

Subcommittee: Increasing Source Reduction and Recycling Rates of the Municipal Waste Stream

(Abstracted from the State Solid Waste Management Plan, amended December 2006; Objective 1 – Source Reduction; Objective 2 – Recycling and Composting; Objective 6 Planning, Evaluation and Measurement)

Objective 1- Source Reduction

The objective of source reduction is to catalyze shifts in consumer, business, product manufacturing, and solid waste processing practices to reduce the quantity and toxicity of solid waste generated in Connecticut including the quantity and toxicity of residue generated by RRFs and construction and demolition volume reduction facilities.

Overview – Source Reduction

Source reduction (consuming and throwing away less) is also referred to as pollution prevention and results in a reduction in the amount and/or toxicity of waste generated. Waste is generated throughout the life cycle of a product, beginning with extraction of raw materials, throughout transportation, processing and manufacturing, during use, and by its disposal at the end of its useful life. Source reduction can be defined as any change in the design, manufacturing, purchase, or use of materials or products, including packaging, that reduces the amount or toxicity of waste associated with those materials or products. It is the highest priority in the hierarchy of effective solid waste management and is generally acknowledged to have the greatest benefits in terms of reducing waste management and product manufacturing costs, and reducing environmental burdens like natural resource use, energy use and air and water emissions. It is also perhaps the most challenging integrated solid waste management option since it involves changes in well-established manufacturer and consumer practices and requires businesses, industries, and consumers to reduce both the quantity and toxicity of wastes that they generate. Product and material reuse will be included in this discussion of source reduction.

Current Source Reduction Practices

Current Source Reduction Practices for Reducing the *Toxicity* of Solid Waste

Major concerns regarding toxicity in solid waste relate to the presence of toxic substances such as mercury, lead, dioxin, and cadmium in products and materials that are disposed and the generation of those toxic substances during the manufacturing process. Connecticut encourages manufacturers and industries to reduce the toxicity of their consumer products. There has been significant progress in reducing the toxic content of certain products. Some of these actions have been voluntary, while others have been legislated and include:

- CT DEP's Pollution Prevention Plan.
- Public Act 02-90, An Act Concerning Mercury Education and Reduction.
- Paint manufacturers voluntarily stopped producing mercury-containing paints in 1991.
- Manufacturers of computers and other consumer electronics products are starting to reduce their use of lead, mercury and other toxic substances.

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- Connecticut statutes require reduced mercury content of alkaline manganese and zinc carbon batteries (CGS Sections 22a-256d, 22a-256e).
- Toxics in packaging legislation that was adopted by Connecticut and eighteen other states and several foreign countries has resulted in a steady decline in the presence of heavy metals in packaging throughout this country.
- The CT DEP is working with large institutions in Hartford, including hospitals and college laboratories, to become models of pollution prevention.
- The CT DEP and the Connecticut Department of Administrative Services (DAS) initiated a program to research and promote the purchase of environmentally preferable products by all Connecticut State agencies. In 2006, Governor Rell issued Executive Order No. 14 which required State agencies to procure and use, whenever practicable, cleaning and/or sanitizing products having properties that minimize potential impacts to human health and the environment, consistent with maintaining clean and sanitary State facilities.
- The CT DEP maintains a web page dedicated to pollution prevention.

Current Source Reduction Practices for Reducing the *Quantity* of Solid Waste

- Based on solid waste facility reports submitted to the CT DEP, the amount of MSW generated per person (at work and at home) in Connecticut has been rising steadily from an average of 4.8 lbs/person/day in FY1992, the first year of analyzed data in the CT DEP solid waste management data base to an estimated 6lbs/person/day in 2006. Although some of the observed increase can be attributed to better reporting, there has been a real increase in the amount of trash produced. We have progressively become a *throw-away* society, addicted to buying new things, the convenience of single use products, and with no general awareness of the environmental costs of that lifestyle. However, a variety of source reduction actions have been taken by some individuals and businesses to reduce the amount of waste they produce.

Barriers to Achieving Waste Source Reduction

- Reducing the quantity of waste we generate competes with the ongoing promotion of product consumption;
- Information on the toxicity of waste associated with products, and on less wasteful or toxic alternatives, is not readily available;
- Increased consumer reliance on catalog and internet shopping has increased the generation of shipping and packaging materials;
- There are other issues competing for people's time, concern, and attention and source reduction is just one more issue and people feel no immediate sense of urgency to deal with it;
- Pricing for waste management disposal services, especially for residential services, often does not provide an incentive for reducing waste; and
- While cost incentives exist for manufacturers to reduce the weight of products and packaging, there may not be as strong an economic incentive to reduce toxicity or to make products more durable.

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Source Reduction Opportunities and Priorities

- Change purchasing practices by the public and private sectors to promote sales of less wasteful and less toxic products.
- Promote change in business and industry practices to reduce waste generation, including paper waste and waste related to transport packaging.
- Change practices in the construction industry to reduce the use of products containing toxic substances and to reduce waste.
- Change manufacturer practices so as to produce consumer electronic products using less toxic substances in this country to mirror the changes being made in products sold to European countries.

Strategies to Reduce the Amount and Toxicity of Solid Waste Generated

Strategy 1-1. Continue to implement the CT DEP's Pollution Prevention Plan that establishes goals and identifies strategies to reduce the quantity and toxicity of wastes discharged to the land, air, and waters of the state.

