



MASSDEVELOPMENT

99 High Street
Boston, Massachusetts
02110

Tel: 617-330-2000
800-445-8030

Fax: 617-330-2001

www.massdevelopment.com

December 31, 2016

Mr. William F. Welch
Senate Clerk
24 Beacon Street
Room 335—State House
Boston, MA 02133

Mr. Steven T. James
House Clerk
24 Beacon Street
Room 145—State House
Boston, MA 02133

Dear Sirs:

MassDevelopment is pleased to submit this fifth annual report of the Advanced Manufacturing Futures Program (AMFP) as required by Chapter 238 of the Acts of 2012, An Act Relative to Infrastructure Investment, Enhanced Competitiveness and Economic Growth in the Commonwealth. This report summarizes the progress MassDevelopment has made with respect to the AMFP during fiscal year 2016.

In 2013, MassDevelopment received \$9,375,000 of an expected \$18.5 million from the Commonwealth's FY14 budget to capitalize the AMFP. The remainder reverted to the Commonwealth in January 2016. MassDevelopment developed and manages the AMFP in consultation with the Secretary of the Executive Office of Housing and Economic Development, the Advanced Manufacturing Collaborative, and industry leaders. The initial capitalization from the Commonwealth has allowed the AMFP to accelerate the growth and competitiveness of Massachusetts manufacturers through grants, contracts, and loans that:

- Improve access to technical assistance for small- to mid-sized manufacturers.
- Encourage the adoption of new technologies and advanced manufacturing capabilities.
- Develop the manufacturing worker pipeline by creating educational programs about career opportunities.
- Facilitate education and skills training through individualized career pathway programs.
- Foster academic and industry collaboration.
- Coordinate the activities of supporting agencies and partners.

CHARLES D. BAKER
Governor

KARYN E. POUTO
Lieutenant Governor

JAY ASH
Chairman

MARTY JONES
President and CEO

Working with many partners, MassDevelopment has developed programs to enhance the economic environment for Massachusetts manufacturers and looks forward to continuing this important work in 2017.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Marty Jones', with a stylized flourish extending to the right.

Marty Jones

Advanced Manufacturing Collaborative - The Advanced Manufacturing Collaborative (AMC) is an industry-led leadership group that convenes policymakers, members of academia, and other participants within the manufacturing sector. Chapter 23A, Section 10B of the Massachusetts General Laws established the AMC, which partners with public and private stakeholders to develop and implement the Commonwealth's manufacturing plan and to foster growth and innovation in Massachusetts manufacturing. MassDevelopment provides organizational and staffing support for the AMC.

The AMC had two new industry co-chairs appointed by Governor Baker in 2016, Michael Tamasi of AccuRounds and Ira Moskowitz, formerly with Analog Devices. Tamasi and Moskowitz join existing co-chair Katie Stebbins, Assistant Secretary of Innovation, Technology, and Entrepreneurship of the Executive Office of Housing and Economic Development. Nine new industry members representing regions across the Commonwealth also joined the AMC to replace retiring members, including Ted Lapres, formerly of Nypro; Kim Caruso, Raytheon; Rich Breault, Lightspeed; Tom Faulkner, Applied Materials; Stephen Boyd, Boyd Technologies; Todd Bachelder, Menck Windows; Leslie Greis, Kinefac Corporation; Steve Grande, Meridian Industrial Group, LLC; and Peter Monkiewicz, Kayem Foods.

The AMC held 12 telephone, small working group, and full group meetings in 2016. This year, the group initiated the development of a Manufacturing Strategy and Plan for the Commonwealth, which is slated for completion in January 2017.

AMP it up!, Dream It. Do It. - AMP it up! launched in 2013 to encourage young people to pursue careers in advanced manufacturing. MassDevelopment maintains the program's website and social-media accounts, and provides matching grants to regional partnerships. These grant recipients – composed of employment and workforce investment boards, advanced manufacturers, chambers of commerce and development councils, community colleges, and youth organizations – offer activities such as facility tours, career workshops, information sessions, and manufacturer externships. The target audience includes students and adult influencers such as parents, guidance counselors, and teachers.

