2009 SWANA Integrated Waste Management Excellence Award Submission
Regional Municipality of Durham
Executive Summary

The Region of Durham is located immediately east of Toronto, encompassing an area of approximately 2,532 square kilometers. It also has one of the fastest growing populations in Canada with approximately 621,000 residents. The area is comprised of a variety of landscapes and communities including eight local area municipalities: Pickering, Ajax, Whitby, Oshawa, Clarington, Scugog, Uxbridge and Brock.

In 1999, the Region approved a Long Term Waste Management Strategy Plan (LTWMSP) to guide the management of residential waste over the next 20 years. The focus of the plan was to establish home-grown integrated waste management solutions with a goal of maximizing waste diversion. As Ontario landfills are reaching capacity, and the United States is closing its border to Ontario waste, the Region has proactively investigated and implemented sustainable waste reduction and disposal opportunities, which are environmentally and financially responsible. State-of-the-art compost and materials recycling facilities have been constructed in Durham to support the myriad of integrated waste diversion programs provided by the Region.

The Region has established itself as a leader in waste diversion and is now setting out on a new frontier to implement the final objective of the Integrated Waste Management Plan – the establishment of an energy from waste facility to manage residential residual garbage waste.
1.0 Overview of System and System Performance

1.1 Introduction

Previous to the establishment of the LTWMSP, many of the municipalities managed waste-related collection programs and disposal, and as such, there were no standard levels of service throughout the Region. From 2002 to 2006, waste management responsibilities were uploaded from the municipalities to the Region. The Region assumed those existing waste collection contracts until their expiry and designed a strategy that would evolve into a unique integrated waste management solution – the Integrated Waste Management Plan (IWMP) 2000-2020. The prime objective of this plan was to develop a long-term integrated waste management strategy—while incorporating proactive waste reduction and waste disposal opportunities in an environmentally and financially responsible manner. The process involved a Waste Management Steering Committee, a public Advisory Committee, and a study consultant. The recommendations from all parties involved became the building blocks from which the integrated waste management plan was developed.

As a result of strategic planning, the Region has harmonized waste collection contracts and implemented a standard level of service within all area municipalities in a phased-in approach. As of March 2009, the following residential curbside waste services and facilities are offered in all eight area municipalities:

**Blue Box recycling:**
- Weekly collection Blue Box recyclables.

**Green Bin composting:**
- Weekly collection of a kitchen food waste Green Bin compostables.
- A new "state-of-the-art" in-vessel food waste Compost Facility in Durham.

**Leaf and Yard Waste composting:**
- Seasonal yard waste and Christmas tree composting program.

**Garbage Waste:**
- Biweekly collection of garbage waste (four-bag limit).
- Biweekly collection of bulky/metal goods on a call-in basis.
- An active program to establish a future residual waste disposal capacity.

The Region also operates three waste transfer stations, which offer additional waste disposal and diversion programs and maintains perpetual care of one active landfill and six closed landfills. The location of these regionally operated facilities are shown in Attachment 1.

1.2 Regional Programs

**Blue Box Recycling**

The Region is responsible for the curbside collection, processing, marketing and sale of all Blue Box recyclable materials from all area municipalities and Regional waste transfer stations. Residents are encouraged to sort their recyclables into separate fibres and containers streams and set blue boxes by the curb by 7 a.m. on the morning of their scheduled collection day. This program includes the collection of recyclables from about 183,000 residential households. Recent service level changes for garbage
collection Blue Box collection frequency in Clarington, Scugog, Uxbridge and Brock are expected to positively impact recycling diversion rates. The current Blue Box recycling diversion rate stands at 23%.

**Apartment and Townhouse Recycling**

Since May 1995, the Region has been providing a Blue Box recycling service to multi-residential apartment buildings and townhouse complexes, where garbage collection is also provided. This service includes the collection of recyclables from 21,582 multi-unit dwellings and townhomes.

**Green Bin Food Waste Composting**

In spring 2003, the Region implemented Phase One of the IWMP in Brock, Scugog, Uxbridge, and Clarington, which included the source separated organics (SSO) Green Bin program. Phase Two of the IWMP was implemented for Ajax, Pickering, Oshawa and Whitby in 2006, upon the commencement of new waste collection contracts. Phase Two included the introduction of the Green Bin (in addition to Blue Box collection frequency changes) and a reduction in the quantity of residual waste garbage bags from three bags per week to four bags biweekly.

In 2008, the Region collected 25,907 tonnes of SSO for composting. This waste diversion program accounted for 11% of the total waste stream for 2008. The residue rate at the compost facility is less than 5% and the quality is excellent largely due to the use of 100% compostable kitchen liner bags.

**Leaf and Yard Waste Composting**

The Region is responsible for the collection of leaf and yard waste for all municipalities (excluding Oshawa and Whitby), as well as the composting and disposal of all collected leaf and yard waste materials. In 2001, the Region implemented a ban on the collection of leaf and yard waste in plastic bags, as the bags create unwanted litter and are not compostable. Landfill site bans also restrict leaf and yard waste from disposal, as they are compostable and contribute to higher methane emissions when landfilled.

Brush, leaf and yard wastes are collected in kraft paper yard waste bags, loose or tied and bundled for either outdoor or enclosed composting. Christmas trees are collected separately during specified weeks in each municipality. In 2008, approximately 22,000 tonnes of leaf and yard waste was collected from curbside programs. This waste diversion program accounted for 10% of the total waste stream for 2008.

**Grass-cycling and Composting Credits**

Since 1995, the Region has banned grass clippings from yard waste collection. Grass clippings become anaerobic very quickly because of their high demand for oxygen. After becoming anaerobic, they emit strongly unpleasant odours. Therefore, grass clippings (in quantity) are difficult to handle and to process in a compost facility. Grass cycling cuts down on collection and processing costs and returns valuable nutrients, such as nitrogen, potassium and phosphorus back into the lawn.

The Region promotes backyard composting for those who are able to do so and provides information on how to maintain the system.
Using standard national reporting procedures for waste diversion, the Region receives waste diversion credits for encouraging residents to divert waste through grass-cycling and backyard composting programs. In 2008, these credits equated to 9,908 tonnes of organic waste.

**Material Recycling and Reuse at Regional Transfer Stations**

The Region offers residents the opportunity to divert the following waste materials from landfill disposal: electronics, wood, brush, drywall, tires, scrap metal, appliances, batteries, oil and oil filters, Blue Box recyclables, propane tanks, paints and other household hazardous wastes. Materials are collected in roll-off bins at any of the three waste transfer stations operated by the Region. These materials are sold to buyers who are able to reuse or recycle desired components of the items, which are used to make new products. The Region ensures that all buyers of reuse/recyclable commit that the material will not be landfilled.

In total, 5,488 tonnes of material was diverted from landfill disposal through various reuse or recyclable programs. The Region also extracted refrigerant from 1,989 appliances, recycled 55.1 tonnes of appliances, and recycled 7,440 computer monitors. Additionally, 1,722 tonnes of leaf and yard waste was received at the Region’s waste transfer stations.

