Tracking and Reducing Chemicals in Toronto

3rd Annual ChemTRAC Report

June 2014

416.338.7600 toronto.ca/health | Toronto Public Health

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Chapter 1: Improving Health by Reducing Chemicals in Our Environment

Pollution Prevention and Our Shared Environment

In Toronto, your health is affected things in the environment, including chemicals that pollute the air, water and land. You come in contact with these chemicals outdoors and indoors, in homes and workplaces. Prolonged exposure to toxic substances, even at low levels, may cause:

- Heart and Lung Damage
- Cancer
- Birth Defects
- Reproductive Problems
- Other Chronic Diseases

Air quality in Toronto is affected by pollutants coming from various sources: transportation, commercial, residential and industrial sources both inside and outside of Toronto.

Toronto Public Health estimates that air pollution currently gives rise to 1,300 premature deaths and 3,550 hospitalizations in our city each year. Of those, pollution from local industries is responsible for about 120 of these deaths and 200 of these hospitalizations.

ChemTRAC is a program designed to increase public awareness of priority chemicals and reduce pollution from industrial and commercial sources. It can be divided into three main areas:

- The Environmental Reporting and Disclosure Bylaw, which requires businesses to track and report their manufacturing, use and release of priority chemicals.
- The analysis and release of chemical data. The torornto.ca/ChemTRAC interactive map provides neighborhood-specific data.
- The greening of businesses through pollution prevention and innovation.

What ChemTRAC Has Achieved So Far

ChemTRAC provides more information on release of highly toxic substances in comparison to existing programs, like NPRI.

Last year, ChemTRAC data was accessed almost 10,000 times online, making it one of the top downloaded datasets from Toronto's Open Data site. This information provides the public with valuable insights on key chemicals in their community and will help Toronto Public health design better initiatives to improve Toronto's air.

ChemTRAC data has established a measurement of the current levels of chemical use and release. This provides a baseline to measure progress.

Preventing Pollution

ChemTRAC help facilities better understand their use and release of chemicals and opportunities to green their practices. Greening has been shown to increase profitability, improve product quality and provide a competitive advantage in the marketplace.

Our annual survey data suggests that reporting requirements under the bylaw have made businesses more aware of what chemicals they use. Businesses have also become more knowledgeable about different options to reduce pollution.

Future pollution prevention efforts will focus on supporting businesses by addressing their knowledge and capacity barriers to implementing pollution prevention.

ChemTRAC is a release inventory, a database of air pollution sources and their releases within our local airshed. Data collected in release inventories can be used to better understand contaminant trends over time, highlight key sources and support pollutant modelling studies.

This report contains information on facility operations during the 2012 calendar year. The data was reported to the City of Toronto in 2013

Chapter 2: ChemTRAC 2012 Data Summary 2012 Data on Priority Substances Manufactured, Processed or Used

Table 1 shows the total amounts reported as manufactured, processed or otherwise used in 2012 for each of the priority substances. Volatile organic compounds (VOCs), $PM_{2,5}$, manganese, nitrogen oxides (NO_x), and tetrachloroethylene were the priority substances with the largest reported amounts. There are three priority substances (1,2-Dibromoethane, Acrolein, and Carbon Tetrachloride) for which no data have been reported.

Table 1: Total amounts of priority substances manufactured, processed, and otherwise used in 2012

Priority Substance	Manufactured (kg)	Processed (kg)	Otherwise Used (kg)	Total (kg)
1,2-Dibromoethane*	0	0	0	0
1,2-Dichloroethane*	0	4	0	4
1,3-Butadiene*	2,454	76,461	0	78,915
1,4-Dichlorobenzene*	0	0	244	244
Acetaldehyde*	1,439	10,992	0	12,431
Acrolein*	0	0	0	0
Benzene*	0	8	329	337
Cadmium	0	6,497	77	6,574
Carbon Tetrachloride*	0	0	0	0
Chloroform*	137	2,724	9,525	12,386
Chromium, Hexavalent	0	45,937	76,499	122,436
Chromium, Non-Hexavalent	0	727,511	1,655	729,166
Dichloromethane*	50	269,679	60,891	330,620
Formaldehyde*	5,970	175,340	23,342	204,652
Lead	0	506,946	53,501	560,447
Manganese	0	1,993,254	3,330	1,996,584
Mercury	0	53	753	806
Nickel	0	371,702	9,151	380,853
NOx	1,357,629	68	7,966	1,365,663
PAHs*	31	32	0	63
PM 2.5	1,817,872	8,030,608	359,214	10,207,694
Tetrachloroethylene*	0	822,133	28,960	851,093
Trichloroethylene*	0	96,570	3,851	100,421
Vinyl Chloride*	5,777	91,754	0	97,531
VOCs*	1,009,133	49,586,761	2,930,599	53,526,493
Total**	**4,184,634**	**61,269,341**	**3,442,745**	**68,896,720**

***** *VOCs included in the list of priority substances*

****** *Substances that are also VOCs were not included in the total to avoid double-counting*

2012 Data on Priority Substances Released to the Environment

For all substances together, the total releases represent a small proportion (about 10 per cent overall) of the total amount reported manufactured, processed or used by facilities. This is similar to 2011. This proportion varies for each pollutant. Table 2 shows the total amounts released to air, water and land for each substance in 2012. Volatile organic compounds (VOCs), nitrogen oxides (NO_x), $PM_{2.5}$ were the priority substances with the largest reported amounts. There are four priority substances (Acrolein,1,2-Dibromoethane, 1,2-Dichloroethane, Carbon Tetrachloride) for which no data have been reported.

Table 2: Total amounts of priority substances released to air in 2012

Priority Substance	Released to Air (kg)
VOCs*****	5,785,260
NOx	1,362,047
PM 2.5	1,032,659
Trichloroethylene*****	23,354
Tetrachloroethylene*****	12,662
Formaldehyde*****	9,999
Dichloromethane*****	9,833
Vinyl chloride*****	5,777
Acetaldehyde*****	5,725
1,3-Butadiene*****	2,454
Chloroform*****	718
Manganese	554
Chromium, Non-hexavalent	451
Nickel	209
Benzene*****	150
Lead	147
PAHs*****	48
Chromium, Hexavalent	37
Mercury	20
Cadmium	5
1,4-Dichlorobenzene*****	4
Total**	**8,181,389**

****** VOCs included in the list of priority substances***

***** Total does not include substances that are also VOCs to avoid double-counting***

Health Ranking of Releases

The 25 priority substances vary in their toxicity. Some substances, such as lead and cadmium, are very toxic and can pose a risk even when released in small amounts. Other substances, for example volatile organic compounds (VOCs) and nitrogen oxides (NO_x), have a low toxicity but the overall health risk may be high when they are released in large quantities. One way of taking this different toxicity into account is to rank them by their toxic equivalency potentials (TEPs). Toxic equivalency potential provides a value based on the amount released and the toxicity of a substance. The substances can then be compared with each other to give a better indication of the relative health risk. A high TEP value represents a higher potential to cause harm. The TEP scoring system ranks substances that cause cancer (carcinogens) and substances with other health impacts (non-carcinogens) separately. Some of the 25 priority substances have both carcinogenic and non-carcinogenic effects and are assigned a TEP score for each category based on the TEP values Suggested by Scorecard (http://scorecard.goodguide.com/chemical-profiles/def/tep_canair_det.html).

Table 3 ranks the releases by non-carcinogenic TEP, and Table 4 shows the reported releases to air ranked by the carcinogenic TEP. The carcinogenic ranking indicates that although substances like PAHs, cadmium and tetrachloroethylene were reported in small amounts, the overall potential for adverse health impact of these releases are estimated to be much higher than for other substances. For non-carcinogenic rankings, mercury, lead and $PM_{2.5}$ are likely to be of highest health concern.

Table 3: Reported quantities of priority substances released to air in 2012 ranked by non-carcinogenic toxic equivalent potential (TEP) score

Priority Substance	Released to Air (kg)	Non-Carcinogen TEP value	Non-Carcinogen TEP Score
Mercury	20	5,000,000	100,000,000
Lead	147	580,000	85,260,000
PM 2.5	1,032,659	17	17,555,203
Cadmium	5	1,900,000	9,500,000
VOCs	5,785,260	1	5,785,260
NOx	1,362,047	2.20	2,996,503
Total Chromium*	488	3,100	1,512,800
Tetrachloroethylene	12,662	65	823,030
Nickel	209	3,200	668,800
Manganese	554	780	432,120
Vinyl chloride	5,777	69	398,613
Formaldehyde	9,999	16	159,984
Dichloromethane	9,833	7	68,831
Acetaldehyde	5,725	9.30	53,243
Trichloroethylene	23,354	0.63	14,713
Chloroform	718	14	10,052
1,3-Butadiene	2,454	2.20	5,399
Benzene	150	8.10	1,215
1,4-Dichlorobenzene	4	2.20	9

** Total Chromium includes both hexavalent and non- hexavalent Chromium*

Table 4: Reported quantities of priority substances released to air in 2012 ranked by carcinogenic toxic equivalent potential (TEP) score

Priority Substance	Released to Air (kg)	Carcinogen TEP value	Carcinogen TEP Score
PAHs	48	6,300	302,400
Cadmium	5	26,000	130,000
Tetrachloroethylene	12,662	0.96	12,156
Vinyl chloride	5,777	1.90	10,976
Chromium, Hexavalent	37	130	4,810
Lead	147	28	4,116
Dichloromethane	9,833	0.20	1,967
1,3-Butadiene	2,454	0.53	1,301
Trichloroethylene	23,354	0.05	1,168
Chloroform	718	1.60	1,149
Nickel	209	2.80	585
Formaldehyde	9,999	0.02	200
Benzene	150	1.00	150
Acetaldehyde	5,725	0.01	57
1,4-Dichlorobenzene	4	1.40	6

Industry Contributions to Total Release

Table 5 shows the percentage contribution by the different industrial sectors for 1) total release by mass, 2) Carcinogen TEP, and 3) Non-carcinogen TEP. Manufacturing sector contributed the most to release to air followed by the printing and food sector. In terms of carcinogen TEP, waste management sector raked the first while the funeral sector contributed the highest to the non-carcinogen TEP.

Table 5: Sector contribution to Total Release (by mass), Carcinogen TEP and Non-Carcinogen TEP in 2012

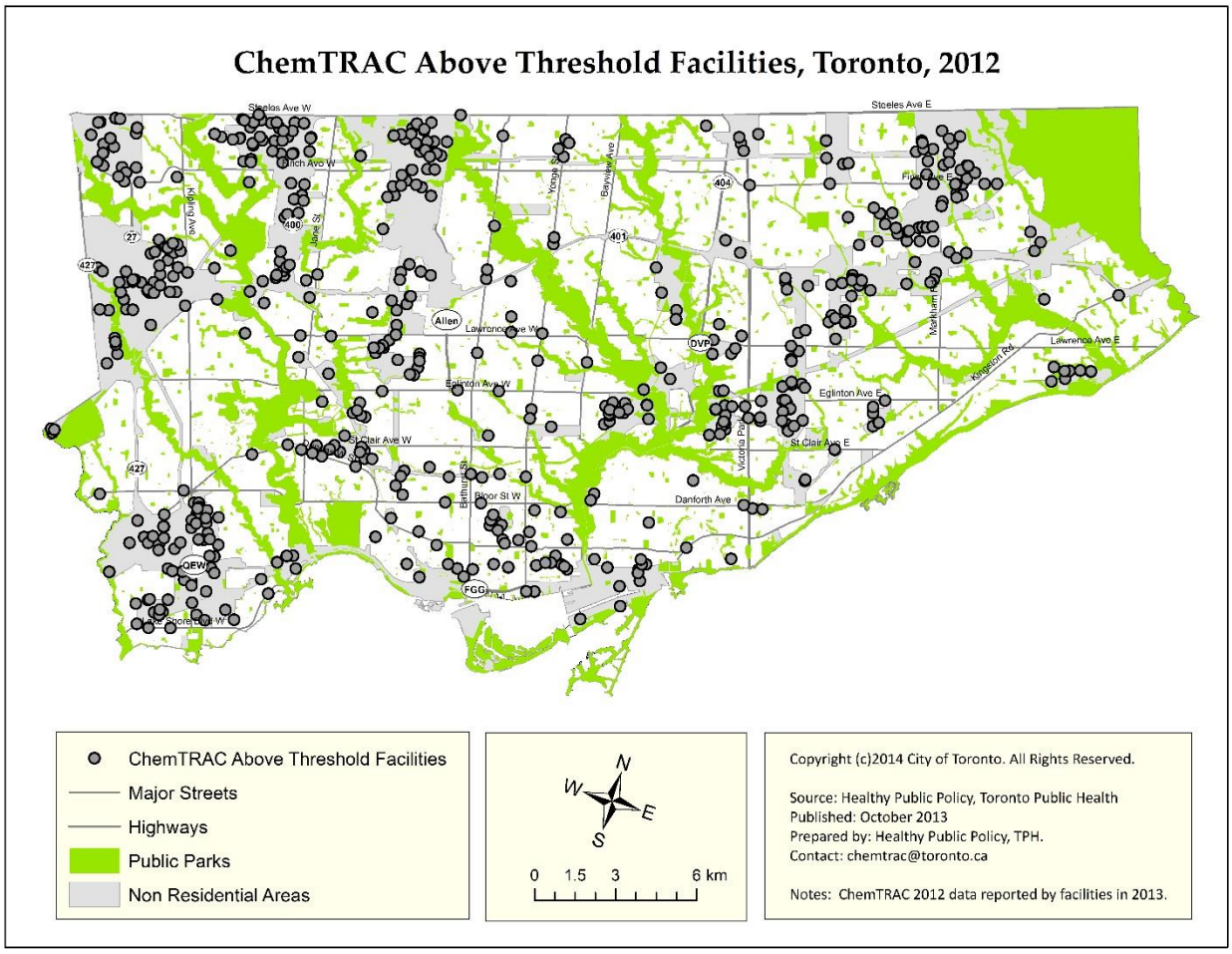
Sector[a]	**Percent Contribution to Total Release (by mass)[b]**	**Percent Contribution to Carcinogen TEP**	**Percent Contribution to Non-Carcinogen TEP**
Automotive	**<**1	**<**1	**<**1
Chemical Wholesale	**<**1	**<**1	0.0
Computer & Elect. Prod. Mfg	**<**1	**<**1	2.1
Dry Cleaning	**<**1	2.0	**<**1
Educational Services	1.2	4.9	1.2
Electrical Equip, Appl/Comp Mfg	**<**1	20.2	1.6
Fabricated Metal Prod. Mfg	4.7	7.0	1.0
Food & Beverage	9.2	**<**1	**<**1
Funeral Services	**<**1	0.0	28.7
Manufacturing	42.3	5.7	9.7
Medical & Diagnostic Services	**<**1	0.0	0.0
Non Metallic Mineral Prod. Mfg	1.7	1.8	9.0
Office furniture (except wood) Mfg	**<**1	0.0	**<**1
Power Generation	3.3	**<**1	**<**1
Printing & Publishing	11.6	**<**1	**<**1
Transportation Equip. Mfg	1.7	**<**1	2.9
Waste Management	**<**1	36.7	**<**1
Water & Wastewater Treatment	4.5	14.8	22.9
Wood Industries	2.0	0.0	**<**1
All Other	13.6	6.1	17.8
Total	**100**	**100**	**100**

[a] *Sectors are defined based on North American Industry Classification System (NAICS)*

[b] *<1 indicated that a value is less than one*

Chapter 2: Distribution of Facilities in Toronto

Figure 1: Distribution of facilities within residential and non-residential areas that provided information on the manufacture, use or release of priority substances in 2012



The majority of facilities reporting information on their operations to ChemTRAC were found in non-residential areas for 2012.

Figure 2: Distribution of facilities that provided information on the manufacture, use or release of priority substances in 2012 and socioeconomic status as represented by proportion of residents living at or below the Low Income Measure

