



## AIR QUALITY PROGRESS REPORT 2011

### Presentation to Board of Health

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Chair, Clean Air Hamilton  
July 11, 2012



## Clean Air Hamilton

- Clean Air Hamilton was established as an implementation committee to act on recommendations contained in 1997 HAQI Reports.
- Community-based initiatives are directed at:
  - Researching air quality and health issues related to air quality.
  - Developing policies aimed at improving air quality in Hamilton.
  - Encouraging emission reductions through adoption of best practices.
  - Educating the public on air quality issues and ways to improve air quality.
- Stakeholders come from across the community and include:
  - Ontario MOE, Environment Canada, Health Canada
  - ArcelorMittal Dofasco, US Steel Canada, Horizon Utilities
  - Green Venture, McMaster University, Mohawk College, Citizens of Hamilton, Environment Hamilton
  - City Staff (Health, Planning & Public Works)
  - Hamilton Industrial Environmental Assn., Rotek Environmental.

## Clean Air Hamilton

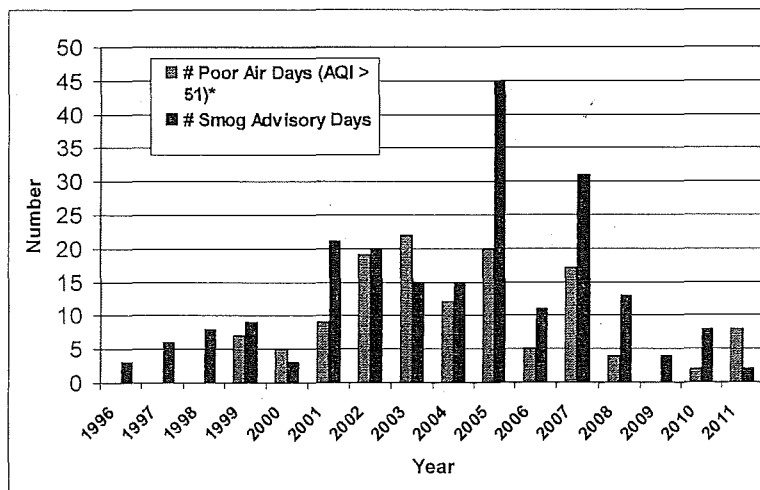
- City provided programming support of \$80,000 per year plus 0.5 FTE staff position. Programming support under Public Health is \$55,000 per year.
- CAH leverages expert volunteer support.
- CAH leverages funding from various sources.
- Programs include:
  - Upwind/Downwind Conference held every two years
  - Mobile monitoring of urban pollutants (neighbourhood monitoring)
  - Reporting of data from Hamilton Air Monitoring Network
  - Public health protection programs
  - Sustainable transportation solutions
  - Climate change and air quality advice
  - Energy conservation and urban planning solutions
  - Emissions reductions and land use planning



## Monitoring Air Quality

- **Air Monitors collect outdoor air quality data.**
  - Data used to compare levels of air pollutants to standards.
  - Data can be used to identify sources of air pollutants, and
  - Data can be used to evaluate the potential impacts of air emissions on human health.
- **Fixed monitor networks: two networks in Hamilton.**
  1. Ontario Ministry of the Environment's network of three Air Quality Index (AQI) stations (downtown, west end, mountain).
  2. Hamilton Air Monitoring Network (HAMN) of 17 stations in the east end industrial core primarily.
- **Mobile air monitoring: uses a van outfitted with air monitors.**
  - Can make measurements anywhere in City and can monitor while moving along roads.
  - Can identify local sources of air emissions.
  - Can be used to make comparisons between neighbourhoods, along streets/highways and at locations with suspected emissions.

