



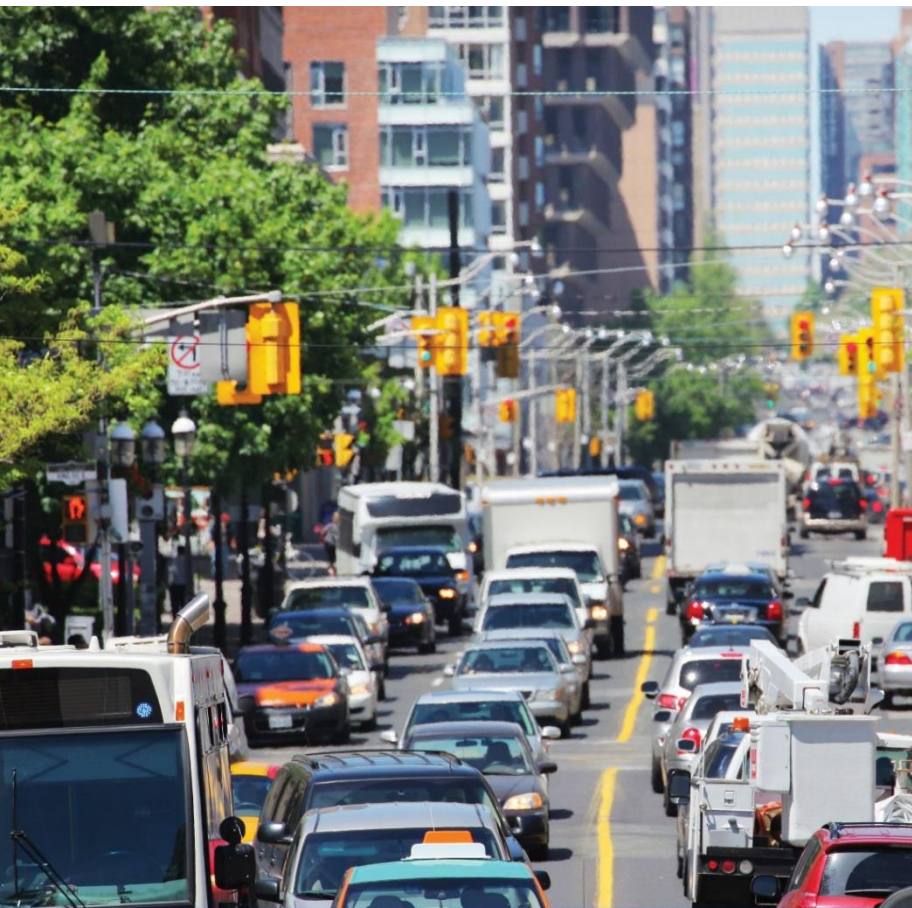
Traffic-Related Air Pollution and Child Care Settings

Toronto Child Care and Early Learning Forum

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Gingrich

November 24, 2017

Traffic-Related Air Pollution (TRAP)



- **TRAP**
- Mixture of air pollutants from vehicles
- Exposure to TRAP greatest near highways & major roads

- **Health effects**
- Cardiovascular, respiratory, cancer, neurodevelopmental, dementia, diabetes

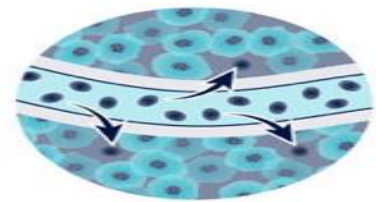
Avoiding the TRAP:

Traffic-Related Air Pollution in Toronto
and Options for Reducing Exposure

October 2017

Children are more at risk

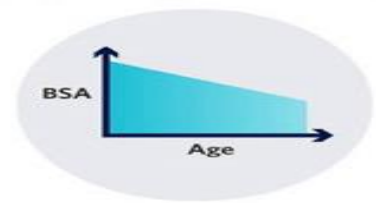
Immature blood/brain barrier



Higher respiratory rates



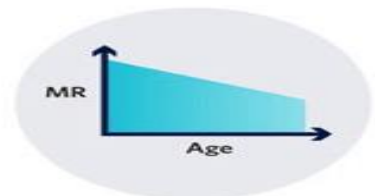
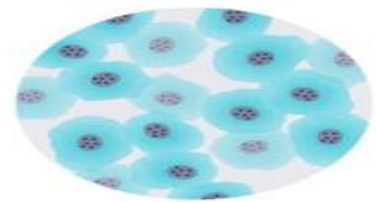
Larger body surface area



