

The question of comparability and environment between Our Lady of Sorrows and Holy Angels. Air Pollution Considerations

The OLS Capacity Committee suggest that Holy Angels provides a comparable Alternative to OLS for those families who will be excluded from a school less than a kilometre from where they live. By accepting the OLS capacity Committee proposal for Scenario 3b (now 9) the Board must also believe this to be true.

The term comparable has not been defined in any meeting minutes or documents on the Board's website. Clearly in its current state, Holy Angels is nowhere near comparable to Our Lady of Sorrows School. Holy Angels is smaller and overcapacity with not enough class rooms and zero portables.

The Capacity Committee, School and Board fail to recognize the stark differences between the OLS and Holy Angels locations.

	Location	Adjacent Areas and facilities to School Location	Playground Facilities
OLS	Residential. No arterial roads.	A park and a community center with a pool and ice rink that the school has access to.	Playgrounds for all grades and a full soccer field and running track
HA	On a major N/S transportation artery from and to the QEW	Flanked to the west by a large industrial area and ~55 meters from a gas station.	Limited playground part of which is within a few meters of Islington Avenue.

Whilst the Board is committed to building a new school at Holy Angels, the actual start date and the date when students will have access to this school has not been provided. One can predict a minimum five years from now and that means housing students in portables before it is built. The likely location of those portables is on the site of the recently demolished home; again this is very close to Islington Avenue

Simply based on the information above, it appears incredulous that the Board and Capacity Committee would deem it acceptable to move any children from OLS via a boundary change or any other school to Holy Angels before they have built the new school.

AIR POLLUTION ISSUES

A worrying fact is that there is no publicly available School Board documentation showing that it has considered the environmental issue of locating a new large school on this site.

In doing so, the board and the representative SARC committees have failed to recognize the health impact on children who attend schools close to major roads and industrial areas.

Holy Angels and its playground are less than 5 m from Islington Avenue. As pointed out in the table above this is a major north south thoroughfare for commuters to and from the QEW that is under a kilometre away. Traffic on Islington Avenue is not light by any means and all of us who live in this neighbourhood can attest to the dramatic increase of vehicles throughout the day, but especially during rush hour. The development of Etobicoke Center is expected to bring in up to 70,000 new residents into the area and it is logical to expect a significant increase in air pollution and especially around Holy Angels.

The traffic lights at the intersection of Jutland Road and Islington Avenue as well as the close proximity of the 7/11 gas station creates an increased wait time of cars adjacent to the school and many vehicles use Jutland as an alternative route to Kipling Avenue. There is a hidden toll of traffic jams and there is increased risk to air pollutants in the vicinity of traffic lights. There are a significant number of recent studies showing the detrimental affects of long term exposure to toxic vehicle emissions and that the air within a few hundred meters of large streets are polluted with harmful particulates from and stirred up by

traffic. <http://www.wsj.com/articles/SB10001424052970203733504577024000381790904>

http://evsroll.com/Car_pollution_facts.html#sthash.dNzB4Edu.dpuf

<http://www.sciencedaily.com/releases/2015/02/150212212056.htm>

Fine Particulate Matter

The World Health Organization have stated that small particulate pollution has health impacts even at very low concentrations – **indeed no threshold has been identified below which no damage to health is observed**. Therefore, the WHO 2005 guideline limits aimed to achieve the lowest concentrations of PM possible.

<http://www.who.int/mediacentre/factsheets/fs313/en/>

What are the effects of fine particulate matter?

