



WELLESLEY CENTRAL
— PROMOTING URBAN HEALTH —

February 27, 2006

Killer heat, killer smog:

Six recommendations to build on the report from the Medical Officer of Health on short, medium and long-term strategies to deal with urban heat and smog.

A submission to the Toronto Board of Health by:

Michael Shapcott,

Senior Fellow in Residence: Public Policy

Telephone – 416-972-1010, x231

Facsimile – 416-921-7228

Cellular – 416-605-8316

E-mail – Michael@wellesleycentral.com

www.wellesleycentral.com

Introducing Wellesley Central

Wellesley Central Health Corporation is a community-based urban health institute which grew out of the ashes of the former Wellesley Central Hospital. Our mission is to promote the health of urban communities. We have three major initiatives: community-based research, capacity-building and public policy.

The Wellesley Central site initiative is the city's largest neighbourhood-based development site. On the former lands of the Wellesley Central hospital, we are working with our partners to create market housing, supportive housing and parklands. We are taking our principles of a healthy urban environment and putting them into practice in our development work.

MOD report of February 13, 2006, takes important first steps

On July 11, 2005, I made a submission to the Toronto Board of Health on behalf of the Toronto Disaster Relief Committee on killer heat and killer smog. After noting that the Medical Officer of Health has confirmed that extreme heat and smog is causing as many as 1,000 premature deaths annually in Toronto, I made a series of five short and medium-term recommendations.

The Medical Officer of Health has responded in a report dated February 13, 2006, with 14 recommendations. The MOH should be congratulated for taking up virtually all the suggestions and making substantial recommendations. However, there is more work to be done.

Community response protocol

Recommendations 1, 2, 3, 4, 5, 8 and 12 set out emergency plans to deal with killer heat and killer smog. Emergency cooling centres – with water, snacks, cots and transportation – are a necessary short-term measure to prevent deaths and serious illness. In order to ensure success, Toronto Public Health – along with Toronto Shelter, Housing and Support (which has the mandate to operate cooling centres) – need to co-ordinate their work with community partners.

Recommendation #1 – An advisory group including community partners (such as housing, health and service providers), along with representatives from Toronto Public Health, Toronto Shelter, Housing and Support and other municipal authorities as appropriate, should be mandated to create and monitor the Community Response Protocol implemented during Heat Alerts and Extreme Heat Alerts.

The MOH recommendation 6 deals with the current registry of “at-risk” clients of various community agencies. We believe that it is important for Toronto to adopt the practice of Chicago and other municipalities and expand the “at-risk” registry to include a public education campaign and referrals from the general public.

Recommendation #2 – The current registry of people whose life and health is “at-risk” should be expanded to include a public education campaign. Referrals should be accepted not only from Toronto Public Health and from selected community agencies, but also from the general public. The development and monitoring of this expanded registry should be co-ordinated by the advisory group proposed in recommendation #1.

Maximum temperature standard

The MOH proposes in recommendations 9 and 10 that a maximum temperature guideline of 32°C be established, and that this be incorporated into new licensing requirements for multi-occupancy residential buildings. This standard is critical in providing safe and healthy housing. This new standard will add to previous standards – such as minimum temperature for winter months and fire safety regulations – in improving the life-safety of housing.

The maximum temperature standard will come with a cost, just like other building standards. It costs money to install and operate fire safety systems, yet every building owner is required to comply with minimum standards. It costs money to provide heat in the winter, clean water, proper sewage, safe wiring and proper structural conditions, but all of these are required.

Many experts believe the work by Toronto's first medical officer of health, Dr. Charles Hastings, to deal with open sewers, lack of clean water and other insanitary conditions in the city's housing in the early 1900s did more to improve the health of Torontonians than hospitals and medication.

In the 1980s, lax enforcement of fire safety standards in low-income housing was justified by saying that proper standards would lead to a reduction in the amount of low-income housing. It took ten deaths in the Rupert Hotel fire of December 1989 to prompt municipal and provincial authorities to commit to a comprehensive strategy to improve standards, and also make sure that landlords have access to the money and programs to meet those necessary standards.

Taking action on “cool homes”

Toronto needs a legislated maximum temperature standard – and it needs a comprehensive strategy to assist building owners to meet that standard in new buildings and to retrofit existing structures. There are two federally-funded housing rehabilitation programs administered by the City of Toronto that can be used to support a city-wide “cool-housing” program, in addition to the federal-provincial Affordable Housing Program.

