

Boston Zero Waste Initiatives

At its first meeting, the Boston Zero Waste Advisory Committee reviewed a matrix of policies, programs and infrastructure for reducing waste and increasing recycling and composting. It also provided comments and suggestions of additional measures to consider. The City’s Zero Waste consulting team conducted research, including site visits and interviews with stakeholders and departmental staff involved with Boston’s materials management infrastructure, reached out to other waste-reduction experts for more suggestions, and considered how various measures might be implemented in Boston. This document refines the original set of options and summarizes that research for discussion at the second meeting of the Advisory Committee.

The Zero Waste options are listed under New Services, New Rules or Outreach & Education. The categories are used for convenience. Some options could easily fit into more than one category. Each option has a description; examples and resources; and possible elements for implementing the initiative in the short-term (within five years), medium-term (within ten years), and long-term (within twenty years).

After receiving the Advisory Committee’s comments on this document, the Zero Waste team will conduct further research and analyze the Zero Waste options according to the evaluation criteria that the Advisory Committee will also discuss at its second meeting. The Zero Waste team will then make a first draft of a possible long-term plan, including suggested interim waste-reduction goals and the measures and timeline needed to reach those goals. That draft plan will be the primary topic for the Advisory Committee to discuss at its third meeting later this summer.

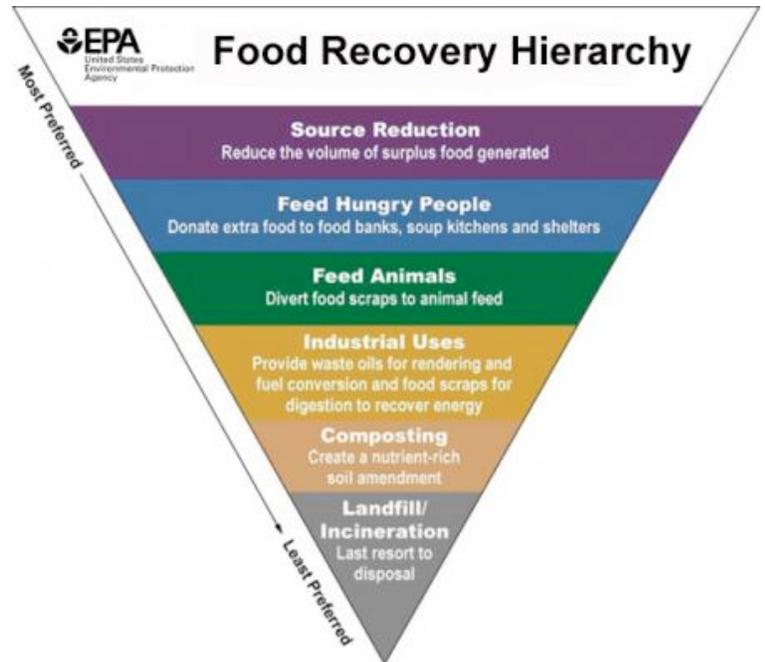
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A1. Expand Residential and Commercial Organics Diversion

This initiative addresses how the City collects and processes yard trimmings, surplus food, food scraps and food-soiled paper (aka “organics”). As food is the key new area for the City, EPA’s Food Recovery Hierarchy provides a great framework. Options in this initiative are:

- Reducing the volume of surplus food by more careful attention to what food is purchased and how it’s used.
- Donating surplus food to food banks, rescues and homeless shelters.
- Feeding animals with surplus food and scraps no longer acceptable for people.
- Composting and anaerobic digestion of the rest of the organics.



Tied in to these options is the expansion of different types of organics processing technologies other than waste-to-energy facilities¹ to meet different needs in the City, such as:

- Expand current processing of yard trimmings from residents and landscaping firms to produce mulch, compost and other soil conditioners.
- Compost food scraps and food soiled paper from residents and businesses.
- Expand current processing of food scraps only with biosolids from a wastewater treatment plant to fuel an anaerobic digester to recover energy, with the remaining digestate used as a soil conditioner.
- Foster community composting facilities to support parks, urban farms and gardens.
- Initiate compost carbon farming on public and private lands, such as City parks and [Allandale Farm](#). Carbon stored in soils through increased photosynthesis directly reduces the amount of carbon dioxide in the atmosphere.

¹ As processing above 200 degrees F. is not considered Zero Waste.

Examples & Resources²

LeanPath

This automated system tracks food waste data with an online reporting dashboard, pinpointing the exact food wasted, why it happened, when, and where it originated. After using the LeanPath 360 program for 12 months at Corcoran Dining, Boston College saw a 60% reduction in pre-consumer food waste.³ In four months, UMass Amherst reduced food waste by nearly 25%, saving more than \$70,000 across two dining commons.⁴ Aramark realized a 50% overall reduction in food waste using LeanPath across pilot locations in healthcare, higher education and business dining. Google, with 129 cafes participating in the LeanPath program across 11 countries, has saved a total of three million pounds of food.



Cambridge, Massachusetts

Cambridge has just completed expanding its food scrap collection service citywide. Food scraps are collected separately from yard trimmings in City trucks. Two trucks now collect food scraps citywide, and the number of garbage trucks has gone from 7 to 6 (with the possibility of further reduction). The sewer department did not support more use of garbage disposers because the sewer pipes do not have enough slope to accommodate the additional solids.

Boston, Massachusetts

The City conducted a study in 2014-15 using garbage disposers to reduce food scraps from the trash in a one 48-unit building. After eight months, 36% of the residents diverted food scraps from the trash. The Massachusetts Water Resources Authority (MWRA) processes wastewater for the City of Boston at the Deer Island wastewater treatment plant and has a new biosolids-to-fertilizer facility using high-temperature dryers. MWRA thought that adding food scraps would make their facility energy neutral or better. The Boston Water and Sewer Commission, which oversees sewers, has been neutral so far. They are concerned about fats, oils and grease being added with food scraps, which could cause problems in the sewers. An alternative to using garbage disposers and sewers could be for source-separated food scraps to be collected by trucks and delivered to the Deer Island facility.



Deer Island Waste Water Treatment Plant

² Examples and Resources are from U.S. EPA [Managing and Transforming Waste Streams](#) and other sources.

³ <https://www.leanpath.com/docs/case-studies/BostonCollege.pdf>

⁴ https://www.leanpath.com/wp-content/themes/weaver-ii-pro/docs/LeanPath_Case_Study_UMass.PDF

Seattle, Washington

Seattle Public Utilities helped launch the Soils for Salmon initiative in 1999, which led Washington State to adopt stormwater requirements for post-construction use of compost as a soil amendment. Consistent with [state requirements](#), the City requires that disturbed or compacted soils be amended with compost to a minimum depth of 8 inches for all new construction sites. The use of compost increases stormwater infiltration on-site, so it decreases off-site runoff.

[Seattle Permits Tip 531 on Post Construction Soil Management](#), Seattle Department of Construction and Inspections, 2009

Marin Carbon Project

This Project enhances carbon sequestration in rangeland, agricultural, and forest soils. Landowners and land managers of Marin's agricultural ecosystems undertake carbon farming in a manner that can improve farm productivity and enhance ecosystem functions. The organization Matter of Trust, in San Francisco, runs a similar project in an urban setting.⁵

[Video: What is Community Composting?](#)⁶ Featuring community composters from around the U.S.

