Consolidated Clause in Policy and Finance Committee Report 1, which was considered by City Council on January 31, February 1 and 2, 2006.

20

Making Green Roofs Happen

City Council on January 31, February 1 and 2, 2006, amended this Clause by:

(1) deleting Recommendation (22) of the Policy and Finance Committee and inserting instead the following new Recommendation (22), as recommended in the supplementary report (January 27, 2006) from the Chief Planner and Executive Director, City Planning:

"(22) the Chief Planner and Executive Director, City Planning, be requested to ensure that above-grade green roofs are not considered an alternative to landscaped open space at-grade or parkland dedication in the review of applications for development, and thus do not result in the loss of green space on the ground;"; and

(2) adding the following:

"That Council adopt the following staff recommendations contained in the Recommendations Section of the supplementary report (January 30, 2006) from the General Manager, Toronto Water:

'It is recommended that:

(1) a Green Roof Incentive Pilot Program be implemented in 2006 and applicable to projects completed by the end of 2007;

(2) Toronto Water's 2006 approved Capital Budget be amended to reallocate $200,000.00 (net of GST) from Capital Account: WBS CWW447-01 SWM INA/EA to a new Capital Account: CWW475-01 Green Roof Incentive Pilot Program 2006-2007, to provide financial incentives in support of the Green Roof Incentive Pilot Program;

(3) the General Manager of Toronto Water, in consultation with the Chief Planner and the Chief Building Official, be requested to report to the Works Committee in March 2006, on the eligibility criteria and process of application for the Green Roof Incentive Pilot Program;

(4) the General Manager of Toronto Water and the Deputy City Manager and Chief Financial Officer report to the Works Committee in July 2006, on the feasibility of implementing a stormwater utility charge as part of the water rate structure review and stakeholder consultations; and

(5) the appropriate City officials be granted the authority to give effect thereto.' "

This Clause, as amended, was adopted by City Council.

Council also considered additional material, which is noted at the end of this Clause.

The Policy and Finance Committee recommends that:

(1) the City of Toronto recognize that green roofs hold the potential to mitigate impacts on stormwater quality and quantity, improve buildings' energy efficiency, reduce the urban heat island effect, improve air quality and additionally, beautify the City, provide natural green spaces in built-up areas, hold grounds for gardening, food production and horticultural therapy, and increase passive recreational space in densely-populated neighbourhoods, and as such, green roofs be supported through various initiatives;

(2) for the purposes of promoting, encouraging, or requiring green roofs, a green roof should be defined as a system where a vegetated area becomes part of the roof. They should include vegetation, growing medium, filter layer, drainage layer, root resistance layer, and waterproof membrane and meet the criteria outlined in the Discussion Paper Making Green Roofs Happen (Attachment B, Section 4);

(3) where feasible and practical, green roofs with a coverage of 50 percent – 75 percent of the building footprint be constructed on all new City-owned buildings, including Agencies, Boards and Commissions;

(4) where feasible and practical, green roofs be installed on existing City-owned buildings, including Agencies, Boards and Commissions, when roofs are due to be replaced;

(5) green roofs be achieved by the Chief Planner and Executive Director, City Planning, through approval of zoning by-law amendments and site plan control applications;

(6) a green roof strategy, wherein financial incentives are provided for the retrofit of green roofs on existing buildings, be considered by the Wet Weather Flow Management Master Plan Implementation Advisory Committee, and that such program be implemented as a pilot in 2006;

(7) given that 8 percent green roof coverage can result in an estimated $34 million in direct and urban heat island related annual energy savings and a onetime energy cost savings of over $148 million, that Toronto Hydro be requested to develop a financial incentive program in support of green roof development for the resulting energy savings, reduction of the urban heat island and air quality benefits;

(8) the Executive Director of the Toronto Atmospheric Fund (TAF) be requested to consult with staff in Facilities and Real Estate to determine the feasibility of providing TAF loans to proponents of green roofs, as well as repayable interest-free loans through the Better Buildings Partnership for not-for-profit and public proponents of green roofs;

(9) the Chief Planner and Executive Director, City Planning Division be requested to ensure that, when a Section 37 agreement has been secured for another purpose, the construction and on-going maintenance of green roofs be included in the Section 37 agreement, where appropriate;

(10) the Chief Planner and Executive Director, City Planning Division and the General Manager, Toronto Water be requested to initiate an education and publicity program on green roofs including:

(a) preparing a technical booklet on the construction and maintenance of green roofs;

(b) holding technical workshops targeting developers and building owners;

(c) initiating staff training sessions on green roofs;

(d) possibly listing green roof contractors and suppliers, subject to advice from the City Solicitor and from Purchasing and Materials Management; and

(e) establish a green roof 'one stop shopping" page on the green roof section of the City of Toronto official website (green roof section);

(11) the Toronto and Region Conservation Authority be requested to provide advice to proponents of green roofs on plant materials to encourage biodiversity and investigate the potential of providing green roof incentives through its storm water regulatory process;

(12) a 'green roofs resource person' be identified in each of the following divisions: Buildings; City Planning: Toronto Water; Facilities and Real Estate; Shelter, Support and Housing Administration; and Technical Services;

(13) the Chief Planner and Executive Director, City Planning Division develop a database of green roofs in the city, including information about costs, performance and maintenance;

(14) a Green Roof category be added to the Green Toronto Awards to highlight the City's new green roof policies and programs;

(15) the City invite the Toronto-based 'Green Roofs for Healthy Cities' to hold their 2008 international conference in Toronto, to highlight the City's new green roof policy and showcase some of Toronto's green roofs;

(16) support for initiatives encouraging green roofs does not preclude support for the use of roofs for alternative energy or environmental measures;

(17) support for initiatives encouraging green roofs also include, and is not meant to replace, encouragement and support for the use of alternative energy or environmental measures that achieve similar or better results;

(18) the Chief Planner and Executive Director, City Planning, monitor progress of all initiatives and report to the Executive Environment Team (chaired by the Deputy City Manager) on a quarterly basis, and that an annual report be presented to the Roundtable on the Environment, and all interested parties be invited to attend and provide their comments through submissions and deputations;

(19) the Chief Planner and Director of Toronto's Clean Air Partnership and Chair of the Roundtable on the Environment advocate for additional financial support from the federal Environment Department and related federal agencies that provide incentives that reward such building practices, known to reduce air conditioning costs and the green house gases associated with the "heat island effect" of concrete-and pavement-intensive built environments;

(20) given the benefits green roofs can provide in improving solar panel operating efficiency, that Toronto Hydro be requested to initiate a research project designed to more clearly define and quantify these solar efficiencies in Toronto;

(21) the City of Toronto invite the Toronto District School Board to develop a green roof implementation program that promotes educational benefits to students, in addition to all the other benefits;

(22) the City of Toronto ensure that the implementation of a green roof program does not result in the loss of green space on the ground;

(23) that City Council adopt the following staff recommendations contained in the Recommendations Section of the report (January 4, 2006) from Fareed Amin, Deputy City Manager:

"It is recommended that:

(I) the Chief Planner and Executive Director, City Planning, in consultation with the General Manager of Toronto Water, General Manager of Parks, Forestry and Recreation, the Medical Officer of Health, the Executive Director of Facilities and Real Estate, and the Chief Administrative Officer of the Toronto and Region Conservation Authority, work to expand the circle of partner agencies and institutions to implement City green roof programs, including the school boards, Environment Canada, Natural Resources Canada, financial institutions, and others;

(II) in the development of any pilot incentive program for green roofs, consideration be given to including a focus on employment areas; and

(III) the appropriate City Officials be authorized and directed to take the necessary action to give effect thereto;".

Action taken by the Committee

The Policy and Finance Committee:

(i) with respect to the foregoing Committee Recommendation (6) requested the General Manager, Toronto Water, and the Deputy City Manager and Chief Financial Officer to report directly to City Council for its meeting scheduled to be held on January 31, 2006 to February 2, 2006, on options for a pilot project which offers financial incentives to be provided for green roofs on new buildings and the retrofit of existing buildings; such report to include the feasibility of alternative funding mechanisms to support implementation of a green roof strategy, including a storm water management rebate or a direct financial rebate incorporated into Toronto Water's annual operating budget; and

(ii) requested the Chief Planner and Executive Director, City Planning, to submit a report directly to Council for its meeting scheduled to be held on January 31, 2006 providing wording that will ensure that green roofs do not become an alternative to ground coverage and parkland dedications for developments.

The Policy and Finance Committee submits the communication (January 18, 2006) from the Deputy Mayor Joe Pantalone, Chair, Roundtable on the Environment:

It is with great pleasure that I forward you the attached recommendations from the Roundtable on the Environment to promote the development of Green Roofs in the City of Toronto. I encourage you to approve these recommendations, and further request an amendment to Recommendation (6), so that the General Manager, Toronto Water, and the Deputy City Manager and Chief Financial Officer be requested to report directly to City Council on options for financial incentives to be provided for green roofs on new buildings and the retrofit of existing buildings. Such report would include the feasibility of alternative funding mechanisms to support implementation of a green roof strategy, including a storm water management rebate or a direct financial rebate incorporated into Toronto Water's annual operating budget; and that such program be implemented as a pilot in 2006.

Finally, I would request that the wording of recommendation (17) be changed to make even more clear the intent of that recommendation. Recommendation (17) will now read: "Support for initiatives encouraging green roofs also includes, and is not meant to replace, encouragement and support for the use of alternative energy or environmental measures that achieve similar or better results."

Recommendations:

It recommended that:

(1) the attached Recommendations of the Roundtable on the Environment be adopted, subject to amending Recommendations (6) and (17);

(2) Recommendation (6) be amended so that the report mentioned be directed to Toronto City Council for its meeting of January 31, 2006 to February 2, 2006; and

(3) Recommendation (17) be amended to read: "Support for initiatives encouraging green roofs also includes, and is not meant to replace, encouragement and support for the use of alternative energy or environmental measures that achieve similar or better results."