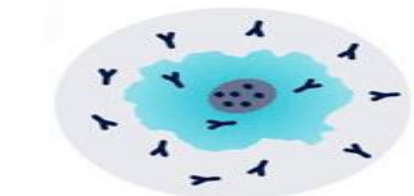
Thinner skin



Rapidly dividing cells



Higher metabolic rate



Immature immune system

Why is it important?

thestar.com

News · City Hall

Electric cars, bike lanes among ways to reduce Toronto's air pollution: new report

Toronto's medical officer of health estimates dirty air causes 1,300 premature deaths and says vehicle emissions are the reason.



thestar.com

News · GTA

Air quality map shows Toronto's most polluted neighbourhoods

A U of T team has found that neighbourhoods near major roads suffer much higher concentrations of ultrafine particulates.

we study the air you breathe.



News / Toronto

New study finds higher air pollution at school drop-off zones

Emissions were higher in the winter because of air stagnation around the Great Lakes.








TORONTO REPORT FOR ACTION

Reducing Health Risks from Traffic-Related Air Pollution (TRAP) in Toronto

Date: October 16, 2017
 To: Board of Health and Parks and Environment Committee
 From: Medical Officer of Health and Deputy City Manager, Internal Corporate Services
 Wards: All

SUMMARY

Toronto's air quality is improving. Policies and programs implemented by federal, provincial and municipal governments have led to decreases in pollutant emissions, ambient air pollution levels, and related health impacts. However, Toronto Public Health estimates that air pollution still contributes to 1,300 premature deaths and 3,550 hospitalizations in Toronto each year.

Motor vehicle traffic is the largest source of air pollution emitted in Toronto. Exposures to traffic-related air pollution (TRAP) are highest near highways and busy roads. The health literature indicates that health risk from TRAP is higher within 500 metres of highways with an average daily traffic volume of 100,000 vehicles or more, and within 100 metres of arterial roads with an average daily traffic volume of 15,000 vehicles or

What can we do about TRAP?

• Current Initiatives

- TransformTO, Walking Strategy, Toronto Complete Street Guidelines, 10-year Cycling Network Plan

• Need for a multi-pronged approach

Source (Traffic)

- Vehicle type
- Fuel quality
- Emissions
- Vehicle speed and volumes
- Congestion

Pathway (Environment)

- Built environment
- Distance between people and traffic
- Topography and environmental conditions

Receptor (Person)

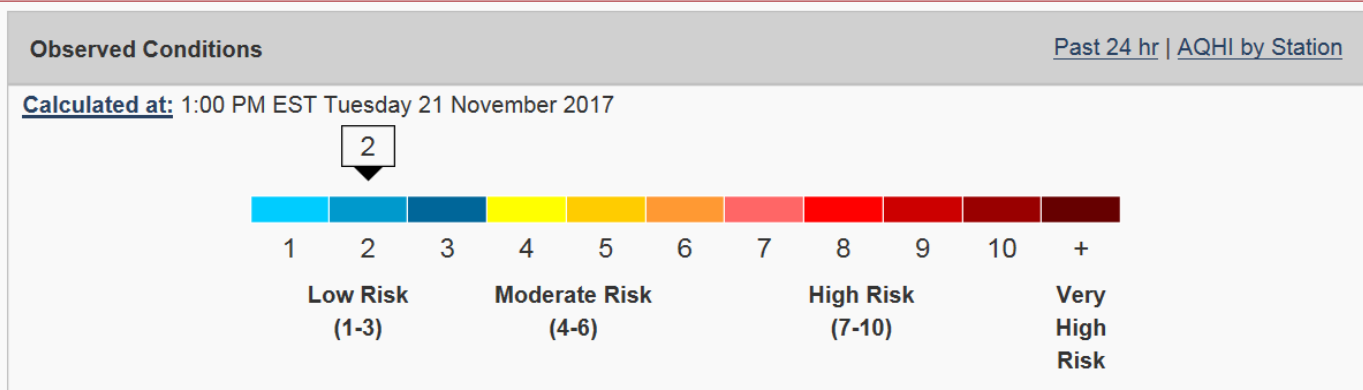
- Time spent in proximity to traffic
- Transportation mode
- Activity level
- Physiological and social characteristics

Mitigation – low or no cost options

- Air Quality Health Index (AQHI)
- Timing of outdoor activities
- Location of outdoor activities
- Timing of air intake



Toronto - Air Quality Health Index



Mitigation – building design

- HVAC system
- Filtration
- Passive ventilation – opening windows
- Portable filtration units
- Air intakes

