



Works & Emergency Services
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MEMORANDUM

TO: Deputy Mayor Pantalone, Chair, and
Members of the Roundtable on the Environment

FROM: David C. Kaufman
Acting Commissioner, Works and Emergency Services

DATE: February 24, 2005

SUBJECT: **List of Proposed Projects**
for Consideration by Roundtable on the Environment

The attached projects are for consideration of the Roundtable members:

1. List of Potential Air Quality-Related Actions
2. The Better Buildings New Construction Program
3. Solar Powered Lighting at City Transit Shelters
4. Evaluate Chicago's Renewable Energy Plan with Lessons Learned for Toronto
5. Pilot Study Using ISO 14001 Principles
6. Purchase of PM₁₀ and PM_{2.5} Efficient Street Sweepers
7. Incentives to Encourage City Staff to use Public Transit
8. Ensure City Procurement Decisions are linked to Energy Efficiency

Thanks,

David C. Kaufman, P.Eng.
Acting Commissioner
Works and Emergency Services

Encl.

List of Potential Air Quality-Related Actions* for Consideration by
Roundtable on the Environment

Action	Cost Estimate	Timeline	Responsibility	Next Steps/ Comments
Energy Efficiency				
Expand the Better Buildings Construction Program (see Appendix A) -pilot program nearing completion -expand to include 30 new buildings over the next 2 years -Building energy efficiency into new building from design through to operational phase	\$250,000 (\$7000 energy efficiency design support X 30 buildings plus \$40,000 for education/ communication) Funding is not currently available for this program in operating or capital budgets	2005-2007	Facilities & Real Estate/Business & Strategic Innovation Section	Recommendation to Policy and Finance Committee to expand program (Energy Efficiency Office continue to lead and implement)
Ensure City procurement supports energy efficient computers and monitors (see Appendix G)	No new cost for report	2005	Finance – Purchasing & Materials Management	Request Council to endorse in principle and the CAO to ensure compliance
Renewable Energy				
Light City transit shelters using solar energy (see Appendix B)	Requires assessment	2007 onwards	Transportation Services – Right of Way Management Unit in collaboration with Finance Department	Request staff report through Works Committee on implications of shift to solar lighting in transit shelters.
Study Chicago's green energy program and make recommendations for the City of Toronto (see Appendix C)	Funding is not currently available for this initiative in operating or capital budgets	2005	Facilities & Real Estate/Business & Strategic Innovation Section	Request staff report through Policy and Finance Committee

*one page summaries attached

Controlling Pollutant Emissions				
Pilot study using ISO 14001 standard to systematically identify and suggest measures to address air quality and other environmental impacts from environmentally significant City operations (see Appendix D)	To be included in operating budget	2005-2006	WES with particular support from Environmental Services unit	Discuss at next WES Senior Management Team meeting & determine pilot site -report back to roundtable on decision
Clean Roads to Clean Air (see Appendix E) – purchase of PM10 and PM2.5 efficient street sweepers -reduce particulate emissions by employing new street sweeping technology -53 sweepers in fleet	\$5 million (23 replacement sweepers @ \$250,000) (possibly from Fleet reserve fund)	2005-2006	Transportation Services with Environment Services & Fleet Services	Endorse program (staff report to Policy and Finance and to Works Committee will then cite endorsement)
Sustainable Transportation				
Incentive to encourage city staff to use public transit (see Appendix F)	No new cost of report	2005	Transportation Services	Request Council to endorse in principle and the CAO to ensure TTC's VIP program is administered in departments and facilities, as appropriate

APPENDIX A
The Better Buildings New Construction Program

BACKGROUND

The City of Toronto in cooperation with Natural Resources Canada (NRCan) has established the Better Buildings New Construction Program (BBNCP) pilot program to promote higher energy efficiency in the construction of 17 new buildings in the industrial/commercial/institutional (ICI) and multi-residential sectors. This pilot program was implemented in the second half of 2004.

The Plan for an Environmentally Sustainable Toronto concluded that improving building design to increase energy efficiency could pay large dividends in terms of reducing Toronto's energy demand. The Plan further concluded the City should play an advocacy and leadership role to encourage a new generation of energy efficient buildings. Implementing the BBNCP is a key step in translating the proposed building design improvements of the Environmental Plan into substantive improvements in energy efficiency and their associated environmental benefits.

The BBNCP pilot program has enabled City staff to conduct further investigations, consultations and technical modeling and to facilitate the participation of building developers in voluntarily incorporating higher energy efficiency standards than currently required in the Ontario Building Code (OBC). The BBNCP pilot program has built on the federal incentive program for higher energy efficiency standards in new construction provided through NRCan's Office of Energy Efficiency.