The implementation of a Green Roofs strategy will help the City of Toronto meet both its environmental objectives and its objectives for a Clean and Beautiful City. City staff recently concluded a comprehensive and groundbreaking study on the impact and benefits of Green Roofs (attached) – benefits which accrue to both the property owner and to the city. Among the many benefits, Green Roofs have the potential to save the City millions in stormwater management, reduce energy consumption, and reduce the urban heat island effect. If eight percent of Toronto's roofs were green, we would see a reduction of summer temperatures of up to two percent!

The attached recommendations have the overwhelming support of the Roundtable on the Environment, City staff, Toronto's environmental leaders and activists, the development community, and individuals and communities across Toronto. City staff conducted extensive workshops with members of the development sector – including building owners, architects, and developers – to ensure that our recommendations are in line with their realities. Finally, the Roundtable on the Environment hosted a special public meeting on November 23, 2005 to encourage the public to make deputations. Several hundred people from all across Toronto filled the Council Chambers to speak in favour of Green Roofs. Thirty-six deputants spoke for over two hours – each one encouraging the City to do more to promote Green Roofs in the City of Toronto.

Torontonians have told us that they want the city to do more to promote Green Roofs. The policies and programs recommended in this package provide a comprehensive approach – from establishing standards and building capacity to support Green Roofs at the City level, to offering education, expert advice, and promotion. I encourage you to support these recommendations, and thank you for your consideration.

_____

(Communication December 9, 2005, addressed to
Deputy Mayor Pantalone from the
Roundtable on the Environment)

The Roundtable on the Environment on November 23, 2005, requested the Chair to:

(A) forward the following recommendations from the Roundtable on the Environment to the Policy and Finance Committee meeting on January 23, 2006:

(1) the City of Toronto recognize that green roofs hold the potential to mitigate impacts on stormwater quality and quantity, improve buildings' energy efficiency, reduce the urban heat island effect, improve air quality and additionally, beautify the City, provide natural green spaces in built-up areas, hold grounds for gardening, food production and horticultural therapy, and increase passive recreational space in densely-populated neighbourhoods, and as such, green roofs be supported through various initiatives;

(2) for the purposes of promoting, encouraging, or requiring green roofs, a green roof should be defined as a system where a vegetated area becomes part of the roof. They should include vegetation, growing medium, filter layer, drainage layer, root resistance layer, and waterproof membrane and meet the criteria outlined in the Discussion Paper Making Green Roofs Happen (Attachment B, Section 4);

(3) where feasible and practical, green roofs with a coverage of 50 to 75 percent of the building footprint be constructed on all new City-owned buildings, including Agencies, Boards and Commissions;

(4) where feasible and practical, green roofs be installed on existing City-owned buildings, including Agencies, Boards and Commissions, when roofs are due to be replaced;

(5) green roofs be achieved by the Chief Planner and Executive Director, City Planning, through approval of zoning by-law amendments and site plan control applications;

(6) a green roof strategy, wherein financial incentives are provided for the retrofit of green roofs on existing buildings, be considered by the Wet Weather Flow Management Master Plan Implementation Advisory Committee and further, that the General Manager, Toronto Water, and Deputy City Manager and Chief Financial Officer report thereon to Works Committee, such report to include the feasibility of alternative funding mechanisms to support implementation of a green roof strategy, including a storm water management rebate or a direct financial rebate incorporated into Toronto Water's annual and operating budget; and to develop a pilot program that could be initiated in 2006;

(7) given that 8 percent green roof coverage can result in an estimated $34 million in direct and urban heat island related annual energy savings and a onetime energy cost savings of over $148 million, that Toronto Hydro be requested to develop a financial incentive program in support of green roof development for the resulting energy savings, reduction of the urban heat island and air quality benefits;

(8) the Executive Director of the Toronto Atmospheric Fund (TAF) be requested to consult with staff in Facilities and Real Estate to determine the feasibility of providing TAF loans to proponents of green roofs, as well as repayable interest-free loans through the Better Buildings Partnership for not-for-profit and public proponents of green roofs;

(9) the Chief Planner and Executive Director, City Planning Division be requested to ensure that, when a Section 37 agreement has been secured for another purpose, the construction and on-going maintenance of green roofs be included in the Section 37 agreement, where appropriate;

(10) the Chief Planner and Executive Director, City Planning Division and the General Manager, Toronto Water be requested to initiate an education and publicity program on green roofs including:

(a) preparing a technical booklet on the construction and maintenance of green roofs;

(b) holding technical workshops targeting developers and building owners;

(c) initiating staff training sessions on green roofs;

(d) possibly listing green roof contractors and suppliers, subject to advice from the City Solicitor and from Purchasing & Materials Management; and

(e) establish a green roof ‘one stop shopping” page on the green roof section of the City of Toronto official website (green roof section);

(11) the Toronto and Region Conservation Authority be requested to provide advice to proponents of green roofs on plant materials to encourage biodiversity and investigate the potential of providing green roof incentives through its storm water regulatory process;

(12) a ‘green roofs resource person’ be identified in each of the following divisions: Buildings; City Planning: Toronto Water; Facilities and Real Estate; Shelter, Support and Housing Administration; and Technical Services;

(13) the Chief Planner and Executive Director, City Planning Division develop a database of green roofs in the city, including information about costs, performance and maintenance;

(14) a Green Roof category be added to the Green Toronto Awards to highlight the City's new green roof policies and programs;

(15) the City invite the Toronto-based 'Green Roofs for Healthy Cities' to hold their 2008 international conference in Toronto, to highlight the City's new green roof policy and showcase some of Toronto's green roofs;

(16) support for initiatives encouraging green roofs does not preclude support for the use of roofs for alternative energy or environmental measures;

(17) the Chief Planner and Executive Director, City Planning, the General Manager, Toronto Water, and the Executive Director, Facilities and Real Estate, report by January 2007 on the status of all initiatives undertaken by Agencies, Boards, and Commissions;

(18) the Chief Planner and Executive Director, City Planning, monitor progress of all initiatives and report to the Executive Environment Team (chaired by the Deputy City Manager) on a quarterly basis, and that an annual report be presented to the Roundtable on the Environment, and all interested parties be invited to attend and provide their comments through submissions and deputations;

(19) the Chief Planner and Director of Toronto's Clean Air Partnership and Chair of the Roundtable on the Environment advocate for additional financial support from the federal Environment Department and related federal agencies that provide incentives that reward such building practices, known to reduce air conditioning costs and the green house gases associated with the "heat island effect" of concrete-and pavement-intensive built environments;

(20) given the benefits green roofs can provide in improving solar panel operating efficiency, that Toronto Hydro be requested to initiate a research project designed to more clearly define and quantify these solar efficiencies in Toronto;

(21) the City of Toronto invite the Toronto District School Board to develop a green roof implementation program that promotes educational benefits to students, in addition to all the other benefits; and

(22) the City of Toronto ensure that the implementation of a green roof program does not result in the loss of green space on the ground; and

(B) request Deputy City Manager Fareed Amin to report to the Policy and Finance Committee meeting on January 23, 2006, on:

(1) the following additional recommendations from the Roundtable on the Environment:

(i) the Chief Building Official review the effectiveness of accelerating approval times for building projects that provide public amenities such as green roofs and assess the applicability of such measures for Toronto;

(ii) the City of Toronto consider establishing a green roof design competition to engage engineers and landscape architects, architectural students and others, for Toronto academic institutions; and

(iii) the City of Toronto consider including smaller roof areas, which are smaller than 350 square meters in size, in their incentive programs; and

(2) the comments and suggestions presented by members of the public through their written communications, submissions and deputations, as listed in Appendix "A", as follows:

"Appendix "A"

Roundtable on the Environment
Special Meeting – November 23, 2005
"Making Green Roofs Happen"

Comments and Suggestions from Members of the Public

The following is a synopsis of the comments and suggestions made by members of the public, through their communications, submissions and deputations, to the Roundtable on the Environment at its Special Meeting on Wednesday, November 23, 2005, regarding the Green Roofs issue:

(1) Standards that are developed as a result of the study should be based on performance specifications rather than those limited to dimensions. By doing so, the City will be able to take advantage of performance enhanced technologies;

(2) Do not cap level of coverage at 75 percent - no need for a cap;

(3) Offer no or low interest loans to help offset the costs of a green roof – similar programs are in place in the United States, and should be investigated;

(4) As part of any program and/or offer of incentives, ensure the retrofit market is included;

(5) Consider storm water utility fee reductions and retrofit grants as part of an implementation strategy;

(6) Partnerships should be made with financial institutions allowing green roofs to be amortized over borrowing periods, in order to strengthen the acceptance of regulations;

(7) The City needs to develop innovative incentives that truly encourage public/private partnerships, while taking a firm stance to guide a measurable implementation of green roofs – green roof incentive policies can be tied to the leveraging of other financial incentives offered by the City to land developers;

(8) Create partnerships with Federal and Provincial governments, the Federation of Canadian Municipalities, other local governments, and with business and educational institutions;

(9) All levels of government need to allocate adequate resources to ensure the success of the program;

(10) The City should assess potential to aggregate benefits and seek financial support from the Kyoto funding allocated by the federal government;

(11) The City should take steps to retain the rights of ownership of greenhouse gas reductions arising from green roof investments it assists;

(12) Request the Province to update the Ontario Building Code and introduce City regulations to address both retrofitting and new construction;

(13) Set minimum standards for load-bearing;

(14) Toronto Hydro and Toronto Water should report on the feasibility of on bill repayment for green loans provided by the Toronto Atmospheric Fund or other City bodies, including Toronto Hydro;

