



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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MassDEP Reduce & Reuse Action Plan December 2021

Executive Summary

The *2020-2030 Solid Waste Master Plan (2030 Plan)* establishes the Commonwealth's policy framework for reducing and managing the solid waste generated by Massachusetts residents and businesses. The 2030 Plan establishes aggressive waste reduction goals to guide Massachusetts towards a zero-waste future. The 2030 Plan committed to the development of Action Plans for key waste reduction areas, including advancing reduction and reuse. These Action Plans serve as an opportunity for MassDEP to engage stakeholders on an ongoing basis to develop and update specific activities and initiatives to achieve progress in these priority areas. In the 2030 Plan, MassDEP committed to develop a plan that would:

- Assess the best opportunities to increase reuse and extend product lifetimes,
- Identify related barriers and capacity needs,
- Identify and provide data needed to support and inform these efforts, and
- Create a network and open dialogue to advance progress.

MassDEP's first *Reduce and Reuse Action Plan* articulates a vision and strategies that focus on reducing upstream waste generation. The development of this Plan was supported through MassDEP's Reduce & Reuse Working Group. Through 12 planning meetings with more than 400 participants, MassDEP received input from a diverse group of stakeholders to guide the development of this plan. Stakeholders included the reuse industry, non-profits, small businesses, public officials, environmental organizations and local reuse advocates.

The Reduce and Reuse Action Plan provides background and explains the importance of these strategies to reduce waste and to reuse materials. The Plan summarizes the plan development process, identifies barriers to progress, and defines progress measures. The Plan then establishes short, medium, and long term priority strategies across seven categories, including:

- Education and Behavior Change;
- Tools, Resources and Technical Assistance;

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- Grants and Financial Incentives;
- Job Training and Workforce Development;
- Networking;
- Legislation; and
- Procurement.

MassDEP will continue to meet regularly with the Reduce & Reuse Working Group to assess progress and to update the plan strategies going forward.

Background

In the 2030 Solid Waste Master Plan, the Massachusetts Department of Environmental Protection (MassDEP) established the Commonwealth’s policy framework for reducing and managing the solid waste generated by Massachusetts residents and businesses over the next decade (2020-2030). Setting aggressive waste reduction goals (Figure 1) to guide Massachusetts towards a zero-waste future, MassDEP analyzed waste characterization data to help set priorities for reaching these waste reduction goals most effectively and efficiently.

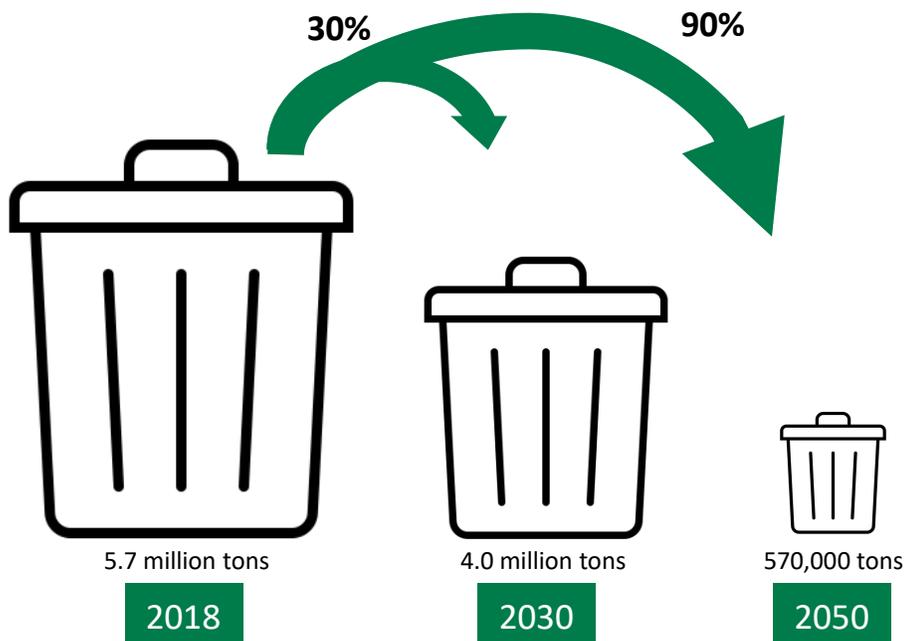


Figure 1. Massachusetts Waste Reduction Goals established in the 2030 Solid Waste Master Plan

