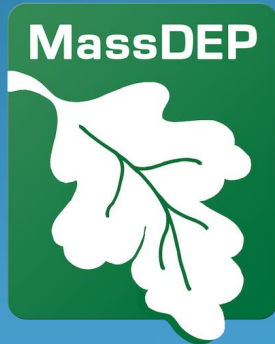


Recycling Market Development Workgroup Meeting



September 17, 2024

Agenda

- Welcome and Introductions (5 min)
- Updates on the RMD Action Plan (15 min)
- MassDEP Waste Ban Updates (10 min)
- Presentations (including Q&A) (70 min)
 - EPA SBIR
 - MassTech M2I2
 - MassHire
 - 2M
- Open Discussion and Q&A (15 min)
- Next Steps (5 min)

Updates: RMD Action Plan

- Recap of Meetings 1-7 and Action Plan
- Recycling Business Guidance
- Recycling & Reuse Business Development Grant (RBDG)
- Recycling Loan Fund (RLF)
- Waste Reduction Innovation Grant

Recap of Meetings 1-7

- Meeting 1 – Intro
 - MassDEP Market Development Programs
 - OSD Environmentally Preferable Purchasing
 - MassDevelopment
 - Mass Office of Business Development
- Meeting 2 – Regional and National Perspectives
 - NERC and Circular Matters
- Meeting 3 – Business Support & Economic Development Strategies
- Meeting 4 – Demand Side Strategies
- Meeting 5 – Education, Outreach, Networking, and Information Sharing
- Meeting 6 – Research and Development
- Meeting 7 – RMD Action Plan

<https://www.mass.gov/service-details/massdep-recycling-market-development-workgroup>

Action Plan Structure

- The recommended action items in this Plan are divided into three sections:
 1. Business Support and Economic Development Strategies to Expand Recycling Market Infrastructure
 2. Strategies to Build Demand for Recycled Products
 3. Research and Development Strategies for Products, Equipment, and Technologies

Recycling Business Guidance

- [Recycling Business Guidance Document for Massachusetts](#)
- General Business Guidance
- Support for Recycling and Waste Reduction Businesses
 - Applicable MassDEP Permit Requirements
 - Financial and Technical Assistance
 - Webinars and Workshops
 - Grants and Loans

RBDG

<i>GRANT ACTIVITY</i>	<i># AWARDS</i>	<i>AWARD AMOUNTS</i>
Processing	47	6,873,343
Collection	29	1,632,137
Total	76	8,505,500

Total number of awards since 2016

RBDG

MATERIAL	# AWARDS	AWARD AMOUNTS
Food waste	22	2,189,060
Mattress	14	1,726,615
Glass	7	1,400,000
Textiles	12	1,058,132
C & D	7	860,000
Plastic	4	345,000
Reuse	4	323,000
Comingled Recyclables	1	300,000
Food for donation	4	223,250
Furniture	1	80,443
Total	76	8,505,500

Total number of awards since 2016

RLF

<i># of LOANS</i> Since 1996	# BUSINESSES	<i>LOAN TOTAL</i>
89	60	\$20.3 million

Since program inception (1996)

RLF

MATERIAL	# AWARDS
Food/organic material	22
Recyclable paper	14
Plastics	11
Metal	10
C&D material	8
Electronics	7
Commingled recyclables	6
Textiles	2
Wood	2
Other material	4

Since program inception (1996)

Innovations Grant

- Support adoption of new technologies that:
 - Significantly expand processing capacity – for example by increasing throughput
 - Provide a new end market for a material with limited outlets
 - Enable a higher value market
- Not focused on existing technologies – such as balers
- Considering smaller number of larger grants than RBDG

Innovations Grant

- Priority Materials
 - Materials with limited market outlets – such as glass, wood, asphalt shingles
 - Materials with additional market development opportunities – such as recycling outlets for lower value textiles
 - Materials problematic in the waste stream – such as lithium ion batteries, bulky materials like furniture

2022 Waste Bans – Initial Results

Mattresses Recycled & Reused (including boxsprings)

- 2022 – 170,000 units
- 2023 – 400,000 units
- 135 % Increase
- Based on reports from nine mattress recyclers

