

# **Increasing Food Waste Recycling in the Greater Boston Area**

**April 2001**

**Center for Ecological  
Technology (CET)**

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**April 2001**

**Center for Ecological Technology (CET)**

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- ! US EPA New England - Climate Change Action Program (CCAP)  
to reduce greenhouse gases through improved solid waste management
- ! Massachusetts Department of Environmental Protection - Technical Assistance Grant  
Program through Maynard (lead sponsor), Natick, Newton, and Westborough
- ! The Chelsea Center for Recycling and Economic Development

CET subcontracted a significant portion of this work to Draper/Lennon Inc. Special thanks to Nora Goldstein of BioCycle Magazine for her insight and expertise during project design and implementation.

## **About the Center for Ecological Technology (CET)**

A non-profit (501c3) organization established in 1976, CET works as a catalyst for changing practices that adversely impact the natural ecology of the Earth. Working with local industry, government and residents, CET demonstrates and promotes practical applications of sustainable technologies, providing affordable solutions that serve the entire community. Over the past 25 years, CET has directly served thousands of residents throughout Western Massachusetts and New England and has worked closely with local and state governments, non-profit organizations, businesses and farms.

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This report was prepared by John Majercak, Director of Waste Management Programs. For more information about this project please contact Mr. Majercak through our Northampton office or [johnm@cetonline.org](mailto:johnm@cetonline.org).

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## Executive Summary

The Center for Ecological Technology (CET) and project partners worked to develop and implement a model approach to reducing greenhouse gas emissions through advancing diversion of food waste from the industrial, commercial and institutional (ICI) sector to composting and other organic materials management strategies in greater Boston, MA. Project work included surveys, a planning/focus group event with over 70 attendees and direct outreach and technical assistance to over 25 waste processors, 8 haulers and 25 waste generators.

Project work played a key role in developing increased planning and programmatic efforts, as well as increased resources, for State organic waste management initiatives. The project resulted in the diversion of 415 tons of food waste materials in eastern MA, and has set in motion arrangements which have the potential for diverting over 8600 tons of food wastes per year. This diversion of food waste accounted for an estimated reduction of 62 Metric Tons Carbon Equivalent (MTCE) with the potential to reduce 1290 MTCE annually<sup>1</sup>.

Through the course of the project, CET learned important lessons that could be helpful to others in designing and implementing similar efforts:

- Stakeholders (generators, haulers, processors and others in expanding the organic waste recycling infrastructure) are interested and can play a valuable role in building support for and designing project initiatives.
- Project efforts can help some materials move in the short-term by providing connections among interested parties, but often the barriers are also lack of time, resources and/or expertise.
- Lack of processing capacity is a major barrier, but existing capacity is not always easily filled.

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<sup>1</sup>An estimated climate change impact was calculated using the average factor of .15 MTCE emissions avoided for every ton of food waste diverted from landfilling as described in Appendix E.

## **Project Summary**

The Center for Ecological Technology (CET) worked with the MA Department of Environmental Protection, Biocycle Magazine, the Chelsea Center for Recycling and Economic Development, EPA New England, and Draper/Lennon, Inc. to develop and implement a model approach to reducing greenhouse gas emissions through advancing diversion of food waste from the industrial, commercial and institutional (ICI) sector to composting and other organic materials management strategies in greater Boston, MA. Project work took place between April 1999 and December 2000.

The project had the following goals:

- Increase organic waste diversion and reduce greenhouse gas emissions by increasing Boston area food waste recycling.
- Develop and implement a model process for developing private-sector food waste recycling in greater Boston.
- Spread project information, sharing lessons learned and results with other processors, haulers and waste generators and agencies that serve them nationwide.

Project work included surveys, a planning/focus group event and direct technical assistance. CET compiled a list of existing and potential food waste processors and surveyed each operator regarding existing and potential capacity, and barriers and needs to expand successfully. A focus group was held to guide project partners in developing next steps to aid the industry.

CET then conducted targeted organic waste generation inventories and provided technical support and created documents to help overcome barriers identified. Project results and steps needed to replicate the project were disseminated through this final report, CET's web site, conference presentations and media outreach.

## **Project Scope of Work**

The project had the following scope of work:

- \$ Establish a technical advisory committee to assist in project design, implementation and evaluation.
- \$ Integrate organic waste management in State climate change mitigation planning.
- \$ Conduct an inventory of existing and potential outlets for organic materials processing capacity in the greater Boston area.

- \$ Conduct targeted local inventories of organic waste generation within a reasonable hauling distance from identified processing capacity.
- \$ Coordinate approximately 5-6 planning sessions to identify barriers, assess needs and develop strategies to increase activity with all stakeholders.
- \$ Provide follow-up technical assistance and facilitation to interested parties.
- \$ Track resulting diversion and greenhouse gas emissions reductions.
- \$ Document and disseminate results.

CET used a combination of approaches to accomplish project goals. Surveys and other data gathering created information needed for policy and programmatic work. A policy paper and formal industry feedback mechanisms helped to increase and strengthen State and local organic waste management efforts. Outreach to the industry helped increase activity and introduce interested parties to each other. Technical assistance and matchmaking services helped set in place arrangements to divert organic materials and build relationships that are likely to produce additional diversions in the years to come.

