HAMILTON INDUSTRIAL ENVIRONMENTAL ASSOCIATION

2004 Environmental Survey

February, 2006

Reported by

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1. Table of Contents

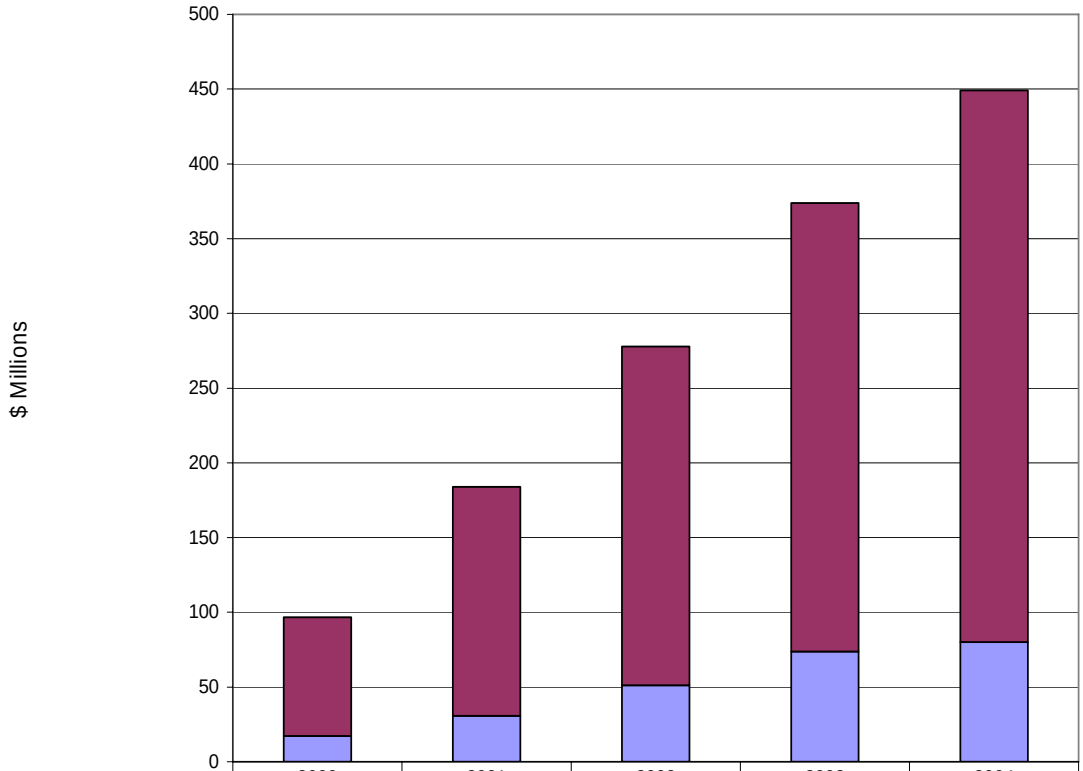
2. List of HIEA Members

Facility	Business Description	Land Area (Hectares)
Air Liquide	Producer of Industrial Gases	22.00
Bunge Canada (formerly CanAmera Foods)	Oilseeds Processor	11.30
Columbian Chemicals Canada Ltd.	Carbon Black Manufacturer	11.30
Dofasco Inc.	Integrated Steel Mill producing flat rolled and coated steel coils, sheets and tubes	282.00
LaFarge	Processor of Blast Furnace Slag	4.50
MultiServ	Steel-making Slag Processor	-
PSC Industrial Services Inc.	Waste Management and Industrial Services	-
Stelco Hamilton	Integrated Steel Mill producing flat rolled and coated steel coils and sheets.	445.00
Stelwire	Producer of Steel Wire Products	16.00
VFT Canada Inc.	Producer of Coal Tar Pitch and Distillates	5.40
	TOTAL:	***797.5***

- In 2004 HIEA companies employed over 13,000 people and paid over $35 million in municipal taxes.
- Six HIEA companies had achieved or were implementing ISO 14001 environmental management systems in 2004.
- Two companies also follow the Canadian Chemical Producers Association's Responsible Care Standard.
- This report includes data from the above facilities.

3. Environmental Spending

- HIEA member companies have spent over $449 million on environmental protection since 2000.
- HIEA member companies have spent between $6,200,000 and $17,300,000 in capital for environmental projects each year since 2000.
- HIEA member companies spend over $69,000,000 per year in environmental operating expense.



	2000	2001	2002	2003	2004
Exp/Operating-cumulative from 2000	79.3	153.0	226.5	300.1	369.3
Capital - cumulative from 2000	17.3	30.9	51.3	73.7	79.9

4. Voluntary Environmental Reduction Programs in 2003

- Accelerated Reduction and Elimination of Toxics (ARET)
- Anti-Smog Action Plan (ASAP)
- 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
- Polycyclic Aromatic Hydrocarbon (PAH) - Best Practices
- Wood Preservation Strategic Options Process for Polycyclic Aromatic Hydrocarbons

5. Memberships in Environmental Associations in 2003 (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)

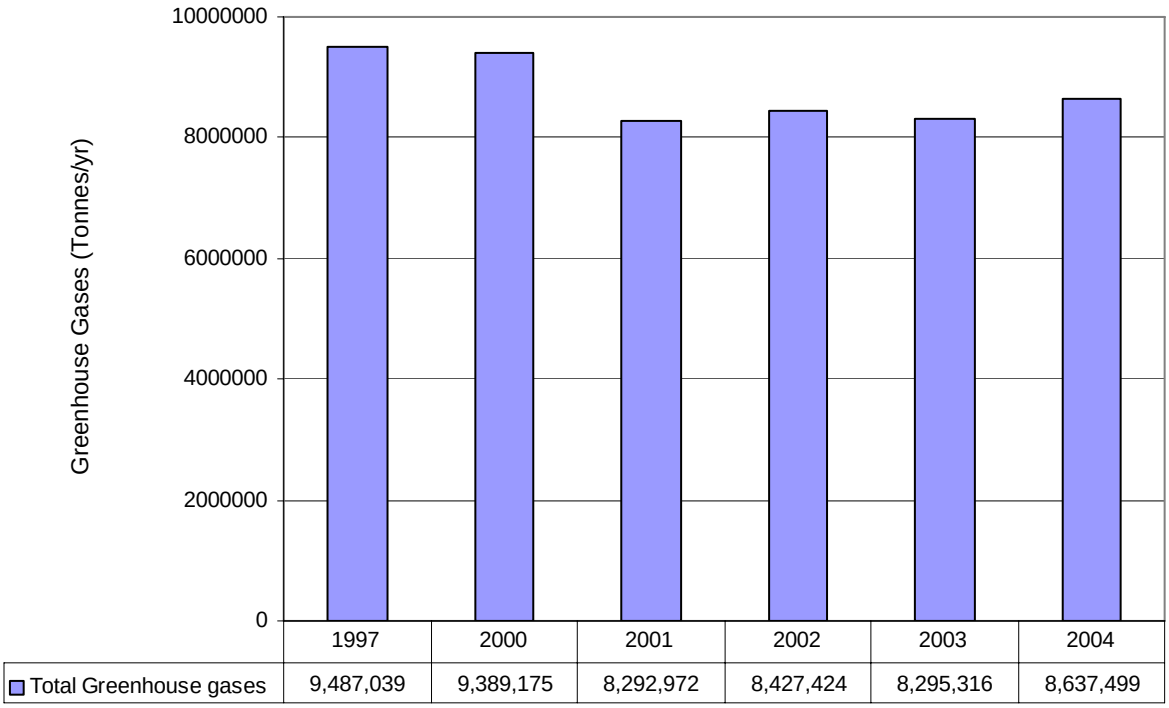
Steel Manufacturers' Association (Environmental Committee)