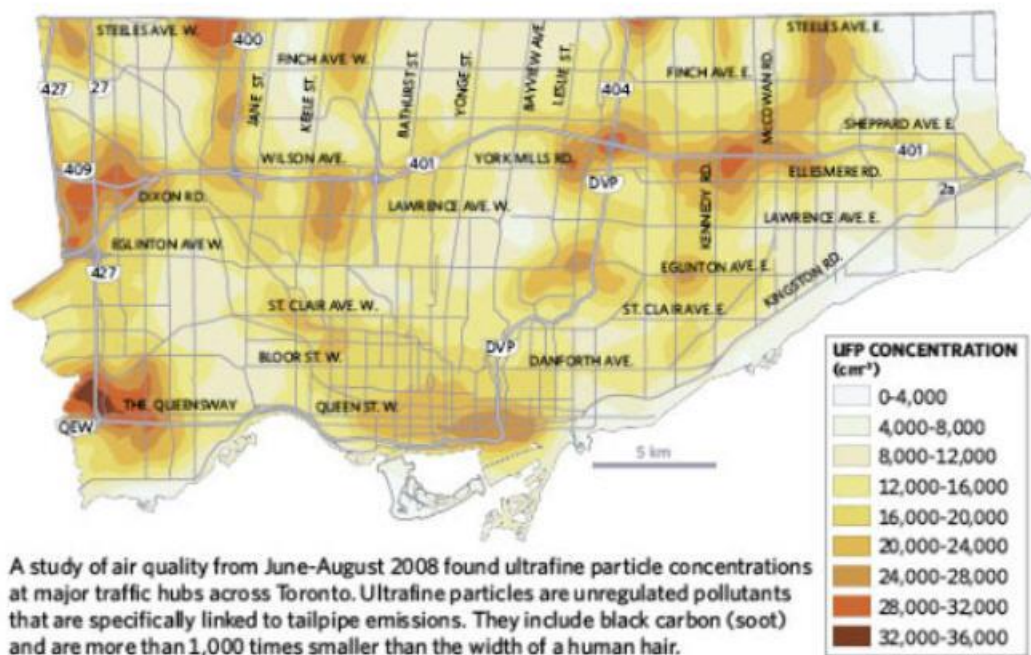
The greatest effect on health is from particles 2.5 microns or less in diameter. Exposure to fine particulate matter has been associated with hospital admissions and several

serious health effects, including premature death. People with asthma, cardiovascular or lung disease, as well as children and elderly people, are considered to be the most sensitive to the effects of fine particulate matter. Adverse health effects have been associated with exposure to PM_{2.5} over both short periods (such as a day) and longer periods (a year or more).

A very good synopsis is provided by Ontario Ministry of the Environment

<http://www.airqualityontario.com/science/pollutants/particulates.php>

The figure below shows the results of a study carried out by the University of Toronto in 2008. Note that Holy Angels lies on the eastern edge of a major zone of fine particulate pollution.