## **Results**

The project results are summarized below by item in the scope of work:

- \$ Establish a technical advisory committee to assist in project design, implementation and evaluation.

CET, in cooperation with DEP, helped to establish the Organic Waste Advisory Subcommittee of the DEP's Solid Waste Advisory Committee. The Subcommittee consists of prominent stakeholders from all relevant sectors including government, compost operators and users, haulers and waste generators. The Subcommittee's goal is to advise DEP on its efforts to increase organic waste recycling. The Subcommittee submitted a policy statement for the MA Solid Waste Master Plan that included a call for a ban on the disposal of ICI organic waste in ten years. The work of the Subcommittee and other project work made significant contributions to State organic waste management initiatives resulting in increased planning and programmatic efforts as well as increased resources.

- \$ Integrate waste management in State climate change mitigation planning.

CET worked with EPA New England and DC offices and ICF Consulting to draft and finalize a paragraph about composting that was submitted to the MA Executive Office of Environmental Affairs, Office of the Director of Air Policy, to add composting initiatives to the MA Climate Change Action Plan (see Appendix F).

\$ Conduct an inventory of existing and potential outlets for organic materials processing capacity in the greater Boston area.

In Spring 1999, CET compiled a list of existing and potential food waste processors and surveyed each operator regarding existing and potential capacity, barriers and needs in order to expand successfully.

In Spring/Summer 2000, CET updated that information and identified 13 processors currently capable of accepting additional food waste from eastern Massachusetts. CET also identified 12 additional operations with the potential to process food wastes. CET conducted site visits with six of these sites and provided DEP with a written summary of their needs to initiate or expand food waste recycling. A survey was sent out to a comprehensive list of haulers developed by CET and 8 interested haulers were identified.

CET developed a database containing the interested processors, haulers and waste generators identified through this project (see Appendix C - Interested Parties for a printed version). EPA and DEP are considering possible means for placing this information on the web.

\$ Conduct targeted local inventories of organic waste generation in areas comprising a reasonable hauling distance from identified processing capacity.

CET developed a database of 60 food waste generators in the eastern MA target area, and was able to contact and conduct detailed interviews with 25 of these. CET analyzed material generator types, tonnages available for recycling, and practical end market destination (by end market type). Material generator types fall into two basic categories: (1) food manufacturing and (2) food distribution (retail and wholesale). The food manufacturing category is the generator group that often requires the least assistance for collection infrastructure development.

EPA sets the following hierarchy for food waste diversion<sup>2</sup> (after source reduction):

- Recovering food to feed hungry people
- Providing food to livestock farmers or zoos (i.e. direct feeding)
- Recycling food for industrial purposes (e.g. rendering, manufactured feed)
- Composting food to improve soil fertility

Project work focused on direct and manufactured animal feed and composting outlets.

After compiling survey information and data collected through direct contacts with generators, CET identified 108,000 tons per year of food waste that can be, is, or is in the process of being recycled. Of this tonnage 91,000 tons are best suited for compost or land spread applications (due to high moisture content, low protein levels not suitable for animal feed, or because the materials

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<sup>2</sup>Waste Not, Want Not - Feeding the Hungry and Reducing Solid Waste Through Food Recovery (EPA 530-R-99-040)

are not fit for feed consumption). The remaining 17,000 tons per year are best directed to animal feed end markets, either through direct feed applications or through feed blending processes. This data does not by any means represent the entire food waste stream available for recycling.

- Coordinate approximately 5-6 planning sessions to identify barriers, assess needs and develop strategies to increase activity with all stakeholders.

Instead of the sequential multiple meeting format originally proposed, CET and project partners convened a single comprehensive focus group in Boxborough, MA on June 16<sup>th</sup>, 1999. Over 70 industry members attended to identify opportunities/motivating factors, barriers and recommended next steps to help grow the organics recycling industry in Massachusetts. The results of this work and recommended strategies to increase food waste diversion are outlined in the report, *Strategies to Increase Food Waste Recycling in the Greater Boston Area* (see Appendix G). Over the last year, several new or planned processing facilities have been developed as a result of the meeting.

- Provide follow-up technical assistance and facilitation to interested parties.

CET provided assistance through telephone contact and site visits. Assistance ranged from referrals to potential markets for, or sources of, materials to on-site employee training in separation techniques. CET also produced two assistance documents for MA DEP - *A Resource Guide for Food Waste Processors* and *Recycling Food Waste: A Guide for Businesses*. These documents are awaiting final layout and publication by DEP.

- Track resulting diversion and GHG reductions.

As of December 2000 the project had been responsible for moving roughly 415 tons of food waste materials (tofu wastes, fish breeding and coconut byproducts) in eastern MA. Project work has set in motion arrangements which will potentially divert over 8600 tons of food wastes per year, pending successful outcomes on various regulatory and logistical issues. The project goal was 7200 tons per year. This diversion of food waste accounted for an estimated reduction of 62 MTCE with the potential to reduce 1290 MTCE annually (see Appendix E).

- Document and disseminate results.

CET widely distributed a media release about the project. The report *Strategies to Increase Food Waste Recycling in the Greater Boston Area*, along with break-out group minutes and attendee contact information, were distributed to 120 members of the MA food waste recycling infrastructure by direct mail and many additional copies have been provided at meetings and conferences and through CET's website. CET presented information on project activities at the 1999 Northeast Resource Recovery Association, 1999 and 2000 National Recycling Coalition, and 2000 BioCycle Northeast conferences. This final report was distributed by mail and web.