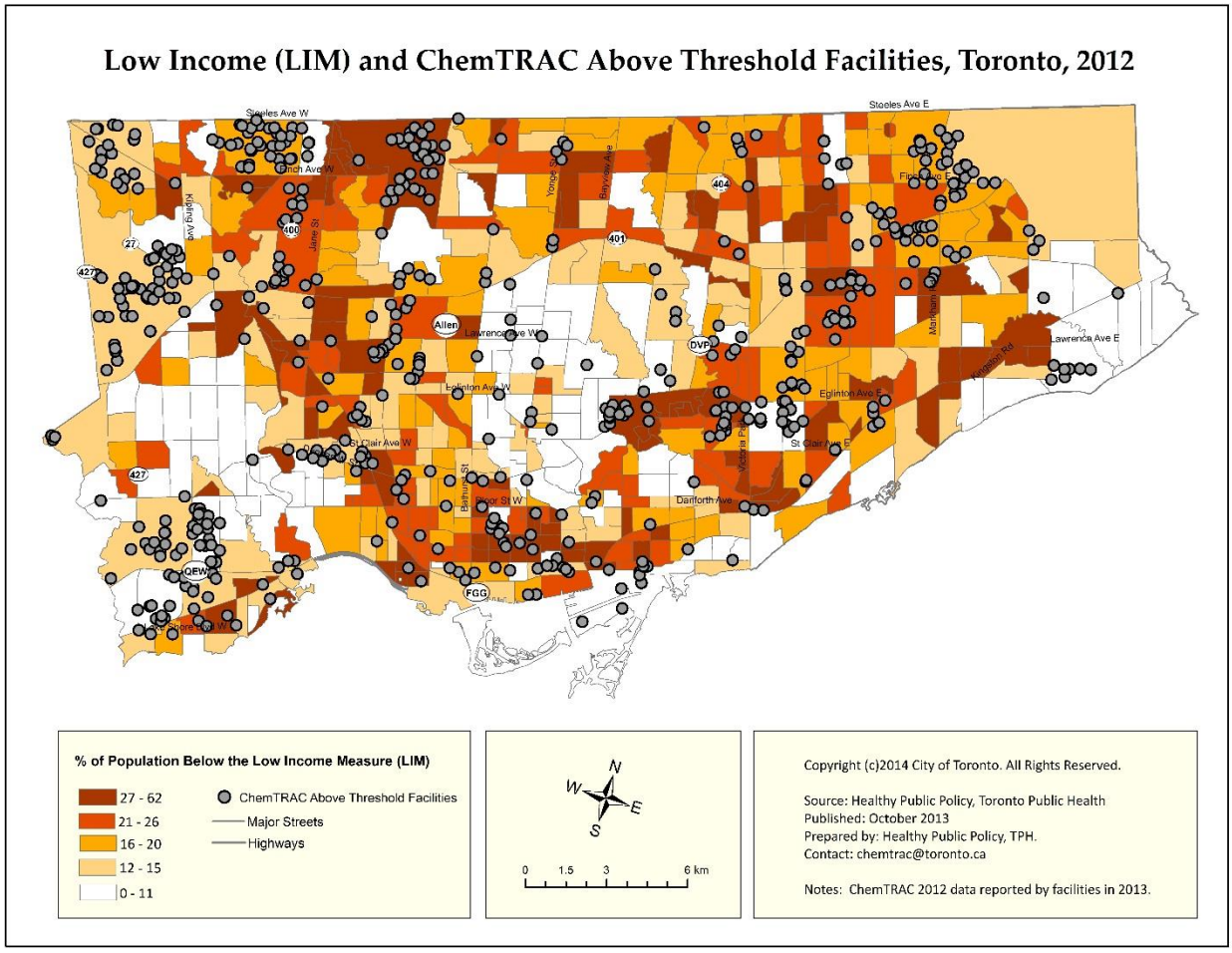


Figure 3: Distribution of Non-Carcinogenic TEP in 2012

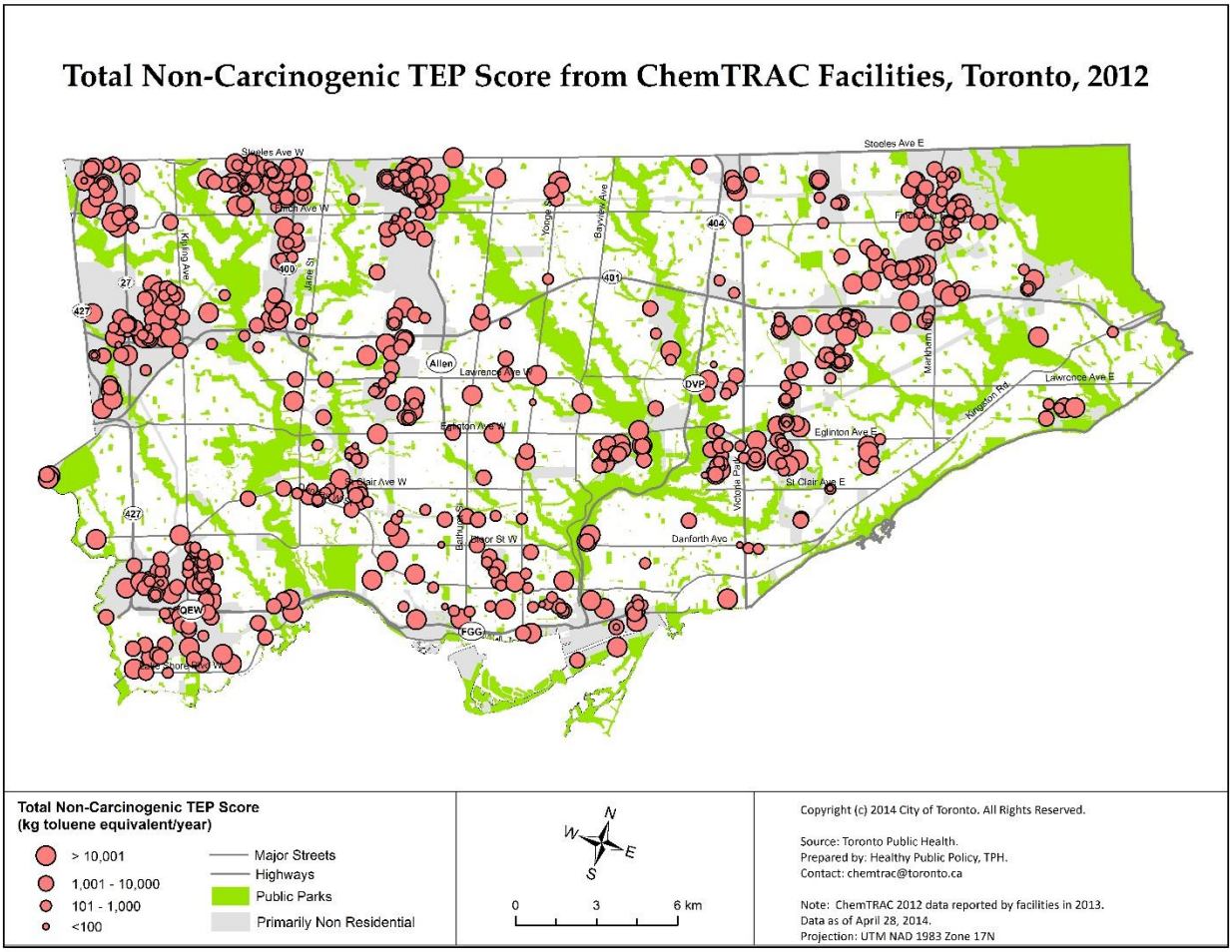
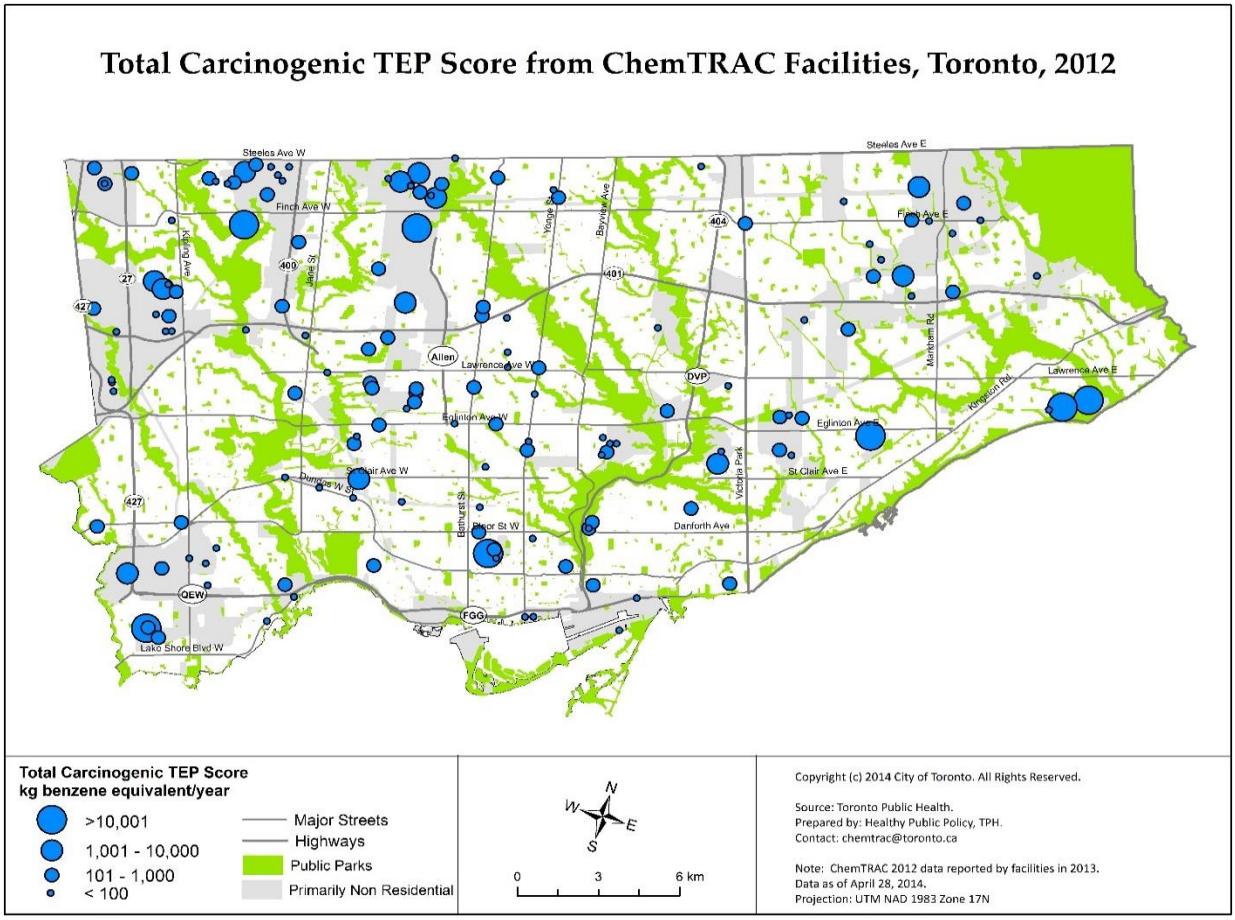


Figure 4: Distribution of Carcinogen TEP in 2012



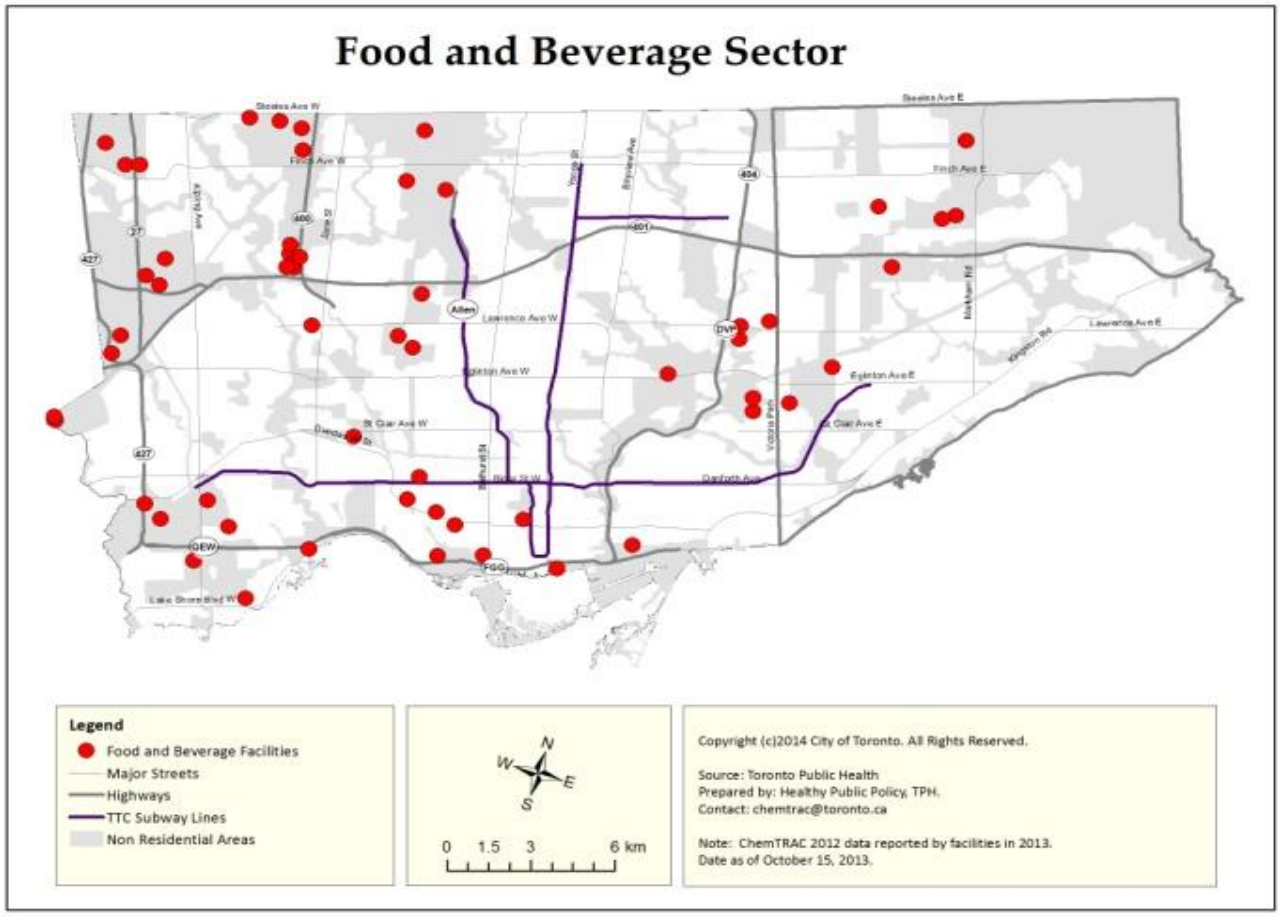
Chapter 3: Sector Quick Facts

The information reported by businesses in 2013 (about operations that took place in 2012) is summarized by industry type below.

Food and Beverage Manufacturing

Types of activities: meat processing, baking, fruit and vegetable canning, frozen food manufacturing and dairy product manufacturing, beverage manufacturing - soft drink, ice, and bottled water manufacturing, beer brewers and wine distillers, and tobacco manufacturing

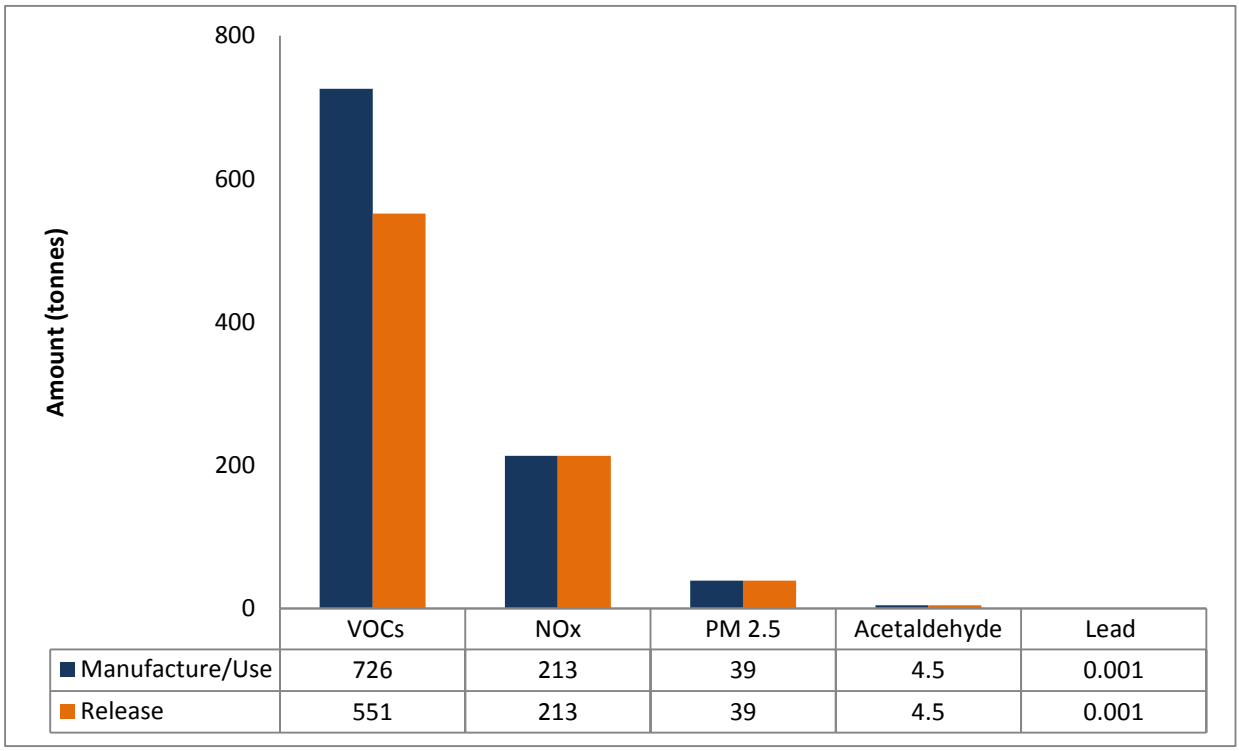
- Number of facilities that met the threshold: 61
- Range in number of employees per facility: 1 to 772
- Total amount released: 808 tonnes
- Total amount manufactured, processed or used: 982 tonnes
- Number of priority substances reported: 5



Top substances reported are:

- Volatile Organic Compounds
- Nitrogen Oxide
- Particulate Matter 2.5
- Acetaldehyde
- Lead

Figure 5: Amount of substances reported by Food and Beverage facilities for 2012

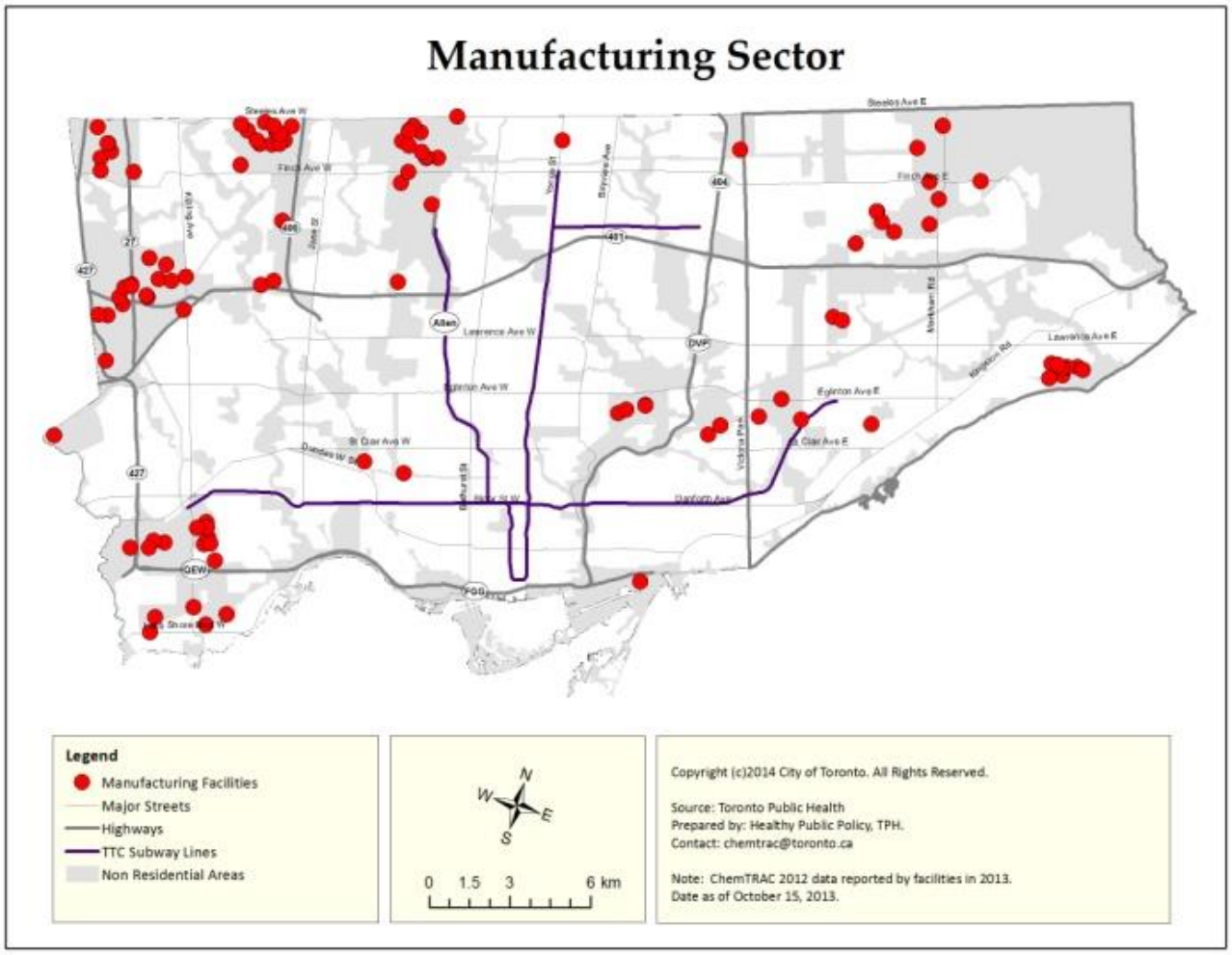


	VOCs	NOx	PM 2.5	Acetaldehyde	Lead
Manufacture/Use	726	213	39	4.5	0.001
Release	551	213	39	4.5	0.001

Manufacturing (including chemical and petroleum products)

Types of activities: Manufacturers of basic chemicals, synthetic fibers, plastics, pigments, paints, fertilizers, drugs, cosmetics and soaps

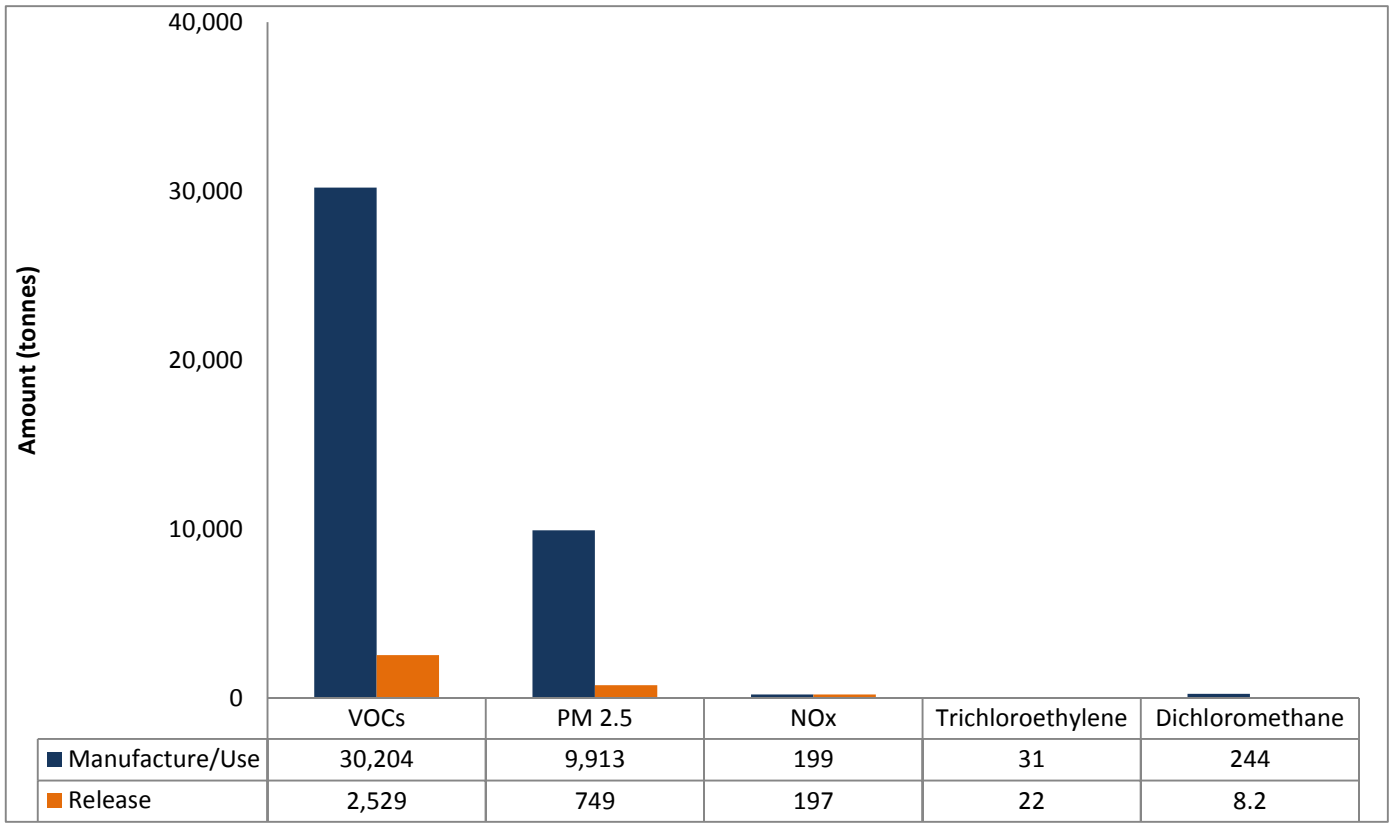
- Number of facilities met threshold: 113
- Range in number of employees per facility: 1 to 1,200
- Total amount released: 3,505 tonnes
- Total amount manufactured, processed or used: 40,591 tonnes
- Number of priority substances reported: 19



Top substances reported are:

- Volatile Organic Compounds
- Particulate Matter 2.5
- Nitrogen Oxide
- Trichloroethylene
- Dichloromethane