**The Paint Reuse program**

The paint reuse program only operates out of the Region's waste transfer station in Oshawa, and offers residents good reusable paints and stains at "no charge". Paint coming into the transfer station is inspected by staff to determine if it qualifies for reuse in terms of age, quantity and type. Approximately 110 tonnes of paint was destined for the reuse program in 2008.

**Special Waste Collections**

The Region offers special collection for large bulky items. Special collections are divided into two types of collection. Bulky collections are reserved for items destined for landfill, including televisions, couches, mattresses, tables etc. White goods collections form a significant part of the Region's diversion programs and include items, such as computers and monitors, fridges, stoves and small appliances, audiovisual equipment, scrap metal etc. These items can be brought to any regional waste transfer station or can be collected by curbside bulky waste collection on a call-in basis for disposal or reuse. Curbside collection of these items are free of charge, however residents also have the opportunity to dispose of these items at the waste transfer stations where waste disposal fees will apply. Curbside reuse programs diverted 178 tonnes of material from landfill in 2008. Additionally, 2,186 tonnes of bulky waste was collected from curbside programs.

**Electronic Waste Collection Events**

As a result of a successful pilot electronic (e-waste) collection event held in the Township of Uxbridge in 2005, the Region organizes four special electronic (e-waste) collection events annually, one each to be held in four regional municipalities. Events are rotated between the eight local area municipalities every other year. These events are designed to give residents an opportunity to deliver unwanted or unusable electronic materials or products to a convenient designated location within the municipality where no disposal fees apply. These local events are well attended and were successful in diverting 34 tonnes of e-waste in 2008. Residents can bring e-waste to a Regional waste disposal site during operating hours, however regular waste disposal fees are charged.
Household Hazardous Waste Events

The Region organized two household hazardous waste (HHW) collection events in 2008. Two events are scheduled annually. HHW can be brought to a number of regional waste transfer locations at no cost, however, these community events are designed to give residents the opportunity to deliver HHW materials or products to a more convenient location within their municipality. These local events were successful in diverting 15.25 tonnes of HHW material in 2008.

Compost Events

In 2008, the Region organized eight compost giveaway events in combination with blue box and composter sales. One event is held in each of the eight municipalities annually. The Region is allotted 500 tonnes of compost per year, as per a contractual agreement with the compost facility operators. Approximately 50 tonnes of compost is made available each year, per compost giveaway event. Any compost material remaining from the events is made available to the municipalities for use on their gardens and public parks.

Bale Wrap Recycling

Since 2005, Regional waste transfer stations have been accepting white agricultural bale wrap from local farmers in an effort to divert more waste from landfills. This voluntary waste diversion initiative was established in co-operation with the Durham Agricultural Advisory Committee (DAAC), Think Plastics Inc. and the Ontario Federation of Agriculture (OFA). The program began in January 2005 as a 12-month pilot study at the Region’s Scugog Transfer station as a free drop-off location for local farmers.

As a result of the pilot program’s success, the Region extended the program to the remaining Regional waste transfer sites located in Oshawa and Brock Township. Furthermore, the Region entered into a 10-year, no-cost contract with Think Plastics Inc. for the collection, transportation and processing of agriculture bale wrap material into plastic lumber or “baleboard.” As a result of this partnership, a total of 85 tonnes of bale wrap material has been diverted from landfill by Regional farmers since 2005.

In 2008, a total of 27 tonnes of bale wrap was received and processed.

Plastic Bag Return To Retailer Program

In 2007, The Region established a partnership with local retail grocers with the assistance of the Canadian Plastics Industry Association (CPIA), to divert plastic grocery bags from the waste stream. Participating retailers include A&P Canada, Loblaws Companies and Sobey’s Ontario. This program aims to significantly decrease the amount of plastic grocery bags disposed of in landfills by allowing the public to return plastic bags to participating local grocery stores for recycling. In-store containers are provided by retailers to receive plastic grocery bags, along with displays to promote their reusable shopping bags.

Municipal Battery Collection

In 2007, the Region organized a “Battery Blitz” in Scugog Township to raise awareness and keep household batteries out of the garbage. Batteries contain hazardous waste material and should
be disposed of accordingly. The Region also provides a corporate battery collection within corporate Regional buildings.

**Clear Bags Pilot Study**

In January 2009, a three-month pilot study commenced in areas of Pickering and Clarington; instructing residents to use clear garbage bags to assess the effect on diversion rates and participation in the Region’s recycling and composting programs. Waste audits on a macro and micro level were conducted prior to the commencement of the pilot project to establish a baseline for the study. The clear bag initiative has been identified as one option to further aid the Region in achieving a diversion target of 70% by the end of 2010.

Participation in the pilot areas for the clear bag program is estimated to be over 90%. Early results have shown an increase in the set-out rates for Blue Boxes and Green Bins from 15-25% and up to 16% more material is being diverted, as opposed to placed in garbage bags.

This program is a great example of the complementary effects and impact one program can make on the IWMP.

**Garbage Disposal from Curbside Collections**

The Region manages garbage collection in six areas of the eight local area municipalities: the remaining two area municipalities, Oshawa and Whitby, utilize their own staff and collection fleets. However, the Region is responsible for solid waste disposal activities for the entire Region. Residual garbage is now collected biweekly in all eight municipalities with a four bag limit restriction. In January 2003, the Region introduced a user pay Garbage Bag Tag System whereby residents were required to use bag tags for all garbage bags in excess of the collection limit. The Region currently exports residual garbage waste to the Pinetree Acres Landfill in the State of Michigan, with the exception of waste generated in Brock Township. Brock is home to the Region’s only active landfill site.

In 2008, the Region disposed of 80,736 tonnes of curbside residual garbage, 2,312 tonnes of which is collected and disposed of in Brock Landfill, and 13,881 tonnes of residual garbage from high-rise buildings.

**Garbage Disposal from Regional Waste Transfer Stations**

The Region operates three waste transfer stations which are located in Oshawa, Port Perry and Brock Township.

In 2008, there were 223,437 vehicles that utilized the Region’s waste transfer stations:

- 167,295 in Oshawa
- 42,577 in Port Perry
- 11,463 in Brock Township
- 2,102 at the contracted Household Hazardous Waste Depot in Pickering

On average, 80 vehicles enter the Region’s waste disposal site in Oshawa hourly. In total, 19,660 tonnes of residual garbage waste was collected at the three transfer stations combined. Approximately 29% of the waste material delivered to the Region’s waste disposal facilities in 2008 was diverted through composting reuse and recycling programs and the remainder was landfilled.
1.3 Waste Management Facilities

Composting Facilities

In 2004, the Region entered into a 10-year composting contract to receive, collect, process and compost mixed residential kitchen food waste and yard waste materials commencing in July 2006. The contract includes processing 24,000 tonnes per year (with the capability to accommodate staged expansion to a maximum of 50,000 tonnes per year) at an enclosed in-vessel compost facility privately owned and operated, exclusively for the Region of Durham. This state-of-the-art facility boasts Ebara composting technology.

