to access individuals residing in rural or isolated geographical areas of the West Region.</p>	<p>Years 2-5</p> <p>Years 2-5</p> <p>Year 2</p> <p>Year 2</p> <p>Years 2-5</p> <p>Years 2-5</p> <p>Years 2-5</p> <p>Years 2-5</p>

Challenges	Priority of Challenges	Strategies and Solutions	Strategies and Solutions Milestone															
		<p>G. Use established network of regional manufacturing companies to assist in marketing new pipeline programs to their incumbent employees in the hope that they will share the programs within their personal social network.</p> <p>H. Partner with and financially incentivize selected community serving organizations to assist in providing program information within their existing client network.</p> <p>I. Coordinate recruitment activities among the four West Region MassHire one stop career centers to ensure greater penetration to broader segments of the population.</p>	<p>Years 2-5</p> <p>Years 2-5</p> <p>Years 2-5</p>															
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		Inspectors, Testers, Quality Control	36	80	-49 (.42)	-5 (.94)	
Supervisors (Manufacturing)	7	12	-23 (.23)	-18 (.40)	Year 5		
CNC Programmer	2	29	-30 (.06)	-3 (.90)	Year 5		
TOTAL	317	483	-293 (.48)	-127 (.79)			
Regional Training System	6.	<p>1. The West Regional Training System (WRTS) will accomplish the following:</p> <p>A. Embed 5 Year Manufacturing Plan into the Labor Market Blueprints of Regions 1 and 2, and market Plan as part of each Regions Blueprint.</p> <p>B. Crosswalk current capacity levels, infrastructure, and curriculum at community colleges to align and/or expand training delivery models and capacity in Skills Gap occupations.</p>					<p>Years 2-5</p> <p>Years 2-5</p>

Challenges	Priority of Challenges	Strategies and Solutions	Strategies and Solutions Milestone
		<p>C. Massachusetts Training Opportunities Program (TOP, Section 30) approved and operationalized.</p> <p>D. Vocational technical high schools successful in securing Capital Skills Grants to enhance their manufacturing program commit to serve as a training site or direct training provider for either new pipeline or incumbent employees.</p> <p>E. Conduct Workforce Development and Technology Adoption Survey of regional advanced manufacturing companies in Hampden, Franklin/Hampshire and Berkshire Counties in CY 2020 and CY 2022, and prepare and disseminate Report to West Region partners.</p> <p>F. Establish common applicant assessment process, with sub-region flexibility options, to ensure new pipeline selection process is focused on successful program completion, employability and retention.</p> <p>G. West Region workforce boards develop a process and accountability system to support cross-regional recruitment and increase program enrollment.</p>	<p>Year 2</p> <p>Years 2-5</p> <p>Years 2, 4</p> <p>Year 2</p> <p>Year 2</p>

Challenges	Priority of Challenges	Strategies and Solutions	Strategies and Solutions Milestone
Instructors	7.	<ol style="list-style-type: none"> 1. Community colleges accelerate recruitment process to identify additional <u>adjunct faculty</u> from industry with technical competencies aligned with competencies required for priority occupations. 2. In anticipation of retirements of <u>contract faculty</u> at community colleges beginning in Plan Year 4, begin recruitment process to hire replacement faculty who have technical <u>competencies</u> aligned to supply gaps priority occupations, in particular CNC Programmer and Quality Control Technician. 3. Workforce boards, in collaboration with West Region <u>vocational technical high schools</u>, assess instructor staffing needs and technical competencies required of new teachers. 	<p style="text-align: center;">Year 2</p> <p style="text-align: center;">Year 3</p> <p style="text-align: center;">Years 2-5</p>
Statewide Training System	8.	<ol style="list-style-type: none"> 1. Implement a structured Workforce Skills Cabinet directed state-wide Community of Practice across the four Hub Regions to discuss the following: <ul style="list-style-type: none">  Promising Practices  Gaps in Regional Implementation  Funding Sustainability Initiatives  Analysis of Outcome Metrics  Progress Toward Mitigating State-wide Supply Gaps 2. Revisit the AMP-It-Up program concept to provide funding streams to develop a comprehensive and coordinated state-wide strategy to push career awareness on educational pathways and careers in advanced manufacturing into the middle schools. 	<p style="text-align: center;">Years 2-5</p> <p style="text-align: center;">Years 2-5</p>