MassDevelopment has made AMP it up! grants to 20 different partnerships, some of which have received multiple grants since the program's inception:

- In 2013, \$92,736 to 10 partnerships.
- In 2014, \$108,950 to 11 partnerships.
- In 2015, \$88,633 to 9 partnerships.
- In 2016, \$98,633 to 10 partnerships.

AMP it up! also sponsors an annual video challenge that encourages students to connect with manufacturers and create short videos that change the perception of today's manufacturing environment. In 2016, students visited manufacturers such as AccuRounds, Factory Five, and Smith & Nephew to learn about advanced manufacturing, and produce a short, informative video about the impact of these companies' work. Nearly 4,700 people voted on 13 videos submitted by schools across the Commonwealth; three entries received prizes of \$5,000: B.M.C. Durfee High School for its videos featuring H&S Tool and Blount Fine Foods, Melrose High School for

its video of Zildjian Cymbals, and Seven Hills Charter School for its video of the Warner Babcock Institute's production of Delta S.

In 2016, MassDevelopment joined The Manufacturing Institute's Dream It. Do It. program, an initiative to draw young people to manufacturing careers by changing the perception of the industry. The Commonwealth launched this partnership on August 23, joining a national network of 43 states. Brent Weil, Senior Vice President of The Manufacturing Institute, conducted two Dream It. Do It. sessions in 2016 with 56 representatives from the education, manufacturing, and service provider sectors.

On October 28, MassDevelopment co-hosted the Dream It. Do It. Making It Real: Girls & Manufacturing Summit in Windsor, Connecticut. 185 middle and high school girls, 75 from Massachusetts schools, attended to learn about careers in manufacturing. Participating schools included BayPath Regional Vocational Technical High School, Blackstone Valley Regional Technical High School, Springfield STEM Middle Academy, Springfield Van Sickle Academy, Chestnut Accelerated Middle School South, Zanetti Montessori Magnet School, Chestnut North Middle School, and Renaissance School. Plans for 2017 include a girls' summit in Massachusetts and training sessions for Ambassadors from local manufacturers to promote manufacturing as a career.

Massachusetts Manufacturing Accelerator Network - In December 2016, UMass Lowell Innovation Hub, UMass Dartmouth Center for Innovation & Entrepreneurship, and UMass Amherst Innovation Institute received \$300,000 from the AMFP to fund the first year of a multi-year rollout of the Manufacturing Accelerator Network, which will create and deploy a virtual center to support small- to mid-sized advanced manufacturing companies throughout Massachusetts. The Network seeks to assist these companies in learning and integrating developing technologies and processes into their businesses by providing them with virtual access to this center, allowing them to capitalize on opportunities in the regional innovation economy. The center will include programs, resources, facilities, and equipment to develop increased innovation capacity at these manufacturing companies.

Valley Venture Mentors - In June 2016, Valley Venture Mentors received \$200,000 from the AMFP for year one of a three-year pilot program to create the Massachusetts Manufacturing Accelerator. The Accelerator seeks to help Massachusetts's manufacturers improve their productivity and their ability to find, vet, and profitably enter new markets; elevate entrepreneurship among current manufacturers; and attract new entrepreneurs to the industry. In its first year, the pilot selected eight original equipment manufacturers (OEMs) and 10 manufacturers from 41 applicants, and enrolled them in an executive training program. The training involved 11 immersive "boot camp" sessions beginning in September 2016 to connect the manufacturers and OEMs, and help them discover and vet new business opportunities.

Mass Technology Leadership Council, MassRobotics, Mass MEP - Thanks to its robust academic and entrepreneurial environment, Massachusetts is uniquely positioned to tap into the robotics and Internet of Things (IoT) revolution and gain a significant manufacturing advantage from these industries. In May 2016, the Mass Technology Leadership Council (MassTLC) received \$128,000 from the AMFP to create a network of manufacturers, robotics, and IoT

companies in order to cultivate collaboration between the two groups. MassTLC is working with MassRobotics and MassMEP to develop a program to communicate best practices about working collaboratively to manufacturing, robotics, and IoT companies.