Figure 6: Amount of substances reported by Manufacturing facilities for 2012

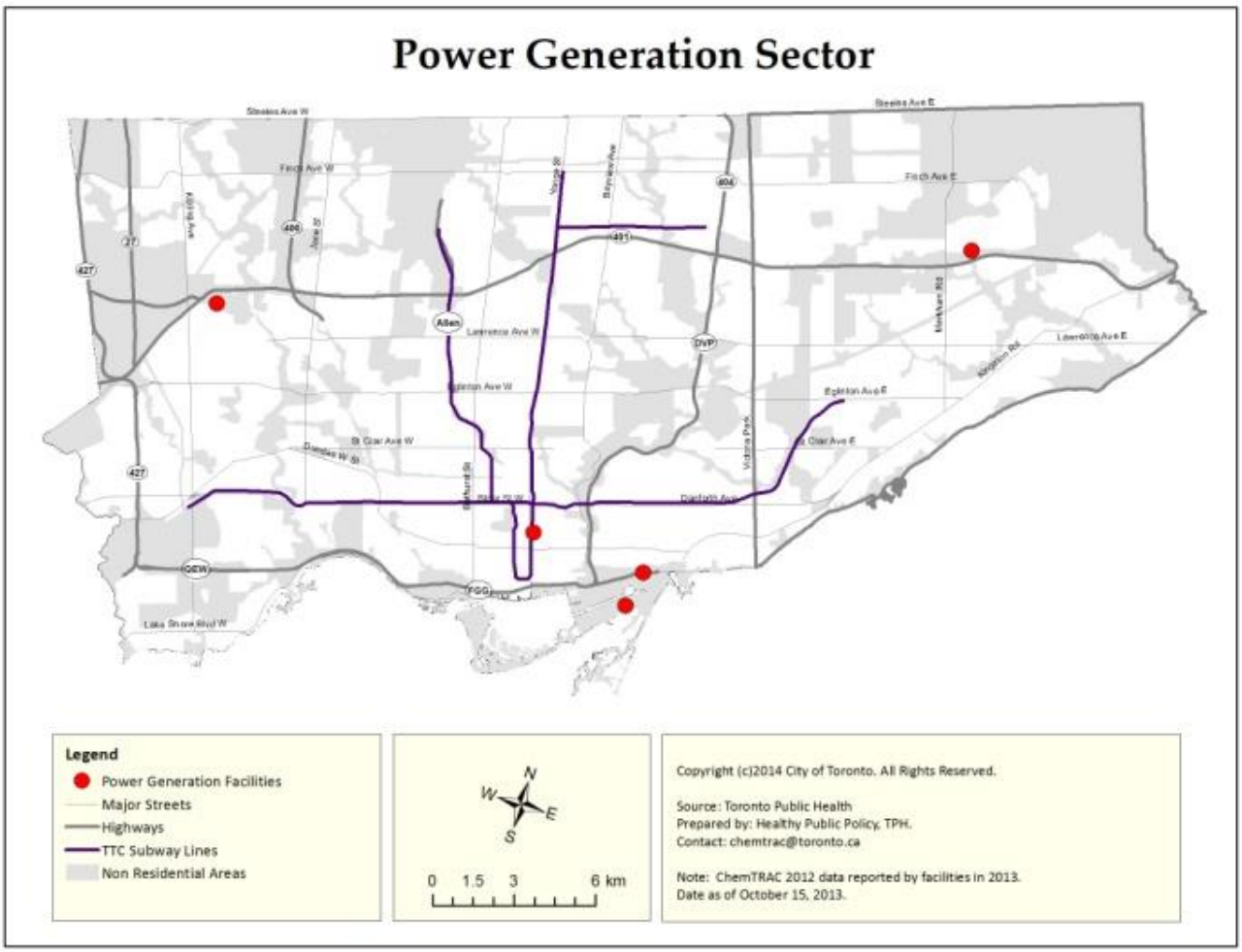


	VOCs	PM 2.5	NOx	Trichloroethylene	Dichloromethane
Manufacture/Use	30,204	9,913	199	31	244
Release	2,529	749	197	22	8.2

Power Generation

Types of activities: Generation of bulk electric power

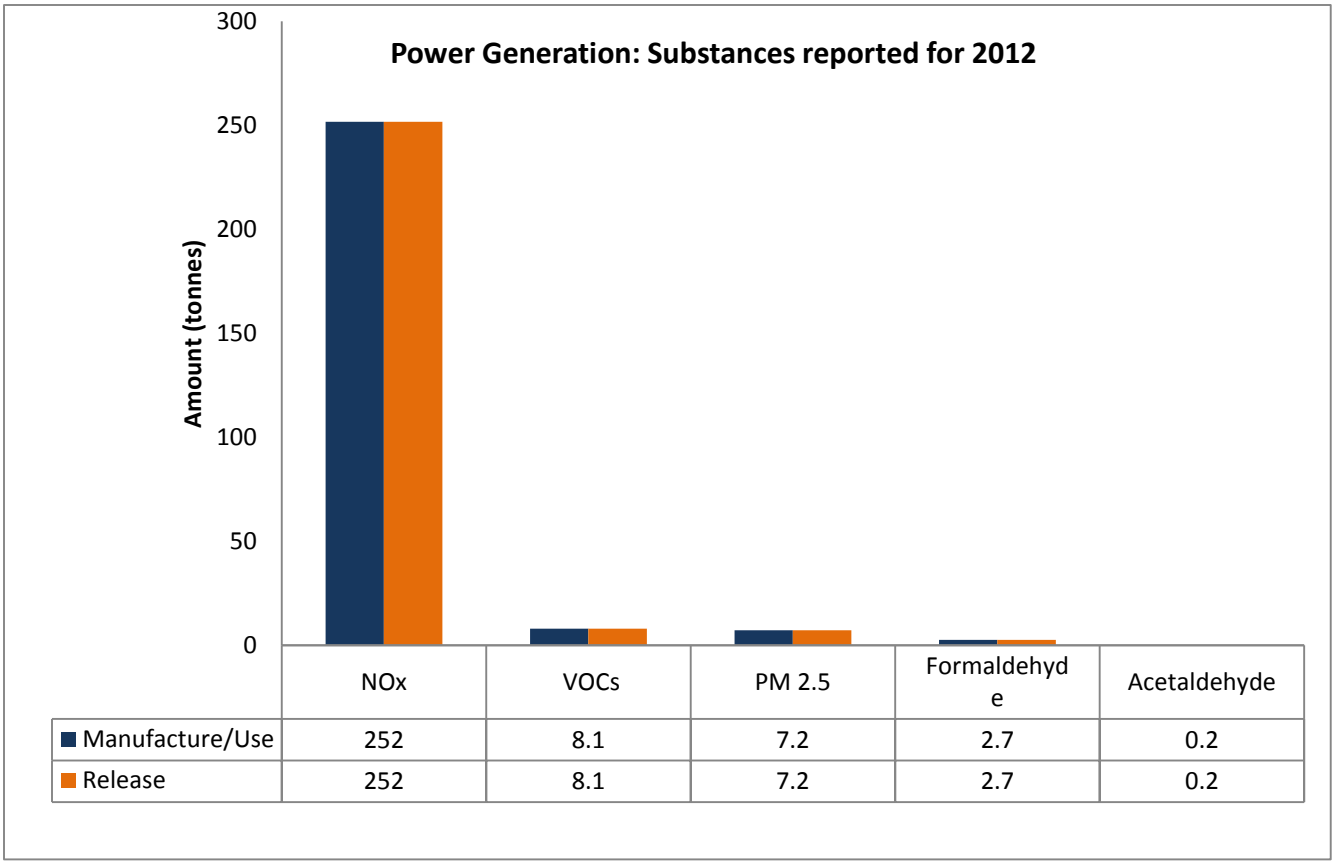
- Number of facilities met threshold: 5
- Range in number of employees per facility: 1 to 363
- Total amount released: 270 tonnes
- Total amount manufactured, processed or used: 322 tonnes
- Number of priority substances reported: 6



Top substances reported are:

- Nitrogen Oxide
- Volatile Organic Compounds
- Particulate Matter 2.5
- Formaldehyde
- Acetaldehyde

Figure 7: Amount of substances reported by Power Generation facilities for 2012

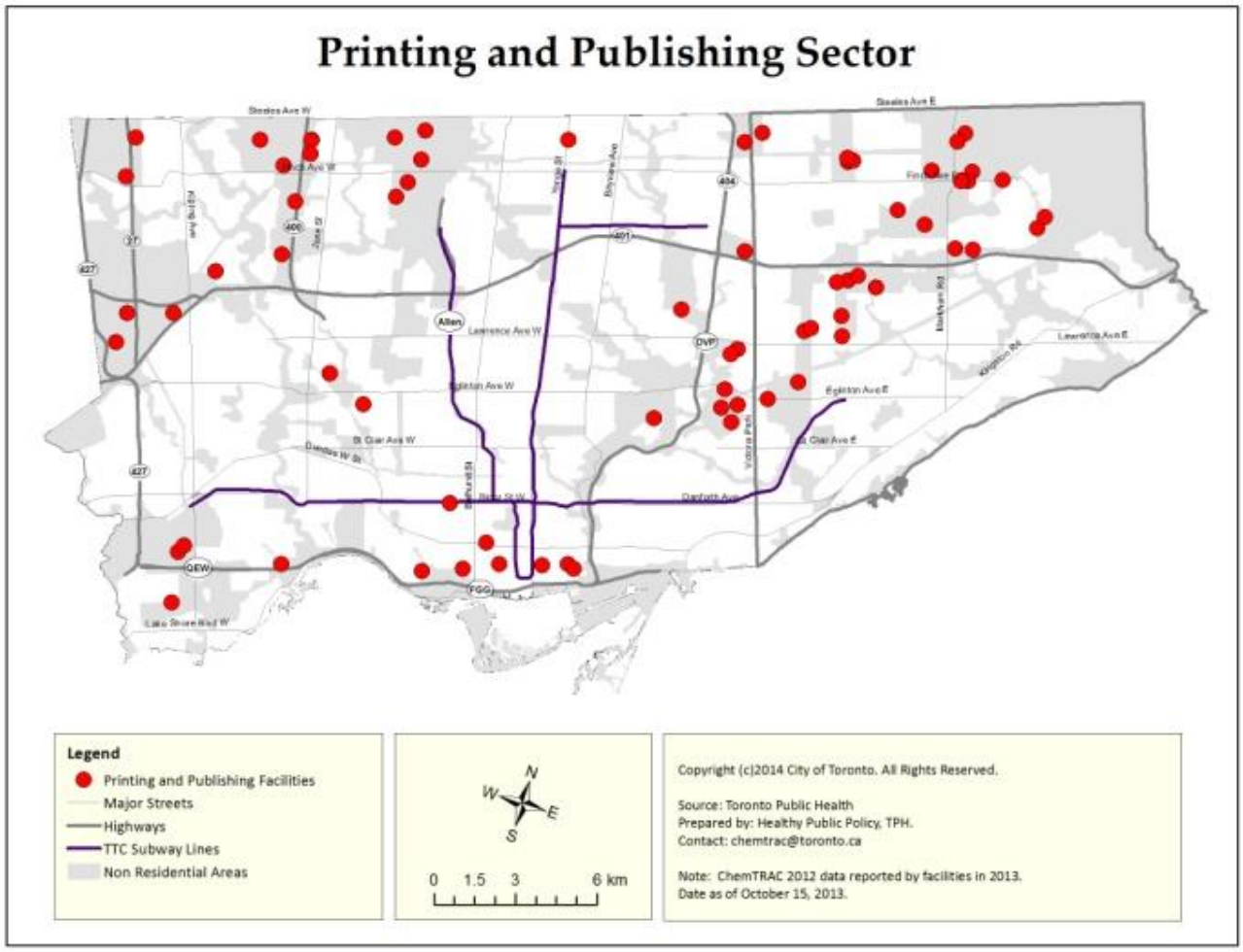


	NOx	VOCs	PM 2.5	Formaldehyde	Acetaldehyde
Manufacture/Use	252	8.1	7.2	2.7	0.2
Release	252	8.1	7.2	2.7	0.2

Printing and Publishing

Types of activities: Printing newspapers, books, labels, business cards and food wrappers, etc.

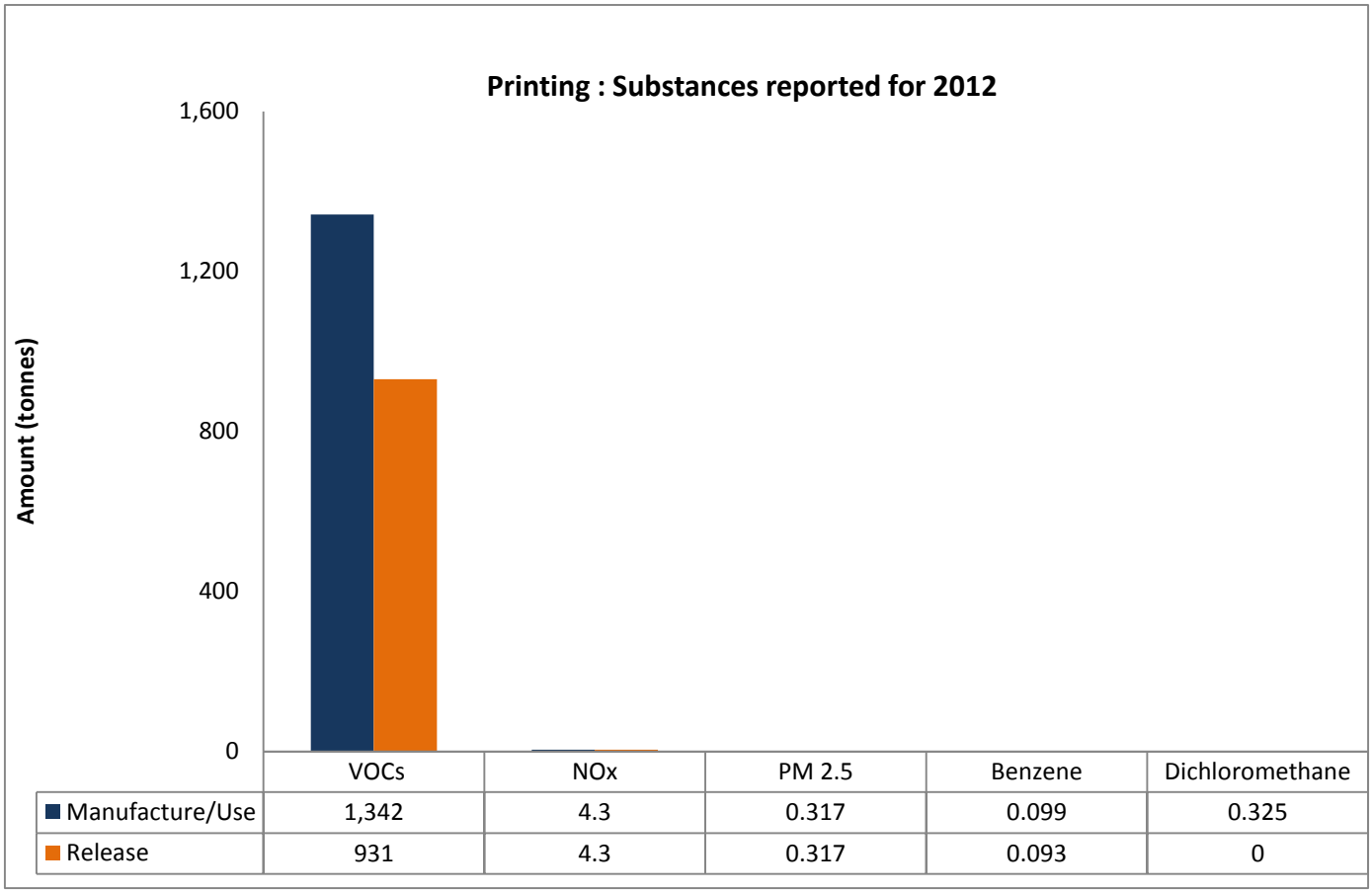
- Number of facilities met threshold: 73
- Range in number of employees per facility: 1 to 200
- Total amount released: 936 tonnes
- Total amount manufactured, processed or used: 1,347 tonnes
- Number of priority substances reported: 7



Top substances reported are:

- Volatile Organic Compounds
- Nitrogen Oxide
- Particulate Matter 2.5
- Benzene
- Dichloromethane

Figure 8: Amounts of substances reported by Printing and Publishing facilities for 2012

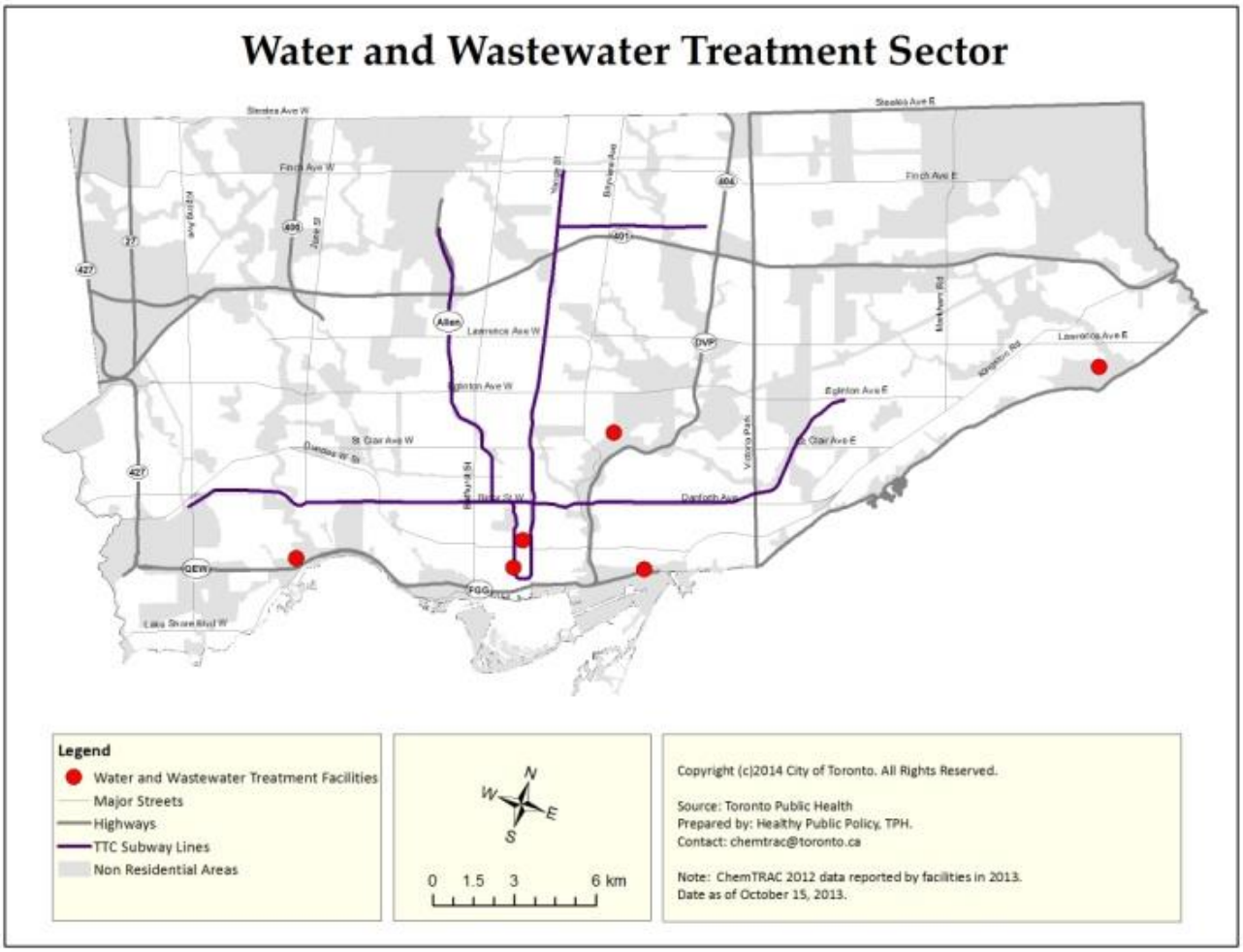


	VOCs	NOx	PM 2.5	Benzene	Dichloromethane
Manufacture/Use	1,342	4.3	0.317	0.099	0.325
Release	931	4.3	0.317	0.093	0