Reducing or phasing out difficult to recycle materials and increasing reuse and donation opportunities were identified as top priorities for the state. Specifically, durable goods including appliances, electronics and furniture, single use packaging and food service products, wasted food, textiles, building materials, and transportation and distribution packaging were identified as priority materials for source reduction and reuse.

The Solid Waste Master Plan called for MassDEP to establish a working group to engage stakeholders in the development of a comprehensive Reduce & Reuse Action Plan to lay out the programs and

initiatives the agency should pursue over the next several years. MassDEP and the working group decided early on that this working group and action plan would not focus on unwanted food and food rescue given that this is already included in the [MassDEP Organics Action Plan](#).

Why Reduce & Reuse?

Many people are familiar with the three R's – Reduce, Reuse, Recycle – a call-to-action slogan that dates back to the 1970's with the first Earth Day and formation of the U.S. Environmental Protection Agency. It is generally accepted that the three R's are listed in the order of priority: first reduce waste at the source, then reuse materials for their original intended purpose or a different purpose, and lastly, recycle whatever can't be reduced or reused. This hierarchy places the more environmentally preferable options at the top.

By reducing waste in manufacturing and distribution of products, increasing product durability, eliminating single-use products, supporting the rental/sharing economy and extending the lifespan of products through repair – the raw materials and energy involved in manufacturing and transportation of new products are significantly reduced.

In addition to the considerable environmental benefits of waste prevention and reuse, there are also social and economic benefits. Reuse activity has been associated with community building, skill-building, and increased access to affordable goods. Many secondhand retail operations further support socially-driven missions such as supporting at-risk youth in the foster-care system, transitioning families out of homelessness, or providing education and workforce training for people with disabilities or

The Reuse economy generates about \$7.3 billion in sales each year in Massachusetts

Source: 2021 Tufts UEP Study

disadvantages. In a recent study conducted by a field project team at Tufts University in the Urban and Environmental Policy and Planning (UEP) in partnership with MassDEP, it was found that the reuse economy in Massachusetts contributes about \$7.3 billion each year or \$1,067 per capita per year in sales, supporting the local economy. Based on 2020 data, there are 6,438 secondhand retail, repair, and rental businesses making up nearly 2 percent of all statewide businesses and about 1 percent of employment (32,828 jobs).

In this action plan, reduce and reuse are defined as:

- **Reduce:** Reduce material use and generation at the source (includes the “sharing economy”)
- **Reuse:** Use of a material repeatedly in its same form for the same purpose or for different purposes (includes repair, and rental)

Developing the Reduce & Reuse Action Plan:

This plan was informed by a series of stakeholder meetings held in 2020 and 2021 focused on priority materials identified in the Solid Waste Master Plan, discussions with subject matter experts across the country, consideration of Massachusetts waste composition studies, an economic and spatial analysis of the reuse economy in Massachusetts, and an assessment of the current work focused on waste prevention and reuse throughout Massachusetts and elsewhere. MassDEP will continue to update this document on a periodic basis to reflect progress achieved as well as additional action items that may be added over time.

Reduce & Reuse Working Group

Establishing the [Reduce & Reuse Working Group](#) in February 2020 as a subcommittee of the [MassDEP Solid Waste Advisory Committee](#), MassDEP sought to engage a diverse set of stakeholders to inform this strategic planning effort. The Reduce & Reuse Working Group is open to anyone interested in providing input on source reduction, reuse and repair strategy in Massachusetts. To date, 332 individuals representing businesses, institutions, municipalities, NGOs and community advocates across the Commonwealth have participated and contributed ideas over 12 meetings held between March 2020 and June 2021. The working group will continue to meet on a quarterly basis to provide updates on progress made towards this action plan and provide networking and opportunities to share information amongst reuse stakeholders.