Water Environment Federation

6. Air Emissions

6.1 Greenhouse Gases

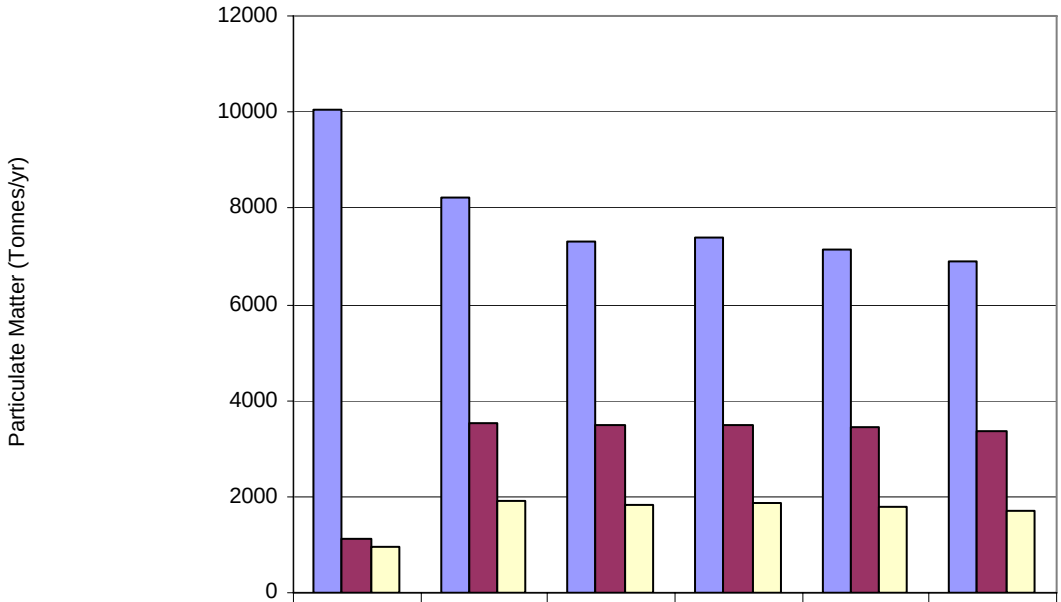
- Greenhouse gas emissions include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride.
- Carbon dioxide is the most significant greenhouse gas for HIEA companies.
- Although production is increasing, the total HIEA emissions are 9% below 1997 levels.
- The reduction in 2001 was achieved by the shutdown of obsolete equipment.



	1997	2000	2001	2002	2003	2004
Total Greenhouse gases	9,487,039	9,389,175	8,292,972	8,427,424	8,295,316	8,637,499

6.2 Total Particulate Matter

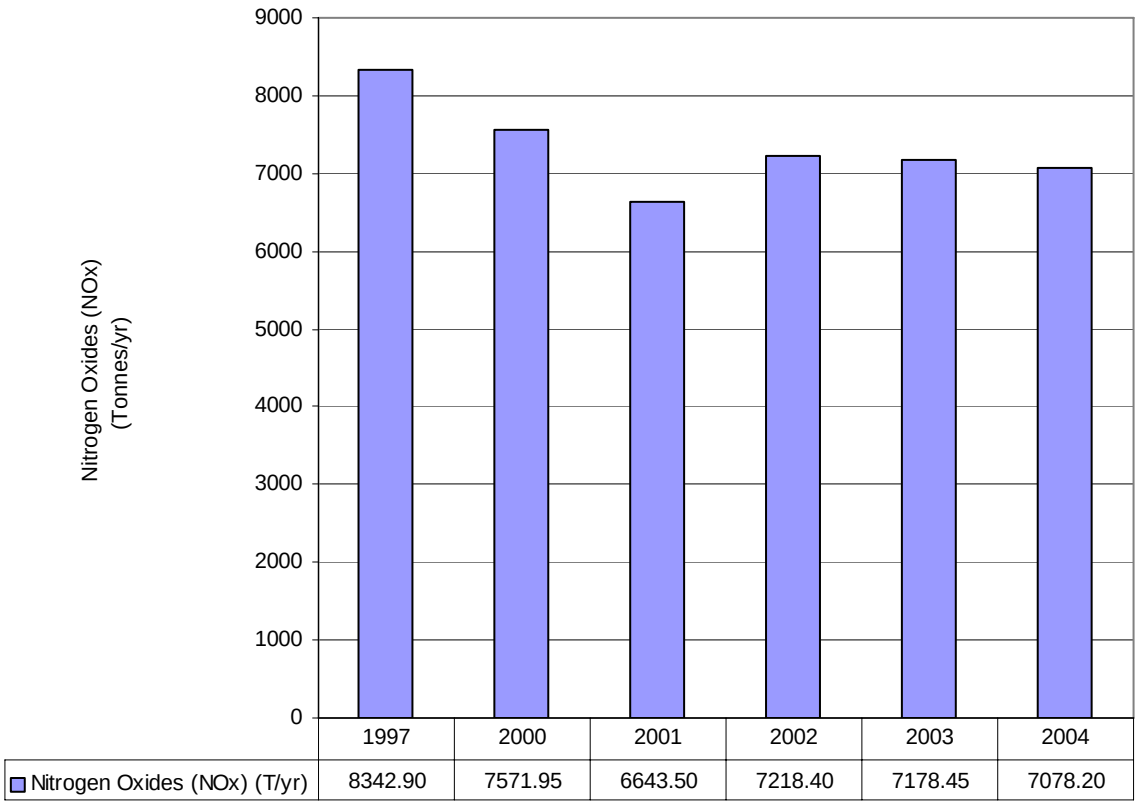
- Total Particulate includes particles smaller than 44 microns (PM_{44})—the size limit of particles that can be suspended in air.
- Inhalable Particulate includes particles smaller than 10 microns (PM_{10})—the size of particles that can be inhaled.
- Respirable particulate includes particles smaller than 2.5 microns ($PM_{2.5}$)—the size of particles that can be inhaled deeply into the lungs.
- Total Particulate Matter emissions by HIEA companies have declined by 32% 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.



