



Air Quality Assessment of TTC LRV Ashbridges Bay Site

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EXECUTIVE SUMMARY

ORTECH Environmental (ORTECH) was retained to assess the potential environmental air quality effects of the proposed TTC LRV garage at the Ashbridges Bay site at Lakeshore Blvd. and Leslie Street. Three connecting track options were also assessed.

The existing air quality was determined to be good and there are no local facilities air emissions that should constrain the proposed LRV garage.

The air emissions from the facility construction and operation were assessed and the effects on air quality will be negligible.

1. INTRODUCTION

ORTECH Environmental (ORTECH) was retained to assess the potential environmental air quality effects of the proposed TTC LRV garage at the Ashbridges Bay site at Lakeshore Blvd. and Leslie Street. Three connecting track options were also assessed.

The existing air quality was evaluated by assessing air quality as monitored at two Ontario Ministry of the Environment (MOE) stations and reviewing industrial facilities within a 1000 metres distance from the site air emission potential.

The air emissions from the facility constructions and operation were determined, mitigative measures identified and the net air quality effects assessed.

2. INVENTORY OF EXISTING AIR QUALITY

2.1 Study Area

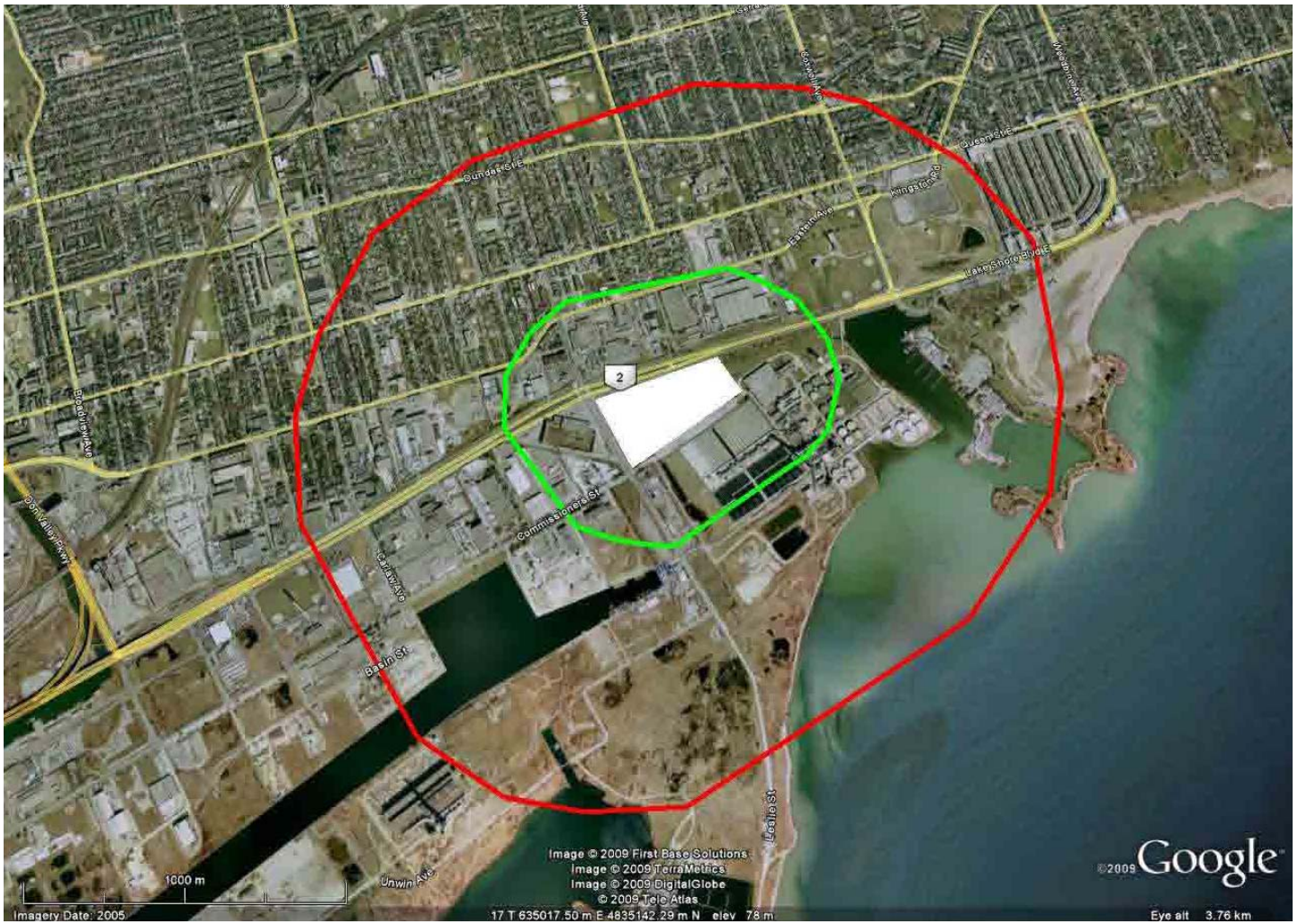
The air quality inventory of existing conditions addresses both local air quality, as monitored by the Ministry of the Environment (MOE), and local air emission sources within 1000 metres of the Ashbridges Bay Site.