2022 Waste Bans – Initial Results

Textiles Recovery

- 2022 – 42,957 tons
- 2023 – 45,826 tons
- 7 % Increase
- Based on reports from 15 textile recovery organizations

2022 Waste Bans – Initial Results

Food Materials

Type of Use (in tons)	2021	2022	2023
Compost	25,273	31,931	26,499
Animal Feed	24,719	43,033	43,820
Anaerobic Digestion	175,264	217,180	239,370
Other	40,380	43,615	43,609
Food Donation	23,592	22,085	24,773
Total	289,227	357,844	378,071
Rounded Total	290,000	360,000	380,000

- Percent Change 2022-2023 = 6%
- Percent Change 2021-2023 = 31%



EPA's Small Business Innovation Research (SBIR) Program

April Richards, Program Manager

MassDEP Recycling Market Development Workgroup

September 17, 2024

Federal SBIR Program

- Set-aside program for small businesses to engage in federal R&D
- Goal is commercialization
- Non-dilutive funding
- 11 agencies participate
- \$4+ Billion across federal government
- www.SBIR.gov



AMERICA'S
SEED FUND
— SBIR —



EPA SBIR Program

EPA Mission: Protect human health and the environment

SBIR Mission: Seed technology innovations to meet Agency's mission

- Budget: ~\$5.0 M
- One funding cycle per year (annual Phase 1 solicitation in June)
 - Release topics, small businesses submit proposals
 - Phase I proof of concept = \$100,000 for 6 months
 - Phase II development & commercialization = up to \$500,000 for 2+ years

Proposal Evaluation Criteria

Technical Review

- Technical Approach
- Company/Team (Technical)

(1/3 of overall score)

Relevancy Review

- Impact/Relevance to topic

(1/3 of overall score)

Commercial Review

- Innovation/IP
- Market Opportunity
- Company/Team (Commercial)
- Commercialization Approach

(1/3 of overall score)

Solicitation- Broad Focus Areas

- Clean and Safe Water
- Air Quality & Climate
- Homeland Security
- Circular Economy/Sustainable Materials
- Safer Chemicals