NYC Sufficient Capacity Clause

The NYC Commissioner of Sanitation determines on an annual basis whether there is sufficient capacity within one hundred miles of the City to process discarded organic materials. The Commissioner also determines whether the cost of processing organic waste is competitive with the cost of disposing of it by landfill or incineration. As processing capacity increases, the Commissioner can increase the requirements for commercial enterprises to source-separate their discarded organic materials.⁷

Implementation Elements

Short-Term

1. Reduce and Reuse

- Assist grocery stores, restaurants, cafeterias, local business and regional industry associations in expanding surplus food donation. Inspectors distribute information to food generators during on-site inspections and permit renewals. Clarify Massachusetts Food Protection Program regulations to ensure safety while supporting more donations of foods.
- Encourage Waste Less Food training and use of food waste reduction tools such as Lean Path to save food and money.

⁵ <https://matteroftrust.org/14029/sf-urban-carbon-farming-project>

⁶ Institute for Local Self-Reliance, **Video: What is Community Composting?** Featuring Community Composters from Around the U.S., <https://ilsr.org/video-community-composting/>

⁷ Institute for Local Self Reliance, NYC – Commercial Organics Recycling Mandate, <https://ilsr.org/rule/nyc-organics-recovery/>

2. Recycle/Compost/Digest
 - Expand number of weeks yard trimmings collected from residents to at least 20 weeks.
 - Phase in separate food and compostable paper collection for residents. Obtain MassDEP permit and add food scraps and compostable paper processing at City composting site. Expand Project Oscar community composting from the current 6 locations.
3. Buy Recycled
 - Require City agencies to use the City's compost or purchase compost and other soil amendments from local composters.

Medium Term

4. Recycle/Compost/Digest
 - Provide semi-automated or automated cart-based collection services for food and compostable paper to all residents.
 - If necessary, and if compatible with sewer operations, expand the use of garbage disposers for building types or neighborhoods where collection of food scraps is more challenging.
 - To maximize participation in the food scraps collection program (as well as other waste reduction efforts) move to every-other-week (EOW) trash collection, neighborhood by neighborhood.
 - Encourage development of organics processing or transfer options in multiple locations to minimize traffic congestion and greenhouse gases from hauling.
 - Help build more yard trimmings processing capacity by awarding City contracts to two or more bidders. Allow contractors to accept materials from other generators for a fee (e.g., gardeners and landscape contractors).
 - Start carbon farming on City lands by spreading compost on City lands.

A2. Reuse Collection and Facilities

The City can do a number of things to keep reusable items out of the trash stream. Because reusables are some of the most valuable items discarded, the lives of many Boston residents could be enriched by low-cost, quality goods and many jobs can be created by re-investing these items into the local economy.

Reusable items in working condition can be picked-up by area non-profits. The following items would be particularly useful, if they are in good working condition: electronics, furniture, washers, dryers, stoves, dishwashers, TVs, computer monitors, refrigerators, freezers, air conditioners, water coolers and dehumidifiers. The City can also help organize repair fairs at libraries, reuse exchanges, a reuse center, and reuse sections of major stores to sell reusable items. The City can provide technical assistance and provide educational materials and apps that identify reuse operations where residents can take items for reuse.

Examples & Resources

[Central Contra Costa County, California](#)

RecycleSmart, the Central Contra Costa Solid Waste Authority, offers single-family residents two opportunities per year to participate in [Reuse and Cleanup Days](#). At each two-day event, Mt. Diablo Recycling picks up reusables one day and Republic Services picks up landfill bound items the following day. Scavenging is not allowed.

[Oceanside, California](#)

Donate First, Landfill Last! The City of Oceanside has partnered with Waste Management and Goodwill San Diego to bring Oceanside residents [CurbUp!](#) The CurbUp! program was designed to reroute bulky items and textiles headed for the landfill to a Goodwill Outlet Center. Brookline and Worcester are doing this with textiles and small appliances.

Implementation Elements

Short-term

1. City Reuse Program - Add reusable items to by-appointment bulk item pickups as part of the 2019 bid. Provide instructions to residents about how to prepare items for collection (e.g., segregate reusable items from recyclable materials or trash). Encourage residents in flood plain neighborhoods to use this service for basement cleanouts.
2. Arrange for reuse organizations to make pick-ups ahead of recycling and trash collection trucks as part of the 2019 bid. Non-marketable reusable items would be collected by the recycling or trash trucks.
3. Support [Right to Repair legislation](#) pending in the Massachusetts legislature.
4. Provide technical assistance to colleges and universities to inform students and collect reusable furniture and other items from students during move-ins and move-outs.

Medium-Term

5. Neighborhood Zero Waste Infrastructure
 - Explore whether a reuse center for durable goods for resale, repair and recycling would be helpful to existing reuse businesses.
 - Help establish a Reuse Cooperative to collect more reusables from businesses and institutions. Set up CHaRM Drop-off Centers for automotive goods, books/media, bulky rigid plastics, carpet, electronics, EPS, white goods, mattresses, mercury, paint, textiles, wood, plastic bags, fire extinguishers, and propane tanks as standalone facilities or together with Neighborhood Drop-off Centers (see initiative A4).
 - Set up swap shops and share & repair fairs
6. Bulk items and cleanouts
 - Charge for bulk item pickups over 2 per year.
 - Encourage businesses to institutionalize reuse (e.g. reuse closets for office supplies or tools, surplus goods and equipment sales, and donations to non-profits and individuals).

- Encourage the exchange of reusables, organize repair clinics, and arrange for sales of reusable products in home and department stores through a Reuse Cooperative.

A3. Residential Collection System Changes

As in many large cities, Boston's residential recycling and trash collection program has evolved over time. New initiatives, such as collection of food scraps, compostable paper and other organic materials, will require the City to increase services and efficiency. Many large cities (Austin, Chicago, Los Angeles, San Francisco, Seattle) provide fee-for-service, cart-based collection services for small residential buildings for both recycling and trash. Large complexes are served through a separate program using carts, dumpsters and compactors. For this initiative, the City would evaluate options for transitioning to a fee-for-service, cart-based pricing program using standard collection containers, adjusting service days and collection frequencies to maximize efficiency and increase diversion. These options could include:

- Move from a taxpayer-based system to a ratepayer fee-for-service, cart-based system with incentive-based pricing to encourage waste reduction.
- Charge households based on the weight or volume of material they set-out for collection (SMART – Save Money And Reduce Trash).
- Provide separate food scraps and compostable paper collection to all residential households.
- Decrease frequency of trash collection (e.g., every other week).

Examples & Resources

Portland, OR

The City provides residential garbage pick-up every-other-week, with options to decrease the frequency of garbage service, along with weekly collection of recyclables and organics in 60-gallon carts; the switch to every-other-week trash collection led to a 35% reduction in the amount of garbage collected and tripled the amounts of organics collected.

Hamilton, Massachusetts

The Town implemented a residential curbside organics collection program and switched to every-other-week trash collection, reducing the Town's solid waste tonnage by over 30%.

[Case Study: Hamilton and Wenham Massachusetts Curbside Composting Program](#)

Cambridge, Massachusetts

In April 2014, the City began a pilot program to expand curbside collection services to food waste; after one year, over 600 households participated in the pilot program and more than 170,000 pounds of food scraps were collected.

[New York, New York](#)

In 2013, the City launched a residential pilot food scraps collection program that now serves over 1 million residents, with [planned expansion](#) to over 3.3 million households.