(15) If the City decides to cover the cost of an initial assessment of feasibility for green roofs on individual buildings, include an estimate of energy savings for any particular building for both winter and summer;

(16) Analysis of energy conservation could provide necessary information to gauge whether a green roof project qualifies for a subsidy from Toronto Hydro;

(17) A green roof policy should be developed in conjunction with any policy to protect employment lands to take advantage of the relative ease of retrofitting or constructing the type of building that is typical in these areas while strengthening the role of employment lands to the City's quality of life;

(18) Ensure the selection of native species and endangered species of vegetation which require low maintenance;

(19) Ensure that the roof is monitored and maintained so that it continues to perform;

(20) Make a percentage of green roof coverage mandatory on all government buildings, in order to set a strong example;

(21) Develop the creation of green roof gardens as a good source of food to assist the disadvantaged and also expand the food supply industry for local communities;

(22) Investigate the use of flat roofs for greenhouses, and whether surplus building heat could be used to heat green houses on roofs;

(23) Include the Toronto District School Board, the Toronto Catholic District School Board and Toronto Public Health, as part of the implementation strategy;

(24) In conjunction with the Toronto District School Board and the Toronto Catholic District School Board, develop a teaching program(s) on green roofs, which can be used by school instructors in all grade levels;

(25) Include an automatic review of progress, or lack of progress, on green roof construction within two years of implementation, and also provide an automatic re-evaluation of policies that can be considered to improve progress on the file;

(26) The City should encourage the construction of green roofs in areas with insufficient space to support full tree canopy development;

(27) How many green roofs meet the runoff coefficient specified in the staff discussion paper?;

(28) Create a central Resource Centre of up-to-date Canadian/Toronto-specific information, where individuals or organizations could learn more about Canadian green roof technology, funding partners, technical requirements, industry standards- such Resource Centre to be regularly updated;

(29) Establish a design competition using the expertise of engineers, landscape architects and college/university students;

(30) Hold an event in 2006 to promote the development of the implementation plan and initiatives;

(31) Create a brochure for distribution to the public, which will provide information on guidelines and standards, in order to protect consumers pursuing the installation of a green roof;

(32) Green roofs produce less waste that must be sent to landfill than conventional roofs;

(33) Green roofs offer the potential to create a new and unique tourist attraction, which would draw visitors;

(34) Green roofs provide better health and environment benefits; and

(35) Develop and promote strategies of the living city."

Background:

The Roundtable on the Environment on November 23, 2005, considered the attached joint report (November 16, 2005) from the Chief Planner and Executive Director, City Planning Division and the General Manager, Toronto Water, entitled "Implementation Strategies for Green Roofs City Wide", including the following two appendices:

(a) Appendix "A"

Report (October 31, 2005) prepared by Ryerson University for the City of Toronto and Ontario Centres of Excellence – Earth and Environmental Technologies (OEC-ETech) entitled "Report on the Environmental Benefits and Costs of Green Roof Technology for the City of Toronto"; and

(b) Appendix "B"

(Report (November 2005) from City Planning Division entitled
"Making Green Roofs Happen - A Discussion Paper Presented to
Toronto's Roundtable on the Environment")

Recommendations:

The Roundtable on the Environment consider recommending to the Policy and Finance Committee the following strategies for the implementation of green roofs:

(1) The City of Toronto recognize that green roofs hold the potential to mitigate impacts on stormwater quality and quantity, improve buildings' energy efficiency, reduce the urban heat island effect, improve air quality and additionally, beautify the City, increase natural green spaces in built up areas, and provide an alternative location for food production, and as such, green roofs be supported through various initiatives;

(2) For the purposes of promoting, encouraging, or requiring green roofs, a green roof should be defined as a system where a vegetated area becomes part of the roof. They should include vegetation, growing medium, filter layer, drainage layer, root resistance layer (if necessary), and waterproof membrane and meet the criteria outlined in the Discussion Paper Making Green Roofs Happen (Attachment B, Section 4);

(3) Where feasible and practical, green roofs with a coverage of 50 to 75 percent of the building footprint be constructed on all new City-owned buildings, including Agencies, Boards and Commissions;

(4) Where feasible and practical, green roofs be installed on existing City-owned buildings, including Agencies, Boards and Commissions, when roofs are due to be replaced;

(5) Green roofs be achieved by the Chief Planner and Executive Director, City Planning, through approval of zoning by-law amendments and site plan control applications;

(6) A green roof strategy, wherein financial incentives are provided for the retrofit of green roofs on existing buildings, be considered by the Wet Weather Flow Management Master Plan Implementation Advisory Committee and further, that the General Manager, Toronto Water, and Deputy City Manager and Chief Financial Officer report thereon to Works Committee, such report to include the feasibility of alternative funding mechanisms to support implementation of a green roof strategy, including a storm water management rebate or a direct financial rebate incorporated into Toronto Water's annual and operating budget; and to develop a pilot program that could be initiated in 2006;

(7) Toronto Hydro be requested to develop a program that contributes amounts similar to Toronto Water to the above noted pilot program on the basis of projected energy savings through green roof development;

(8) The Executive Director of the Toronto Atmospheric Fund (TAF) be requested to consult with staff in Facilities and Real Estate to determine the feasibility of providing TAF loans to proponents of green roofs, as well as repayable interest-free loans through the Better Buildings Partnership for not-for-profit and public proponents of green roofs;

(9) The Chief Planner and Executive Director, City Planning Division be requested to ensure that, when a Section 37 agreement has been secured for another purpose, the construction and on-going maintenance of green roofs be included in the Section 37 agreement, where appropriate;

(10) The Chief Planner and Executive Director, City Planning Division and the General Manager, Toronto Water be requested to initiate an education and publicity program on green roofs including:

(a) preparing a technical booklet on the construction and maintenance of green roofs;

(b) holding technical workshops targeting developers and building owners;

(c) initiating staff training sessions on green roofs; and

(d) possibly listing green roof contractors and suppliers, subject to advice from the City Solicitor and from Purchasing & Materials Management;

(11) The Toronto and Region Conservation Authority be requested to provide advice to proponents of green roofs on plant materials to encourage biodiversity;

(12) A 'green roofs resource person' be identified in each of the following divisions: Buildings; City Planning: Toronto Water; Facilities and Real Estate; Shelter, Support and Housing Administration; and Technical Services;

(13) The Chief Planner and Executive Director, City Planning Division develop a database of green roofs in the city, including information about costs, performance and maintenance;

(14) A Green Roof category be added to the Green Toronto Awards to highlight the City's new green roof policies and programs;

(15) The City invite the Toronto-based 'Green Roofs for Healthy Cities' to hold their 2008 international conference in Toronto, to highlight the City's new green roof policy and showcase some of Toronto's green roofs;

(16) Support for initiatives encouraging green roofs does not preclude support for the use of roofs for alternative energy or environmental measures;

(17) The Chief Planner and Executive Director, City Planning, the General Manager, Toronto Water, and the Executive Director, Facilities and Real Estate, report by January 2007 on the status of all initiatives undertaken by Agencies, Boards, and Commissions; and

(18) The Chief Planner and Executive Director, City Planning, monitor progress of all initiatives and report to the Executive Environment Team (chaired by the Deputy City Manager) on a quarterly basis.

Joe D'Abramo, Manager, Policy and Research, City Planning Division, made a Power Point presentation regarding the environmental benefits and costs of Green Roof Technology for the City of Toronto.

(A copy of the Power Point presentation from Joe D'Abramo, Manager, Policy and Research, City Planning Division, is on file in the City Clerk's Office, North York Civic Centre.)

The following appeared before the Roundtable on the Environment:

- Greg Garner, CEO, Elevated Landscape Technologies Inc., who filed a copy of his written submission;

- Kevin Karst;

- Manuel DaCosta, President, Ontario Industrial Roofing Contractors Association;

- Nancy Chater, Martin Wade Landscape Architects;

- Fiona Nelson, Member, Mayor's Roundtable on Children, Youth and Education, who filed a copy of her written submission;

- Krista Fry, Urban Agriculture Coordinator, Scadding Court Community Centre, and Member, Toronto Food Policy Council, who filed a copy of the written submission from Kevin Lee, Executive Director, Scadding Court Community Centre;

- Janice Etter, Citizen Chair, Toronto Food Policy Council, who filed a copy of her written submission;

- Brad Bass PhD, Adaptation and Impacts Research Group, Centre for the Environment, University of Toronto and Environment Canada, who filed a copy of his written submission;

- Peter Tabuns, who filed a copy of his written submission;

- Martin German, Executive Director, Friends of the Don East;

- Camila Troughton, Outdoor Environment Representative, Parent Council, Jackman Avenue Public School, who filed a copy of her written submission;

- Monica Kuhn, Architect and Board Member, Green Roofs for Healthy Cities, who filed a copy of her written submission;

- Carmela Canzonieri, Member, Don Watershed Regeneration Council, who filed a copy of her written submission;

- Jack Gibbons, Chair, Ontario Clean Air Alliance;

- Mike Singleton, Executive Director, Sustainable Buildings Canada;

- Glenn Miller, Canadian Urban Institute and the Green Building Alliance;

- Jonas Spring, Ecoman Residential Landscaping Contracting;

- Bob White, International Roofing Representative for Canada, International Sheet Metal Works and Roofers Local 30;

- Karen Moyer, Environmental Coordinator, City of Waterloo;

- Karen Buck;

- Colin Viebrock;

- Kamran Nizami;

- Carolin Taron, Community Member, Centre for Urban Health Initiatives;

- Gordon Chamberlain;

- Ted Rosen, Coordinator, Architectural Technology, Centennial College;

- Shan Dhingra, Shan Dhingra Consultants;

- Peter Howard;

- Tricia Postle;

- Amber Pulleyblank;

- David Hanna; and

- Matthew Nye.