In the fall of 2005, the federal government announced a low-income energy assistance program that includes grants to building owners to retrofit buildings. This program, which is still being designed by federal officials, is to be administered by municipalities through the Residential Rehabilitation Assistance Program (RRAP). In November of 2005, the federal government announced a one-year extension for RRAP (which was due to expire in March of 2006). This extension will provide Toronto with tens of millions in new federal housing renovation funding, in addition to the new energy retrofitting funds.

Recommendation #3 – Toronto should create a comprehensive “cool homes” program, including funding, to assist building owners in meeting a maximum temperature standard.

Taking action on urban heat island, starting with Portlands Energy Centre

Killer heat and killer smog clearly qualify as a major public health hazard for the people of Toronto. The community response protocol and maximum temperature standard are important

steps, but Toronto also needs to take comprehensive action on the “urban heat island” effect. In July of 2005, Toronto City Council – at the suggestion of the Toronto Environmental Alliance – adopted a motion to take action on the urban heat island effect (see appendix 1). Toronto Public Health should be part of this city-wide initiative.

Some initial steps have already been taken, but progress has been sporadic. The city’s green roof strategy is moving forward – slowly. Action on Toronto’s urban tree canopy appears to be slowing, due to budget considerations. Toronto Community Housing Corporation – the city’s biggest landlord – has started a green initiative for its housing, including major redevelopments such as the Regent Park revitalization. Its success depends on new capital dollars from senior levels of government.

Recommendation #4 – Toronto Public Health should join with other city departments in planning and implementing the city’s comprehensive urban heat island mitigation strategy.

There are also significant set-backs on the urban horizon. Perhaps the most serious are the plans by the Ontario government for the Portlands Energy Centre, an environmentally-dangerous new electricity facility on the city’s waterfront. An expert panel on energy alternatives, chaired by former BOH Chair Peter Tabuns, has proposed a ten-point plan to counter the PEC proposal (see appendix 2). This plan would help reduce urban heat and smog, and deserves the support of Toronto BOH.

Recommendation #5 – The Toronto Board of Health should endorse the ten-point plan from the expert panel on energy alternatives, regarding the proposed Portlands Energy Centre.

Social determinants of health as a screen for community-building

The killer heat – killer smog issues shows that urban health issues are critical to all aspects of community-building. A wide range of municipal actions – everything from TTC fare increases to planning and zoning – have strong health implications. Wellesley Central Health Corporation believes that the social determinants of health need to be more carefully considered in the work of municipal government.

Social determinants of health

The social determinants of health is an approach to community-building that was pioneered in Toronto during the 1980s (including Healthy Toronto 2000), but has since spread around the world through the healthy communities movement. Both the theory and the practice have been widely accepted by the World Health Organization, the Canadian government, public policy experts, academics, elected officials and community-based organizations.

The method is simple:

- identify those **key factors** that lead to the healthiest communities possible;
- identify the **practical solutions** that resolve those factors;
- implement the **effective public policies** that include those solutions, and
- continually **monitor** the process and **assess results** to ensure the most effective results.

The key determinants of health

Researchers have identified a number of basic determinants of health – the key factors that keep us healthy – and these have been largely accepted by policy experts and others. These include:

- safe, secure and affordable **housing**,
- adequate **income** and income security
- nutritious **food**,
- clean and safe **environment**,
- **equitable** and **inclusive** communities.

It is much healthier (and far less expensive for governments and taxpayers) to house people in good quality, affordable housing than it is to place them in hospitals, jail cells or homeless shelters. Investment in new affordable housing is not only good for the people who will find a home, but it is also a sensible and practical fiscal decision on behalf of government.

Cutbacks and cancellations in federal and provincial housing programs in the 1980s and 1990s led to large increases in homelessness throughout the province. Dr. Stephen Hwang, an epidemiologist at the Inner City Health Unit at St. Michael's Hospital in Toronto, has documented the rapid increase in morbidity (disease) and mortality (death) among the homeless.

Others, including the Golden Task Force in 1999, have documented the high cost of “doing nothing”. Homeless people are not only crowding into hospitals because of their poor health, but they represent a disproportionately high share of the prison population.

Homeless people with special needs – such as those with HIV / AIDs or with serious mental health issues – face even greater challenges.

