



HAMILTON INDUSTRIAL ENVIRONMENTAL ASSOCIATION

# Environmental Survey

December 2006



Measuring our Success

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## 1. Executive Summary

The Hamilton Industrial Environmental Association (HIEA) is a non-profit association of local private sector industries. HIEA's mandate is: "to improve the local environment – air, land and water – through joint and individual activities, and by partnering with the community to enhance future understanding of environmental issues and help establish priorities for action."

HIEA has a strong history of transparent and open communications regarding the collective environmental performance of its members. Every year, the association issues an annual environmental survey to its member companies in order to collect, review and report their aggregate environmental performance against key parameters such as air, water, waste management, environmental spending and stewardship. The report uses 1997 as a benchmark year to evaluate environmental trends. HIEA's Environmental Survey Report is made available to the public and is presented at the association's Annual General Meeting and at the Community Advisory Panel. Individual company data is not included in the report.

The 2006 Environmental Report shows a continued positive (environmentally beneficial) trend for the years 1997 through 2006. This year's statistics are a concrete example of the continued success that HIEA member companies are achieving to create a sustainable environment in the Hamilton community. Some of the highlights of the member companies performance over the past 10 years include:

### Air Emissions

- 33% reduction in Total Particulate
- 20% reduction in Sulphur Dioxide,
- 37% reduction in Volatile Organic Carbon,
- 83% reduction in Polycyclic Aromatic Hydrocarbons (PAH).

### Water Discharges

- Baywater consumption decreased 10%.
- City water consumption decreased 22%.
- Suspended Solids discharged has decreased 78%.
- Total Metals discharged decreased 25%.
- Oil and Grease discharged decreased 65%.
- Ammonia and TKN discharged decreased 14%.

### Waste Management

In 2006, HIEA member companies externally recycled approximately 550,746 tonnes of material. This decrease from the 1997 base line of 906,285 tonnes can be attributed to an overall reduction in waste generation and an increase in internal waste re-processing. Similarly, subject waste (liquid industrial and hazardous waste) sent for treatment or destruction and therefore, not landfilled, decreased by 67% or 6,170 tonnes since 1997. This trend can be attributed to less subject waste being generated. Since 1997, subject waste sent to landfill has also been reduced by 75%.

Commercial and domestic waste sent to landfill has decreased by 18% since 1997. Purchased recycled materials and by-products for use in HIEA member company production operations have continued to trend upward with an overall increase of 31% since 1997.

### Environmental Stewardship and Spending

As part of their environmental commitment, HIEA member companies reported involvement with twenty-four (24) environmental organizations, in addition to HIEA. All member companies continue to implement comprehensive voluntary environmental reduction programs and adhere to various environmental management standards. Four (4) member companies are registered to the ISO 14001 International Environmental Management Standard and one (1) member company has adopted Responsible Care as their environmental management standard.

From 2002 to 2006, HIEA member companies combined to spend approximately \$348 million in operating expenses and \$86 million in capital expenses on environmental protection.

In conclusion, since 1997 there have been significant improvements made by member companies in the area of environmental protection. In 2006, HIEA's collective environmental performance continues this positive trend.

Looking forward, member companies will continue to demonstrate their commitment to reducing their environmental footprint and protecting the air, water, and land by:

- Operating their facilities in a safe and responsible manner and in a way which does not adversely impact neighbouring communities
- Having operational systems in place that monitor environmental performance and adherence to key performance metrics
- Transparent and open communications regarding environmental performance and improvements
- The conservation and protection of our natural environment
- Responsiveness to community enquiries and concerns, and
- Working in partnership with residents and community associations to promote environmental awareness