The Roundtable on the Environment also considered the following attached communications:

- (November 15, 2005) from Kevin Karst;

- (November 21, 2005) from Camila Houghton, Outdoor Environment Representative, Jackson Avenue Public School;

- (November 21, 2005) from Janise Herridge;

- (November 21, 2005) from Dylan Penner, Executive Director, ACT for the Earth and Editor, ACTivist Magazine; and

- (November 22, 2005) from David Stonehouse, Common Grounds Manager, Evergreen.

Deputy Mayor Pantalone advised the Roundtable and members of the public, that the recommendations from the Roundtable, together with all reports, suggestions and submissions made, will be presented to the Policy and Finance Committee on January 23, 2006, for consideration.

Gord Perks advised that he was in favour of the recommendations presented in the joint staff report, provided that Recommendation (18) could be amended to add that an annual report also be presented to the Roundtable on the Environment, and all interested parties, who were in attendance this evening and/or have indicated an interest, be invited to attend and provide their comments through submissions and deputations.

Steven Peck provided the following communication (November 23, 2005) with suggested amendments to the recommendations contained in the joint staff report, together with the noted additional recommendations:

> "Amendments to Report of Chief Planner and General Manager, Toronto Water, submitted to Roundtable on the Environment, November 23, 2005:
>
> Point 1: Expand the range of benefits in item one to read as follows….
>
> AS IS up to…..beautify the City, provide natural green spaces in built-up areas, hold grounds for gardening, food production and horticultural therapy, and increase passive recreational space in densely-populated neighbourhoods, and as such, green roofs be supported through various initiatives.

Point 2.

Request to remove (if necessary) after ….they should include vegetation, growing medium, filter layer, drainage layer, root resistance layer (if necessary). This is technically incorrect as it currently reads.

Point 7:

Given that 8 percent green roof coverage can result in an estimated $34 million in direct and urban heat island related annual energy savings and a onetime energy cost savings of over $148 million, that Toronto Hydro be requested to develop a financial incentive program in support of green roof development for the resulting energy savings, reduction of the urban heat island and air quality benefits;

Point 10. Add to list

Establish a green roof 'one stop shopping" page on the green roof section of the City of Toronto official website (green roof section).

Point 11. Please amend to read as follows:

The Toronto and Region Conservation Authority be requested to provide advice to proponents of green roofs on plant materials to encourage biodiversity and investigate the potential of providing green roof incentives through its storm water regulatory process.

Please add the following points:

Point 19 (new)

The Chief Building Official review the effectiveness of accelerating approval times for building projects that provide public amenities such as green roofs and assess the applicability of such measures for Toronto.

Point 20 (new)

The Chief Planner and Director of Toronto's Clean Air Partnership and Chair of the Roundtable on the Environment advocate for additional financial support from the federal Environment Department and related federal agencies that provide incentives that reward such building practices, known to reduce air conditioning costs and the green house gases associated with the "heat island effect" of concrete-and pavement-intensive built environments.

Point 21(new)

Given the benefits green roofs can provide in improving solar panel operating efficiency, that Toronto Hydro be requested to initiate a research project designed to more clearly define and quantify these solar efficiencies in Toronto.

Hand-written notes from Steven Peck, as a result of the comments and suggestions made by the speakers:

(1) The City of Toronto invite the Toronto District School Board to develop a green roof implementation program that promotes educational benefits to students, in addition to all the other benefits;

(2) The City of Toronto consider establishing a green roof design competition to engage engineers and landscape architects, architectural students and others, for Toronto academic institutions;

(3) The City of Toronto consider including smaller roof areas in their incentive programs;

(4) The City of Toronto ensure that the implementation of a green roof program does not result in the loss of green space on the ground; and

(5) Annual report to ERT and ensure everyone who is here is invited."

Tim Woods advised that he had some points he wished to provide to the Roundtable in written form, but that he did not have the same available this evening. The Chair advised Mr. Woods to prepare his written submission and directed the City Clerk to include his submission into the record.

The following is a copy of the submission (November 24, 2005) from Mr. Woods:

"Comments Re Round Table Recommendation to the Policy And Finance Committee Concerning "Green Roofs". Tim Woods (TIN)

Preamble:

I am strongly in favour of all recommendations tabled at the meeting held November 23rd., including the amendments and additions proposed by Mr. Steve Peck that evening.

This was the first time I have been present at such a well attended (SRO) meeting in Council Chambers - where every single spokesperson was totally in support of this endeavour by the City of Toronto.

Comments from an Industry perspective:

Based on Joe D'Abramo's presentation, linked in some cases to the list of recommendations and content of some deputations:

(1) [Recommendation (6)] It is noted that the start of implementation strategies is scheduled for April 2006. Understanding that implementation will involve

city-owned buildings, have sufficient funds been included in the approved 2006 Operating Budgets for the City of Toronto?

(Too often I have seen excellent plans and projects, approved in principle, die because of competition against other priorities for funding …)

(2) [Recommendation (10)]. Linked to comments by Manuel Da Costa "Structural vs Green Design" Industry will require only one major contractor in charge of providing a green roof designed specifically for a particular facility. Situations where structural engineers point to landscape designers and vice versa, when there are failures, must be avoided. Any total one-stop service green roof contractor should have the proper accredited qualifications in both fields.

(3) [Recommendation (11)]. Linked to comments by Brad Bass –"Employment Lands" Notwithstanding strong overall support for this program from an industry perspective, it should be cautioned that certain industry sectors such as Food, Beverage and Pharmaceuticals take precautions against insects, birds and rodents penetrating their operating facilities. Air intakes on roofs are particularly vulnerable.

(4) [Recommendations (13) and (16)]. Linked to comments by Bob White – "Landfill Benefits" From practical experience with maintenance of factory and warehouse roofs - consideration for installing a green roof should include the significant annual expense of maintaining and ultimate replacement of current roofs. In many instances "repair" includes replacement and is phased on a sectional, on-going, basis in factory capital and operating budgets. Also maintenance of a "live" roof is different than maintenance of a "non-vegetative" roof in costs and skills.

(5) [Appendix A – Ryerson Report] I could not find any reference to : Height (wall area) : Roof area Ratio re % cooling/heating energy contribution. In simpler terms, I doubt that a green roof on the Toronto Dominion Centre will provide the same degree of heating/cooling benefits as a green roof on an industrial building or a school. ie. After a certain point, the higher the building, the lower the energy (and possibly storm water,) benefits."

(Report dated November 16, 2005, addressed to the
Roundtable on the Environment from the Chief Planner and
Executive Director, City Planning Division and the
General Manager, Toronto Water)

Purpose:

The purpose of this report is to outline strategies for the implementation of green roofs as part of the work program established by the Roundtable on the Environment.

Recommendations:

The Roundtable on the Environment consider recommending to the Policy and Finance Committee the following strategies for the implementation of green roofs:

(1) The City of Toronto recognize that green roofs hold the potential to mitigate impacts on stormwater quality and quantity, improve buildings' energy efficiency, reduce the urban heat island effect, improve air quality and additionally, beautify the City, increase natural green spaces in built up areas, and provide an alternative location for food production, and as such, green roofs be supported through various initiatives;

(2) For the purposes of promoting, encouraging, or requiring green roofs, a green roof should be defined as a system where a vegetated area becomes part of the roof. They should include vegetation, growing medium, filter layer, drainage layer, root resistance layer (if necessary), and waterproof membrane and meet the criteria outlined in the Discussion Paper Making Green Roofs Happen (Attachment B, Section 4);

(3) Where feasible and practical, green roofs with a coverage of 50% - 75% of the building footprint be constructed on all new City-owned buildings, including Agencies, Boards and Commissions;

(4) Where feasible and practical, green roofs be installed on existing City-owned buildings, including Agencies, Boards and Commissions, when roofs are due to be replaced;

(5) Green roofs be achieved by the Chief Planner and Executive Director, City Planning, through approval of zoning by-law amendments and site plan control applications;

(6) A green roof strategy, wherein financial incentives are provided for the retrofit of green roofs on existing buildings, be considered by the Wet Weather Flow Management Master Plan Implementation Advisory Committee and further, that the General Manager, Toronto Water, and Deputy City Manager and Chief Financial Officer report thereon to Works Committee, such report to include the feasibility of alternative funding mechanisms to support implementation of a green roof strategy, including a storm water management rebate or a direct financial rebate incorporated into Toronto Water's annual and operating budget; and to develop a pilot program that could be initiated in 2006;

(7) Toronto Hydro be requested to develop a program that contributes amounts similar to Toronto Water to the above noted pilot program on the basis of projected energy savings through green roof development;

(8) The Executive Director of the Toronto Atmospheric Fund (TAF) be requested to consult with staff in Facilities and Real Estate to determine the feasibility of providing TAF loans to proponents of green roofs, as well as repayable interest-free loans through the Better Buildings Partnership for not-for-profit and public proponents of green roofs;

(9) The Chief Planner and Executive Director, City Planning Division be requested to ensure that, when a Section 37 agreement has been secured for another purpose, the construction and on-going maintenance of green roofs be included in the Section 37 agreement, where appropriate;

(10) The Chief Planner and Executive Director, City Planning Division and the General Manager, Toronto Water be requested to initiate an education and publicity program on green roofs including:

(a) preparing a technical booklet on the construction and maintenance of green roofs;
(b) holding technical workshops targeting developers and building owners;
(c) initiating staff training sessions on green roofs;
(d) possibly listing green roof contractors and suppliers, subject to advice from the City Solicitor and from Purchasing and Materials Management;

(11) The Toronto and Region Conservation Authority be requested to provide advice to proponents of green roofs on plant materials to encourage biodiversity;

(12) A 'green roofs resource person' be identified in each of the following divisions: Buildings; City Planning: Toronto Water; Facilities and Real Estate; Shelter, Support and Housing Administration; and Technical Services;

(13) The Chief Planner and Executive Director, City Planning Division develop a database of green roofs in the city, including information about costs, performance and maintenance;

(14) A Green Roof category be added to the Green Toronto Awards to highlight the City's new green roof policies and programs;

(15) The City invite the Toronto-based 'Green Roofs for Healthy Cities' to hold their 2008 international conference in Toronto, to highlight the City's new green roof policy and showcase some of Toronto's green roofs;

(16) Support for initiatives encouraging green roofs does not preclude support for the use of roofs for alternative energy or environmental measures; and

(17) The Chief Planner and Executive Director, City Planning, the General Manager, Toronto Water, and the Executive Director, Facilities and Real Estate, report by January 2007 on the status of all initiatives undertaken by Agencies, Boards, and Commissions.

