



HAMILTON  
INDUSTRIAL  
ENVIRONMENTAL  
ASSOCIATION

## **2005 Environmental Survey**

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Reported by

Ed Cocchiarella  
Chair, HIEA Technical Committee

Bill Gair  
Chair, HIEA Communications Committee

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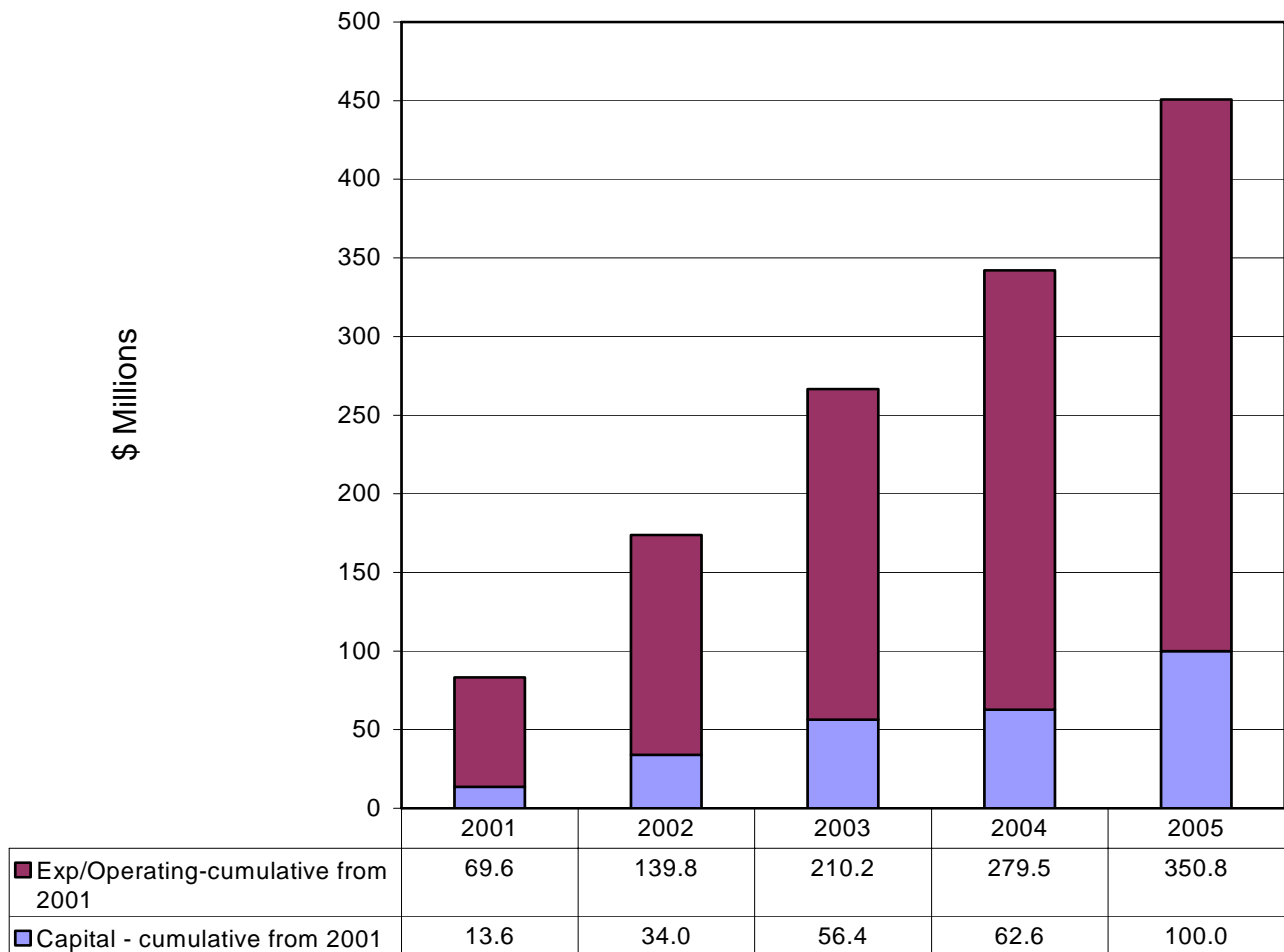
## 2. List of HIEA Members

Facility	Business Description	Land Area (Hectares)
Air Liquide	Producer of Industrial Gases	22.0
Bunge Canada	Oilseeds Processor	11.3
Columbian Chemicals Canada Ltd.	Carbon Black Manufacturer	11.3
Dofasco Inc.	Integrated Steel Mill producing flat rolled and coated steel coils, sheets and tubes	282.0
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	-
Newalta Industrial Services Inc.	Waste Management and Industrial Services	-
Hamilton Steel (formerly Stelco Hamilton)	Integrated Steel Mill producing flat rolled and coated steel coils and sheets.	445.0
VFT Canada Inc.	Producer of Coal Tar Pitch and Distillates	5.4
	<b>TOTAL:</b>	<b>797.5</b>

- In 2005 HIEA companies employed over 10,000 people and paid over \$ 31 million in municipal taxes.
- Four HIEA companies had achieved or were implementing ISO 14001 environmental management systems in 2005.
- Two companies also followed the Canadian Chemical Producers Association's Responsible Care Standard in 2005.
- This report includes data from the above facilities.

### 3. Environmental Spending

- HIEA member companies have spent over \$450 million on environmental protection since 2001.
- HIEA member companies have spent between \$6,200,000 and \$37,300,000 in capital for environmental projects each year since 2001.
- HIEA member companies spend over \$69,000,000 per year in environmental operating expense.



## 4. Voluntary Environmental Reduction Programs in 2005

- Industry Emissions Reduction Plan (IERP)
- 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 (expires December 31, 2005)
- Golden Horseshoe By-product Synergy Project
- Polycyclic Aromatic Hydrocarbon (PAH) - Best Practices
- Wood Preservation Strategic Options Process for Polycyclic Aromatic Hydrocarbons