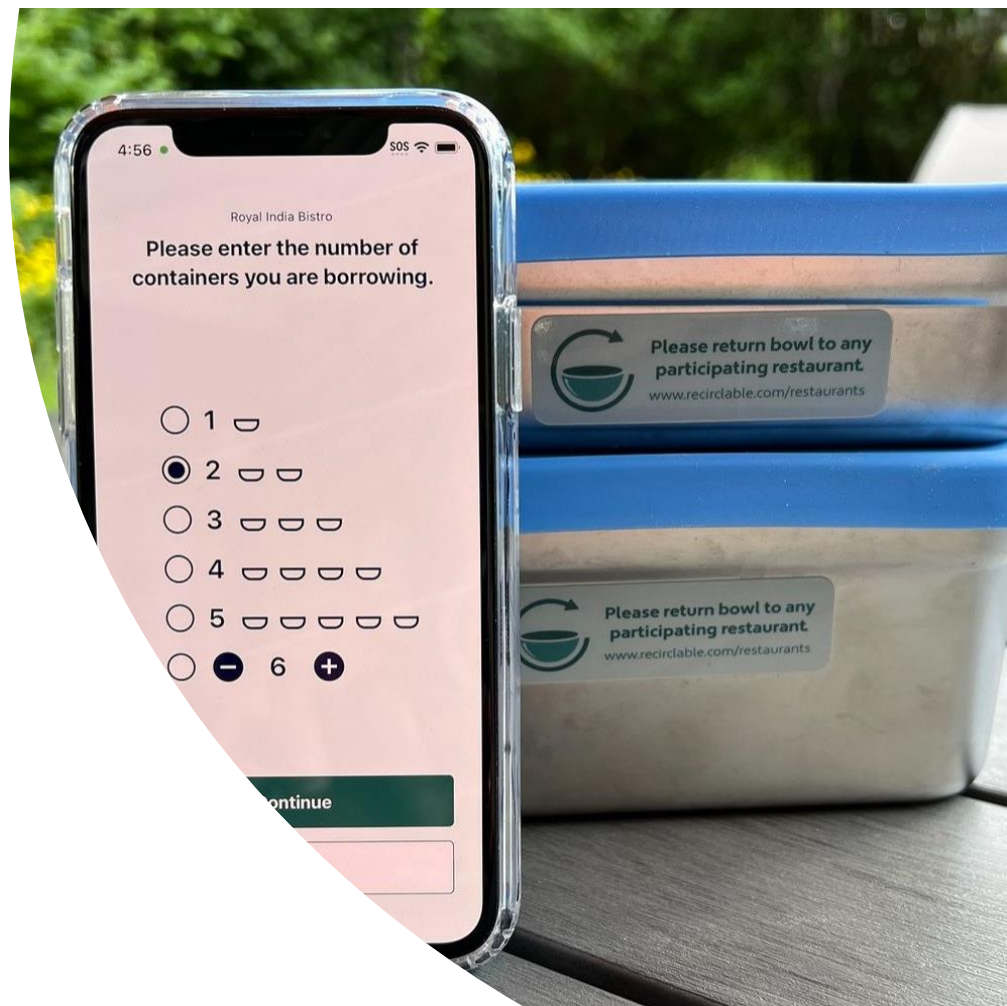
Circular economy topic areas

- Food Waste Prevention
- Source Reduction and Reuse
- Lowering Embodied Carbon in the Built Environment
- Technologies or materials that will improve the U.S. recycling system
- Reduction, reuse, and recycling solutions to advance plastic circularity
- Low Impact Reusable and Recyclable Material Alternatives to Low Value Plastic Items that Escape Management
- Low Impact Construction Materials and Technologies to Increase Resiliency to Disasters and Recovery of Materials Generated from these Incidents



Recirclable Arlington, MA

- Developed an innovative process where customers can order takeout in reusable containers from 18 participating restaurants in the MA area
- Utilizes phone app technology and a simple “tap” process to participate
- Customers have 14 days to return containers to any participating restaurants before being charged a purchase fee



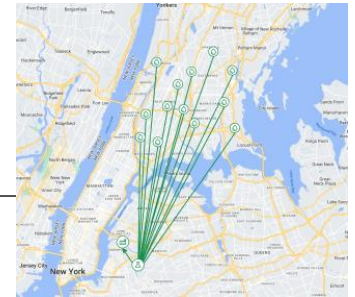
USEFULL Boston, MA

- Developed a system to replace single use food and beverage products with plastic free returnable containers.
- USEFULL's system uses stainless steel reusable containers with a technology-based tracking system that ensures that the containers are reused and returned
- Their containers are already being utilized at numerous college campuses around the country
- Recently announced that they have raised \$5.72M in Early-Stage VC funding



EPA SBIR Funding - Circular Economy

- [EPA SBIR Supports Technology to Improve Recycling](#)
 - Zabble – AI for zero waste buildings
 - Veriflux - traceability platform for waste oils
 - PKS - Mobile Plastic Ocean Waste Recycler
- [EPA's SBIR Circular Economy Projects Reduce Waste and Slow Climate Change](#)
 - KLaw – cement alternative from waste glass
- [Supporting Small Businesses Through the EPA SBIR Program](#)
 - Ecovative – mushroom materials for packaging, foam, food...



Environmental SBIR Funding



National Science Foundation (NSF)



National Institute of Environmental Health Sciences (NIEHS)



Department of Energy (DOE)



United States Department of Agriculture (USDA)



National Oceanic and Atmospheric Administration (NOAA)



For More Information

- SBIR Program Manager

April Richards richards.april@epa.gov

Website: www.epa.gov/sbir

Listserv: <https://www.epa.gov/sbir/sbir-listserv>

Program Overview:

<https://www.epa.gov/sbir/sbir-program-overview>

SBA SBIR website: www.SBIR.gov



MASSACHUSETTS
TECHNOLOGY
COLLABORATIVE

We strengthen the **competitiveness** of the **tech and innovation economy** by driving **strategic investments, partnerships,** and **insights** that harness the **talent** of **Massachusetts.**

Administering ~ **\$530M** in-state and federal funds through the next two fiscal years.