(18) The Chief Planner and Executive Director, City Planning, monitor progress of all initiatives and report to the Executive Environment Team (chaired by the Deputy City Manager) on a quarterly basis.

Background:

At its meeting on June 21, 2005, the Policy and Finance Committee concurred with the recommendations contained in the communication (June 24, 2005) from Deputy Mayor Pantalone, Chair Roundtable on the Environment with respect to, among other things, the proposed schedule of timelines and activities for actions to encourage green roofs.

This report responds to this request and recommends policies and programs to encourage implementation of green roofs in Toronto.

Comments:

The City of Toronto has had an interest in encouraging green roofs for some time, starting with its participation in the construction of two demonstration green roofs on the podium of City Hall and the roof of the Eastview Community Centre. At the policy level, support for green roofs is found in the recommendations of the Environmental Plan, which called for a strategy to encourage green roofs and rooftop gardens, and in the policies of the new Official Plan that state "... green building design and construction practices will be supported and encouraged in building renovation and redevelopment through … the development of innovative green spaces such as green roofs, and designs that will reduce the urban heat island effect".

In Toronto, as in many other cities, much of the natural landscape has been replaced by hard, non- permeable surfaces, restricting the absorption of rainwater and increasing pollution levels and energy demands as the surfaces absorb solar energy and reradiate it as heat. Many European cities, particularly in Germany, and some American cities are promoting the use of green roofs to mitigate these effects.

In order to better understand the potential environmental benefits of green roofs to the city of Toronto, given our local environment and climate, the City initiated a study, entitled The Environmental Benefits and Costs of Green Roof Technology (Attachment A). The Study was undertaken with a grant from the Federation of Canadian Municipalities Green Municipal Funds, and in partnership with Earth and Environmental Technologies (formally CRESTech), which is one of five Ontario Centres for Excellence, a program made possible by the Ontario Ministry of Economic Development and Trade.

The attached discussion paper Making Green Roofs Happen (Attachment B), provides proposed options for implementation of green roofs, and a summary of the work that lead to the development of those options.

Section 1 summarizes the results of The Environmental Benefits and Costs of Green Roof Technology study including mitigating developments' impact on stormwater quality and quantity, improving buildings' energy efficiency, and reducing the urban heat island and thereby improving air quality. Section 2 describes the policies of municipalities considered international leaders in green roof development, thereby setting out some of the options that may be available to Toronto. Section 3 presents the findings of two stakeholder workshops which helped define criteria for green roofs, and the identification of barriers and solutions to implementation of

green roofs. Section 4 uses the input received from the workshops to present a recommended definition of green roofs.

Finally, Section 5 lists and discusses the options suggested by workshop participants or implemented by other cities that may apply to Toronto. This section contains the analysis of the all the options suggested and draws conclusions which form the basis of the recommendations of this report.

Although estimates vary, the costs of installing a green roof are considerably higher than installing a conventional roof. However, green roofs seem to last longer than conventional roofs, possibly having up to twice the expected lifespan, in which case the difference in the net present values of green and conventional roofs is not so great. Nevertheless, the difference in upfront, capital costs between conventional and green roofs explains the widespread belief that cost is a major barrier to green roof development, and so the discussion paper examines implementing a grant program to reduce the difference in installation costs.

The rationale for providing grants for retrofitting existing buildings with green roofs came from the study, The Environmental Benefits and Costs of Green Roof Technology, which showed that the benefits that would accrue to Toronto Water by implementing green roofs on existing buildings would be reduced volumes of stormwater and combined sewer overflows. For the purposes of a pilot project, Toronto Water could offer an incentive of a flat rate grant per square metre toward the incremental costs of installing a green roof over the costs of installing a conventional roof.

The study also showed that widespread implementation of green roofs in Toronto would reduce demand for cooling, particularly during peak periods of electricity demand, which could result in deferred infrastructure investment. Toronto Hydro supports conservation demand measures and has funding programs to encourage such measures. Requesting Toronto Hydro to contribute financially to an initiative to encourage green roofs would fit with Toronto Hydro's interest in conservation demand management.

Similarly, the projected energy savings from green roofs will result in fewer atmospheric emissions caused by the burning of fossil fuels. The Toronto Atmospheric Fund (TAF) was established by City Council in 1991 to finance local initiative to combat global warming and improve air quality in Toronto. TAF has previously provided loans for projects that have reduced C02 emissions and resulted in energy reductions. TAF should also be requested to participate in funding of green roofs.

Contacts:

Ted Tyndorf
Chief Planner and Executive Director
City Planning Division
Tel: 416-392-8772
e-mail: TTyndor@toronto.ca

Lou Di Gironimo
General Manager
Toronto Water Division
Tel: 416-392-8230
e-mail: ldigiro@toronto.ca

Attachments:

Attachment A: Report on the Environmental Benefits and Costs of Green Roof Technology for the City of Toronto

Attachment B: Making Green Roofs Happen: A Discussion Paper Presented to Toronto's Roundtable on the Environment

The Policy and Finance Committee also submits the report (January 4, 2006) from Fareed Amin, Deputy City Manager:

Purpose:

The purpose of this report is to respond to recommendations made by the Roundtable on the Environment at its November 16, 2005 Special Meeting on Green Roofs, and forwarded to the Policy and Finance Committee through the Chair of the Roundtable.

Financial Implications and Impact Statement:

There are no financial implications of the recommendations of this report.

Recommendations:

It is recommended that:

(1) the Chief Planner and Executive Director, City Planning, in consultation with the General Manager of Toronto Water, General Manager of Parks, Forestry and Recreation, the Medical Officer of Health, the Executive Director of Facilities and Real Estate, and the Chief Administrative Officer of the Toronto and Region Conservation Authority, work to expand the circle of partner agencies and institutions to implement City green roof programs, including the school boards, Environment Canada, Natural Resources Canada, financial institutions, and others;

(2) in the development of any pilot incentive program for green roofs, consideration be given to including a focus on employment areas; and

(3) the appropriate City Officials be authorized and directed to take the necessary action to give effect thereto.

Background:

At its special meeting on November 23, 2005, the Roundtable on the Environment requested the Chair to:

(A) forward recommendations on green roofs, as amended by the Roundtable, to the Policy and Finance Committee;

(B) request Deputy City Manager Fareed Amin to report to the Policy and Finance Committee on:

(1) the following additional recommendations from the Roundtable on the Environment:

(i) the Chief Building Official review the effectiveness of accelerating approval times for building projects that provide public amenities such as green roofs and assess the applicability of such measures for Toronto;

(ii) the City of Toronto consider establishing a green roof design competition to engage engineers and landscape architects, architectural students and others, for Toronto academic institutions; and

(iii) the City of Toronto consider including smaller roof areas, which are smaller than 350 square meters in size, in their incentive programs;

(2) the comments and suggestions presented by members of the public at the special Roundtable meeting (as listed in Appendix "A" in the Meeting minutes).

Comments:

The City of Toronto has had an interest in encouraging green roofs for some time, starting with its participation in the construction of two demonstration green roofs, one on the podium of City Hall and the other on the roof of the Eastview Community Centre. At the policy level, support for green roofs is found in the recommendations of the Environmental Plan, which called for a strategy to encourage green roofs and rooftop gardens, and in the policies of the new Official Plan that state "... green building design and construction practices will be supported and encouraged in building renovation and redevelopment through … the development of innovative green spaces such as green roofs, and designs that will reduce the urban heat island effect".

In Toronto, as in many other cities, much of the natural landscape has been replaced by hard, impermeable surfaces, restricting the absorption of rainwater and increasing pollution levels and energy demands as the surfaces absorb solar energy and reradiate it as heat. Many European cities, particularly in Germany, and some American cities are promoting the use of green roofs to mitigate these effects.

In order to better understand the potential environmental benefits of green roofs to the city of Toronto, given our local environment and climate, the City initiated a study, entitled The Environmental Benefits and Costs of Green Roof Technology (hereafter called "the Study"). The Study was undertaken with a grant from the Federation of Canadian Municipalities Green Municipal Funds, and in partnership with the Ontario Centres of Excellence - Earth and Environmental Technologies (formally CRESTech), a program made possible by the Ontario Ministry of Economic Development and Trade.

Once the Study was complete, two stakeholder workshops were held to help to define criteria for green roofs, and identify barriers and solutions to green roof implementation. Then the information from the Study, the input from the stakeholder workshops, and information about the strategies of other municipalities that are leaders in green roof policy were used to produce the discussion paper, Making Green Roofs Happen, which proposed options for implementing green roofs.

At the Special Meeting of the Roundtable on the Environment on November 23, 2005, the Study, the discussion paper, and a staff report summarizing implementation strategies for a green roof policy were presented. An estimated 200 members of the public attended this meeting. There were many deputations, and most were very positive and encouraging.