	1997	2000	2001	2002	2003	2004
Total Particulate Matter (PM44)	10066.40	8226.13	7317.37	7380.49	7158.77	6892.93
Inhalable Particulate Matter (PM10)	1141.83	3530.02	3471.88	3505.57	3448.25	3345.88
Respirable Particulate Matter (PM2.5)	936.44	1893.00	1844.76	1862.68	1804.38	1717.23

6.3 Nitrogen Oxides (NOx) Emissions

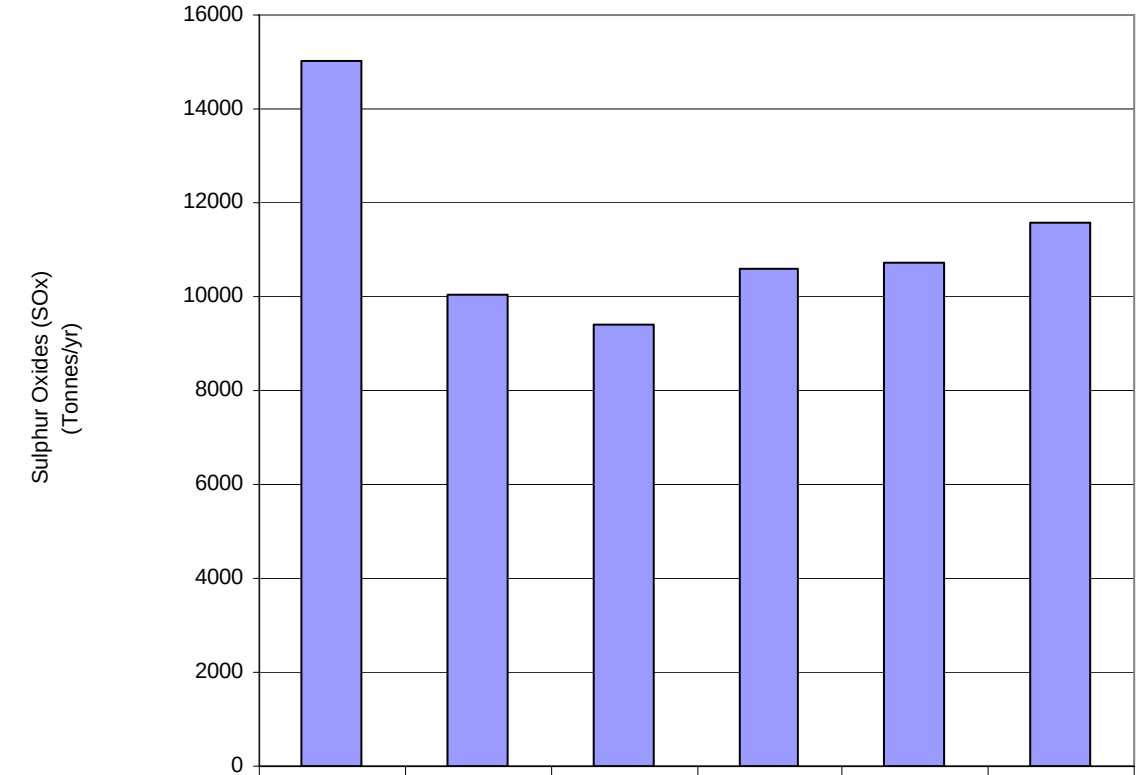
- Nitrogen oxides are precursors to ground level ozone. The main source of NOx is the combustion of fuels.
- HIEA emissions have been reduced by 15% since 1997.
- Improvements have been primarily achieved by the installation of advanced combustion technology (low-NOx burners) and shutdown of obsolete equipment.
- 2003 and 2004 includes a new reporting company.



	1997	2000	2001	2002	2003	2004
Nitrogen Oxides (NOx) (T/yr)	8342.90	7571.95	6643.50	7218.40	7178.45	7078.20

6.4 Sulphur Oxides (SOx) Emissions

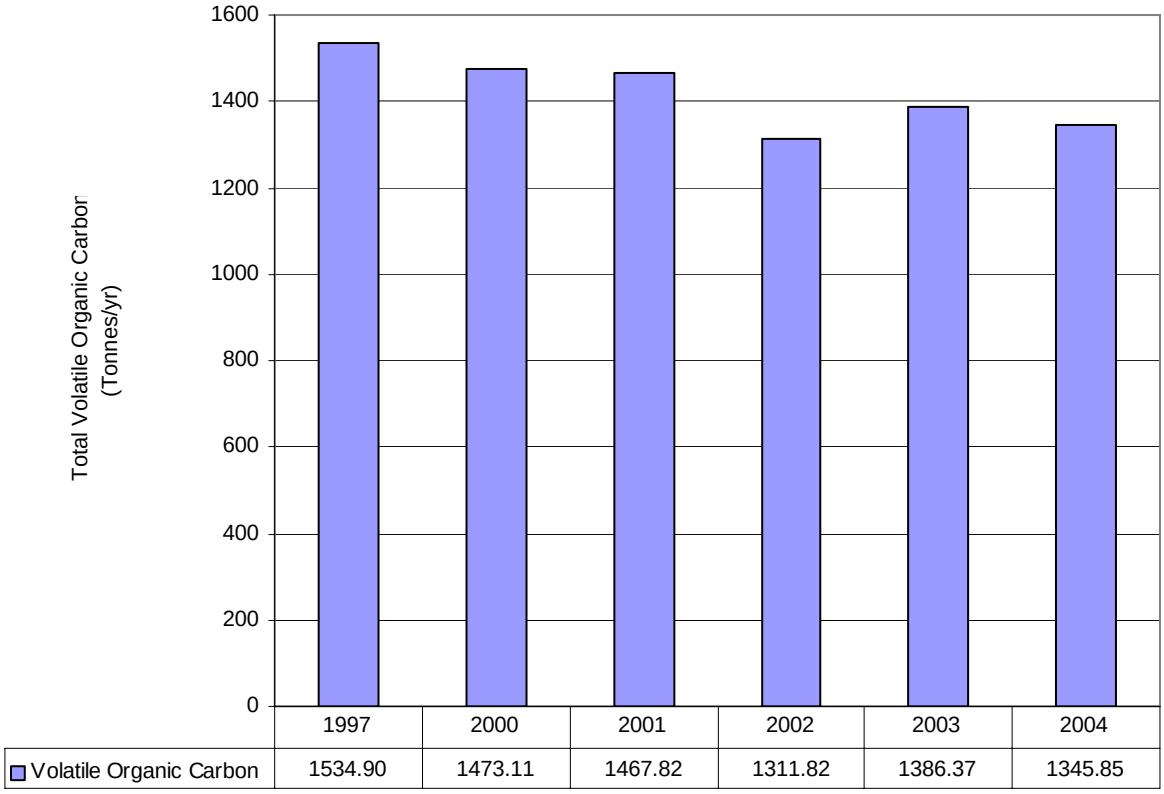
- Sulphur oxides are composed mainly of sulphur dioxide (SO_2).
- HIEA emissions have declined 23% since 1997.
- HIEA member companies switching to lower sulphur fuels, shutting down obsolete equipment and recent reductions in coke production, achieved the improvement.
- Increases since 2001 are due to increased production.