Air quality data was assessed based on monitored data from the two MOE stations that best represent the study area: the Downtown AQ Station at Bay St. and Wellesley St., and the Toronto East AQ Station at Kennedy Rd. and Lawrence Ave. E.

The 1000 metre local air quality area was selected based on requirements in the MOE Land Use Compatibility Guidelines. These guidelines define industrial classes based on their air quality impact potential and recommend potential impact influence areas. The recommended potential influence area for the industrial class with the most potential to impact air quality is 1000 metres. The minimum separation distance for these industries is 300 metres.

Figure 1 illustrates distances of approximately 300 metres and the local 1000 metre study area perimeter from the boundaries of the Ashbridges Bay Site.

Figure 1: Ashbridges Bay Site Study Area



2.2 Air Quality Inventory

The air quality inventory considered both regional air quality data as well as individual local sources of air emissions that have the potential of impacting air quality.

2.2.1 Methodology

Regional air quality data from two MOE Air Quality monitoring stations that best represent the study area were used to establish existing regional air quality.

The MOE currently operate a total of four instrumented air quality monitoring stations across the City of Toronto. The Toronto Downtown station is located approximately 5 km west of the Ashbridges Bay site, and the Toronto East station is located approximately 10 km north-east from the Ashbridges Bay site. The other sites are further away and not considered representative of the study area. Historical data for the two parameters that are most typically related to human health effects in certain areas, namely fine particulate (PM_{2.5}) and oxides of nitrogen (NO_x reported as NO₂), was assessed for the period from January 1, 2004 through December 31, 2008 for both AQ stations.

The local 1000 m impact study area for the air quality inventory (see Section 1.1) was surveyed for potential sources of dust, odour, fine particulate, VOCs and other criteria air contaminants that have the potential to impact air quality.

2.2.2 Findings

2.2.2.1 Desk Top Review Findings

The air quality data for PM_{2.5} and NO_x from the Toronto Downtown and Toronto East stations are summarized in Table 1 by providing the cumulative percent of the time that measured concentrations of contaminants meet Air Quality Indices (AQI) as defined by the MOE. These AQI values range from Very Good through Good through Moderate through Poor to Very Poor.

For PM_{2.5} the AQI for both stations was “Very Good” at least 76% of the time; “Good” at least 90% of the time; and “Moderate” at least 99.4% of the time. The worst annual Index rating for PM_{2.5} recorded by either station for any year was “Poor” and occurred less than 0.5% of the time.

The AQI for NO_x was “Very Good” at least 97% of the time and “Good” 100% of the time for both stations.

Based on the air quality monitoring information, the Air Quality within the study area is good to very good at least 76% of the time but is occasionally moderate to poor.

Table 1: Ambient Air Quality Monitoring Summary

Year	Cumulative Frequency PM _{2.5}			Cumulative Frequency NO ₂	
	Very Good	Good	Moderate	Very Good	Good
Downtown					
2004	81%	94%	99.7%	98%	100.0%
2005	77%	90%	98.9%	98%	100.0%
2006	81%	94%	99.7%	99%	100.0%
2007	82%	94%	99.6%	99%	100.0%
2008	84%	96%	100.0%	99%	100.0%
Average	81%	94%	99.6%	98%	100.0%
East Toronto					
2004	80%	93%	99.6%	98%	100.0%
2005	76%	90%	99.0%	97%	100.0%
2006	80%	94%	99.7%	99%	100.0%
2007	80%	93%	99.4%	99%	100.0%
2008	83%	96%	100.0%	99%	100.0%
Average	80%	93%	99.5%	98%	100.0%

2.2.2.2 Local Impact Area Survey Findings

The local impact study area within 1000 metres of the site consists of Lake Ontario to the south and a mix of small industrial and residential land use to the west through north to east. Facilities catalogued during the survey of the study area are detailed below:

Significant Industrial Facilities

The Canroof Corporation Inc. (“Canroof”) roofing and shingle facility is 400 metres west of the Ashbridges Bay site, extending north from Commissioners Street to Lake Shore Boulevard East. This facility was issued a control order for preventative dust and odour measures in 1995. Since that time, the facility has applied for and received several Certificates of Approval (Air) and currently has a pending application for a Basic Comprehensive Certificate of Approval for self-administering its emissions. Canroof recently appealed a Provincial Officers Order to undertake certain steps to eliminate odour discharges. The outside storage is for completed product only and is not expected to add to the odour or dust potential for the facility.