Barriers to Waste Prevention and Reuse

Over the course of the working group discussions, several barriers to achieving the Commonwealth's waste prevention and reuse objectives were determined. These are:

-  **Cultural Barriers (Individuals)**
-  **Access Barriers (Individuals)**
-  **Infrastructure Barriers (Reuse Organizations)**
-  **Policy Barriers (System)**
-  **Market Driven Barriers**

- Cultural – Consumers lack the knowledge, attitudes or behaviors that would support a greater cultural adoption of waste prevention, reuse, repair and share practices in Massachusetts;
- Access – There is insufficient access to convenient reuse and repair options in Massachusetts;
- Infrastructure – Reuse and repair organizations need greater support to maintain and grow their capacity;
- Policy – Local, state, and federal policies may inhibit reuse and repair;
- Market – Market trends and product design do not always align with waste prevention and reuse goals.

To see a complete summary of barriers discussed during the 2020 working group meetings, see: [Summary of Barriers \(2020\)](#).

Prioritizing Waste Prevention Strategies

Over the course of 2020, stakeholders identified over 50 potential strategies to address the barriers described above and bolster waste prevention and reuse in Massachusetts. To see a summary of the strategies identified at stakeholder meetings, see: [Summary of Strategies \(2020\)](#).

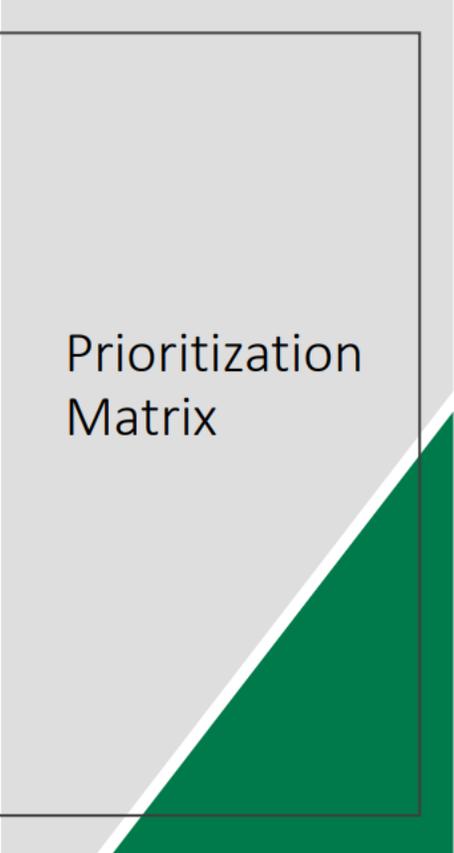
To determine which strategies to prioritize for inclusion in the Reduce & Reuse Action Plan, MassDEP utilized a prioritization matrix (Table 1) and a series of guiding questions (Appendix A). This allowed for a more informed and transparent decision-making process.

MassDEP first assessed which of the identified strategies have the greatest stakeholder support via an online survey, an open comment period, and a meeting of the [Reduce & Reuse Working Group](#) which was held in March 2021. MassDEP staff then evaluated each potential strategy based on projected

impacts and feasibility. It is important to note that some strategies were considered outside the scope of MassDEP’s authority to implement and may require action by the Legislature or by other entities.