Challenges	Priority of Challenges	Strategies and Solutions	Strategies and Solutions Milestone
		<ol style="list-style-type: none"> <li data-bbox="646 380 1556 480">3. Generate annual state-wide demand-supply data that will inform 5 Year Plan planning and decision-making, and disaggregate data by Hub Regions. <li data-bbox="646 521 1556 586">4. Continue investment in the Capital Skills Grants program with linkage to the regional Labor Market Blueprints as a condition of grant award. <li data-bbox="646 626 1556 691">5. Reconstitute the Advanced Manufacturing Collaborative (AMC) and include representation from each Hub Region as Collaborative members. 	<p data-bbox="1675 380 1787 407">Years 2-5</p> <p data-bbox="1675 521 1787 548">Years 2-5</p> <p data-bbox="1692 626 1770 654">Year 3</p>

Section Seven

State Contribution

Challenges	Priority of Challenges	Solutions	State Contribution to Solutions																					
Gap in Occupation	1.	1. The following Supply Gap Matrix summarizes the Supply Gap in the West Regions priority occupations. Solutions and Strategies to mitigate the Supply Gap are detailed in Priority Items 2-8 below:	1. Generate annual state-wide demand-supply data that will inform 5 Year Plan planning and decision-making, and disaggregate data by Hub Regions.																					
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Training Capacity	2.	<ol style="list-style-type: none"> 1. Increase West Region’s Annual Enrollment Capacity to conduct New Pipeline Training programs by end of Year 5. (Reference Gap Analysis section for specific detail). 2. Create Skills Enhancement Pathways Program for incumbent employees that will increase Annual Enrollment Capacity in the Machinist, Quality Control, and CNC Programmer priority occupations 	1. Provide guidance and technical assistance to achieve scale to regional training programs.																					

		<p>by the end of Plan Year 5. (Reference Gap Analysis section for specific detail).</p> <ol style="list-style-type: none"> 3. Develop Registered Apprenticeships that will create Annual Capacity for incumbent employees in the Machinist, CNC Operator, and Quality Control priority occupations as follows. (Reference Gap Analysis section for specific detail). 4. Business Schools/Departments at the West Region community colleges and/or four-year public institutions align/develop courses/ programs that create Annual Enrollment Capacity in the Supervisors occupational classification. 5. Community colleges develop on-line credit or non-credit courses in Quality Control and CNC Programmer occupational classifications. 6. Partner and Sub-Contract with Advanced Digital Design and Fabrication Lab at (ADDFab) UMass Amherst to provide <u>incumbent</u> employees with training in Additive Manufacturing. 	<ol style="list-style-type: none"> 2. Continue investment in the Capital Skills Grants program with intentional connectivity to the 5 Year Manufacturing Plan. 3. Ensure Manufacturing Plan is embedded in regional Labor Market Blueprint as a condition of receiving sustained grant funding over the life of the 5-Year Manufacturing Plan. 												
<p>Sustainable Funding</p>	<p>3.</p>	<ol style="list-style-type: none"> 1. Allocate State funding through the Workforce Skills Cabinet at the following levels: <table border="1" data-bbox="844 1000 1413 1224" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Plan Year</th> <th>Funding Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>FY 2019 Level</td> </tr> <tr> <td>2</td> <td>Year 1 Level</td> </tr> <tr> <td>3</td> <td>7% ↑ from Year 2</td> </tr> <tr> <td>4</td> <td>7% ↑ from Year 3</td> </tr> <tr> <td>5</td> <td>Year 4 Level</td> </tr> </tbody> </table> 2. Implement Registered Apprentice Tax Credit as employer incentive to participate in State Registered Apprenticeship program. 	Plan Year	Funding Level	1	FY 2019 Level	2	Year 1 Level	3	7% ↑ from Year 2	4	7% ↑ from Year 3	5	Year 4 Level	<ol style="list-style-type: none"> 1. Approve the use State funds to provide credit and non-credit training programs/courses to <u>incumbent</u> employees. 2. Identify private sector funds to be used to match state funding to create a co-investment
Plan Year	Funding Level														
1	FY 2019 Level														
2	Year 1 Level														
3	7% ↑ from Year 2														
4	7% ↑ from Year 3														
5	Year 4 Level														