Strategy 1-2. Educate consumers and businesses about the effects of their purchasing choices and behaviors on waste generation, and provide education and incentives to help change purchasing and behavioral practices to reduce the amount and toxicity of waste produced.

Education is the first step in encouraging change. The CT DEP, in partnership with environmental and civic organizations, will implement a program to educate consumers and businesses about the environmental and human costs associated with purchasing choices. But awareness alone will not necessarily effectuate change, and product choices and incentives will need to be available as well. The CT DEP will continue to promote EPA's WasteWise Program in Connecticut. This EPA Program is a free and voluntary through which organizations can eliminate costly municipal solid waste and select industrial wastes, benefiting their bottom line and the environment. WasteWise is a flexible program that allows partners to design their own waste reduction programs tailored to their needs; partners range from small local governments and nonprofit organizations to large, multinational corporations. The CT DEP will expand current pollution prevention outreach to provide information regarding sources for environmentally preferable products and behavior changes that will reduce the amount and toxicity of the waste generated. The CT DEP will work with the Agency's Solid Waste Management Plan Advisory Committee (the "Committee") and with the business and industry sectors and institutions to decrease their waste disposal rates through increased source reduction by promoting programs such as re-usable substitutes for non-recyclable/non-reusable transport packaging.

Strategy 1-3. Continue to support regional and national efforts to change manufacturer practices to produce products that generate less waste and less toxic waste.

Strategy 1-4. Continue to promote environmentally preferable purchasing (EPP) standards in state and local government; encourage state agencies and municipalities to become members of EPA's WasteWise Program; and support green design standards and encourage their adoption by Connecticut local governments and institutions.

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Strategy 1-5. Provide funding to promote reuse and publicize product reuse opportunities.

The CT DEP will sponsor and build partnerships that can include state and local governments, regional waste authorities, the private sector, and community groups to support reuse opportunities. Product reuse is a method of reducing the amount of waste generated and has potential to be revitalized and expanded in Connecticut. Some examples of reuse opportunities include:

- Support existing material waste exchanges, such as the Southern New England Waste Exchange, and building material reuse centers, such as the Bridgeport Connecticut Habitat for Humanity ReStore and the ReCONNstruction Center located in New Britain, by disseminating information promoting their use and seeking funding to help support their development; and
- Dissemination of information promoting reuse and repair operations.

Strategy 1-6. Promote through such activities as technical assistance, start-up funding, and/or other incentives, the implementation of effective pay-as-you-throw (PAYT) pricing systems by municipalities and haulers for managing solid waste from residents and small businesses to achieve waste reduction.

Strategy 1-7. Seek partnerships, provide funding, and coordinate a model source reduction program to reduce the amount and toxicity of solid waste generated in at least one Connecticut community.

The CT DEP proposes that a model source reduction program be developed and implemented for the purpose of demonstrating the scope of what is possible, incorporating source-reduction strategies and other related strategies as identified in this Plan. Some of the strategies that could be implemented could include: reducing the amount of unsolicited mail received by residents; encouraging purchase of products with reduced packaging and/or with reduced toxicity, and durable products in lieu of disposable, single use products; encouraging reuse through a town swap program and education about material exchanges; promoting sustainable and organic landscaping design and maintenance which can result in waste reduction; and promoting source reduction practices such as two-sided copying and paperless offices in businesses. The model can demonstrate how programs can be tailored to Connecticut's specific conditions and chart a course for other communities to source reduce their waste. The CT DEP will work towards securing resources, enlisting partners and selecting the model community. The CT DEP would then work closely with local and regional government agencies, private industry, trade associations, universities, Non-governmental organizations (NGOs) and others to implement similar programs and document the waste reduced, the environmental benefits achieved, and the money saved.

Strategy 1-8. Continue to enforce Connecticut's Toxics in Packaging Act and other toxic reduction programs and efforts. Continue to work in conjunction with the Toxics in Packaging Clearing House and other member states to assess compliance rates with toxics in packaging laws.

Objective 2- Recycling

Move aggressively to strengthen Connecticut's public and private recycling and composting efforts and infrastructure to increase the quantity and quality of recovered materials and to

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build resilient, highly efficient and continually improving programs to reduce the amount of solid waste Connecticut disposes, both now and in the future.

Overview – Recycling and Composting

Connecticut has made great strides in recycling and the amount of MSW recycled has been increasing steadily since recycling became mandatory in 1991 but the percent of MSW recycled has leveled off. It is estimated that Connecticut currently recycles 1.133 million tons or 30 percent of the MSW generated, based on FY2003 reported data and estimates of unreported recycling, both projected to FY2005. Although an MSW recycling rate of 30 percent is consistent with the 2001 national average, it is far short of the State's 2000 statutory source reduction/recycling goal of 40 percent. Unfortunately, over the years, the percentage of MSW recycled remains steady, even though the amount of waste generated grows, resulting in the disposal of increasing amounts of MSW. The failure of Connecticut to achieve its recycling/source reduction rate can be partly attributed to the lack of resources available to: sustain and increase recycling participation rates; increase source reduction efforts; assess the state's recycling program and amend it as necessary to make it more effective; and take advantage of changing technologies, changing waste streams, changing market conditions, and untapped recycling/potential for some components of the waste stream.