Manufacturing Summit - In partnership with the AMC and the Commonwealth, MassDevelopment organized the 2016 Massachusetts Advanced Manufacturing Summit: Driving Innovation and Success, which took place on September 27 at the DCU Center in Worcester. The full-day event had 13 workshops in three concurrent sessions and featured speeches from Governor Charlie Baker, Lieutenant Governor Karyn Polito, Speaker Robert DeLeo, Representative Jeffrey Roy, and keynote speaker Mickey McManus, principal and chairman of the MAYA Design board (see his presentation at www.youtube.com/watch?v=e6HVNAfPmo4). The Summit attracted 325 attendees, 12 sponsors, and 12 exhibitors.

Manufacturing Month - Governor Charlie Baker proclaimed October “Manufacturing Month” to recognize Massachusetts’ world-class manufacturing companies as an essential part of the Commonwealth’s economy. MassDevelopment promoted Manufacturing Month by encouraging tours, discussions, speakers, and open houses on the AMP it up! website at ampitupma.com/manufacturingmonth. The website listed 39 events throughout the Commonwealth, hosted by AccuRounds, FabLabHub, Gorton’s Seafood, Greentown Lab, Incom, The Massachusetts Office of Technical Assistance, Mark Richey Woodworking, MassMEP, MassVentures, Massachusetts Institute of Technology, NECCO, and Quinsigamond Community College.

MACWIC Program - In 2016, MassDevelopment and MassMEP extended the Manufacturing Advancement Center Workforce Innovation Collaborative a third year through 2017. A \$747,160 MassDevelopment grant created the MACWIC for a two-year program to provide competency testing and certification to students at vocational schools and community colleges with advanced technology programs. MACWIC seeks to help state vocational schools and community colleges provide successful manufacturing training programs. MACWIC operates with the input of an advisory group of 213 member manufacturers and educational institutions.

UMass Lowell Innovation Hub (iHub) - UMass Lowell’s iHub, a coworking space for technology and manufacturing companies, opened in October 2015 and reported 19 member companies, 12 supply chain partners, and five students placed in company internships by the end of 2016. A \$400,000 MassDevelopment grant to UMass Lowell in 2014 helped to create the 11,000-square-foot space, which the University used to build a rapid prototyping and fabrication lab; develop services for member and partner organizations; and establish events and programs to connect regional advanced manufacturing companies with emerging technology companies. The iHub space includes coworking space at various price points, dedicated offices, meeting spaces, and a prototype lab with bench space, light tools, 3D printing, and electronic assembly areas.

Manufacturing Innovation Grants Program - In 2015, MassDevelopment authorized \$1.5 million for a manufacturing innovation grants program that allows Massachusetts manufacturers with 100 or fewer employees to receive subsidized services at designated Innovation Centers. Chosen for their technical expertise and experience working with manufacturing companies, the

Centers – Algonquin Industries, Inc.; Boston Engineering Corporation; Connecticut Center for Advanced Technology, Inc.; and Worcester Polytechnic Institute – provide guidance and equipment for product development, prototyping, scale-up, and cost reduction. Through the grants program, MassDevelopment pays the lesser of \$75,000 or 75 percent of a contract between a manufacturing company and its selected Innovation Center. The 2016 grants highlights include:

- Algonquin Industries committed \$228,686 of its \$350,000 grant to five companies.
- Boston Engineering committed \$191,000 of its \$350,000 grant to five companies.
- Connecticut Center for Advanced Technology, Inc. committed \$38,425 of its \$500,000 grant to six companies.
- Worcester Polytechnic Institute committed \$122,000 of its \$300,000 grant to nine companies.

The U.S. Office of Economic Adjustment provided another \$300,000 for the three Massachusetts-based Innovation Centers in 2016 to support defense-related manufacturers, \$225,000 of which has been committed to three companies.

Commonwealth Kitchen - Commonwealth Kitchen is a non-profit social enterprise and collaborative community that provides shared kitchens and business assistance to help aspiring entrepreneurs build great food companies, create jobs, improve healthy food access, and strengthen our regional food economy. In November 2015, Commonwealth Kitchen received a 12-month \$47,750 grant for equipment, contingent on a matching grant provided by the City of Boston. The MassDevelopment grant leveraged a total of more than \$150,000 in additional capital and equipment investments. With the added equipment, Commonwealth Kitchen provided contract manufacturing services to more than 25 Massachusetts food companies, bottle sauces for several restaurants, and baked goods and other prepared foods for one-third of the vendors at the Boston Public Market. Commonwealth Kitchen hired three new full-time kitchen staff and generated nearly \$100,000 in earned revenue from the associated contract work during its first season of production.