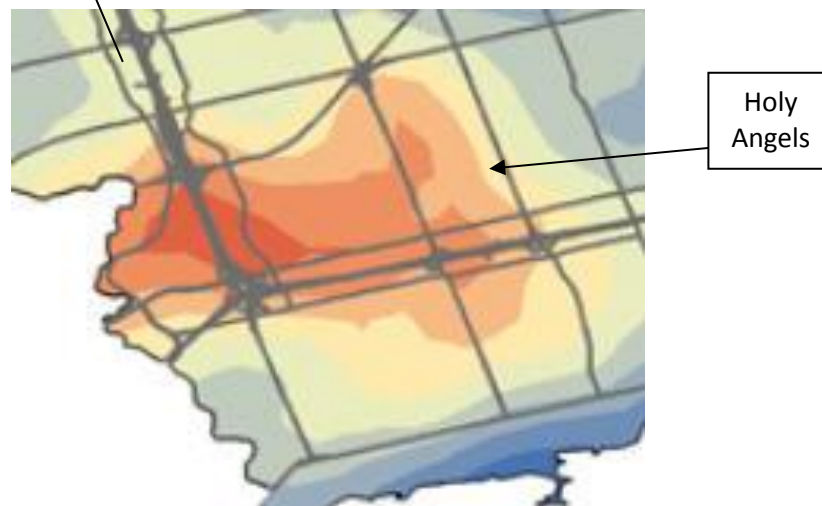
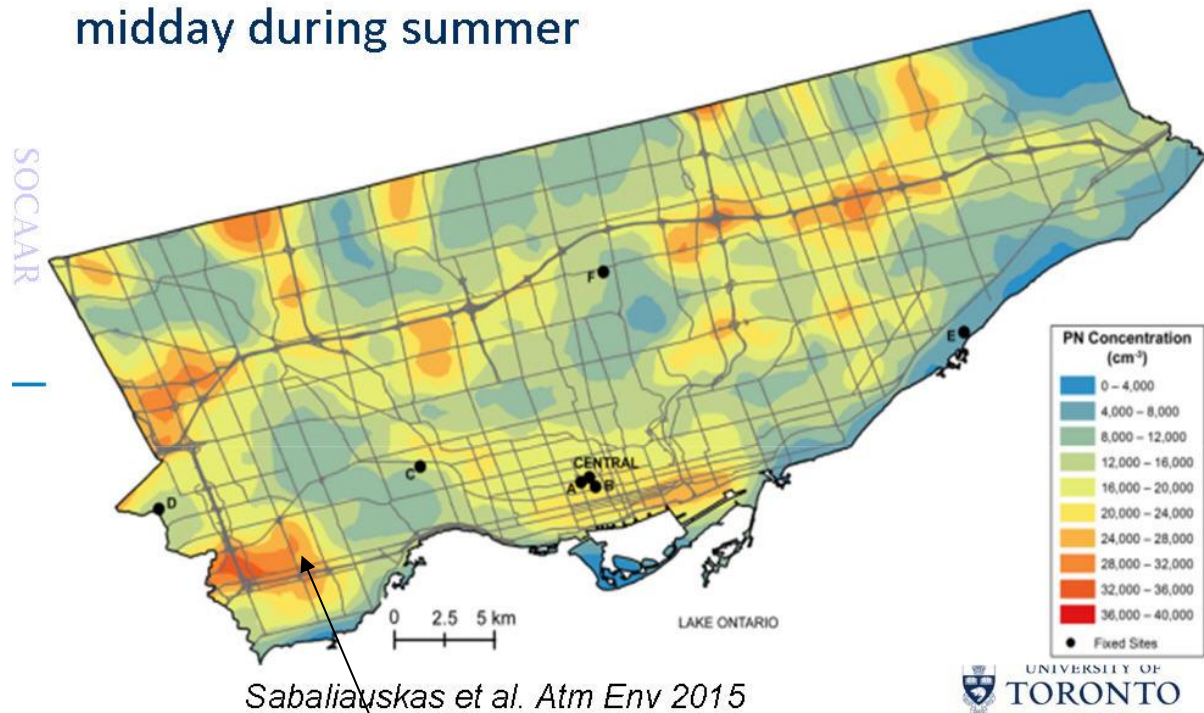


SOURCE: University of Toronto

TORONTO STAR GRAPHIC

The figure below shows the 2015 air quality map for Toronto with a magnified view showing the location of Holy Angels. This map can be accessed via http://www.inhaleproject.ca/toronto_air_pollution_map

Map of Ultrafine Particles in Toronto midday during summer



An important thing to note is that air pollution does not reduce in the winter, in fact during the winter months, vehicle emissions can be trapped near the ground by [temperature inversions](#). This can lead to high levels of primary pollutants including [nitrogen dioxide](#) (NO_2), [carbon monoxide](#) (CO) and [particulate matter](#) ($\text{PM}_{2.5}$).

An article in the Toronto Star <http://www.thestar.com/news/gta/2015/04/21/air-quality-map-shows-torontos-most-polluted-neighbourhoods.html> provides an important note.