Barriers to adopting social determinants of health

While many municipalities have adopted a healthy community approach, in Ontario and elsewhere, there have been barriers to adopting this at the provincial level.

First, the costs of implementing this approach are immediate, while the benefits are sometimes long-term. For instance, tackling child poverty with an investment in good quality housing, income assistance and proper nutrition means increased spending right away for the Ministry of Municipal Affairs and Housing and the Ministry of Community and Social Services, plus likely other government ministries. The benefits, in terms of better health and children who thrive as adults, will be realized over time.

Second, the rigid segmentation of government spending means that costs are often borne by one ministry, with benefits realized by another. For instance, funding affordable and supportive housing means spending for the Ministry of Municipal Affairs and Housing. The benefits, in creating a healthier population and preventing hospital costs, are realized by the Ministry of Health and Long-Term Care.

Third, the rigid segmentation of responsibilities among many government ministries means that important initiatives are sometimes scattered among various ministries, making effective co-ordination and delivery of the program a challenge. For instance, supportive housing for people living with HIV / AIDs falls under at least two ministries: the brick and mortar is Ministry of Municipal Affairs and Housing, while the support services are at Ministry of Health and Long-Term Care. Many people living with HIV / AIDs also need income assistance, which brings in the Ministry of Community and Social Services. While the Government of Ontario has said that it supports the development of new supportive housing, there is no inter-ministry mechanism to co-ordinate the various elements and make the program happen.

All of this means, in practical terms, that it is left to community-based groups – often with limited resources – to navigate a confusing and sometimes conflicting set of rules, regulations and programs in order to put together projects. They can work for months or years to win support from one set of government officials, only to find that another set in another ministry have decided that the wait is unacceptable and withdrawn their support.

Recommendation #6 – The Toronto Board of Health, and Toronto Public Health, should continue to work to ensure that the social determinants of health are incorporated into municipal budgeting and planning processes.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael S. ...". The signature is fluid and cursive, with a small circular mark at the end.

Senior Fellow in Residence: Public Policy
Wellesley Central Health Corporation

Appendix 1

Urban Heat Island Effect

Excerpt from MINUTES OF THE COUNCIL OF THE CITY OF TORONTO
TUESDAY, JULY 19, 2005, WEDNESDAY, JULY 20, 2005, THURSDAY, JULY 21, 2005
AND TUESDAY, JULY 26, 2005

8.143 J(42) Taking Action to Reduce the ‘Heat Island Effect’ in Toronto

Councillor Mihevc moved that the necessary provisions of Chapter 27 of the City of Toronto Municipal Code be waived to permit introduction and debate of the following Notice of Motion, which carried, more than two-thirds of Members present having voted in the affirmative:

Moved by: Councillor Mihevc
Seconded by: Councillor Carroll

“**WHEREAS** the Regional Supervising Coroner of Toronto East has attributed the deaths of three men and a woman to high temperatures in Toronto; and

WHEREAS the effect of global climate change will likely mean that Toronto will continue to experience dangerously hot summer weather; and

WHEREAS the Ontario independent electricity operator has asked Ontarians to reduce electricity consumption because of high cooling demand and a shortage domestic of electricity supply; and

WHEREAS urban areas such as Toronto are often several degrees hotter than surrounding rural areas because of the ‘heat island effect’; and

WHEREAS the ‘heat island effect’ is caused by an overabundance of dark surfaces, such as pavement and roofs; and

WHEREAS a study conducted for the Toronto Atmospheric Fund by the Lawrence Berkley National Laboratory, in 2001, proposed several strategies that mitigate the ‘heat island effect’, reduce peak electricity requirements in the Greater Toronto Area by 250 megawatts, and reduce energy bills by \$11 million; and

WHEREAS the recommendations included installing light-coloured roofs which reflect the sun’s heat rather than absorbing it, changing to lighter-coloured pavement, and strategic tree planting to provide shade for buildings, roads, parking lots, etc.; and

WHEREAS the Energy Star rating program has created standards for roofs that can reduce energy bills for cooling by 50 percent, while matching the longevity, water tightness and durability of regular roofs; and