	1997	2000	2001	2002	2003	2004
Sulphur Oxides (NOx)	15031.14	10049.84	9411.83	10575.48	10742.41	11564.49

6.5 Volatile Organic Carbon (VOC) Emissions

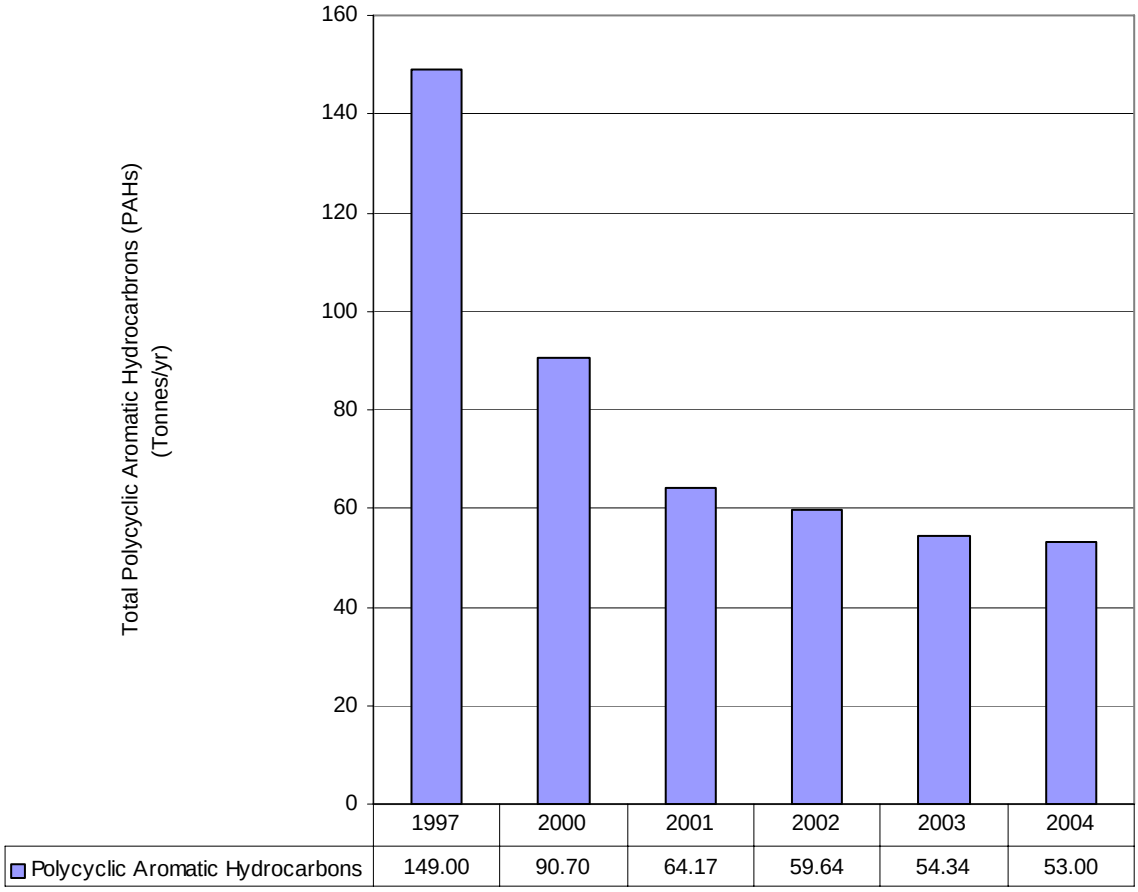
- Volatile Organic Carbon includes a variety of organic compounds that react with nitrogen oxides and sunlight to form ground level ozone.
- HIEA member companies have reduced emissions by 12% since 1997.
- The reductions were achieved primarily by the installation of benzene emission controls at the coke by-products plants.



	1997	2000	2001	2002	2003	2004
Volatile Organic Carbon	1534.90	1473.11	1467.82	1311.82	1386.37	1345.85

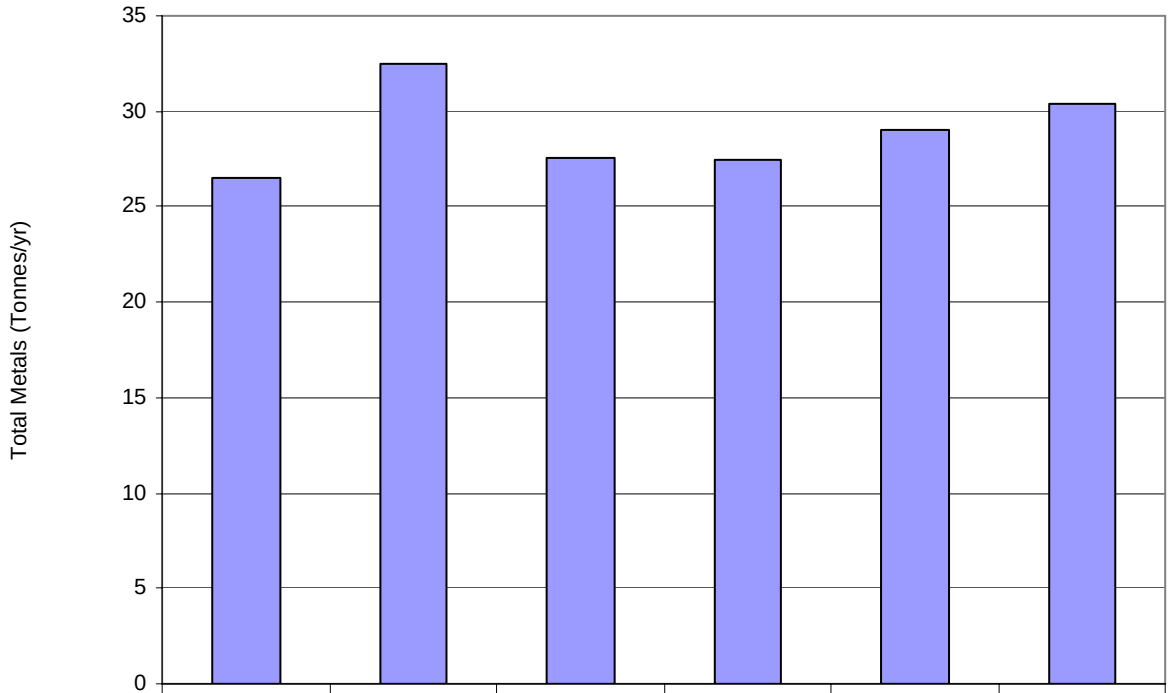
6.6 Polycyclic Aromatic Hydrocarbon (PAH) Emissions

- HIEA companies have reduced PAH emissions by 64% 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.
- Due to the start-up of new facilities and increasing production, metals have increased from 1997.
- These increases have been balanced by reductions as companies continued to implement their particulate control plans.