Water and Wastewater

Types of activities: Water, wastewater and sewage treatment plants

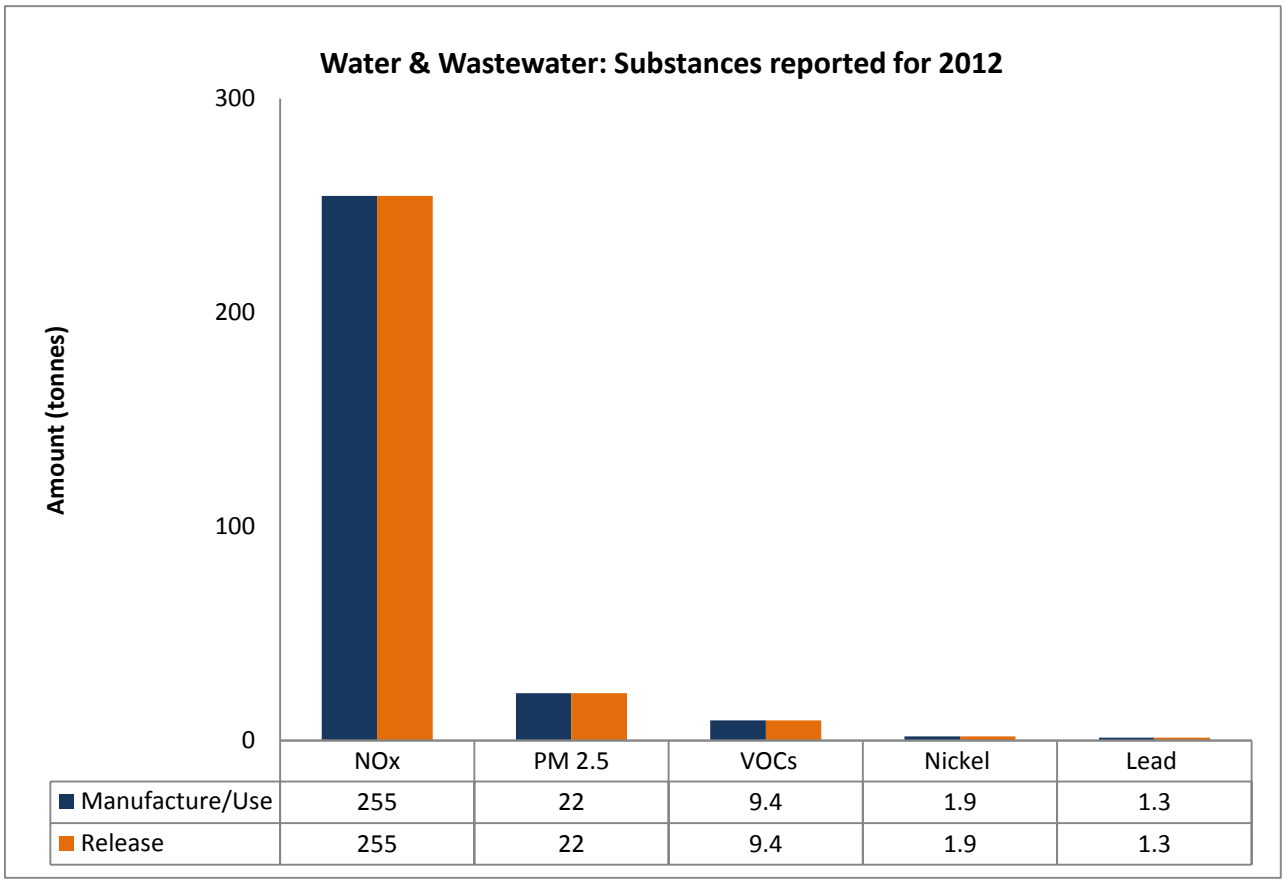
- Number of facilities met threshold: 6
- Range in number of employees per facility: 1 to 174
- Total amount released: 290 tonnes
- Total amount manufactured, processed or used: 290 tonnes
- Number of priority substances reported: 7



Top substances reported are:

- Nitrogen Oxide
- Particulate Matter 2.5
- Volatile Organic Compounds
- Nickel
- Lead

Figure 9: Amounts of Substances reported by Water and Wastewater Treatment facilities for 2012



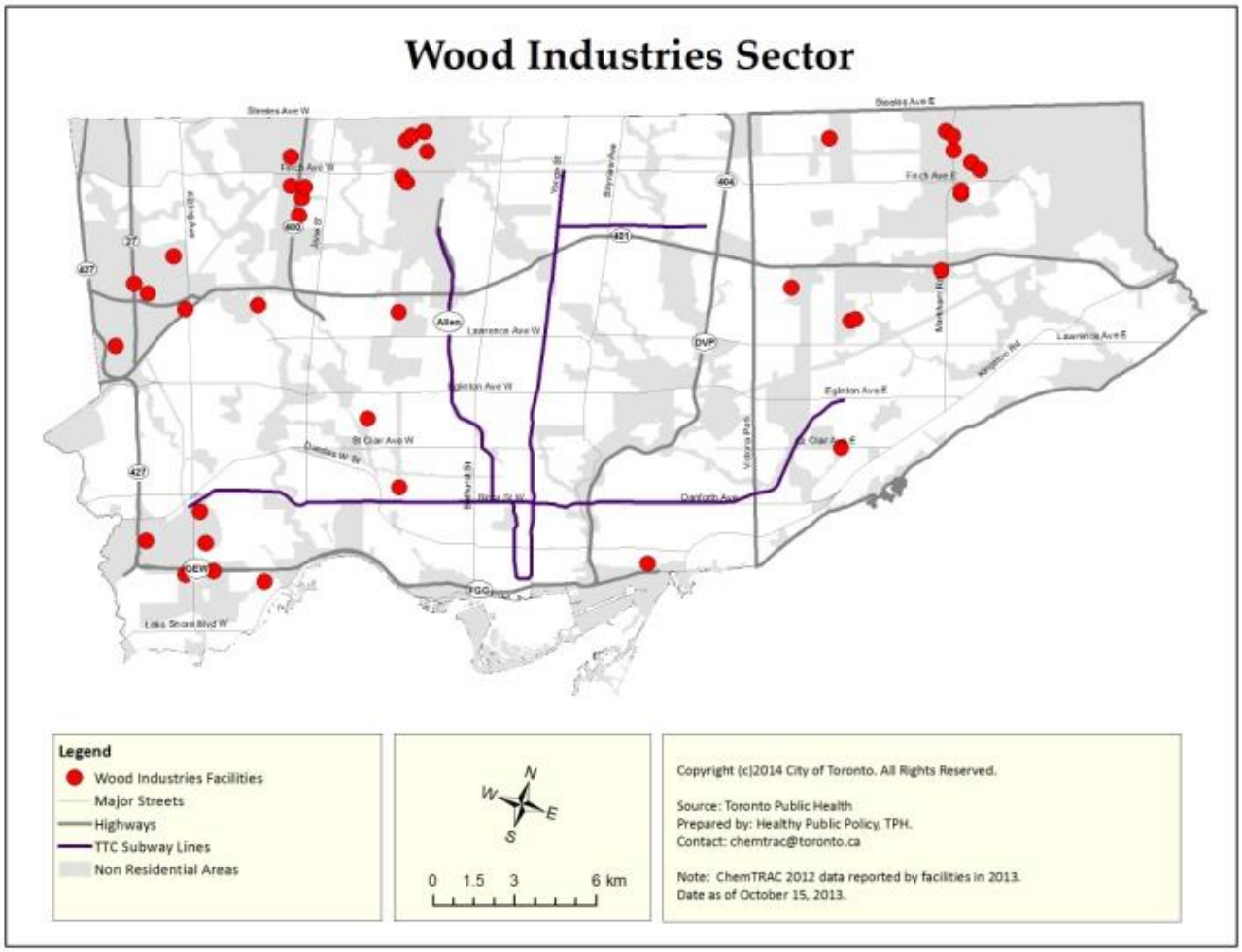
	NOx	PM 2.5	VOCs	Nickel	Lead
Manufacture/Use	255	22	9.4	1.9	1.3
Release	255	22	9.4	1.9	1.3

Wood Industries

Types of activities: Create wood-based products including paper, cardboard, pallets, furniture and cabinetry

- Number of facilities met threshold: 42
- Range in number of employees per facility: 1 to 681
- Total amount released: 155 tonnes
- Total amount manufactured, processed or used: 222 tonnes

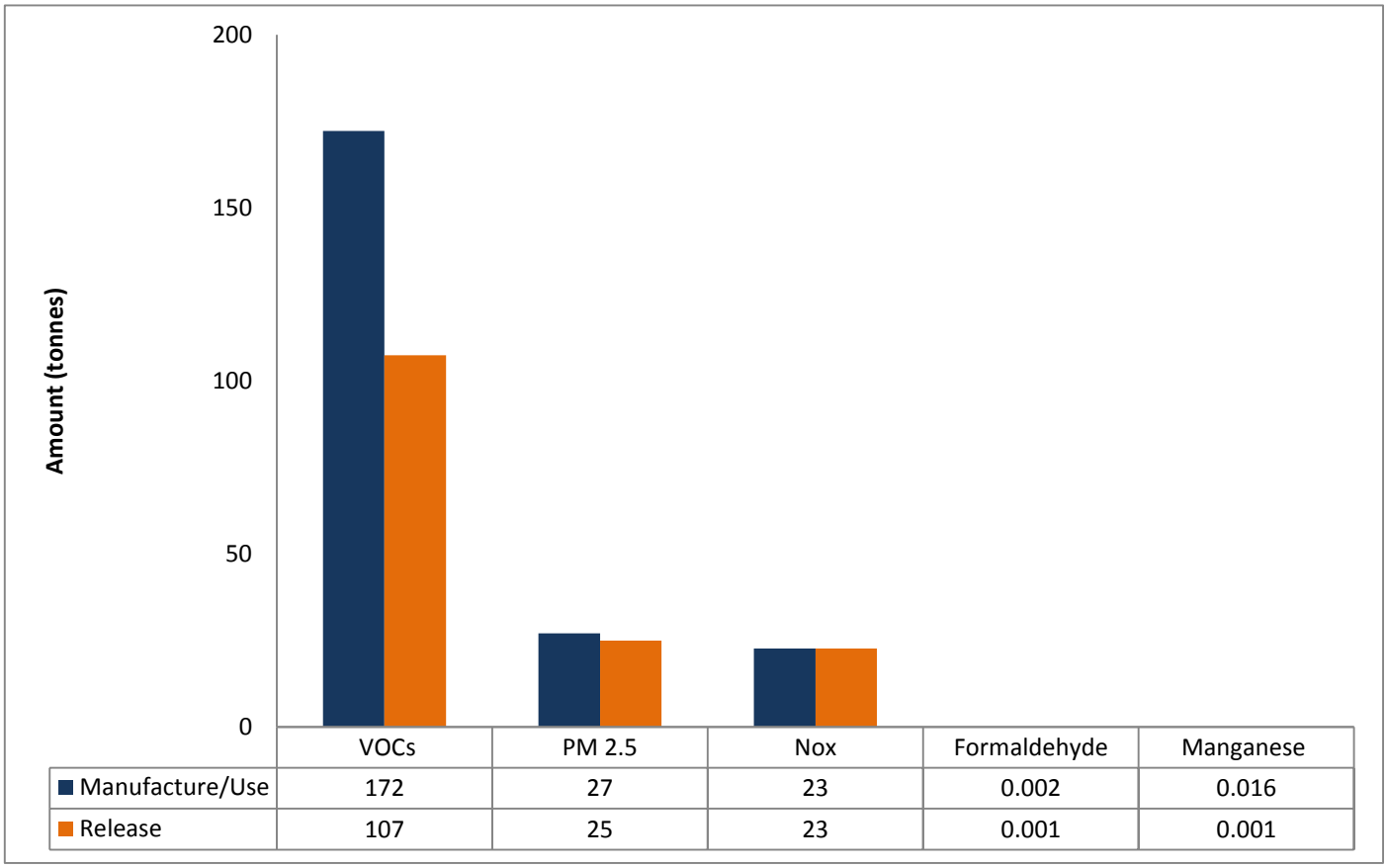
- Number of priority substances reported: 6



Top substances reported are:

- Volatile Organic Compounds
- Particulate Matter 2.5
- Nitrogen Oxide
- Formaldehyde
- Manganese

Figure 10: Amounts of Substances reported by Wood Industries

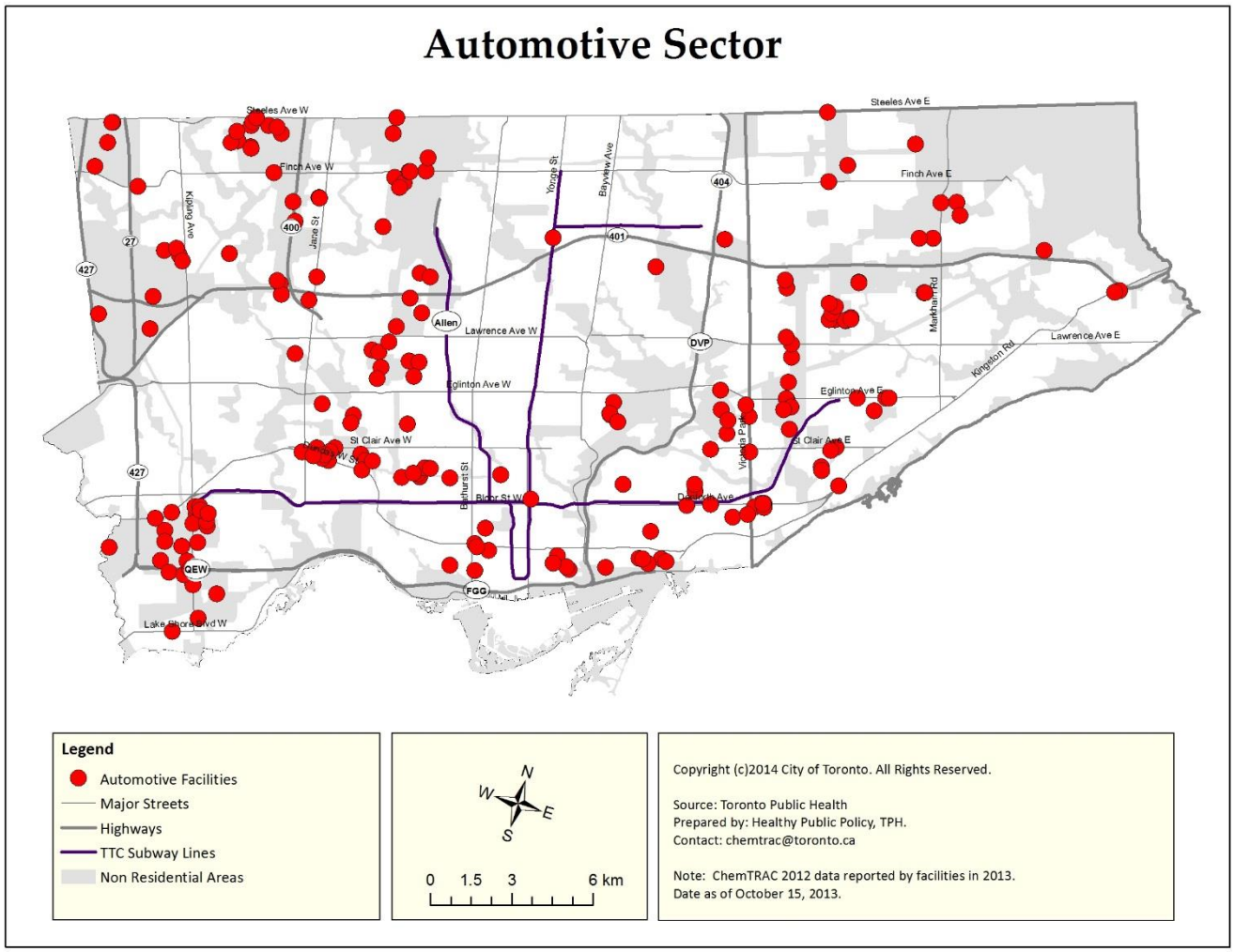


	VOCs	PM 2.5	Nox	Formaldehyde	Manganese
Manufacture/Use	172	27	23	0.002	0.016
Release	107	25	23	0.001	0.001

Auto Body, Collision Repair & Auto Refinishing Sector

Types of activities: Painting, repairing and customizing cars, trucks, vans and commercial trailers

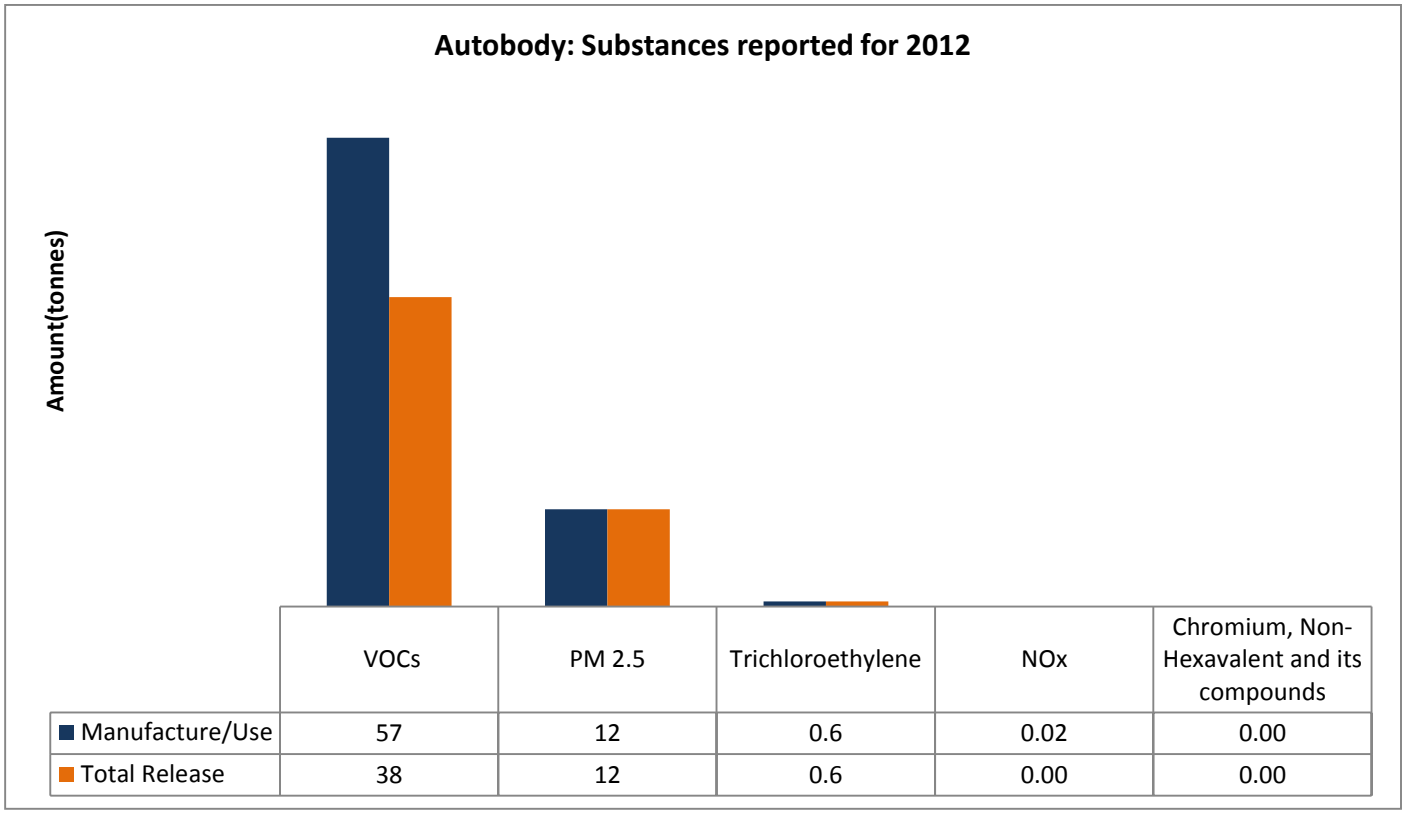
- Number of facilities met threshold: 111
- Range in number of employees per facility: 1 to 100
- Total amount released: 50 tonnes
- Total amount manufactured, processed or used: 70 tonnes
- Number of priority substances reported: 7



Top substances reported are:

- Volatile Organic Compounds
- Particulate Matter 2.5
- Trichloroethylene
- Nitrogen Oxides
- Chromium Non-Hexavalent and its compounds

Figure 11: Amounts of substances reported by Autobody Refinishing facilities for 2012

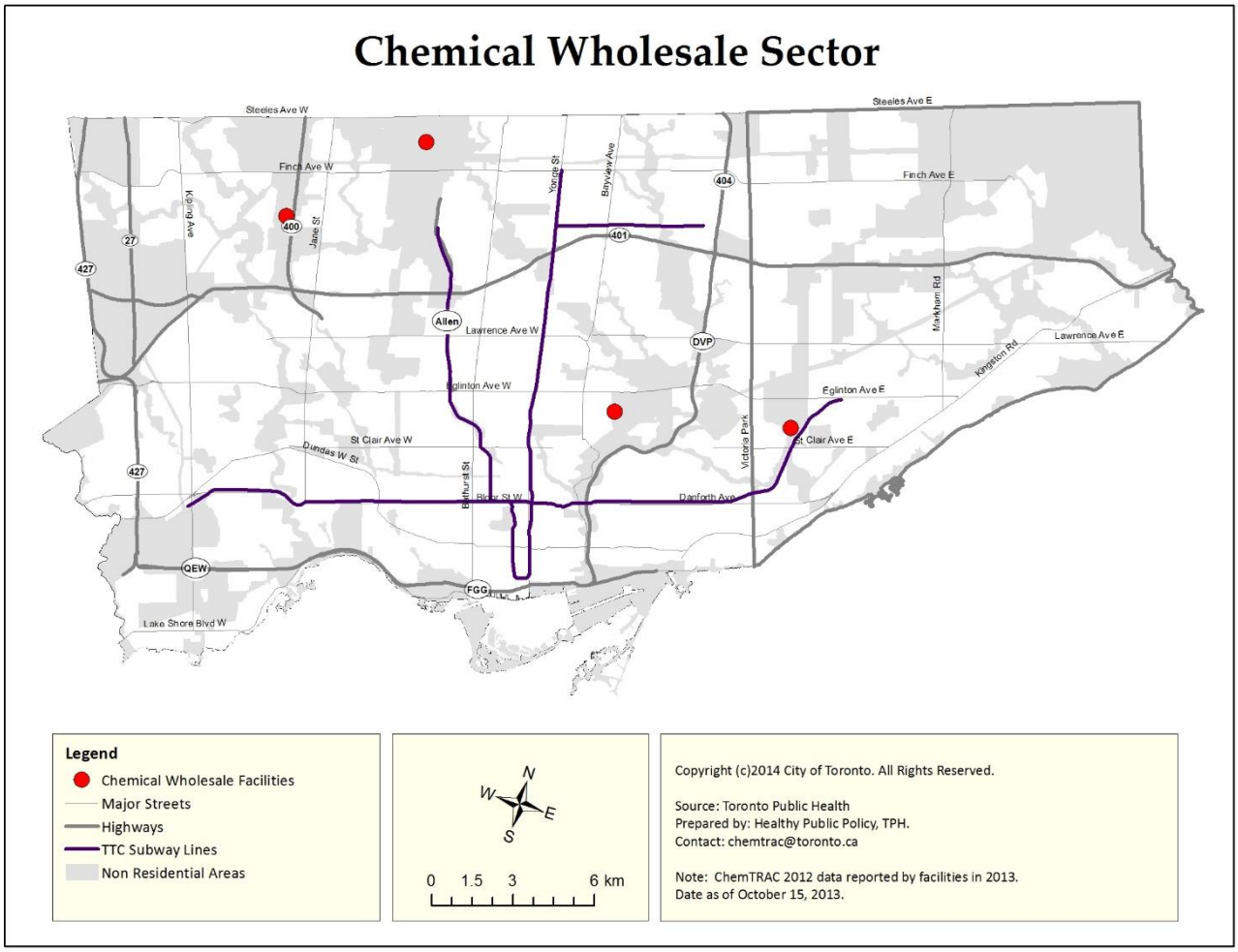


	VOCs	PM 2.5	Trichloroethylene	NOx	Chromium, Non-Hexavalent and its compounds
Manufacture/Use	57	12	0.6	0.02	0.00
Total Release	38	12	0.6	0.00	0.00