This Plan calls for renewed, reinvigorated, and expanded efforts at recycling and composting. The Plan identifies a 58 percent MSW disposal diversion rate by the year 2024 so that there will be a zero in-state disposal capacity shortfall by that date. This means that Connecticut will have to divert approximately three times the amount of MSW (three million tons) currently being diverted from disposal through source reduction, recycling and composting by the year 2024.

Current Recycling and Composting Practices

Connecticut has a mature recycling program in place. This program was developed in response to recycling mandates and was accompanied by comprehensive programs for recycling education and recycling technical assistance and outreach. State funding was awarded to the municipalities and recycling regions for the development of the State's recycling infrastructure and for recycling education. In the early 1990s, the State awarded nearly \$40 million in grants to municipalities to support the State's recycling program. As a result of this significant investment of time, money, and effort, approximately 30 percent of Connecticut's MSW is estimated recycled or composted.

Figure 4-1 provides a breakdown of the MSW materials recycled and composted in Connecticut in FY2003. As shown in the figure, the greatest percentage of recycled materials consists of paper (cardboard, newspaper, mixed paper, office paper, and other types of paper), followed by organics (leaves, yard waste), scrap metal, containers (glass, plastic, steel, paper, and aluminum), and a small amount of other items (e.g. used oil, textiles, antifreeze, computers, etc.)

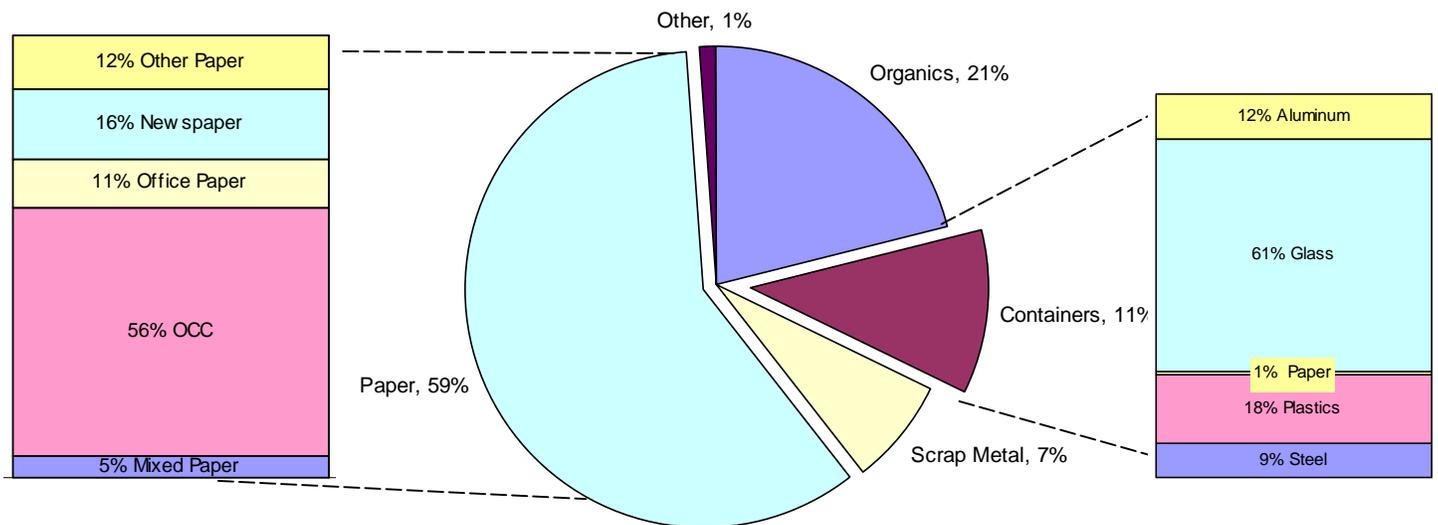
The recycling funding which was awarded to kick-start the regional and municipal recycling programs is now exhausted. At the present time, Connecticut finds itself with a largely stagnant recycling and composting rate which suffers from a chronic lack of resources and which has some critical gaps in service and infrastructure.

Connecticut processing capacity for the currently mandated recyclables appears to be sufficient for the near term. However, there will be additional capacity needed for some of the materials targeted by this Plan such as commercial and institutional source separated organic

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matter, electronics, and recyclables recovered from C&D waste. A comprehensive waste characterization study of disposal would help to document the future need for additional recycling processing capacity as Connecticut makes progress toward meeting its waste diversion target of 58 percent.

Figure 4-1
Estimates of Connecticut MSW Diverted from Disposal (FY2003)



Source: Solid Waste and Recycling Reports Submitted to CT DEP and estimates of additional recycling tonnages by R. W. Beck based on Franklin Associate reports for CRRA.

Recycling and Composting Mandates

Connecticut's recycling laws require separation of state mandated recyclables by everyone who generates them (including residents, businesses, institutions, and government); prohibits haulers from knowingly mixing the separated mandated recyclables with other solid waste; and requires municipalities to make provision for separation, collection, processing and marketing of designated recyclables. The State designated list of recyclables includes:

- corrugated cardboard;
- glass food containers;
- metal food containers;
- newspaper;
- high grade white office paper (non-residential only);
- scrap metal;
- lead-acid storage batteries (also has a deposit system and disposal ban);

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- crankcase used oil from engines;
- Ni-Cd rechargeable batteries;
- leaves; and
- grass clippings (disposal ban).