## 2. HIEA Member Companies

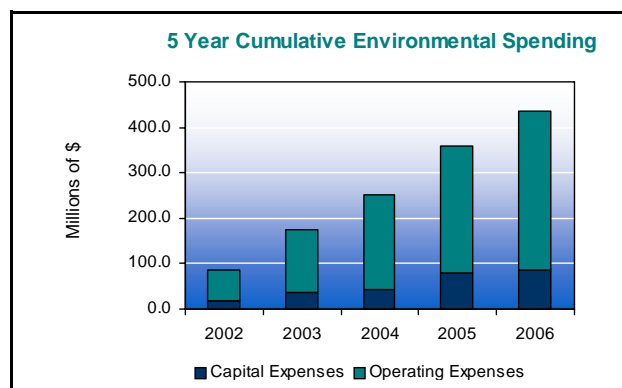
Facility	Business Description	Land Area (Hectares)
Air Liquide	Producer of Industrial Gases	22.0
Arcelor Mittal Dofasco	Integrated Steel Mill producing a full range of high quality flat rolled and coated steel products	282.0
Bunge Canada	Oilseeds Processor	11.3
Columbian Chemicals Canada Ltd.	Carbon Black Manufacturer	11.3
Lafarge	Processor of Blast Furnace Slag	4.5
Mittal Canada - Hamilton Inc. (formerly Stelwire)	Producer of Steel Wire Products	16.0
MultiServ	Steel-making Slag Processor	-
U.S. Steel Canada (formerly Stelco Hamilton)	Integrated Steel Mill producing a full range of flat rolled and coated steel products	445.0
VFT Canada Inc.	Producer of Coal Tar Pitch and Distillates	5.4
	<b>TOTAL:</b>	<b>797.5</b>

*Note: The 2006 data has been adjusted to reflect that one company did not renew its membership in 2007 and therefore did not participate in the survey.*

- In 2006 HIEA companies employed over 9,000 people and paid almost \$26 million in municipal taxes.
- Four HIEA companies had achieved or were implementing ISO 14001 environmental management systems.
- One company followed the Canadian Chemical Producers Association's Responsible Care Standard in 2006.
- This report includes data from the above facilities.

## 3. Environmental Spending

- HIEA member companies collectively have invested approximately \$434 million on environmental capital and operating expenses in the last 5 years.
- Each year, HIEA member companies have invested between \$6 million and \$37 million in environmental capital projects
- HIEA member companies spend over \$70 million per year on environmental operating expense
- Through its financial sponsorships and the volunteer efforts of its member companies, HIEA has contributed more than \$750,000 to local environmental initiatives



#### 4. Voluntary Environmental Improvement Programs

HIEA member companies participate in a variety of voluntary environmental improvement programs sponsored by governments and trade associations including:

- Accelerated Reduction and Elimination of Toxics (ARET)
- Benzene Reduction Program
- Canadian Chemical Producers Association (CCPA) - MOU on VOC Emission Reduction
- Canadian Chemical Producers Association (CCPA) - Responsible Care - National Emission Reduction Masterplan (NERM)
- Canadian Industry Program for Energy Conservation - Voluntary Challenge Registry (CIPEC-VCR)
- Canadian Steel Producers Association (CSPA) - Statement of Commitment and Action
- Environmental Management Agreement
- Golden Horseshoe By-product Synergy Project
- Industrial Emissions Reduction Plan (IERP)
- Polycyclic Aromatic Hydrocarbon (PAH) - Best Practices
- Visible Emission Reduction Plans (VERPs)
- Wood Preservation Strategic Options Process for Polycyclic Aromatic Hydrocarbons

#### 5. Memberships in Environmental Associations

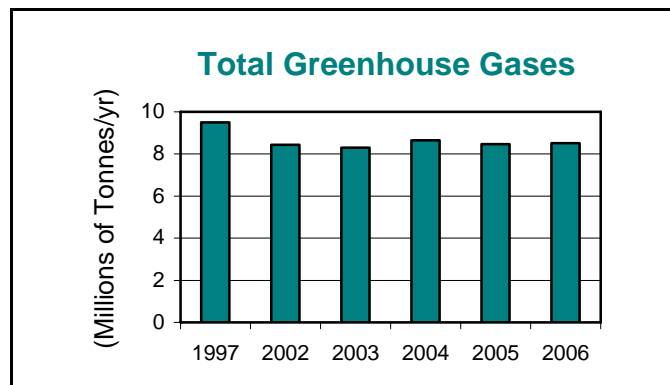
In addition to HIEA, member companies are active in many other environmental organizations including:

- Air and Waste Management Association (AWMA)
- American Iron and Steel Institute (AISI)
- Bay Area Implementation Team (BAIT)
- Bay Area Restoration Council (BARC)
- Bitumar Public Liaison Committee
- Canadian Association of Environmental Labs
- Canadian Centre for Pollution Prevention
- Canadian Chemical Producers Association (CCPA)
- Canadian Manufacturers and Exporters (CME)
- Canadian Oilseed Producers Association (COPA-TES) – Technical, Environmental and Safety Committee
- Canadian Slag Association (previously Ontario Slag Association)
- Canadian Steel Producers Association (Environmental Committee)
- CARI
- Clean Air Hamilton (CAH)
- Compressed Gas Association
- Conseil patronal de l'environnement du Québec
- Eastern Canada Response Corporation Ltd. (ECRC)
- Excellence in Corporate Environmental Leadership (EXCEL)
- Hamilton – Community Awareness Emergency Response (CAER)
- Hamilton Air Monitoring Network (HAMN)
- International Iron & Steel Institute
- Steel Manufacturers' Association (Environmental Committee)
- Steel Multi-stakeholder Advisory Group
- Water Environment Federation

## 6. Air Emissions

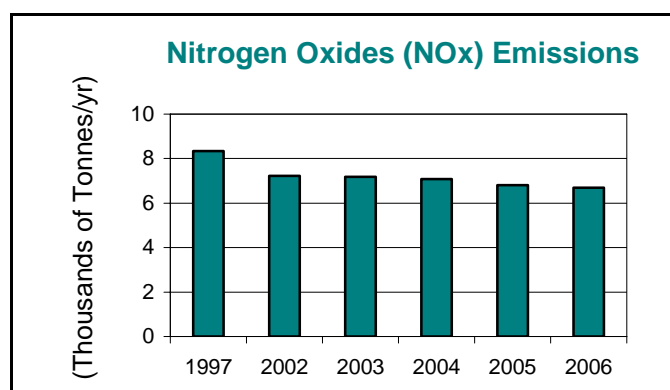
### 6.1 Greenhouse Gases

- Greenhouse gas emissions include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride.
- Carbon dioxide is the most significant greenhouse gas for HIEA companies.
- Although production is increasing, the total HIEA emissions are now 10% less than 1997 levels.
- Improvements have been primarily achieved by energy conservation, increased waste energy recovery and increased process yields and efficiencies.



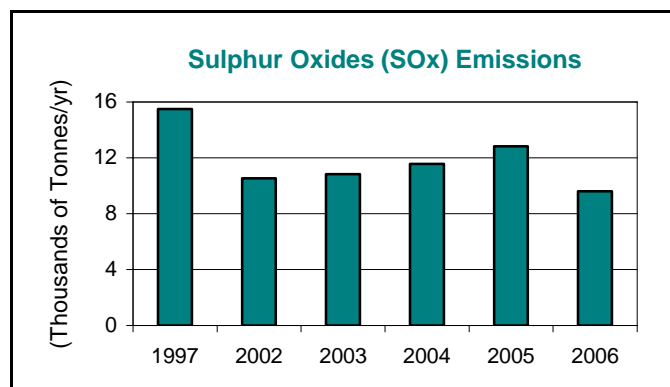
### 6.2 Nitrogen Oxides (NOx) Emissions

- Nitrogen oxides are precursors to ground level ozone. The main source of NOx is the combustion of fuels.
- HIEA emissions have been reduced by 20% since 1997.
- Improvements have been primarily achieved by the installation of advanced combustion technology (low-NOx burners) and shutdown of obsolete equipment.