[Cities with residential food waste collection](#) (BioCycle, 2015)

[Cities with source-separated residential composting collection](#) (BioCycle, 2009)

Implementation Elements

Short-term

1. Phase in transitioning from a taxpayer-based system to a ratepayer fee-for-service, cart-based system after getting input from haulers, processors, residents and property managers.
2. Phase in cart-based collection program with standard collection containers, including trash, recycling and organics. Offer standard container sizes for universal roll-out unless residents request different sizes during start-up of new service. Phase in based on collection zones or neighborhoods.
3. Provide collection services for large multi-family and mixed-use complexes that maximize collection efficiency and diversion (using the most efficient combination of carts, dumpsters and compactors for each complex). Haulers would only service multi-family buildings that meet efficiency standards and qualify for service.

Medium- and Long-term

4. Complete transition from a taxpayer-based system to a ratepayer fee-for-service, cart-based system that incentivizes reduction, reuse, and recycling.

A4. Neighborhood Drop-off Centers

Drop-off Centers can help provide recycling services to enhance other options. Drop-off Centers are generally locations or facilities where residents and businesses can bring most or all [12 market categories of materials](#) to be reused, recycled or composted. Typically, the materials are placed into commercial or industrial-sized containers or placed into designated areas on the ground. Drop-off Centers usually serve smaller commercial customers, and apartment residents. Drop-off Centers can take materials that are collected curbside, as well as those that are not (such as plastic bags and textiles), and also house a reuse exchange. These Centers could complement the reuse collection system described above.

Examples & Resources

Cambridge, Massachusetts

Many communities in Massachusetts have both curbside recycling and a Drop-off Center. Cambridge's recycling center accepts paper separated from all other materials,



leading to cleaner paper than what they collect from residents via their curbside program.

Boulder County, Colorado

The County developed a [Center for Hard to Recycle Materials \(CHaRM\)](#) to accept materials that are not cost-effective to collect via curbside services.

El Cerrito, California

The City's [Recycling and Environmental Services Center](#) accepts hard-to-recycle items, such as polystyrene foam, bubble wrap packaging, automobile batteries, used motor oil, pharmaceuticals and carpet, as well as electronic waste, plastic film, and scrap metal; the Center also accepts reusable household materials and textiles, which are then taken by local reuse organizations for re-sale.



Implementation Elements

Short-Term

1. Establish Drop-off Centers in several neighborhoods for current recyclables.

Medium-Term

2. Add more Drop-off Centers and add some hard to recycle items to expand their role into a CHaRM.
3. Set up swap shops and share & repair fairs.

A5. Zero Waste Research Initiative

More research is needed to identify ways to reduce or recycle hard-to-recycle materials (such as diapers, dirty film plastics, Mylar and composites), toxic items, medical wastes, building products, and others. The City could collaborate with industry, government and educational institutions to innovate in this area. Potential partners include:

- [Northeast Waste Management Officials' Association \(NEWMOA\)](#)
- [Toxics Use Reduction Institute \(TURI\)](#)
- [The National Recycling Coalition \(NRC\)](#), [Campus Council](#)
- [Sustainable Packaging Coalition](#)
- [One Step Closer to Organic Sustainable Communities](#)
- [The Recycling Partnership](#)
- [Local colleges and universities](#)

Examples & Resources

[MIT Waste Alliance](#)⁸

Fosters a forum where students, researchers, entrepreneurs, industrial practitioners, and policy makers discuss waste-sector issues and innovations.

[Chelsea Center for Recycling and Economic Development](#)⁹.

The mission of the Chelsea Center was to help create an infrastructure for a sustainable materials economy in Massachusetts, where businesses thrive that rely on locally discarded goods for their raw materials. It sponsored research by local universities into new ways to utilize recyclable materials, supported local end-use businesses, and developed many publications and networks that are still available and could be valuable to Boston's Zero Waste effort. It also developed approaches to market development the City could adopt.

[UC Berkeley Zero Waste Research Center](#) (ZWRC).

The ZWRC researches and implements upstream strategies for reducing campus waste, with a focus on purchasing, redesigning products, incentivizing behavior change, and instituting closed-loop "circular economy" waste systems. The ZWRC tests these strategies via campus projects. The ZWRC strives to create a cradle-to-cradle campus waste management system and achieve Zero Waste. ZWRC is also collaborating with [Green Labs](#) to help laboratories reduce their waste.

[Small Business Innovative Research](#)¹⁰ (SBIR) grants

The federal SBIR grant program encourages domestic small businesses to engage in research and development with the potential for commercialization. Federal agencies with R&D budgets that exceed \$100 million are required to allocate 3.2 percent of their R&D budget to SBIR programs.

Implementation Elements

Medium Term

1. Develop a list of the most important hard-to-reuse, -recycle or -compost materials like the Green Chemistry & Commerce Council's [List of Technology Needs](#).
2. Fund and solicit a contractor to start a Zero Waste research and development network to:
 - Share best practices information.
 - Organize Product Redesign Roundtables or Webinars on priority products/packaging.
 - Help expand network for R&D on hard to recycle items in the Northeast.
 - Help develop a Zero Waste R&D website, LinkedIn group or listserv.
 - Address Applied Research, Pure Research, Commercialization and Startups.

⁸ <https://innovation.mit.edu/resource/mit-waste-alliance/>

⁹ The Chelsea Center no longer operates. However, its core funding came from the Commonwealth of Massachusetts.

¹⁰ About SBIR, <https://www.sbir.gov/about/about-sbir#sbir-mission>

- Develop Competitions (e.g. [Resource Recycling Innovators Forum](#) at Resource Recycling Conference).
- Establish a Museum of Bad Design or a Zero Waste Center (like [Cappanori, Italy](#)) to collaborate with industry.



A6. Lead by Example

The City is working to reduce its own operational waste, including that from police, fire, park, and school facilities and from events at City venues. Additional lead by example initiatives could include:

- Zero Waste goals and milestones for City departments
- Zero Waste at City events and venues
- Waste reduction clauses and elements in contracts and plans

Examples & Resources

Kitsap County, Washington

In 2008, the County was awarded "[Partner of the Year](#)" under EPA's Waste Wise program for its exemplary recycling, which saved over \$450,000 in a single year; the County has continued its recycling efforts and reports on its successes through a concise tracking system for garbage and recycling at all County facilities.

San Diego, California

All departments have a designated Zero Waste liaison responsible for developing and implementing their departmental Zero Waste Plan. All department liaisons have been trained in Zero Waste community principles.

Implementation Elements

Short-term

1. Monitor diversion rates by City department or building.
2. Set goals, milestones and tasks to be undertaken by each department or building.
3. Train City department liaisons in waste reduction.

Medium- and Long-term

4. Monitor progress on waste reduction and report findings publicly.
5. Include sustainability practices in employee Performance Reviews.

A7. City-Owned Transfer and Processing Facilities

Transfer stations accept materials from route trucks and load them onto long-haul trucks which transport the materials to processing, composting or disposal facilities outside of the region. A transfer station is typically needed when processing or disposal facilities are more than 15 or 20 miles away from the collection routes. Materials processing facilities sort and bale materials and prepare them for shipments to commodity markets.

These functions (processing and transfer) can be co-located at one facility or sited separately. The City relies on privately-owned materials processing and disposal services, and has relatively few options for materials processing, composting or disposal facilities nearby. This reduces the competitiveness of collection, processing and disposal bids.

As collection typically accounts for 80-90% of the cost for solid waste and recycling services, some communities have invested in community-owned transfer and processing facilities. Community-owned transfer allows greater choice in collection, processing and disposal options. In particular, it would allow the City to procure disposal services for its residual waste within a larger radius of Boston.

