



THE TORONTO AND REGION CONSERVATION AUTHORITY

**INDEX TO
SUSTAINABLE COMMUNITIES BOARD #2/04**

Friday, April 2, 2004

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THE TORONTO AND REGION CONSERVATION AUTHORITY

MEETING OF THE SUSTAINABLE COMMUNITIES BOARD #2/04
April 2, 2004

The Sustainable Communities Board Meeting #2/04, was held in the South Theatre, Black Creek Pioneer Village, on Friday, April 2, 2004. The Chair Michael Di Biase, called the meeting to order at 11:00 a.m.

PRESENT

Maria Augimeri	Member
Michael Di Biase	Chair
David Gurin	Member
Suzan Hall	Vice Chair
Glenn Mason	Member
Elaine Moore	Member
Dick O'Brien	Chair, Authority
Gerri Lynn O'Connor	Member
Linda Pabst	
Andrew Schulz	Member
John Sprovieri	Member

REGRETS

Glenn De Baeremaeker	Member
Colleen Jordan	Member

RES.#E7/04

MINUTES

Moved by: Gerri Lynn O'Connor
Seconded by: Elaine Moore

THAT the Minutes of Meeting #1/04, held on February 6, 2004, be approved.

CARRIED

PRESENTATIONS

- (a) A presentation by Steve Shaw, Vice President, Greater Toronto Airports Authority (GTAA), in regards to GTAA.
- (b) A presentation by Janet Lo, Executive Director, Black Creek Regional Transportation Management Association (BCRTMA), in regards to BCRTMA.

- (c) A presentation by Mr. Rodney Sine, York Region Police, Maureen O'Shaughnessy, Architect, Carruthers Shaw & Partners Ltd. Architects and Christopher Piché, Project Engineer, Keen Engineering Co. Ltd, in regards to the Community Safety Village of York Region.

RES.#E8/04 - PRESENTATIONS

Moved by: Elaine Moore
Seconded by: Suzan Hall

THAT above-noted presentation (a) be heard and received.

CARRIED

RES.#E9/04 - PRESENTATIONS

Moved by: John Sprovieri
Seconded by: David Gurin

THAT above-noted presentation (b) be heard and received.

CARRIED

RES.#E10/04 - PRESENTATIONS

Moved by: Linda Pabst
Seconded by: Glenn Mason

THAT above-noted presentation (c) be heard and received.

CARRIED

SECTION I - ITEMS FOR AUTHORITY ACTION

**RES.#E11/04 - TRAVEL DEMAND MANAGEMENT AND TRANSPORTATION
MANAGEMENT ASSOCIATION INITIATIVES**

Membership and partnership with Black Creek Regional Transportation Management Association

Moved by: Suzan Hall
Seconded by: Andrew Schulz

THE BOARD RECOMMENDS TO THE AUTHORITY THAT Toronto and Region Conservation Authority (TRCA) continue its membership in the Black Creek Regional Transportation Management Association (BCRTMA) at a cost of \$1,500 (no additional taxes);

THAT TRCA implement innovative transportation demand strategies at its own workplaces, with the help of BCRTMA services;

AND FURTHER THAT TRCA continue to work with BCRTMA to promote transportation demand strategies to its member municipalities and to other municipalities within its jurisdiction.

CARRIED

BACKGROUND

Black Creek Regional Transportation Management Association (BCRTMA) is a not-for-profit organization. Its mission is to advance sustainable transportation in the northwest part of Toronto and Vaughan, and to reduce traffic congestion and its negative impacts on the environment, community and economy.

The BCRTMA is an advocate for improved transit service and other transportation management enhancements, and infrastructure programs and policies that will benefit our communities overall. They actively promote the use of sustainable modes of transportation within the region and recruit local employers to implement 'green' commuter programs at workplaces.

TRCA is a founding partner of BCRTMA, which was formed in 2001. Since then, TRCA staff have been active as advisors to the BCRTMA Board. As well, as a member of BCRTMA since 2002, TRCA has been able to offer to its staff such TMA services as a carpooling database, guaranteed ride home, workshops, transit route information and participation in the annual Clean Air Commute.