## Lessons Learned

CET and project partners learned the following lessons that may be helpful to others in planning or implementing similar efforts:

**Stakeholders (generators, haulers, processors and others in expanding the organic waste recycling infrastructure) are interested and can play a valuable role in building support for and designing project initiatives.** This interest was demonstrated in many ways including good attendance at events and meetings, response to outreach and private efforts to grow business activity. The size of the pool of interested parties was small relative to our vision of the industry in the future. However, there were enough parties to work at a meaningful level without needing to “sell” the concept to those who had no interest in it. It is important to focus on these key players in the current marketplace during project planning and implementation work in order to benefit from their experience and efforts. This demonstration of interest also created the momentum needed to create the support for State policy changes resulting in a greater focus on and dedication of resources to organic waste recycling.

**Project efforts can help some materials move in the short-term by providing connections among interested parties.** Some materials moved relatively quickly (i.e. our 6 months of project work for that phase) primarily as a result of connecting interested parties, with minimal technical assistance or training provided. Also, several processing businesses grew out of interest created and/or channeled through outreach efforts. In these cases, highly motivated parties on the waste producing and processing ends had the financial interest, resources, time and expertise to make something happen. Information sharing and connection services should become more successful as organic waste recycling becomes more of a routine way of doing business and the infrastructure is strengthened.

**Often the barriers are also lack of time, resources and/or expertise.** Due to these barriers, a significant amount of elapsed time and project assistance are often needed to facilitate new arrangements. This project was able to finalize many fewer arrangements than CET’s previous project in western MA, which lasted almost four years and had a significantly greater amount of resources. Right now the most effective type of assistance would probably be fulltime field-based staff (one or more depending on available resources and staff expertise) working primarily in a sales (one-on-one outreach) and in-depth technical assistance role to waste generators, haulers and processors.

**Lack of processing capacity is a major barrier, but existing capacity is not always easily filled.** One of the major barriers identified during initial project efforts was the lack of processing capacity for organic waste materials. However, several new or expanded facilities had (and continue to have) trouble attracting desirable materials to them. Reasons include lack of information or experience in approaching sources of materials, regulatory barriers to processing food waste materials, economics, and lack of incentive for haulers to divert materials from disposal. Assistance to overcome these barriers could increase diversion and improve the viability of processing facilities.

See CET's report *Building a Market Based Infrastructure of Farm Composting of Commercial Food Waste* for an in-depth discussion of other barriers and lessons learned regarding increasing food waste recycling (see Appendix G).

## **Appendices**

- A. 1<sup>st</sup> Summit agenda
- B. Introduction letters
  - Hauler & Service Provider Survey
- C. Close out letter
  - Second Massachusetts Organic Recycling Summit
  - Interested Parties
- D. Project budget
- E. Climate change impact calculation methodology
- F. Paragraph for State climate change action plan
- G. List of related materials available from CET
- H. Other helpful resources

**A. 1<sup>st</sup> Summit agenda**

**ORGANICS RECYCLING ROUNDTABLE  
JUNE 16, BOXBOROUGH  
AGENDA**

- 8:30 Registration - Coffee and Pastries
- 9:00 Welcome and introductory remarks  
John Majercak, Center for Ecological Technology (CET)  
Sumner Martinson, MA Department of Environmental Protection  
Scott Cassell, MA Executive Office of Environmental Affairs  
Cynthia Greene, Environmental Protection Agency New England
- 9:20 Moving forward with composting of commercial organic waste  
  
Nora Goldstein, BioCycle Magazine
- 9:30 Organic waste generation in MA: potential economic benefits  
  
Caroline Ganley, CET
- 9:40 Setting the stage - industry perspectives  
  
George Sherback, Stop and Shop Supermarket Company  
Jim Harvey, Harvey Industries  
Bob Spencer, Bedminster Bioconversion  
Noel Graydon, Key Bank National Association  
Peter Mezzit, Weston Nurseries
- 10:00 Coffee Break
- 10:15 Break-out group sessions: identify opportunities, barriers, problem solving, next steps
- 12:00 Lunch
- 1:00 Roundtable Discussion: summary of break-out group findings, outline action plan  
Nora Goldstein, BioCycle Magazine
- 2:00 Closing remarks  
John Majercak, Center for Ecological Technology  
Sumner Martinson, MA Department of Environmental Protection
- 2:15 Adjourn

## B. Introduction letters

July 14, 2000

\*Contact\_First+ \*Contact\_Last+  
\*Name+  
\*Address\_1+ \*Address\_2+  
\*City+, \*State+ \*Zip+

Dear \*Contact\_Salutation+ \*Contact\_Last+:

We ask that you take a few minutes to read this letter and the attached press release announcing a project that impacts all food manufacturers and distributors in Massachusetts. In return for your time, you'll discover that there is an effort underway to help food waste generators reduce their waste management costs—a project that is a free service for any who participate.

The goal of the project is to identify and expand organic waste recycling capacity in eastern Massachusetts, and then to stimulate the diversion of organic wastes to recyclers as their capacity increases. To accomplish this, the project is identifying all of the active compost facilities and other end users for organic materials in eastern Massachusetts. We will work with these processors to identify existing unused capacity for food recycling, and expand their capacity to handle more food wastes in the future.