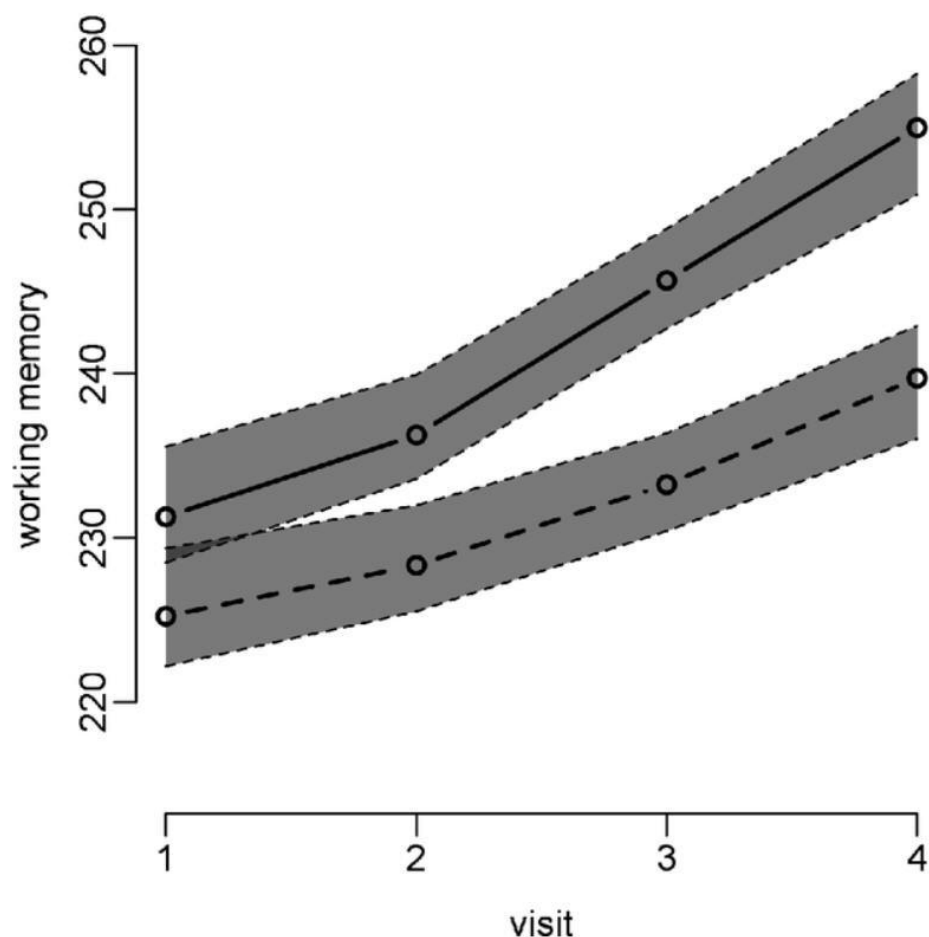
"The Toronto data isn't yet available to the public, but **it could have some interesting applications for public officials looking to locate new schools,** sports fields or retirement homes, or for individuals who want to plan their jogging route or decide where to move." It appears the catholic School Board does not agree with this.

There are a number of recent studies showing the impact of traffic pollution on cognitive ability

<http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001792>

<http://www.citylab.com/commute/2015/03/the-alarming-impact-busy-roads-have-on-cognitive-development/386947/>

<http://www.cbc.ca/news/health/traffic-pollution-tied-to-slower-cognition-in-schoolchildren-1.2980163>



Over the course of a year, working memory development increased faster among school kids exposed to low traffic pollution (top line) than those exposed to high levels (bottom line).

(PLOS Medicine)

With regards to proximity of the 7/11 gas station to Holy Angels, a recent Spanish study proposes that they be a minimum of 100 m from schools.

<http://www.dailymail.co.uk/health/article-1354430/Petrol-station-Living-100m-garage-bad-health.html>

Parents in Dublin blocked the building of a gas station 40 m from their children's school.