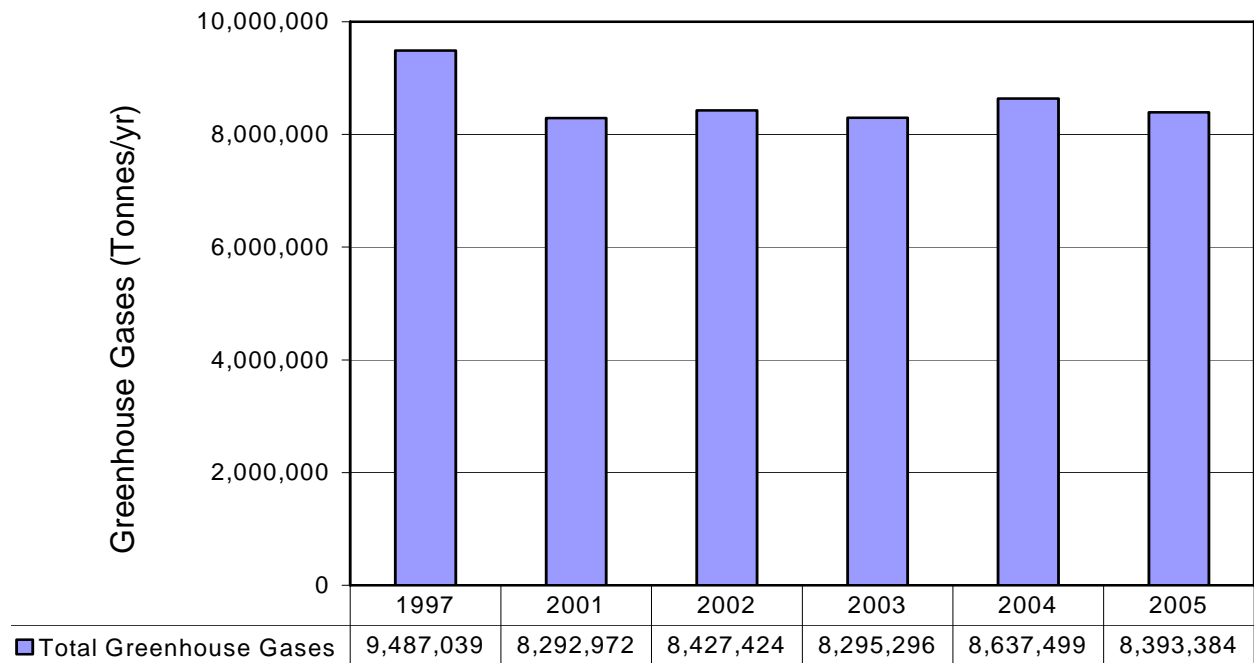
## **5. Memberships in Environmental Associations in 2005 (Other than HIEA)**

- Air and Waste Management Association (AWMA)
- American Iron and Steel Institute (AISI)
- Bay Area Restoration Council (BARC)
- 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)
- Clean Air Hamilton (CAH)
- Compressed Gas Association
- Excellence in Corporate Environmental Leadership (EXCEL)
- Hamilton - Community Awareness Emergency Response (CAER)
- Hamilton Air Monitoring Network (HAMN)
- Steel Manufacturers' Association (Environmental Committee)
- Water Environment Federation

## 6. Air Emissions

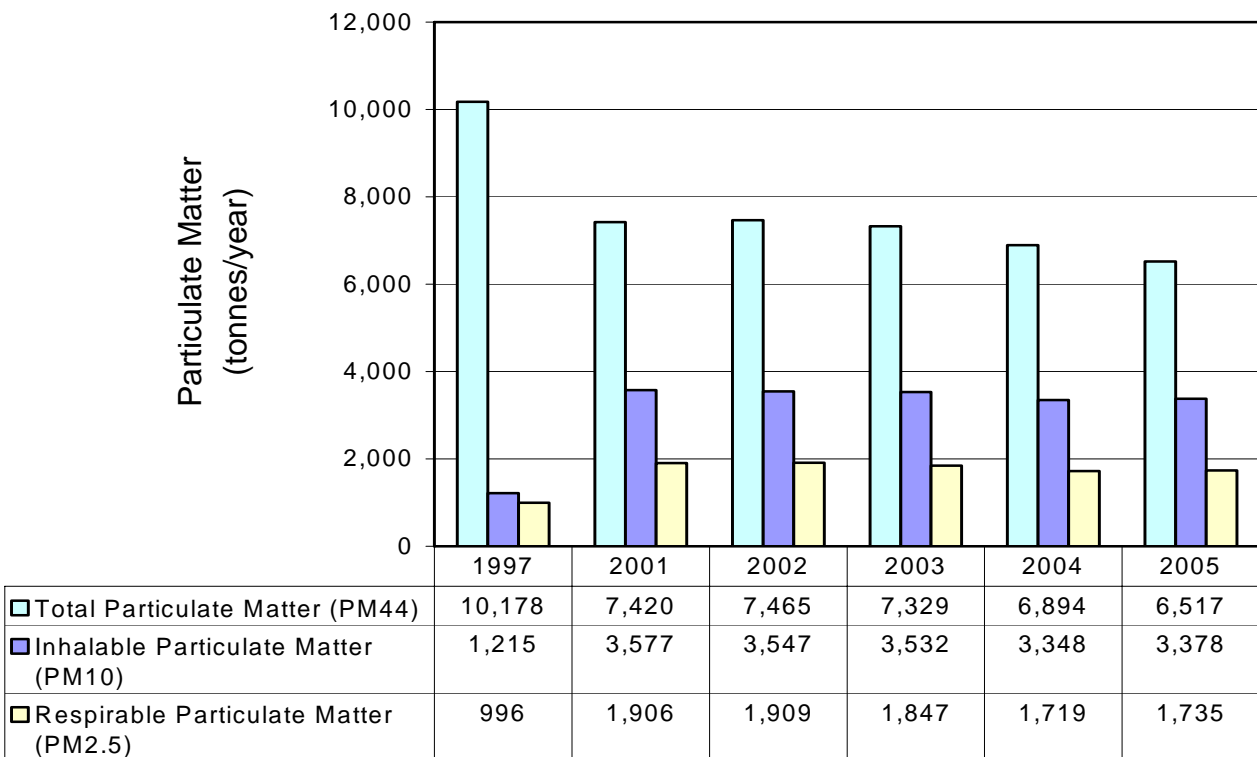
### 6.1 Greenhouse Gases

- 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 12% below 1997 levels.
- The reduction in 2001 was achieved by the shutdown of obsolete equipment.