Chemical Wholesale

Types of activities: Wholesale of industrial and household chemicals, cleaning compounds and preparations, plastics resins, plastic basic forms and shapes, and industrial gases

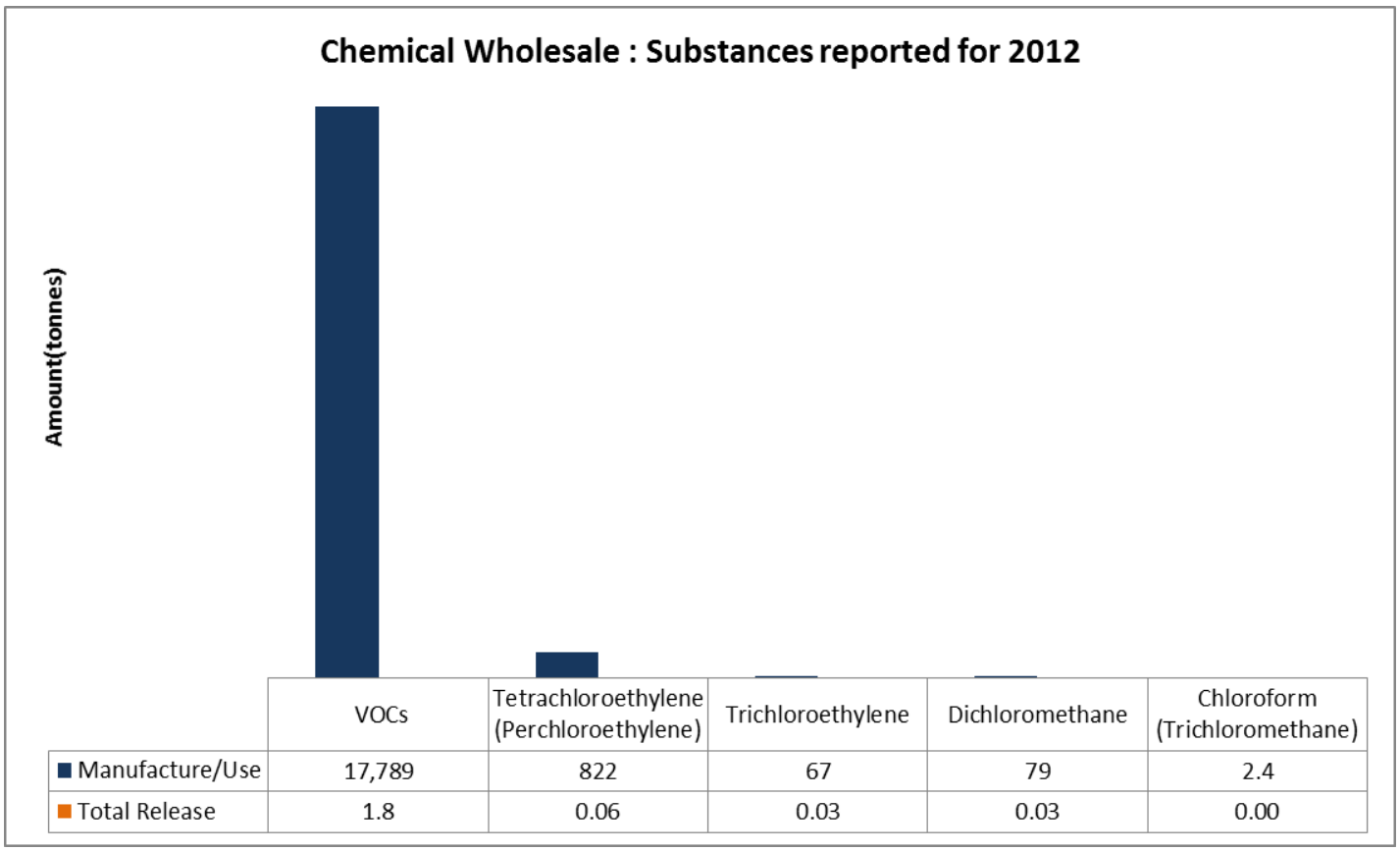
- Number of facilities met threshold: 4
- Range in number of employees per facility: 14 to 125
- Total amount released: 2 tonnes
- Total amount manufactured, processed or used: 18,759 tonnes
- Number of priority substances reported: 5



Top substances reported are:

- Volatile Organic Compounds
- Tetrachloroethylene (Perchloroethylene)
- Trichloroethylene
- Dichloromethane and
- Chloroform (Trichloromethane)

Figure 12: Amount of Substances reported for Chemical Wholesale in 2012

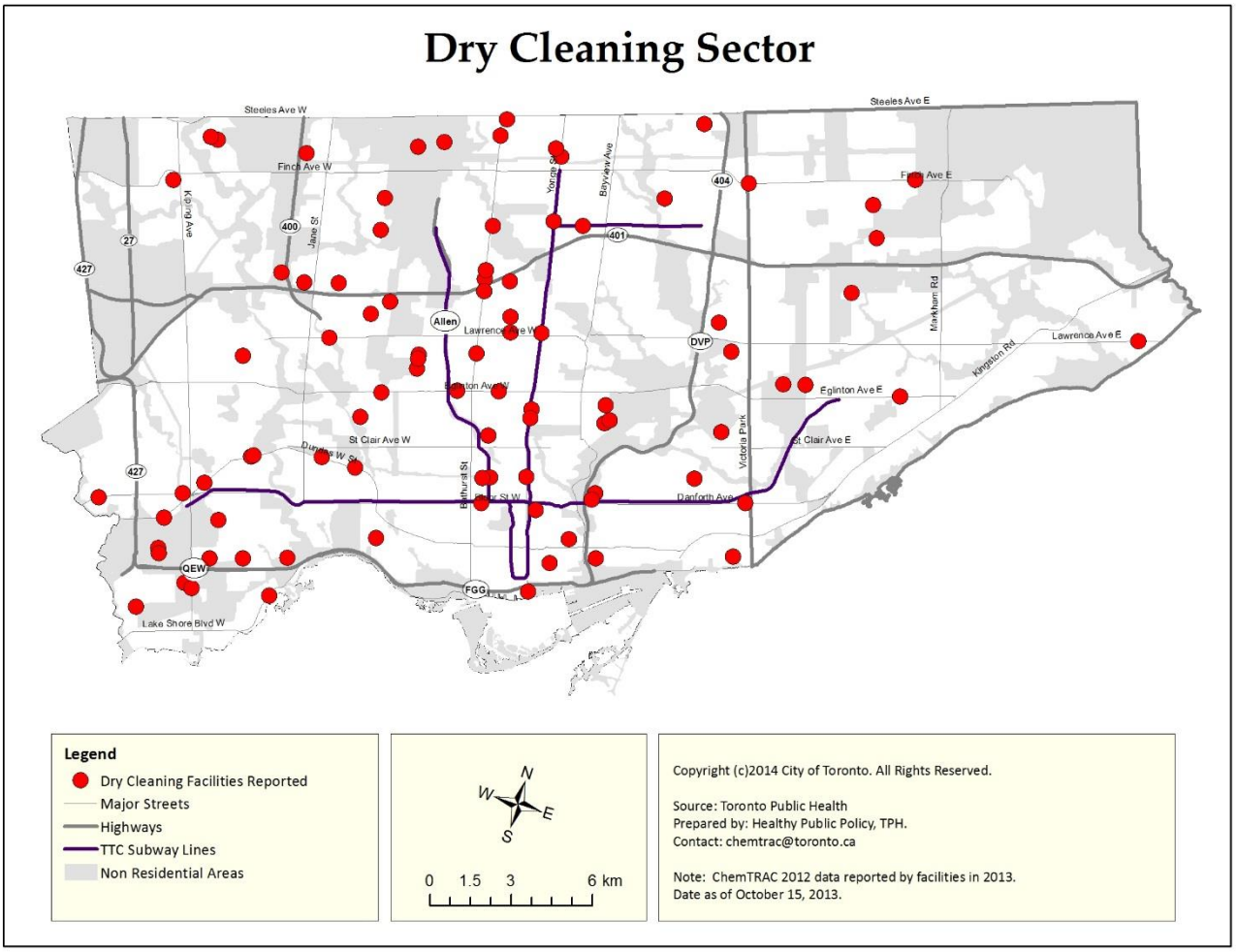


	VOCs	Tetrachloroethylene (Perchloroethylene)	Trichloroethylene	Dichloromethane	Chloroform (Trichloromethane)
Manufacture/Use	17,789	822	67	79	2.4
Total Release	1.8	0.06	0.03	0.03	0.00

Dry Cleaning and Industrial Laundry

Types of activities: Self-service laundry, laundering services, laundering and supplying laundered uniforms, linens and other fabric items and dry cleaning

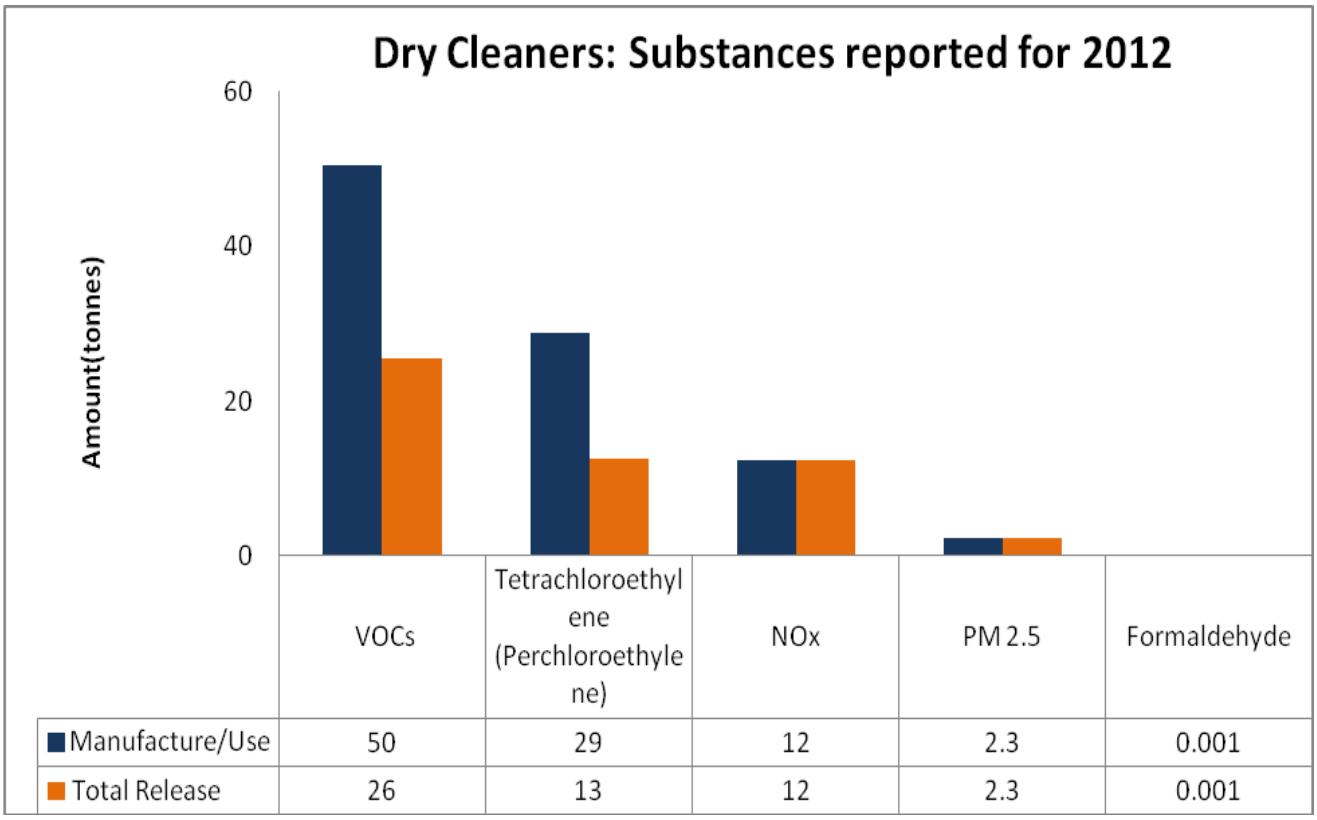
- Number of facilities met threshold: 91
- Range in number of employees per facility: 1 to 240
- Total amount released: 53 tonnes
- Total amount manufactured, processed or used: 94 tonnes
- Number of priority substances reported: 5



Top substances reported are:

- Volatile Organic Compounds
- Tetrachloroethylene (Perchloroethylene)
- Nitrogen Oxides
- Particulate Matter 2.5
- Formaldehyde

Figure 13: Amounts of substances reported by Dry Cleaning and Industrial Laundry facilities for 2012

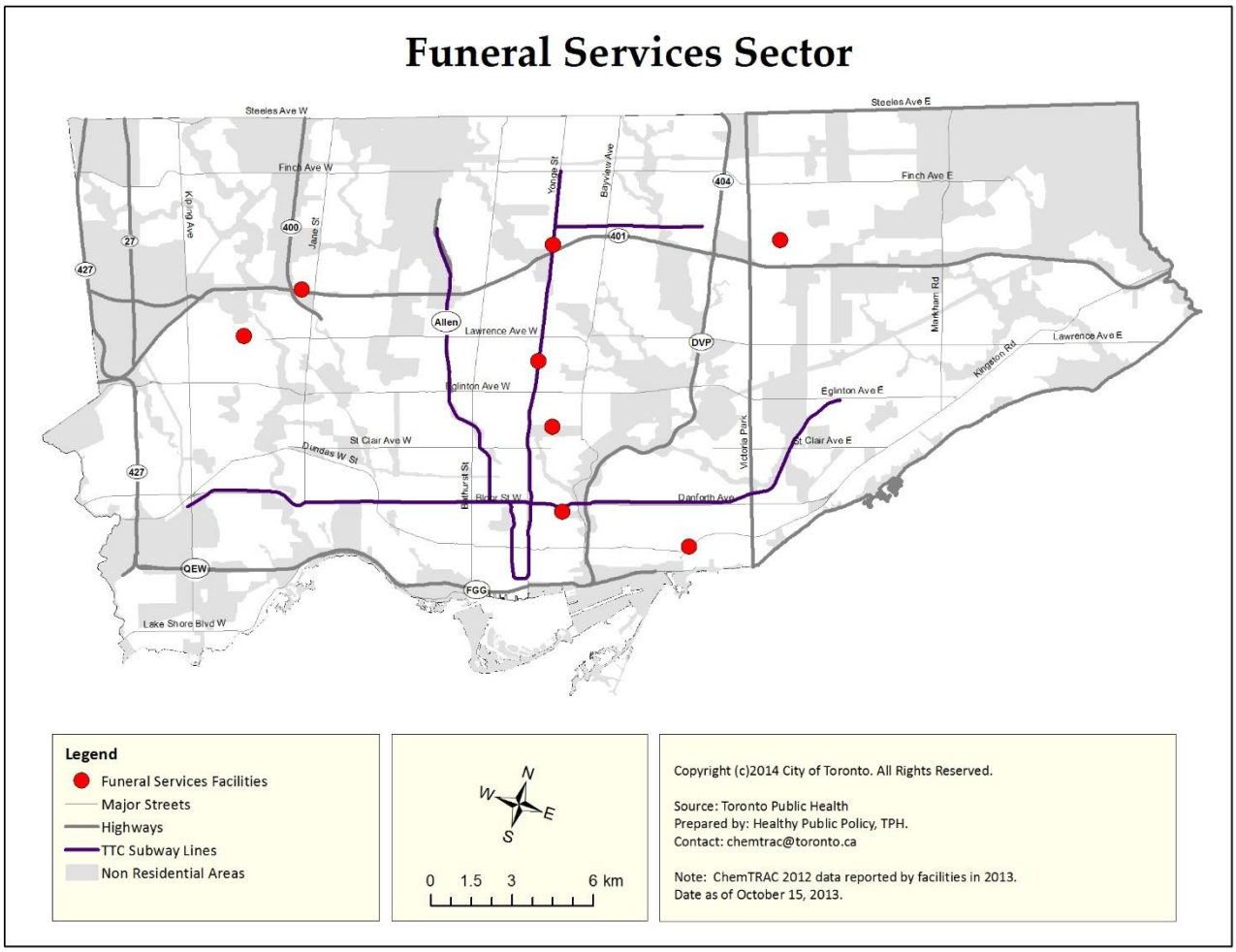


	VOCs	Tetrachloroethylene (Perchloroethylene)	NOx	PM 2.5	Formaldehyde
Manufacture/Use	50	29	12	2.3	0.001
Total Release	26	13	12	2.3	0.001

Funeral Services

Types of activities: Funeral homes, cemeteries and crematoria

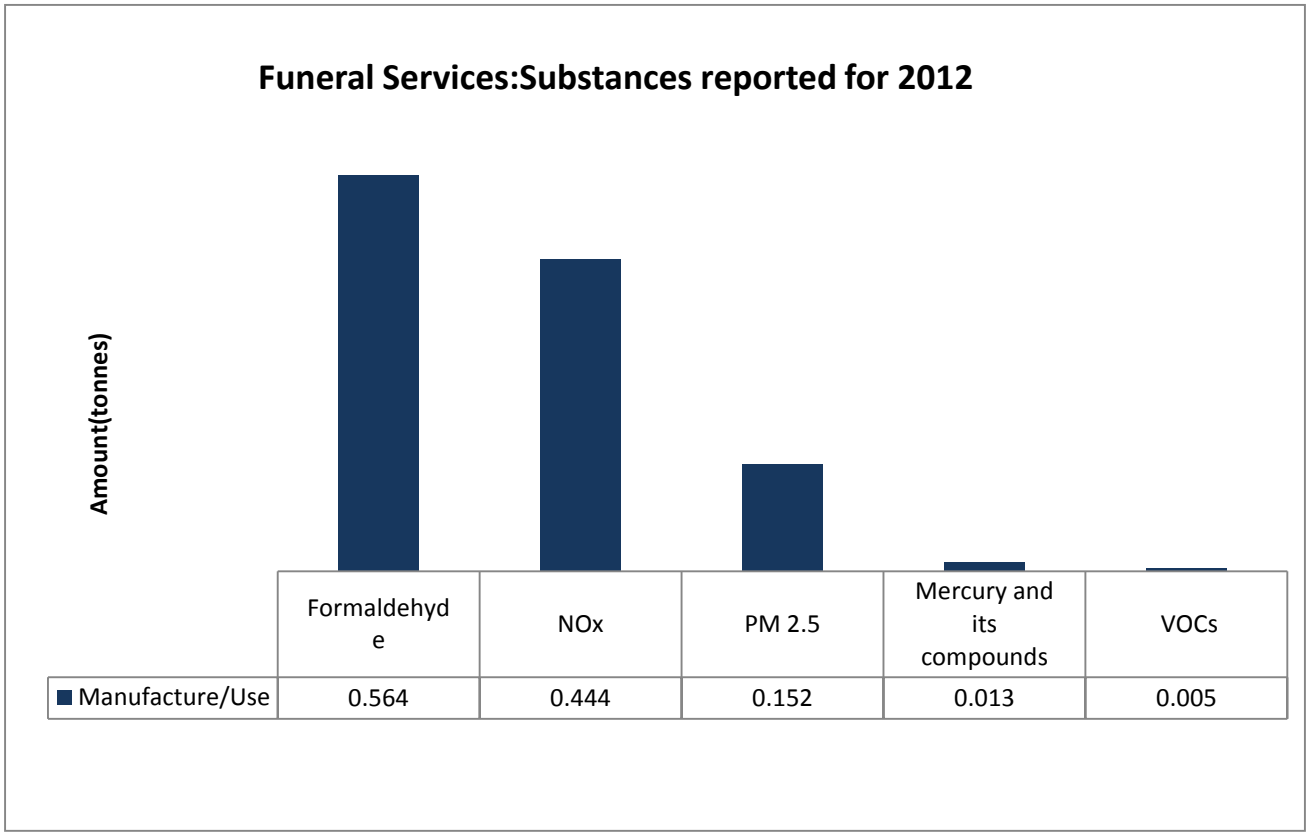
- Number of facilities met threshold: 9
- Range in number of employees per facility: 1 to 60
- Total amount released: 0.61 tonnes
- Total amount manufactured, processed or used: 1 tonne
- Number of priority substances reported: 5



Top substances reported are:

- Formaldehyde
- Nitrogen Oxides
- Particulate Matter 2.5
- Mercury and its compounds
- Volatile Organic Compounds