Com
MASSACHUSETTS CENTER for
ADVANCED MANUFACTURING



 THE INNOVATION INSTITUTE



MBI
MASSACHUSETTS
BROADBAND INSTITUTE



MeHI
MASSACHUSETTS
eHEALTH INSTITUTE

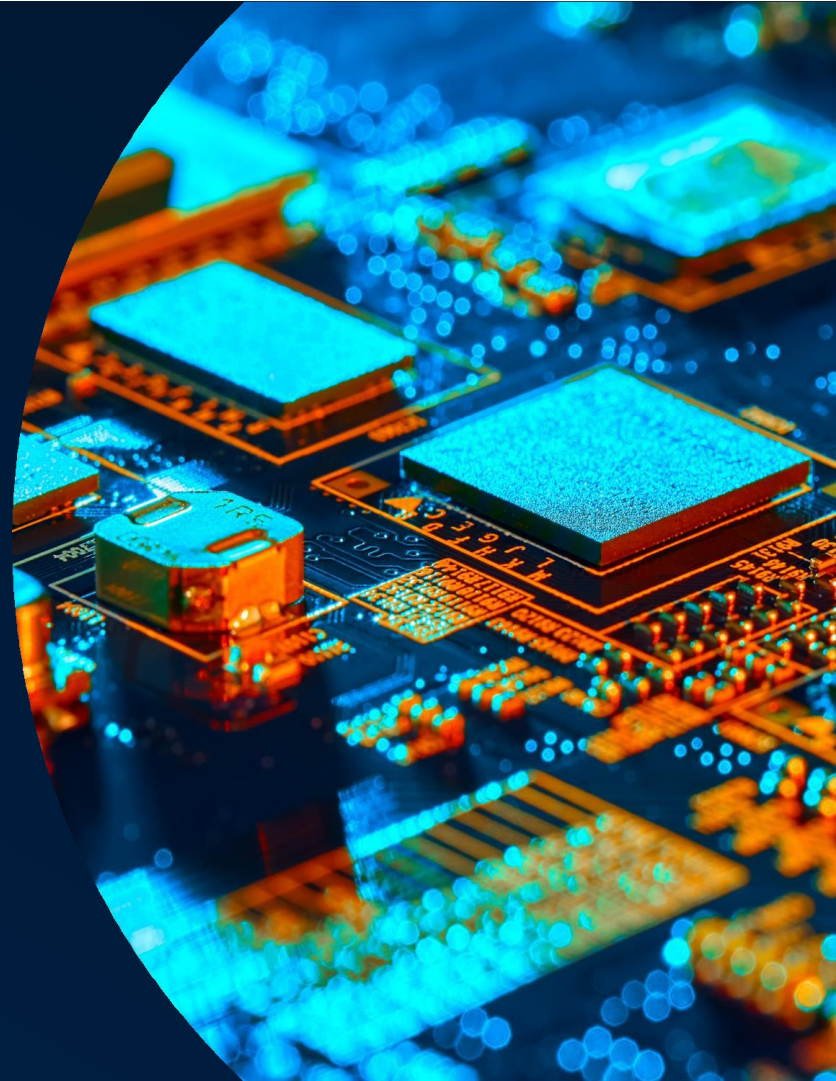


 MassCyberCenter



NEMC
Northeast Microelectronics Coalition
HUB

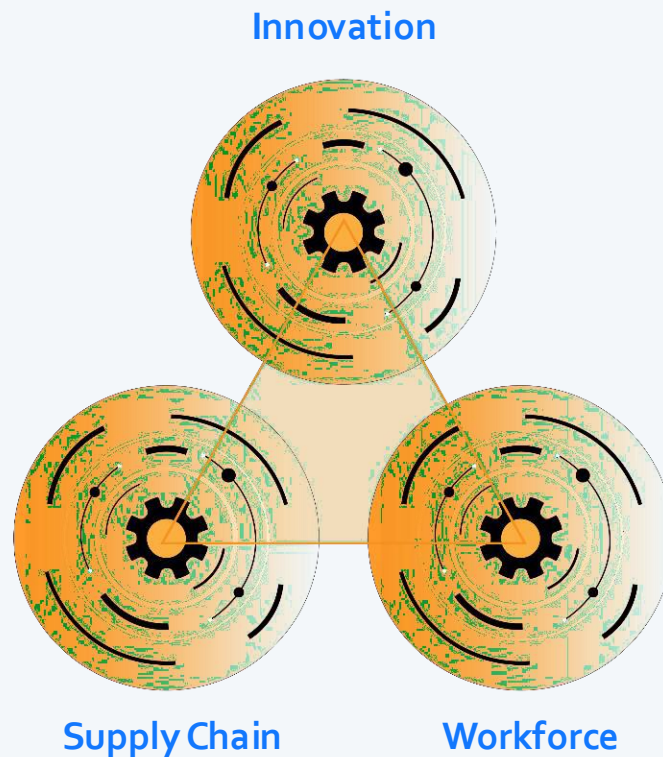
Grow, Innovate, and Make in Massachusetts