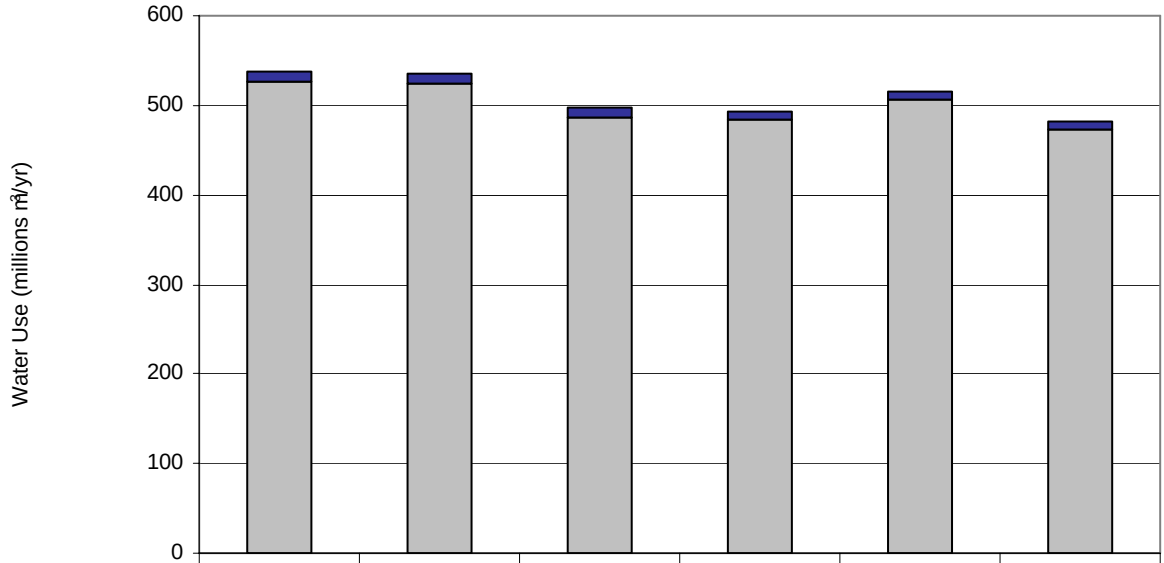


	1997	2000	2001	2002	2003	2004
Total Metals	26.50	32.50	27.51	27.42	29.01	30.42

7. Water Discharges

7.1 Total Water Use

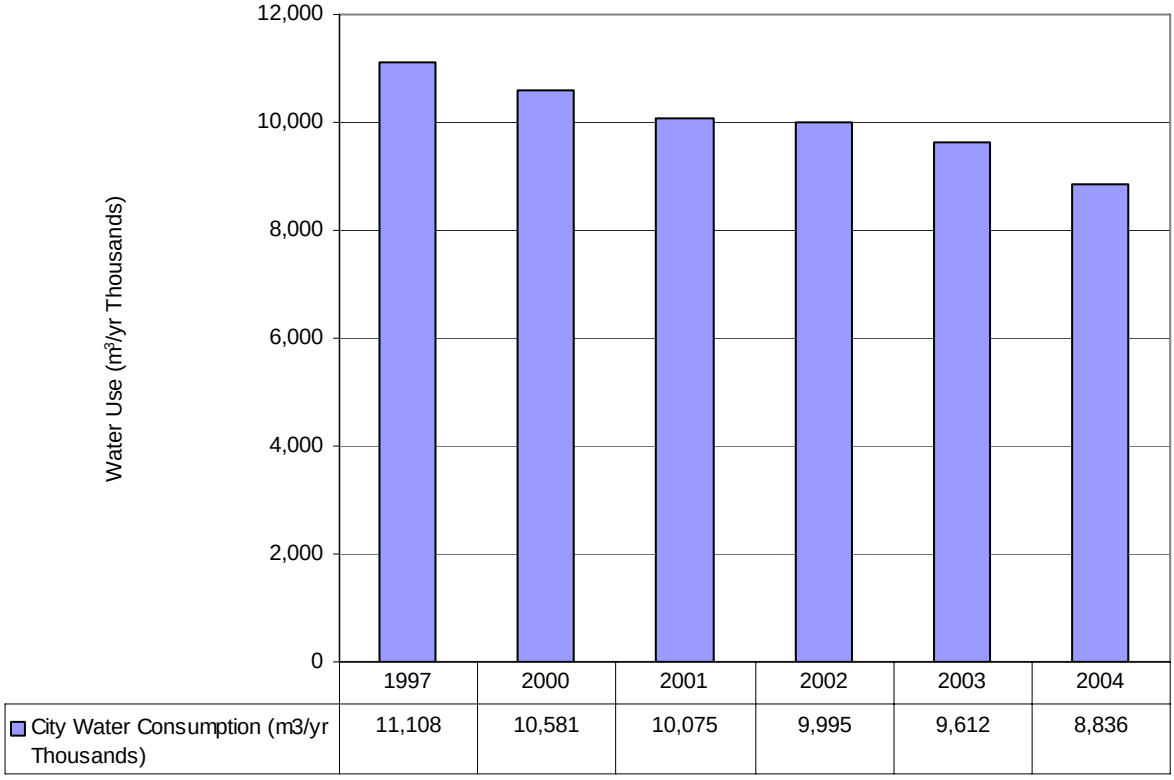
- Bay/lake water use has decreased by 10% since 1997. From 1998 to 2002 there has been a steady reduction.
- A large portion of this water is used for non-contact cooling. This water circulates within equipment without contacting our process and does not pick up pollutants.
- Bay/lake water increase in 2003 is due to increased production.
- In 2004, city water use was only 1.8% of total water use.



	1997	2000	2001	2002	2003	2004
City Water	11.1	10.6	10.1	10.0	9.6	8.8
Bay/Lake Water	526.7	524.1	486.4	483.4	505.5	472.4