Travel Demand Management (TDM) measures are being introduced in municipalities and regions across Canada to address growing traffic gridlock, air pollution, nonrenewable energy use, greenhouse gas emissions and land/greenspace consumption from the building of more roads, parking and highways. A Transportation Management Association (TMA) is an innovative TDM strategy that brings together public and private sectors to implement sustainable transportation (transit, ride-sharing, vanpools, cycling and telecommuting) and integrate greener and cleaner modes with land use planning and design. The presentation will provide an overview of Ontario's first TMA and an initiative to create a Greater Toronto Area (GTA)-wide network of TMAs, as well as profile TDM policies and initiatives in Canada and elsewhere for potential replication by municipalities.

In order to ensure the effectiveness of TDM/TMA strategies, BCRTMA advocates that municipalities:

- 1) Dedicate staffing and budgets for TDM/TMA initiatives and make this an integrated and permanent part of the transportation engineering and planning departments. Municipal traffic engineers should be emphasizing “person-moving” capacity, and moving away from focusing on “vehicle-moving” capacity. This will help eliminate the systemic automobile-bias and automobile-dependency in current engineering and planning approaches. This paradigm shift will reshape the planning of transportation networks to improve safety and ease of access for pedestrians, transit-users, carpoolers or vanpoolers, and cyclists, and improve land use design for better quality of life.
- 2) Incorporate TDM design standards and guidelines into new and retrofit developments within the review/application process. This can be included, for example, in the Traffic Impact Assessment process for development applications. The Town of Markham has worked with a key developer to require that the new residential and commercial development will have indoor, secure bicycle parking and structured parking instead of surface parking, and that all new tenants will join and/or form a TMA to provide green commute options, such as transit, carpooling, cycling, walking and teleworking.
- 3) Incorporate TDM in development charges, the mill rate and/or other instruments so that a stable source of revenue is invested in TMAs/TDM for managing growth of travel demand. A key guiding principle should be that “growth should fund growth”, and therefore the provision of transportation options should be covered by revenue sources associated with the growth in development and in transportation demand.
- 4) Keep informed of new ideas in TDM to foster innovation and networking among Canadian and International TDM practitioners.

RATIONALE

Changing the direction of transportation patterns in the GTA is vital for the realization of The Living City vision. The links between transportation and environmental quality are numerous. Reducing our reliance on vehicles that use fossil fuel will reduce emissions that cause acid rain, greenhouse gases, smog and hazardous air pollutants (HAPs). Air quality directly impacts the health of our natural areas, and climate change will also cause stress on our ecosystems. As well, many of these air pollutants are deposited into our rivers, lakes and streams.

Our increasing number of single-occupancy vehicles induces a road network with extensive land requirements, which results in habitat loss, disruption and fragmentation of natural areas. Also, a growing number of highways in the area results in congestion, community disruption, loss of agricultural land, urban heat islands and displacing trees that absorb CO₂, invasion of non-native species, impervious surfaces, degradation of water quality by increasing runoff volume, altering stream flow and watershed hydrology, reducing groundwater recharge, increasing stream sedimentation and water acidity, and higher water temperature.

Transportation demand strategies, and the work of the TMA's are an important complement to The Living City programs, especially the Sustainable Communities program which is being developed by staff. Based at York University, BCRTMA is a natural and obvious partner for TRCA.

A goal of TRCA's Environmental Management Systems (EMS) program is to reduce single-occupancy vehicle use by TRCA staff. Membership in the BCTRMA will help to fulfill this goal.

FINANCIAL DETAILS

2004-2005 Full Year Membership in the Black Creek Regional Transportation Management Association at a cost of \$1,500 (no additional taxes). Funds are available from the TRCA corporate membership account.

Report prepared by: Anne Reesor, extension 5202

For Information contact: Brian Dundas extension 5262 or Anne Reesor, extension 5202

Date: September 19, 2003

RES.#E12/04 - CITY OF TORONTO WET WEATHER FLOW COMMUNITY DELIVERY PROGRAM

The City of Toronto has requested that the Toronto and Region Conservation Authority become the administration coordinator of the Wet Weather Flow Community Delivery Program which would make \$250,000 available to community groups to assist them in the delivery of programs and projects which support the Wet Weather Flow Management Master Plan objectives.