Many regional and municipal programs recycle additional materials such as mixed paper generated by residents, magazines, PET (#1) and HDPE (#2) plastic bottles, and yard waste. There is a bottle bill law in Connecticut that recovers additional beverage containers from the waste stream.

The enforcement of these laws is a joint effort shared by municipalities, haulers, disposal facilities and the CT DEP. The following are examples of some mandated recycling responsibilities:

- **Municipalities:** Responsibility for solid waste management has historically been a function of municipalities. Since the early 1970s, municipalities have been required to make provision for the safe and sanitary disposal of all solid wastes generated within their borders (CGS Section 22a-220). In the mid-1980s, legislation was passed which required each municipality to make provisions (on or after January 1, 1991) for the separation, collection, processing, and marketing of designated recyclables generated within their boundaries (CGS Section 22a-220(f)). Subsections of CGS Section 22a-220 also mandate a goal for municipalities to recycle and/or source reduce their waste by 40 percent and required municipalities to adopt a recycling ordinance, designate a municipal recycling contact, and submit an annual recycling report to CT DEP, and authorize CT DEP to issue orders against municipalities not in compliance with these requirements. Municipalities have statutory authority to establish fines for violations of their recycling ordinance.
- **Generators:** All generators of solid waste, including residents, businesses, institutions, and government, are required under Section 22a-241b to separate or provide for separation of designated recyclables.
- **Haulers:** Examples of mandated recycling requirements for haulers include: requirement to register in the municipalities in which they operate; requirement to help municipalities enforce the municipal recycling ordinance. Collectors are required to notify the municipal recycling contact about any customer believed to be discarding designated recyclables with solid waste. Upon request of the municipality, a hauler is required to provide a warning notice to customers suspected of violating separation requirements. Haulers shall also assist the municipality in identifying persons responsible for creating solid waste loads containing significant amounts of recyclables which were detected by the receiving resource recovery or solid waste facility.); and a prohibition against knowingly mixing solid waste with separated recyclables. Haulers are subject to a civil penalty up to \$2,500 for each violation and up to \$10,000 for a subsequent violation of this prohibition.
- **Solid Waste Facilities:** CGS Section 22a-220c(b) requires the owner or operator of each resources recovery facility or other solid waste transfer or disposal facility who observes significant quantities of designated recyclables in the loads received at their facility to provide prompt notification to the driver of the vehicle delivering the load and to the recycling contact of the municipality from which the load originated. The owner or operator of each such facility is also required to conduct periodic unannounced inspections of loads delivered to the resources recovery facility or solid waste facility to assist municipalities and the commissioner in accurately assessing compliance with recycling requirements. Such owners or operators are also required to conduct additional inspections

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upon the request of the commissioner. Facility owners or operators of resource recovery facilities and landfills who fail to comply with these requirements are subject to civil penalties of \$500 to \$5,000 for each occurrence of a violation.

- **CT DEP:** CT DEP has statutory and regulatory authorities to enforce state recycling statutes and regulations. The CT DEP can seek penalties and may issue an order or take legal action under Chapters 439 and 446c of the CGS. The CT DEP undertakes site investigations of all solid waste facilities and responds to complaints.

In actual practice, the system of recycling enforcement has been problematic because:

- Many municipalities are not enforcing their recycling ordinance;
- Many haulers are not enforcing or promoting recycling and some are mixing separated recyclables with trash;
- Some solid waste disposal or transfer facility owners or operators are not inspecting loads for significant amounts of recyclables and even for those that are conducting the inspections, many are not effectively following-up on such loads to assure that the problem is being followed up and corrected by the municipality or the generator; and
- The CT DEP does not have civil penalty regulations specific to some types of recycling violations.

Recycling and Composting Outreach Programs

Recycling outreach programs implemented in Connecticut since 1991 include:

- Recycling Education Centers located at the Groton, Hartford, and Stratford Intermediate Processing Facilities (IPCs) are highly effective in teaching students and teachers about source reduction and recycling. *Status:* On-going.
- America Recycles Day is a national all-volunteer non-profit organization that holds an annual national awareness event to promote social, environmental, and economic benefits of buying recycled and recycling. *Status:* CT DEP efforts greatly curtailed, Connecticut Recyclers Coalition (CRC) has taken on some of the responsibilities of the annual event.
- Connecticut Business Environmental Council (CBEC): Originally called the Connecticut Business Recycling Council, it consisted of businesses helping other businesses set-up recycling programs. The CT DEP funded the Council's start-up and first few years of operation. *Status:* CBEC still exists, but no longer receives CT DEP funding. Although not as active as in earlier years, CBEC is currently contracted by the Tunxis Recycling Operating Committee (TROC) to follow-up with businesses that send loads with significant amount of recyclables to the Bristol Resource Recovery Facility for disposal to help those businesses set-up effective recycling programs.
- Recycling conferences, workshops, presentations, videos, fact sheets, table top exhibits, poster contests, and manuals for businesses, schools, municipalities, institutions, hospitals, colleges and universities, state agencies, etc. *Status:* Direct outreach curtailed; materials still exist but are dated.
- Ray Cycle was the very successful recycling superhero in the CT DEP recycling educational program for schools. *Status:* Discontinued due to funding.
- Statewide multi-media campaign consisted of radio, television, printed materials, and bus billboards. *Status:* One time effort at start up of the State recycling program in 1990s.