## 6.2 Total Particulate Matter

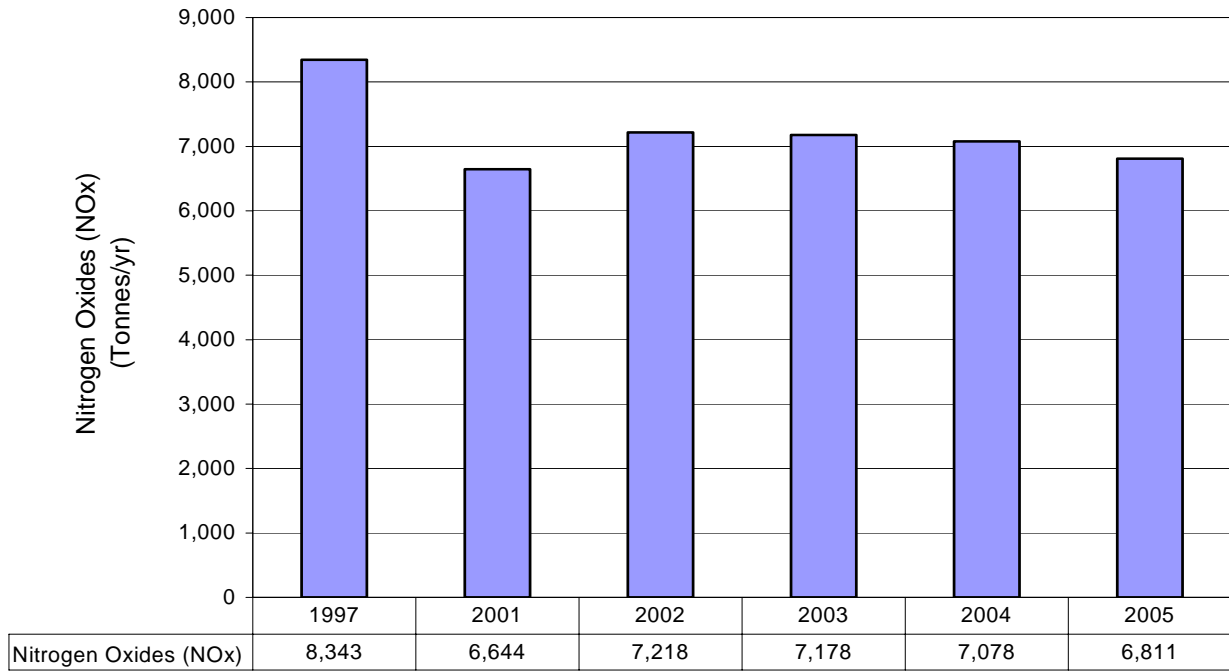
- Total Particulate includes particles smaller than 44 microns (PM<sub>44</sub>)—the size limit of particles that can be suspended in air.
- Inhalable Particulate includes particles smaller than 10 microns (PM<sub>10</sub>)—the size of particles that can be inhaled.
- Respirable particulate includes 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 36% since 1997.
- Particulate control is a priority for many HIEA companies and there are numerous programs responsible for the improvements, including greenbelting, point source controls, shutdown of obsolete equipment, and improved practices.
- In addition to individual company plans, HIEA has funded greenbelting in Hamilton since 1999.
- The higher numbers for PM<sub>10</sub> and PM<sub>2.5</sub> reported since 2001 are a result of improved testing methods and better information.





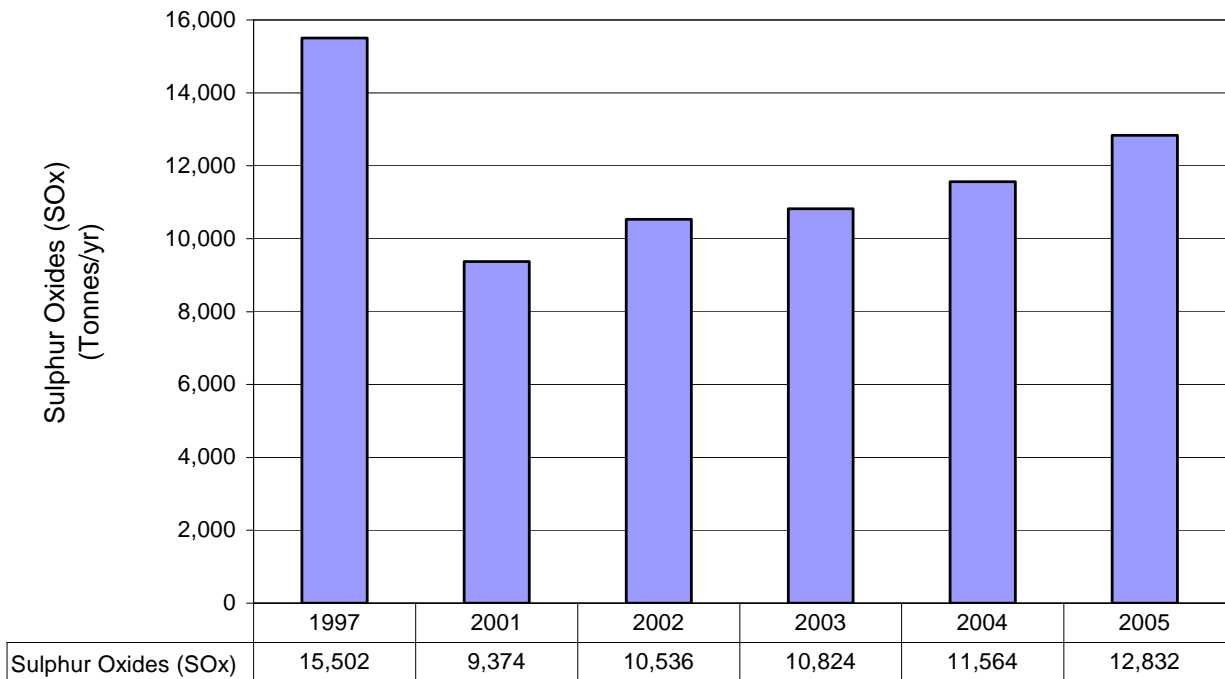
### 6.3 Nitrogen Oxides (NOx) Emissions

- Nitrogen oxides are precursors to ground level ozone. The main source of NOx is the combustion of fuels.
- HIEA emissions have been reduced by 19% since 1997.
- Improvements have been primarily achieved by the installation of advanced combustion technology (low-NOx burners) and shutdown of obsolete equipment.