The compost contractor also operates an outdoor windrow site in Durham. Material processed at the in-vessel compost facility is moved to the outdoor windrow site where it is mixed with leaf and yard waste. The mix is windrowed to continue composting for an additional six to eight weeks.

Transfer Stations

As part of its Integrated Waste Management Program, the Region of Durham is also responsible for operating three waste transfer and hazardous waste stations and one privately contracted hazardous waste depot. The tipping fee at each of the Waste Transfer stations is currently $120 per tonne with a minimum fee of $5 per visit. There is no charge for delivering exclusive loads of household hazardous wastes to the Facilities. The transfer stations are operated Tuesday to Saturday from 8 a.m. to 4 p.m.

The transfer stations offer a number of important waste management diversion, reuse and recycling and residual waste programs to residents and small businesses, including:

- Antifreeze
- Scrap metal
- Leaf and yard waste
- Appliances/White Goods
- Propane tanks
- Batteries (all types)
- Paints and stains
- Pesticides and herbicides
- Household hazardous waste
- Fluorescent light bulbs/tubes
- Mercury thermometers/thermostats
- Electronic Equipment
- Drywall
- Wood and brush
- Blue Box paper fibres
- Blue Box containers
- Cardboard
- Oil and oil filters
- Tires (max. five per day)
- Other garbage waste

The Household Hazardous Waste (HHW) depots accept residential HHW only. Three HHW depots are conveniently located within the waste transfer stations. The fourth is located at a privately contracted site in Pickering. The Region runs a strong campaign encouraging the use of these facilities. Staff who handle or work near HHW receive continual training, and stations are monitored for safety and for compliance.
Durham Region Material Recovery Facility

On December 13, 2007, the Region opened its new 68,600-square-foot Materials Recovery Facility (MRF). The new MRF was constructed on Regional property, adjacent to the existing Recycling Centre. The Region of Durham has experienced tremendous population boost with a growth rate of about 11% between 2001 and 2006. Due to this growth in population, combined with an ever-expanding list of materials accepted in the Region’s Blue Box program, a significant increase in recyclable materials was experienced. Our previously operated facility was built in 1987 with maximum processing capabilities to handle 10,000 tonnes a year and is no longer effectively equipped to handle the current tonnages received with efficiency.

The new MRF is owned by the Region and is privately operated. This state-of-the-art facility offers the capacity to process up to 115,000 tonnes of recyclable materials each year. As part of a two-stream process to keep fibres and containers separate, the MRF uses dual-functioning automated optical plastic sorting systems to further separate PETE, HDPE, tetra paks, aseptic containers and plastic tubs and lids from the mixed stream of Blue Box containers. These automated optical plastic sorting systems are the first of their kind in Canada. This facility is the new benchmark for the next generation of MRF’s being constructed.

Regional Landfills

An objective of the Region’s Community Strategic Plan is that "no new greenfield landfill sites" be created in Durham Region. However, the Region is responsible for the perpetual care of seven natural attenuation landfills throughout Durham Region. Annual ground and surface water quality monitoring and reporting is conducted at the Region’s six closed and one active landfill sites. Gas monitoring occurs at Oshawa landfill only. The monitoring program facilitates early identification of landfill impacts on water quality, allowing for proactive implementation of mitigation measures. Monitoring reports are submitted annually to the Ontario Ministry of Environment and the Health Department, as required.

The Brock Township Landfill is the only active site, and the final covers have been placed on the six closed sites. The closed/inactive sites; Scugog, Blackstock, Darlington, Oshawa, Whitby and Scott landfills have waste footprints ranging in size from 0.4 to 32 hectares. Regional waste transfer stations are currently operated on the Brock, Scugog and Oshawa landfill sites.

Brock Township Landfill

In 1974, the Region assumed operation and ownership of the Brock Landfill. The Brock landfill site is a natural attenuation or non-engineered landfill with a footprint of approximately 20 acres. Local residential solid waste has been deposited at this site in excess of 50 years. Currently, the site accepts approximately 6,000 tonnes of residual waste, per year and also operates a waste transfer station on a portion of the site. Since 1980 the Region has been monitoring ground and surface water three times per year (spring, summer and fall). The Region is currently undertaking significant remedial works as a result of the monitoring results at this site to meet acceptable provincial standards.

A leachate collection system is currently under construction at the Brock Landfill site as part of a pilot study to determine the quality and quantity of leachate entering a wetland area located down gradient of the active landfill area. The collection system consists of two trenches connected to manholes (pumping stations), which contain submersible pumps. The pumping stations are connected to a retention pond by a forcemain. Groundwater pumped into the retention pond will
eventually migrate back to the collection trenches. The pilot study includes two pumping tests to determine the hydraulic influence on local groundwater elevations and on the volume of groundwater required to be intercepted to minimize the leachate impacts on the wetland.

To ease public concern, the Region monitors the quality of residential well water on a continual basis from residents living near the Brock Township Landfill. Analysis of samples collected from eight residential wells continues to suggest there are no impacts from this landfill.

**Proposed Energy from Waste Facility**

In 2006, the State of Michigan, a major receiver of Ontario waste, threatened to ban the disposal of Canadian waste in Michigan landfills. As a result of the mounting pressure to find a viable alternative to shipping municipal solid waste to Michigan, and given the difficulty in finding acceptable sites for landfilling, Durham and York Regions partnered in a full Environmental Assessment (EA) to establish an Energy from Waste (EFW) facility.

The ‘Durham/York Residual Waste Study’ ("EA Study"), was designed to investigate alternative methods of managing future residual waste while also addressing the social, economic and environmental concerns of residents. In May 2006, consultants hired for the Durham/York Residual Waste Study issued a final report, *Evaluation of “Alternatives to” and Identification of the Preferred Residuals Processing System – Recommendations*, which recommended thermal treatment of mixed solid waste and recovery of energy followed by recovery of materials from ash/char. This alternative offered the best balance of advantages and disadvantages in the context of the environmental priorities that were established by Durham and York Regions.

After extensive public consultation, via public information sessions and surveys, the Regions determined that an alternative landfill solution and continuing to export waste outside of Ontario was not sustainable. The waste survey suggested approximately 80% of those who participated agreed with thermal treatment (after recycling and composting efforts with recovery of energy), as recommended by the consultants.

In September 2007, the consultant’s made a recommendation on the preferred site from a short list of sites located in a rural industrial area. The Region is currently in the process of selecting a preferred vendor. The submissions are to include details of the thermal treatment facility with a capacity for the receipt and initial processing of 140,000 tonnes of municipal waste per year. The EFW facility is to be designed as a 'stand-alone' structure with the capability to accommodate staged expansion, to a maximum of 400,000 tonnes per year, over the life of the facility.

Once a preferred vendor and specific vendor technology has been determined, site-specific studies will be concluded as per the requirements of the EA process. It is expected that the final EA approval documentation will be submitted to the Ministry of Environment in mid-2009. Assuming the EA is approved by the MOE, anticipated construction of the facility will begin in mid to late 2010 culminating in completion and facility commissioning in 2013.