Community-owned materials processing allows greater control over the types of materials processed, the methods used, the quality specifications, the labor standards and the markets used. For example, a community could direct its materials to local manufacturers or ship them to specific commodity markets domestically or internationally. Community owned facilities could be operated by private companies under contract to the City.

Examples & Resources

[Springfield Materials Recovery Facility](#)

Locally, the Springfield Materials Recovery Facility (MRF) is an example of a publicly owned (and privately operated) processing facility. Started as a state program to make recycling more accessible, it serves over 70 communities in the four western counties of the state. It accepts recyclable materials from participating communities at no charge.

South Bayside Waste Management Authority, California

South Bayside Waste Management Authority is a joint powers authority of twelve public agencies in San Mateo County, California. In 1999, the Authority purchased the transfer station from Allied Waste (now Republic Services). The Authority implemented a five-year master plan to reconstruct the facility to include a [state-of-the-art](#) materials recovery facility, public recycling center, environmental education center, and transfer station.

Napa, California

The City and long-term cost-plus contractor, Napa Garbage Service, built the [City of Napa Materials Diversion Facility](#) under a 50/50 equity share agreement. In 2003, the City exercised its option to purchase the Facility.



Implementation Elements

Medium-term

1. Identify potential sites for a new

transfer and processing facility and existing facilities that could be purchased by the City.

2. Conduct a feasibility study for facility development.

B1. Mandatory Waste Reduction Ordinance

The Commonwealth of Massachusetts already [bans](#) readily recyclable materials from disposal (including waste-to-energy incineration). These bans apply to solid waste facilities, haulers and individual generators of waste (both residents and businesses). Trash disposed by Boston residents and businesses still includes banned materials. The Commonwealth ban on food waste applies particularly to large generators (such as supermarkets and universities); instead, they must compost or anaerobically digest it.

The City can do more to expand outreach efforts (to inform residents, businesses, and institutions of existing requirements) and implement inspection efforts that increase compliance. It can provide periodic auditing of collection containers; perform outreach and education to businesses and institutions to ensure that they are aware of the waste-reduction services their waste haulers are required to provide; and provide targeted outreach and technical assistance to generators who require more assistance as indicated by audit results. If outreach efforts are not sufficient, the City can consider an ordinance that requires individual residents, businesses, and institutions to recycle or reduce waste in other ways and that bans specific materials or objects from the waste stream. [This may overlap with options B2, B3, B6, and B7.] The ordinance can provide for enforcement through warnings, fines or surcharges, and not collecting contaminated materials.

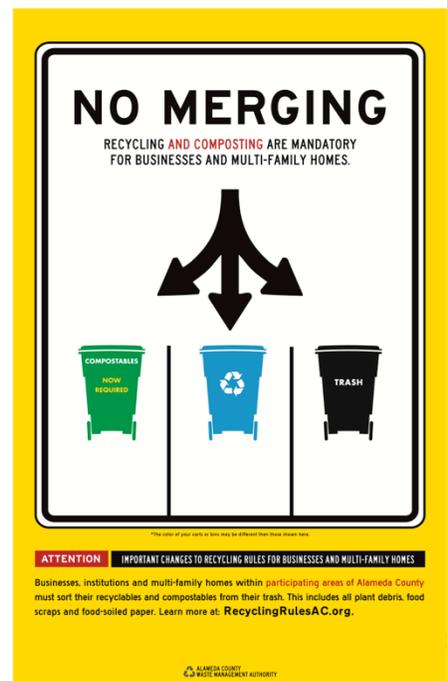
A Mandatory Waste Reduction Ordinance could mandate that:

- Haulers collect recyclable and compostable materials from all residents and businesses universally and report to the City on the performance of their trash, recycling and composting services.
- Generators submit Recycling Plans to the City, source separate their recyclable and compostable materials from trash, and subscribe to recycling/composting services.

Examples & Resources

Alameda County Waste Management Authority, California

The Authority [bans](#) readily recyclable and compostable materials from disposal by multifamily and commercial generators. Enforcement officers conduct periodic visits to regulated generators and issue warnings to those in violation of the ordinance. Outreach contractors provide technical assistance and. Generators that fail to comply may be issued fines.



San Francisco, California

The City [requires](#) all residential and commercial generators to participate in the recycling and composting programs provided through its permitted hauler. The hauler monitors contamination (recyclable or compostable materials in the trash) and issues warnings to customers in violation of the ordinance. Outreach contractors provide technical assistance and training. Customers that fail to comply may be assessed a rate surcharge of 100% of their monthly bill.

Implementation Elements

Short-term

1. In concert with initiative C1. Outreach and Technical Assistance, provide periodic auditing of residential and commercial customer containers and provide instructions about how to be consistent with state disposal bans.
2. Train City inspectors to support auditing and education program.
3. Enact ordinance with enforcement provisions for residents and institutional, commercial and industrial generators requiring participation in waste reduction as detailed in initiatives A3 and B2.

Medium-term

4. Phase in additional enforcement over several years (based on size of generator). Provide dedicated staff resources to enforcement program (1 staff per 250,000 population).¹¹

B2. Institutional, Commercial and Industrial Options

Ensure that the largest waste generators, such as colleges, universities, hospitals, and commercial businesses, waste less and divert more. Incorporate Zero Waste requirements into major permitting, planning, project reviews, and enforcement including:

- Hauler requirements by Ordinance for institutional, commercial and industrial generators
 - Universal collection of recyclable and compostable materials
 - More detailed reporting and for all containers serviced
- Generator requirements
 - Recycling Plans
 - Source Separate
 - Subscribe to recycling/composting services

¹¹ MassDEP provides funding to communities for a Dedicated Waste Reduction Enforcement Coordinator - Mandatory recycling must be codified in bylaw/ordinance or regulation and must include a fine for non-compliance.

Examples & Resources

Cambridge, Massachusetts

The City mandates all residents and businesses to separate designated recyclable materials from refuse. See section 8.24.070 of City code "Mandatory Recycling."

Austin, Texas

The City adopted a Universal Recycling Ordinance requiring all properties to provide recycling services to their tenants and employees by October 1, 2017.

Portland, Oregon

The City requires every garbage and recycling company that offers commercial service to offer composting collection.

District of Columbia, Washington D.C.

The City mandates all residents and businesses to separate designated recyclable materials from refuse.

Fort Collins, Colorado

The City adopted a Community Recycling Ordinance(CRO) in 2016 requiring solid waste collectors licensed by the City to offer curbside recycling service and a recycling container to their multi-family and commercial customers by 2020. Trash-haulers are allowed to charge for the service to multi-family and commercial customers. Single-family residential customers are still offered curbside recycling services at no additional charge. Haulers may impose a surcharge on single-family residential monthly bills to help deal with fluctuating business expenses, such as the cost of handling recyclable materials and spikes in fuel prices.¹²

Vail, Colorado

The Town requires subscription to recycling by all residential, multi-family, and commercial customers that contract for solid waste service (in 2014, the Town also adopted mandatory recycling requirements).

Fairfax County, Virginia

The County requires all businesses, institutions, and multi-family building owners to provide a recycling system to their tenants, occupants, employees, or vendors.

Implementation Elements

Short-Term

1. Enforce state and local recycling ordinances to meet new quality standards required by China.
2. Modify hauler permit system to require collection of recyclable and compostable materials from all their customers with minimum levels of service universally; to cover all types of collection bins/containers; to provide more detailed reporting by

¹² <https://www.coloradoan.com/story/news/2016/09/06/fort-collins-council-backs-recycling-changes/89928264/>

service category; and to clearly require contractors to not pick up contaminated loads. Increase permit fees to cover new program costs, such as increased inspections.