Moved by: Suzan Hall
Seconded by: John Sprovieri

THE BOARD RECOMMENDS TO THE AUTHORITY THAT WHEREAS the City of Toronto has requested that the Toronto and Region Conservation Authority (TRCA) develop and implement the Wet Weather Flow Community Delivery Program (WWFCDP), a \$250,000 fund for community groups to assist them in the delivery of programs and projects which support the Wet Weather Flow Management Master Plan objectives;

WHEREAS the WWFCDP would compliment the TRCA's watershed advisory committee work;

WHEREAS TRCA is the implementation coordinator of the Toronto and Region Remedial Action Plan (RAP), which explicitly recommends actions around stormwater management, combined sewer systems and infiltration/inflow problems in order to restore beneficial uses in the Area of Concern;

THEREFORE LET IT BE RESOLVED THAT staff be directed to proceed with a letter of agreement with the City of Toronto which would name TRCA as the administrative coordinator the WWFCDP;

AND FURTHER THAT staff report back to the Watershed Management Advisory Board to update on progress and further program details once the letter of agreement has been signed and the WWFCDP is launched.

AMENDMENT
RES.#E13/04

Moved by: Suzan Hall
Seconded by: John Sprovieri

THAT the following be inserted before the last paragraph of the main motion:

THAT former TRCA member Irene Jones be appointed for 2004 as Chair of the review committee, and that she be compensated on the basis of the TRCA member remuneration rate.

THE AMENDMENT WAS CARRIED

THE MAIN MOTION, AS AMENDED, WAS CARRIED

BACKGROUND

At Authority meeting #2/04, held on February 27, 2004, Resolution #A47/04 was approved as follows:

THAT the Chair of the Authority send a letter of congratulations to the City of Toronto on the completion of the Wet Weather Flow Management Master Plan and express TRCA's intent to assist the City of Toronto with the plan's implementation;

THAT TRCA staff assist in WWFMMP implementation by incorporating specific actions within work programs including: watershed planning studies, wet weather flow policy, Regional Watershed Monitoring Network, ongoing education, outreach, stewardship and regeneration programs, and stormwater management technology performance evaluations;

TRCA has worked closely with the City of Toronto during the development and finalization of the Wet Weather Flow Management Master Plan (WWFMMP). The Toronto and Regional Remedial Action Plan Stage 2 document (Clean Waters, Clear Choices, 1994) and TRCA's various watershed strategies clearly details components addressed in the WWFMMP (stormwater, combined sewer overflow and infiltration/inflow problems) as the main sources of impairments in the RAP Area of Concern's (AOC) watersheds and waterfront. As stated above in Resolution #A47/04, TRCA has expressed its support to the City of Toronto for the WWFMMP and extended its further assistance in implementation of the master plan.

The WWFMMP has integrated the opportunity for community involvement in its implementation strategy. On September 22, 2003 City Council approved a motion which stated that:

"a Community Outreach Program to support the implementation of the Wet Weather Flow Management Master Plan (WWFMMP) be funded annually in the amount of \$250,000 per year from the Water and Wastewater Services Capital Budget and that the Toronto and Region Conservation Authority (TRCA) administer this Program in consultation with an interdepartmental City team and report annually to the Works Committee summarizing the projects funded."

Since this recommendation, TRCA staff have been working with City of Toronto staff to discuss the logistics associated with the coordination of this funding program. At this time the said program has been referred to as "The Wet Weather Flow Community Delivery Program (WWFCDP)" to reflect that this funding program would assist members of the community in becoming involved in the implementation of WWFMMP objectives. Further consultation with City of Toronto staff will be done to finalize a program name.

The City of Toronto is currently in the process of drafting a letter of agreement which will detail TRCA's responsibilities as the administration coordinator of the WWFCDP. TRCA staff have also been working with city staff to prepare a proposal package which will be available shortly for community groups. This proposal package draws on the content and quality of other successful funding programs such as the Rouge Park Alliance and Great Lakes Sustainability Fund.

Funding through the WWFCDP will be considered for non-profit groups and organizations which are not part of the federal, provincial, territorial or municipal government. Examples of eligible groups would be: community groups, environmental groups and green groups (associated with business enterprises). Since funding from this program is specific to non-profit community groups, the city and TRCA are automatically disqualified from receiving a grant from the WWFCDP.