Findings from the pilot phase have indicated that the program has been successful due to partnership-building, support from NRCan and implementation of a strong communication plan.

Proposed Action

The pilot program is now full and the Energy Efficiency Office would like to expand the program for two more years to provide design and consultation assistance for approximately 30 more new buildings.

Cost Estimate: \$250,000 (\$7000 energy efficiency design support X 30 buildings plus \$40,000 for education/ communication). Funding is not currently available for this initiative in either operating or capital budgets.

Timeline: 2005- 2007

Potential Outcome: 30 new buildings in the City of Toronto designed with energy efficiency features to exceed the current minimum energy performance standards referenced in the Ontario Building Code by at least 25%.

Next Steps: endorsement from Roundtable on the Environment for program expansion.

Staff Contact: Nestor Uhera, Energy Engineer, Energy Efficiency Office nuhera@toronto.ca

APPENDIX B

SOLAR POWERED LIGHTING AT CITY TRANSIT SHELTERS

BACKGROUND

Currently within the City of Toronto there are approximately 4400 transit shelters, all of which are maintained by Viacom. Of the 4400 shelters, approximately 1600 are owned by Viacom until the end of the current contract, at which time ownership reverts to the City. The transit shelters owned by Viacom permit revenue generation through sales/rental to third party advertisers. The agreement with Viacom allows the City to collect 10% of revenue from third party advertising.

Solar lighting is now used on 110 transit shelters without advertising. Solar lighting alone is not bright enough to support daytime lighting of advertising in shelters although opportunities may exist for supplementing conventional energy with solar lighting at the shelters.

The Viacom contract is up for review in late 2006 / early 2007.

PROPOSED ACTION

Evaluate the environmental and financial impacts of a shift towards all transit shelters being lit by solar power by 2007. Consider implications of all new transit shelters being built with solar lighting capacity and explore opportunities for supplementing conventional lighting in shelters with solar-powered lighting. Also explore link with City's review of policy on street furniture.

Cost Estimate: To be determined.

Timeline: 2005-2007

Potential Outcome: To be determined

Next Steps: Request staff report through Works Committee. Advise of any particular issues to be addressed in report

Staff Contact: Eric Jensen, Right-of-Way Management, Supervisor, Permit Parking,
ejensen@toronto.ca

APPENDIX C

Evaluate Chicago's Renewable Energy Plan with Lessons Learned for Toronto

Background

Like Toronto, Chicago has made a commitment to purchase 25% of its energy from renewable sources. Toronto has made little progress on its green energy goals while Chicago is now implementing a green energy strategy as part of the Chicago Energy Plan:

"Chicago's energy Plan treats the use of clean, renewable energy as an opportunity to jump-start the new electricity market, improve the city's environment and enhance the city's competitive position. Renewable energy technologies such as wind and solar are cleaner than conventional energy and increasingly are competitively priced."

Chicago's overall actions centre around:

- Harnessing the purchasing power of government agencies (creating demand).
- Working with higher levels of government to mandate government utilities and retail suppliers to procure a portion of their power from renewable sources within the next 3 years
- Leveraging the use of renewable energy technologies to educate the public (e.g. solar panels on schools) and clean up contaminated sites (e.g. building a 2.5. megawatt solar power plant and a landfill gas-fired plant on a brownfield site)..

Proposed Action

Request staff report through Policy and Finance Committee to evaluate Chicago's actions to allow the city to purchase 25% of its energy from renewable sources. Request that the report address the implications of a similar approach to renewable energy for Toronto

Cost Estimate: \$5,000- \$8,000 for study. Funding is not currently available for this initiative in operating or capital budgets.

Timeline: 2005

Potential Outcome : To be determined

Next Steps: Request staff report through Policy and Finance. Advise of any particular issues to be addressed in report

APPENDIX D

PILOT STUDY USING ISO 14001 PRINCIPLES

BACKGROUND

ISO 14001 is an international standard specifying a framework for an environmental management system (EMS). It is used to identify and address environmental impacts of operations, including releases to air. Having an EMS is helpful in evidencing due diligence.

Environmental Services is working with Corporate Services on implementation of key elements of 14001 at the Central Garage of Fleet Services. Work is also being done with Facilities and Real Estate, Transportation Services and Toronto Water to explore how application of ISO 14001 principles would be most useful.

PROPOSED ACTION

Pilot study to systematically identify and suggest elements of ISO 14001 to help address air quality and other environmental impacts from selected environmentally significant City operations.

Cost Estimate: To be completed within existing budget..

Timeline: 2005-2007

Potential Outcome: Decreased risk to health and the environment due to a systematic evaluation of significant potential environmental impacts of City operations.