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Recycling Collection and Processing

Most homes and businesses have access to recycling services, and the recycling collection and processing infrastructure is in place for mandated recyclable materials. Collected recyclables flow either directly from the point of generation or through transfer stations to destinations in Connecticut or out-of-state for processing and recycling. Destinations include recycling processing facilities, scrap metal dealers, composting sites, used oil processing facilities, and end users such as paper mills. Depending on the type, amount, and/or number of waste materials being aggregated or processed, a Connecticut solid waste management/recycling facility may either have a general permit, an individual permit, or be a registered facility. Recycling general permits were developed to be less burdensome and to simplify and facilitate the permitting process for recycling facilities that handle a relatively small amount of recyclables or only one material.

Some items such as some redeemable (bottle bill) bottles and cans, some types of batteries, and telephone directories have material specific infrastructures in place for recycling and are administered by industry groups. For example:

- It is estimated that close to 67 percent of Connecticut's carbonated beverage containers are collected through Connecticut's bottle bill infrastructure and assumed to be recycled. However, since there are no reporting requirements associated with Connecticut's bottle bill, the 67 percent rate is based on Massachusetts's bottle bill redemption rates.
- Close to 98 percent (based on national numbers) of lead acid storage batteries are recycled through a separate deposit program for these batteries.
- Rechargeable batteries (nickel-cadmium-NiCd; nickel metal hydride-NiMH; lithium ion-Li-ion; and small sealed lead-Pb) are recycled through retailers and municipal drop-off sites through a national recycling program operated and financed by the battery industry through the Rechargeable Battery Recycling Corporation ("RBRC") Call2Recycle™ Program.
- Telephone directory publishers distributing their directories in Connecticut are required to retrieve a percentage of their directories for recycling.

In the early 1990s, a system of nine regional recycling districts was formed to undertake recycling education and assist municipalities with contracting and marketing materials. Some of the State recycling grant money was awarded to the regions to develop regional recycling intermediate processing facilities (IPCs) to process paper, bottles and cans from member towns. Currently, some of those IPCs accept only residentially generated recyclables, while others accept both residential and non-residential material. Several of the recycling regions, with authority to enter into contracts on behalf of their member municipalities, executed long-term contracts for recycling with the IPCs on behalf of the towns. In many cases, the tipping fees for recyclables at the IPCs are approximately half of tipping fees for trash delivered to the resource recovery facilities (RRFs), though one IPC does provide for revenue sharing. A unique system to promote recycling by member towns was implemented by the Connecticut Resources Recovery Authority (CRRA) at its Hartford IPC and MidCT RRF and at the Stratford IPC and Bridgeport RRF. The tipping fee paid for trash delivered to the MidCT RRF and Bridgeport RRF by member towns also covers the costs of processing residential recyclables (bottles, cans, and paper) at the Hartford IPC and Stratford IPC, and for other recycling services such as one-day electronics collection days. This allows for no tip fee for residential recyclables delivered by member towns to the Hartford and Stratford IPCs. This system provides a strong incentive for member towns to reduce the amount of trash they dispose of and increase the amount of material they recycle.

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Though some of the regional recycling programs are currently inactive or have reduced their recycling involvement, some are still actively working to promote recycling. The following are some examples:

- In August 2005, CRRA announced a partnership to expand the CRRA Hartford IPC.
- In 2006, the Tunxis Recycling Operating Committee (TROC) completed a market research study that identified factors influencing recycling among its residents and identified areas where key improvements need to be made to increase recycling participation.
- In 2006, Housatonic Resources Recovery Authority (HRRA) announced the expansion and improvement of their website and recycling assistance for member towns.
- In 2006, the Southeastern Connecticut Regional Resource Recovery Authority (SCRRA) announced that all member town transfer stations will accept electronics for recycling from residents and announced a regional composting bin distribution program.

These examples demonstrate the potential of the regional recycling system in Connecticut to provide the foundation for enhancing regional cooperation to support and promote recycling.

Practically speaking, all residents have access to either curbside or drop-off recycling services, and in many instances it is provided through the municipality. Although commercial recycling services are generally handled by the private sector, some municipalities provide for recycling pick-up and/or provide options for drop-off of recyclables for the businesses located in their city or town. Due to economies of scale, larger businesses tend to have recycling programs in place and, depending on the type of business, some recycle material in addition to those mandated by state law, if quantities and markets for those additional materials make it economically feasible. However, in general, there is a lack of programs that efficiently and cost effectively collect recyclables from small businesses. The reasons for this are varied, but small business recycling programs generally do not realize the benefits of economies of scale of the large business recycling programs. This lack of economic incentives for small businesses to recycle under the current trashhauling infrastructure coupled with inadequate enforcement of recycling requirements has resulted in limited recycling participation by small businesses.