The TRCA will assist the City of Toronto by promoting the WWFCDP, receiving and approving applications and confirming deliverables and eligible expenses prior to payment transfers to community groups. TRCA will also establish a review committee and chair which may include external experts, members of the federal and provincial departments involved in the Toronto and Region RAP, city and TRCA staff.

DETAILS OF WORK TO BE DONE

- City of Toronto to finalize a letter of agreement between TRCA and themselves for the WWFCDP.
- TRCA and City of Toronto to finalize the proposal package for fund applicants.
- TRCA and city staff to set up the WWFCDP review committee and chair.
- WWFCDP to be launched by TRCA and City staff.

FINANCIAL DETAILS

TRCA staff have advised city staff that costs to manage this program are estimated at \$10,000. This will be covered out of the \$250,000 allocation for the WWFCDP.

Report prepared by: Lisa Turnbull, extension 5325
For Information contact: Lisa Turnbull, extension 5325
Date: March 04, 2004

RES.#E14/04 -

GREEN ROOF SYSTEMS MONITORING PROGRAM

Completion of the York University rooftop garden stormwater quantity and quality performance monitoring report for 2003.

Moved by: Suzan Hall
Seconded by: Linda Pabst

THE BOARD RECOMMENDS TO THE AUTHORITY THAT staff be directed to continue monitoring the York University rooftop garden for the 2004 season at cost not to exceed \$70,000, including GST;

AND FURTHER THAT Glenn MacMillan be authorized to present the findings of the research to date at the Greening Rooftops for Sustainable Communities: The Second Annual International Green Roof Conference, Awards, & Trade Show, in Portland, Oregon from June 2-4, 2004.

CARRIED

BACKGROUND

Research has shown that significant environmental benefits can be achieved from rooftop gardens in terms of stormwater runoff quantity and quality control, energy efficiency and reduction of the urban heat island effect. For example, at a greenroof site in Hannover-Herrenhausen, Germany it was determined that 5 to 10 cm soil layers retained approximately 65-70% of the precipitation runoff during the summer and approximately 50% during the winter (Liesecke, 1998). Kennedy and Gadd (2001) reported improvements in the quality of effluent from gardens relative to galvanized roofs, which can contain high concentrations of zinc and other metals. Other researchers have demonstrated benefits in terms of energy (National Research Council of Canada, 2002; Niachou et al., 2001; and Theodosiou, 2003). Greenroofs act as a passive cooling system that reduces thermal fluctuations and increases thermal capacities on the outer roof surface. This in turn, increases energy use efficiency during the summer and winter for cooling and heating purposes respectively.

In Toronto, there are ongoing efforts to evaluate the effectiveness of greenroof infrastructure as a technique to reduce the quantity and improve the quality of stormwater runoff in Toronto's Remedial Action Plan (RAP) Area of Concern. *The Sustainable Technologies Consortium* has been formed in order to address the growing need for research to support the implementation of technologies that promote sustainable development in cities and rural areas. The consortium is a public partnership between the Toronto and Region Conservation Authority (TRCA), Seneca College, the University of Guelph and Ryerson University. The multi-disciplinary nature of the consortium's members was intended to reflect the nature of sustainable technology research, which integrates various disciplines and research interests. The mandate of the consortium is two-fold: 1) to pursue scientifically defensible research in sustainable development, and 2) to quantify the potential benefits of technologies relating to stormwater management, water and energy conservation, and air pollution.

In Toronto the tree canopy and natural coverage is approximately 20%, whereas an ideal target for a city is 30% to 35%. While the city has been relatively successful in protecting natural areas, restoring the natural landscape displaced by development is difficult. To date, rooftops cover as much as 30% to 35% of the urban land surface area. Greenroofs are one of the many storm water management (SWM) technologies recommended in the City of Toronto Wet Weather Flow Management Master Plan (WWFMMP). Implementation requires retrofitting existing structures and/or incorporating designs into new developments. Table 1 lists the objectives and policy statements described in the WWFMMP that may be satisfied by implementing greenroof technology.