7.2 City Water Use

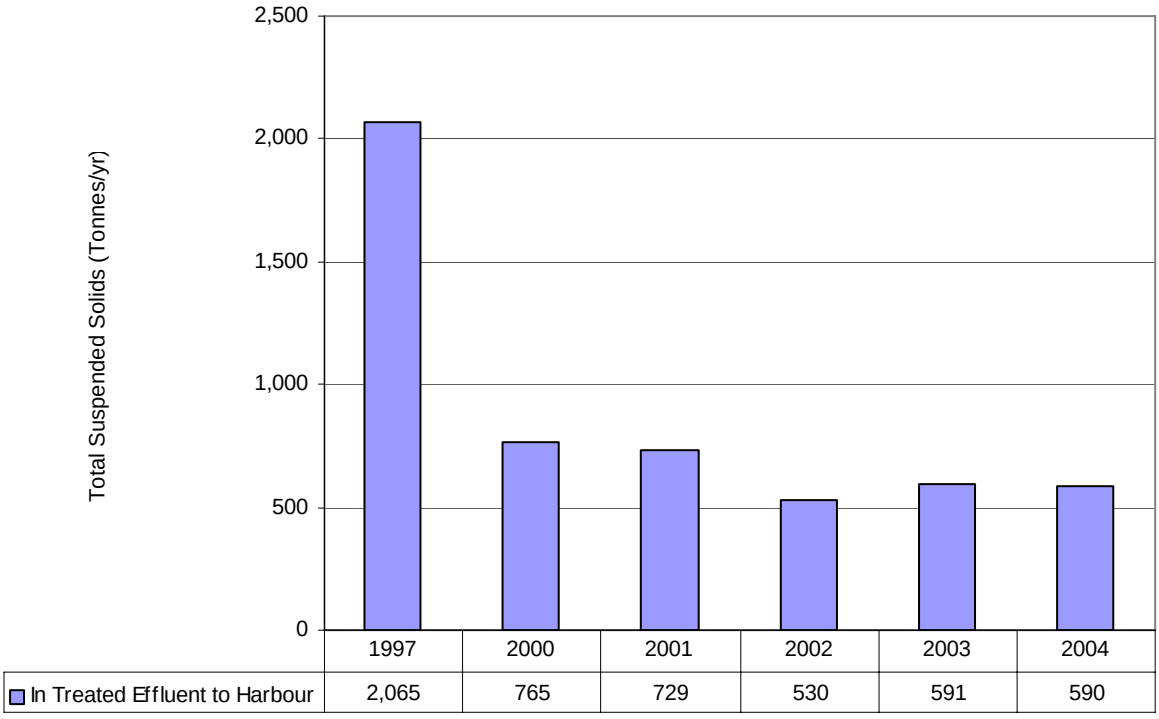
- HIEA companies have reduced city water use by 20% since 1997.



	1997	2000	2001	2002	2003	2004
City Water Consumption (m3/yr Thousands)	11,108	10,581	10,075	9,995	9,612	8,836

7.3 Total Suspended Solids

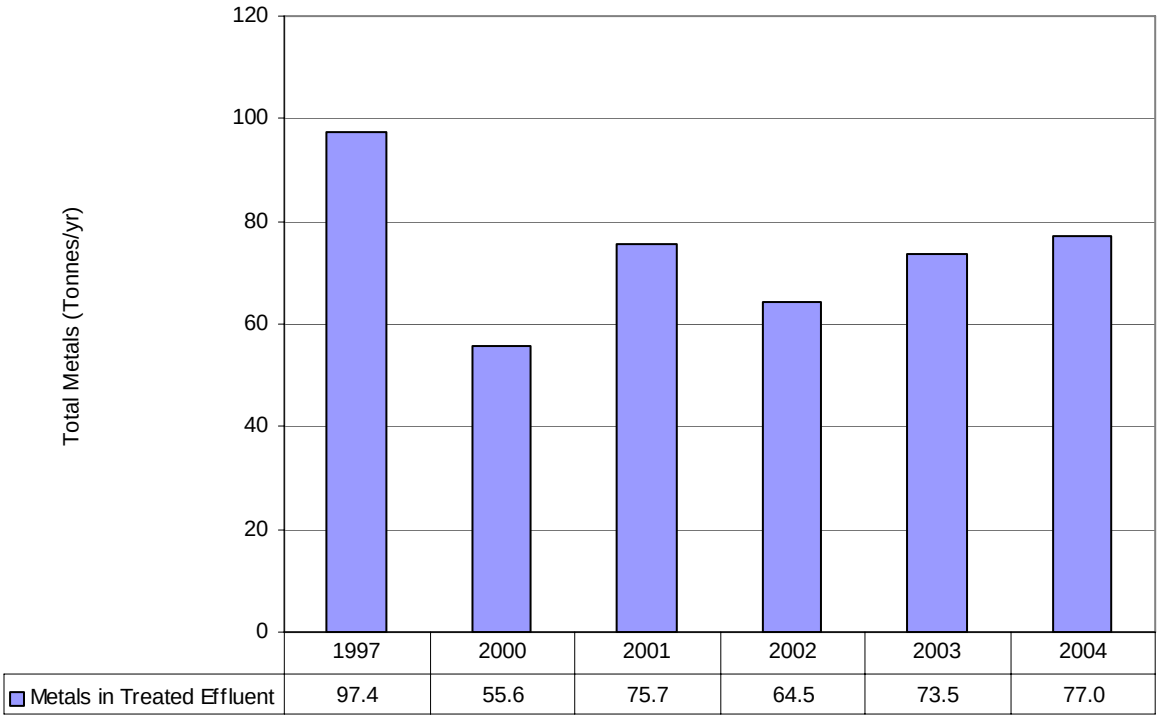
- HIEA companies reduced Suspended Solids discharged to the Harbour by 71% since 1997.
- Some HIEA companies also discharge Suspended Solids to the Hamilton sanitary sewer system.
- Suspended Solids discharged to the sanitary sewer system are treated at the Hamilton Sewage Treatment Plant (HSTP) before discharge to Hamilton Harbour.
- Implementation of tight water recycle systems and shutdown of obsolete facilities contributed to the improvement.



	1997	2000	2001	2002	2003	2004
In Treated Effluent to Harbour	2,065	765	729	530	591	590

7.4 Total Metals

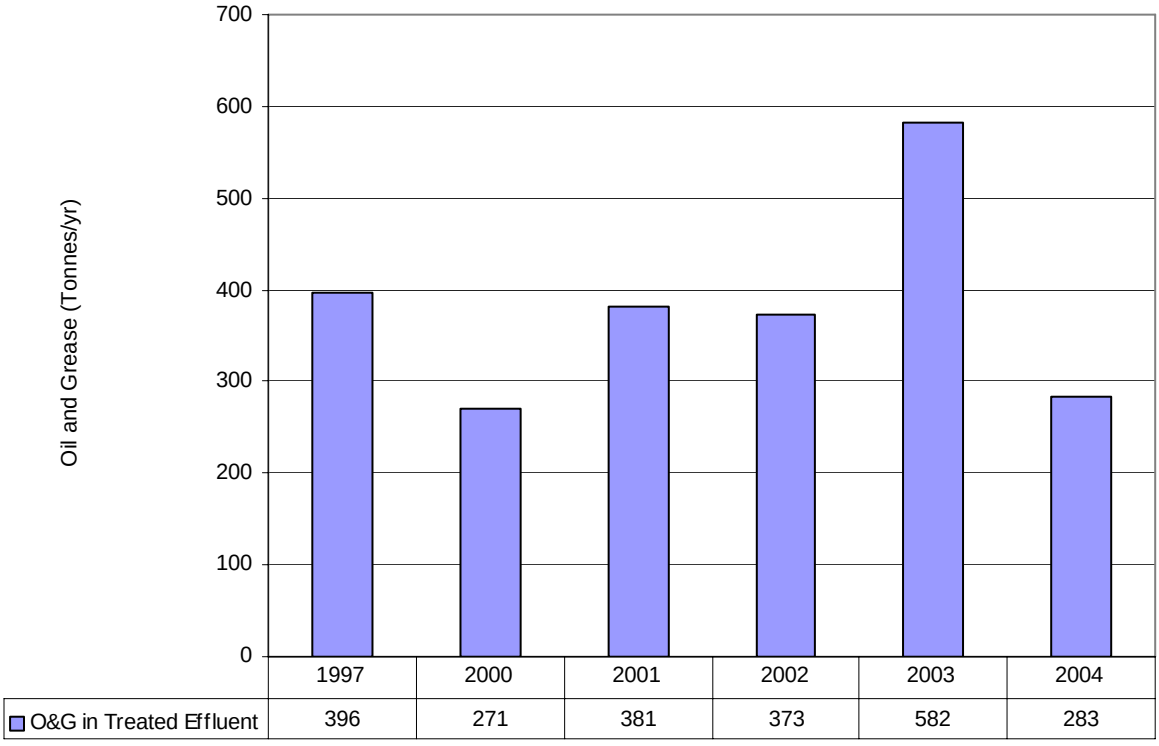
- Total Metals include lead, zinc, cadmium, chromium, iron, nickel, mercury, manganese and vanadium.
- HIEA companies that discharge treated effluent directly to the Harbour or into the Hamilton Sanitary Sewer system typically analyse the water for these trace metals.
- Implementation of tight water recycle systems, and shutdown of obsolete facilities contributed to the improvement around 2000.
- Total Metals discharged to the Harbour by HIEA companies, including treated effluent and discharges after treatment at the HSTP decreased 21% since 1997.