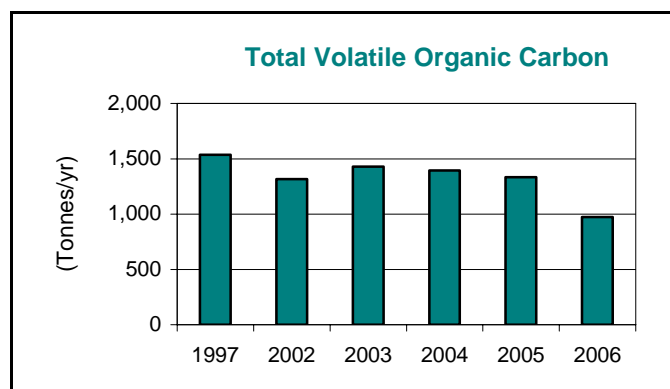
### 6.3 Sulphur Oxides (SOx) Emissions

- Sulphur oxides are composed mainly of sulphur dioxide (SO<sub>2</sub>).
- HIEA emissions have been reduced by 38% since 1997.
- Improvements have been achieved by switching to lower sulphur fuels and feed stocks, shutting down obsolete equipment and recent reductions in coke production by member companies.



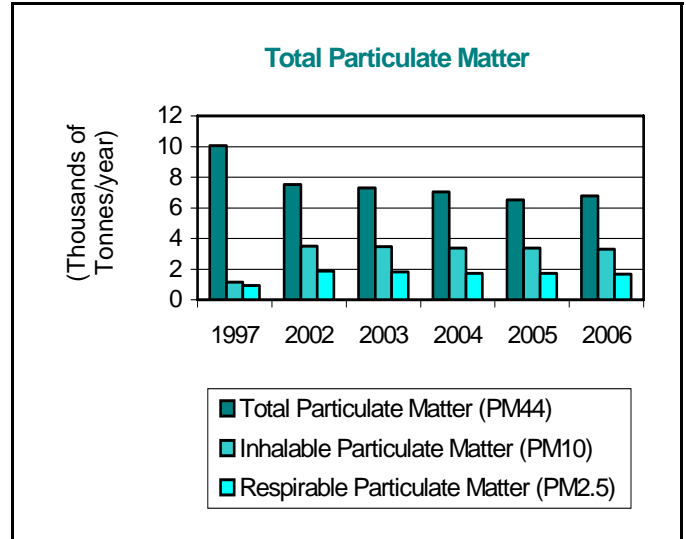
### 6.4 Volatile Organic Carbon (VOC) Emissions

- Volatile Organic Carbon includes a variety of organic compounds that react with nitrogen oxides and sunlight to form ground level ozone.
- HIEA emissions have been reduced by 37% since 1997.
- The reductions were achieved primarily by the installation of benzene emission controls at the coke by-products plants.