Response to Additional Roundtable Recommendations:

Following are the responses to the three additional recommendations of the Roundtable on the Environment:

Request:

The Chief Building Official review the effectiveness of accelerating approval times for building projects that provide public amenities such as green roofs and assess the applicability of such measures for Toronto.

Response:

As of January 1, 2006, the Building Division will be complying with the requirements of the *Building Code Statute Law Amendment Act, 2002* that will introduce new service delivery requirements for the Chief Building Official to make a decision on the issuance (or non-issuance) of a building permit within specified time frames, based on the building type. Building permit applications containing green roofs will be subject to the same service delivery criteria as other building permit applications. The time frames vary between 10 and 30 days, depending on the building type.

Building Permit applications are reviewed by Building Division staff for compliance with the public health, fire protection, accessibility and structural safety requirements of the Ontario Building Code. Currently, there are no specific provisions respecting green roofs in the Code. As such, Building Division staff do not have a set of minimum provisions to which they are able to review submitted plans. They must review each application based on individual design submissions. This will be difficult to accomplish in the prescribed time period. The Ministry of Municipal Affairs and Housing, which is responsible for administering the Code is currently conducting research on emerging “green technologies” such as green roofs. Based on this research, the province may amend the code to include provisions for green roofs. In addition, more specific changes to the City of Toronto Act with respect to green roofs may also assist.

Request:

The City of Toronto consider establishing a green roof design competition to engage engineers and landscape architects, architectural students and others, for Toronto academic institutions.

Response:

The addition of a green roofs category in the Green Toronto Awards is proposed, so as to recognize outstanding green roof design. (The Green Toronto Awards are environmental awards of excellence to honour and celebrate leading companies, organizations and individuals who have contributed to the greening of Toronto). When preparations are underway to install a green roof on one of the City's prominent buildings, consideration could be given to holding a design competition for that roof.

Request:

The City of Toronto consider including smaller roof areas, which are smaller than 350 square meters in size, in their incentive programs.

Response:

The City would definitely include roofs smaller than 350 square meters. This misunderstanding was likely a result of the consultant's use of buildings in the City with a roof area of at least 350 square meters for the purpose of calculating benefits of green roofs to the City. That particular methodology was useful for ensuring a reasonableness to the consultant's calculation, but it has not translated into any recommended minimum size of roof area to be included in any incentive program.

Response to Public Comments:

The Roundtable heard deputations from 31 individuals, and received 5 communications at the Special Meeting. The public comments were generally supportive, and there were many suggestions about specific options to encourage green roof development in Toronto. These suggestions were wide-ranging, and detailed responses to the synopsis of those comments, as per the meeting minutes, are included in Appendix A.

The recommendations in this Staff Report are a result of some of the public comments received at the Special Meeting. Several public comments included suggestions about involving additional organizations or agencies in the implementation of Toronto's green roof programs. Therefore, it has been recommended that efforts be made to widen the circle of partner organizations in the implementation of these programs. Also, there was a public comment suggesting that a green roof policy be developed in conjunction with any policy to protect employment lands. This resulted in the recommendation that consideration be given to including a focus on employment areas in the development of any pilot incentive program for green roofs.

Some other public comments will be followed up by staff. For example, there will be further investigation into whether green roofs produce less waste to be sent to landfill than conventional roofs, as stated by one member of the public. Other suggestions by the public are already being acted upon. For example, there was a suggestion that the City request the Province to update the Ontario Building Code (OBC) to accommodate green roofs. In a recent report (October 4, 2005) to the Policy and Finance Committee, the Chief Building Official and Executive Director presented a report recommending that Council further encourage the Province to amend the OBC to facilitate the broader use of green technologies, such as green roofs.

Finally, there were some suggestions that are not feasible at this time.

Conclusions:

At its Special Meeting in November 2005, the Roundtable on the Environment received a staff report with suggestions about policy options to encourage green roof development in Toronto. The Roundtable heard public comments on the report and requested the Chair to forward recommendations on green roofs, as amended by the Roundtable, to the Policy and Finance Committee. The Roundtable also requested Deputy City Manager Fareed Amin to respond to three additional recommendations from the Roundtable, and to comments from members of the public.

As part of the response, two additional recommendations are being made. The first recommendation is to expand the circle of partner agencies and institutions to implement City green roof programs. The second recommendation is to consider including a focus on employment areas in the development of a pilot incentive program for green roofs.

Contact:

Ted Tyndorf, Chief Planner and Executive Director,
City Planning Division, Tel: 416 392 8772,
Fax: 416 392 8115; e-mail: ttyndor@toronto.ca

Attachment:

Appendix A: Response to public comments at the Special Meeting of the Roundtable on the Environment

Appendix A

The following is the response to the synopsis of the public comments at the November 23, 2005, Special Meeting of the Roundtable on the Environment, as per the meeting minutes.

Comments	Response
Standards that are developed as a result of the study should be based on performance specifications rather than those limited to dimensions. By doing so, the City will be able to take advantage of performance enhanced technologies.	As stated in the deputation, the advantage of using performance-based criteria in determining the kinds of green roofs systems that would be encouraged under a City green roof policy is that the criteria would be more flexible and allow innovative, performance-enhanced technologies to be used. This would be particularly valuable if high performing, light-weight green roof systems were developed, as it would make green roof installation on existing buildings more feasible. However, it would be difficult for the City to evaluate every system where there is a claim that performance-based criteria have been met. For the ease of applying a City incentive program for green roofs, in many cases it is more manageable to determine that a design meets criteria for dimensions – such as depth. Since, at this time, there is a strong correlation between dimensions and performance (for example, greater depth of the growing medium is strongly correlated to better performance in terms of retaining runoff, reducing energy requirements, and survivability of plants), it has been recommended that most of the criteria in defining a green roof remain based on dimensions. It should be noted that the runoff coefficient remains one of the recommended criteria because many manufacturers do have specifications for the amount of runoff from their different products. However, at this time there does not seem to be a way of determining different systems' performance in terms of other important benefits, like improved energy efficiency.
Do not cap level of coverage at 75 percent - no need for a cap.	No cap in the level of coverage was implied in the discussion paper or November 16 Staff Report to the Roundtable. Only minimum levels of coverage are stated, and there is recognition that 100 percent coverage is generally not possible.
Offer no- or low-interest loans to help offset the costs of a green roof - similar programs are in place in the United States, and should be investigated.	Implementation strategy 8 in the November 16 Staff Report to the Roundtable proposes involving Toronto Atmospheric Fund (TAF) and the Better Buildings Partnership (BBP) for provision of low- or no-interest loans for green roofs.

Comments	Response
As part of any program and/or offer of incentives, ensure the retrofit market is included.	Making Green Roofs Happen and the November 16 Staff Report to the Roundtable both emphasize the need to focus on retrofits. This is clearly important, since Toronto is a built out city, and the greatest potential for widespread greening of roofs lies in retrofits. A grant program would likely focus on retrofits.
Consider storm water utility fee reductions and retrofit grants as part of an implementation strategy.	Currently, Toronto does not have a storm water utility fee. The November 16 Staff Report to the Roundtable (Strategy 6) proposes a process to determine whether the City could offer water bill reductions and retrofit grants for green roofs.
Partnerships should be made with financial institutions allowing green roofs to be amortized over borrowing periods, in order to strengthen the acceptance of regulations; The City needs to develop innovative incentives that truly encourage public/private partnerships, while taking a firm stance to guide a measurable implementation of green roofs – green roof incentive policies can be tied to the leveraging of other financial incentives offered by the City to land developers; Create partnerships with Federal and Provincial governments, the Federation of Canadian Municipalities, other local governments, and with business and educational institutions; All levels of government need to allocate adequate resources to ensure the success of the program.	It is recommended that funding options involving Provincial and Federal sources be pursued. Also, work with a variety of agencies and institutions to implement City green roof programs should continue, and partnership opportunities with other agencies and groups interested in green roofs should be explored. The possibility of working with the school boards, Environment Canada, Natural Resources Canada, and others should be explored.

Comments	Response
The City should assess potential to aggregate benefits and seek financial support from the Kyoto funding allocated by the federal government; The City should take steps to retain the rights of ownership of greenhouse gas reductions arising from green roof investments it assists.	The federal government has been considering implementing a national carbon credit trading system to reduce greenhouse gas production across Canada. Staff are currently investigating the possibility of retiring any credits the City would earn for reducing carbon dioxide production under such a system. A number of activities have been identified that may result in carbon offset credits and, as a result of comments from the public at the November 23 Special Meeting of the Roundtable, the installation of green roofs can be included on the list.
Request the Province to update the Ontario Building Code and introduce City regulations to address both retrofitting and new construction; Set minimum standards for load-bearing.	In a recent report (October 4, 2005) to the Policy and Finance Committee, the Chief Building Official and Executive Director reported on the energy efficiency provisions in the OBC. This report recommended that council further encourage the Province, to amend the OBC to facilitate the broader use of green technologies, such as green roofs, in building construction, based on technical research currently underway by the Ministry of Municipal Affairs and Housing. Once the research is complete, this may result in amendments to the OBC which include standards for construction with green technologies, although it would not necessarily require including those technologies. Only with new regulatory powers, such as new authority under the City of Toronto Act, would the City be able to require green technologies like green roofs.
Toronto Hydro and Toronto Water should report on the feasibility of on bill repayment for green loans provided by the Toronto Atmospheric Fund or other City bodies, including Toronto Hydro.	The green roofs policy is being prepared in consultation with Toronto Water and Toronto Hydro, and the November 16 Staff Report to the Roundtable (Strategy #8) proposes consideration of the feasibility of providing TAF loans to proponents of green roofs, as well as interest-free loans through the Better Building Partnership.
If the City decides to cover the cost of an initial assessment of feasibility for green roofs on individual buildings, include an estimate of energy savings for any particular building for both winter and summer; Analysis of energy conservation could provide necessary information to	If the City did cover the cost of an initial assessment of feasibility for green roofs on individual buildings, the assessment should include estimates of energy savings for both winter and summer. However, this approach has not been recommended because it is believed that the limited funds available would be better spent on a program for green roof construction, rather than an assessment, since there is a risk that some building owners would not choose to install a green roof after the City had paid for the initial assessment.