The Portlands Energy Centre is a natural-gas fired 550 Megawatt generating station, located 900 metres south-west of the Ashbridges Bay site. It is a potential source of criteria air contaminants such as NO_x, but has recently been issued an Air Certificate of Approval based on meeting all emission and ambient air quality standards.

A number of concrete and aggregate storage facilities are located south-west of the Ashbridges Bay site, along Commissioners Street west of Leslie Street, that comprise the Concrete Works Campus. All of these facilities are or will be new or refurbished facilities with state-of-the-art emissions control systems.

McAsphalt Industries Limited manufactures asphalt products at its terminal on Basin Street, located about one km to the west of the Ashbridges Bay site. The facility is considered a potential source of dust and odour, however, the facility has controls installed on the equipment and was issued a Certificate of Approval (Air) in 2001, amended in 2004.

City of Toronto Facilities

The Ashbridges Bay Waste Treatment Plant and two related pumping stations are located directly south-east and north east of the site. This facility has had a history of odour issues, but has been consistently working on amelioration processes and is active in consultation with a Neighbourhood Liaison Committee. Because of the facility's history of odour complaints, the Waste Treatment Plant has been considered a significant source of odours, but is expected to have reduced potential for odour in the future.

The Commissioners Street Waste Transfer Facility is located about one km west of the proposed development site. The facility is used for the consolidation and short term storage of materials collected as part of the Toronto recycling initiative and has some potential for odour and dust.

The City of Toronto Fleet Management Operations has facilities located on Eastern Avenue, Booth Avenue, Commissioners Street and Leslie Street, including a facility for maintenance of waste collection vehicles (Booth Avenue) and a facility for snow removal vehicles and equipment (Leslie Street). These facilities are potential sources of vehicle emissions and dust.

Vehicle Maintenance/Storage Facilities

The Canada Post South Central Sorting Station is a large facility located 100 metres north-east of the Ashbridges Bay site that has significant truck traffic associated with it. It is a potential source of vehicle tailpipe emissions and dust.

The TTC Russell Carhouse and yard is located 350 metres north-east of the facility and provides maintenance and cleaning for the TTC streetcar division. No air quality issues are identified for this facility.

There are a number of small auto-body and garage facilities, some equipped with paint spray booths (i.e. Blue Sky Auto Body, Michael and Michael Auto Body) within the study area. There is a potential for odour and VOC emissions from the paint spray booths, but no other air quality issues were identified for these sites.

Vacant facilities

721 Eastern Avenue, the site of the former Canada Metals Company, at 350 metres west of the Ashbridges Bay site and extends south from Eastern Avenue to Lake Shore Blvd. Although the facilities on this site were a major source of lead and other air emissions at one time, the operations have been closed and the site is now used primarily for storage. It is no longer expected to be a source of any process odours or dust. The site has undergone some remediation but will likely require more. After complete amelioration, it will not be a source of off-property dust or other air compounds.

Cascades Boxboard Inc. operated a facility on Commissioners Street 900 metres west of the Ashbridges Bay site, which recycled waste paper to produce clay-coated boxboard used for packaging. This facility is now closed and no ongoing air quality issues are expected from this facility.

Other facilities

Gensco Equipment Inc. is located 800 metres to the west of the Ashbridges Bay site. The Gensco facility produces industrial equipment for materials and scrap handling. It appears to be an assembly facility with no painting and some welding on site. The facility is, therefore, considered a potential source of dust although no dust emissions were observed.

China Lily has a condiment factory located at the corner of Leslie Street and Queen Street East, 160 metres north of the Ashbridges Bay site. No air quality issues are expected from with this facility.

The remaining facilities in the area are considered to have no significant air quality issues associated with them. These include several facilities operated by Toronto Film Studios; several print shops; film processing facilities; one small electroplating operation and the Toronto Fire Services Academy.