WHEREAS the cool roofs program in Philadelphia lowered in-unit temperatures in low-income housing by 5 degrees Fahrenheit and on-street temperatures by one degree Fahrenheit, and the Ontario Low-Income Energy Network has developed a template for a comprehensive municipal energy conservation strategy to reduce energy consumption and bills in low-income housing, while meeting the health and comfort needs of building residents;

NOW THEREFORE BE IT RESOLVED THAT City Council direct staff, in consultation with the Mayor’s Roundtable on the Environment and the Toronto Atmospheric Fund, to prepare a ‘Heat Island Effect Mitigation’ strategy that could include requirements that new roofs meet Energy Star requirements; trees are strategically planted to shade buildings, parking lots and other dark surfaces; and energy conservation measures are targeted for low-income housing that ensure maximum temperature standards, as set by Public Health officials, are not exceeded;

AND BE IT FURTHER RESOLVED THAT the appropriate City officials be authorized and directed to take the necessary actions to give effect thereto.”

Advice by Mayor:

Mayor Miller advised the Council that the provisions of Chapter 27 of the City of Toronto Municipal Code requiring the referral of Motion J(42) to the Policy and Finance Committee would have to be waived in order to now consider this Motion.

Fiscal Impact Statement:

City Council had before it, during consideration of Motion J(42), a Fiscal Impact Statement from the Deputy City Manager and Chief Financial Officer advising that there was no financial impact resulting from the adoption of this Motion. (See Fiscal Impact Statement Summary, Page 365)

Procedural Vote:

The vote to waive referral of Motion J(42) to the Policy and Finance Committee carried, more than two-thirds of Members present having voted in the affirmative.

Vote:

Motion J(42) was adopted, without amendment.

Appendix 2

10-Point Port Lands Green Energy Plan — More than 750 Mega Watts of Power

- 1) Cut energy use in existing government and non-government buildings in Toronto through energy efficiency programs delivered by governmental and non-governmental partnerships (170 MW).
- 2) Set much higher energy efficiency standards for new buildings to be built in Toronto and promote ground source heat pumps for new buildings (energy calculation unavailable).
- 3) Invest in cutting household energy use through large scale low income housing energy retrofits. Develop a Toronto Hydro loan program for renewable and high efficiency residential investments (energy calculation unavailable).
- 4) Utilize the “Cool Cities” program developed in the United States that cuts summer heat in the city through tree plantings, green roofs and light coloured paving (energy calculation unavailable).
- 5) Invest in renewable energy projects, including community based projects, to provide necessary power across the city including an appropriately-sited wind farm on Lake Ontario, solar hot water, solar heating and solar electricity (60 MW).
- 6) Expand use of the City’s current district energy system to provide cogeneration, trigeneration and more cooling from Deep Lake Water Cooling (300 MW).
- 7) Use gas burned at Ashbridges Bay Treatment Plant for drying sludge to also make electricity. Use methane from the sewage sludge to power it (energy calculation unavailable).
- 8) Expand Toronto Hydro program to convert stand-by generators in large buildings across the city from diesel to natural gas to become suppliers of peak energy and start to develop cogeneration in those buildings (220 MW).
- 9) Set up a number of district energy grids in the city including the Port Lands to provide heat, cooling and power as efficiently as possible (energy calculation unavailable). The plant proposed by the Province of Ontario for the Port Lands must be restricted to a highly efficient, cogeneration plant no greater than 250 megawatts, half the size or less than the current proposal.
- 10) Provide substantial community investment in green energy and efficiency in the Beach and Riverdale to cut local emissions to balance out any impact from operation of the new plant (energy calculation unavailable). Provide other community benefits.

This document is meant to outline our thinking to date and to provoke debate about the direction we need to go in. We need to hear what people think of what we have proposed and to receive more suggestions.

BACKGROUND

The 10-point Port Lands Green Energy Plan plan above summarizes a number of initiatives that add up to more than 750 mega watts of power produced or saved through new energy production and energy efficiency measures. We have detailed the elements of the plan below.

1) Energy Efficiency for Existing Buildings — 170 MW

Cut energy use in existing government and non-government buildings in Toronto through energy efficiency programs delivered in partnership by Toronto Hydro, the Energy Efficiency Office, the Better Buildings Partnership, Enwave and the Toronto Atmospheric Fund. In addition build partnerships with non-governmental organizations, sectoral organizations and the private sector. The City of Toronto alone has 40 MW of power reductions it can implement. The calculation for non-government buildings immediate potential was recently reported at 130 MW in demand reductions.