Table 1. The objectives and policy statements described in the WWFMMP that may be satisfied by implementing greenroof technology.

Objective #	Objective Subsection #	Item #	Description
3.4	3.4.2	a	Water Quantity--preserve and re-establish the natural hydrologic cycle.
3.4	3.4.2	c	Water Quantity--eliminate or minimize threats to life and property from flooding.
3.4	3.4.3	c	Natural Areas and Wildlife--reduce fish contamination due to local wet weather sources.
Policy #	Subsection #	Item #	Policy Application
4.1		3, 4, 6,7,12	General Policy
4.2	4.2.1	1, 4, 5, 7, 8	Stormwater Quality and Quantity--General
4.2	4.2.2		Stormwater Quality and Quantity--Source Control

In 1987, the International Joint Commission identified Toronto as one of 42 areas of concern bordering the shorelines of the Great Lakes. A Remedial Action Plan was developed to restore polluted drainage networks and water bodies located in the city or along the shorelines of Lake Ontario. Table 2 outlines the goals and actions recommended by the RAP that can be satisfied using greenroof technology.

Table 2. The goals and actions recommended by the RAP that can be satisfied using greenroof technology.

Goals	Target
3a. Control of Stormwater Quality and Quantity	The quality and quantity of storm runoff is protected and enhanced
Action	Description
52. Encourage Research on Protection and Rehabilitation of Aquatic Habitats	The RAP recommends that further scientific research be conducted to provide the information and technology necessary for conservation, restoration and development of aquatic habitats.

In 2003, two research sites were established: 1) the York University Computer Science building, and 2) the Eastview Community Centre. The York University Computer Science building had the rooftop garden designed during building construction and is monitored by the TRCA, while the Eastview Community Centre was a retrofit to the existing roof and is being monitored by staff at the City of Toronto. Measurements of climate, soil and runoff quantity data are being taken to quantify the stormwater quality and quantity benefit of rooftop gardens in urban areas at both sites. However, water quality data is being collected only at York University. The York University monitoring devices have been linked to a single logger and network server that statistically calculates and communicates measured data via the internet. The internet connection also provides real-time measurements of activities (e.g. rainfall) that can be accessed from anywhere in the world.

The key findings of the monitoring to date are:

- The garden effectively produced a 54% reduction in runoff volume from May to November, 2003.
- Storms ranging in sizes from greater than or equal to (\geq) 10mm, \geq 20mm, \geq 30mm and \geq 40mm had an average peak flow reduction of 84.9%, 82.2%, 68.2% and 46.2% respectively.
- The garden roof resulted in up to an 85% reduction in peak flow rate in storm events up to less than or equal to 10mm.
- Individual storm event based performance varied depending on soil moisture and rainfall intensity (antecedent condition).
- Runoff water quality from the garden met receiving water guidelines for most of the 55 parameters analyzed. Total phosphorus and *E.coli* concentrations in greenroof effluent were higher than the control roof, likely due to use of the garden by birds as habitat. Copper was much higher in effluent samples from the control roof. Poly Aromatic Hydrocarbons (PAHs) were also generally higher in runoff samples from the control roof.

DETAILS OF WORK TO BE DONE

TRCA staff recommends the following be undertaken in 2004:

- Continue monitoring of climate, soil and runoff quality and quantity data.
- Undertake hydrologic modeling analysis for the Highland Creek watershed using the results of all monitored data.
- Testing of chemical makeup of all contact surfaces (i.e. garden soil, eves trough plumbing) to determine the magnitude these surfaces are contributing to runoff quality changes.
- Staff attend the June Greening Rooftops for Sustainable Communities: The Second Annual International Green Roof Conference, Awards, & Trade Show, in Portland, Oregon.

FINANCIAL DETAILS

The total project cost for 2004 is \$70,000, including GST, with an additional \$45,000 in in-kind contributions. \$20,000 in funding has been secured from the City of Toronto, with the remaining \$50,000 awaiting approval from various agencies. In-kind contributions are being made by the Ontario Ministry of the Environment, Seneca College and TRCA. Should any of the remaining \$50,000 in funding not be received, funds are available in the TRCA 2004 preliminary budget in the Green Roof account. Funds are also available in this account to cover the travel and conference costs for the green roof conference.