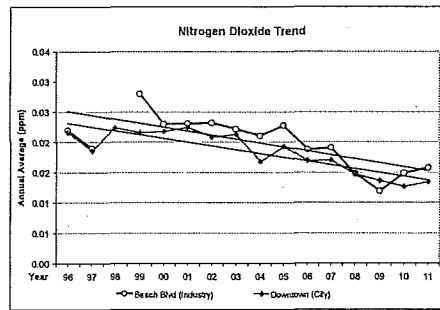
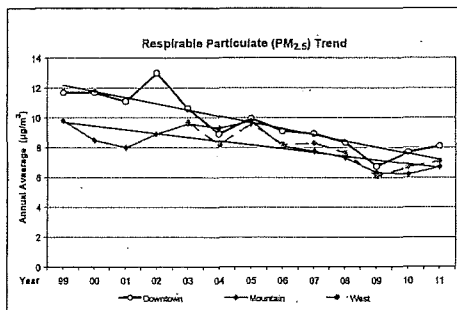
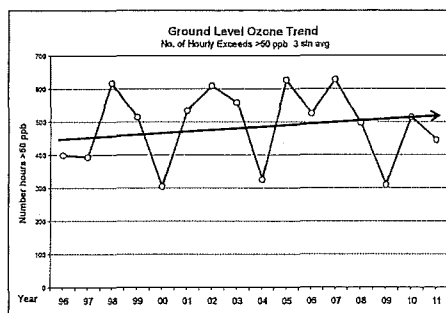
## Poor Air Days and Smog Advisory Days



## Air Quality Trends:

Steady Decreases in Major Air Pollutants over Past Decade

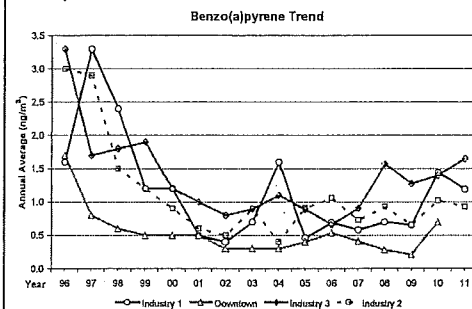
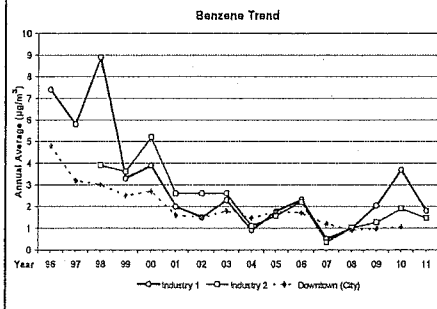
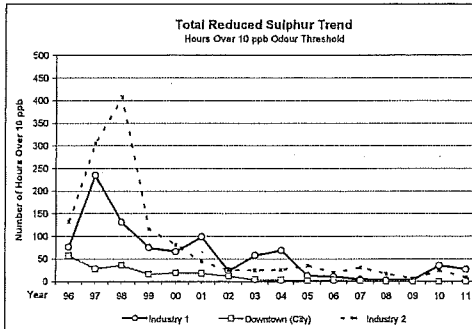
(except ground level ozone)



## Air Quality Trends:

Decreases in Total Reduced Sulphur, Benzene and Benzo[a]pyrene

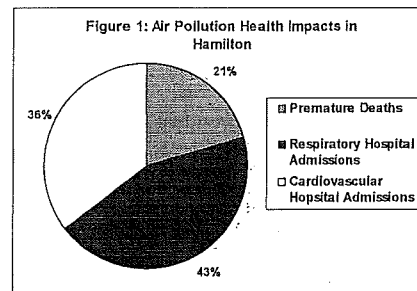
Comparisons of 'Downtown' site and 'Industry' sites



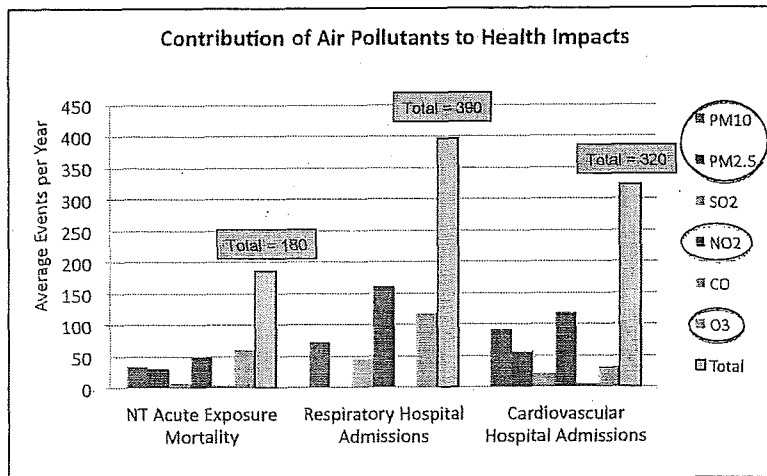
## Hamilton Air Quality and Public Health SENES Health Assessment Report, 2011