Simultaneously, we will be working with generators of recyclable food wastes – such as yourself -- to encourage them to adopt organic waste recycling as a viable and cost effective waste management tool. Most generators find it difficult to go through the process of identifying reliable haulers and end markets to handle organic wastes. Many generators are unaware that they even have an alternative to disposal. This project will help by matching material generators with capable haulers and end markets – in short, by helping generators overcome the barriers that have prevented their recycling of food wastes in the past.

Our goal is to help divert an additional 600 tons/month of organics from the eastern Massachusetts waste stream by early fall, and establish the foundation to grow this amount by many times in the years to come. To do this, we need your help. We can only match generators with recyclers if generators identify themselves as interested and willing to explore this alternative – which we believe (and experience has shown) can save money for almost all generators of waste foods.

We will follow up this letter within the next two weeks, and hope we can work with you to help move food wastes out of your dumpster and into a recycling facility. Or please feel free to contact us immediately if you'd like to get started sooner.

Sincerely,

E. Dana Draper

## B. Introduction letters

May 24, 2000

Dear Service Provider:

We ask that you take a few minutes to read this letter, and complete the attached questionnaire. In return for your time, you can get your company name listed in both a state-wide resource guide and a web-based database. As you'll read, there are no gimmicks—all we need is basic information.

On March 14, 2000 the Center for Ecological Technology (CET), Northampton, MA and Draper/Lennon Inc., of Concord, NH announced a new project to facilitate and promote recycling of food waste and other organic materials in Boston and eastern Massachusetts. CET received grants from the US Environmental Protection Agency New England Region and the MA Department of Environmental Protection for the effort.

The goal of the project is to identify and expand organic waste recycling capacity in eastern Massachusetts, and then to stimulate the diversion of organic wastes into compost and feed production as the capacity increases. To accomplish this, the project will identify all of the active compost facilities and other end users for organic materials in eastern Massachusetts. CET and Draper/Lennon will then work with these processors to expand their capacity to handle food wastes in addition to the leaf and yard wastes and other materials that are the foundation of their current operations.

Simultaneously, CET and Draper/Lennon will work with generators of recyclable food wastes to encourage them to adopt organic waste recycling as a viable waste management tool. Generators such as supermarkets, food manufacturers, and food distributors are often unaware that they have an alternative to disposal, by sending their wastes to a composter or feed manufacturer instead of a landfill or incinerator.

The project will address this situation by providing information on the potential savings that can be gained by organics recycling, and by matching generators with potential users of their organic wastes. A web-based database of all interested waste generators, haulers and waste processors will be created (*any hauler or service provider interested in being listed in the database should respond by completing the attached survey— see instructions below*). The project will provide technical assistance in such areas as quality control and collection and transportation logistics to interested parties. A resource guide for new or expanding organics recycling businesses will also be created.

The project will end in September, with the goal to help divert an additional 600 tons/month of organics from the Boston and eastern Massachusetts waste stream, and establish the foundation to grow this amount by many times in the years to come.

**Massachusetts waste haulers and service providers that would like to be included in the web-based database should complete the attached survey form and mail or fax it back to the Draper/Lennon Offices, 7 South State Street, Concord, NH 03301. If faxing is more convenient, Draper/Lennon's fax number is 603-229-1960. The survey deadline is June 7<sup>th</sup>. For further information, please contact Dana Draper or Mark Lennon at [draperlennon@conknet.com](mailto:draperlennon@conknet.com).**

Thank you for your involvement.

# CET Greater Boston Food Waste Recycling Project

## Hauler & Service Provider Survey

*This survey helps us gather basic information about your firm's services. While we do plan to follow up this survey with you to discuss your involvement in the program, the information you provide below may be entered into the web database. Do not complete this survey if you are not interested in working with us to develop this program.*

Company: \_\_\_\_\_  
Primary Contact: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Email: \_\_\_\_\_ Web: \_\_\_\_\_

*(Please circle the answers to each question below that best describes your business)*

**Primary business?**

*Waste Hauling*

*Recyclables Hauling*

*Recyclables Processing*

*Combination of all 3*

*Other* \_\_\_\_\_

**Can you service accounts located east of Route 495 towards Boston?**

*Yes*

*No*

**What types of large container services does your firm provide?**

*Open Top Roll-Off*

*Closed Roll Off*

*Compactor*

*Sludge Container*

**What types of dumpster services does your firm provide?**

*Front Load*

*Rear Load*

**What types of small container services does your firm provide?**

*Wheeled Carts*

*Barrels*

*Curbside Containers*

*Other* \_\_\_\_\_

**Any other services your firm provides that apply to collecting and hauling food waste or organics? \_\_\_\_\_**

**Has your firm ever been involved in food waste or organics recycling?**

*Yes*

*No*

**Is your firm currently involved in collecting and/or transporting food waste or organics?**

*Yes*

*No*

**If yes, do you use a composter, an animal feed processor, or other as your end market?**

*Composter*

*Animal feed*

*Other* \_\_\_\_\_

**Comments:** \_\_\_\_\_

**RETURN SURVEY BY FAX OR MAIL TO:**

*Draper/Lennon, Inc*

*7 South State Street*

*Concord, NH 03301*

*Fax: 603-229-1960*

## C. Close out letter

January 30, 2001

Dear Colleague:

As you are aware, for the past 8 months the Center for Ecological Technology (CET) and Draper/Lennon Inc. have been working on the Greater Boston Area Food Waste Recycling Project. Thank you for your time and interest during this project, which has involved many food waste generators, haulers, and material end markets such as composters and animal feed dealers. Clearly the highlight of this project has been the cooperation among participants, working together to divert food waste from disposal to beneficial end markets like animal feed and composting.