2) Energy Efficiency for new buildings

Set much higher energy efficiency standards for new buildings to be built in Toronto and promote ground source heat pumps for new buildings outside areas served by district energy (energy calculation unavailable).

3) Existing Residential Housing Energy Efficiency Programs

Invest in cutting household energy use through large scale low income housing energy retrofits. Develop a Toronto Hydro residential loan program for solar panels, solar hot water and for high efficiency residential investments like upgrading air conditioning systems and purchasing appliances to Energy Star standards (energy calculation unavailable).

4) City Cooling Initiatives

Utilize the “Cool Cities” program developed in the United States that cuts summer heat in the city through tree plantings, green roofs and light coloured paving. Studies in Florida show heavily treed neighbourhoods have summer electric bills 8% or more lower than less green neighbourhoods (energy calculation unavailable).

5) Renewable Energy — 60 MW

Invest in renewable energy projects, including community based ones, to provide necessary power across the city including an appropriately-sited wind farm on Lake Ontario, solar hot water, solar heating and solar electricity. Recent assessments by Toronto Hydro envision potential for a 60 MW wind farm to serve Toronto.

6) Use the City’s Existing District Energy Systems — 300 MW

Expand use of the City's current district energy systems. Convert Enwave's Walton Street steam plant in the downtown to make steam and electricity at the same time (cogeneration) and use summer steam to power air conditioning (trigeneration). Substantially expand existing Deep Lake Water Cooling system capacity and provide new DLWC for new developments on the waterfront. DLWC potential in the range of 150 MW. Cogeneration and trigeneration for Enwave potential in the 150 MW range.

7) Cogeneration at Ashbridges Bay

Use gas burned at Ashbridges Bay Treatment Plant for drying sludge to also make electricity and use methane from the sludge to power it. The City of Ottawa ROP Environment Centre, a sewage treatment plant, installed a cogeneration system in 1996 for net annual savings of \$750,000 annually on initial annual electricity bill of \$2.6 million annually (energy calculation unavailable).

8) Invest in Peaking Generation and Cogeneration in Large Buildings — 220 MW

Expand Toronto Hydro program to convert stand-by generators in large buildings across the city from diesel to natural gas to become suppliers of peak energy and start to develop cogeneration in those buildings. Invest in demand control in these same buildings. Large office buildings and institutions like community colleges could have their boiler plants converted to cogeneration. Mohawk College in Hamilton has its own cogeneration system, as does University of Toronto and York University. Calculated initial reduction in demand from such measures approximately 220 MW.

9) Modular District Energy Systems utilizing smaller Cogeneration Power Plants

Set up a number of district energy grids in the city including the Port Lands to provide heat, cooling and power as efficiently as possible. One such plant proposed by the Province of Ontario for the Port Lands must be half the size or less of the current proposal. Thus it would be restricted to a highly efficient cogeneration plant no greater than 250 megawatts. Any such cogeneration plant built at the Hearn could provide heat and power to the existing and future industries in the port that are burning, or will burn gas. This would allow local industries to shut down their boilers and reduce local pollution. The West Don Lands and the Regent Park Redevelopment will benefit from having central district heating plants which could be operated on a cogeneration basis (energy calculation unavailable).

10) Community Benefits

Provide substantial community investment in green energy and efficiency in the communities around the port lands to cut local emissions to balance out any impact from operation of the new plant (For example –provide solar hot water heating for all city and school board swimming pools). Provide improvements to the Port Area itself (for example – board walk along the shipping channel or an Alternative Energy Research Centre). Assist in the development of an energy plan for the future of the east end (energy calculation unavailable).

SUMMARY

We believe that our approach will provide the community with environmental and economic benefits superior to those proposed by the Province. We were able to identify potential alternatives to the Port Lands energy plant that exceeded 750 MW. While there may be challenges to bringing all of the suggested alternatives to fruition within the required time frame, we believe that there is enough potential to substantially reduce the size of the proposed plant and still provide energy security to the city and the community. A plant in the port that resulted in the closure of a number of existing boilers has the potential to avoid any net increase in emissions in our community. When we have heard back from the community we will provide a final report for consideration.

Expert Panel on Green Alternatives:

Peter Tabuns, Chair

Keith Stewart, Melinda Zytaruk, Brent Kopperso