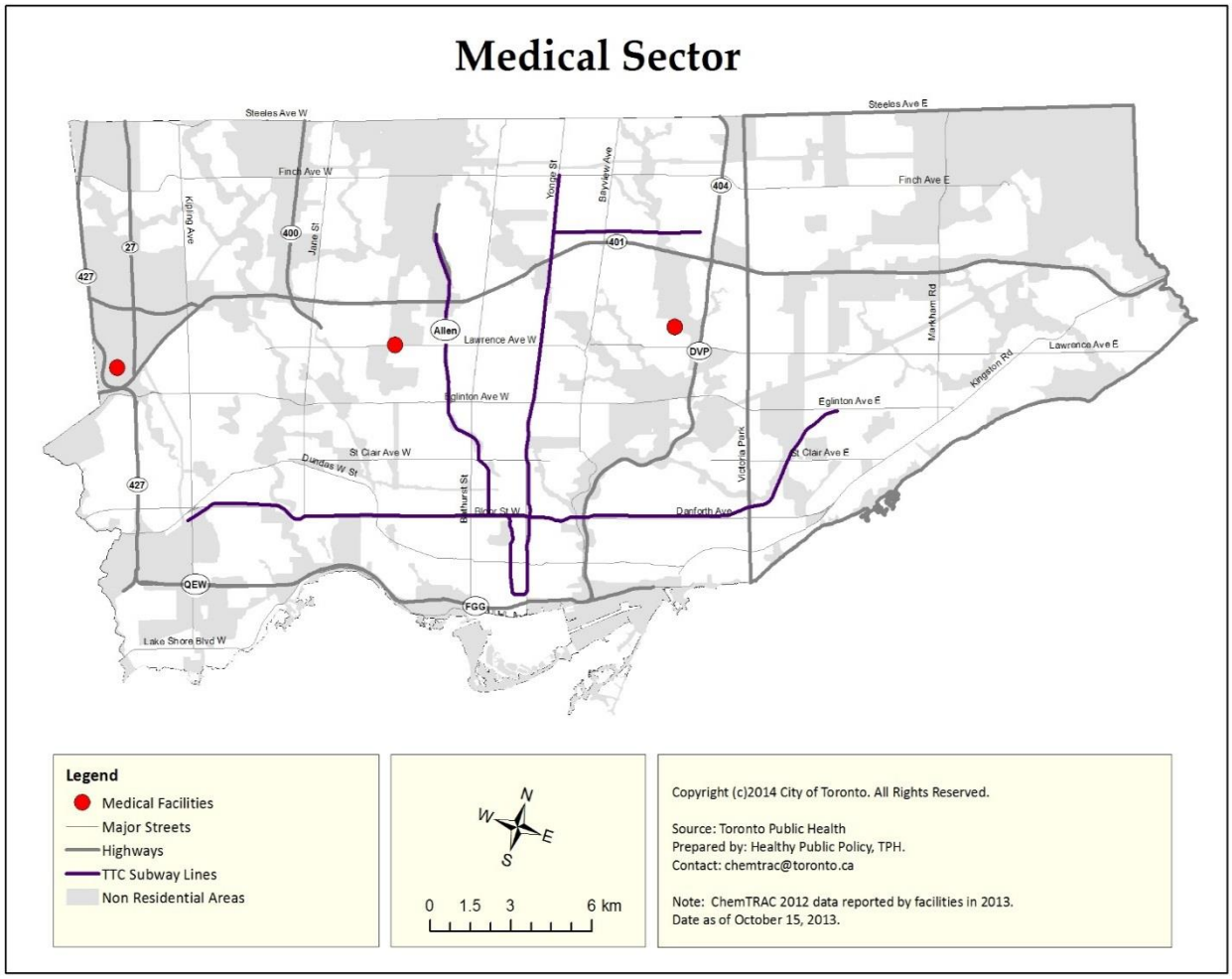
Figure 14: Amount of Substances reported for Funeral Services in 2012



Medical and Diagnostic

Types of activities: Analytic or diagnostic services to the medical profession or patient on referral from a health practitioner

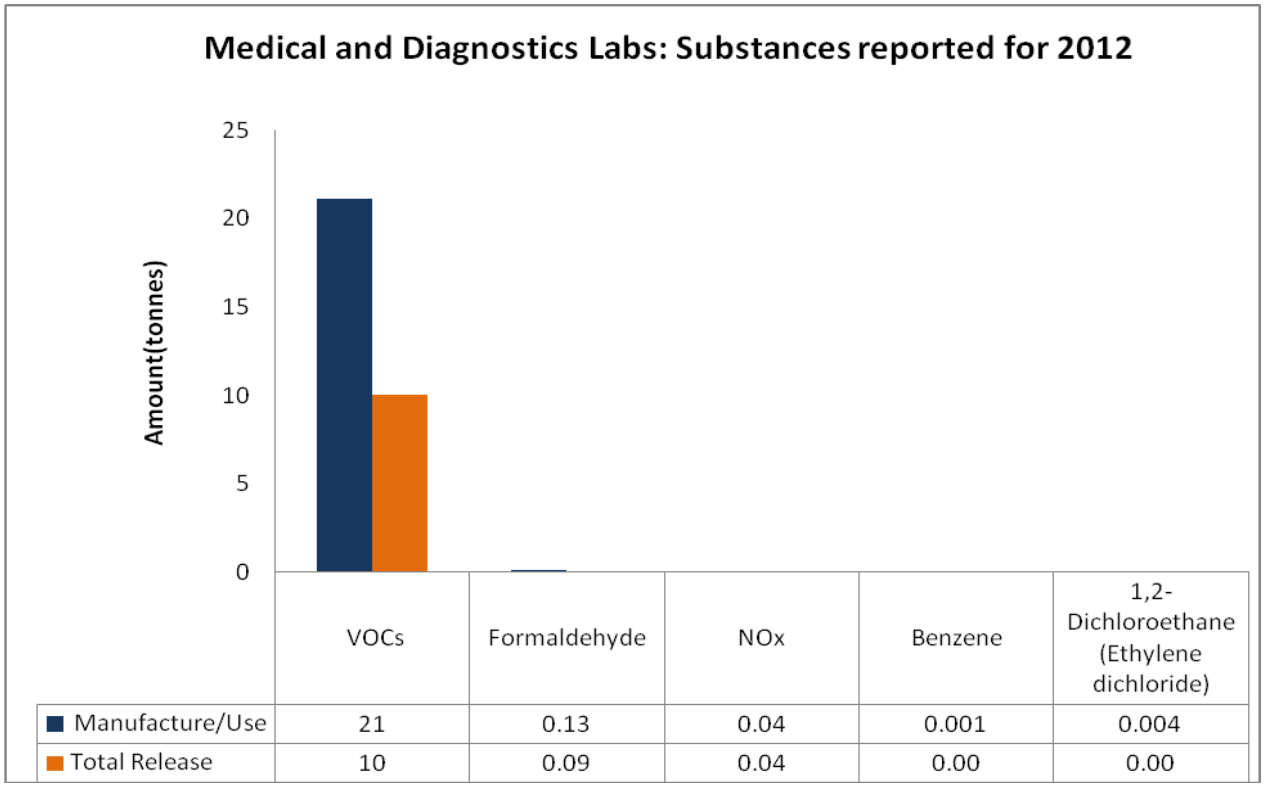
- Number of facilities met threshold: 3
- Range in number of employees per facility: 1 to 600
- Total amount released: 10 tonnes
- Total amount manufactured, processed or used: 21 tonnes
- Number of priority substances reported: 5



Top substances reported are:

- Volatile Organic Compounds
- Formaldehyde
- Nitrogen Oxides
- Benzene
- 1-2 Dichloroethane (Ethylene dichloride)

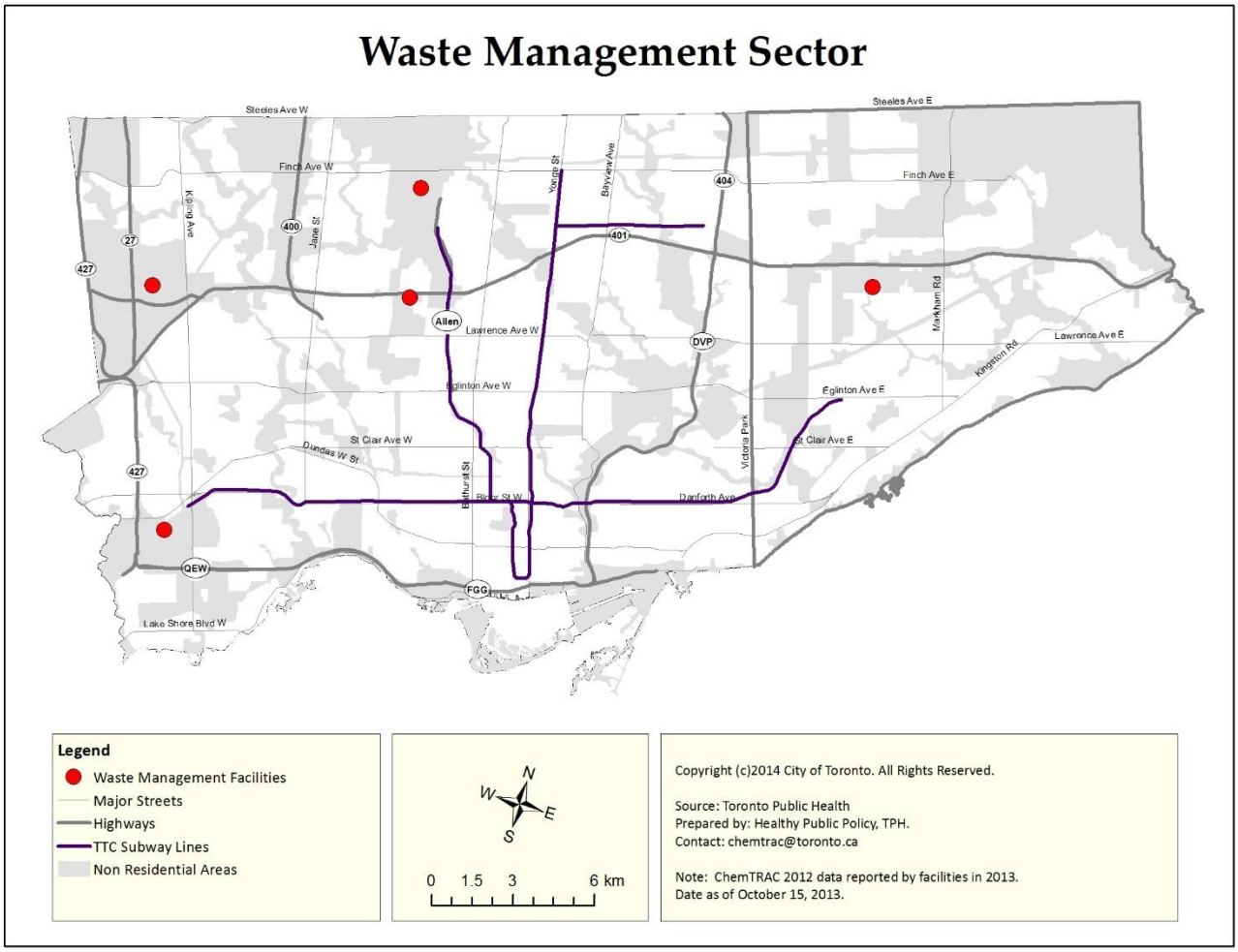
Figure 15: Amounts of substances reported by Medical and Diagnostic services for 2012



Waste Management & Remediation

Types of activities: Waste collection, treatment and disposal services, environmental remediation services, septic tank pumping services and recovery facilities

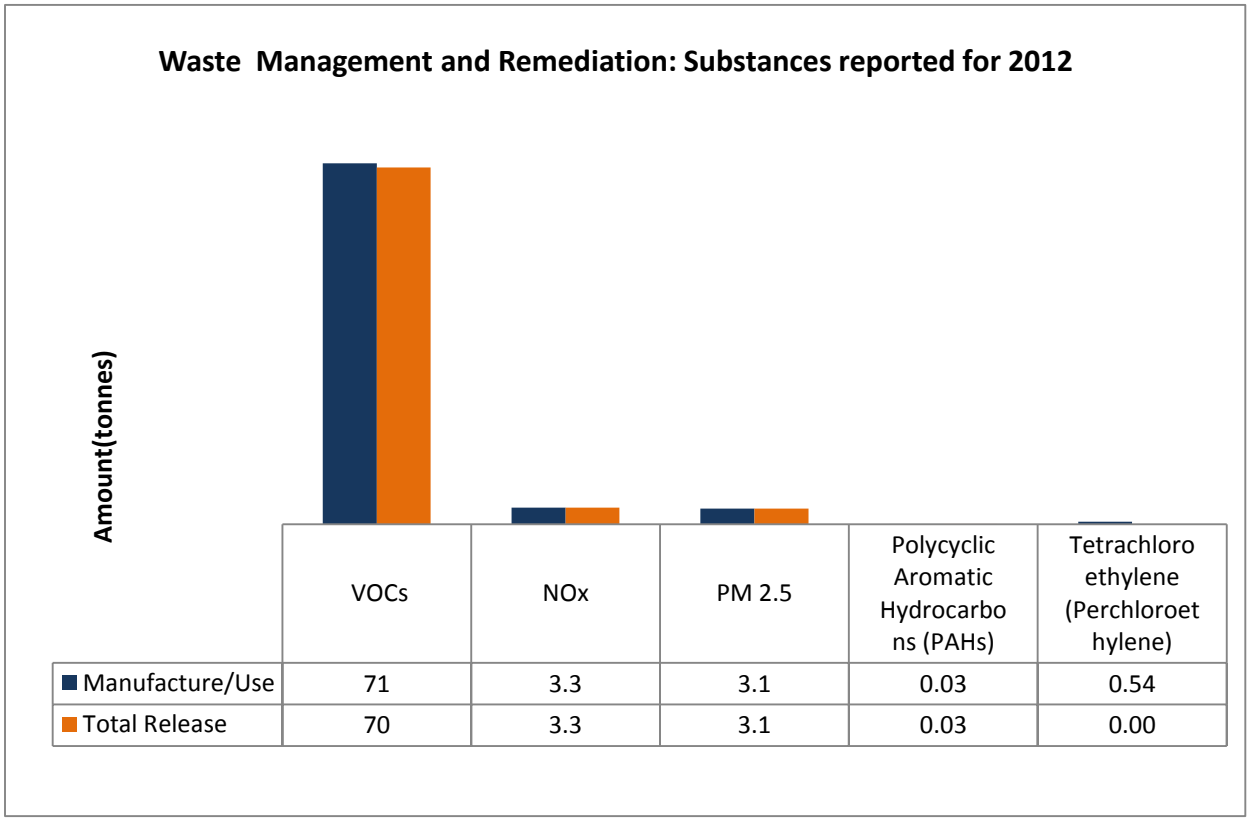
- Number of facilities met threshold: 5
- Range in number of employees per facility: 1 to 1000
- Total amount released: 76 tonnes
- Total amount manufactured, processed or used: 78 tonnes
- Number of priority substances reported: 5



Top substances reported are:

- Volatile Organic Compounds
- Nitrogen Oxides
- Particulate Matter 2.5
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Tetrachloroethylene (Perchloroethylene)

Figure 16: Amounts of substances reported by Waste Management facilities for 2012

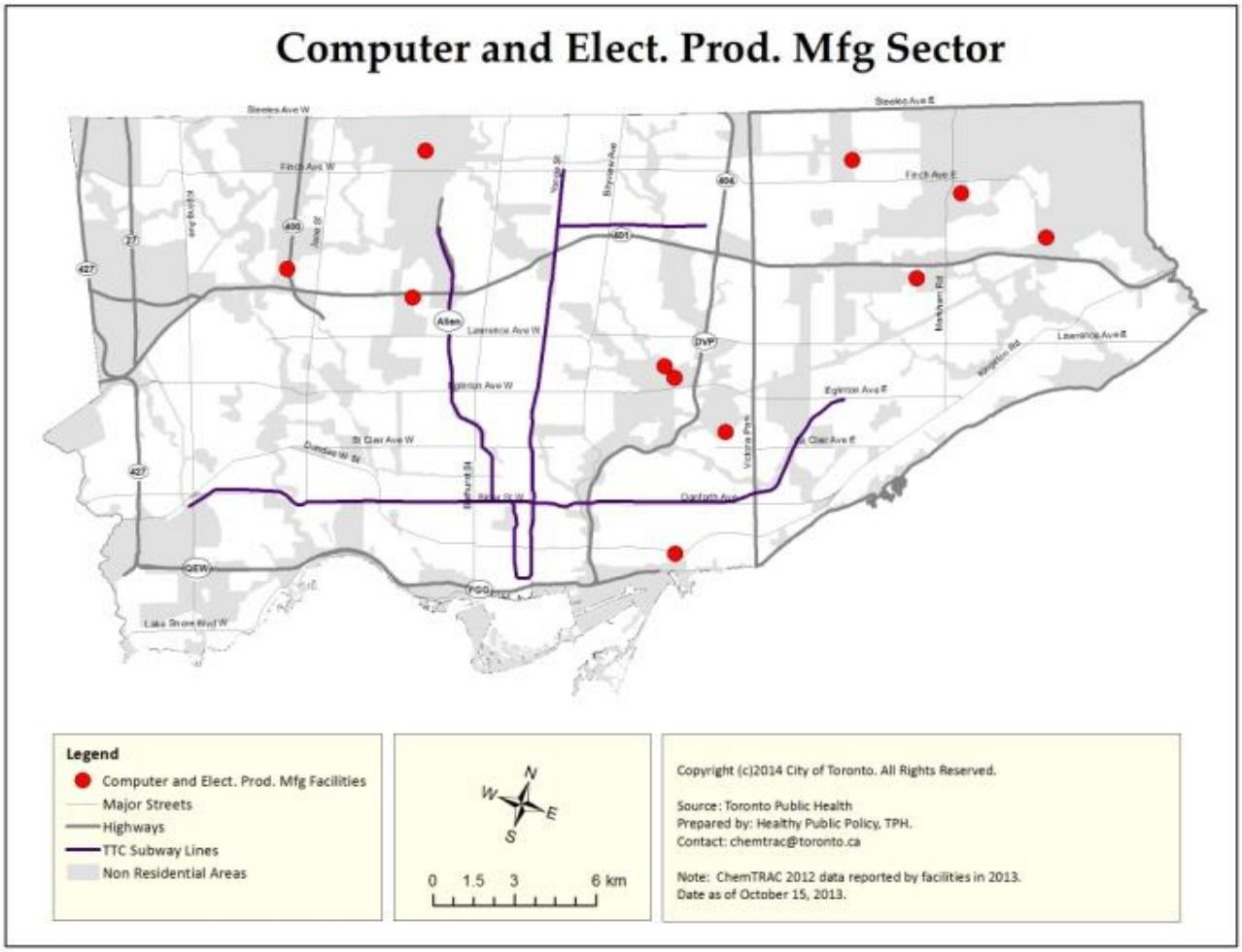


	VOCs	NOx	PM 2.5	Polycyclic Aromatic Hydrocarbons (PAHs)	Tetrachloroethylene (Perchloroethylene)
Manufacture/Use	71	3.3	3.1	0.03	0.54
Total Release	70	3.3	3.1	0.03	0.00

Computer and Electric Product Manufacturing

Types of activities: Manufacturer of computers, computer peripherals, and communications equipment.