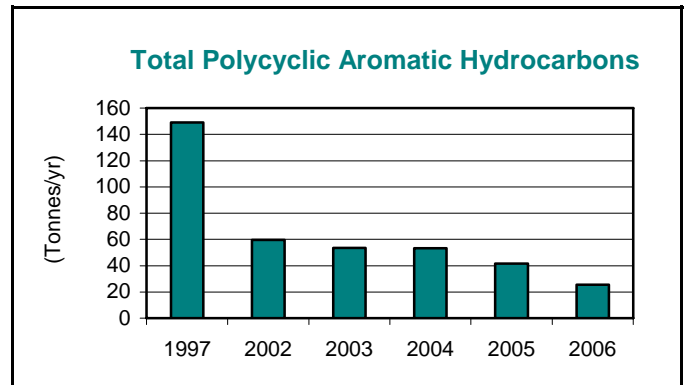
### 6.5 Total Particulate Matter

- Total Particulate includes particles smaller than 44 microns (PM<sub>4.4</sub>) - the size limit of particles that can be suspended in air.
- Inhalable Particulate includes particles smaller than 10 microns (PM<sub>10</sub>) - the size of particles that can be inhaled.
- Respirable particulate includes particles smaller than 2.5 microns (PM<sub>2.5</sub>) - the size of particles that can be inhaled deeply into the lungs.
- Total Particulate Matter emissions by HIEA companies have declined by 33% since 1997.
- Particulate control is a priority for many HIEA companies and there are numerous programs responsible for the improvements, including point source controls, shutdown of obsolete equipment, improved operating practices, paving of roads and yards, and greenbelting.
- Since 1999, HIEA has spent approximately \$120,000 on local greenbelting programs.
- The higher numbers for PM10 and PM2.5 reported since 2001 are a result of improved testing methods and better information.



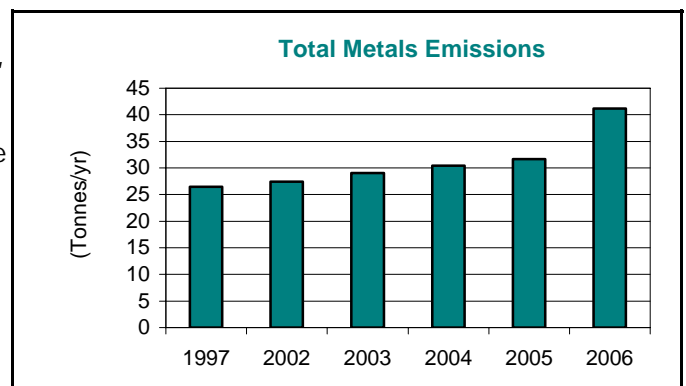
### 6.6 Polycyclic Aromatic Hydrocarbon (PAH) Emissions

- HIEA companies have reduced PAH emissions by 83% since 1997.
- Improving coke oven maintenance and shutting down obsolete coke plants achieved these reductions.



### 6.7 Total Metal Emissions

- The metals emitted include copper, lead, zinc, cadmium, chromium, nickel, mercury, manganese and vanadium.
- HIEA total metal emissions have increased by 56% since 1997.
- Increased production and improved reporting methodology have resulted in higher recorded emissions.
- Companies continued to implement particulate control plans, which help control metal emissions.

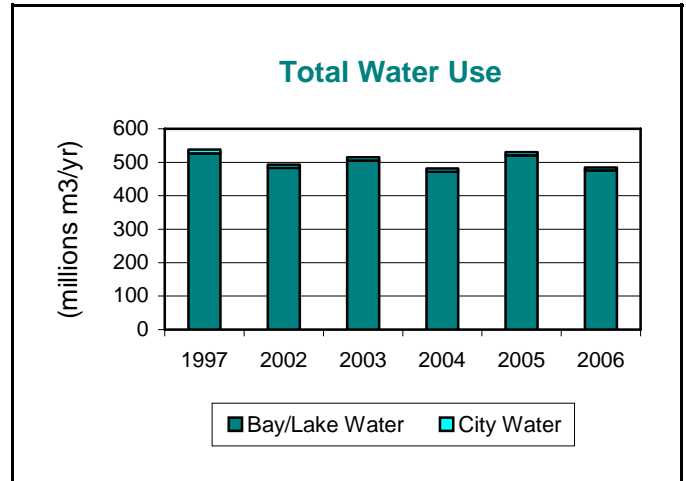


## 7. Water Discharges

In so far as some HIEA members discharge waste water to the municipal sanitary sewer system and some discharge to the bay or lake, the data provided below indicates both the direct discharges and those from the Hamilton Sewage Treatment Plant attributable to members.