While selecting thermal treatment as a viable residual waste management option, Durham Region continues to expand existing complementary diversion programs and implement new strategies to reach new waste diversion targets. This project is the first of its kind in Ontario to be considered since the Ontario government lifted a ban on new incinerator facilities in 1995. Durham and York Regions are pioneers to those pursuing thermal treatment of residual waste in the future and have reached milestones in the rigorous regulatory approvals process.
1.4 Technological Effectiveness

Technological effectiveness is measured by the quality and quantity of the material being processed by composting and material recycling facilities. Program effectiveness is measured by the diversion rates achieved from resident participation.

The composting facility is equipped with the patented Ebara technology. This innovative technology is the only process that mixes and moves the composting material using a horizontal longitudinal traversing motion. Ebara composting technology allows for effective control over time, temperature, moisture and turbulence - the principal management tools used in making a quality compost product.

The facility operators are voluntary participants in the Compost Quality Alliance (CQA) managed by the Composting Council of Canada (CCC). Participants are to follow prescribed sampling frequency and reporting methods. Compost product samples are submitted to CQA-accredited laboratories that are involved in the Compost Analysis Proficiency (CAP) program - a laboratory quality assurance program to calibrate procedures and evaluate inter-lab method performance.

CQA analysis involves meeting regulatory and agronomic parameter requirements. The lab results are reported back to the facility operator and the CCC. If the compost product sample fails to meet analytical requirements, the producer has the right to rework and resubmit for further testing. Inability to achieve satisfactory analytical results leads to non-compliance. The monthly samples submitted by the compost contractor consistently meet these requirements. Analytical compliance for “Grade A” compost product is awarded based on samples which meet specific guidelines for size and content.

The Regional MRF is equipped with state-of-the-art optical sorting equipment, which is able to separate different plastics and containers streams with a high degree of accuracy. As such, a high-quality end product is produced for sale. The optical sorters, within the MRF are guaranteed by the contractor and equipment manufacturer to comply with certain requirements, as per the operations specifications in the contract with the Region. Requirements of the facility include:

- A throughput of up to 7 tonnes per hour along the containers processing line.
- Ability to achieve a minimum material Recovery Rate of 97% for plastic containers.
- To meet or exceed the market specifications for all recovered materials.

Through the use of automated optical sorting plastic systems, the containers line of the recycling facility will be able to:

- Reduce the current operating times by upwards of 33 per cent.
- Reduce the use of electricity and natural gas consumption.
- Significantly increase sorting efficiencies.
- Achieve higher quality of recovered materials for reuse and attain higher quantities (tonnes) of recovered materials for market and sale.

An Environmental Impact Assessment Model will be used to measure the environmental improvements. This model includes a number of environmental performance criteria, including greenhouse gas emissions, toxic chemical emissions, and other factors including smog precursors.

This new system has tremendous benefits for the Region in terms of lower MRF operating costs. Benefits to industrial buyers of recycled materials include provision of high-quality products and maximizing the amount of recoverable materials available for reuse. Benefits of the new automated optical plastic sorting systems for the Region include lower operating costs and higher recovery of target plastics and containers. Industrial buyers will have access to greater quantities
of higher quality products. These factors alone will have great potential for our environment and our communities.

The waste diversion rate achieved within regional diversion programs is the best indicator of technological effectiveness. Phase Two of the SSO Green Bin program was implemented in 2006 for the four remaining municipalities. Only three months into the implementation of Phase Two, the Region achieved 50% diversion – one of the goals of the LTWMSP, and this diversion rate has maintained ever since. Recent changes to the frequency of Blue Box and garbage collection programs in four local area municipalities are expected to increase diversion rates for 2009. The charts below show the effectiveness and efficiency of the integrated programs prior to the LTWMSP, and after Phase Two - full implementation of the IWMP.

### 2001 Durham Region Waste Diversion Rates

- Garbage: 7%
- BB: 3%
- Food Waste & Leaf and Yard waste Composting: 17%
- Reuse Programs: 70%

### 2008 Durham Region Waste Diversion Rates

- Garbage: 24%
- BB: 3%
- Food Waste & Leaf and Yard waste Composting: 22%
- Reuse Programs: 52%

### 1.5 Long-Term Availability

Population forecasting and waste tonnage projection have assisted the Region in determining long-term future capacity requirements in the construction of new waste facilities, and the possibility of expansion. The Region has retained consulting services to advise of measures that would assist the Region in achieving 70% waste diversion, which will also work to ensure the capacity and operational life of the waste facilities. The Region anticipates reaching 70% waste diversion rate by 2010, by implementing new programs and measures to capture additional tonnages and reach new audiences not currently participating in waste diversion programs.

The newly constructed Regional MRF has capacity to manage Blue Box fibres and containers for the next 10 to 15 years. The in-vessel compost facility, operated exclusively for the Region, is currently operating at maximum capacity. However, the Region recently closed a Request for Proposals (RFP) for additional organics processing capacity.

The EFW facility submissions will include details of the thermal treatment facility with a capacity for the receipt and initial processing of 140,000 tonnes of municipal waste per year. The EFW facility is to be designed as a ‘stand-alone’ structure with the capability to accommodate staged expansion, to a maximum of 400,000 tonnes per year, over the life of the facility (approximately 20 to 35 years). This facility will manage the Region’s post-diversion residual waste, and it will become a valuable source of energy, which meets and exceeds regulatory emission requirements.

### 1.6 Customer Service

Durham Region’s corporate mission is to “meet the needs of our citizens through leadership, cooperation and service excellence.” The Region has outlined community strategic objectives in support of this corporate mission. The aim of these objectives is to focus on key strategic issues and address them. To address waste management concerns, residents have the option of calling the Regional Waste Management Call Centre located at the Durham Recycling Centre. The Call Centre monitors customer service satisfaction using database software to record complaints and
track the steps taken to remedy any issues. The call centre responded to more than 61,118 telephone calls regarding integrated waste management programs in 2008.

The Region also has technical staff dedicated to contract management – including the quality of services delivered to residents through our waste collection contractors.

1.7 Environmental and Regulatory Compliance

Provincial Regulations

All waste management facilities and sites used for the disposal or treatment of waste in Durham Region operate with a Certificate of Approval from the Ontario Ministry of Environment (MOE). This includes the MRF, all transfer stations, Brock Landfill, and the compost facility. This is a requirement for the operating, establishing, altering, enlarging or extending a waste management system or a waste disposal site. Certificates of Approval address the site-specific considerations relevant to the proposal; provide enforceable requirements that ensure protection of human health and the natural environment; comply with legislation and policy guidelines; and acknowledge issues that fall within the mandate of the ministry. The MOE approvals program has been designed to ensure that all undertakings requiring approval are carried out in accordance with legislation, including the Ontario Water Resources Act, the Environmental Protection Act (EPA), the Pesticides Act, the Environmental Assessment Act and other associated regulations. An annual report is prepared by facility operators for the Ministry of the Environment.

Waste Management Act 1992

This Act states that the Regional Municipality of Durham shall establish, maintain and operate a waste management system consisting of one or more transfer stations to ensure that it has the capacity to transport waste to waste disposal sites in accordance with the EPA. The Region operates three transfer stations, and contracts are in place with private industries for the transfer and haulage of waste and reuse materials.