Comments	Response
gauge whether a green roof project qualifies for a subsidy from Toronto Hydro.	
A green roof policy should be developed in conjunction with any policy to protect employment lands to take advantage of the relative ease of retrofitting or constructing the type of building that is typical in these areas while strengthening the role of employment lands to the City's quality of life.	Employment areas provide an important target area for application of green roofs, given their relatively high proportion of large, flat roofs and owner-occupied tenure. It is recommended that in the development of a pilot incentive program for green roofs, consideration be given to including a focus on employment areas.
Ensure the selection of native species and endangered species of vegetation which require low maintenance.	Strategy 11 of the November 16 Staff Report to the Roundtable states that the Toronto and Region Conservation Authority be requested to provide advice to proponents of green roofs on plant materials to encourage biodiversity. The intention behind this strategy is to encourage plantings on green roofs that benefit the city's ecology. However, it is important to note that conditions and micro-climate on rooftops are sometimes very different from - and more extreme than - those of the surrounding areas. It is important to allow flexibility in plant choices to ensure that the selected plants can survive, and the green roof system will continue to function. Also, it is usually important for low maintenance plants to be selected for extensive green roofs.
Ensure that the roof is monitored and maintained so that it continues to perform.	Where feasible, arrangements for maintaining green roofs will be secured through applications for development approval. In addition, in maintaining a database on the existence and performance of green roofs in Toronto, there will be an opportunity to monitor whether green roofs across the City are being maintained.
Make a percentage of green roof coverage mandatory on all government buildings, in order to set a strong example.	This has been addressed in Strategies 3 and 4 of the November 16 Staff Report to the Roundtable. Strategy 3 of the Staff Report states that, where feasible and practical, green roofs with a coverage of 50 to 75 percent of the building footprint be constructed on all new City-owned buildings, including Agencies, Boards, and Commissions. Strategy 4 of the Staff Report states that, where feasible and practical, green roofs be installed on existing City-owned buildings, including Agencies, Boards and Commissions, when roofs are due to be replaced. It is beyond the City's jurisdiction to require green roofs on the buildings of other levels of government.

Comments	Response
Develop the creation of green roof gardens as a good source of food to assist the disadvantaged and also expand the food supply industry for local communities.	Green roof gardens that grow food could certainly have social benefits and might provide small quantities of enjoyable supplements to a community's diet. While roof gardens are generally encouraged, it should be recognized that these types of gardens do not have the potential to meet a community's nutritional needs to any significant degree.
Investigate the use of flat roofs for greenhouses, and whether surplus building heat could be used to heat green houses on roofs.	It is recognized that in some circumstances, it may be beneficial from a social and/or environmental perspective to use the flat roof of a building for a greenhouse. However, such use would be technically different to the green roof defined in the discussion paper, Making Green Roofs Happen, and would have different benefits and costs. For example, while a greenhouse would have the benefit of being able to grow food, it may not absorb stormwater. Strategy #16 of the November 16 Staff Report to the Roundtable states that support for initiatives encouraging green roofs does not preclude support for the use of roofs for alternative energy or environmental measures. This would apply to the use of a flat roof for a greenhouse, so that, while a roof greenhouse would not necessarily qualify for a financial incentive under a City green roof program, it may be supported in other ways. The building owner would need to determine which is the more appropriate use of the space.
Include the Toronto District School Board, the Toronto Catholic District School Board and Toronto Public Health, as part of the implementation strategy; In conjunction with the Toronto District School Board and the Toronto Catholic District School Board, develop a teaching program(s) on green roofs, which can be used by school instructors in all grade levels.	It is recommended that the school boards, Toronto Public Health and other relevant agencies be asked to contribute to the work on developing the implementation strategy. As a result of the school boards' involvement and the information posted on the City's website, there should be enough materials on green roofs available for interested teachers to develop appropriate teaching programs related to green roofs. Additional information will be provided from time to time.

Comments	Response
Include an automatic review of progress, or lack of progress, on green roof construction within two years of implementation, and also provide an automatic re-evaluation of policies that can be considered to improve progress on the file.	Strategies 17 and 18 of the November 16 Staff Report to the Roundtable propose that the Chief Planner and Executive Director of City Planning, the General Manager of Toronto Water, and the Executive Director of Facilities and Real Estate report on the status of all initiatives by January 2007, and to the Executive Environment Team on a quarterly basis. The Roundtable on the Environment has further recommended that an annual report of the progress of all initiatives be presented to the Roundtable.
The City should encourage the construction of green roofs in areas with insufficient space to support full tree canopy development.	Green roofs do provide some of the benefits of trees, such as reducing the heat island effect and helping to control stormwater runoff. Although there would be limited opportunities to plant trees on roofs as part of a green roof, due to the large depth of soil required, extensive green roof systems can also provide some degree of the benefits of trees. In developing a pilot grant program for green roofs, consideration should be given to the state of the tree canopy in the area of the applicant's building.
How many green roofs meet the runoff coefficient specified in the staff discussion paper?	Recent observations from green roof monitoring in Toronto have indicated that average rainfall retention for a green roof is approximately 50 to 55 percent. This is the reason for selecting 50 percent as the required runoff coefficient in the criteria for green roofs. It should be noted that this coefficient is for the green roof system as a whole, rather than just the growing medium and vegetation.
Create a central Resource Centre of up-to-date Canadian / Toronto - specific information, where individuals or organizations could learn more about Canadian green roof technology, funding partners, technical requirements, industry standards- such Resource Centre to be regularly updated.	This has been included in the recommendations of the Roundtable on the Environment (Recommendation 10(e)). It is anticipated that, in time, this information would be included on the City's green roofs website: www.toronto.ca/greenroofs.
Establish a design competition using the expertise of engineers, landscape architects and college/university students.	As mentioned above, the November 16 Staff Report to the Roundtable proposes (Strategy 14) that a Green Roof category be added to the Green Toronto Awards. When preparations are underway to install a green roof on one of the City's prominent buildings, the City could consider holding a design competition for that roof.

Comments	Response
Hold an event in 2006 to promote the development of the implementation plan and initiatives; Create a brochure for distribution to the public, which will provide information on guidelines and standards, in order to protect consumers pursuing the installation of a green roof.	The discussion paper and November 16 Staff Report to the Roundtable propose a number of activities to promote the City's new green roof policies and programs. These include technical workshops, a technical booklet, brochures, an expanded website, adding a category to the Green Toronto Awards, and inviting the Toronto-based industry association Green Roofs for Healthy Cities to hold their 2008 conference in Toronto.
Green roofs produce less waste that must be sent to landfill than conventional roofs.	The potential for waste reduction from green roofs, as compared to conventional roofs, will be investigated further.
Green roofs offer the potential to create a new and unique tourist attraction, which would draw visitors; Green roofs provide better health and environment benefits.	Other cities advertise their green initiatives, including green roofs, on their web sites. The extent to which green roofs can be considered tourist attractions is unknown at this time. However, insofar as green tourism is considered a promotional attribute, green roof projects, especially on City buildings, could be listed as an attraction.

_____

(Copies of Attachments A and B referred to in the communication dated December 9, 2005, from the Roundtable on the Environment and also referred to in the report dated November 16, 2005, from the Chief Planner and Executive Director, City Planning Division and General Manager, Toronto Water, were forwarded to all Members of Council with the January 23, 2006, agenda of the Policy and Finance Committee and a copies thereof are on file in the office of the City Clerk, City Hall).

_____

The Policy and Finance Committee received a staff presentation respecting Making Green Roofs Happen.

The following persons addressed the Policy and Finance Committee:

- Mr. Steven Peck, President, Green Roofs for Healthy Cities, and filed a written submission with respect thereto; and

- Ms. Beth Anne Currie.

Councillor Michael Walker, St. Paul's, also addressed the Policy and Finance Committee.

City Council – January 31, February 1 and 2, 2006

Council also considered the following:

- *Report (January 27, 2006) from the Chief Planner and Executive Director, City Planning [Communication 15(a)]:*

Subject: Making Green Roofs Happen - Ground Coverage, and Parkland Dedication.

Purpose:

The purpose of this report is to respond to the request of Policy & Finance Committee at its meeting on January 23, 2006 to provide wording to ensure that green roofs do not become an alternative to ground coverage and parkland dedication.

Financial Implications and Impact Statement:

This report has no financial implications.

Recommendation:

It is recommended that the wording of Recommendation (22) of the Roundtable on the Environment be amended as follows:

> *(22) The Chief Planner and Executive Director, City Planning, be requested to ensure that above-grade green roofs are not considered an alternative to landscaped open space at-grade or parkland dedication in the review of applications for development, and thus do not result in the loss of green space on the ground.*

Background:

A motion was passed at Policy & Finance Committee on January 23, 2006 stating that the Committee:

> *"requested the Chief Planner and Executive Director, City Planning, to submit a report directly to Council for its meeting scheduled to be held on January 31, 2006 providing wording that will ensure that green roofs do not become an alternative to ground coverage and parkland dedications for developments."*

This report responds to that motion.

Comments:

Toronto Parks' existing policy is not to accept green roofs on top of elevated structures as part of parkland dedication because such areas provide limited access to members of the public, and usually serve only building tenants. Toronto Parks do accept at-grade green roofs, for example over parking garages, as parkland if the area has a growing depth of at least 1.5 meters to accommodate trees and other landscaping suitable for parks.