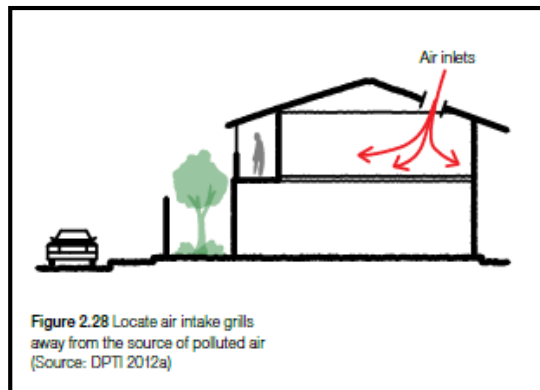
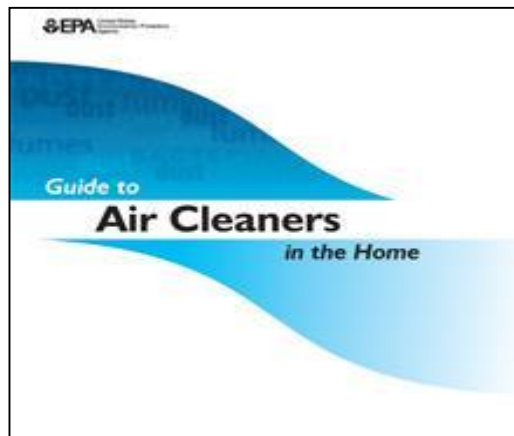


Figure 2.28 Locate air intake grills away from the source of polluted air (Source: DPTI 2012a)



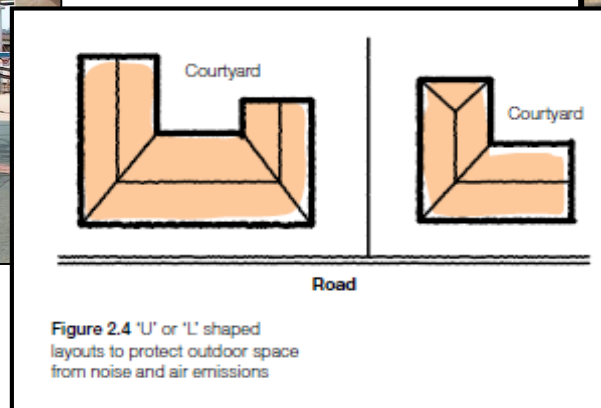
Mitigation - barriers

- Vegetation
- Physical barriers



Mitigation – site layout

- Distance between people and traffic
- Playground location
- Drop-off zones



Next steps

- Best practices and design guidelines
- TPH fact sheet
- TPH and EED support – Health Connection
416 338-7600

Reducing Exposure to Traffic-Related Air Pollution

Air Quality and Health in Toronto

Over the past decade, air quality in Toronto has improved. Policies and programs implemented at all levels of government over the past decade to reduce emissions have led to downward trends in pollutant emissions, ambient air pollution levels, and related health impacts. However, air pollution still poses a significant burden of illness in Toronto, and there is still much work to be done to reduce emissions that are harmful to health.

The biggest local source of air pollution is motor vehicle traffic. Exposures to traffic-related air pollution (TRAP) are highest near highways and busy roads, and studies of people living close to roads find higher risks of health outcomes typically associated with exposure to air pollution, including a range of breathing problems, heart problems, cancer, and mortality. New research also suggests that TRAP could increase risks of other diseases such as dementia. People who are especially vulnerable to TRAP include children, the elderly, and people with certain pre-existing medical conditions who live, work, play or commute near major roadways.

Reducing risks from traffic-related air pollution (TRAP)

Toronto Public Health and the City of Toronto continue to work with partners to reduce emissions from vehicles, by advocating for tougher emissions standards and better fuel efficiency, supporting changes to our city infrastructure that encourage people to walk, bike, or take transit instead of driving, and exploring technologies and practices that reduce congestion.

At the same time, there are opportunities for people who live, work, and play near busy roadways to reduce current exposures to traffic-related air pollution. Some actions are easier to take than others, and not all will work for everyone. Each one offers opportunities to reduce your risk, and combining actions is even better for your health.

Reduce exposure to traffic-related air pollution outdoors

Torontonians are exposed to traffic pollution while travelling to and from their daily activities. These exposures can occur while walking, cycling, or riding in a vehicle. For drivers, exposure can be effectively reduced in a variety of ways:

- ensuring vehicles are equipped with air intake filters
- closing car windows and using the air recirculation setting in heavy traffic
- when possible, avoiding travel during rush hour, and
- maintaining your distance from the vehicle in front of you to avoid high levels of pollution

Thank you!

Any Questions?