Center for Advanced Manufacturing

Our Approach »

- 1 **Support the innovation**, development, and commercialization of next generation advanced manufacturing technologies.
- 2 **Strengthen our supply chain** by helping SMEs adopt and implement the latest technologies and trends impacting manufacturing.
- 3 **Spark the next-generation workforce** required to innovate and scale manufacturing.





Center for Advanced Manufacturing

M2I2 »

Supporting Massachusetts innovators as they transition their technologies to manufacturing.



Industries

Additive manufacturing, semiconductors, climate tech, robotics, and more.



Readiness

Technology readiness Levels 4-6, validation and prototyping.



Capital

Capital for equipment. No minimum or maximum grant size.

Center for Advanced Manufacturing

M2I2 »»

\$370M

Leveraged from other sources

\$100M+

Invested in Massachusetts organizations

100

Projects funded

1,000+

Jobs created

100+

New products enabled

400+

Entrepreneurs assisted

1,000+

Students and workers trained



Center for Advanced Manufacturing

M2I2 »



Specialty Materials

- Developer of novel **boron-based composite materials** used in aerospace, sporting goods, and industrial applications
- **\$2.3M M2I2** grant to triple their manufacturing capability in Lowell
- Partnered with UMass Lowell

Stats from award in 2021.
Will continue to grow.

10

Jobs created

\$500K

Revenue created
to date

1

New industry
expanded into
(fusion reactors)

\$331,592 to WPI in 2024

to develop a versatile and scalable process for converting mixed plastic waste streams and films into valuable aromatic chemicals

\$1,400,000 to Phoenix Tailings in 2023

to establish a second production line for their novel method of metal production, which utilizes highly efficient and carbon neutral processes to create additional value from rare earth metals, such as neodymium and dysprosium

\$171,751 to UMass Lowell in 2024

to advance manufacturing techniques for sustainable production and recycling of multilayer plastic films with outstanding properties for challenging applications



Center for Advanced Manufacturing

MMAP»

Capital equipment grants of up to \$200K to help introduce manufacturers to new technologies, increase supply chain resiliency, and help them scale operations through an upskilled workforce and increased capabilities.



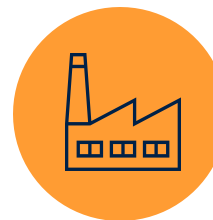
Partnerships

With non-profit entities to help them adopt new technologies and processes, hire workforce, and provide additional services for growth.



Impact

Broaden impact across regional, social, and racial boundaries.



Industries

Microelectronics, Defense/ Aerospace, Electrification, Additive Manufacturing, Robotics, and Automation.

Center for Advanced Manufacturing

MMAP »»

To Date (Four Rounds)

56 Total awardees

\$10.9M Awarded for capital equipment

404 New advanced manufacturing jobs created

\$27.9M Committed towards matching grant funds

Center for Advanced Manufacturing

MMAP »

**Advance
Welding**

Welding supplier for world-leading DoD companies.

- Provides **top-tier** welding, brazing, and fabricating services to the medical, military and defense, aerospace and power generation industries
- Purchased an Electron Beam Welding and Laser Beam Weld chambers, power sources, pumps, and support equipment to **meet the needs of the large defense manufacturers**
- Brought services under one roof, making Advance Welding **one of the most well-rounded Fusion Welding companies in the U.S.**
- Received support from the City of Springfield and Western MA EDC to purchase a company in CT to expand their capabilities

8

Jobs created



Purchased a CT-based company to expand capabilities

Center for Advanced Manufacturing

Our Approach in Action »



Innovation



Supply Chain



Workforce



Center for Advanced Manufacturing

Workforce Development »

A system that attracts, trains, and retains skilled talent in advanced manufacturing from technicians to PhDs to meet the needs of industry.