Table 1. Prioritization Matrix

Criteria	Scale
Impact If this initiative is successfully implemented, how impactful will it be towards achieving our waste prevention and reuse goals?	High-Medium-Low
Feasibility What is the probability that the initiative will be successfully implemented and adopted given institutional and cultural barriers?	High-Medium-Low
Stakeholder Support What is the level of stakeholder support for this initiative?	High-Medium-Low



Measuring Progress:

Measuring waste prevention and reuse has always been a challenge since these activities represent the absence of waste generated in the first place and can happen in many ways by many different players (i.e., refusing, repairing, sharing, donations, etc.) By examining the adoption and impact of reuse activities in the Commonwealth over time, paired with waste characterization data on the tonnage of waste sent for disposal, MassDEP can extrapolate to get an overall sense of waste avoided through source reduction and reuse. Although MassDEP is primarily focused on the amount of waste diverted from landfills and incinerators through source reduction and reuse, reuse also reduces greenhouse gas emissions due to the embodied carbon in manufactured goods and creates significant social and economic benefits which are worth measuring where possible.

Performance Measures (Leading Measures)

The level of demand for existing MassDEP reduction and reuse initiatives each year via the Recycling Works in Massachusetts (RecyclingWorks) program, Recycling Business Development Grant (RBDG), Recycling Loan Fund, Reduce, Reuse, Repair Micro-Grants, and Sustainable Materials Recovery Grant (SMRP) programs, can help quantify and measure waste reduction and reuse activity in the state. These measures include:

- Number of organizations and municipalities requesting and receiving support (grant awards and technical assistance)
- Total grant money requested and awarded to reduce/reuse initiatives
- Number of technical assistance requests for waste prevention or reuse support (indicator of demand)
- Number of RecyclingWorks hotline calls related to waste prevention and reuse (indicator of demand)
- Number of Recycling Loan Funds requested and total loan funding provided to reuse related activities

Going forward, MassDEP will develop metrics to determine the success of networking opportunities, training opportunities, and procurement policies developed as a result of this Reduce & Reuse Action Plan.

Outcome Measures (Lagging Measures)

There are also a number of measurements such as advancement of local access to reuse opportunities, public attitudes and behaviors related to reduce and reuse, the economic “health” of the reuse economy in Massachusetts, and reductions in overall waste disposal in the Commonwealth that can help quantify impacts of waste reduction activities. Some examples of activities MassDEP will update and report on to measure progress towards our waste prevention and reuse objectives includes:

- Grant program results (project specific) from the Reduce, Reuse. Repair Micro-Grants and relevant RDBG and SMRP Grants
- Municipal program access to Library of Things/ Tool Lending Libraries, repair events, swap shops, and zero waste events
- Survey of resident’s attitudes and behaviors related to reduce and reuse
- Economic “health” of the reuse sector (Number of reuse businesses, employees, and revenue)
- Reduction in overall waste disposed in alignment with the Solid Waste Master Plan goals and reduction of disposal of priority materials based on waste characterization studies

How To Read The Action Plan:

Actions in this plan have been organized by the various “levers” or tools MassDEP can utilize to support source reduction and reuse initiatives across the commonwealth (Figure 2).

For each action, the timeframe (short, medium, and long term) and status (not started, in progress, completed, ongoing) are indicated (Figure 3). There are also notes that elaborate on current progress made on each of the actions.



Figure 2. Actions are organized by strategy tools or "levers"

Timeframe	Definition	Icon
Short Term	1-2 years	
Medium Term	3-5 years	
Long Term	6-7 years	

Status	Icon
Completed	
Ongoing	
In Progress	
Not Started	

Figure 3. Timeframe and Status icons used throughout the Reduce & Reuse Action Plan

- **Education/Behavior Change**

A common theme discussed in the MassDEP Reduce & Reuse Working Group is the lack of knowledge, attitudes, or behaviors that would support a greater cultural adoption of waste prevention, reuse, repair and sharing practices in Massachusetts. The following actions are intended to address this barrier by bolstering awareness and knowledge throughout the state of the benefits of reuse and facilitating easier access to finding local reuse opportunities.