It is also understood that installing an above-grade green roof on a building cannot substitute for the requirement of providing landscaped open space at-grade.

The Roundtable on the Environment submitted 22 recommendations on green roofs to Policy and Finance Committee on January 23, 2006. Recommendation (22) states that:

> *"The City of Toronto ensure that the implementation of a green roof program does not result in the loss of green space on the ground".*

It is suggested that this wording be revised as follows:

> *"The Chief Planner and Executive Director, City Planning, be requested to ensure that above-grade green roofs are not considered an alternative to landscaped open space at-grade or parkland dedication in the review of applications for development, and thus do not result in the loss of green space on the ground."*

Conclusions:

The revised wording of Recommendation (22) of the Roundtable of the Environment will ensure that a green roof program will not permit green roofs to be installed as an alternative to parkland dedication and ground coverage that would normally be required by the City.

Contact:

Barbara Leonhardt, Director, Policy & Research, City Planning Division
Tel: 416 392 8148, Fax: 416 392 3821, E-mail: bleonha@toronto.ca

———

- *Report (January 30, 2006) from the General Manager, Toronto Water [Communication 15(b)]:*

Subject: Green Roof Incentive Pilot Program
All Wards

Purpose:

To seek approval for initiating a Green Roof Incentive Pilot Program commencing in 2006 which would provide financial incentives to property owners installing green roofs on new buildings and the retrofit of existing buildings.

Financial Implications and Impact Statement:

The costs of initiating a Green Roof Incentive Pilot Program are estimated to be $200,000. Funding for this project is not provided within the approved 2006 Toronto Water Capital Budget. The required funds of $200,000 (net of GST) will be reallocated from Toronto Water's Capital Account: WBS CWW447-01 SWM INA/EA to CWW475-01 Green Roof Incentive Pilot Program 2006-2007. There are no operating budget implications associated with the Pilot Program.

The Chief Financial Officer and Treasurer has reviewed this report and concurs with the financial implications and impact statement.

Recommendations:

It is recommended that:

(1) A Green Roof Incentive Pilot Program be implemented in 2006 and applicable to projects completed by the end of 2007;

(2) Toronto Water's 2006 approved Capital Budget be amended to reallocate $200,000.00 (net of GST) from Capital Account: WBS CWW447-01 SWM INA/EA to a new Capital Account: CWW475-01 Green Roof Incentive Pilot Program 2006-2007, to provide financial incentives in support of the Green Roof Incentive Pilot Program;

(3) The General Manager of Toronto Water, in consultation with the Chief Planner and the Chief Building Official, be requested to report to Works Committee in March 2006 on the eligibility criteria and process of application for the Green Roof Incentive Pilot Program;

(4) The General Manager of Toronto Water and the Deputy City Manager and Chief Financial Officer report to Works Committee in July 2006 on the feasibility of implementing a stormwater utility charge as part of the water rate structure review and stakeholder consultations; and

(5) The appropriate City Officials be granted the authority to give effect thereto.

Background:

At its meeting in November 2005, the Roundtable on the Environment received a staff report and discussion paper called Making Green Roofs Happen, with suggestions about policy options to encourage green roof development in Toronto. The recommendations from the Roundtable were considered by the Policy and Finance Committee at its meeting of January 23, 2006. In reviewing these recommendations, the Policy and Finance Committee requested the General Manager, Toronto Water, and the Deputy City Manager and Chief Financial Officer to report directly to City Council for its meeting scheduled for January 31, 2006 to February 2, 2006, on options for a pilot project which offers financial incentives to be provided for green roofs on new buildings and the retrofit of existing buildings; such report to include the feasibility of alternative funding mechanisms to support implementation of a green roof strategy, including a storm water management rebate or a direct financial rebate incorporated into Toronto Water's annual operating budget.

Comments:

Making Green Roofs Happen

The discussion paper Making Green Roofs Happen recognizes that green roofs hold the potential to mitigate impacts of stormwater runoff, improve building energy efficiency, reduce the urban heat island effect, improve air quality and beautify the City by providing natural green spaces in building areas. The staff report and supporting documentation are comprehensive and include recommendations received from consultant studies, technical workshops, public consultations and the results of background research concerning other jurisdictions where green roofs have been implemented. Options to promote the implementation of green roofs across the City highlighted in the discussion paper include: financial incentives, regulatory options, procedural improvements education and promotion.

Toronto Water has been asked to examine the feasibility of alternative funding mechanisms to be provided for green roofs, in particular to examine the link with the Wet Weather Flow Master Plan. This will be considered as part of a forthcoming staff report reviewing the water rate structure and the feasibility of implementing a stormwater utility charge, which may incorporate the necessary financial incentives to promote the implementation of on-site stormwater management measures such as green roofs.

The request from the January 23, 2006 meeting of Policy & Finance focuses attention on initiating a Green Roof Incentive Pilot Program in 2006.

The benefits of green roofs are well documented and have been clearly demonstrated in the cost/benefit study by Ryerson University titled Environmental Benefits and Costs of Green Roof Technology for the City of Toronto, October 31, 2005. Analytical and numerical models used in the study, quantified the benefits of green roofs on a city-wide basis (assuming all large flat roof areas across the City were retrofitted with green roofs), in terms of reductions in stormwater runoff, reducing the impact of urban heat island through temperature reductions; improving of air quality and reducing energy consumption. While the cost-benefit analysis showed that this technology is not as cost-effective as other measures contained within the City's Wet Weather

Flow Master Plan for stormwater management, this technology would be encouraged as an on-site stormwater management measure for new and redevelopment situations, particularly in space constrained situations. Toronto Water staff are involved in a joint research project with Environment Canada, the Toronto & Region Conservation Authority and Ryerson University, where data is being collected from green roofs installed at York University, the Eastview Community Centre and Ryerson University, to determine the effectiveness of various green roof designs for stormwater management. This study also supports the development of stormwater management guidelines for new and redevelopment applications in the City.

While, the costs associated with green roofs have been highlighted as a major barrier to implementation, financial incentives that offset some of those costs should encourage more green roof construction.

Green Roof Incentive Pilot Program

The recommendations of the Roundtable suggest that any permanent green roof incentive program should begin with a pilot grant program, to test the level of interest among building owners and to gauge the type of incentives to which they respond best. It is important that the grant program be open to any property owner (residential, commercial, industrial or institutional) and that specific criteria be established to qualify the owners for the grant. The discussion paper suggests that a pilot project might consider targeting 'big box' development, since green roof installation on this type of development is likely to provide the most benefits particularly in terms of stormwater management and energy reduction.

The incentives under the permanent incentive program could involve a one-time grant or take the form of ongoing rebates, reductions in fees or incorporation of green roofs into existing programs that provide low or no-interest 'green loans' for installing green technology. For the pilot program, the incentives would be a direct financial rebate.

In the long term, any incentive program should distinguish between new construction and retrofitting existing buildings with green roofs. New developments, for example, are required through the Wet Weather Flow Master Plan, to manage stormwater on site and green roofs provide a means of meeting this requirement without the use of a financial incentive. However, at present, the City has no tools to encourage green roof technology on existing buildings, which will continue to comprise the vast majority of the building stock in Toronto.

The Ryerson University cost-benefit study, noted above, using unit cost data from the Wet Weather Flow Master Plan, estimated an equivalent cost saving in stormwater management costs of about $1 to $2 per square metre of flat roof area, if all large flat roofs were retrofitted and sustained in perpetuity. While this provides a basis for establishing an upset funding limit if a permanent grant program were established, a funding level of up to $10 per square metre has been proposed toward the construction costs of installing a green roof on an existing building, to entice early implementation of this type of stormwater management measure, on a pilot basis. A program budget of $200,000 would provide financial incentives for the retrofit of about 20,000 square meters of green roofs. This area is equivalent to about 50 times the area of the Eastview Community Centre green roof.

As a condition of funding, the proponent would be expected to provide an assessment of the incentive program itself and input as to the appropriate level of incentive necessary to advance the implementation of green roof technology in new and retrofit situations.

A staff team is currently in the process of developing 'green development standards' to help guide the City (in its own buildings) and private developers to build more environmentally 'friendly' buildings and help promote Toronto as a green city. Green development standards are minimum thresholds and/or performance measures to meet the City's objectives for reducing energy and water consumption, stormwater runoff, urban heat island effect and to restore and conserve the natural heritage system. In this context, any green roofs constructed as a result of the incentive pilot program, would provide tangible examples supporting the development of green development standards.

Conclusions:

A financial commitment of $200,000.00 is being recommended toward the implementation of a Green Roof Incentive Pilot Program to commence in 2006 and applicable to projects completed by the end of 2007.

Details on the application process and eligibility criteria for the Green Roof Incentive Pilot Program will be reported through Works Committee in March 2006. The provision of funding incentives for a permanent green roof incentive program will be considered as part of a forthcoming staff report, expected July 2006, reviewing the water rate structure and the feasibility of implementing a stormwater utility charge, which may incorporate the necessary financial incentives to promote the implementation of on-site stormwater management measures such as green roofs.

The implementation of a Green Roof Incentive Pilot Program would demonstrate a serious commitment to green roof development and leadership in sustainable building design and supports Green and Beautiful City Objectives. The program would also help raise public awareness about green roofs, and provide information to building owners about the expected costs, savings and benefits that they could expect from a green roof before they consider installing one.

Contact:

Michael D'Andrea, P.Eng.
Director
Water Infrastructure Management
Toronto Water
Tel.: (416) 397-4631
Fax: (416) 338-2828
E-mail: mdandre@toronto.ca

Ilze Andzans
Sr. Environmental Specialist
Water Infrastructure Management
Toronto Water
Tel.: (416) 338-2847
Fax: (416) 338-2828
E-mail: iandzan@toronto.ca