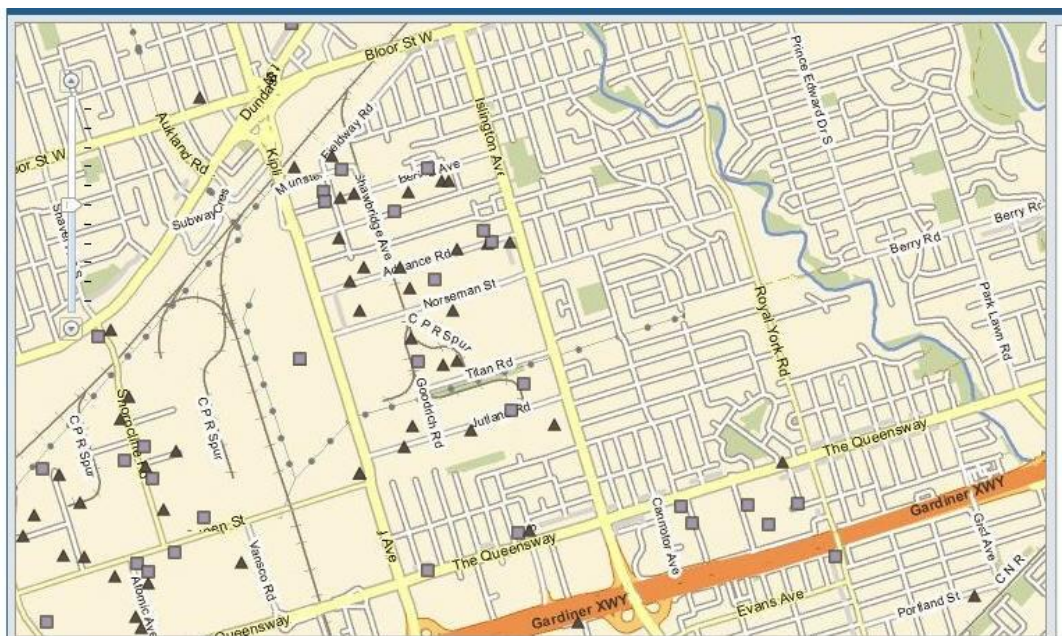
<http://www.thejournal.ie/proposal-to-place-petrol-station-next-to-coolock-school-rejected-by-dublin-city-council-945504-Jun2013/>

There are many more studies and examples that can be found.

The Capacity Committee and the School Board would have our area's children walk significantly further than the less than 1 km they now walk to OLS. That walk will take them along a major traffic route and expose them to significantly higher levels of air pollution. They will suggest that those children can be bussed or driven by parents but that will only increase the traffic and detrimentally impact air quality around Holy Angels.