3. Modify City Commercial Recycling Ordinance to phase in requirements for generators to subscribe for a specified minimum level of recycling service.

Medium-Term

4. Phase-in Ordinance requirements on all food scraps generators.
5. Require haulers to collect food and compostable paper from industrial, commercial and institutional customers as long as sufficient organics processing capacity exists in the region.
6. Require 1-page recycling plans from all generators submitted with business permits detailing what type of reuse, recycling and composting/digestion programs they have implemented and how much tonnage is diverted. Phase in from large to small generators. Public Works inspectors confirm recycling plans are implemented and issue fines for non-compliance.
7. Require haulers to offer Incentive-based pricing of trash and recycling services to encourage waste reduction, reuse, recycling and organics diversion.

B3. Product and Packaging Waste Reduction

Effective December 2018, the City banned, with some exceptions, distribution of single-use plastic shopping bags and requires retailers to charge 5 cents for reusable or compostable bags. This initiative would address additional product and packaging waste reduction efforts, incentives and disincentives. These options include:

- Bans or fees (e.g., fees on disposable foodware, bans on polystyrene foam, straws only on request, discounts for use of reusables).
- Retailer takebacks (voluntary or mandatory).
- City support of state level legislation on product stewardship.
- Other incentives to decrease the use of disposable items.

Examples & Resources

Alameda, California recently updated its [foodware ordinance](#) to allow straws only on request (which must be reusable or fiber-based compostable (no plastic), and to require that foodware be reusable or fiber-based compostable (no plastic).

Concord, Massachusetts

The Town banned the sale of drinking water in single-serving PET bottles beginning in January 2013.

Boston University

The [Dining Services Sustainability Program](#) offers a discount for using reusable to-go containers at the student union building. Students can purchase the initial container at a



one-time cost of \$4. Students return the dirty container after use and pick up a clean one each time they purchase a meal, with a \$0.25 discount .

Sacramento, California

The City adopted an [ordinance \(PDF\)](#) that requires all retail stores and hospitals that dispense medical sharps for home use to take them back at no cost to the customer.

Hartford, Connecticut

The City played a leadership role in getting a state law passed for a [Mattress Recycling Program](#), funded by a \$9 recycling fee on all mattresses and box springs sold in the state - [Connecticut programs](#), Mattress Recycling Council.

Implementation Elements

Short-term

1. Identify priority product or packaging waste reduction policies (e.g., foodware to support citywide roll-out of food scraps composting).
2. Enact requirements for addressing priority products or packaging.
3. Participate in the Massachusetts Product Stewardship Council and Product Stewardship Institute and support related state legislation.

Medium- and Long-term

4. Consider additional actions to address product and packaging waste reduction. These could include:
 - Promoting voluntary takebacks at local retailers.
 - Requiring all products and packaging sold in the City to be reusable, recyclable or compostable.
 - Requiring reusable takeout packaging.
 - Adopting point-of-sale fees for products that are toxic, hard to reuse, recycle or compost.

B4. Environmentally Preferable Purchasing

In 2008, then-Mayor Thomas Menino issued an Executive Order calling for purchase of Environmentally Preferable Products. The City can do more to strengthen its existing policy. A lot has changed since 2008 (e.g., knowledge, markets and available EPP products and services). Purchasing reusable, durable and repairable products can reduce waste, and purchasing locally made recycled content products support local markets for recyclable materials. The updated Executive Order or mandatory ordinance would ensure safer products, sustainable food, waste reduction, and recycled content.

The Massachusetts Operational Services Division manages the state's "[Environmentally Preferred Products Procurement Program](#)" which has been a national model for over 20 years. Municipalities can choose vendors from the state contracts without having to go out to bid or can use the state's [procurement language](#) to leverage the work of the Division.

Examples & Resources

[San Francisco, California](#)

In keeping with its Precautionary Principle Policy, City departments are required to buy [SF Approved](#) green products per the City's Environmentally Preferable Purchasing Ordinance (exceptions allowed through waiver applications). San Francisco Department of Environment and other City staff review ingredients, recycled content, energy efficiency, product ratings and more.

Alameda County, California

The County incorporates [green purchasing specifications](#) for County-funded construction or remodeling projects.

[King County, Washington](#)

In 2011, the County updated its [Environmentally Preferable Product Procurement Policy](#) to require that all of its Departments purchase 100% recycled paper, implement paper conservation strategies, and use only recyclers that meet specific standards for computer and electronics recycling; the County also requires use of compost-amended soil in its maintenance and construction projects, relying on locally-supplied sources.

[King County Electronics Recycling Bid and Contract](#)



Implementation Elements

Short-term

1. Update Executive Order to ensure safer products, sustainable food, waste reduction, and more reusable, recyclable and recycled content products.
2. Collaborate with the Massachusetts Operational Services Division on state contracts or vendors for these products.
3. Provide training and technical assistance to City departments.

Medium- to Long-term

4. Report annually on the program and its success in transitioning from disposable and non-recyclable products to reusable, recyclable and recycled-content products.

B5. Zero Waste Venues & Events Ordinance

Develop an ordinance to require managers of large venues (sports arenas, concert halls) and organizers of all events that require a City permit to provide Zero Waste stations at all public venues and events. Each station would have three-streams (recycling, compost, trash) modeled on the City's residential programs. The ordinance may also address requirements that food vendors provide foodware that is reusable, recyclable or compostable. The ordinance may also require that events in excess of 500 attendees include Zero Waste monitors to educate attendees about proper sorting.

The City may also want to consider promoting waste reduction strategies at special events, including on-site distribution and washing of reusable plates and cups. The Whole Earth Festival in Davis, California requires vendors to use reusable cups, plates and flatware. Attendees pay a one dollar deposit on all items to ensure that they are returned.

Examples & Resources

San Francisco, California

Every event held in San Francisco is required to offer [recycling and composting](#) at the event. The City offers special assistance and customizable event signs to help event operators comply with the Mandatory Composting and Recycling Ordinance.

Austin, Texas

The City provides a [Zero Waste Event Rebate](#) as a financial incentive for event organizers to make their outdoor events more sustainable and help reduce the amount of trash sent to area landfills.

Boulder, Colorado

The City requires all special events open to the public and held on Boulder Parks and Recreation land to be Zero Waste events. By [ordinance](#), the City requires that all special events must provide recyclable and compostable materials collection. The City refunds up to \$250 per event for the purchase of eligible compostable products or collection or education services to be used at a permitted special event.

[Zero Waste Incentive Form for Special Events in the City of Boulder](#)



Implementation Elements

Short-term

1. Develop an ordinance that requires venues and special event managers to provide recyclable and compostable materials collection at all venues and special events. Food vendors at vendors and special events should be required to provide reusable, recyclable or compostable foodware.

Medium- to Long-term

2. Support venues and events with training and technical assistance. Phase in requirements over several years (based on size or complexity of venue or event).
3. Promote reusable foodware for events and venues.

B6. Ban Reusables from Disposal and Recover them for Reuse, Repair and Recycling

Some reusables are already banned from landfills in Massachusetts, including:

- Commercial food material
- White goods (large appliances)

MassDEP says that “Waste bans boost recycling and support the recycling industry, which contributes thousands of jobs and millions of dollars to the Massachusetts economy.”¹³

To create a greater supply of reusables in all market categories, the City can phase in bans of specific types of reusable, repairable and dismantlable products from the trash based on demonstrated viable end-use markets. If designated products are placed in the trash, there could be an extra charge added. If coupled with the reuse collection program, all materials set out for reuse that can be easily documented as not in good working condition would be charged as well. Facilities receiving reusables would be required to charge an extra fee for all reusables disposed of at their facilities that can be easily documented as in good working condition. Companies could bid for individual products such as appliances, electronic discards, and furniture repair or for collecting all the reusables received at a designated site. State or City workforce development funds could be used for training workers for repair and marketing of furniture, kitchenware, toys and textiles.