		<ol style="list-style-type: none"> 3. Utilize Massachusetts Apprenticeship Initiative (MAI) (Expansion Grant- MAE) federal funding to pay for Related Technical Instruction for Registered Apprenticeship program. 4. Allocate WIOA Individualized Training Account (ITA) funding to increase number of individuals enrolling in one-year Certificate programs at West Region community colleges. 5. Allocate a percentage of State/Federal funding to develop career pathways programs/courses for incumbent employees to upgrade to the Machinist and CNC Programmer occupations. 6. Continue funding Capital Skills Grant Program to ensure training equipment/tooling used in the manufacturing programs at the vocational technical high schools is aligned with industry standards and requirements. 7. Establish \$600,000 private sector co-investment account in Years 3-5 of the Plan to support annual investments of \$200,000 to enhance competencies of incumbent employees. 	<p>training delivery system.</p>
<p>Recruitment</p>	<p>4.</p>	<ol style="list-style-type: none"> 1. Recruit from broader segments of the population with a continued emphasis on enrolling participants into New Pipeline Training from the target populations of unemployed, underemployed, women, minorities, youth (19-24), and veterans. 2. Increase the number of incumbent employees enrolling into courses/programs that will mitigate Supply Gap Ratios in the Machinist, CNC Programmer and Supervisor occupations. 3. To accomplish these strategies, West Region will do the following: <ol style="list-style-type: none"> A. Allocate increased percentage of funding to broaden and deepen overall recruitment initiatives. 	<ol style="list-style-type: none"> 1. Develop a brand and a vision for the statewide advanced manufacturing system. 2. Revisit the AMP-It-Up program concept to provide funding streams to develop a comprehensive and coordinated state-wide strategy to push career awareness on

		<ul style="list-style-type: none"> B. Commit increased levels of allotted funding to recruit and enroll incumbent employees in credential granting courses/programs in key Supply Gap occupations. C. Work with Massachusetts Training Opportunities Program (TOP, Section 30) for approval of training delivered through the vocational-technical high schools, which presently do not meet the training vendor requirements for the TOP program. D. Develop Bridge Connector programs that create intentional participant flow between the DESE (ACLS) funded literacy programs and New Pipeline Training programs. E. Develop a social media plan targeted to outreaching and recruiting broader segments of the population to be enrolled into new pipeline programs. F. Accelerate outreach and recruitment of youth ages 19-24 to increase enrollment levels in New Pipeline Training programs. G. Develop recruitment strategies to access individuals residing in rural or isolated geographical areas of the West Region. H. Use established network of regional manufacturing companies to assist in marketing new pipeline programs to their incumbent employees in the hope that they will share the programs within their personal social network. I. Partner with and financially Incentivize selected community serving organizations to assist in providing program information within their existing client network. J. Coordinate recruitment activities among the four West Region MassHire one stop career centers to ensure greater penetration to broader segments of the population. 	<p>educational pathways and careers in advanced manufacturing into the middle schools.</p>
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Placement	5.	<p>1. The West Region will attain the following Placement Goals for the 5 Year Manufacturing Plan:</p> <table border="1" data-bbox="669 412 1554 1200"> <thead> <tr> <th>Priority Occupations</th> <th>Annual Placements 2019</th> <th>Annual Placements 2023</th> <th>Supply Gap (Ratio) 2019</th> <th>Supply Gap (Ratio) 2023</th> </tr> </thead> <tbody> <tr> <td>Production Worker Machinist</td> <td>3</td> <td>39</td> <td>-131 (.02)</td> <td>-95 (.29)</td> </tr> <tr> <td>Production Worker CNC Operator</td> <td>269</td> <td>323</td> <td>-60 (.81)</td> <td>-6 (.98)</td> </tr> <tr> <td>Inspectors, Testers, Quality Control</td> <td>36</td> <td>80</td> <td>-49 (.42)</td> <td>-5 (.94)</td> </tr> <tr> <td>Supervisors (Manufacturing)</td> <td>7</td> <td>12</td> <td>-23 (.23)</td> <td>-18 (.40)</td> </tr> <tr> <td>CNC Programmer</td> <td>2</td> <td>29</td> <td>-30 (.06)</td> <td>-3 (.90)</td> </tr> <tr> <td>TOTAL</td> <td>317</td> <td>483</td> <td>-293 (.48)</td> <td>-127 (.79)</td> </tr> </tbody> </table> <p>2. By December 2023 priority occupations, excluding Supervisors, will pay median hourly wage of \$21.50 and offer competitive employee benefit package.</p> <p>3. Number of high quality occupational positions in advanced</p>	Priority Occupations	Annual Placements 2019	Annual Placements 2023	Supply Gap (Ratio) 2019	Supply Gap (Ratio) 2023	Production Worker Machinist	3	39	-131 (.02)	-95 (.29)	Production Worker CNC Operator	269	323	-60 (.81)	-6 (.98)	Inspectors, Testers, Quality Control	36	80	-49 (.42)	-5 (.94)	Supervisors (Manufacturing)	7	12	-23 (.23)	-18 (.40)	CNC Programmer	2	29	-30 (.06)	-3 (.90)	TOTAL	317	483	-293 (.48)	-127 (.79)	<p>1. Secure funding to support On-The-Job Training (OJT) and Registered Apprenticeship training delivery models.</p>
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		<p>manufacturing (CNC Operators, Quality Control Workers, Machinists, CNC Programmer) in the West Region will contribute to increasing the West Regions annual average labor force participation rate from 2019 base of 63.0% to 68.6%.</p>	
<p>Regional Training System</p>	<p>6.</p>	<ol style="list-style-type: none"> 1. The West Regional Training System (WRTS) must accomplish the following: <ol style="list-style-type: none"> A. Embed 5 Year Manufacturing Plan into the Labor Market Blueprints of Regions 1 and 2, and characterize and socialize as part of each Blueprint. B. Community colleges offering programs/course in advanced manufacturing crosswalk current capacity levels, infrastructure, and curriculum, and realign and/or expand training delivery models and capacity in Skills Gap occupations. C. Massachusetts Training Opportunities Program (TOP, Section 30) approved and operationalized. D. Vocational technical high schools awarded Capital Skills Grants to enhance their manufacturing program commit to serve as a training site or direct training provider for either new pipeline or incumbent employees. E. Conduct Workforce Development and Technology Adoption Survey of regional advanced manufacturing companies in Hampden, 	<ol style="list-style-type: none"> 1. Develop and coordinate training curriculum standards across regions to ensure employer acceptance and validation of training programs.