K-12

Promote advanced manufacturing career opportunities to our ICP and Vocational Tech students.



Community College

Standardized manufacturing training education (MassBridge) grown to 8 participating community colleges in MA.



Adult Workforce

Provide statewide funding for training providers to meet the training needs of industry.



Colleges/Universities

Collaboration with world-class colleges to strengthen and support the manufacturing industry.

Center for Advanced Manufacturing

Be a part of creating the **next industrial
revolution** here in **Massachusetts.**

fitzgerald@masstech.org



MASSHIRE DEPARTMENT OF CAREER SERVICES OVERVIEW

MassHire Programs & Services are funded in full by US Department of Labor (USDOL) Employment and Training Administration grants. (Additional details furnished upon request.)



DEPARTMENT OF
CAREER SERVICES

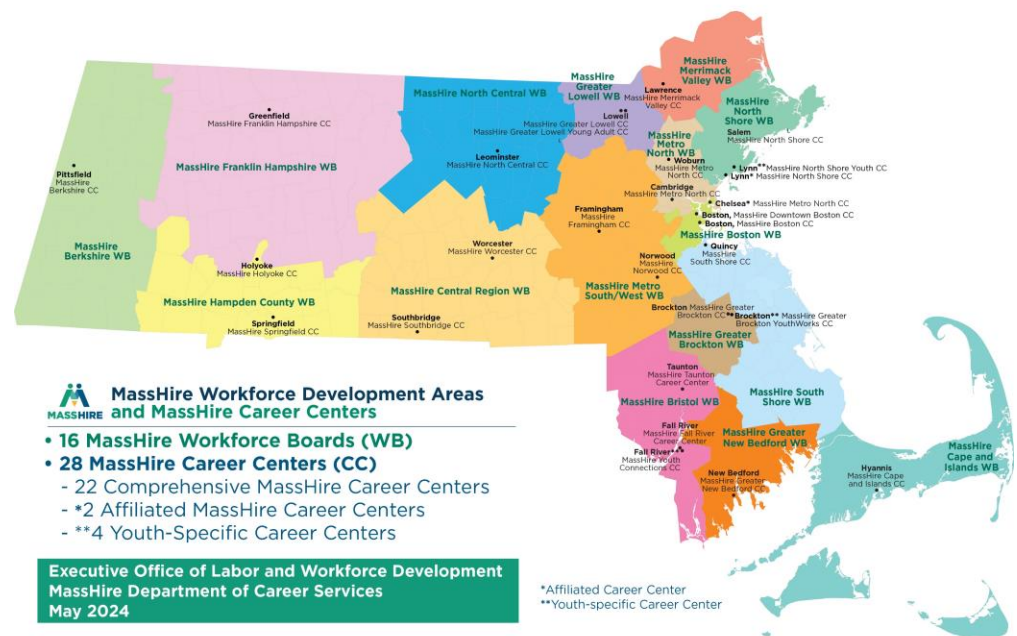
Topics

- MassHire Career Centers
- JobQuest
- TORQ
- Rapid Response
- BizWorks



MassHire Workforce Areas & Career Centers

- There are 28 Career Centers throughout Massachusetts
- Each career center offers help with your job search, occupational and educational training, and veterans' services.
- Employers work with their local center to locate jobseekers with specific skills. If you're an employer interested in working with a MassHire, check out our [MassHire Career Centers for Employers](#) webpage.



Career Centers: Finding A Job

- It's your one-stop destination to search for jobs, connect with career coaches, and showcase your resume for employers to discover.
- Career Coaches can be found at each of the Career Centers and can meet in person or virtually to better serve customers.
- Employers can work with MassHire Career Centers across the state to recruit talent and host virtual job fairs – for free!