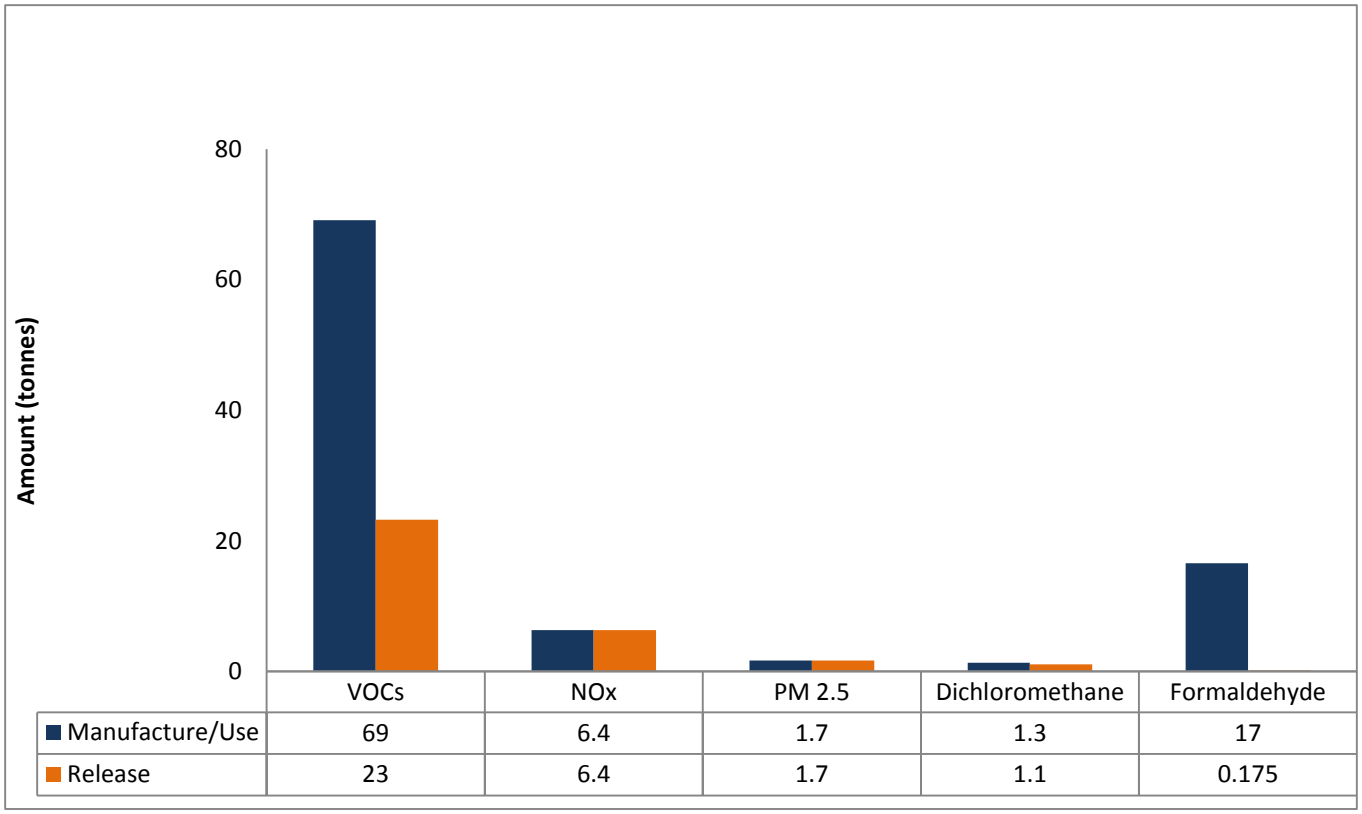
- Number of facilities met threshold: 11
- Range in number of employees per facility: 5 to 800
- Total amount released: 33 tonnes
- Total amount manufactured, processed or used: 95 tonnes
- Number of priority substances reported: 9



Top substances reported are:

- Volatile Organic Compounds
- Nitrogen Oxide
- Particulate Matter 2.5
- Dichloromethane
- Formaldehyde

Figure 17: Amounts of substances reported by Computer and Electric Product Manufacturing facilities for 2012

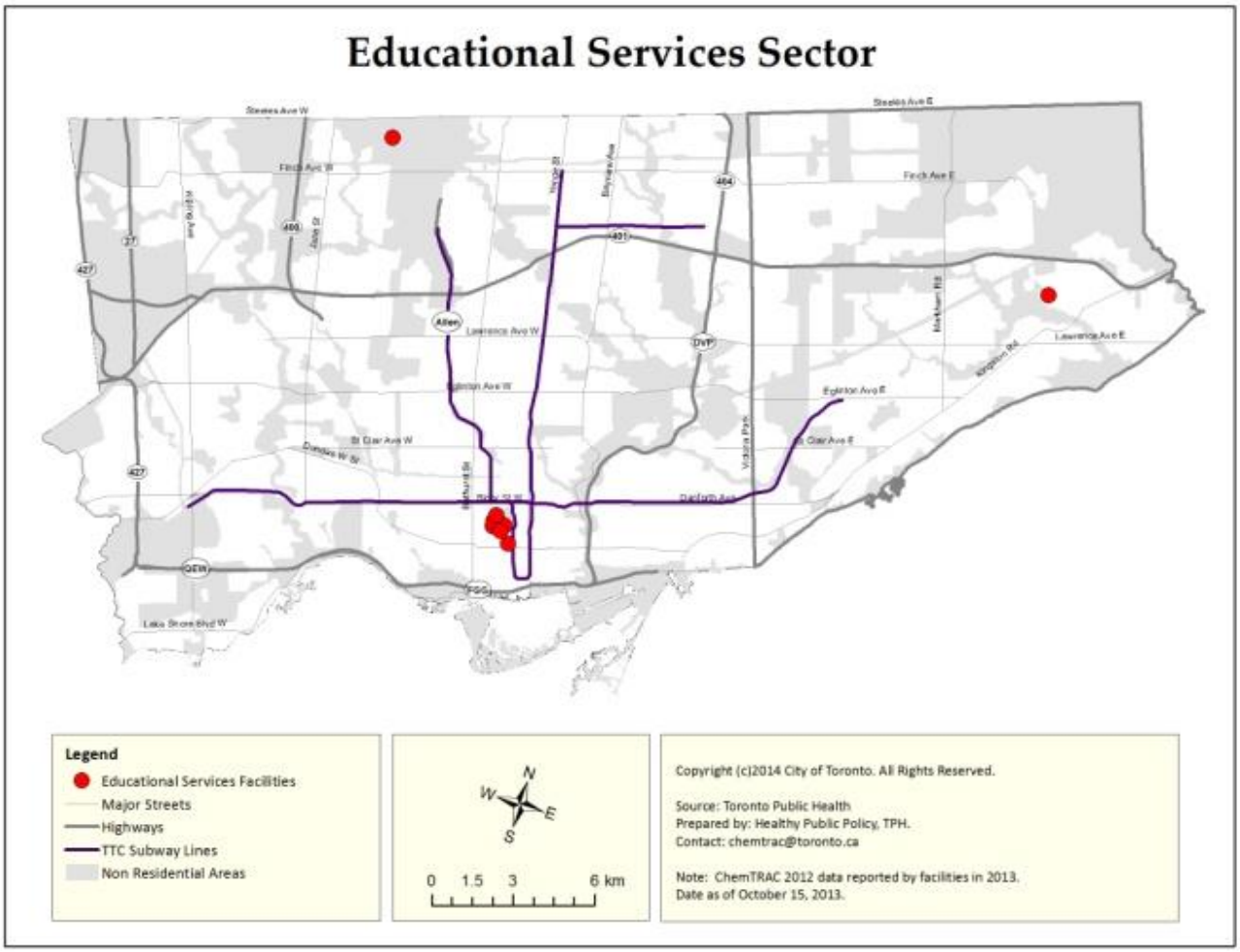


	VOCs	NOx	PM 2.5	Dichloromethane	Formaldehyde
Manufacture/Use	69	6.4	1.7	1.3	17
Release	23	6.4	1.7	1.1	0.175

Education Service

Types of activities: establishments that provide instruction and training in a wide variety of subjects. This instruction and training is provided by specialized establishments, such as schools, colleges, universities, and training centers

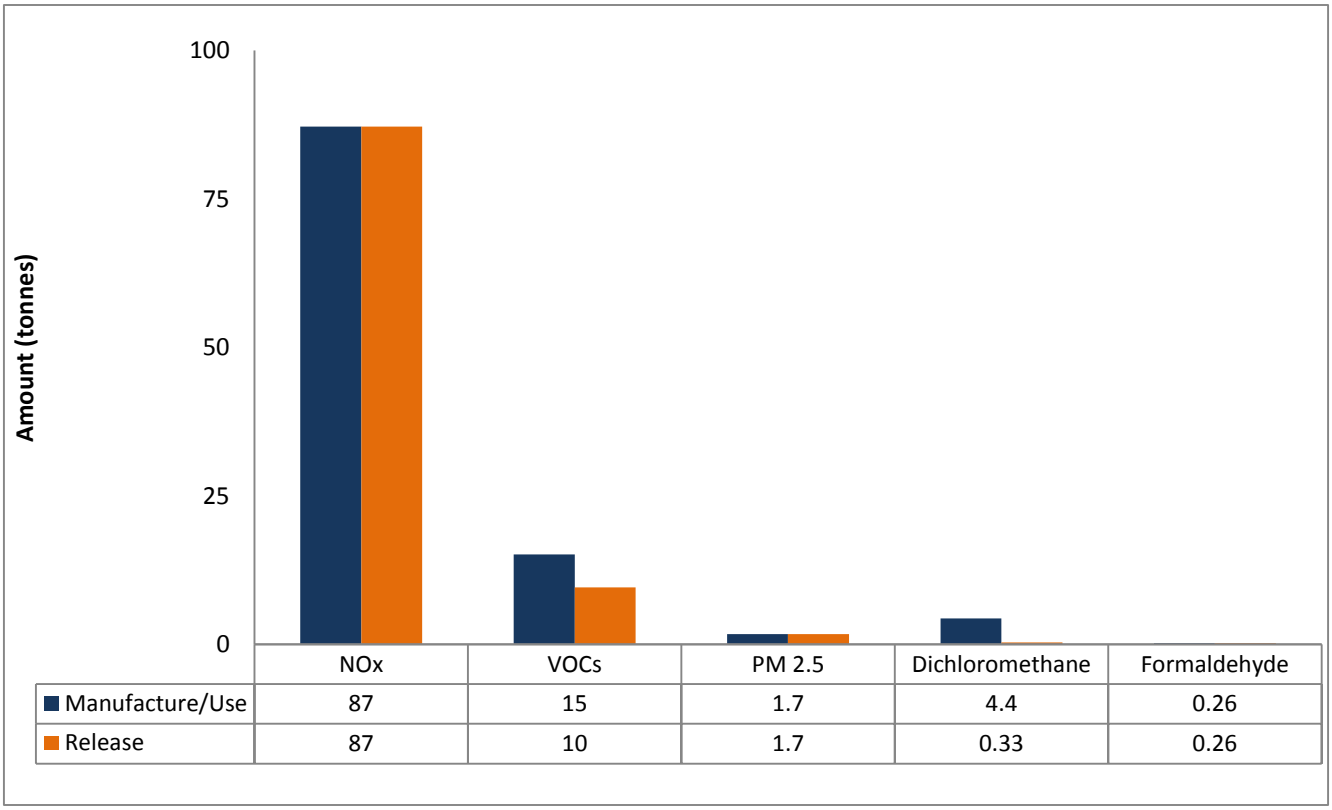
- Number of facilities met threshold: 11
- Range in number of employees per facility: 1 to 1,020
- Total amount released: 99 tonnes
- Total amount manufactured, processed or used: 109 tonnes
- Number of priority substances reported: 8



Top substances reported are:

- Nitrogen Oxide
- Volatile Organic Compounds
- Particulate Matter 2.5
- Dichloromethane
- Formaldehyde

Figure 18: Amounts of substances reported by Education Service facilities for 2012

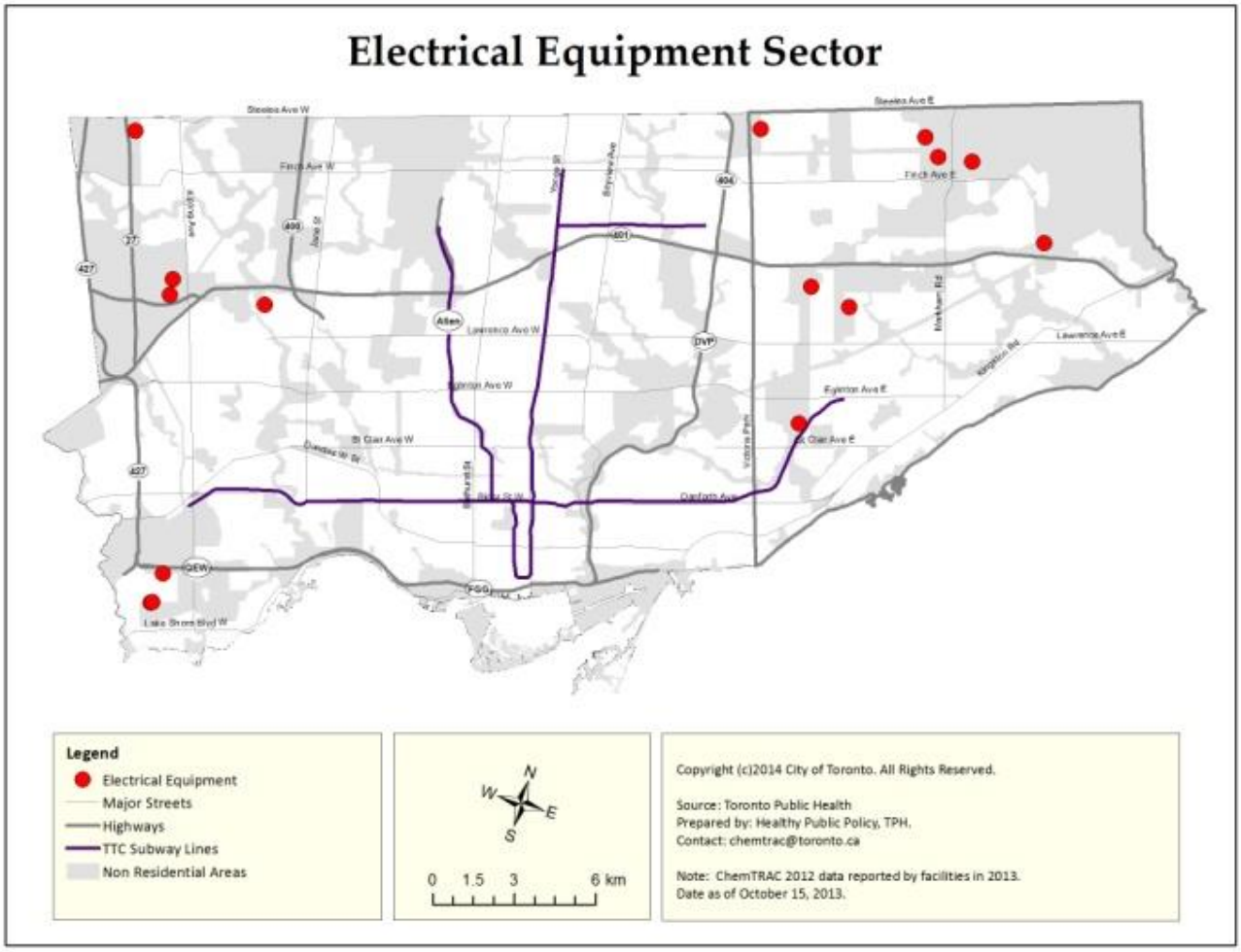


	NOx	VOCs	PM 2.5	Dichloromethane	Formaldehyde
Manufacture/Use	87	15	1.7	4.4	0.26
Release	87	10	1.7	0.33	0.26

Electric Equipment, Appliance and Component Manufacturing

Types of activities: Manufactures of product that generate, use and distribute electrical power. Common activities include Metal cutting, metal processing, painting and welding

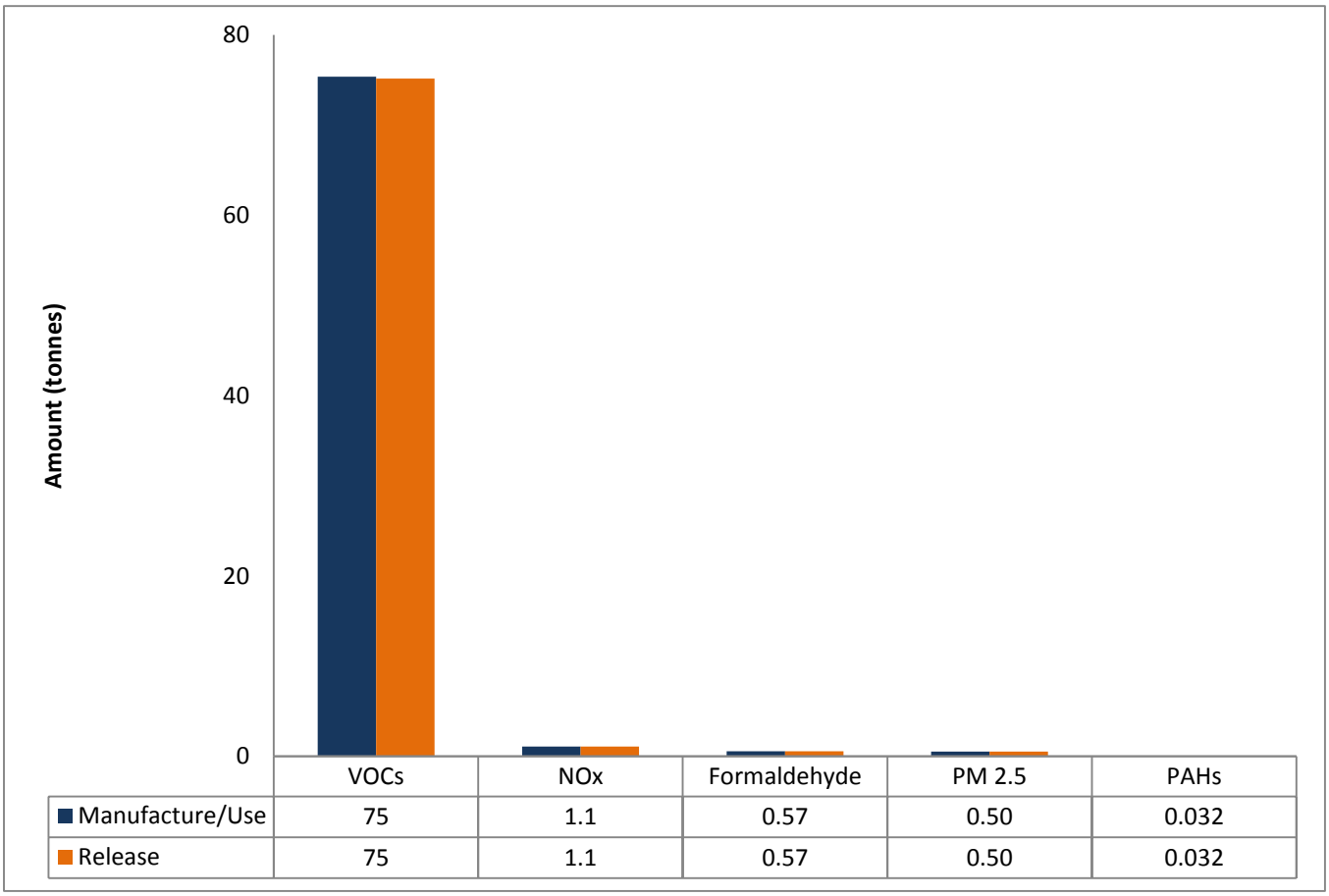
- Number of facilities met threshold: 15
- Range in number of employees per facility: 3 to 330
- Total amount released: 77 tonnes
- Total amount manufactured, processed or used: 252 tonnes
- Number of priority substances reported: 10



Top substances reported are:

- Volatile Organic Compounds
- Nitrogen Oxide
- Formaldehyde
- Particulate Matter 2.5
- Polycyclic Aromatic

Figure 19: Amounts of Substances Reported by Electrical Equipment, Appliance and Computer Manufacturing facilities for 2012

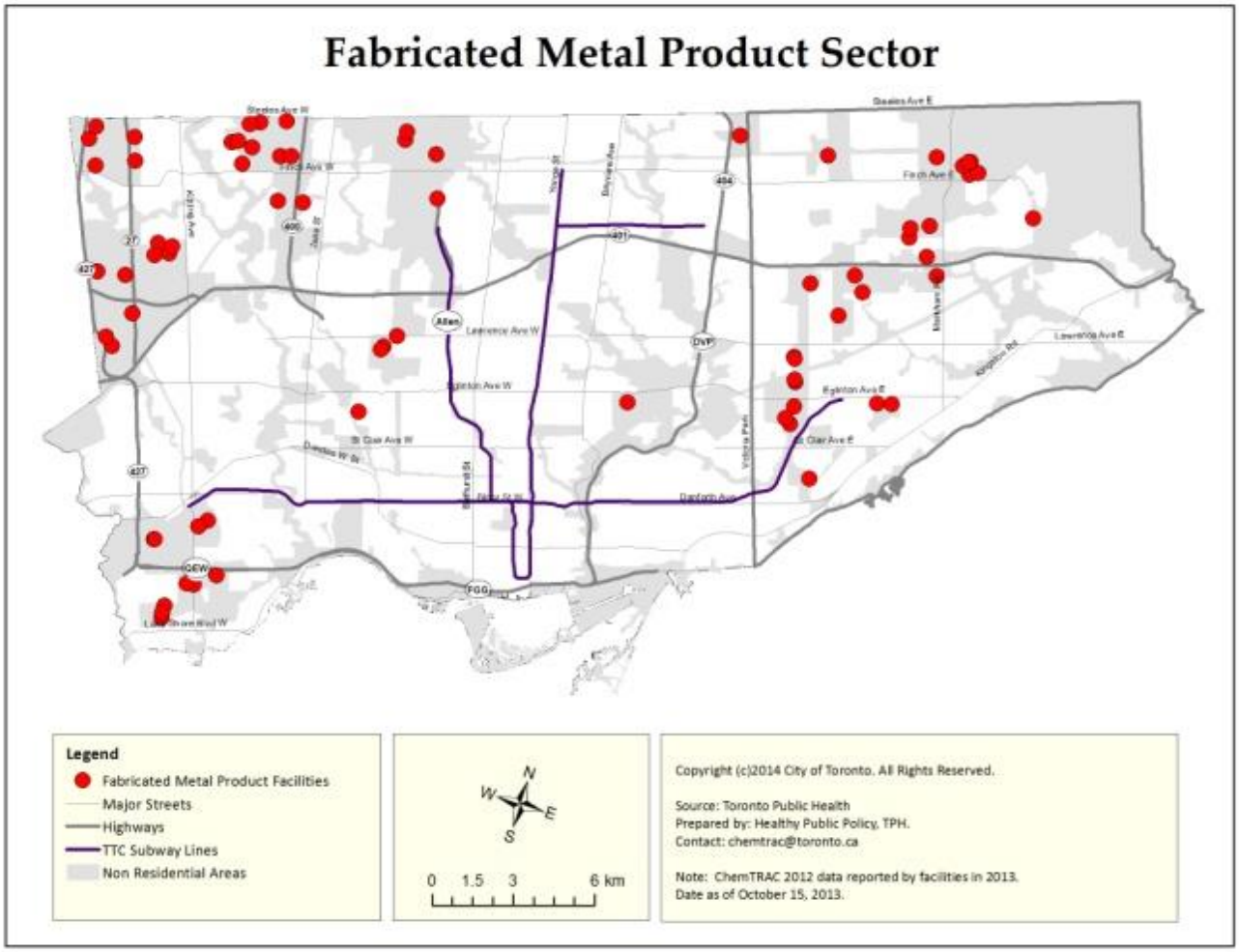


	VOCs	NOx	Formaldehyde	PM 2.5	PAHs
Manufacture/Use	75	1.1	0.57	0.50	0.032
Release	75	1.1	0.57	0.50	0.032