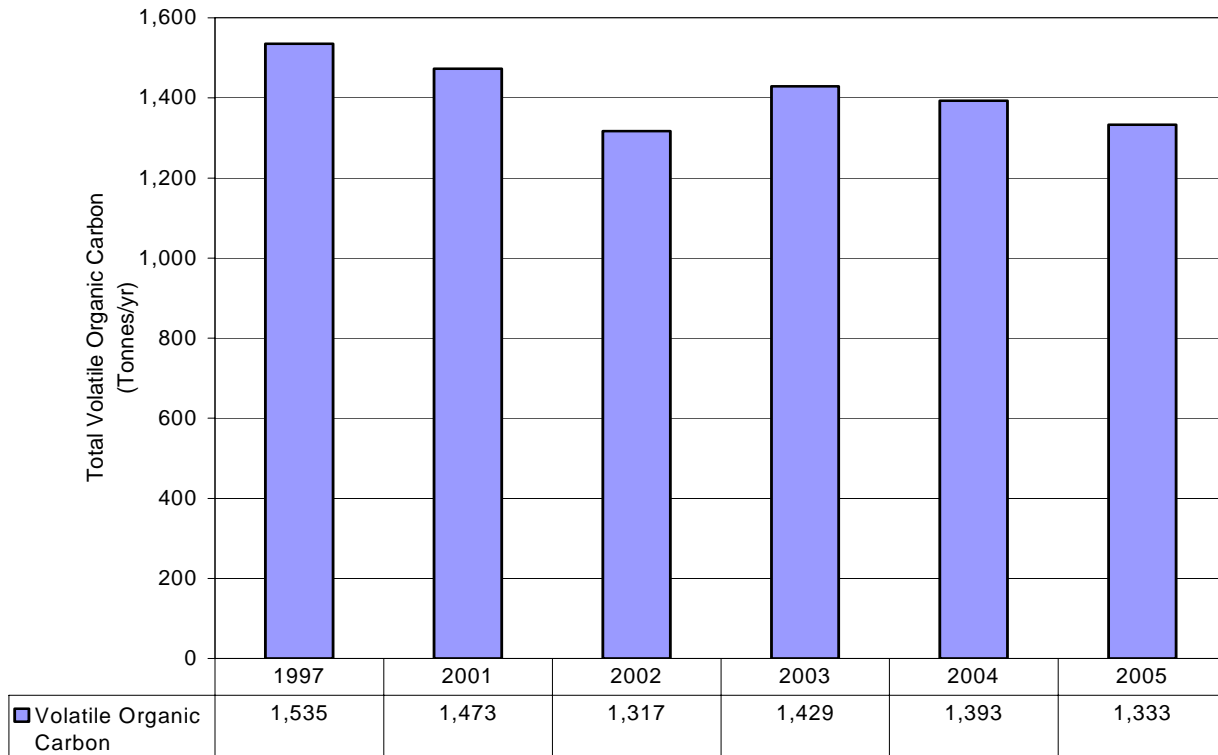
## 6.4 Sulphur Oxides (SOx) Emissions

- Sulphur oxides are composed mainly of sulphur dioxide (SO<sub>2</sub>).
- HIEA emissions have declined 17% since 1997.
- HIEA member companies switching to lower sulphur fuels, shutting down obsolete equipment and recent reductions in coke production, achieved the improvement.
- Increases since 2001 are due to increased production, and limited desulphurization for coke oven gas.



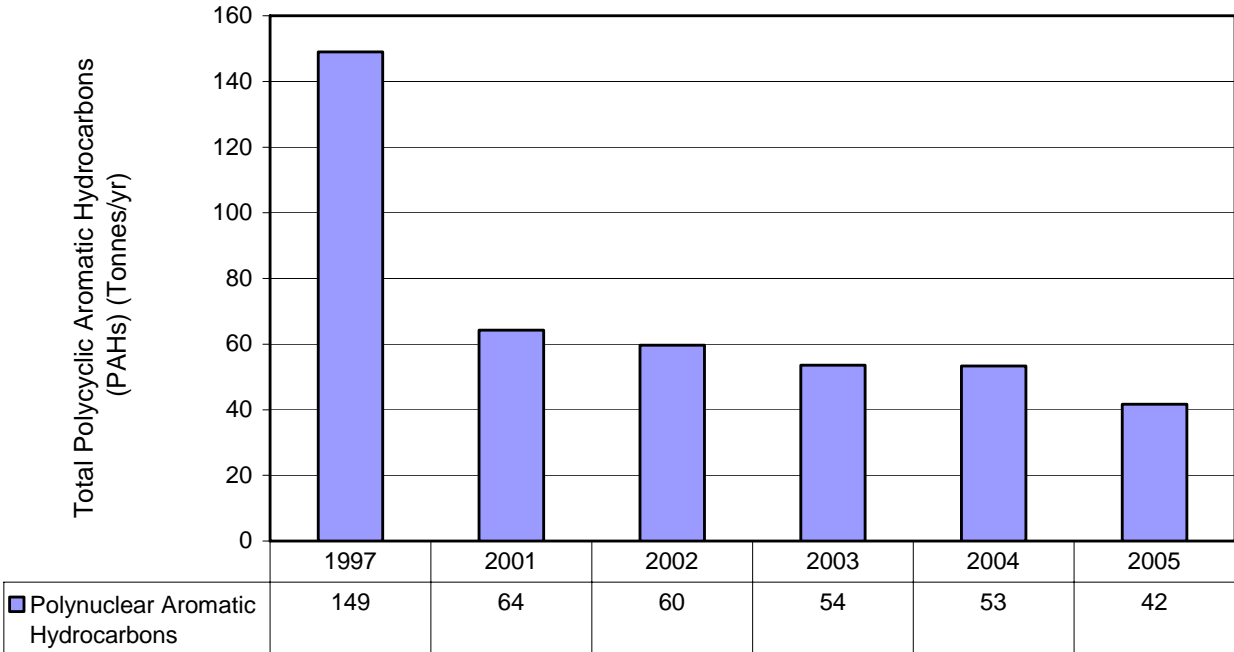
## 6.5 Volatile Organic Carbon (VOC) Emissions

- Volatile Organic Carbon includes a variety of organic compounds that react with nitrogen oxides and sunlight to form ground level ozone.
- HIEA member companies have reduced emissions by 13% since 1997.
- The reductions were achieved primarily by the installation of benzene emission controls at the coke by-products plants.



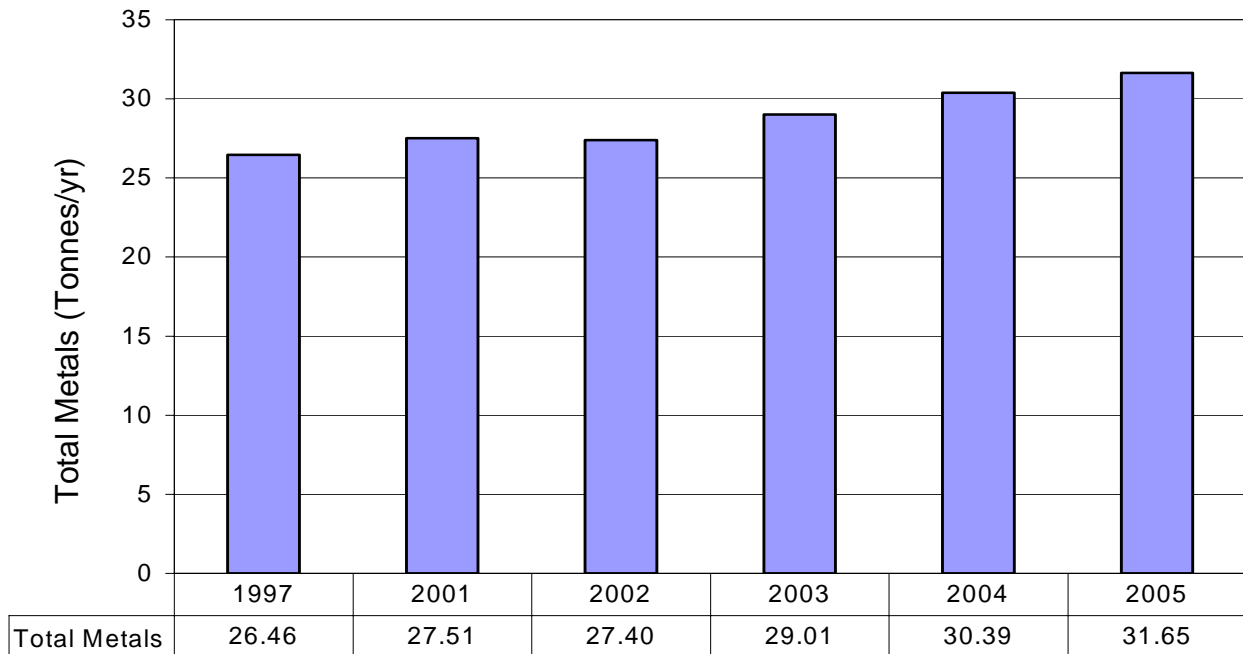
## 6.6 Polycyclic Aromatic Hydrocarbon (PAH) Emissions