Jobquest

- **207,232 TOTAL JOB OPENINGS**
- If you're an employer looking to post a job, search for candidates, or to get help with your recruitment needs – check out our Employer Portal
- **Updates Include:**
 - **Enhanced employer registration and account management:**
 - Multiple accounts for each employer with an administrative (admin) and standard user account structure
 - An employer's admin users can add, modify, or delete their admin and standard user accounts
 - Simple login process using email account
 - **Enhanced Landing Page:**
 - Quick links to access the MassHire resources you use most
 - Connect with a MassHire Business Service Representative (BSR)

Jobquest

- Easily find the specific employer resources you need or see a full list of the services and programs we offer for your business need

Updated Dashboard:

- Create new or access existing job orders
- Register for job fairs and events
- View your upcoming events and job fairs
- Find your local MassHire Career Center
- Access our FAQ or contact our Help Desk for support
- Provide us feedback or your suggestions for future improvement



Transferrable Occupation Relationship Quotient (TORQ)

- TORQ allows career center staff to assist customers in analyzing the transferability of job skills based on an analysis of previous work history and education in light of current labor market conditions.
- TORQ helps people build career plans in one easy process.
- Based on the knowledge, skills, and abilities from previous jobs and education, TORQ recommends occupations, training programs, and jobs matched to each individual.
- TORQ works for all types of workforce clients: youth, dislocated workers, TANF or SNAP recipients, Veterans, individuals with disabilities, and more.

Transferrable Occupation Relationship Quotient (TORQ)

- Staff can see individual employment plans, tracks customers' progress and activity and email or chat in real time with their customers.
- Staff users can also generate special reports for career planning and on the job training.
- TORQ is a free service for all JobQuest users
- You must be logged in to JobQuest to access TORQ
- Your zip code will be confirmed upon entering TORQ
- For security reasons, you will be logged out of JobQuest when you enter TORQ
- For additional Assistance, contact a staff person at a Career Center Near You

TORQ Video: [Link](#)

Rapid Response Services for Businesses

- In today's competitive economy, businesses evolve to retain a skilled workforce crucial for innovation and success. When facing downturns or growth challenges, they can turn to the MassHire Rapid Response Team. This proactive, flexible strategy helps companies access resources for sustained success and aids in managing layoffs or closures by facilitating re-employment.
- Rapid Response can also provide information concerning any state or federal requirements or laws for notification, including the [Worker Adjustment and Retraining Notification \(WARN\) Act](#).
- An example of how Rapid Response works in our community was the multiple Job Fairs held at Carney Hospital in Dorchester. The hospital was closing its doors, and Rapid Response was able to get employers to set up booths so that the dislocated workers could find out more information about employment opportunities.