Action	Timeframe	Status	Notes
Develop a state-wide education campaign around best practices for reducing waste, increasing reuse and repair, and extending product lifespans			While focused primarily on recycling, the Recycle Smart MA initiative occasionally addresses waste reduction, reuse, and repair topics through social media channels and the monthly newsletter. MassDEP will explore how to build off this pre-existing initiative to increase state-wide education around waste prevention and reuse.
Develop an online reuse directory to better connect residents with reuse/repair/share resources across the state			This directory will expand upon the pre-existing Beyond the Bin search directory and Recycling Work's Find-A-Recycler tool to include local retailers who provide repair, share, rental services.
Create or promote an online calculator to quantify the environmental, social, and economic benefits of reuse			In Winter 2021, MassDEP partnered with a graduate student project team at Tuft's University Urban and Environmental Policy and Planning (UEP) program on an economic analysis of the reuse sector which will be used to inform development of the online calculator

- **Tools, Resources & Technical Assistance**

Reuse non-profit and for-profit organizations, K-12 schools, Colleges & Universities, and municipalities have expressed the need for greater support for starting or successfully maintaining reuse initiatives and programs. Through the [Green Team](#), [Recycling Works MA](#) program, [Municipal Assistance Coordinators](#) and other MassDEP resources, the following actions are intended to help expand the resources, tools, and technical assistance that would support these organizations.

Action	Timeframe	Status	Notes
<p>Expand project planning and materials management guidelines for optimizing reuse in deconstruction and new construction/renovation of buildings including K-12 school, commercial, and residential/home construction projects</p>			<p>MassDEP has developed guidance around K-12 school furniture reuse as well as best management practices for business and institutional furniture and equipment through the Recycling Works program.</p> <p>Recycling Works further provides resources and technical assistance for commercial construction projects separating materials for reuse.</p>
<p>Promote local repair and reuse events, library of things, tool lending libraries, and swap shops</p>			<p>MassDEP started incentivizing local repair and reuse events, library of things/tool lending libraries, and swap shops through SMRP Recycling Dividends Program Funds in 2019 and provides resources for municipalities interested in starting these reuse programs on the MassDEP Municipal Reuse & Repair Programs webpage.</p>
<p>Provide guidance, technical assistance, and start-up funding to assist restaurants, colleges, and universities switching from single use to reusable food ware systems</p>			<p>In December 2020, Recycling Works MA developed a guide for Reducing Waste From Restaurant Takeout and Delivery Meals</p> <p>As of April 2021, MassDEP has also provided grant funding through the Reduce, Reuse, Repair Micro-Grant to support a business starting up a reusable cup program, elimination of individual plastic-wrapped baked goods in a K-12 school, and a local brewery switching to reusable stainless steel cups for use in their outdoor patio. MassDEP will share lessons learned from these projects with other businesses and institutions to encourage more widespread adoption of these practices.</p>
<p>Identify and share model ordinances and bylaws focused on waste prevention and reuse, including:</p> <ul style="list-style-type: none"> • food service ware ordinances that reduce the use of single use packaging 			<p>MassDEP will gather information on ordinances from other parts of the country and share those that fit best for Massachusetts municipalities.</p>

<ul style="list-style-type: none"> • historic preservation ordinances stipulating deconstruction and reuse mandates in building projects • model procurement policies focused on buying durable, repairable, and refurbished/remanufactured goods 			
<p>Provide guidance for municipalities, non-profits, businesses, multifamily residences, and park and recreation facilities to address illegal dumping outside of donation bins and at donation centers</p>			<p>Continue to support the MassDEP Strike Force Anti-Dumping Surveillance initiative.</p> <p>Guidance may include identifying and sharing model ordinances/bylaws to regulate placement and management of textile drop-off/donation bins to decrease the likelihood of illegal dumping.</p>
<p>Identify and promote (or pilot) furniture, fixture and equipment leasing models to reduce ongoing purchase and disposal of durable items during temporary housing situations like at colleges and universities</p>			<p>MassDEP works closely with colleges and universities through a College and University Forum and newsletter through the RecyclingWorks program. MassDEP also partners with the Massachusetts Leading by Example program to deliver assistance to state colleges and universities.</p>
<p>Identify a partner(s) to help foster a refillable 1 lb propane gas cylinder program in MA</p>			<p>This program would address small disposable propane tanks used for camping, portable heaters, lanterns, lawn care equipment, etc. These 1lb propane cylinders pose a major fire hazard and safety concern for waste workers. The refillable program would be modeled after “ReFuel Your Fun” program in California.</p>
<p>Identify and share best practices for businesses adopting use of reusable transportation packaging</p> <ul style="list-style-type: none"> • Provide technical assistance for businesses interested in adopting reusable models 			<p>MassDEP will deliver technical assistance and guidance through the RecyclingWorks program for businesses interested in adopting reusable models</p>