Report prepared by: Derek Smith, extension 5362

For Information contact: Derek Smith, extension 5362 or Glenn MacMillan, extension 5212

Date: March 22, 2003

RES.#E15/04 - ONTARIO CLIMATE CHANGE PROJECT - ONTARIO ECOSCHOOLS
Launch of the Ontario EcoSchools program.

Moved by: Elaine Moore
Seconded by: Glenn Mason

THE BOARD RECOMMENDS TO THE AUTHORITY THAT the attached report on the launch of the Ontario EcoSchools program be received;

AND FURTHER THAT the Toronto and Region Conservation Authority (TRCA) continue to work with the project partners to facilitate the program with conservation authorities and school boards across the province of Ontario.

CARRIED

BACKGROUND

In 2002, Environment Canada (Climate Change Action Fund) released a request for proposals to develop curriculum resources for climate change education in the Province of Ontario. A successful proposal was submitted by a partnership of education groups which included the York (University) Environmental Education Consortium and other associations and agencies including the TRCA. Funding was approved in October 2002. The Climate Change Action Fund (CCAF) contributed the maximum funding limit of \$160,000. However, the combined project funding with partner contributions and in-kind support, exceeded \$250,000.

On February 26, 2004, the Climate Change Project was launched. Senior curriculum and facilities representatives from 21 school boards, staff from 9 conservation authorities, 10 government ministries and 10 non-governments organizations attended the program launch. The program was very well received. Ms. Donna Cansfield, MPP, Parliamentary Assistant to the Minister of Energy, attended the launch and expressed her support by committing to introduce the program to both the Minister of Energy and the Premier of Ontario.

RATIONALE

The Ontario Climate Change Project is being delivered and published under the name "Ontario EcoSchools". This program builds on existing initiatives, particularly those of the Toronto District School Board.

The Ontario EcoSchools program is designed to make environmental awareness and action an integral part of everyday school life. The Ontario EcoSchools program is delivered jointly by both curriculum services and facility services at school boards. It introduces an environmental perspective to the choices made in operating schools and in planning classroom programs based on the Ontario Curriculum. It consists of four components:

- Ecological Literacy;
- Waste Minimization;
- Energy Conservation; and
- School Ground Greening.

These components are supported by 15 resource guides and a multimedia CD. A brochure presenting the Ontario EcoSchools program is attached to this report and outlines the scope of these resources.

Ontario EcoSchools' re-orientation of school operations and curriculum complements and supports many initiatives of the TRCA including The Living City Sustainable Schools initiative. Through participation in the development of this program and the ongoing implementation of the Ontario EcoSchools program across the province, TRCA staff have formed new and important relationships within the education community, and established the TRCA as a leader in the development of education resources.

DETAILS OF WORK TO BE DONE

Implementation of the Ontario EcoSchools program is just getting started. TRCA staff are an integral part of the implementation team. Over the next two months, TRCA staff will participate in a number of training workshops designed to assist school boards and conservation authorities to adopt and adapt the program to meet their operational and educational needs. TRCA staff who attend the training workshops will be developing and delivering Ontario EcoSchools training sessions for all applicable TRCA staff.

FINANCIAL DETAILS

The Ontario Climate Change Project partners have been invited by Environment Canada to apply for additional funding to support the implementation of the Ontario EcoSchools program across the province. If successful, the Ontario EcoSchools program will be introduced to teachers across the province through workshops at Summer Teacher Professional Development Institutes. TRCA staff will be participating in the development and delivery of these workshops.

Report prepared by: Dave Green, extension 5234

For Information contact: Dave Green, extension 5234

Date: March 22, 2004

Attachments: 1

Attachment 1

Ontario EcoSchools guides are available at www.yorku.ca/fes/envedu/ecoschools.asp

Ontario EcoSchools

No one debates the need to learn to live more sustainably. Rather, questions swirl around what to do and where to start - and how to develop programs that produce results. Most people agree that our schools share in the responsibility to address this challenge.