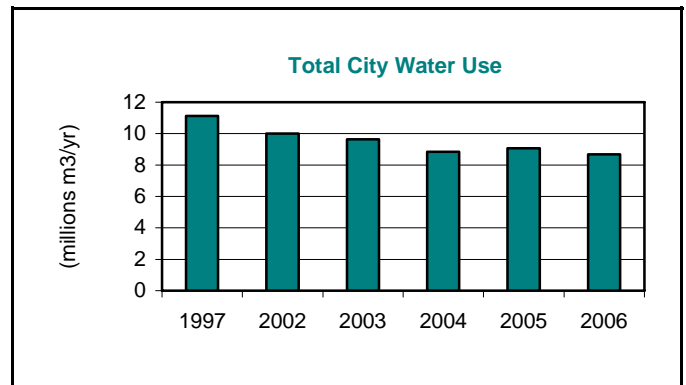
### 7.1 Total Water Use

- Bay/lake water use has decreased by 11% since 1997.
- A large portion of this water is used for non-contact cooling. This water circulates within equipment without contacting our process and does not pick up pollutants.
- Bay water is also used for dust control.
- In 2006, city water use was only 1% of total water use.



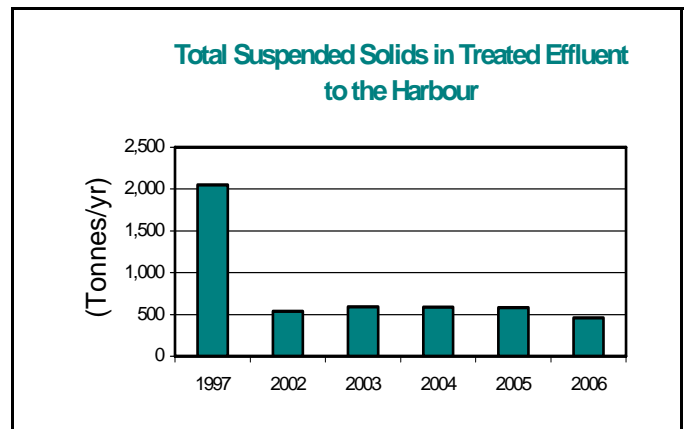
### 7.2 City Water Use

- HIEA companies have reduced city water use by 22% since 1997.



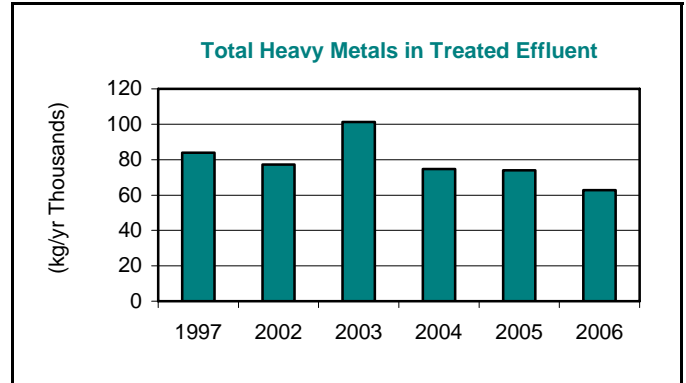
### 7.3 Total Suspended Solids

- HIEA companies reduced Suspended Solids discharges by 78% since 1997.
- Implementation of tight water recycle systems and shutdown of obsolete facilities contributed to the improvement.



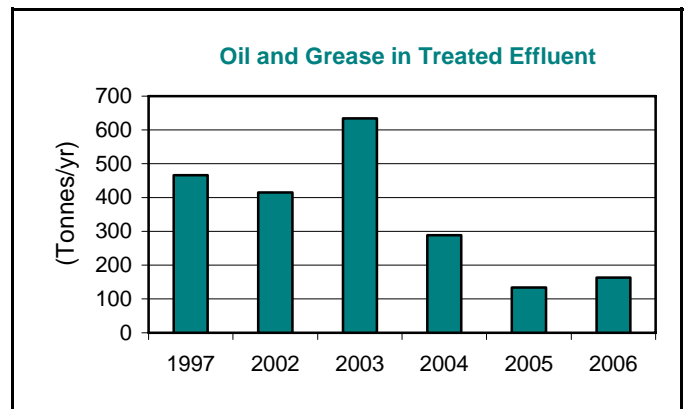
### 7.4 Total Metals

- Total Metals include lead, zinc, cadmium, chromium, iron, nickel, mercury, manganese and vanadium.
- Total Metals discharges attributable to HIEA companies, decreased 25% since 1997.
- The implementation of tight water recycle systems, and shutdown of obsolete facilities contributed to the improvement.