2.3 Summary of Local Industry Air Quality

In summary, there are a number of facilities within 1000 m of the proposed facility with some potential to emit air contaminants but none that should constrain the proposed development.

3. EFFECTS ASSESSMENT OF THE PREFERRED SITE OPTION

3.1 Air Quality

3.1.1 Potential Effects

During *construction* of the facility, there will be a potential for nuisance dust at the construction sites, however, this can and will be mitigated. Sources of dust would include material handling and construction site track-out onto the public roads

During *operation*, there will be several servicing and maintenance activities at the LFRV site which have the potential for emissions to the atmosphere. These activities include washing and cleaning services, compressed air blow-down, body repairs and vehicle painting and maintenance welding. The washing activities will be with water based cleansers, which are generally considered an insignificant source of contaminants. The compressed air cleaning of the traction motors and selected roof-mounted components will generate dust emissions. The body repair activities will include minor collision repairs, panel replacements, door and window replacements and other system parts replacements. The parts replacements will not result in emissions but the minor collision repairs will generate insignificant releases of dust from body work repair work. Vehicle repainting for either touch-up painting of collision repairs or complete vehicle repainting will generate releases of paint solvents and paint overspray particulate. Maintenance welding will generate fumes containing particulate and metals.

In addition to the servicing and maintenance activities, there will be emissions from the combustion of natural gas used for comfort heating in the building.

Vehicle tailpipe emissions will also be present from the employee vehicles entering and leaving the site parking lot. A total of 300 employees, over 3 shifts per day, will use the site parking lot.

3.1.2 Mitigation Measures

A dust control program during *construction* would include dust suppression (water), road sweeping, and cleaning of vehicle tires before leaving the construction site to control track-out.

During *operation* of the facility, particulate generated from the compressed air cleaning will be controlled with a ventilation/dust capture and control system. Painting will be conducted inside the spray paint booth which will contain the emissions and will be equipped with an exhaust system with overspray filters and an exhaust stack. Welding stations will have fume capture and control systems. Energy conservation measures will be incorporated into the design and operation of the facility in order to reduce energy requirements and resultant combustion gas emissions.

3.1.3 Net Effects

During *construction*, the net impact on air quality will be local to the construction areas and should be negligible.

The MOE procedure for preparing air emissions applications outlines a methodology to assess whether sources are significant or negligible sources of air contaminants. A list of sources considered negligible includes minor surface coating operations, maintenance welding stations and natural gas fired heating units with capacities of less than 20 million kilojoules per hour. The facility building, designed with conventional energy conservation measures, would not exceed 20 million kilojoules per hour. Based on this, the *operation* of the touch-up painting of minor collision repairs, the maintenance welding and the heating of the building would be considered negligible sources of air contaminants with negligible net effects on air quality.

The compressed air blow-down and the paint booth would be intermittent controlled sources of air contaminants with negligible net effects on air quality.

The effects of the employee vehicle tailpipe emissions will be insignificant in comparison to the traffic emission on the surrounding public roads, specifically Lakeshore Blvd to the north of the site. Employee vehicles represent a maximum of 300 vehicles per day, while the average weekday traffic count on Lakeshore Blvd. is approximately 40,000 vehicles per day.

4. MONITORING

The Ontario Ministry of the Environment certificate of approval for air emissions for the facility will include conditions which will require documentation of operating and maintenance procedures, including measures to minimize air emissions. The certificate will also include a condition to record and document environmental complaints. An environmental management and monitoring system involving observations of potential emissions both during construction and operation will be implemented to ensure these conditions are met and air emissions controlled. As a consequence, monitoring of the air emissions or the ambient air surrounding the facility is not planned.

5. EFFECTS ASSESSMENT OF THE CONNECTING TRACK OPTIONS

5.1 Air Quality

5.1.1 Potential Effects

During *construction* of the three connecting track options, there will be a potential for nuisance dust at the construction sites, however, this will be mitigated. Sources of dust would include material handling and construction site track-out onto the public roads. The potential for the three options would be similar.

During *operation* of the three connecting track options, there will be no potential air quality effects, as the electric streetcars (LRVs) have no equivalent tailpipe emissions.

5.1.2 Mitigation Measures

Mitigation of dust during *construction* would include dust suppression (water), road sweeping, and cleaning of vehicle tires before leaving the construction site to control track-out.

5.1.3 Net Effects

During *construction*, the net impacts on air quality would be local to the construction areas and would be negligible.

As previously stated, with no emissions from the LRVs, there will be no net air quality impacts during *operation*.