		<p>Franklin/Hampshire and Berkshire Counties in CY 2020 and CY 2022, and prepare and disseminate Report to West Region partners.</p> <p>F. WRTS establish common applicant assessment process, with sub-region flexibility options, to ensure new pipeline selection process is focused on successful program completion, employability and retention.</p> <p>G. West Region workforce boards develop a process and accountability system to support cross-regional recruitment and program enrollment.</p>	
Instructors	7.	<ol style="list-style-type: none"> 1. Sufficient instructional staff currently available and deployed to deliver core curriculum in CNC Operator and Quality Control occupational classifications. 2. Community colleges accelerate recruitment process to identify additional adjunct faculty from industry with technical competencies aligned with supply gaps in priority occupations. 3. In anticipation of retirements of contract faculty at community colleges beginning in Plan Year 4, begin recruitment process to hire replacement faculty who have technical competencies aligned to supply gaps priority occupations, in particular CNC Programmer and Quality Control Technician. 4. Workforce boards, in collaboration with West Region vocational technical high schools, assess staffing levels and technical competency requirements of new teachers. 	<ol style="list-style-type: none"> 1. Develop a state-wide data base of available faculty/instructors. 2. Negotiate with State's largest OEM's to provide sabbaticals for interested incumbent employees to teach full time at the community college or vocational technical high schools.

<p>Statewide Training System</p>	<p>8.</p>	<ol style="list-style-type: none"> 1. Implement a structured Workforce Skills Cabinet directed state-wide Community of Practice for the four Hub Regions to discuss the following: <ul style="list-style-type: none">  Promising Practices  Gaps in Regional Implementation  Sustainability Initiatives  Analysis of Outcome Metrics  Progress Toward Mitigating State-wide Supply Gaps 2. Revisit the AMP-It-Up program concept to provide funding streams to develop a comprehensive and coordinated state-wide strategy to push career awareness on educational pathways and careers in advanced manufacturing into the middle schools. 3. Generate annual state-wide demand-supply data that will inform 5 Year Plan planning and decision-making, and disaggregate data by Hub Region. 4. Continue investment in the Capital Skills Grants program with linkage to the regional Labor Market Blueprints as a condition of grant award. 5. Reconstitute the Advanced Manufacturing Collaborative (AMC) and include representation from each Hub Region as Collaborative members. 	<ol style="list-style-type: none"> 1. Reconstitute the Advanced Manufacturing Collaborative (AMC) and include representation from each Hub Region as Collaborative members. 2. Play a coordinating, facilitating, and convening role to ensure the success of a state-wide Community of Practice for the Advanced Manufacturing Hub Regions.
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CONTACT INFORMATION

For information on the development of the **Five Year Manufacturing Plan- 2019-2023** for the **West Region**, please contact David M. Cruise at 413-755-1362 or dcrui@masshirehcnb.com.

For information on the Massachusetts Executive Office of Housing and Economic Development, please visit their web site at <http://www.mass.gov/hed/>

Information on the Western Massachusetts Chapter of the National Tooling and Machining Association can be found on their web site at <http://www.wmntma.org/>



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WORKFORCE BOARD



HAMPDEN COUNTY
WORKFORCE BOARD



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