	1997	2000	2001	2002	2003	2004
Metals in Treated Effluent	97.4	55.6	75.7	64.5	73.5	77.0

7.5 Oil and Grease

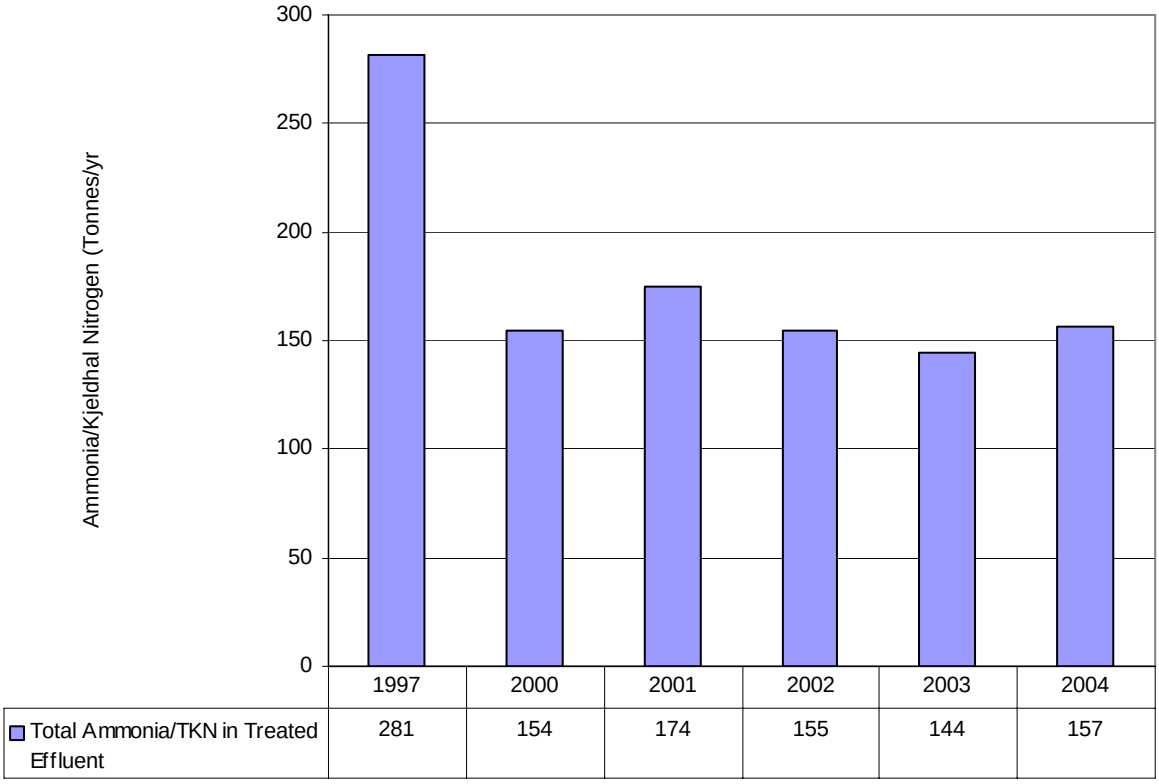
- HIEA companies discharge relatively small amounts of oil and grease in treated effluent directly to the Harbour or into the Hamilton Sanitary Sewer system for treatment by the Hamilton Sewage Treatment Plant (HSTP).
- Oil and Grease discharged to the Harbour by HIEA companies, including treated effluent and discharges after treatment at the HSTP, decreased 29% since 1997.
- Implementation of tight water recycle systems and diversion of some wastewater to sanitary sewer for additional treatment contributed to the improvement around 2000.
- 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.



	1997	2000	2001	2002	2003	2004
O&G in Treated Effluent	396	271	381	373	582	283

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 44% since 1997.
- Implementation of tight water recycling systems and diversion of some wastewater to sanitary sewer for additional treatment contributed to the improvement.

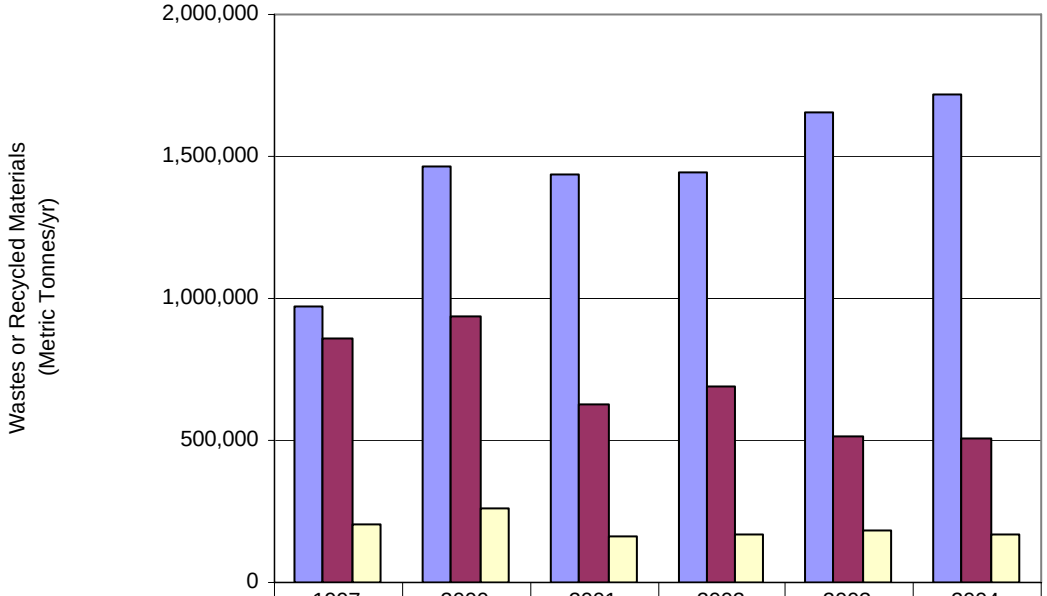


	1997	2000	2001	2002	2003	2004
Total Ammonia/TKN in Treated Effluent	281	154	174	155	144	157