Current Efforts to Support Recycling and Composting Markets

Recycling programs can only succeed when the material collected for recycling is used to make products which are competitive in quality and price and which have market demand. Demand for recycled materials is enhanced when government encourages or requires the use of recycled material in products that meet high quality standards. Actions taken in Connecticut to increase demand for recycled materials include:

- A statutory requirement for newsprint users to collectively use a minimum percentage of recycled newsprint fiber (CGS Sections 22a-256m through 22a-256u). This requirement and similar efforts in other states resulted in expanded North American mill capacity to de-ink and use recycled newsprint.
- A statutory requirement for directory publishers to use a minimum percentage of recycled content directory paper.
- Promotion of EPP by state agencies and municipalities through the CT DAS. A series of state statutes have been adopted to facilitate and increase the purchase of recycled content products by Connecticut State agencies and municipalities. These include (but are not limited to):

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- CGS Section 4a-59 (c): Award of contracts (allows 10 percent price preference for recycled content products).
- CGS Section 4a-67a: Plan to increase State purchase of goods containing recyclable materials and goods capable of being recycled or remanufactured.
- CGS Section 4a-67e: Standards for purchase of recycled paper.
- CGS Section 4a-67f: Specifications for printing and writing paper (minimum 30 percent post-consumer content).
- CGS Section 4a-67g: Recycling and remanufacturing of laser printer toner cartridges.
- CGS Section 4a-67h: Procedures promoting the procurement and use of recycled products and environmentally preferable products and services by state agencies.
- The regional promotion of market development through support of work with organizations such as the Northeast Recycling Council (NERC). The CT DEP has worked with the NERC on a range of market development efforts at the regional level. In the late 1990's, NERC helped develop the Recycling Investment Forum as a strategy to stimulate the development of businesses processing or manufacturing products from recycled materials.
- CT DEP has conducted workshops, presentations and other outreach efforts to encourage state agencies, municipalities, businesses and others to boost purchases of recycled content products.
- The CT DEP includes "buy recycled" messages in most recycling outreach materials.

Barriers to Increasing Recycling and Composting

The following are the key barriers that hamper growth in recycling in Connecticut:

- A chronic lack of ongoing funding at the local, regional and state levels. The level of funding, staffing and other resources allocated to recycling and composting has not been adequately maintained.
- Failure to comply with state and local recycling laws.
- Failure of municipalities and the State to enforce recycling requirements.
- While the State has a program to collect and analyze data to calculate statewide and individual municipal MSW disposal, recycling, and generation rates, the reported data is not always complete or accurate, especially for individual municipalities. In addition, there are no resources to collect or use data to assess the need or success of specific programs.
- Low public awareness and concern over waste management and recycling and no incentives to reduce waste generated and disposed resulting in low recycling participation rates in some municipalities.
- A permitting process widely perceived among private-sector firms as inhibiting the development of certain recycling or composting facilities due to overly costly, lengthy and uncertain procedures.
- Issues directly affecting the viability of markets for some material currently collected for recycling include the following: concerns over the declining quality of some material collected for recycling; a lack of market demand for some materials (affecting the economics of collecting and processing this material); insufficient recyclables collected to

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meet market demand (affecting the viability of both the recycling processors and the manufacturers that depend on those recycled materials as a feedstock); and continually changing packaging designs, some of which may pose problems for current recycling systems. Specific examples of some of the market issues negatively impacting recycling include:

- Currently, there are poor to non-existent domestic container markets and limited other markets for green glass;
- Currently, market demand for some plastic resins and paper exceeds the amount of these materials collected and processed for recycling.
- When changing packaging designs, manufacturers do not always take recyclability into account and, as a result, some new packaging designs may potentially pose problems for existing recycling systems. For example: layers and barrier coats, adhesives, labels, closures, etc. added to plastic bottles can impact the recyclability of the bottle; the rapid introduction and use of radio frequency identification devices (RFIDs) for tracking and inventory control in all types of products and packaging, may potentially impact the recyclability of the packaging.
- Lack of incentives for recycling businesses or processors to locate in Connecticut. Recycling processors and manufacturers have varying financing needs, depending on their product, their market and their particular strengths and weaknesses. Financing can be the key to allowing companies with challenging needs to grow, such as those with new, unproven products or those entering newly emerging markets for which traditional investors may have strong reservations due to perceived risk. However, there are a lack of programs specifically designed to help recycling businesses and end users to site or expand new facilities.
- Lack of program models that can be implemented in Connecticut to efficiently and cost effectively collect recyclables from small businesses. Although economies of scale generally make recycling cost effective for large businesses, the same is not true for small businesses and, as a result, many of Connecticut's small businesses are not recycling. The reasons for limited recycling by small businesses are varied, but the major issues appear to be a lack of economic incentives for small businesses to recycle under the current trash hauling infrastructure and inadequate enforcement of recycling requirements.

Recycling and Composting Opportunities and Priorities

Through the combined efforts at source reduction, recycling, and composting, Connecticut proposes to take aggressive actions toward achieving a diversion from its disposal rate sufficient to eliminate the projected in-state disposal capacity shortfall by FY2024. That would equate to diverting 3,035,000 tons from disposal and achieving a 58 percent MSW diversion from disposal rate by FY2024. Nearly doubling the current disposal diversion rate will be a very difficult goal to achieve, even over the twenty-year planning period. To achieve this rate, even gradually over time, the State needs to implement a variety of strategies to increase the quantity and quality of recovered materials and to build resilient, highly efficient and continually improving programs. Listed below are the higher priorities for increasing recycling and composting in Connecticut.

- Enhance Connecticut's Beverage Container Deposit Law.
- Strengthen enforcement of the State's existing mandatory recycling system.