Examples & Resources

Massachusetts Waste Bans

White Goods are one of the items banned in Massachusetts. These typically include refrigerators, freezers, dishwashers, clothes washers, clothes dryers, gas or electric ovens and ranges, and hot water heaters.¹⁴ Other reusable items banned in Massachusetts include bricks and wood.

[The Urban Lumber Company](#) located in Springfield, Oregon specializes in making custom furniture from salvaged lumber.¹⁵ Cobblestones in San Jose, California are sold for \$169 cubic yard.¹⁶

Big Island of Hawai'i

The County of Hawai'i has collection sites for reusables at the Kea'au, Laupahoehoe and Keauhou transfer stations on the island.

Implementation Elements

Short-Term

1. Identify positive end-uses or markets for reusables in all 12 Market Categories.

¹³ <https://www.mass.gov/guides/massdep-waste-disposal-bans>

¹⁴ <http://www.mass.gov/eea/docs/dep/service/ompga/your-municipality-and-waste-ban-compliance.doc>

¹⁵ <https://j361neighborhoodnews.wordpress.com/2012/12/04/advancing-reuse-in-eugene/>

¹⁶ <https://www.zankerlandscapematerials.com/pricing>

Medium-Term

2. For those with positive end uses or local markets, identify which are the most wasted, most valuable and most toxic. Select those to initially ban from placing in the trash in addition to the materials already banned by MassDEP.
3. Convene meetings with businesses who sell those products. Ask if they would take back those products in their stores. If retailers don't want to take back those products, adopt an Ordinance to ban designated reusables from disposal.

Long-Term

4. Advocate for redesign of products that are not reusable, recyclable or compostable. Work with organizations such as [Cradle to Cradle Products Innovation Institute](#), [Product Stewardship Institute](#), [Sustainable Packaging Coalition](#), and [One Step Closer to Organic Sustainable Community](#).

B7. Require Deconstruction, Recycling and Source Separation of Construction and Demolition Materials

The state already bans [most](#) unprocessed construction and demolition (C&D) debris from disposal. Deconstruction is the process of taking apart a building in the reverse order of construction and the skillful removal of valuable building materials and architectural details.¹⁷

The Boston Landmarks Commission (BLC) has review of demolitions Citywide through the zoning code - Article 85 Demolition Delay. This means every demolition permit in the City is subject to review prior to being issued by the Inspectional Services Department. Deconstruction has been discussed by BLC as a potential mitigation for integration into the Article 85 zoning code. This would expand existing mitigation required in special cases to salvage and reuse specific elements. Additionally:

- This initiative would address constituents' expressed concerns about dust, asbestos, and other toxins released by demolition.
- Deconstruction industry's specific skillset and expertise relates to economic development through workforce training and expanded employment opportunities – possibly through the developer-linkage supported Neighborhoods Job Trust in the Mayor's Office of Workforce Development.
- LEED for Homes certification specifies deconstruction is preferable to demolition.

The City can develop an Ordinance or advocate for the Commonwealth to modify its building permit requirements to say that: buildings must be deconstructed first before traditional demolition and provide notice of opportunity to deconstruct in a local newspaper or website; separate bins are provided for recyclable materials, compostable materials, and trash on every construction site over a minimum size; a plan be submitted to the City for how much material will be recycled at the construction or demolition site; a hold on issuing construction and demolition permits is in effect until

¹⁷ What is Deconstruction? Second Chance, Baltimore, MD, <http://www.secondchanceinc.org/what-is-deconstruction/>

compliance with recycling requirements; and that C&D recycling facilities be certified by the Recycling Certification Institute.

Examples & Resources

Portland, Oregon

In July 2016, the City adopted an ordinance, effective October 2016, requiring that projects seeking a demolition permit (for houses or duplexes built in 1916 or earlier or designated historic resources) fully [deconstruct](#) such structures. The City estimates the ordinance will divert 4,000 tons of materials for reuse annually.

Cook County, Illinois

The County adopted an ordinance, effective November 2012, requiring that 70% of demolition debris from commercial and residential structures (excluding garages and sheds) be recycled during the demolition process, with 5% of the residential structures being reused.

Fitchburg, Wisconsin

The City adopted an ordinance requiring 70% of construction material produced on site be recycled or reused for new commercial and multi-family building construction and demolition projects; the City also requires contractors to submit a preliminary and final Construction and Demolition Reuse/Recycling Plan.

California Green Building Standards Code (CALGreen)

Effective January 2017 sections 4.408, 5.408, 301.1.1 and 301.2 require permitted new residential and non-residential building construction, demolition and certain additions and alteration projects to recycle or salvage for reuse a minimum 65% of the nonhazardous C&D debris generated during the project.

Arlington County, Virginia

The County's Green Building Incentive Program allows commercial and residential projects earning LEED Silver certification or higher to develop at higher density than conventional projects: [Green Building Bonus Density Program](#).

Cotati, California

The City requires that any entity seeking to demolish a structure within the City publicly advertise the hours and dates that materials will be available for salvage and make such materials available for at least 10 days.

[San Francisco, California](#)

The City's C&D ordinance requires that all source-separated C&D debris be taken to a facility that reuses or recycles those materials and that all mixed C&D debris be transported to a registered facility that achieves an overall minimum recycling rate of 65%; the City prohibits any C&D debris from being taken to the landfill or put in the garbage.

[Orange County, North Carolina](#)

The County adopted a Regulated Recyclable Material Ordinance that mandates source separation and recycling of scrap metal, clean wood waste, corrugated cardboard, and pallets.

[Recover Your Resources: Reduce, Reuse, and Recycle Construction and Demolition Materials at Land Revitalization Projects](#), USEPA

[Recycling Certification Institute](#)

[C&D Recycling Plans and Policies: A Model for Local Government Recycling and Waste Reduction](#), CalRecycle, 2002

Implementation Elements

Short-Term

1. Promote deconstruction for all proposed demolitions.
2. Require all those obtaining a construction or demolition permit from the City to provide at least 10 days' notice of the opportunity to deconstruct in a local newspaper or City website and for interested contractors to be notified.

Medium-Term

2. Develop data about the amount of recycling occurring in construction, remodeling and demolition projects to evaluate how and when to adopt Ordinance.

Long-Term

3. Require deconstruction, recycling and source separation of construction materials, (like Portland, Oregon model for deconstruction).

C1. Outreach and Technical Assistance

Expand outreach, education and technical assistance programs to promote compliance with local ordinances and state laws. Boston has significant infrastructure for maximizing recycling and emerging resources for organics processing. For this initiative, the City would build on existing state and local programs and dedicated staff or contractor resources to provide outreach and technical assistance to Boston residents, businesses, schools and other institutions. Outreach raises awareness about a problem or issue which can then motivate behavior change (“why we should reduce trash and recycle more”).