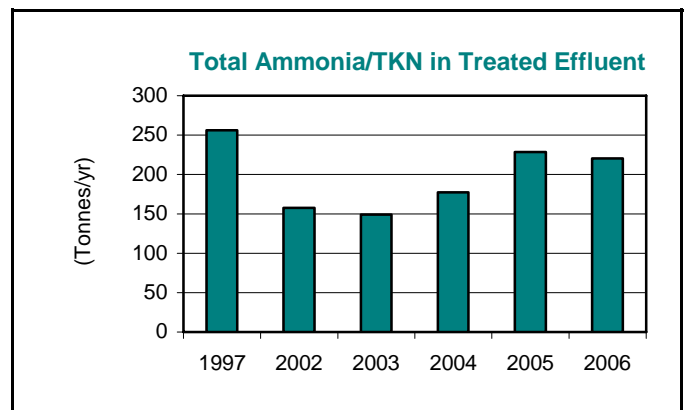
### 7.5 Oil and Grease

- Oil and Grease discharges attributable to HIEA companies decreased 65% since 1997.
- Implementation of tight water recycle systems and diversion of some wastewater to sanitary sewer for additional treatment contributed to the improvement.



### 7.6 Ammonia and Kjeldhal Nitrogen

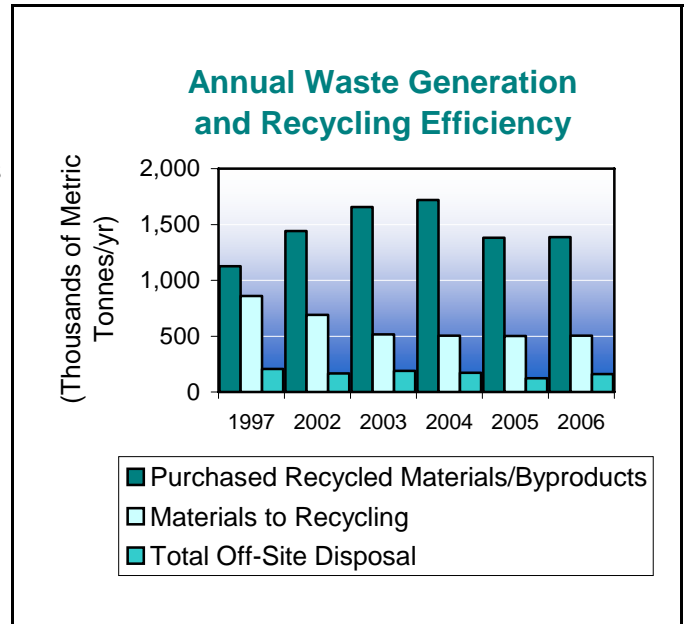
- Ammonia is a parameter commonly measured in industrial effluents. Total Kjeldhal Nitrogen (TKN) includes ammonia and other compounds containing nitrogen like nitrates and nitrites. TKN is a parameter more often used as a measure of municipal waste loads; it is not usually measured in industrial effluents. Both are a measure of nitrogen discharge to Hamilton Harbour.
- Ammonia and TKN discharges attributable to HIEA companies declined 14% since 1997.
- Implementation of tight water recycling systems and diversion of some wastewater to sanitary sewer for additional treatment contributed to the long term improvement.