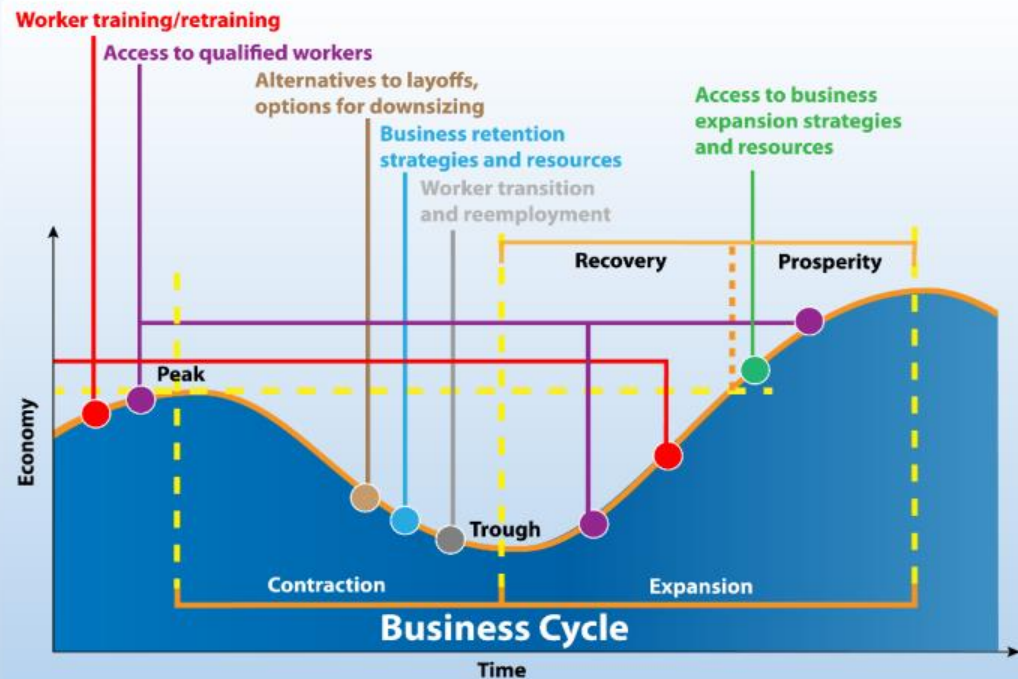
MassHire BizWorks

- The goal of MassHire BizWorks is to enhance and align the resources and services offered to Massachusetts businesses through state workforce development, economic development, and education entities, to help Massachusetts businesses, grow, and thrive.
- To achieve this goal, the Commonwealth of Massachusetts will:
 - Build strong relationships across agencies and with businesses,
 - Develop standard staff business service knowledge and competencies across relevant state agencies, and
 - Coordinate and link resources and information.
- As a result of these efforts:
 - More Massachusetts businesses will be aware of, and utilize, relevant state resources and incentives,
 - There will be “no wrong door” for businesses to connect with business support, and
 - Services and outcomes will be captured to demonstrate the impact of these efforts.
- Business Service Reps
 - -Help employers with job posting, developing job descriptions, helping to navigate through MassHire JobQuest, and help navigating through Services.

BizWorks



Providing services
throughout the
business cycle.



Questions?



Mass DEP Workgroup Meeting

September 17, 2024

*Jeffrey Brisley – President
2M Resources – Hopedale, Mass*

2M Resources – Processor of recyclable materials

2M Resources - established in 2018

- Responding to need for increased infrastructure
- Support Mass DEP of diverting recyclables from landfill
- Re-introduce recyclables into circular economy
- Since founded, 2M has process more than 250,000 tons the majority of which is glass.



Source of recyclable beverage containers

Beverage distributors

Redemption centers

Local transfer stations

Food & beverage destruction service providers



1,000 tons of recycled glass enables the production of enough fiberglass insulation to retrofit 1,390 Massachusetts residential attics, saving energy & money and reducing CO² emissions every year for the life of the home.

2M Resources – recipient of Mass DEP Recycle & Reuse Grants

2019 – 2M Resources recipient of Mass DEP grant

Grant provided essential capital for purchase & installation of industrial dryer

- Once installed 2M was able to increase its processing rate
- The installation of the dryer allows us to increase the volume processed by 4X (when available)
- We now process over 80m pounds of recycled glass per year and are capable of much more.

2024 – 2M Resources recipient of Mass Recycling Business Development grant

Grant to provide 10% of capital required to purchase & installation of advanced optical sorter

- Once installed 2M was able to increase annual processing capacity 2X
- Advanced optical sorter will enable 2M to process Materials Recovery Facility (MRF) glass
- Decommissioned glass container plants (Milford & Franklin, Mass) has resulted in more glass to landfill
- 2M investment of \$4.4m is required to process Massachusetts MRF glass

2M Resources – market challenges to be addressed

Enhanced Infrastructure

Increase glass diversion & recovery

- Beginning in 2020 Mass recycle rates dropped for >50% to high 30% *
- Mass – lowest per capita glass recycle volume of NE “bottle bill” states
- Mass – lowest deposit glass redemption rate *

Circularity Awareness

Re-invigorate recycling rates

- Education & awareness
 - Consumer who recycle are motivated by policy not by awareness of circularity opportunities and impacts.
 - Improved quality of recovery streams increases feasibility of reuse.
- Update (\$.10) & expand definition of recyclable containers.

Incentivize Technology

Incentivize infrastructure investment to improve quality of recovered streams

- Improve sortation effectiveness at point of redemption
- Clean up streams of recyclables by incentivizing use of technology at
 - Redemptions centers
 - Transfer stations
 - Materials recovery facilities (MRF)
- Fast redemption, social benefit option

Source: * Container Recycling Institute (2024).



THANK YOU

Discussion and Q&A



Next Steps

- Tentative Schedule
 - Issue Innovations Grant Application (Spring 2025)
 - Issue RBDG Grant Application (Summer 2025)
- Next Meeting TBD

Connect With MassDEP

Sean Sylver:

sean.sylver@mass.gov

Learn more and find previous
meeting presentations:

[MassDEP Recycling Market
Development Workgroup](#)