Fabricated Metal Product Manufacturing

Types of activities: Transformer of metal to end use products by forging, stamping, bending, forming, machining, welding and assembling

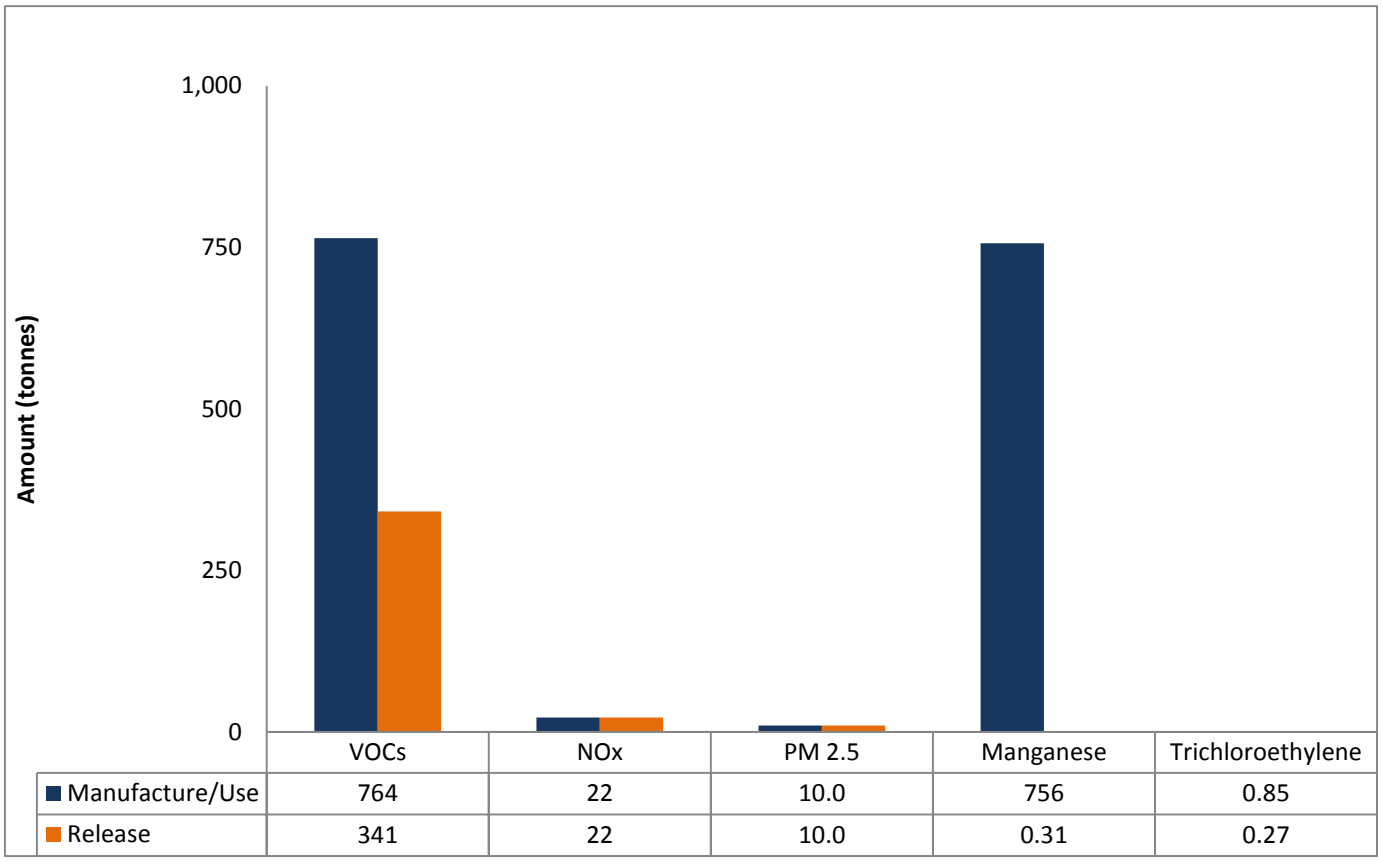
- Number of facilities met threshold: 74
- Range in number of employees per facility: 1 to 293
- Total amount released: 375 tonnes
- Total amount manufactured, processed or used: 2,157 tonnes
- Number of priority substances reported: 12



Top substances reported are:

- Volatile Organic Compounds
- Nitrogen Oxide
- Particulate Matter 2.5
- Manganese
- Trichloroethylene

Figure 20: Amounts of Substances Reported by Electrical Equipment, Appliance and Computer Manufacturing facilities for 2012

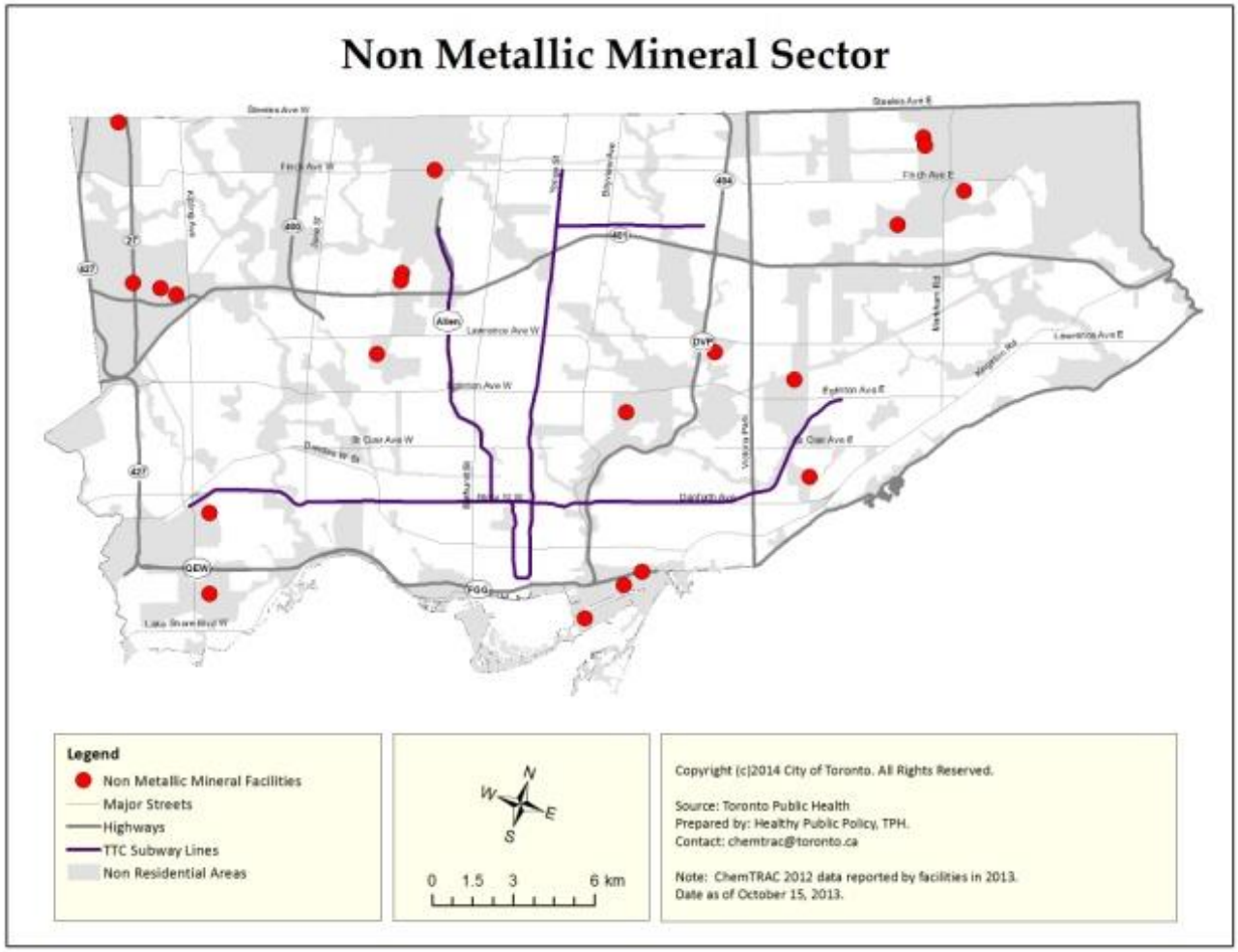


	VOCs	NOx	PM 2.5	Manganese	Trichloroethylene
Manufacture/Use	764	22	10.0	756	0.85
Release	341	22	10.0	0.31	0.27

Non Metallic Mineral Product Manufacturing

Types of activities: Transformers of mined or quarried non metallic minerals, such as sand, gravel, stone, clay, and refractory materials into products for intermediate or final consumption. Processes used include grinding, mixing, cutting, shaping, and honing.

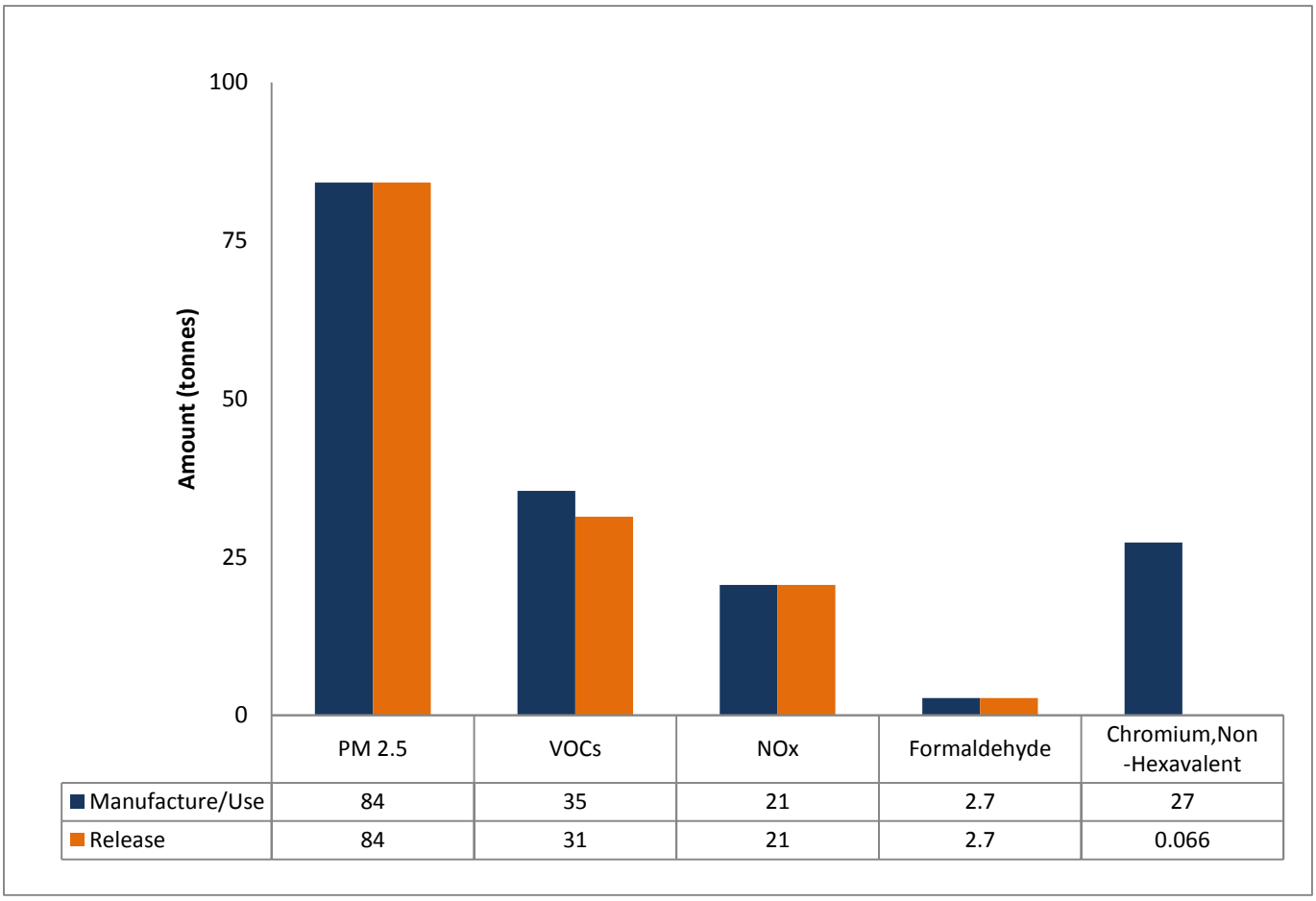
- Number of facilities met threshold: 22
- Range in number of employees per facility: 1 to 140
- Total amount released: 139 tonnes
- Total amount manufactured, processed or used: 623 tonnes
- Number of priority substances reported: 8



Top substances reported are:

- Particulate Matter 2.5
- Volatile Organic Compounds
- Nitrogen Oxide
- Formaldehyde
- Chromium non Hexavalent

Figure 21: Amounts of substances reported by Non Metallic Mineral Product Manufacturing facilities for 2012

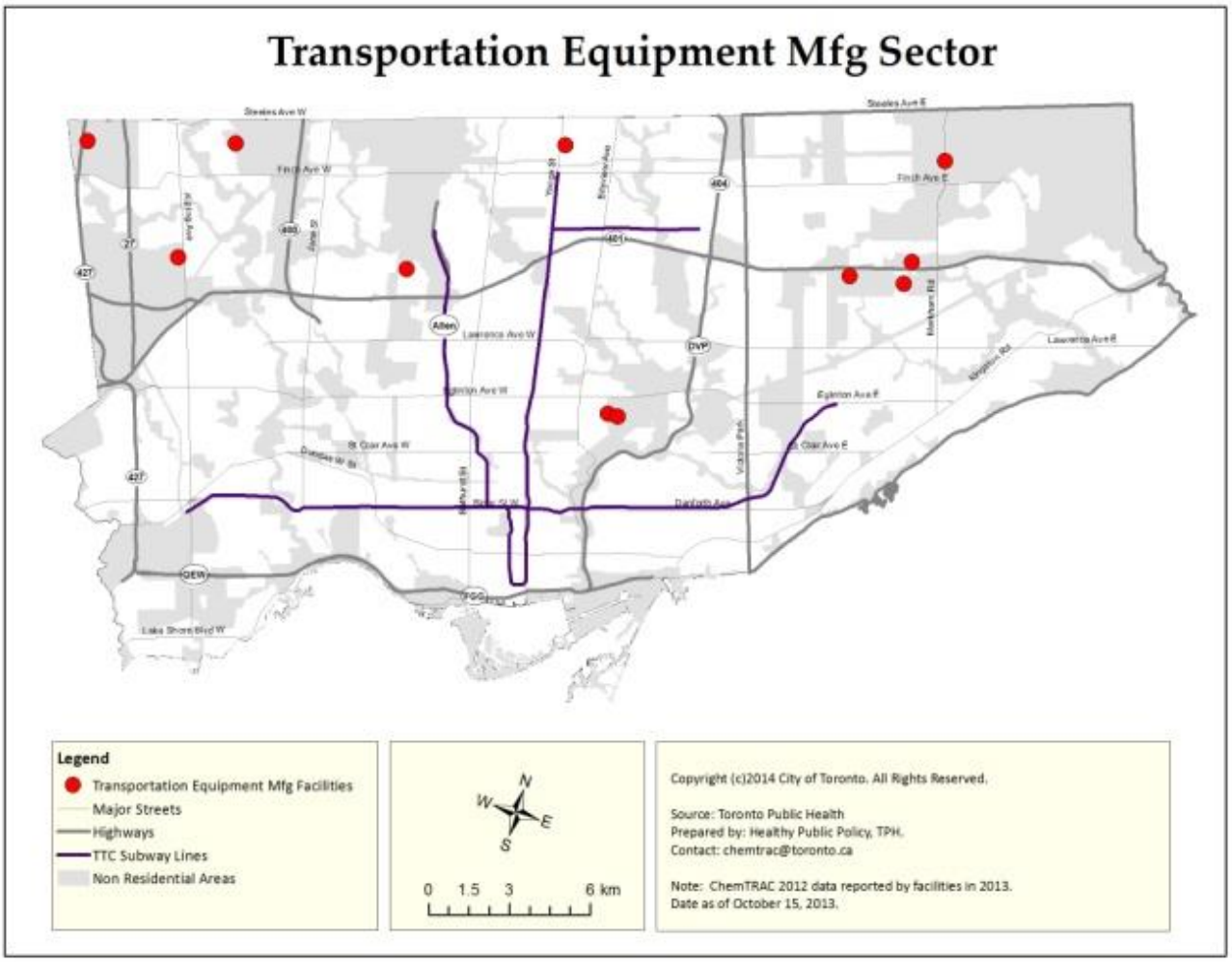


	PM 2.5	VOCs	NOx	Formaldehyde	Chromium,Non-Hexavalent
Manufacture/Use	84	35	21	2.7	27
Release	84	31	21	2.7	0.066

Transportation Equipment Manufacturing

Types of activities: Manufacturers of equipment for transportation of people and goods. Common activities include bending, forming, welding, machining and assembling metal or plastic parts into components and finished products.

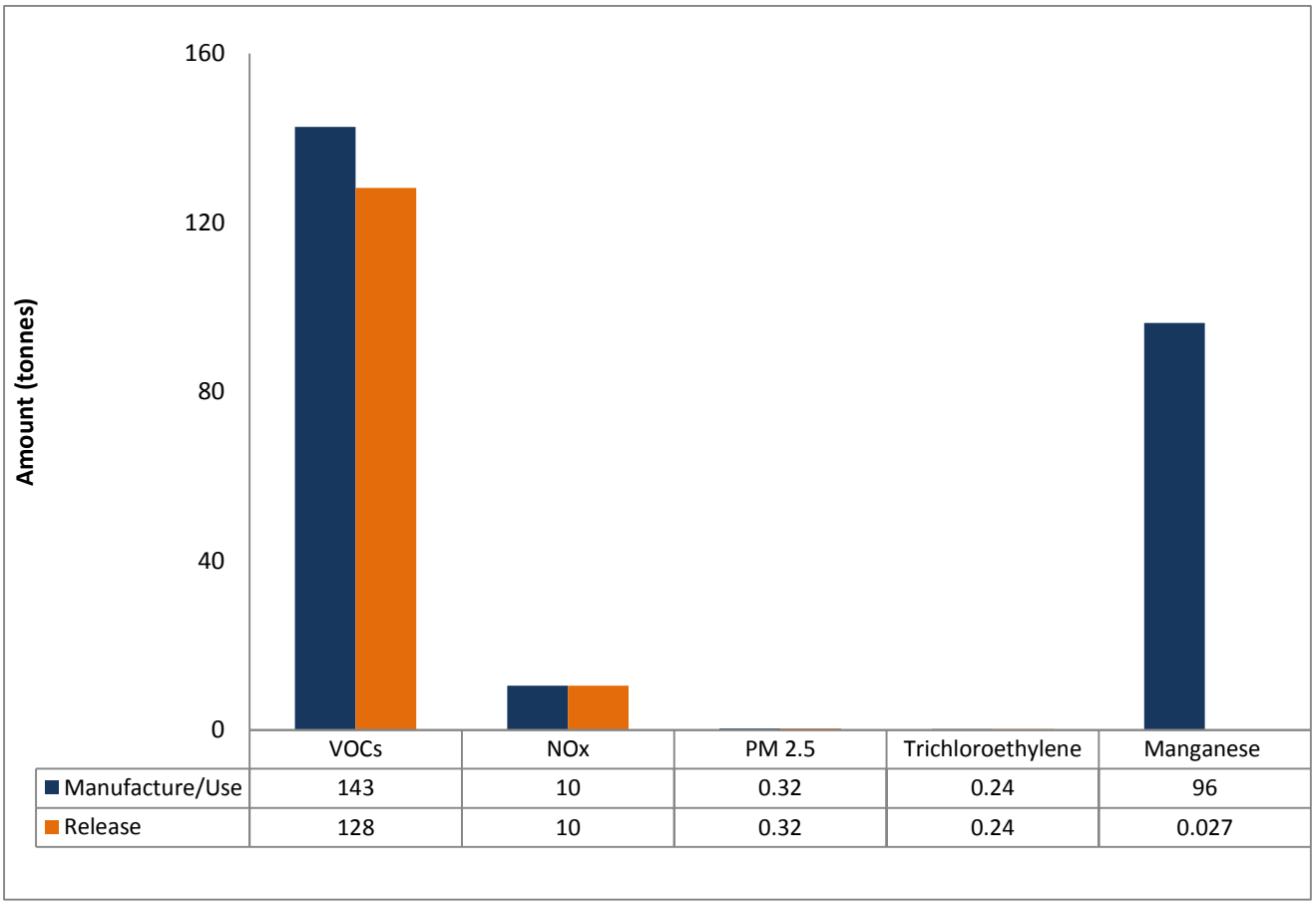
- Number of facilities met threshold: 11
- Range in number of employees per facility: 3 to 3,678
- Total amount released: 139 tonnes
- Total amount manufactured, processed or used: 259 tonnes
- Number of priority substances reported: 9



Top substances reported are:

- Volatile Organic Compounds
- Nitrogen Oxide
- Particulate Matter 2.5
- Trichloroethylene
- Manganese

Figure 22: Amounts of substances reported by Transportation Equipment Manufacturing facilities for 2012



	VOCs	NOx	PM 2.5	Trichloroethylene	Manganese
Manufacture/Use	143	10	0.32	0.24	96
Release	128	10	0.32	0.24	0.027