At the end of December, CET concluded the project's most recent phase. Through the work of Draper/Lennon Inc., several large volume food waste generators have been matched with haulers and end markets to transport and process their food wastes. As a result of this project, over 400 tons of food wastes have been diverted from disposal in Massachusetts landfills in 2000, with the potential for arrangements set in motion to divert over 7000 tons of material in 2001.

We realize that the project's recent successes are just a "drop in the bucket" of what is possible. CET is working with the US Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) to encourage and facilitate additional food waste recycling activity. To help connect interested parties, we have compiled a database of interested Massachusetts food waste generators, haulers and processors for your use (see attached).

Also, I would like to invite you to attend the Second Massachusetts Organic Recycling Summit, "Growing the Organics Recycling Business," to be held from on March 14, 2001 from 8:30am-3:00pm at the Boxborough Holiday Inn. The event is designed to help you build the business relationships you need to grow your organic waste recycling activities (see enclosed description and registration form).

I hope that the database and upcoming Summit will be helpful to your business. Please contact me at [johnm@cetonline.org](mailto:johnm@cetonline.org) or (413) 586-7350 if you have any questions.

Sincerely,

John Majercak  
Director of Waste Management Programs

enclosures

## **Second Massachusetts Organic Recycling Summit**

The Second Massachusetts Organic Recycling Summit, "Growing the Organics Recycling Business," will be held from on March 14, 2001 from 8:30am-3:00pm at the Boxborough Holiday Inn in Boxborough, MA.

A growing number of businesses in Massachusetts (e.g. Big Y World Class Markets, Bread and Circus Wholefoods Markets, the Stop and Shop Supermarket Company) are turning to organic waste recycling as a way to lower costs, build public and regulatory goodwill, and meet corporate environmental objectives. Haulers (from ABC Disposal to Waste Management, to name a few) are beginning to offer organic waste recycling services to their customers. Now that the new MA Solid Waste Master Plan considers an eventual ban on the disposal of commercially generated food waste once the service is widely available, it is more important than ever to become involved in this issue.

The focus of the summit is to increase the capacity in Massachusetts for composting and manufacturing animal feed from food wastes. One session will bring together businesses that generate food waste (supermarkets, food manufacturers, etc.), waste haulers and composters/feed manufacturers to build business relationships that improve the economics of recycling food waste for all involved. Attendees will include businesses seeking outlets for their food waste and composters and haulers seeking new customers for their organic waste recycling services. Participants will hear from current industry leaders about what is (and is not) working in the marketplace.

The cost of the event is \$15 (lunch included) and registration is required. The Holiday Inn Boxborough (MA) is located at the junction of Route 111 and I-495 (exit 28 off I-495 North or South). For more information or to download a registration form, visit [www.cetonline.org/events/events.htm](http://www.cetonline.org/events/events.htm) or contact John Majercak of CET at [johnm@cetonline.org](mailto:johnm@cetonline.org) or (413) 586-7350.

The summit is sponsored by the U.S. Environmental Protection Agency Region 1, the Massachusetts Department of Environmental Protection, and the Center for Ecological Technology (CET). Co-sponsors include BioCycle Magazine, the Chelsea Center for Recycling and Economic Development, the Greater Boston Food Bank, the Massachusetts Association of Health Boards, the Massachusetts Executive Office of Environmental Affairs, the Massachusetts Department of Food and Agriculture, the Massachusetts Food Association, the Massachusetts Municipal Association, MassRecycle, the National Solid Wastes Management Association (NSWMA) New England Chapter, the Northeast Recycling Council, the Solid Waste Association of North America (SWANA) Mass. Chapter and WasteCap of Massachusetts.

## *Interested Parties*

Generator			Bake'n Joy Foods, Inc.		
ADM Cocoa			Roy	Mooney	
Frank	O'Xorn		351 Willow Street South		
150 Oakland Street			North Andover	MA	01845-5921
Mansfield	MA	02048-1512	978-683-1414		
508-261-8967			Boston Popcorn Company		
American Nut & Chocolate Co.			John	Shankey	
Andrew	Horvit		7 Perry Drive		
P. O. Box E24			Foxboro	MA	02035-1024
South Boston	MA	02127-0001	781-828-4100		
617-268-0075			Brady Enterprises		
Atlantic Beverage Group			Jack	Brady	
A.J.	Degutis		165 Moore Road		
1206 Hanover Street			Weymouth	MA	02189-5000
Hanover	MA	02339-2025	781-337-5000		
781-878-1313			Cains Foods, Inc.		
Au Bon Pain, Inc.			Joe	Sampson	
Ronald	Shaich		East Main Street		
19 Fid Kennedy Avenue			Ayer	MA	01432
Boston	MA	02210-2427	978-772-0300		
617-423-2100			Cathay Foods Corp.		
Automatic Rolls of New			Victor	Wong	
Fred	Sexton		960 Massachusetts Avenue		
Overhill Drive			Boston	MA	02118-2620
Auburn	MA	01501-000	617-427-1507		
508-832-5451			Cumberland Farms, Inc.		
Chex Finer Foods, Inc.			John	Sadowski	
Mr.	Isenberg		777 Dedham Street		
39 F. R. McKay Drive			Canton	MA	02021-1484
Attleboro	MA	02703	617-828-4900		
508-226-0660			Deano's Pastacia, Inc.		
Christie Food Products, Inc.			Dean	Matarazzo	
Scott	Jones		50 Terminal Street		
10 Charlam Drive			Charlestown	MA	02129-1973
Braintree	MA	02184-5214	617-241-8787		
781-848-7200					