Waste Diversion Act 2000

The purpose of this Act is to promote the reduction, reuse and recycling of waste and to provide for the development, implementation and operation of waste diversion programs. The Ontario Minister of the Environment has designated Blue Box material, used tires, used oil material, waste electronic and electrical equipment (WEEE) and municipal hazardous or special waste (MHSW) under the WDA. The Region is an approved collection agent for these designated materials.

Durham Region By-Law 55-2004

The Region of Durham By-Law 55-2004 regulates the receiving, dumping and disposing of waste in the Region. Section 6.1 of the by-law addresses all materials that are not suitable for landfill disposal. These items include: all Blue Box accepted items, organic waste, hazardous waste, radioactive waste and medical waste, as these items are accepted in other compost, recycling or reuse programs offered by the Region. Currently the Region is working on a new Waste Management By-law, which will better reflect the recent advances to our programs and waste initiatives.
2.0 Financial and Business Management

2.1 Financial and Operational Goals

The operational goals of the preferred LTWMSP have evolved over the years to meet new objectives. The initial plan objectives were:

1. To divert at least 50% of the residential waste from disposal by the year 2007.
2. To secure an alternate source for the disposal of residential waste when Toronto’s Keele Valley Landfill is closed.
3. To implement and integrated waste management system for the collection, processing and disposal of recyclables, compostables, special waste and residual waste.
4. To establish an "energy-from-waste" type facility for the disposal of residual garbage waste.

In the 10 years since the creation of the LTWMSP, initial goals have been met and circumstances have changed. For example, the Region has bordered along the 50% diversion rate since the Phase Two of the IWMP in 2006, and Michigan, which became the Region’s alternate source for disposal after the closure of Keele Valley Landfill, will not be accepting Ontario waste after 2010. As such, two additional goals have been adopted:

5. Establishing a short-term landfill contingency plan to bridge the gap between the U.S. border closure and the commissioning of the EFW facility.
6. To divert at least 70% of residual residential waste from disposal by 2010.

The financial goals are dependant on the effectiveness of our waste diversion programs and include the following:

- Maximizing the collection, processing and marketing of Blue Box recyclables.
- Maximizing the collection of leaf and yard waste and SSO for composting.
- Minimizing the disposal of residual garbage waste.
- To offer cost effective waste services at Regionally operated facilities.

2.2 Status of the Preferred LTWMSP Goals

Durham has successfully planned, developed and implemented a number of major waste diversion programs placing the Region first in its category for waste diversion rates in Ontario and 10th overall (2008, Waste Diversion Ontario Annual Report). With the achievement of a 50% diversion rate, the Region is examining new programs (such as the clear bags pilot study launched in 2008) and aims to reach 70% diversion by 2010. Attachment 2 – Table 1 (Tonnes of Residential Waste Managed in 2008), shows the tonnages of waste managed in all streams by the Region. The Region remains on the forefront of providing new, innovative technologies to manage waste generated within the community and continues to lead the way in waste diversion.

The Region is forging ahead with a plan to take responsibility for residual waste by moving forward with the EFW project. The Region has proven to be a leader in the waste management field ahead of any others in their quest to establish an EFW facility. In January 2008, both Durham and York Councils approved a preferred site for the Region’s proposed facility. The Region’s EFW Business Case was approved by Durham Council in May 2008. Four pre-approved vendors have submitted a proposal for this project and they are currently being evaluated on technical and financial components. Once a preferred vendor is selected, site specific environmental studies will be undertaken and the full Environmental Assessment will be submitted to the MOE for final approval.
2.3 2008 Business Plan Summary

The proposed 2008 Solid Waste Management Business Plans and Operating and Capital Budgets include net total expenditures of about $35 million or a 5.91% increase over 2007. This represents a net operating budget increase of $0.7 million over the 2007 budgeted net operational expenditure, and a capital budget increase of $1.3 million, primarily due to the Region’s residual waste program, including landfill remediation and compliance measures and the energy-from-waste environmental assessment (including EA technical work; public consultations; site specific ecological; environmental and geotechnical studies; and technical, legal and financial advisory services). The 2008 budget impacts included:

- The energy from waste (EFW) Environmental Assessment (EA) process and studies ($1.2 million).
- Increased landfill remediation necessary to ensure the Region’s landfill sites meet Provincial environmental compliance standards (an increase of $200,000, including pre-budget approvals for Brock Township and Oshawa landfills).
- A $1.6 million increase in the budgetary contribution to the Solid Waste Management Reserve Fund to assist in financing significant future requirements for landfill remediation, achieving a waste diversion target of 70%, and residual waste initiatives (EFW or landfill contingency at 2011).
- Increased integrated collection costs due to stop count growth and contract price inflation (an increase of $300,000 or 2.7%) plus a 20% increase in facilities maintenance costs of $200,000 primarily related to the Oshawa facility and staffing increases.
- Increased organics composting processing costs (an increase of $60,000).
- A 50% increase in Waste Diversion Ontario (WDO) Blue Box subsidies to Durham Region in 2008 (savings of $800,000).
- Decreased Blue Box recycling processing costs at the new Regional Materials Recovery Facility (savings of $600,000).
- A net decrease in Blue Box collection costs in the City of Oshawa and the Town of Whitby, due to annualization of more favourable contract prices (savings of $400,000) which off-set growth in stop counts.

2008 Business Plan Program Summary

<table>
<thead>
<tr>
<th></th>
<th>2007 Budget</th>
<th>2008 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Management Facilities</td>
<td>824,000</td>
<td>960,000</td>
</tr>
<tr>
<td>Collection, Processing, Haulage &amp; Disposal Programs</td>
<td>31,547,000</td>
<td>31,025,000</td>
</tr>
<tr>
<td>Common Service Costs</td>
<td>6,229,000</td>
<td>8,165,000</td>
</tr>
<tr>
<td>Capital Programs</td>
<td>2,957,000</td>
<td>4,247,000</td>
</tr>
<tr>
<td>Revenues</td>
<td>(8,439,000)</td>
<td>(9,321,000)</td>
</tr>
<tr>
<td>Net Budget Costs</td>
<td>33,118,000</td>
<td>35,076,000</td>
</tr>
</tbody>
</table>

2.4 Multi-year Impacts and Forecast

The Region’s Business Planning and Budget Cycle commenced with the prioritization of strategic actions established under the Community Strategic Plan (CSP). With a focus on desired results, all Regional Business Plans and Budgets balance the CSP strategic actions with available financing on an
annual basis. Intertwined with multi-year forecasts, detailed business plans (including budgets), performance measures and the reprioritization of programs and service levels, CSP objectives and priorities can be prudently implemented within a sound fiscal framework, while focusing on realistic and timely program and infrastructure priorities. The Business Planning Cycle, incorporating the CSP, is an enhancement to the Region’s commitment to transparency and accountability.

On an annual basis, Durham Regional Council establishes pre-budget guidelines for annual operating and capital expenditures and financing based upon a multi-year budget forecast provided by Regional staff. The annual “Five-year Economic and Financial Forecast and Budget Guidelines” report provides Regional Council with preliminary estimates of financial requirements facing the Region over a five-year horizon, as well as potential sources of financing.