5 Key Air Pollutants have the following health effects outcomes in Hamilton each year:

- > 100 premature deaths
- > 700 respiratory and cardiovascular hospital admissions
- Most current review of scientific literature on air quality and public health.
- Primary focus remains as reduction of human exposures to:
  1. Particulate Material ( $\text{PM}_{10}$  and  $\text{PM}_{2.5}$ )
  2. Nitrogen Oxides ( $\text{NO}_x$ )
  3. Ground Level Ozone ( $\text{O}_3$ )

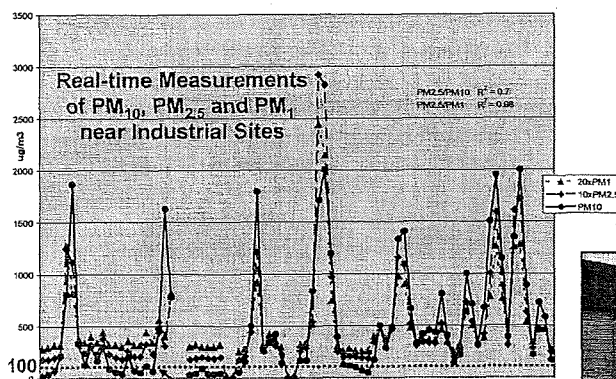


# Hamilton Air Quality and Public Health SENES Health Assessment Report, 2011



Most health impacts are due to PM, NO<sub>2</sub> and ozone

## Mobile Air Monitoring



Black line is real-time PM<sub>10</sub> data from van.  
Dashed black line: PM<sub>10</sub> = 100 µg/m<sup>3</sup> corresponds to onset of adverse health effects (spikes on graph result when van passed near entrances to industrial works yards).

Van outfitted with a range of real-time monitors for:

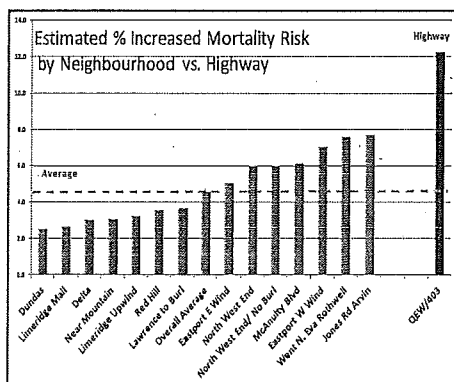
- CO
- NO
- NO<sub>2</sub>
- PM<sub>10</sub>, PM<sub>2.5</sub>, PM<sub>1</sub>
- SO<sub>2</sub>

A GPS system



## Mobile Air Monitoring: Neighbourhoods Study

Air quality measurements were performed in 11 neighbourhoods and along QEW and Hwy. 403; 26 neighbourhoods requested measurements.



Mobile air monitoring data was converted into % increased risk of mortality using SENES report values.

## SENES Report and Neighbourhoods Study

- SENES Report is the most comprehensive, up-to-date review of the scientific literature on health impacts of poor air quality that we are aware of. *Clean Air Hamilton* remains at the forefront of air quality-health analysis.
- Data in the SENES Report was used to revise our health risk factors for individual air pollutants for specific health outcomes, i.e., increased mortality and hospital admissions due to respiratory and cardiovascular impacts.
- Neighbourhood mobile air monitoring study is the first comprehensive, health-based examination of air quality at the neighbourhood level ever conducted in North America.
- Health outcomes in this study used a combination of air pollutant measurements made in each neighbourhood together with health risk factors associated with each pollutant (from the SENES Report).
- We see great need and value in continuing to perform similar analyses in other neighbourhoods across Hamilton. These outcomes will inform management decisions on air quality improvement strategies.

## Air Quality, Transportation and Land Use Planning

- *Clean Air Hamilton* recognizes that strong linkages exist between urban planning and development decisions in cities, the resulting transportation network and air quality within the city.
- Urban planning and transportation decisions have long-term consequences affecting urban form, walkability, sustainability and ultimately, public health.
- Clean Air Hamilton is a strong proponent of public policies that encourage active transportation (walking, cycling, etc.) and promote increased use of public transit.
- Transportation and land use policies and programs should be co-ordinated so that both the short-term and long-term health impacts of transportation-related pollutants are key considerations in decision-making.
- Chapter 5 of the Report provides eight clear strategies in the areas of urban land use and transportation that, if implemented, would lead to significant reductions in air pollutant and greenhouse gas emissions in Hamilton.