• Grants & Financial Incentives

In addition to providing resources, tools, and technical assistance, many organizations expressed the need for financial support for starting up reduction/reuse initiatives. The following grants and financial incentives are intended to help meet this need.

Action	Timeframe	Status	Notes:
<p>Provide local businesses, NGOs, and municipalities financial assistance for waste reduction and reuse projects</p>			<p>Mass DEP supports NGOs and municipal waste reduction projects through the Sustainable Materials Recovery Program.</p> <p>MassDEP's Reduce, Reuse, Repair Micro-Grant provides funding for businesses, NGOs and eligible municipalities for short-term waste reduction and reuse projects.</p> <p>The Recycling Business Development Grant can target reuse activities for specific materials. For example, furniture reuse has been an eligible grant category in past years.</p>
<p>Incentivize reuse programs through municipal Recycling Dividends Program Funds, including:</p> <ul style="list-style-type: none"> • adding model reuse ordinances and bylaws to RDP criteria • encouraging more frequent community donation/reuse opportunities to increase local accessibility of reuse 			<p>In 2019, MassDEP added four municipal reuse programs that were eligible for earning Recycling Dividends Program Funds – Swap Shops, Repair Events, Reuse Events, and Libraries of Things/Tool Libraries.</p>
<p>Continue to incentivize Pay As You Throw (PAYT) and Save-Money-And-Reduce-Trash (SMART) Programs</p>			<p>MassDEP offers municipalities grant funds for implementing PAYT/SMART programs through the Sustainable Materials Recovery Program as well as financial incentives to adopt PAYT/SMART programs through Recycling Dividends Program Funds.</p>
<p>Promote residential deconstruction and reuse projects in home construction and remodeling to increase reuse and donation of building materials and encourage use of C&D material reuse stores</p>			<p>This would build off the current Recycling Works MA resources and technical assistance for commercial construction projects.</p>

• Job Training & Workforce Development

Throughout MassDEP Reduce & Reuse Working Group discussions, a lack of access to and retention of a skilled and semi-skilled workforce was identified by reuse organizations as limiting their capacity to repair, refurbish, transport, and/or process more items for reuse.

Action	Timeframe	Status	Notes
Support the development or expansion of training programs for repair and refurbishment of durable goods to foster a culture of repair and support workforce development in the repair sector			MassDEP will seek to connect with K-12, Voc Tech Schools, Non-Profit, Social Enterprises and other organizations to support existing training programs or the development new programs focused on repair and refurbishment skill development
Coordinate with other state agencies to leverage existing or pilot new workforce development and training programs supporting repair, refurbishment, resale, and reuse job skill development and organizations in Massachusetts			MassDEP will reaching out to the Department of Elementary and Secondary Education and Executive Office of Housing and Economic Development's workforce development program identify opportunities to develop training programs or leverage existing programs that support repair and reuse skills and organizations.
Identify and partner with an organization offering a job training program(s) for home deconstruction			MassDEP will seek to identify existing programs that could provide these training resources.
Partner with K-12 schools, colleges & universities to develop and offer courses on "design thinking" and "design challenges" focused on product durability, repairability, and reuse			In particular, MassDEP will work with state colleges and universities, including promoting existing offerings.

• Legislation

Local, state, and federal policies that inhibit reuse and repair as well as legislation that could bolster reuse and repair were brought up frequently by stakeholders in the Reduce & Reuse Working Group discussions.