2.5 Cost Effectiveness and Efficiency

The Region’s solid waste management operation depends on a variety of revenue sources including the Solid Waste property taxes, user fees, provincial subsidies and the sale of recyclables. While some uncertainties can lead to a surplus (or deficit) position for this operation, including unanticipated tonnage variances, provincial subsidy changes, and fluctuating market prices for the sale of diversion materials, the Region continues to receive top dollar for high-quality material produced from the Region’s MRF.

Program effectiveness and efficiencies are measured by benchmarking. The Ontario Municipal CAO’s Benchmarking Initiative (OMBI) is a partnership program designed to push for service excellence in Ontario municipal governments. The program allows participating municipalities to gauge performance statistics, identify operational best practices, and partner to make municipal programs even more successful. OMBI measures performance in all levels of municipal government. The 2007 Performance Benchmarking Report, completed in 2008, shows that the Region of Durham is on par financially with its municipal partners for solid waste management. In many cases, Durham has exceeded in performance.

Figures from the OMBI 2007 Performance Benchmarking Report
Durham Region is identified by “DUR”.

**FIG. 17.2 Operating Cost for Residential Garbage Collection per Tonne**

<table>
<thead>
<tr>
<th>Year</th>
<th>BRT</th>
<th>DUR</th>
<th>HAL</th>
<th>HAM</th>
<th>LON</th>
<th>MUSK</th>
<th>NIAG</th>
<th>OTT</th>
<th>PEEL</th>
<th>SUD</th>
<th>TEAY</th>
<th>TOR</th>
<th>WAT</th>
<th>WIND</th>
<th>MED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>61</td>
<td>92</td>
<td>79</td>
<td>150</td>
<td>80</td>
<td>194</td>
<td>93</td>
<td>68</td>
<td>71</td>
<td>154</td>
<td>122</td>
<td>83</td>
<td>82</td>
<td>98</td>
<td>88</td>
</tr>
<tr>
<td>2006</td>
<td>60</td>
<td>92</td>
<td>74</td>
<td>123</td>
<td>72</td>
<td>159</td>
<td>98</td>
<td>65</td>
<td>62</td>
<td>128</td>
<td>115</td>
<td>71</td>
<td>93</td>
<td>82</td>
<td>87</td>
</tr>
</tbody>
</table>

Figure 17.2 shows the average cost per tonne for each municipality to collect the curbside waste of residential clients. The Regional Municipality of York operates a two-tier system and is not responsible for the collection of garbage. Increasing fuel prices will impact the cost of garbage collection for municipalities who perform collection with in-house resources, as well as those municipalities that have fuel price escalators in their contract prices, or operate a fleet of supervisory vehicles.
Figure 17.2 shows the average cost per tonne for each municipality to dispose of solid waste. The cost to dispose of a tonne of garbage has increased in 12 of the 15 municipalities.

Figure 17.4 shows the average cost per tonne of diverting residential waste. Waste diversion costs have been increasing due to municipal efforts to enhance waste diversion and lessen the impact of waste management on the environment. It is more costly to collect and process diverted material than dispose of regular garbage, even though there is revenue associated with the sale of recyclable material that helps to offset a portion of the costs. The Regional Municipality of York operates a two tier system and is not responsible for the collection of diverted material.

2.6 Funding and Revenues

An important part of the Region’s budget forecasting comes from expected funding and revenue sources from corporations providing stewardship funding for diversion programs, and the sale of recyclables collected within the Region.

Stewardship Ontario

Through a competitive bid process in 2007, Stewardship Ontario contributed $317,250 from its Effectiveness and Efficiency Fund for the supply and installation of two new optical plastic sorting systems housed in the Region’s new state-of-the-art MRF.

Federal Gas Tax Fund Revenues

Federal Gas Tax Fund revenues of $14.5 million helped to finance the construction of the new MRF with no impact to taxpayers.

Blue Box Revenue

The Region is responsible for the collection, processing, marketing and sale of all Blue Box recyclable materials from all area municipalities and Regional waste disposal sites. The total
revenue earned by the Region from the sale of Blue Box recyclables was more than $7.5 million for 2008.

**Waste Diversion Ontario**

Waste Diversion Ontario (WDO) is a non-crown corporation that was established to develop, implement, and operate waste diversion programs for a wide range of materials, including Blue Box recyclables, scraps tires, used oil, and electronic wastes.

Each year municipalities across Ontario are required to submit data on their solid waste management programs to WDO. The annual datacall is an excellent opportunity for municipalities to benchmark their programs and provides a means of qualifying for funding for waste diversion programs. In 2008, as a result of a wide range of diversion programs, the Region of Durham received approximately $2.3 million in funding from the WDO.

**Ontario Electronic Stewardship (OES) Funding**

Ontario Electronic Stewardship (OES) is a non-profit corporation established by manufacturers, retailers, and other stakeholders to develop a waste diversion plan for Waste Electrical and Electronic Equipment (WEEE) in response to the designation of these materials under the Waste Diversion Act (WDA). Registered collection operators will receive a financial incentive of $165 per tonne for materials that have been sorted and prepared for transport according to OES requirements. OES also will support collection operators in a number of other ways including: province-wide promotion of the WEEE program; provision of pallets and bulk bags, an interactive website to help users locate collection sites, co-ordinating and paying for transportation and end-of-life processing costs.

The Region has applied for funding from OES to support the Regions WEEE events and WEEE disposed of at regional transfer stations and is currently awaiting approval.

**Municipal Hazardous and Special Waste (MHSW) Funding**

The Municipal Hazardous or Special Waste (MHSW) program is one of two important waste diversion programs managed by Stewardship Ontario; the other being the Blue Box program. The MHSW program will divert household hazardous waste and other materials that require special handling away from landfill sites, incinerators and our waterways. The materials addressed in the MHSW program are common household products, such as paint, single-use batteries, and antifreeze. Under the program, the companies that manufacture and market these products are taking stewardship responsibility and sharing in the cost of recovering left-over product or waste for reuse and recycling, and, if needed, for proper disposal. The MHSW Program Plan establishes how the obligated companies (brand owners and first importers of the designated materials) will work through Stewardship Ontario with interested municipalities and other collection agencies to meet clearly defined targets. The plan is being implemented in phases to begin in July 2008.

For a municipality with an existing MSHW program, it is estimated that the MSHW program plan will cover as much as 80 per cent of current municipal costs of managing Phase One materials. The 2008 budget for contracted hazardous waste removal is $454,855. Preliminary estimates show that Phase One MHSW materials, as defined by Waste Diversion Ontario, constitute approximately 25 to 30% of the HHW stream. Funding to the Region in 2008 (July 1 to December 31, 2008) is estimated at $56,000 with annual subsidies thereafter of $113,714. These funds will be included in future budgets. This is new revenue to the Region to offset existing disposal costs for the Phase One materials. The only obligation to the municipality is to continue to provide the existing MHSW service levels.
2.7 Employee Relations Program

The Region has a number of programs that encourage a positive workplace experience and show appreciation to their staff including:

- Celebrate Durham Employee Committee events
- Employee Appreciation Day
- Durham Commitment to Excel Program
- Employee Recognition Awards

The Region also supports and encourages ongoing education and employee upgrading through programs such as:

- Corporate training programs
- Seminars, workshops and conferences

In addition to the above programs, employee wellness programs are also offered to Regional staff including:

- Employee Assistance program, providing confidential counselling and referral services for Regional employees and their family members.
- Wellness programs, promoting and providing healthy lifestyle choices to Regional workers, such as fitness programs, healthy eating seminars and health and safety education.