- HIEA companies have reduced PAH emissions by 72% since 1997.
- Improving coke oven maintenance and shutting down obsolete coke plants achieved these reductions.
- Since 1997 there has been a steady reduction.



## 6.7 Total Metals Emissions

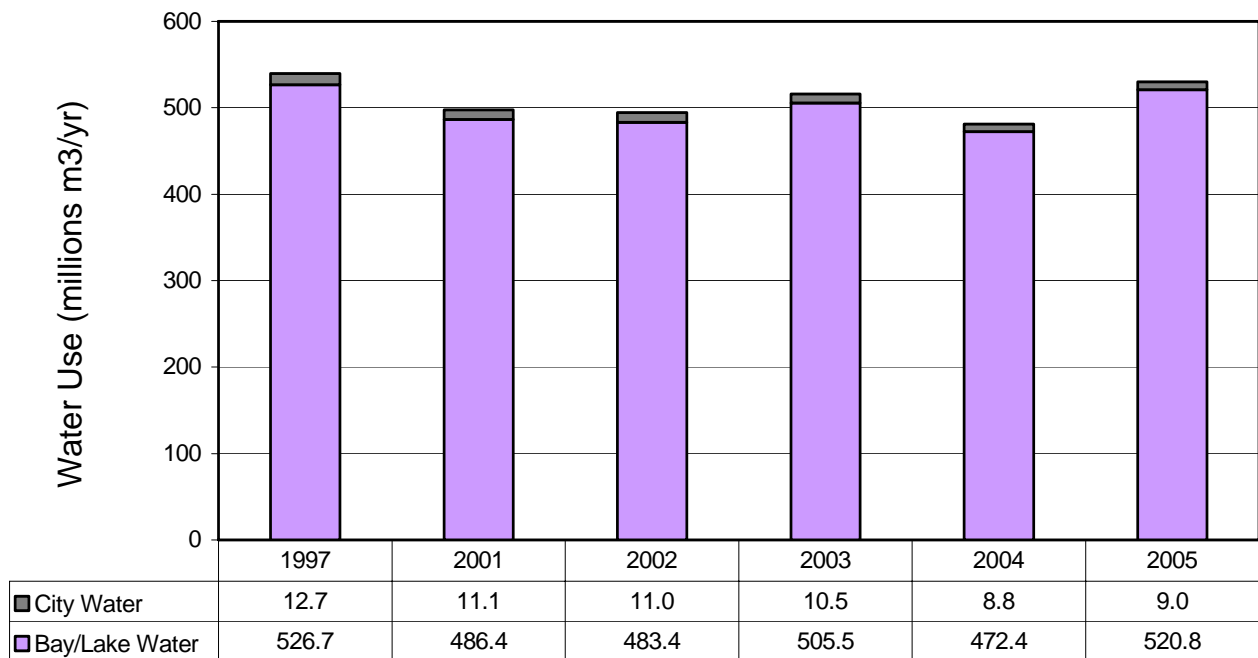
- The metals emitted include copper, lead, zinc, cadmium, chromium, nickel, mercury, manganese and vanadium.
- Production increases and improved reporting have resulted in higher emissions being reported by member companies. However, companies continued to implement particulate control plans which help control metal emissions.
- In 2003, 2 additional companies began reporting metal emissions to air.
- Total metals have increased 20% since 1997



## 7. Water Discharges

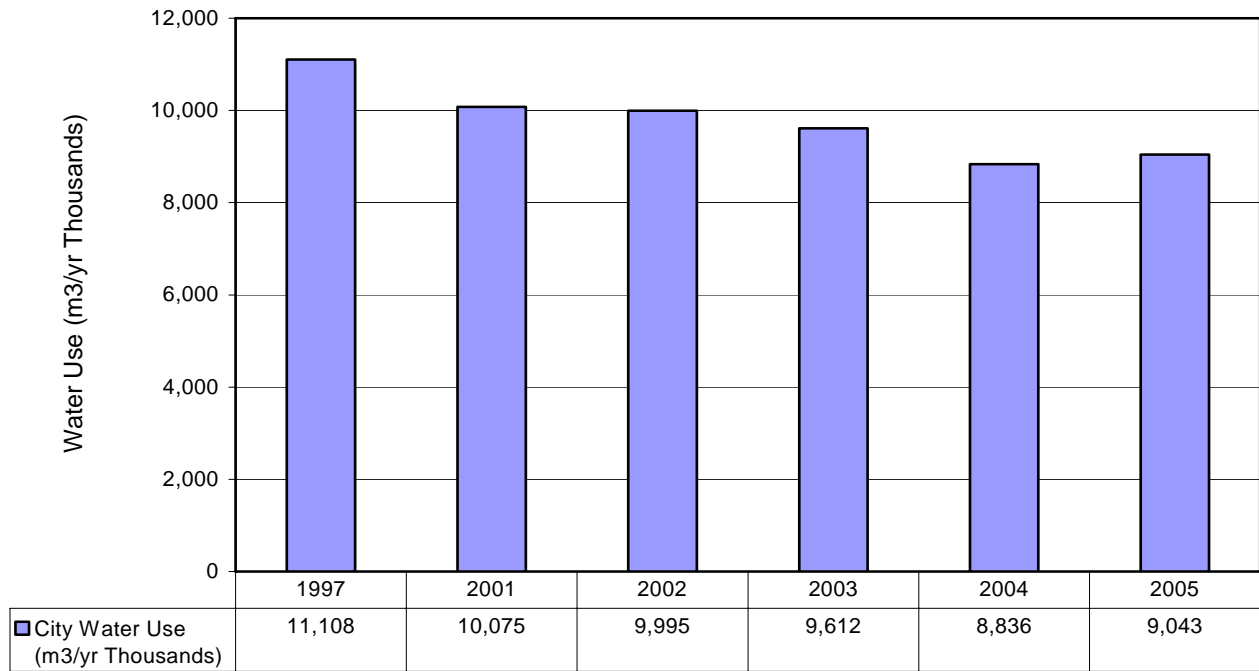
### 7.1 Total Water Use

- Bay/lake water use has decreased by 2% 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 2005, city water use was only 1.7% of total water use.