Additional Pollution Concerns

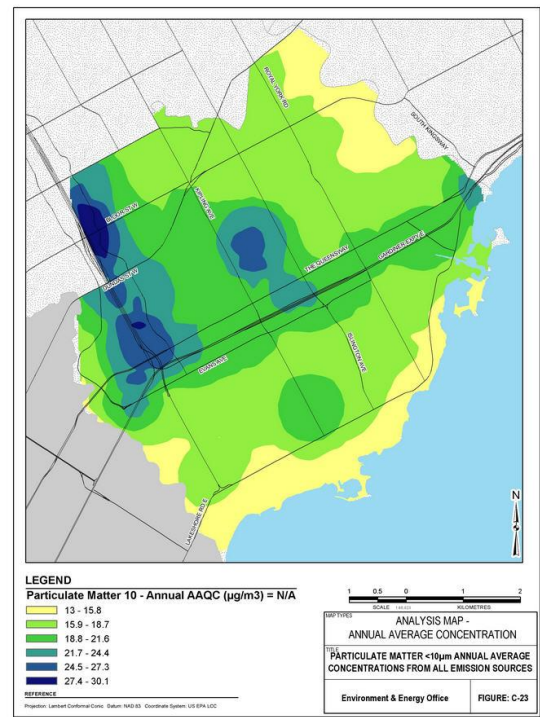
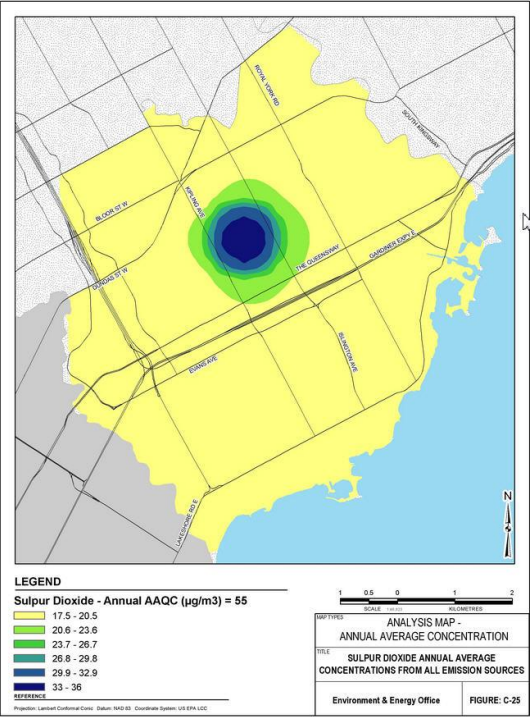
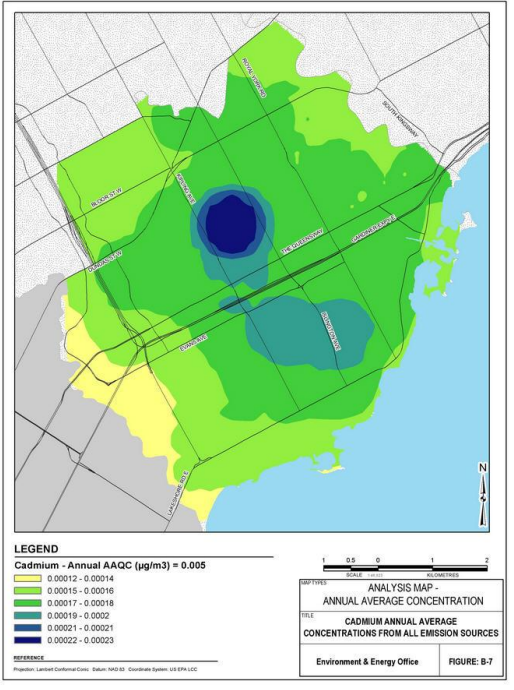
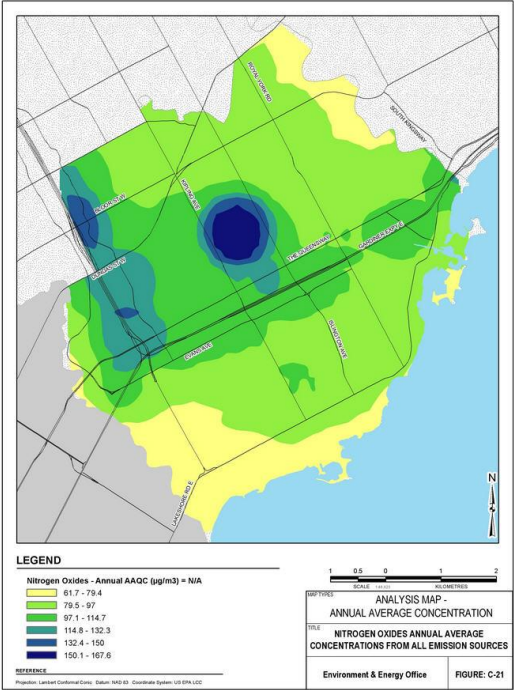
A significant portion of Holy Angels catchment area includes the industrial area to its west. Whilst the Holy Angels Capacity Committee said that they were aware of this issue, it has not been made public to the other schools and affected parents. The TRAC Reports for emissions around Holy Angels School (Provide by the Toronto Environmental Alliance). Clearly this is another important fact to be considered.



Note: To minimize loading time, the map can only show 500 locations at a time. If you view the map at the city level, then it may appear zoomed into the neighbourhood you want to look at and you will be able to see all the facility icons.

Legend: ▲ - Reported Chemical Data ■ - Below Threshold ○ - Exempt

The four images below show the Average Annual Concentrations of Nitrogen Oxides, Cadmium, Sulphur Dioxide and Fine Particulate Matter in the proximity of Holy Angels Catholic School.