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- Establish incentives for generators, municipalities, haulers and manufacturers to divert more MSW from disposal.
- Increase efforts to educate Connecticut's consumers regarding the problems associated with increased waste generation, and the steps that they can take to reduce the amount of waste they generate, reuse materials and products as much as possible, and recycle those waste materials that can't be reused.
- Provide sufficient funding to municipalities, regional recycling entities, and state agencies to implement the recycling and composting strategies in the Plan
- Streamline the recycling facility permitting process.
- Identify national innovative waste diversion programs and develop models that may prove successful to Connecticut.
- Strengthen regional coordination and cooperation.
- Build capacity for market development services and providing incentives for recycling processing businesses and businesses using recycled material.

Strategies to Increase Recycling

- Strategy 2-1. Update Connecticut's beverage container deposit system by increasing the deposit amount and expanding coverage to at least plastic water bottles.**
- Strategy 2-2. Add plastics PET #1 and HDPE #2 and magazines to the list of State mandated recyclables.**
- Strategy 2-3. Continue to support Environmentally Preferable Purchasing (EPP) at CT DAS and promote and ensure State agencies and political subdivision utilization of EPP standards. CT DEP and CT DAS will evaluate the relevant statutes to ensure their completeness and effectiveness in actual State purchasing practices.**
- Strategy 2-4. Through the Agency's Solid Waste Management Advisory Committee, identify incentives for municipalities and haulers to implement effective and voluntary PAYT pricing systems for managing solid waste from residents and small businesses to achieve waste reduction.**
- Strategy 2-5. Increase technical assistance, education, outreach, and enforcement with regard to the business and industry sectors (especially the small businesses) and institutions to decrease their waste disposal rates by increasing recycling and source reduction. Promote EPP, including recycled content products, by Connecticut's businesses, industries, and institutions.**

Greater efforts on education and outreach, technical assistance, and enforcement need to be focused within the business and industry sector and institutions to improve their source reduction activities and recycling participation rates. The purchase of environmentally preferable products, which includes recycled content products, by businesses and institutions also needs to be promoted.

- Many small businesses in Connecticut can do more with regard to recycling. The CT DEP will work with the small business sector, regional waste authorities, Chambers of Commerce, the custodial industry, municipalities, waste haulers, and the Connecticut

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Business Environmental Council (CBEC) to identify recycling programs that will provide convenient, cost effective recycling collection models for small businesses, and will promote the implementation of such programs statewide. There will also be targeted enforcement against small businesses not complying with recycling requirements.

With the exception of restaurants, the solid waste generated by most small businesses consists mostly of high-grade office paper and corrugated cardboard. The CT DEP will focus on the following actions to increase the existence and effectiveness of small business recycling programs throughout the state:

- Support funding for the Connecticut Business Environmental Council (CBEC) or similar organizations to design and identify effective new strategies for small businesses to increase recycling and composting. CBEC currently conducts waste reviews, and works with businesses to increase recycling awareness, encourage waste reduction, improve compliance with recycling requirements, and promote the purchase of products containing recycled content.
- Provide increased education and technical assistance on recycling by working through regional business organizations, trade groups, chambers of commerce, and custodial companies.
- Promote participation in national programs to assist with source reduction and recycling (e.g., EPA's Waste Wise Program).
- Develop a public recognition program for successful small business recycling efforts.
- Some commercial building management companies may not be providing recycling programs for the tenants in their buildings. The CT DEP, in partnership with associations such as the Building Owners and Managers Association, municipalities, regional recycling entities, CRRA, waste haulers, and CBEC, will reach out to this sector to provide recycling education and technical assistance and ultimately enforcement against those failing to implement recycling programs in the buildings they manage.
- Larger businesses and institutions have the potential to reduce the amount of disposed waste and lower their disposal costs as well through hauler contracts that incorporate incentives for less disposal. The CT DEP will explore options and work with both sectors and, if determined appropriate, introduce this type of contracting and promote its use.
- The CT DEP will target a "buy recycled" campaign toward Connecticut businesses and institutions through the promotion of programs such as the National Recycling Council's "Buy Recycled Business Alliance".
- Other efforts that will be undertaken by the CT DEP will include: increased education and technical assistance, publicizing successful business recycling efforts, promoting national programs to assist with source reduction and recycling, and increasing enforcement of recycling requirements through targeted inspections.

Strategy 2-6. Continue the CT DEP's Municipal Recycling Honor Roll Awards Program and the Green Circle Awards Program to recognize and support exemplary source reduction and recycling practices and promote technology transfer.

Strategy 2-7. CT DEP, in collaboration with regional authorities and the hauling industry, will identify incentives for haulers to increase the amount of material recovered for recycled.

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CT DEP and regional recycling authorities will provide on-going assistance to waste collectors in providing recycling education for their customers. The current system for motivating generators and haulers to assure that mandated recyclables are being recovered is not effective. CT DEP will work with the hauling industry to identify and promote more effective incentives for recovering more recyclables from the waste stream and will identify and implement more effective disincentives for failing to do so.

Strategy 2-8. Develop the infrastructure necessary to increase the amount of paper that is recycled. Create incentives and funding for increased paper recycling and for source reducing the amount of waste paper generated.

Markets for paper collected for recycling have improved significantly and have remained relatively stable in recent years (as compared to the historic volatility of these markets) and are expected to remain stable. This favorable climate should enable Connecticut to create programs, incentives and infrastructure to divert significant additional amounts and types of paper from the waste disposal stream.