8. Recycling and Waste Management

8.1 Recycling

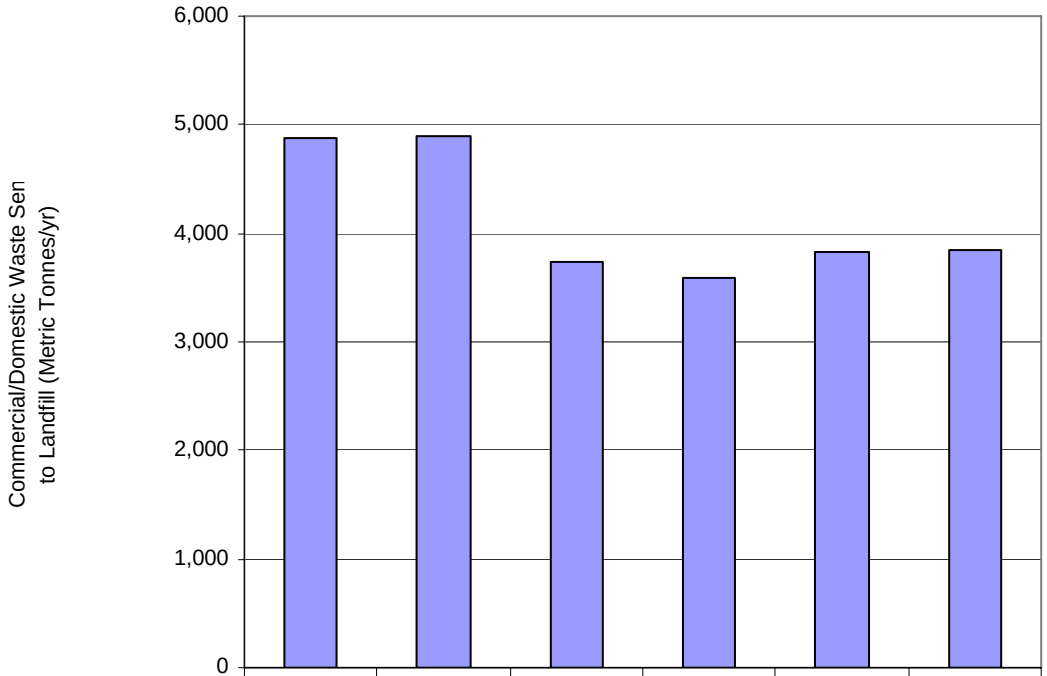
- Hamilton is an important recycling centre and HIEA companies are major participants.
- Purchased recycled materials/by-products include waste materials purchased by HIEA companies for recycling and purchased products made of recycled materials.
- HIEA companies purchased recycled materials and by-products totalling over 1.7 million tonnes in 2004, an increase of almost 44% since 1997. Much of the increase is scrap steel purchased to feed new electric arc furnaces.
- 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 2004 over 10 tonnes of recycled materials were purchased or produced by HIEA companies for every tonne of waste disposed off-site.
- In 2004, 94% of waste disposed off-site was non-hazardous industrial waste.



	1997	2000	2001	2002	2003	2004
Recycled Materials or Byproducts Purchased	971,074	1,462,257	1,436,739	1,441,235	1,656,942	1,720,050
Materials to Recycling	859,485	935,542	630,142	690,254	516,272	503,883
Total Off-Site Disposal	205,722	260,051	163,491	168,516	185,879	171,883

8.2 Commercial Waste

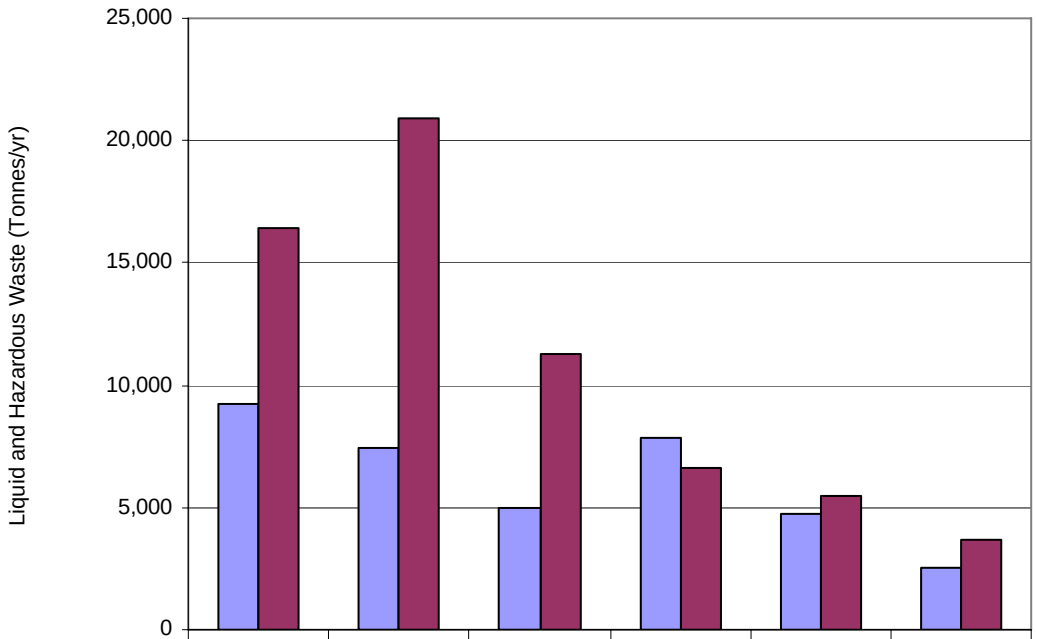
- Commercial waste has declined 21% since 1997.
- The reduction was achieved by implementation of “3Rs” recycling programs for paper, glass, cans, cardboard, plastic, etc., as well as continuously implementing new recycling opportunities.



	1997	2000	2001	2002	2003	2004
Commercial/Domestic Waste to Landfill	4,881	4,891	3,732	3,592	3,820	3,848

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 72% since 1997.
- Additional recycling opportunities have contributed to the 77% reduction in landfilled waste since 1997 conserving landfill space. Also recycling has contributed to less waste requiring treatment or destruction.



	1997	2000	2001	2002	2003	2004
Liquid/Haz. Waste to Treatment/Destruction	9,197	7,405	5,021	7,813	4,699	2,557
Liquid/Haz. Waste to Landfill	16,432	20,916	11,264	6,610	5,471	3,713