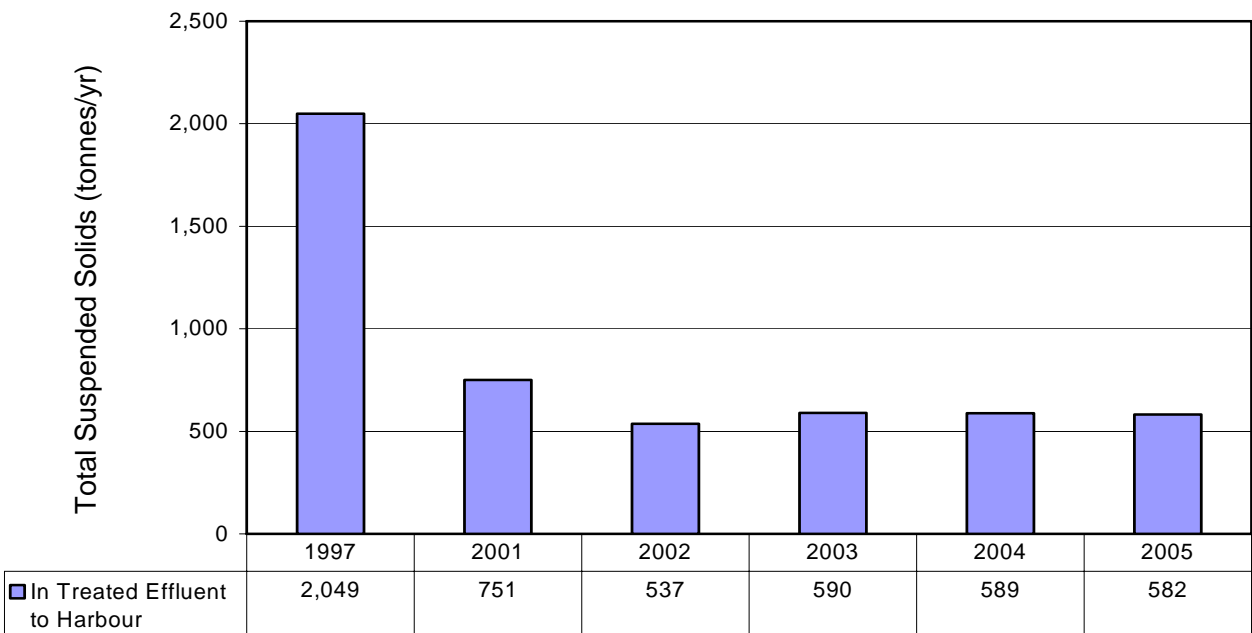
## 7.2 City Water Use

- HIEA companies have reduced city water use by 19% since 1997.



### 7.3 Total Suspended Solids

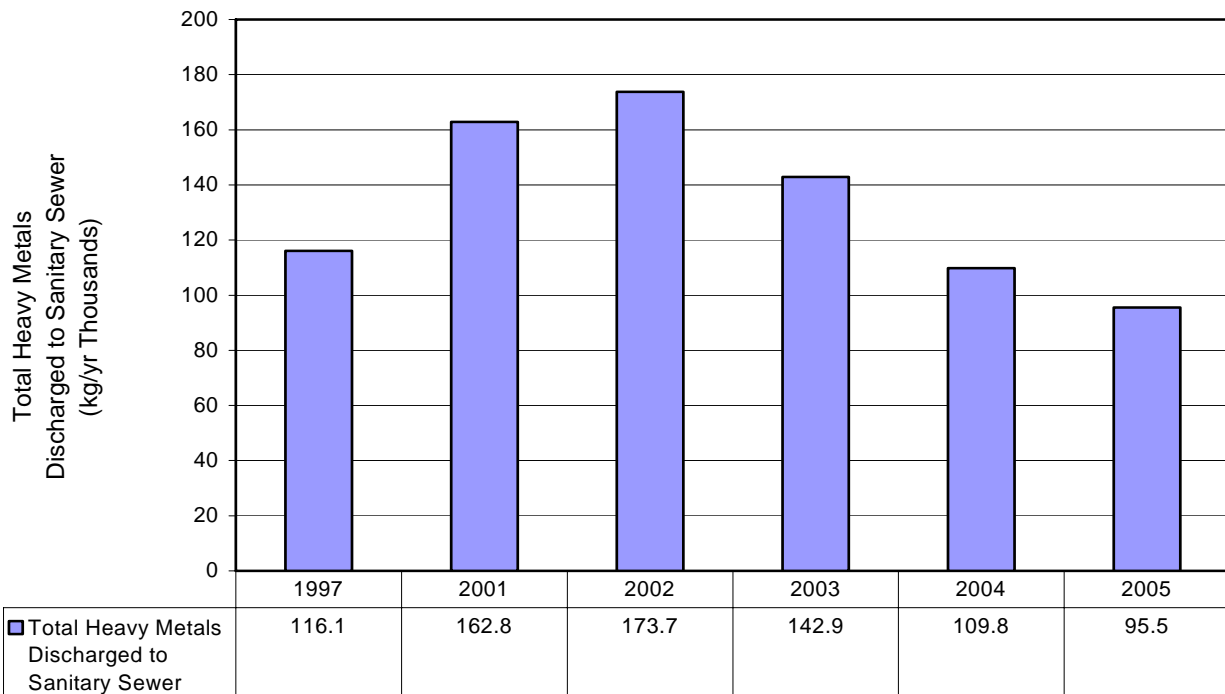
- HIEA companies reduced Suspended Solids discharged to the Harbour by 72% since 1997.
- Some HIEA companies also discharge Suspended Solids to the Hamilton sanitary sewer system.
- Suspended Solids discharged to the sanitary sewer system are treated at the Hamilton Sewage Treatment Plant (HSTP) before discharge to Hamilton Harbour.
- Implementation of tight water recycle systems and shutdown of obsolete facilities contributed to the improvement.