Next Steps: Suggest that issue be discussed at next Works and Emergency Services Senior Management Team meeting and pilot site selected.

Staff Contact: Shelley Grice, Manager, Environmental Planning and Support, Technical Services, Works and Emergency Service sgrice@toronto.ca

APPENDIX E
PURCHASE OF PM₁₀ AND PM_{2.5} EFFICIENT STREET SWEEPERS

BACKGROUND

The objective of the Clean Roads to Clean Air initiative was to assess how effective “new technology” street sweepers are in removing fine particulate matter (PM₁₀ & PM_{2.5}) year-round and deliver the City’s street sweeping service in a manner that will significantly contribute to improving Toronto’s overall air quality. In addition, cross-benefits of removing toxic loads from the right-of-way instead of being washed down the catchbasins has a positive impact on stormwater quality and the cost of stormwater treatment.

Fleet Services has identified that 23 street sweepers are over the 7-year life expectancy and should be replaced in 2005. Currently, the fleet complement is made up of 51 mechanical street sweepers.

Testing of current and new technology street sweepers was performed in the summer of 2004 at the Disco Yard. Findings of this test and other studies performed in 2003/2004 concluded that regenerative-air technology street sweepers are the most efficient at removing PM₁₀ and PM_{2.5} material, possesses the best operational performance and have the lowest maintenance cost.

PROPOSED ACTION

Purchase regenerative-air street sweepers that remove fine particulate matter from the streets and limit the amount of particulate matter disturbed during the street sweeping process.

Average Cost Estimate: \$250,000 per street sweeper, (potential funding source: Fleet reserve fund)

Timeline: 2005 - 2006

Potential Outcome: Improved overall air quality; Reduced exposure to cyclist, pedestrians and motorist, at nose-level, to the unacceptable concentrations of fine particulate matter that currently exists; Findings show that potentially 9 metric tonnes of PM₁₀ can be removed from the arterial road network City-wide; Improved stormwater quality; Reduced cost of stormwater treatment; and Sweeping operations no longer need to be suspended during Smog Days.

The above initiative has links to the Environmental Plan, Beautiful and Clean City, Air Quality Strategy, Wet Weather Flow Management Master Plan, and Pedestrian Charter.

Next Steps: Endorsement by the Roundtable on the Environment
 Staff report to Policy & Finance and Works Committees to request authority to purchase new technology street sweepers.

Staff Contact: Vesna Stevanovic-Briatico, Transportation Coordinator
 Operational Planning and Policy, Transportation Services, WES
Vstevan@toronto.ca

APPENDIX F
INCENTIVES TO ENCOURAGE CITY STAFF TO USE PUBLIC TRANSIT

BACKGROUND

IN 2003 and 2004 the Chief Administrator's office reviewed options for encouraging city staff to use public transit. A major area of focus was participation in the Toronto Transit Commission's VIP pilot study. The VIP pilot study is aimed at employers with a workforce of 50 or more. It offers a \$2.50 per month discount on the TTC's least expensive Metropass purchasing option- the Metropass Discount Plan.

Conditions for participation in the VIP plan such as the requirement that passes will only be delivered to drop-off points that service 50 employees or more and that the employer must pay for the passes in a lump sum means that the program has a heavy administration component. The conclusion of the review was that participation in the VIP Metropass program as it currently stands was too onerous from an administration perspective. However, it was felt that staff should be encouraged to participate in the Metropass Discount Plan that is available to any individual willing to commit to one year of transit pass purchase.

Up to now, action has consisted of awareness raising including a June 14, 2004 memo to all staff from the CAO promoting the Metropass Discount Plan and directing staff to an internal web link that would allow staff to register for the plan on-line. No incentive is currently in place to encourage staff to take public transit.

In addition, the City's Environmental Plan recommends that City Council indicate its support for efforts to make employer provided transit passes tax-exempt with the intention that the City review offering the transit pass as an employee benefit.

PROPOSED ACTION

Request Toronto City Council to endorse in principle participation in the TTC's VIP program and request the Chief Administrative Officer to take steps to ensure the program is administered in departments and facilities as appropriate.

Average Cost Estimate: No new cost.

Timeline: 2005

Potential Outcome: Improved overall air quality due to more people choosing public transit over the automobile for their transportation needs.

Next Steps: Send endorsement to Policy and Finance Committee

APPENDIX G**ENSURE CITY PROCUREMENT SUPPORTS ENERGY EFFICIENT COMPUTERS AND MONITORS****BACKGROUND**

In 1999 the City of Toronto adopted an Environmentally Responsible Procurement Policy. The policy outlines that:

Acquisitions of goods and services will ensure that wherever possible specifications are amended to provide for the expanded use of environmentally preferred products such as: durable products, reusable products, energy efficient products, low pollution products (including those used in services) that contain the maximum level of post-consumer waste and/or recyclable content and products that provide minimal impact to the environment.