The overall waste management employee relations program is measured by the sense of community, accomplishments made by the group, and growth of the Works department and Waste Management Division as a whole.

2.8 Change Management

The Region has a comprehensive change management strategy that begins with anticipating or identifying a particular need within the Region and establishing a solution that is both beneficial to the community and cost effective for the Region and its area residents. The success of implementing changes relies heavily on our public education and communication staff to ensure an effective and timely implementation of change, such as the introduction of new programs, changes in fees, and schedule changes.

The implementation of the Integrated Waste Management System throughout Durham Region was a significant undertaking. A general model of the Region’s Change Management Strategy for this project is outlined below.

A. Anticipate or Identify a Need
B. Proposed a Program / Solution
C. Create a Business Plan
D. Cost / Benefit Analysis
E. Obtain Feedback from Municipalities / Contractors / Residents
F. Report to Works Committee and Recommendation to Council
G. Communication and Education Strategy
H. Implementation
I. Obtain Feedback and Provide Ongoing Communication / Monitor Success
In addition, the waste management team meets on a monthly basis for informal meetings. These meetings prove to be an excellent medium to encourage staff members to discuss programs, share ideas, ask for advice on current projects, and express concerns. Management uses the monthly meetings to discuss future plans or upcoming program changes, as well as to solicit staff opinions. These meetings have proven to be an effective communication and management tool while helping to facilitate a smooth transition when change is implemented.

The effectiveness of the Region’s change management strategy is clearly demonstrated through the high participation and diversion rates achieved by the Region in 2008. With the participation of the eight local area municipalities and their residents, the Region is able to obtain a high waste diversion rate while sustaining a high quality of material and receiving top dollar from their buyers.

3.0 Community Relations

3.1 Public Education

Advertising

In 2008, the Region actively promoted the benefits of waste reduction via the following channels:

Media Presentations
- Radio advertisements airing 126 ads per week, 6,552 messages throughout the year, on three local radio stations.
- Live radio broadcasting from two Regional events.
- Newspaper advertisements with 48 large colour display ads placed in local community publications.
- Two television interviews aired on a local cable TV station.

Public Presentations
- Participated in three display events at libraries, home shows and local fairs.
- Presented six information sessions to municipal councils, community groups, international conferences and school boards.
- Delivered waste education presentations to approximately 5,200 students in eight schools.

Printed Materials
- Printed information was distributed through water billing inserts, municipal libraries, and public events.
- Spring and Fall editions of “Durham Works” (external newsletter), contained waste articles.
- Leaderboard advertisements were placed on the website of a local publication at “durhamregion.com”.
- Information postings on Regional, municipal and project websites.

Events

National Public Works Week (NPWW) is an important opportunity to share with the community the contribution that public works brings to the quality of everyday life. It also serves as a vehicle to educate the public about the function of public works. In 2008, a live radio broadcast was held for NPWW at the new MRF and tours of the facility were provided by staff. Waste collection vehicles were displayed and drivers showed residents how residual garbage waste and SSO
material is co-collected. Face painting was provided for children and food, and refreshments were served.

**Internet**

The Region maintains two websites where information regarding integrated waste programs and facilities and the EFW project can be found.

- [www.durhamyorkwaste.ca](http://www.durhamyorkwaste.ca) – info posted about EFW
- [www.durham.ca](http://www.durham.ca) – general waste related information

**Awards**

The Region has won the following awards in recognition of outstanding achievements:

- 2005 SWANA Award for Public Education Excellence
- 2005 Association of Municipal Recycling Coordinators (AMRC) for Recognition of Excellence for outstanding promotion and education
- 2006 Ontario Public Works Association (OPWA) for Environmental Project of the Year Award for Integrated Waste Management
- 2007 RCO Waste Diversion Operator Award for Electronics Waste Special Events
- 2007 SWANA Gold Award for Public Education
- 2008 RCO Waste Diversion Operator for Material Recovery Facility
- 2008 RCO Sustainable Municipality Award for grocers take back plastic bag program
- 2008 SWANA Gold Excellence Award for Materials Recovery Facility
- 2008 RCO Waste Diversion Operator for National Public Works Week

**3.2 Community Outreach and Feedback**

The Region has established several public liaison committees for local residents to represent and provide a forum for information exchange and discussion on local area project concerns. These sessions/committees are also tools used for change management strategy.

- A Public Liaison Committee (PLC) for Brock Township Landfill was established in 2007 to keep residents informed about the remedial works being undertaken at the Brock Landfill site.
- An energy from waste Site Liaison Committee (SLC) was established in October 2008 to help maintaining transparency of the project throughout the approvals process.
- In December 2008, public information sessions (PIS) were held in the pilot areas for the clear bags project.
- In March 2009, public information sessions (PIS) were held in the area municipalities where service level changes were taking effect.

In June of 2008, a Montreal-based production company visited the Region’s MRF to film an episode of their new French language children’s television show. The show features children from ages 10 to 13 as activists dealing with important social and environmental concerns. The show
serves to educate children about how a little effort can make a larger overall impact on the world.

Summary

Durham Region has come a long way since the establishment of its Long Term Waste Management Strategy Plan in December 1999, having met many of the Plan’s key goals, and being well on its way to fulfilling the last goal – consideration of an energy from waste facility for waste disposal. Prior to the 1999 plan, the Blue Box and yard waste collection programs were the principal waste diversion programs, and the waste diversion rate in the Region was 24%.

The visionary aspect of the Long Term Plan (2000–2020) was an IWMP that included improved blue box and yard waste diversion rates, collection of source separated household organics, a 50% diversion target from landfill by 2007, and consideration of an EFW facility. The assumption of waste collection responsibilities from four of the local area municipalities in 2002 allowed the Region to move forward with design and implementation of the IWMP, and Phase One of this program was put in place in early 2003. The program introduced a weekly Green Bin collection program for SSO from all curbside residences, and a weekly three-bag limit on garbage, to complement the existing biweekly blue box program.

The Region assumed waste collection responsibilities from two more area municipalities in 2003, and continued to refine plans for Phase Two of the IWMP. The construction of a privately operated central composting facility within Durham in 2006 signalled the roll-out of the second phase in the remaining four local area municipalities. Phase Two included the SSO program, but added weekly blue box collection, and a four-bag biweekly garbage collection. The diversion rate in those four area municipalities averaged above 50% after only three months, with garbage declining by 40% and recycling increasing by 30%.