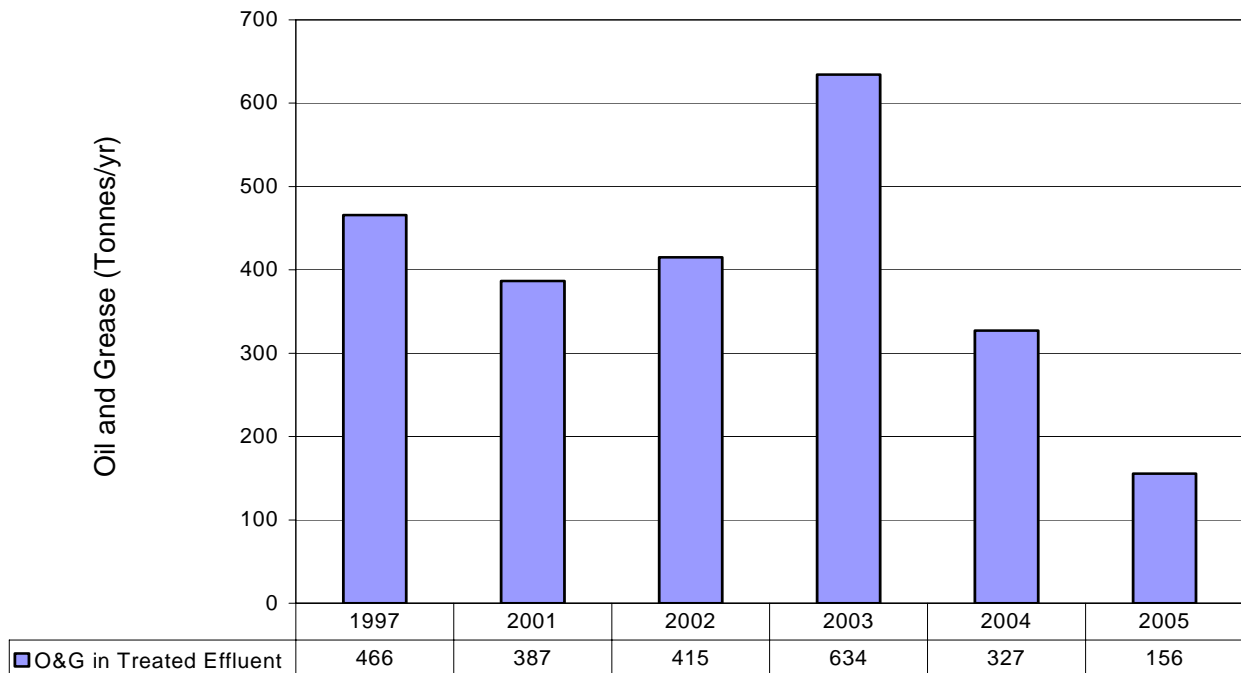
## 7.4 Total Metals

- Total Metals include lead, zinc, cadmium, chromium, iron, nickel, mercury, manganese and vanadium.
- HIEA companies that discharge treated effluent directly to the Harbour or into the Hamilton Sanitary Sewer system typically analyse the water for these trace metals.
- Two additional companies began reporting in 2005.
- Implementation of tight water recycle systems, and shutdown of obsolete facilities contributed to the improvement.
- Total Metals discharged to the Harbour by HIEA companies, including treated effluent and discharges after treatment at the HSTP decreased 13% since 1997.



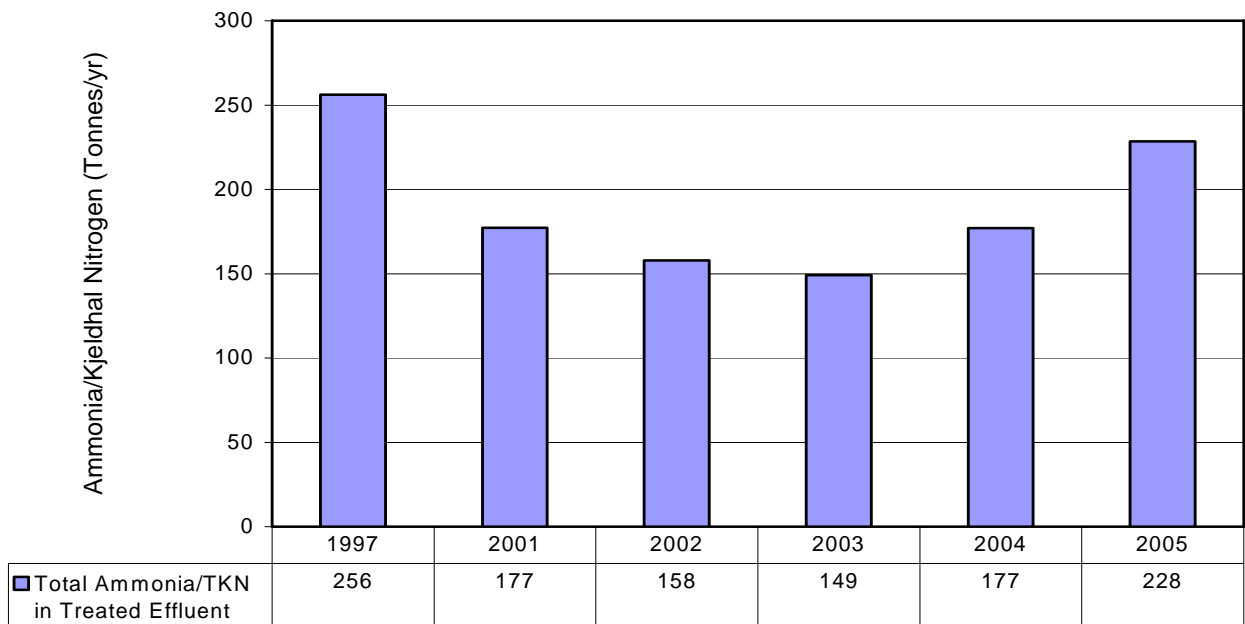
## 7.5 Oil and Grease

- HIEA companies discharge relatively small amounts of oil and grease in treated effluent directly to the Harbour or into the Hamilton Sanitary Sewer system for treatment by the Hamilton Sewage Treatment Plant (HSTP).
- Oil and Grease discharged to the Harbour by HIEA companies, including treated effluent and discharges after treatment at the HSTP, decreased 67% since 1997.
- Implementation of tight water recycle systems and diversion of some wastewater to sanitary sewer for additional treatment contributed to the improvement.
- Large fluctuations are expected from year to year as a result of the following: At industrial facilities analyses show low concentrations in relatively large volumes of water that result in highly variable discharges. Measurements at low concentrations are highly variable for this parameter.