Action	Timeframe	Status	Notes
Work with Municipalities and the Legislature to advance waste prevention and reuse legislation, including: <ul style="list-style-type: none"> Extended Producer Responsibility (EPR) systems for packaging and electronics 			

<ul style="list-style-type: none"> • Develop an effective approach to reduce the use of single use packaging • Identify strategies to extend the lifespan of products • Identify incentives for the purchase of secondhand items • Provide support for local efforts to enact waste reduction and reuse ordinances and bylaws 			
<p>Initiate conversations with the Department of Public Health to understand food code requirements around reusable containers at food establishments.</p>			<p>MassDEP will consult with DPH’s Food Protection Program to understand requirements and rationale of relevant Food Code requirements, discuss Federal role in rulemaking, and determine whether there any opportunities to expand reusable container use while protecting public health.</p>

• **Networking**

Without a dedicated statewide organization for reuse and repair businesses and non-profits, the reuse community lacks cohesion and coordination across the state. One way that MassDEP can help address this is by continuing to facilitate and offer networking opportunities for organizations involved in reuse.

Action	Timeframe	Status	Notes
<p>Facilitate information sharing and networking opportunities amongst reuse stakeholders</p>			<p>Starting in March 2020, MassDEP launched a Reduce & Reuse Working Group to regularly bring together reuse stakeholders from across the state to help develop the MassDEP Strategic Reduce and Reuse Action Plan. MassDEP will continue to convene this working group moving forward to provide opportunities to network and share information amongst reuse stakeholders.</p> <p>Additionally, MassDEP has set up a Reduce & Reuse Network Listserv (Google Group) that provides a means for people to share waste prevention and reuse resources, ideas, best practices, fact sheets, and more.</p>
<p>Foster partnerships between contractors and architects to support greater adoption of building material and</p>			<p>This work would build off the existing Recycling Works MA guidance and outreach around Construction &</p>

Furniture, Fixtures & Equipment (FF&E) reuse and recycling in construction projects			Demolition reuse in construction projects .
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- **Procurement:**

Government procurement is a powerful tool for modeling and leading positive change. Through model procurement policies at both the state and local level, the Commonwealth of Massachusetts can help drive greater demand for refurbished, durable, and repairable products, both minimizing the environmental impacts of state government purchasing and supporting these vital and often local businesses.

Action	Timeframe	Status	Notes
Working through the State Recycling Market Development Council, partner with Massachusetts Operational Services Division (OSD) Environmentally Preferable Products and Services (EPP) program and the Leading by Example (LBE) program to create procurement policies and contracts that drive demand for refurbished, durable, and repairable products at the state and local level			Several vendors on the OFF38: Office, School and Library Furniture, Accessories & Services state contract offer remanufactured/reconditioned/refurbished furniture.

Appendix A: Prioritizing Strategies – Questions for Consideration

Impact: If this initiative is successfully implemented, how impactful will it be towards achieving our waste prevention and reuse goals?

Questions to consider:

- Does the initiative focus “upstream” – i.e., does it change the choice environment or mandate a change that applies to all entities or is it focused on individual consumers/companies/residents/organizations to voluntarily choose to opt-in
- Is the initiative likely to significantly reduce the disposal of targeted material?

Feasibility: What is the probability that the initiative will be successfully implemented or adopted given institutional, financial and cultural barriers

Questions to consider:

- How heavy of a lift is the action for the consumer/organization to adopt?
- Does DEP have the authority and influence to implement? Does it require legislation or a regulation change?
- How large is the target audience and how does the scale impact the likelihood that the project will successfully be implemented?
- How administratively burdensome is the action for DEP staff – is it a one-time thing? Is it an ongoing initiative that needs maintaining over time?
- How costly is this initiative considering both the initial start-up costs and any ongoing maintenance costs??

Stakeholder Support: What is the level of stakeholder support for this initiative?

Questions to Consider:

- Have R&R working group participants expressed strong support for this initiative?
- Is this initiative one that will likely receive a lot of opposition or backlash – either from working group participants or other stakeholders?