In 2007, construction was completed on a new state-of-the-art MRF in Durham to handle the increased volumes of blue box materials being collected as a result of the IWMP, as well as providing capacity for future projected volumes. The Region’s effective promotion and education programs, two stream curbside sort of fibres and containers, combined with leading edge optical sorting technology at the MRF resulted in high capture rates of recyclables and significant revenues for excellent quality materials. The Region successfully met the 50% diversion by 2007 target.

Starting on March 31, 2009, service level changes (weekly recycling and biweekly garbage collection) were implemented in the original four local area municipalities. The Region expects the diversion rate in those municipalities to increase significantly. Durham now has standard levels of service region-wide as part of its innovative waste management programs.

As part of the long term plan, the Region partnered with York Region in 2004 on a joint effort to find a disposal solution for its post-diversion residual waste. Councils of both regions approved the selection of an EFW facility as the preferred option to manage residual waste. With the lion’s share of residual waste to be managed, Durham assumed the leadership role in this process. The EA Study for an EFW facility to process up to 140,000 tonnes of post-diversion residual waste is expected to be submitted to the Ontario Ministry of the Environment (MOE) in mid-2009. If approved by the MOE, the Durham EFW will be the first facility of its kind built in Ontario since 1992. The proposed EFW facility will complement the Region’s existing waste diversion programs, provide for recovery of metals and energy, serve as a foundation for other pursuing thermal treatment, and provide the last piece of the puzzle for a sustainable integrated “Made-in-Durham” solution to waste management.
The Region hereby disclaims all representations and warranties. This map has been produced from a variety of sources. The Region of Durham does not make 30 representations or warranties regarding the accuracy or completeness of this map. Digital cartography by Corporate GIS Services, The Regional Municipality of Durham, September 2008. Ministry of Natural Resources, copyright Queen's Printer for Ontario, 2002.

![Map of Durham Region with waste delivery locations](image-url)
### TABLE 1

**REGION OF DURHAM**

**TONNES OF RESIDENTIAL WASTE MANAGED IN 2008**

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>Curbside Garbage</th>
<th>Apartment Garbage</th>
<th>Bulky Goods</th>
<th>Curbside Recycling</th>
<th>Apartment Recycling</th>
<th>Food Composting</th>
<th>Leaf &amp; Yard Composting</th>
<th>Composter Credits</th>
<th>Grasscycling Credits</th>
<th>Reuse Programs</th>
<th>Special Events</th>
<th>Total Waste</th>
<th>Waste Diversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Curbside &amp; multi-residential wastes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pickering</td>
<td>12,130</td>
<td>1,007</td>
<td>216</td>
<td>7,851</td>
<td>302</td>
<td>4,771</td>
<td>3,402</td>
<td>785</td>
<td>680</td>
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<td>672</td>
<td>637</td>
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<td>Whitby</td>
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<td>594</td>
<td>10,509</td>
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<td>6,485</td>
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<td>0</td>
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<tr>
<td>Oshawa</td>
<td>19,194</td>
<td>8,238</td>
<td>186</td>
<td>13,018</td>
<td>1,459</td>
<td>5,569</td>
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<td>0</td>
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<tr>
<td>Clarington</td>
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<td>0</td>
<td>708</td>
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<td>0</td>
<td>1,836</td>
<td>2,670</td>
<td>607</td>
<td>534</td>
<td>55</td>
<td>20</td>
<td>27,109</td>
<td>46%</td>
</tr>
<tr>
<td>Scugog</td>
<td>3,968</td>
<td>217</td>
<td>70</td>
<td>1,699</td>
<td>0</td>
<td>523</td>
<td>609</td>
<td>308</td>
<td>122</td>
<td>22</td>
<td>3</td>
<td>7,536</td>
<td>44%</td>
</tr>
<tr>
<td>Uxbridge</td>
<td>3,626</td>
<td>51</td>
<td>93</td>
<td>1,687</td>
<td>0</td>
<td>611</td>
<td>592</td>
<td>253</td>
<td>118</td>
<td>26</td>
<td>14</td>
<td>7,059</td>
<td>47%</td>
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<tr>
<td>Brock</td>
<td>2,312</td>
<td>0</td>
<td>77</td>
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<td>0</td>
<td>338</td>
<td>205</td>
<td>141</td>
<td>41</td>
<td>19</td>
<td>0</td>
<td>4,065</td>
<td>41%</td>
</tr>
<tr>
<td>sub-totals</td>
<td>80,736</td>
<td>13,881</td>
<td>2,186</td>
<td>50,660</td>
<td>2,493</td>
<td>25,907</td>
<td>22,031</td>
<td>5,502</td>
<td>4,406</td>
<td>178</td>
<td>49</td>
<td>207,980</td>
<td>53%</td>
</tr>
</tbody>
</table>

|                             | 96,803           | 53,152            | 47,938      | 9,908              | 227                |

| 2 Regional waste disposal sites |                  |                   |             |                    |                     |                 |                        |                  |                     |               |               |             |                  |
| Oshawa                        | 0                 | 0                 | 13,506     | 0                  | 1,313              | 0                | 0                      | 3,577            | 0                   | 18,899        | 29%           |               |                  |
| Pickering                     | 0                 | 0                 | 3,918      | 236                | 0                  | 0                | 409                    | 0                | 0                   | 1,184         | 0             | 5,746       | 32%              |
| Pickering                     | 0                 | 0                 | 0          | 0                  | 0                  | 191              | 0                      | 0                | 191                 | 0             | 191          | 100%        |                  |
| Brock                         | 0                 | 0                 | 2,236      | 75                 | 0                  | 0                | 0                      | 0                | 0                   | 536           | 0             | 2,848       | 21%              |
| sub-total                     | 0                 | 0                 | 19,660     | 815                | 0                  | 0                | 1,722                  | 0                | 0                   | 5,488         | 0             | 27,685      | 29%              |

| 3 Summary                     |                  |                   |             |                    |                     |                 |                        |                  |                     |               |               |             |                  |
| municipal residents           | 80,736           | 13,881            | 2,186       | 50,660             | 2,493               | 25,907          | 22,031                 | 5,502            | 4,406               | 178           | 49            | 208,029     | 53%              |
| Regional waste sites          | 0                 | 0                 | 19,660     | 815                | 0                  | 0                | 1,722                  | 0                | 0                   | 5,488         | 0             | 27,685      | 29%              |
| sub-total                     | 80,736           | 13,881            | 21,846     | 51,475             | 2,493               | 25,907          | 23,753                 | 5,502            | 4,406               | 5,666         | 49            | 235,714     |                  |

| Total Tonnes, with credits    | 116,464          | 53,967            | 49,660      | 9,908              | 5,715              | 235,714         |
| Total Tonnes, no credits      | 116,464          | 53,967            | 49,660      | 9,908              | 5,715              | 225,805         |

| Percentages of Total          | 34%              | 6%                | 9%          | 22%                | 1%                 | 11%              | 10%             | 2%               | 2%               | 2%               | 0%               | 100%          |
| Waste diversion rate          |                  |                   |             |                    |                     |                  |                |                  |                  |                  |                  | 51%           | April 1, 2009  |