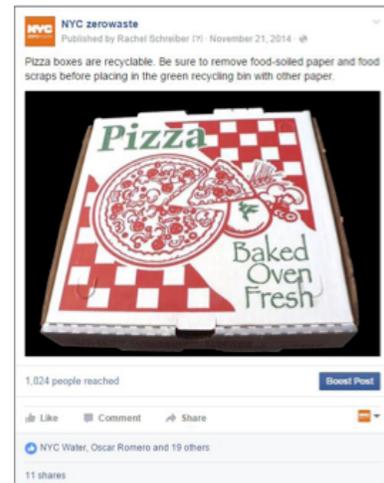
Outreach includes promotional campaigns, advertisements, and Public Service Announcements. Education informs recipients about an issue, problem or program (“what can we repair, reuse, or recycle?”). Education includes how-to guides, website resources, and mobile apps. Technical assistance provides the tools, training and resources to individuals so that they are empowered to take action (“how do we repair, reuse or recycle?”). Technical assistance includes door-to-door outreach, on-site trainings, and classroom presentations. Ideas for expanding outreach, education and technical assistance programs in Boston include:

- Expanding Boston Health Commission Green Programs to other businesses.
- Providing additional Zero Waste technical assistance through expanding the role of City inspectors and by promoting free assistance available to businesses and institutions through the state program [RecyclingWorks in Massachusetts](#).
- Providing direct technical assistance to the Boston schools through waste audits, right-sizing, and training (faculty, students, staff, custodians) and by promoting free assistance and recycling equipment available through the state program [The Green Team](#).
- Implementing the MassDEP [Recycling IQ kit](#) to reduce contamination.
- Conducting annual campaigns to ensure that education is conducted on an on-going basis.

Example & Resources

New York, New York

The [“NYC zerowaste” social media campaign](#) was designed to provide information to the residents about the City’s reuse, recycling and organics collection programs and to provide general awareness messaging about the City’s goal of Zero Waste by 2030.



Central Contra Costa Solid Waste Authority, California

The [RecycleSmart School Education Program](#) was created to engage students and teachers in waste prevention and recycling and to create greater awareness of the importance of diverting materials from landfills. The program was revamped in 2012 to focus on diversion performance by providing the technical assistance, training and incentives to help schools “walk the talk” and achieve RecycleSmart’s goal of 75% diversion. This involved engaging the whole school community (teachers, students, custodians, principals, district facility managers) to increase recycling and composting at each school site and in every school district.

San Francisco, California

San Francisco has provided direct, in-person technical assistance, training, outreach, and monitoring to over 2,000 commercial businesses and institutions, as well as residents and multi-family property managers. From on-site training of managers and staff about program goals and procedures in English, Spanish, Mandarin, Cantonese, and Vietnamese to monitoring, analysis, and reporting of program participation, staff and consultant expertise has helped residents and businesses to continuously improve their programs.

Implementation Elements

Short-term

1. Initiate an education campaign, such as “Buy Less Reuse More,” “Buy Quality, not Quantity,” and “DIY or Do Without.” Encourage movie theaters to offer free showings of films including WALL-E, Just Eat It, Trashed and Wasted.
2. Integrate strong Zero Waste messages into Greenovate Boston communication and outreach.
3. Greenovate to refer Boston businesses and institutions to the RecyclingWorks and GreenTeam programs for technical assistance and resources.
4. Hire seasonal interns to provide door-to-door outreach and education to residents in single-family households and multifamily complexes and ICI.
5. Implement the MassDEP Recycling IQ kit developed by The Recycling Partnership and MassDEP.

Medium-term

6. Provide direct technical assistance to Boston schools, faith organizations and homeowners associations and business districts through contractors and temporary staff/interns.

Long-term

7. Provide dedicated staff resources to Zero Waste outreach, education and technical assistance (1 staff per 25,000 population¹⁸). Staff may be added to several different Departments to support this effort, such as Environment Department, Public Works Department, Inspectional Services, Greenovate and Economic Development.

C2. Behavior Change Marketing

Behavior change marketing is designed to persuade people to modify or change a targeted behavior by addressing barriers and motivators that facilitate behavior change. The concept, also referred to as Community-Based Social Marketing, is detailed in [Fostering Sustainable Behavior](#) by Douglas McKenzie-Mohr. Behavior change marketing is data driven, site-specific, culturally inclusive, and focused on solutions—not incentives. Opportunities are identified by 1) clarifying the desired outcome; 2) targeting the desired behaviors and solutions; 3) identifying the barriers and solutions (these can be identified through focus groups, observations and surveys); 4) developing strategies to address barriers and solutions; 5) defining how to measure impacts; and 6) developing pilots to test solutions.

Examples & Resources

Vancouver, Washington

The City implemented a [Zero Waste Challenge Social Marketing Campaign](#) targeting residential behavior change.

¹⁸ This is level of effort being used in San Francisco and Seattle.

Oakland, San Francisco, San Jose, Sunnyvale, South San Francisco, San Mateo County, California

The cities and County participated in a [ReThink Disposable Packaging Waste Source Reduction Pilot](#) led by the non-profit organization, Clean Water Action, to engage local restaurants in reducing single-use disposable products and packaging.



The Recycling Partnership

Much of the work of The Recycling Partnership follows this approach. It is data driven, site specific, culturally inclusive and focused on solutions. The MassDEP Recycling IQ kit is an example of this work that was developed together with The Recycling Partnership.

Implementation Elements

Short-term

1. Train City Zero Waste and outreach staff in behavior change marketing tools and techniques.
2. Identify desired outcomes for a pilot (e.g., reducing recycling contamination, increasing participation in commercial organics programs).
3. Undertake pilot and review results.

Medium-term

4. Expand program based on first pilot.
5. Identify additional desired outcomes and continue to implement new pilots and new programs (one per year).

Long-term

6. Provide dedicated staff resources to behavior change marketing (1 staff per 250,000 population¹⁹).

C3. Awards and Certifications

Providing awards or certifying facilities as achieving different levels of waste reduction can be inspiring both to those who get the awards or achievements, and everyone else in the community seeing that Zero Waste is an achievable goal. There's nothing more powerful than a certified Zero Waste business telling their story about how they got to Zero Waste, why they did it and how much money they saved (and other benefits). The Mayor has recognized that with the [Greenovate Mayor's Waste Reduction Awards Program](#). Several organizations certify facilities as meeting Zero Waste standards. Businesses seek such certifications to ensure that they are not accused of greenwashing when they tout their success in Zero Waste.

¹⁹ Note: this is a much lower level of effort than recommended for the technical assistance initiative in C1.

Examples & Resources

Greenbuild 2017, Boston, Massachusetts²⁰

The 2017 Greenbuild Conference organized by the U.S. Green Building Council and ArchitectureBoston Expo reported a [near "Zero Waste" diversion rate](#) of 90.5% waste diverted from landfills and incinerators. Greenbuild had nearly 25,000 attendees. Services were provided by Save That Stuff. About 98% of all food scraps were [diverted for co-digestion](#) and more than 1,500 pounds of food was donated to the Boston Rescue Mission. Approximately 25,000 pounds of cement blocks, flooring, carpet and wood were donated to groups such as Habitat for Humanity. This event was assessed and certified by the [GBCI TRUE Zero Waste Rating System](#) at a Platinum level.