To take advantage of these circumstances the State will:

- Encourage regional Intermediate Processing Centers and other recycling facilities to follow the lead of CRRA and some private sector facilities and explore the feasibility of developing the necessary infrastructure to recycle additional amounts and types of paper; and
- Encourage municipalities, businesses (especially small businesses and businesses in multi-tenant commercial buildings), and haulers to collect and recycle additional amounts and types of paper with established recycling markets, including high-grade white office paper from the residential sectors and other types of paper such as chip board (for example cereal boxes), discarded mail, paper beverage cartons. More high-grade paper is being generated at home due to the proliferation of home computers, while recycling of other types of paper is dependent on the availability of stable markets.

The State will work with paper processors, paper mills, and paper industry associations and will provide technical assistance to large generators of waste paper to help reduce the amount of waste paper generated and maximize the amount recycled. All State agencies will be required to take steps to ensure that all mandated paper types are recycled and will be encouraged to explore options for increasing the types and quantities of paper collected and recycled.

Strategy 2-9. Support the continued recycling of non-mandated recyclables.

The markets and recycling infrastructure already exist in some parts of Connecticut for various MSW items that are not required to be recycled. Therefore, recycling programs should be supported and, if feasible, expanded for items such as anti-freeze, latex paints, textiles, residential high-grade paper, residential mixed paper, and paper beverage containers such as milk and juice cartons. Recycling programs for plastic bottles and magazines should be supported as well until such time they are added to the state's mandated recycling list. As markets and infrastructure become available, CT DEP will promote the recycling of other items including certain types of carpeting, ceiling tiles, etc. The CT DEP encourages pilot projects, when determined necessary, to test the feasibility of recycling some of these materials. In an effort to facilitate recycling of non-mandated materials, CT DEP will assess and amend its beneficial use program to eliminate requirements which do not protect the state's environment but which present barriers to increased reuse or recycling.

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Strategy 2-10. CT DEP, the Agency's Solid Waste Management Advisory Committee and other State Agencies will work with recycling business representatives to facilitate the development, expansion, and creation of markets for recycled materials.

Establish a subcommittee of the Agency's Solid Waste Management Advisory Committee to identify ways to assist processors, end-users and reuse companies to overcome market barriers and increase value-added beneficial use of recovered materials and to help provide up-to-date information on market trends. High priority market sectors will initially include C&D waste, food waste and other organics, and electronics. Consideration should be given to identify changes that will eliminate any disincentives and create incentives that will foster recycling and reuse for these materials.

Strategy 2-11. Build local, regional, and state capacity for implementing State recycling policies, regional planning and program implementation, and recycling information sharing.

- Funding needs to be provided for municipal and/or regional recycling coordinators to promote, assist, and enforce recycling in the municipalities. The success of Connecticut's recycling program is contingent upon efforts by each municipality, whether through its own recycling coordinator, or through a recycling coordinator shared by a group of towns, or through a regional recycling coordinator to:
 - Ensure that municipal residents, businesses, and organizers of special events are aware of and carry-out the recycling requirements pursuant to local recycling ordinances and mandates;
 - Promote recycling through educational outreach and incentives and technical assistance; and
 - Share information among municipalities and regions.
- Recycling and composting programs need to evolve over time to keep up with changes in markets, waste composition, more effective and efficient technologies for collection and processing of recyclables, and acquired experience in the field. It is a challenge for local program managers to stay current with changing best practices and to identify how to adapt them to their community's needs. To address this need, technical and financial assistance programs must target both local governments and, where appropriate, regional entities. The type of technical assistance to be provided will include assistance with local system optimization, especially development of contractual agreements and pricing systems that provide strong incentives for waste diversion, and evaluating opportunities to improve local system effectiveness and efficiency. The technical assistance program will require close coordination with all providers of education and outreach and other related strategies to reinforce the State's desire to move towards more-consistent, effective programs over time.
- To further assist and encourage local and regional programs to improve performance, the Department will seek funding to re-establish a program of innovation grants to municipalities and recycling regions. Such grants could be used to further innovative approaches that serve the State's overall objectives of reducing solid waste disposal. A portion of the funding can be reserved for top-priority waste reduction efforts as determined by the CT DEP on an annual basis.
- CGS Section 32-1e was modified by Public Act 06-27 to require the Connecticut Department of Economic and Community Development (DECD) in consultation with the

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CRRA and the CT DEP to develop a plan by July 1, 2007 for the support and promotion of industries that use, process, or transport recycled materials. The plan is required to outline ways existing programs of the DECD, the CRRA, and agencies such as the CT DEP, the Connecticut Development Authority and Connecticut Innovations, Incorporated will be used to promote such industries.

Strategy 2-12. CT DEP and regional recycling entities will work to build partnerships with groups that can assist with and support the State's recycling efforts. Potential partners include regional recycling programs, municipalities, CRRA, trade associations, businesses, non-governmental organizations, universities and others.

Strategy 2-13. CT DEP will designate a "State Source Reduction and Recycling Coordinator" to coordinate and implement the strategies described in this section and other sections of the Plan to increase source reduction, recycling, and composting.

Objective 6. Planning, Evaluation and Measurement

Strategy 6-6. Provide training and informational materials to municipal officials, regional and local waste management and recycling staff regarding best management practices and strategies for strengthening solid waste and recycling programs. Encourage communities and regional recycling programs to share their best practices and strategies. Investigate the possibility of establishing a municipal solid waste/recycling mentor program.