Cinnamon Bakery, Inc.			Demoulas Market Basket		
Thomas	Pattavinia		Norman	Martin	
121 Hancock Street			875 East Street		
Braintree	MA	02184-7040	Tewksbury	MA	01876-1495
781-843-2867			978-640-8117		
Concord Foods			Dirigo Spice Corp.		
Peter	Neville		John	Darack	
10 Minute Man Way			750 Dorchester Avenue		
Brockton	MA	02401-7508	Boston	MA	02125-1132
508-580-1700			617-436-9540		
Cookies To Scoop			Durkee-Mower Inc.		
Michael	Barbarita		George	Murray	
75 McNeil Way			2 Empire, Box 470		
Dedham	MA	02026-3822	Lynn	MA	01902-1815
781-326-3822			781-593-8007		
Creative Seasonings, Inc.			Edelweiss Bakery		
Mark	Dellafera		Rifat	Cebi	
34 Audubon Road			48 Brighton Street		
Wakefield	MA	01880-1261	Charlestown	MA	02129
617-246-1461			617-242-3972		
F.B. Washburn Candy Corp.			Harbar Corporation		
James			Santiago	Villanueva	
P. O. Box 3277			31 Germania Street		
Brockton	MA	02404-3277	Jamacia Plain	MA	02130-2314
508-588-0820			617-769-0400		
Fairfield Farm Kitchens			Hommus Factory, Inc.		
David	Winsor		Carol	Coutrier	
309 Battles Street			143 Winter Street		
Brockton	MA	02401-2299	Haverhill	MA	01830-5625
508-584-9300			978-372-2672		
Fishery Products			Howard Foods, Inc.		
John	Arena		Charles	Waite	
18 Electronics Avenue			5 Ray Street, Box 2072		
Danvers	MA	01923	Danvers	MA	01923-5072
978-750-5251			978-774-6207		

FitFoods, Inc.			Johnson Candy Corp.		
David	Zussman		Ken	Keefe	
93 Union Street, Suite 315			Box 45190		
Newton Center	MA	617-332-5222	Somerville	MA	02145-0002
617-527-4176			617-776-6255		
Garellick Farms, Inc.			Johnson's Food Products		
Sam	Wolman		Peter	Anton	
P. O. Box 289			1 Mount Vernon Street		
Franklin	MA	02038	Dorchester	MA	02125-1604
508-528-9000			617-265-3400		
Hans Kissle			Joseph's Gourmet Pasta &		
Chris	Gelinas		Joseph	Faro	
330 Ballardville Street			P. O. Box 8211		
Wilmington	MA	01887	Haverhill	MA	01835-8338
978-658-8080			978-521-1718		
Jungbunzlauer, Inc.			Mass. Bay Brewing Company		
John	Quinn		Al	Marzi	
75 Wells Avenue			306 Northern Avenue		
Newton Center	MA	02159-3214	Boston	MA	02110
617-969-0900			617-574-9551		
Ken's Foods			Matthew's All Natural Inc.		
Jamie	Feagan		William	Crowley	
P. O. Box 849			14 Jewell Drive		
Marlborough	MA	01752-0849	Wilmington	MA	01887-3361
508-485-7540			978-658-0006		
Kraft Foods			Nasoya Foods		
Catherine	Lowery		Dan	McPhail	
Hill Street			1 New England Way		
Woburn	MA	01801	Ayer	MA	01432
781-933-2800			978-772-6880		
L&M Bakery			Necco		
Paul	LaPlante		Charles	Bemis	
203 South Union Street			254 Massachusetts Avenue		
Lawrence	MA	01843-1610	Cambridge	MA	02139
978-687-7346			617-876-4700		