[Clifton, New Jersey](#)²¹

The City is an "Endorser" in EPA's [WasteWise](#) Program, which recognizes businesses and institutions that demonstrate good waste reduction and sustainable materials management practices. [Community Recycling Success Stories: Clifton, NJ](#)

Implementation Elements

Short-term

1. Promote Mayor's [Greenovate Waste Reduction Awards](#) – nominate projects, facilities, individuals that contribute significantly to Zero Waste. Develop a subcategory in Greenovate Waste Reduction Awards as a Zero Waste Challenge.
2. Provide a Zero Waste sticker for businesses to post in their windows as meeting the Zero Waste Challenge.
3. Promote [TRUE Zero Waste certification](#) of public and private facilities offered by Green Business Certification, Inc. (GBCI) of US Green Building Council. Select one or more City facilities each year to pursue TRUE Zero Waste certification. Encourage businesses to pursue TRUE Zero Waste certification. Solicit electronic, print and social media coverage of such certifications.

C4. Grants for Outreach, Waste Prevention, Infrastructure and Business Development

Provide grants to nonprofit organizations, schools, businesses and individuals to assist the community to implement innovative reduction, reuse, recycling and composting programs and to help foster the culture change needed to achieve Zero Waste. These can be recognized as appropriate uses of public funds due to the many benefits they have contributed to the communities awarding them. Grants have been awarded in response to sole source proposals, or in response to community developed requests for proposals (RFPs). RFPs may be open to any innovative idea, or they can be tailored to specific needs of the community.

²⁰ Waste Dive, April 16, 2018, *UPDATE: Greenbuild reports 'zero waste' diversion for annual conference*, <https://www.wastedive.com/news/update-greenbuild-reports-zero-waste-diversion-for-annual-conference/511269/>

²¹ Tips for recycling, January 23, 2012, *Community Recycling Success Stories: Clifton, NJ*, <http://tipsforrecycling.com/2012/01/23/community-recycling-success-stories-clifton-new-jersey/>

Examples & Resources

StopWaste.org Grants:

[Competitive Grants](#) are provided to nonprofit organizations for innovative projects that increase individual and community involvement in source reduction and recycling efforts, decrease the amount of waste generated and sent to the County's landfills, and encourage the development, marketing and use of recycled products. Grants are typically in the range of \$25,000- \$65,000. [Reuse Operating Grants](#) are provided to nonprofits for staff salaries and supplies related to promotions, educational and outreach programs and collection improvements for reuse projects. \$15,000 is the maximum grant size. [Food Waste Prevention Grants](#) are provided for innovative and replicable food waste prevention and food recovery projects for both commercial and institutional kitchens as well as for nonprofits involved in the recovery of food. \$20,000 is the maximum grant size. [General Mini Grants](#) provide small amounts of money, within a brief period of time, for a specific and limited purpose for source reduction, reuse, recycling, market development and related educational programs. \$5,000 is the maximum grant size. [Reusable Transport Packaging Grants](#) up to \$5,000 are provided for the purchase of reusable transport packaging.

San Francisco

Since July 2009, the City and County of San Francisco (SF) has levied a carbon fee on municipal airline travel to support the SF Carbon Fund, which funds local projects that mitigate carbon emissions. The SF Carbon Fund has provided grants for biodiesel and urban forest pilot projects. See [San Francisco Carbon Fund](#), [the work of past grant recipients](#), [Current SF Carbon Fund RFP](#) and [San Francisco Carbon Fund Request for Proposals for Low Carbon Congregations](#). The SF Zero Waste Program awards grants to non-profit organizations for work in source reduction, reuse, recycling, and composting. See [Zero Waste Grant Awards for Fiscal Year 2017-2019](#), [Zero Waste Grant Program Recommendations](#), [Local Organizations Take on Zero Waste](#) [June 4, 2013] - Boys and Girls Club of San Francisco, Citizen Film and Green Streets, Garden for the Environment, Goodwill and SF Housing Foundation, San Francisco and Marin Food Bank, San Francisco City College, San Francisco Clean City Coalition, San Francisco Community Recyclers, San Francisco Conservation Corps, University of California, San Francisco (UCSF). [San Francisco Department of the Environment Announces Grant Recipients to Support Zero Waste Goals](#) [July 31, 2012] - The Supportive Housing Employment Collaborative, San Francisco Clean City Coalition, Garden for the Environment, San Francisco Conservation Corp, Scroungers for Reusable Art Parts (SCRAP), Loved Twice. [Current Grants & RFPs](#)

Chelsea Center for Recycling and Economic Development

The Chelsea Center issued [RFPs](#) for grants of up to \$25,000 through its Recycling-Based Community Economic Development program for projects that used non-hazardous solid waste materials and products recovered from the waste stream as feedstocks for new or existing manufacturing, remanufacturing or reuse enterprises. Its goals were creating jobs that pay livable wages, promoting environmentally sound economic growth, and raising the standard of living and quality of life through the use and reuse of recovered materials generated in the town or region. Project examples are [here](#).

Implementation Elements

Medium-Term

1. Provide micro-grants for outreach to target residential audiences, including neighborhoods; getting more materials from average participating areas; and increasing participation in low participation areas.
2. Provide small start-up grants for business development to reduce wasting (e.g. for prevention of wasting food).
3. Provide grants for infrastructure and market development.
4. Provide grants for outreach to target businesses/sectors/geographic areas.

C5. Zero Waste Market Development

The successful implementation of a Zero Waste system requires not just local policies but a local industry. The City will work with workers and businesses to ensure that they are prepared to support these new policies

This may include working with job training programs to include needed Zero Waste skills; supporting new and emerging Zero Waste jobs for Boston residents, including youth; and drawing on Boston's leadership in technological innovation and research to put discarded materials to their highest and best use. Throughout this work, the City will encourage measures to improve the safety, health, and jobs of workers

There is a new urgency for Business Development activities to create local markets for many recyclables collected in Boston. Over 60-70% of all recyclables are sold overseas, with China being the largest user of discarded materials from America. However, in 2017, China adopted a policy called the National Sword that has reduced the acceptable "contamination rate" of recyclables and banned certain materials completely from being shipped there.

The result of these Chinese actions has been a sharp increase in the cost of recycling, requiring all American recycling programs to improve the quality of the materials they are collecting from residents and businesses, and to process these materials more extensively at material recovery facilities (MRFs).

In addition, the glass furnace that serviced the region recently shut down, devastating glass markets for all but the cleanest glass.

The upside of this is that it provides opportunity to develop local Zero Waste businesses ranging from waste reduction apps to new manufacturing.

Examples & Resources

San Jose, California

San Jose has a targeted "Green Industry" district which is the focus of outreach to strengthen existing businesses and attract new businesses. San Jose offers a Special Tenant Improvement (STI) program to encourage occupancy of existing vacant building

space. The STI program includes the suspension of the local Building & Structures tax, a coordinated plan check review process, the deferral of plan check fees, and expedited permit processing. This program is designed to encourage tenant improvements on vacant buildings to make the space ready for earlier occupancy. The City also offers Industrial Development Bonds, loans and loan guarantees, and sales and use tax credits to those businesses located within an 18-square-mile Enterprise Zone.

Austin, Texas

The City supports local businesses that share or repair reusable items or sell products made with recycled or upcycled materials through its "[Shop Zero Waste](#)" website and store directory.

San Diego, California

The County of San Diego, City of San Diego and City of Chula Vista are actively involved in a local collaborative, the [San Diego Reuse and Repair Network](#); the network supports local reuse and repair businesses, for example, by inviting reuse and repair vendors to attend community workshops or fairs to engage the public.

There are also a number of business accelerators and incubators in the Boston area that could assist with some of the entrepreneurial activities to develop new recycling businesses, including:

- [Mass Challenge](#)
- [Clean Tech Open](#)
- [GreenTown Labs](#)

Implementation Elements

The City's Zero Waste consultants will be providing specific recommendations on market development as an additional task.