## Upwind Downwind Conference 2012: “Unlikely Partners”

- Conference held Monday, February 27, 2012 – Sheraton Hotel
- 7th Conference in series (starting in 1999)
- 13 speakers, 148 delegates attended
- **Topics discussed:**
  - Climate Change - linkages between climate change and air quality
  - Public Health - impacts of poor air quality on public health
  - City and Community Engagement – partnerships with industry, gov't, citizens
  - Municipal Airshed proposals.
- **Goals of Conference:**
  - To share latest knowledge about air quality and public health impacts of air quality
  - To discuss practical solutions for air quality improvements
  - To discuss linkages between air pollution and climate change
  - To share success stories of partnerships that led to air quality improvements from actions in the fields of health, urban planning and changes to municipal policies.
- Free public talk on February 26 - Jay Walljasper "What is the Commons?"

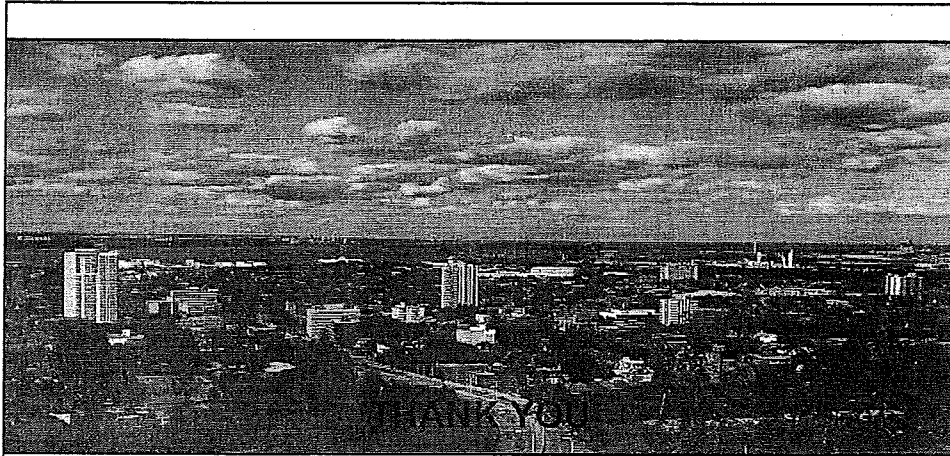
## Actions Needed within City

1. Recognize that transportation-derived pollutants (which are particularly high near major traffic corridors) are the primary cause of health impacts due to air pollution in Hamilton (and all major urban centres for that matter).
2. Take steps to implement transportation planning and urban design practices that recognize the impacts of transportation emissions.
3. Support and encourage Hamiltonians to reduce their transportation-based emissions through the use of transportation alternatives including carpooling, public transit, bicycles, walking, hybrid vehicles, electric vehicles, etc.
4. Develop a Complete Streets Strategy for Hamilton that makes use of the inventories, tools and experience that exist in Hamilton to accommodate various transportation modes and road uses.
5. Develop Transportation Demand Management guidelines for new developments and brownfield re-developments.
6. Continue to lead by example through transportation demand management, transportation planning and fleet upgrades.

## Actions Needed within City

7. Work with local industries and the MOE to control both point sources and area sources of pollutants and encourage industries to adopt international best practices for their plant operations.
8. Enhance air monitoring coverage across Hamilton by providing additional air monitors; partnerships may assist in attaining this goal.
9. Consult with *Clean Air Hamilton* on the reviews of draft Neighbourhood Community Plans.
10. Continue to take measures as a city to reduce greenhouse gas emissions and encourage citizens to reduce their greenhouse gas emissions.
11. Recognize that local economic recovery must be done in concert with implementation of best sustainability practices.
12. Continue to take a broad suite of actions to improve local air quality and combat climate change.
13. Increase the level of dialogue with community groups on the health impacts of poor air quality and the actions and lifestyle changes citizens can undertake that will lead to air quality improvements for all citizens.





On behalf of *Clean Air Hamilton*