LaRonga Bakery			New England Cranberry		
John	Newman		Arthur	Stock	
599 Somerville Avenue			4 Bishop Street		
Somerville	MA	02143-3296	Framingham	MA	01702-6708
617-625-8600			781-237-2892		
Leo's Bakery			Pearlco of Boston, Inc.		
Bob	Gagnon		Judi	Pearlstein	
1179 Ocean Street			5 Whitman Road		
Marshfield	MA	02050-3697	Canton	MA	02021-2707
781-837-3300			781-821-1010		
Rich Products Corporation			Stop & Shop Companies, Inc.		
Karl	McHugh		Mike	Terry	
40 Crane Meadow Road			1385 Hancock Street		
Marlborough	MA	01752	Quincy	MA	02169
508-481-8900			617-770-8709		
Rudi Foods			Taj Gourmet Foods		
George	Yeomelakis		Paul	Jaggi	
365 Beacham Street			190 Fountain Street		
Chelsea	MA	02150	Framingham	MA	01702-6213
617-884-9800			781-875-6212		
Shaws Supermarkets			The Curry Chef, Inc.		
David	Keenan		G.D.J.	Dorai	
P. O. Box 300			2 Currier Court		
South Easton	MA	02375	Lexington	MA	02420-2246
508-588-0293			781-861-8895		
SLB Holding Co.			The Leavitt Corp.		
Rick	Nelson		James	Hintlian	
420 Lynnway			P. O. Box 31		
Lynn	MA	01905	Everett	MA	02149-1995
781-593-4422			617-389-2600		
Sparrow Enterprises			The Whipple Co.		
Henry	Baybutt		Andrew	Crain	
59 Waters Avenue			P. O. Box 275		
Everett	MA	02149	Natick	MA	01760-0275
800-783-4116			508-653-2660		

Stickney & Poor Co., Inc.			Veryfine Products		
Jim	Gens		Erik	Ekwall	
12 Alpha Road			P. O. Box 670		
Chelmsford	MA	01824-4102	Westford	MA	01886-0670
800-225-0952			978-692-0030		
Viking Seafoods			Browning Ferris Industries		
Joe	Novello				
50 Crystal Street			22 Nightingale Ave.		
Malden	MA	02148	Quincy	MA	02169-6599
781-322-2000			617-471-7900		
West Lynn Creamery			Conigliaro Industries, Inc.		
Chris	Scangas		Greg	Conigliaro	
626 Lynnway			701 Waverly St.		
Lynn	MA	01905-3068	Framingham	MA	01702
781-599-1300			508-872-9668		
Yankee Specialty Foods			E.L. Harvey & Sons		
P.	Lindquist		Ben	Harvey	
22 Fish Pier, West			68 Hopkinton Rd.		
Boston	MA	02210-2008	Westborough	MA	01581-0000
617-951-0740			508-836-3000		
Hauler			Herb's Disposal		
A&C Carting & Disposal			Valerie	Savage	
Anthony	Catnido		P.O. Box 197		
PO Box 141			Pinehurst	MA	01866
Medford	MA	02155	800-500-1439		
781-396-9100					
 			Troiano Trucking		
Atlantic Hauling & Disposal			Mark	Troiano	
George	Latini		149 Derby St.		
PO Box 1650			Worcester	MA	01604
Plymouth	MA	02362	508-839-1300		
508-224-4343					
Processor					
Agresource			Newland Farms		
Geoff	Kuter		Earl	Wilcott	
100 Main St.			Newland St.		
Amesbury	MA	01913-2822	Norton	MA	02766
978-388-5110			508-285-3169		

Bedminster Bioconversion			Paul Starrett Farm		
Bob	Spencer		Paul	Starrett	
860 Old Post Road			18 Pleasant St.		
Marlborough	MA	01752	Mendon	MA	01756
508-480-9922			508-473-5622		
Bridgewater Farm Supply			Peter Hawks Farm		
Paul	Shimkus		Peter	Hawks	
1000 Plymouth St.			51 Pleasant St.		
Bridgewater	MA	02324	Mendon	MA	01756
508-697-0668			508-473-9842		
Compost Connections			PK's Garden Supply		
B.J.	Jones		Paul	Kerouac	
75 Ocean Park Road			613 Amherst St.		
Saco	ME	04072	Nashua	NH	03063
207-286-1887			603-598-6815		
Groundscapes Express			Recycle Away Group Systems		
John	Engwer		Gary	Braverman	
P.O. Box 737			P.O. Box 829		
Wrentham	MA	02093	Taunton	MA	02780
508-374-7140			877-547-RAGS		
Megquier Hill Farm			Rocky Hill Farms		
Peter	Bolduc		Fran	Buzun	
P.O. Box 149			99 Butterfield Rd.		
Poland	ME	04291	Saugus	MA	01906
207-998-8060			781-233-9480		
Seacoast Farms					
Bob	Kelly				
59 Columbus Ave.					
Exeter	NH	03833			
603-772-6490					
Watts Family Farm					
Peter	Watts				
23 Falmouth Sandwich Road					
Forestdale	MA	02644			
508-477-7206					
Weston Nurseries					
Peter	Mezitt				
Route 135					
Hopkinton	MA	01748			
508-435-3414					

## D. Project budget

**Boston Area Organic Waste  
Management Project  
10/99 to 03/01  
Final Budget - approximate costs**

**Personnel**

Project Manager	\$12,002
Project Staff	\$639
Back-up Admin.	\$30
<b>Total Personnel</b>	<b>\$12,671</b>

Fringe	<u>\$2,775</u>
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<b>Personnel &amp; Fringe</b>	<b>\$15,446</b>
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**Non-Personnel**

Travel	\$2,700
Supplies (Office)	\$248
Postage (Bulk & Daily)	\$750
Telephone (Outreach)	\$200
Copying (Materials/Office/Report)	\$500
Direct Rent & Utilities	\$650
Project Consultants	\$28,802
<b>Total Non-personnel</b>	<b>\$33,850</b>

<b>Total Direct Expenses</b>	<b>\$49,296</b>
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Total Indirect	\$5,704
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Costs of Initial Survey & Summit (Wages, Consulting, Space & Food)	<u>\$9,400</u>
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<b>Total Project Cost</b>	<b>\$64,400</b>
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## **E. Climate change impact calculation methodology**