That's where EcoSchools comes in. Built on previous greening programs, EcoSchools is distinguished by its dual focus on school operations and curriculum. That means that classroom learning is matched by

EcoSchools' benefits – economic, environmental and educational - are as great as you make them. The program is streamlined to appeal to busy administrators and teachers who know the value of student involvement and parental support. EcoSchools is designed especially so that school boards can tailor the program to meet their particular system-wide goals, but even if a Board isn't participating, individual schools may choose to adapt the program for their own use.

“ the difficulty lies, not in the new ideas, but in escaping the old ones”

environmental concepts being applied in running the school.

In the EcoSchools resources described within, environmental learning expectations in the Ontario curriculum have been given new prominence in activities and tasks designed to connect classroom experience with practical issues in our students' lives.

Ontario EcoSchools has received major funding from the federal government's Climate Change Action Fund. Climate Change is increasingly seen as the most serious of the environmental problems we have to respond to, now and in the future. EcoSchools places the teaching and learning about climate change, and all other environmental issues, in a larger context that allows students to make better-informed choices about their future actions as consumers and as citizens.

GUIDES FOR GETTING STARTED

1 *Introduction to Ontario EcoSchools and the Five-Step Process*

This concise guide provides an overview of the Ontario EcoSchools program and sets out a practical method for successful implementation: (1) establish an EcoTeam, (2) assess the school's needs, (3) identify priorities and develop an action plan, (4) implement the action plan, and (5) monitor and evaluate progress.

2 *Waste Minimization Guide*

This guide outlines the 11 Ontario EcoSchools waste minimization guidelines. It provides the school's EcoTeam with tips for assessing the school's current waste minimization efforts, sample reviews and action plans and a set of tools for implementing improved waste minimization practices.

3 *Energy Conservation Guide*

Similar in format to the *Waste Minimization Guide*, this resource outlines the 10 Ontario EcoSchools energy conservation guidelines. It provides the school's EcoTeam with tips for assessing the school's current energy conservation efforts, sample reviews and action plans and a set of tools for implementing improved energy conservation practices.



4 *Waste Minimization by Grade (1-8)*

This resource is organized around "big ideas" about waste and waste minimization that are based on identified clusters of learning expectations in Sci&Tech and Soc Studies. Using these ideas as a focus helps the teacher incorporate ecological thinking into existing curriculum. Annotated Internet resources offer background facts and student learning activities.

5 *Energy Conservation by Grade (1-8)*

Like *Waste Minimization by Grade*, this guide is organized around "big ideas" about energy and energy conservation that are based on identified clusters of learning expectations in Sci&Tech and Soc Studies. Using these ideas as a focus helps the teacher incorporate ecological thinking into existing curriculum. Annotated Internet resources offer background facts and student learning activities.

6 *Systems Thinking: Grades 1-8*

This resource helps shift our view of the nature of the human and natural worlds: instead of being collections of separate parts, they are seen as whole systems greater than the sum of their interdependent parts. Seeing the curriculum through a Systems Thinking lens highlights how the interconnections among learning expectations bestow the power of describing how the world works – seeing people in relation to the environment. This approach integrates diverse learning expectations into coherent clusters.

CONNECTING ECOSCHOOLS TO THE ELEMENTARY CURRICULUM

The Ontario EcoSchools Program

7 *Climate Change in Grade 9 Geography*

This resource consists of a culminating task for summative evaluation plus a unit-by-unit breakdown of the conceptual understandings about climate change needed to ensure student success. Students select a Canadian town or small city and develop an annotated map that indicates the changes in the human and natural environments that would reduce greenhouse gases and thus slow climate change. Resource list, student worksheets and evaluation rubric provided.

8 *Climate Change in Grade 10 Civics*

This unit introduces students to the concept of citizenship through a series of well-supported activities where they analyze the accomplishments of environmental activists and organizations. A simple Public Policy Primer helps students see points at which they can influence issues. Students apply their knowledge in responding to the Government of Canada's One Tonne Challenge for reducing climate change gases. An Environmental Activism Portfolio containing each student's class work and other materials sums up her/his understanding of environmental citizenship.