## 7.6 Ammonia and Kjeldhal Nitrogen

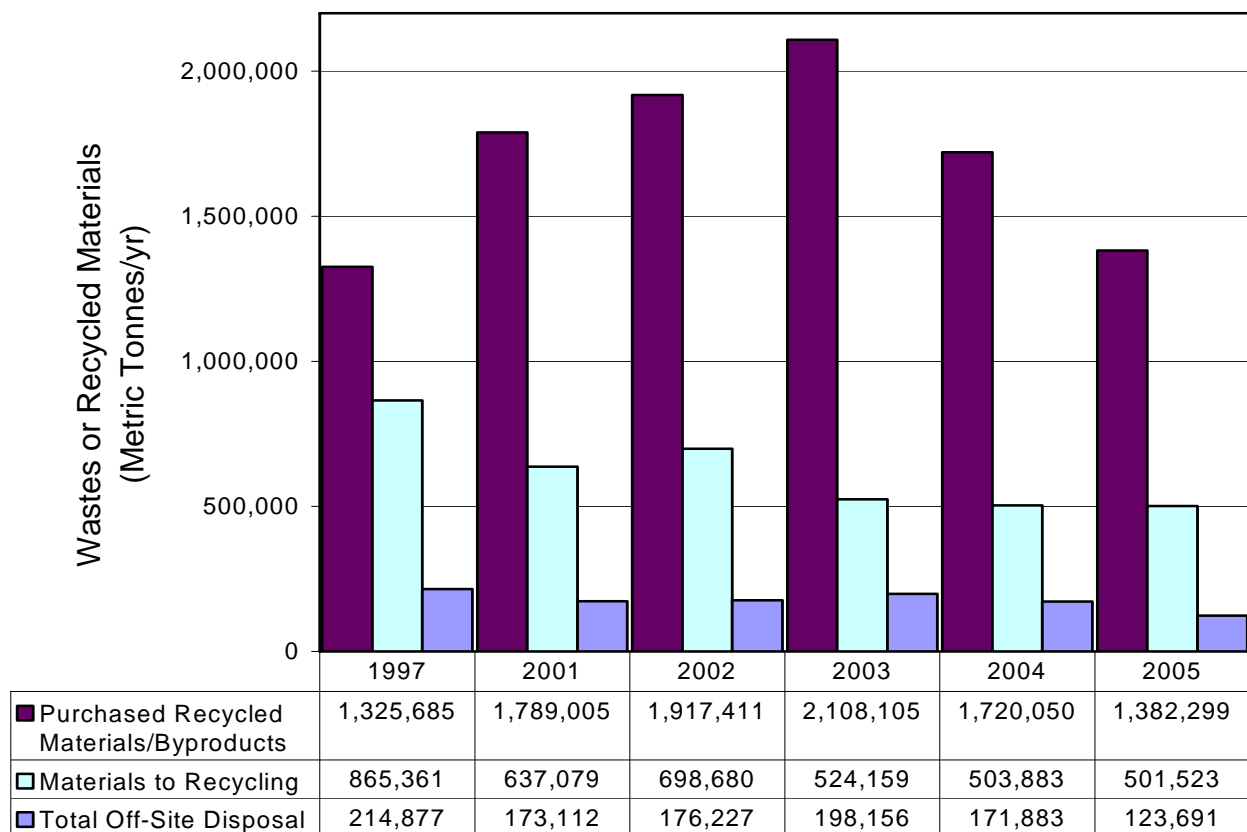
- Ammonia is a parameter commonly measured in industrial effluents. Total Kjeldhal Nitrogen (TKN) includes ammonia and other compounds containing nitrogen like nitrates and nitrites. TKN is a parameter specific to sanitary sewer discharge by-laws and more applicable to sewage treatment plant effluents. TKN is not usually measured in industrial effluents. Both are a measure of nitrogen discharge to Hamilton Harbour.
- Ammonia and TKN discharged to the Harbour by HIEA companies, including treated effluent and discharges after treatment at the HSTP, declined 11% since 1997.
- One additional company began reporting in 2005.
- Operational problems, that have since been corrected, contributed to higher discharges in 2004 and 2005.
- 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

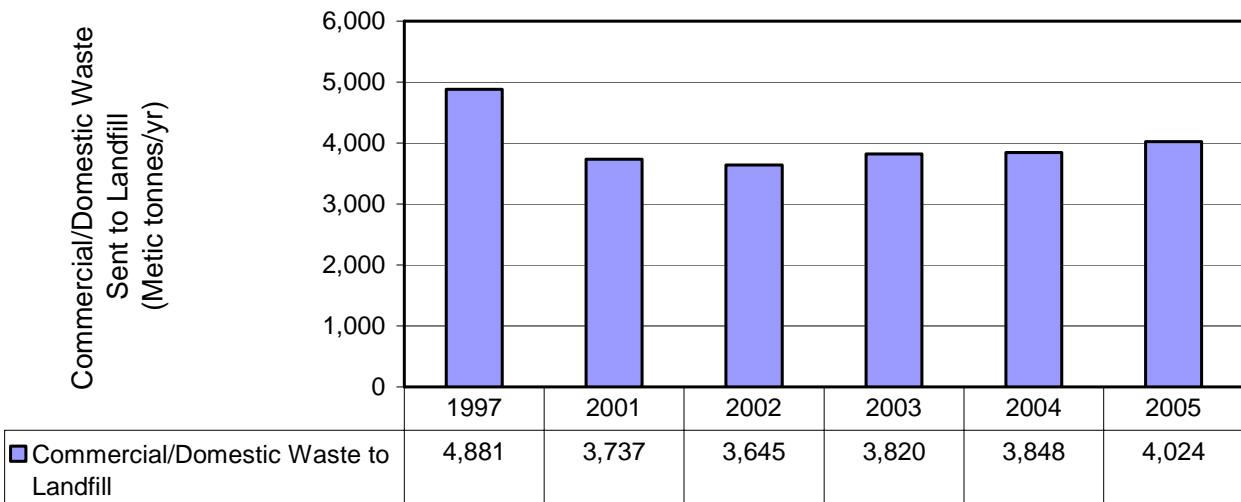
### 8.1 Recycling

- Hamilton is an important recycling centre and HIEA companies are major participants.
- Purchased recycled materials/by-products include waste materials purchased by HIEA companies for recycling and purchased products made of recycled materials.
- HIEA companies purchased recycled materials and by-products totalling over 1.3 million tonnes in 2005, an increase of almost 4% 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 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 is recycled.
- In 2005 over 10 tonnes of recycled materials were purchased or produced by HIEA companies for every tonne of waste disposed off-site.
- In 2005, 91% of waste disposed off-site was non-hazardous industrial waste.



## 8.2 Commercial Waste

- Commercial waste has declined 18% 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.



### 8.3 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 67% since 1997.
- Additional recycling opportunities have contributed to the 82% reduction in landfilled waste since 1997 conserving landfill space. Also recycling has contributed to less waste requiring treatment or destruction.