Much of the food waste was diverted (or planned to be diverted) to manufactured animal feed, for which there is not currently a climate change calculation factor. An estimated climate change impact was calculated using the average factor of .15 MTCE emissions avoided for every ton of food waste diverted from landfilling as seen below:

415 tons actually diverted x .15 MTCE/ton = 62.25 MTCE reduction

8600 tons potential yearly diversion x .15 MTCE/ton = 1290 MTCE reduction

## F. Paragraph for State climate change action plan

The Massachusetts 2000 Solid Waste Master Plan states that DEP “hopes to see food waste diversion from the industrial, commercial, and institutional (ICI) sectors go from the current 5-10% to 60% by 2010”. DEP efforts and plans also support home, on-site and leaf and yard waste composting.

Composting has a beneficial effect on GHG emissions. Composting at decentralized operations would also reduce trucking distances and the associated emissions. As an illustration, the Phase 1 Report of the Strategic Plan to Promote the Use of Recyclable Materials in Massachusetts (May 1998 Dorn and Associates for the Chelsea Center for Recycling and Economic Development on behalf of the Commonwealth of Massachusetts) estimated additional potential recovery in MA of food waste only of 148,000 tons per year. Composting this amount of material instead of incinerating and landfilling it would reduce greenhouse gas emissions by approximately 7900 MTCE per year<sup>3</sup>.

Composting also reduces the need for increased disposal capacity with its associated methane emissions from landfills and conserves valuable organic matter that can be used to enrich soils, increase fertility and reduce erosion and damaging nutrient runoff into streams. Also, the use of finished compost reduces reliance on petroleum-based fertilizers and pesticides and their greenhouse gas emissions as well as their other detrimental environmental effects. Finally, cost savings to waste generators and income for haulers and composters can provide economic benefits.

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<sup>3</sup> Source - ICF Consulting

GHG Emissions from Baseline Waste Management (MTCE) = -659

GHG Emissions from Alternative Waste Management (MTCE) = -7906  
(assuming 100% composting for all 148,000 tons of waste generated)

Total Change in GHG Emissions: -7247 MTCE

The assumptions going into these numbers include a baseline scenario with 75% incineration and 25% landfilling. When inputting the tonnages, we assumed current mix, national average landfill gas control, gas collection system efficiency of 75%, and default distances

## **G. List of related materials available from CET**

The following publications are available from CET:

*Strategies to Increase Food Waste Recycling in the Greater Boston Area*

*A Resource Guide for Food Waste Processors* (pending publication by MA DEP)

*Recycling Food Waste: A Guide for Businesses* (pending publication by MA DEP)

*Building a Market-based System of Farm Composting of Commercial Food Waste*

*Composting commercial food waste and waxed corrugated cardboard on farms - operational checklist*

*Composting commercial food waste and waxed corrugated cardboard on farms - general guidelines and case studies* (pending publication by MA DEP)

Download these documents as .pdf files for free from CET's website at [www.cetonline.org](http://www.cetonline.org).

To receive a mailed hard copy, send your mailing address and a check made out to CET for \$5 shipping and handling fees per document to CET, 26 Market Street, Northampton, MA 01060.

## **H. Other helpful resources**

### **Appropriate Technology Transfer for Rural Areas (ATTRA)**

P.O. Box 3657

Fayetteville, AR 72702

Phone: 1-800-346-9140 --- FAX: (501) 442-9842

Farm-Scale Composting Resource List - an excellent, extensive list (from which most of the information below is derived).

<http://www.attra.org/attra-pub/farmcompost.html>

### **The US Composting Council Home Page**

<http://CompostingCouncil.org/>

### **Cornell University Composting Home Page**

<http://www.cals.cornell.edu/dept/compost/>

### **EPA Solid Waste Management: Composting Resources**

<http://www.epa.gov/epaoswer/non-hw/compost/>

### **California Integrated Waste Management Board Publications on Compost & Yard Waste**

<http://www.ciwmb.ca.gov/publications/default.asp?cat=2>

### **BioCycle Magazine**

419 State Ave.

Emmaus, PA 18049

610-967-4135

610-967-1345

[biocycle@jgpress.com](mailto:biocycle@jgpress.com)

<http://www.jgpress.com/>

\$69/12 issues a year

BioCycle is the leading trade magazine — published since 1960 — on farm, municipal, and industrial composting. Some of the nice features to BioCycle include: profiles and articles on compost operations and businesses, compost methods, compost uses, literature reviews, research reports, industry trends, economics and marketing, and equipment and supplies. BioCycle covers all aspects of the compost industry whether MSW, livestock manures, yard trimmings, woody materials, food residuals or biosolids.

### **Massachusetts Department of Environmental Protection**

Web resources - Municipal composting guidance documents, and Composting Technical Assistance- A list of publications and visual aids for composting

<http://www.magnet.state.ma.us/dep/recycle/recycle.htm>

Sumner Martinson, Director, Composting Program

1 Winter Street, 9<sup>th</sup> floor

Boston, MA 02108

(617) 292-5969

[sumner.martinson@state.ma.us](mailto:sumner.martinson@state.ma.us)



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Pittsfield, MA 01201  
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