Although the policy has been in place for six years, not all purchases have been made in compliance with the policy. For example, over ninety-percent of the City's computer monitors currently have no energy efficient features such as shutting down to automatic standby when not in use.

PROPOSED ACTION

Request Policy and Finance Committee to endorse in principle the purchase of energy efficient computers and monitors and, possibly, a central local area network (LAN) system to permit turning computers on and off from a central control point and request the Chief Administrative Officer and the relevant City staff to ensure compliance.

Average Cost Estimate: No new cost for report

Timeline: 2005

Potential Outcome: Improved overall air quality due less use of energy and savings on energy costs.

Next Steps: Request staff report through Policy and Finance

Projects Proposed to Support Clean Air in Toronto

(Source: Toronto Atmospheric Fund and City of Toronto Departments 2003)

PLEASE NOTE: This list projects at least partially supported by TAF. The City has other energy efficiency initiatives (e.g. Co-generation at Humber Treatment Plant (wastewater); Odour control at Ashbridges Bay Treatment Plan and at Humber Treatment Plant)

PROJECT DESCRIPTION	Value (budget change)	Annual Energy Cost Savings	Simple Payback (years)	Annual Savings (kWH)	CO2 Reduced (tonnes)
Approved Projects					
Civic Centre Energy Efficiency Retrofit Project Phase I - underway	\$ 4,200,000	\$ 525,000	8.0	5,374,000	7,470
Toronto Community Housing Corp. Appliance Renewal Project, Phase I - completed	\$ 5,000,000 (\$3,000,000)	\$ 637,600	7.8	490,566	5,560
Sub-total	\$ 9,200,000	\$ 1,162,600	7.9	5,864,556	13,030
Pending Projects (2004)					
Arenas Energy Efficiency Retrofit Project - underway	\$ 10,375,000	\$ 1,300,000	8.0	20,000,000	28,000
Ashbridges Bay Treatment Plant Co-generation Plant – no work underway	\$ 8,627,000	\$ 880,985	9.8	28,158,144	8,695
Ashbridges Bay Treatment Plant Lighting Retrofit Project – no work underway	\$ 757,600	\$ 107,422	7.1	1,456,109	1,388
Building Automation Systems in City Facilities - underway	\$ 3,000,000 (reduced)	\$ 300,000	10.0	3,500,000	4,800
Corporate Office Equipment Load Reduction Program - underway	\$ 100,000	\$ 500,000	0.2	6,250,000	5,956
Exhibition place Energy Efficiency Retrofit Project- underway	\$ 5,288,200 (\$3,000,000)	\$ 317,108	16.7	2,310,500	2,202
Exhibition Place Photovoltaic Demonstration Project – in planning phase	\$ 14,000,000	\$ 450,000	10.0	4,500,000	4,300
Exhibition Place District Energy and Tri-generation Project – approved; underway in Spring 2005	\$ 4,223,423	\$ 630,220	7.2	2,414,000	7,400
Fire Halls Energy Efficiency Retrofit Project - underway	\$ 54,000,000 (\$3,300,000)	\$ 475,000	8.4	2,414,000	3,354
Traffic Signal Light Emitting Diode (LED) Conversion Project – Phase 1 Completed; Phase 2 underway - accelerated	\$ 17,700,000	\$ 2,050,000	8.6	22,217,000	5,225
Sub-total	\$ 68,071,223	\$ 7,010,735	8.5	93,219,753	71,320

Longer Term Projects (2005)					
Corporate Services Energy Efficiency Retrofit Project, Phase 2 – planning work underway	\$ 3,200,000	\$ 400,000	8.0	5,000,000	6,950
EDCT/Parks & Recreation, Pools, Community Centres, & Yards- in development; requesting approvals Fall 2005	\$ 15,000,000	\$ 1,800,000	8.0	20,000,000	
Toronto Community Housing Corp. Appliance Renewal Project, Phase 2 – Project has been tendered; contractors/leasing agents will be selected in March 2005	\$ 9,000,000	\$ 1,147,680	7.8	883,000	10,000
<u>Sub-total</u>	\$ 27,200,000	\$ 3,347,680		25,883,000	516,950
<u>TOTALS APPROVED AND PENDING</u>	\$ 77,271,223	\$ 8,173,335		99,084,309	84,350
TOTAL ALL PROJECTS	\$104,471,223	\$11,521,015		124,967,309	101,300