## 8. Recycling and Waste Management

### 8.1 Recycling

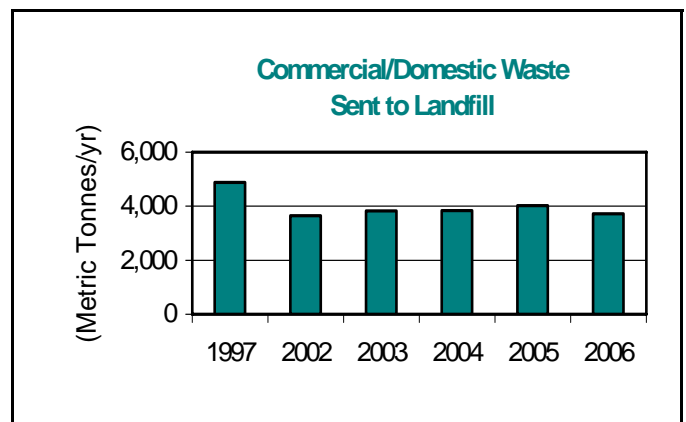
- Hamilton is an important recycling centre and HIEA companies are major participants.
- HIEA member companies purchase by-products and waste from other companies to recycle or manufacture into other usable products. They also purchase products made of recycled materials. Member companies sell or otherwise dispose of by-products and wastes to other companies for recycling.
- HIEA companies purchased recycled materials and by-products totalling almost 1.4 million tonnes in 2006, an increase of almost 23% since 1997.
- Reductions in purchased recycled materials since 2003 were due to lower scrap purchases and higher utilization of internal sources of scrap at the steel companies.
- Materials sent to recycling include a wide variety of materials, from blast furnace slag to office paper, which HIEA companies send to other companies as valued products or raw materials for their processes. Each year over 500,000 tonnes are recycled.
- In 2006 over 10 tonnes of recycled materials were purchased or produced by HIEA companies for every tonne of waste disposed off-site.
- In 2006, 91% of the non-recyclable waste disposed off-site was non-hazardous industrial waste.



### 8.2 Commercial Waste

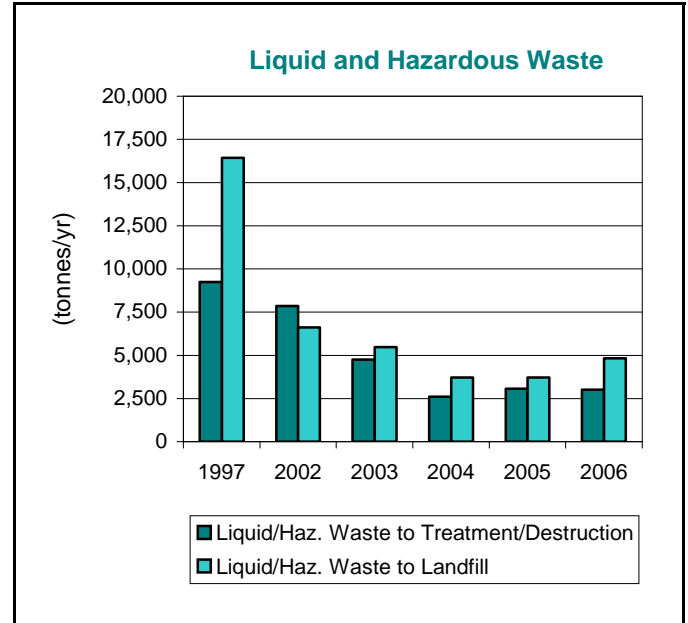
Commercial Waste is waste material that originates in business establishments such as office buildings or stores and excludes household and industrial waste.

- Commercial waste has declined 24% since 1997.
- The reduction was achieved by implementation of “3Rs” recycling programs for paper, glass, cans, cardboard, plastic, etc., as well as continuously implementing new recycling opportunities.



### 8.4 Liquid and Hazardous Waste

- Liquid industrial and hazardous wastes are referred to as “subject wastes” by Ontario regulations.
- Liquid and hazardous wastes are landfilled, solidified, treated to render them non-hazardous, or destroyed.
- The amount of liquid and hazardous waste diverted to treatment and destruction has decreased 68% since 1997. This is a result of less waste generation and greater internal re-use of wastes.
- HIEA companies recycling opportunities have contributed to the 71% reduction in landfilled liquid and hazardous waste since 1997.





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