Greentown Labs - MassDevelopment awarded Somerville-based clean-tech incubator Greentown Labs two grants totaling \$362,500, one in October 2014 and another in May 2016, to connect clean-tech startups with Massachusetts manufacturing resources. Greentown seeks to keep successful startup companies in the Commonwealth by tying them to the local supply chain and generating work for local vendors. With the assistance of MassMEP, Greentown helps startups identify and understand their manufacturing requirements. Greentown has held more than 500 consultation hours and seven workshops, and connected 32 startups with 83 manufacturers. Five of the participating companies have received more than \$123 million in funding. The program received recognition at Manufacturing Institute events in Michigan and Washington, D.C., and at the White House Maker Day.

Massachusetts Manufacturing Energy Collaborative (MassMEC) - In March 2014, MassDevelopment announced the formation of MassMEC, an initiative that helps lower the energy bills of commercial, industrial, and municipal entities by combining the energy usage of many companies into buying groups, then negotiating volume rates with the power supply companies. MassMEC is managed by Early Bird Power, a private energy consulting firm chosen by MassDevelopment after a highly competitive RFP process. MassMEC membership is free to

companies that also receive energy services such as renewable and efficiency consulting. Three months after its inception, MassMEC announced more than 30 founding partner companies and has since seen more than 168 companies join the initiative. The program has saved participating companies more than \$1.3 million and has a 95 percent retention rate among its members.

MassMEDIC - MassMEDIC, the Commonwealth's professional association for medical device companies, received a second MassDevelopment grant of \$45,000 in 2016 to continue promoting the use of product components supplied by Massachusetts companies rather than out-of-state suppliers. An initial grant of \$75,000 in July 2014 connected 17 OEMs to 29 small- to medium-size Massachusetts manufacturers, and the second grant connected 22 OEMs to 35 vendors. MassMEDIC "curated" introductions between OEMs and small vendors, a method preferred by both groups over standard sales calls or meetings at industry events. These connections resulted in 800 introductions and interactions over four sessions, at least two signed contracts, and more than 10 proposals in process. MassMEDIC has experienced an increase in requests for match-making services, and is considering a webinar series to help train its small- to mid-sized member companies.

MassChallenge Inc. - Launched in August 2014 with the help of a \$200,000 MassDevelopment grant, MADE@ is a 5,000-square-foot hardware and rapid prototyping space at MassChallenge in Boston. MADE@ provides early-stage startups with access to equipment, mentorship, and MassChallenge's accelerator program – the world's largest – to accelerate their path toward an initial prototype and scalable product development. Lightspeed Manufacturing in Haverhill also provides equipment and mentorship at the MADE@ lab on an ongoing basis. In 2016, 49 of the 128 finalist startups used MADE@ to build their products. Eleven of the 19 winners, a seven percent increase in winners from the prior year, spent time building at MADE@. MassChallenge is also contacting applicants who were not accepted into the program, inviting them to use the space and equipment during the accelerator's offseason.

Working Capital Loan Guarantees - In FY13, MassDevelopment introduced a Working Capital Loan Guarantee product that will allow banks to enhance their working capital loans to manufacturers, providing a guarantee of up to 25 percent of the loan. MassDevelopment developed this product, recommended by the Advanced Manufacturing Collaborative, in response to the challenges many small- to mid-sized enterprises face when trying to access working capital. Three manufacturers have taken advantage of this product since its launch and received \$1.1 million in guarantees.

Manufacturers Resource Web Portal - MassDevelopment created and maintains RAMPMA.com, a searchable portal to help manufacturers access state resources. The portal directs users to agency and program websites according to industry, stage, and need criteria. A more comprehensive Manufacturing in Massachusetts website to support manufacturing promotional needs is under development for 2017.