9 *Climate Change in Grade 10 Science*

This resource provides two possible culminating tasks: students are introduced to an actual problem and asked to propose solutions to either The Impact of Transportation Choices in Moving Waste to Landfill or Forest Management and Climate Change. Students apply their learning about the climate change-related science concepts that have been identified in each strand. Charts link authorized texts and the Teacher Resource for each to relevant learning expectations. A student Checklist of Preparation, annotated Internet resources and evaluation rubrics are also provided.



10 *Climate Change in Grade 11 and 12 Science*

This resource ranges over 8 different Science courses (University, University/College, College and Workplace), highlighting learning expectations that can be met using climate change issues as the examples. Focus questions help students connect the learning of facts and concepts in a meaningful way. The questions also suggest ways to adapt the existing curriculum to explore the data, evidence, interactions and technologies related to climate change issues. Lists of resources that suit the needs of the courses are included.

11 *Climate Change in Grade 11 and 12 Geography*

This resource surveys 5 Geography courses (University, University/College, and Open). Overall and specific expectations for each course are accompanied by guiding ideas linking these expectations to different parts of the climate change story. Examples are provided for developing topics, and teaching and learning strategies recommended for different student needs. Resources for planning class activities and assignments are listed.

12 *Interdisciplinary Studies: Climate Change and Your Future - Grade 12 (Open)*

This single-credit course reviews the impacts of climate change on human and natural systems. Students investigate local businesses and agencies to learn about environmental practices that reduce the impact of climate change. Through case studies, students identify emerging work opportunities; in the culminating task students develop a business plan related to mitigating or adapting to climate change.

CONNECTING ECOSCHOOLS
TO THE SECONDARY CURRICULUM

GUIDES TO ENRICH YOUR PROGRAM

13 *Schoolground Greening: Designing for Shade and Energy Conservation*

Based on a guide developed by Evergreen and the Toronto District School Board, this resource will help schools design for increased shade to protect students and staff from ultraviolet radiation (UVR) and to shade school buildings to save energy and make them more comfortable. Tips for involving the school community in the design process, surveying user needs, completing a site analysis, creating site plans and developing a fundraising strategy are included.

14 *Celebrating EcoSchools: Festival Guide (Elementary)*

This collection of learning activities for elementary schools is designed for Earth Week or another EcoSchools celebration. While each activity can stand alone, the collection is especially designed for an entire school of primary, junior and intermediate classes to spend an afternoon engaged in environmental learning adventures, focussing on the theme of human-environment connections.

15 *The 20/20 Planner*

Based on a Toronto Public Health resource, *20/20 The Way to Clean Air* offers teachers a way to help students apply their learning about energy conservation at home. The planner is a "take-home" guide filled with simple tips and activity sheets that offer a range of actions that students and their families can undertake to reduce energy and vehicle use by 20%.

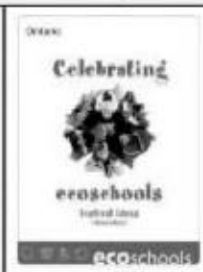
16 *Certification Program*

The Certification program is a sample that provides benchmarks and a scoring system for schools wishing to assess their environmental performance in a limited number of areas. The point system establishes Bronze, Silver and Gold levels of EcoSchools. How participating schools are recognized is left to individual Boards to decide.

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17 *Multi-media presentations: Changing Climate, Changing Attitudes, The Impacts of Climate Change, The Science of Climate Change*

Three multi-media presentations have been designed to accompany the curriculum resources of the Ontario Climate Change Education Project. *Changing Climate*, *Changing Attitudes* provides students and teachers with a general overview of global climate change and its impacts on Ontario society. *The Impacts of Climate Change* has been developed explicitly to complement the Grade 9 Geography course but can be used with all secondary students to examine the impacts of climate change on the natural and human worlds. *The Science of Climate Change*, while developed to support the Grade 10 Science course, is suitable for all secondary science students. These presentations include potential solutions and steps that citizens can take to help slow climate change.

These three presentations are available on a CD, together with all the other EcoSchools resources described in this brochure. For ordering information, please see the back cover.

MULTIMEDIA PRESENTATIONS TO ANCHOR YOUR PROGRAM

TERMINATION

ON MOTION, the meeting terminated at 12:38 p.m., on Friday, April 2, 2004.

Michael Di Biase
Chair

Brian Denney
Secretary-Treasurer

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