ADDITIONAL INFORMATION

“In Canada, approximately 36% of urban public elementary schools are located within 200 m of a major road (Amram et al., 2011). This is of concern, given that traffic-related air pollutants are elevated within approximately 100 – 500 m of major roadways (Zhou and Levy, 2007) and elevated concentrations of traffic-related pollutants have been found in schools located near highways or major roads (Janssen et al., 2001; Patel et al., 2009). Chronic exposure to traffic-related pollution has been linked with several adverse health outcomes in children. These include increased respiratory symptoms, asthma exacerbations, and adverse effects on lung and cognitive development (Brauer et al., 2002; Dales et al., 2008; Gauderman et al., 2002, 2004; Janssen et al., 2003; Kim et al., 2004; McConnell et al., 2010; Sunyer et al., 2015; Venn et al., 2001). Given that children spend approximately 6 h a day at school, for a minimum of 194 days a year (Ontario Ministry of Education, 1990), pollutants in this environment are an important consideration for children’s health. In their recent review, Choo et al. (2014) identified that most of the indoor air pollutants in schools can be attributed to vehicle emissions and industrial sources.”

<http://onlinelibrary.wiley.com/doi/10.1111/ina.12252/pdf>

British Columbia

A study carried out in BC in 2011 recommended:

1. To minimize the exposure of building occupants to traffic-related air pollution associated with proximity to major roads, recommendations include:
 1. **Setbacks:** 150 metre (500 feet) setbacks from “busy roads¹” especially for buildings such as day care facilities and schools.

Motor vehicles emit at least 40 different air pollutants, usually concentrated within 100 – 500 metres of freeways and busy roadways, and research points to a need for increased awareness of the public health concerns associated with roadway proximity in creating land-use policy, building design and environmental/air quality management programs.

New Zealand

Outside of North America, the Regional Public Health Service in Auckland, New Zealand, provides analogous guidelines for the siting of early childcare centres.

The recommendation is that such centres, which cater to children age 4 and under, are not to be located either within 60 m of district or regional arterial roads, within 150 m of roadways, within enclosed parking facilities, within 300 m of industrial zones, or

within 100 m of petrol stations (ARPHS, 2009a). They advise that these recommendations should be incorporated into local authority plans to ensure that developers of early childhood centres avoid hazardous locations. The "Health & Safety Guideline for Early Childhood Centres" (ARPHS, 2009b) is a published tool for early childhood centre operators whose centre is to undergo a health and safety assessment by the Auckland Regional Public Health Service. This guide summarizes the relevant health standards, including those regarding traffic exposure as outlined in the "Position Statement on Air Quality and Early Childhood" (currently pending clarification of Ministry of Health policy intentions), that early childcare centres must comply with in order to obtain an operating licence from the Ministry of Education. The surrounding environment in relation to air quality is scrutinized, including current location of major roads adjacent to the facility and future transport and development plans. Under these guidelines, a number of new early childcare centres in Auckland have either been refused licences or are operating on provisional basis pending the results of air monitoring by the Health Ministry, due to air quality concerns (Fisher and Shephard, 2009).

These factors should have been considered paramount when looking to locate a new school on the site of Holy Angels.

Conclusions and Recommendations

This study is no ways exhaustive, yet in a relatively short time I have managed to uncover a significant number of environmental issues that are currently affecting children at Holy Angels and will most certainly affect children who will attend the newly proposed school.

Holy Angels school, and for that matter St Louis, are in an area of Etobicoke known for high levels of air pollution.

Whilst there is a considerable amount of data and studies that show the harmful effects on the health of children in Canada and from elsewhere in the world. It appears that the Catholic School Board has not considered the implications of these and in particular Fine Particulate Pollution at Holy Angles.

I strongly suggest that the school board look very closely at the implications of this brief study and provide a public forum to notify parents of how they will ensure the health of students attending Holy Angels.

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January 21st 2016