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ZERO WASTE POLICIES AND PRACTICES

The Solid Waste Management Committee recommends the adoption of the recommendations contained in the following report, August 17, 2006, from the Commissioner of Transportation and Works, and also that a copy of this report be circulated to the local municipalities for information:

1. RECOMMENDATIONS

It is recommended that:

1. Regional Council request the Federal and Provincial governments to require manufacturers of consumer and durable goods sold in Canada to design products with regard to minimizing end of product life waste.
2. The Regional Clerk distribute the above recommendation along with a copy of this report to Environment Canada, the Ministry of the Environment, local Members of Parliament, and local Members of Provincial Parliament.

2. PURPOSE

The purpose of this report is to provide Council with information on the concept of “Zero Waste” and its relationship to the Region’s waste management plans.

3. BACKGROUND

According to the Greenpeace publication “Zero Waste” (R. Murray, Greenpeace Environmental Trust, London, Feb.2002), the concept of “Zero Waste” originates from the established Japanese business practices of total quality management. It is often misinterpreted as a goal of 100% waste diversion through municipal recycling efforts.

Zero Waste is, in fact, based on the concept that manufacturers can eliminate waste by establishing waste reduction as a priority when designing products and packaging. Zero Waste considers the environmental implications of the entire life cycle of a product rather than the prevailing practice of managing end of life materials. Emphasis is placed on managing wastes during the product design process to ensure that the product will be reused, repaired, recycled or composted.

If the product cannot be reused, repaired, recycled or composted, Zero Waste philosophy dictates that industry should not be manufacturing such a product. Zero Waste is a philosophy that places emphasis on extended producer responsibility and waste prevention in an attempt to put the responsibility for waste management back in the hands

of the manufacturer at the beginning of the product's life cycle, a "cradle to cradle" approach.

4. ANALYSIS AND OPTIONS

4.1 Communities with "Zero Waste" Policies

Globally, a few communities have adopted Zero Waste policies, and to date, none have documented achieving this goal. As a result, data does not exist to support the assertion that this goal is, in fact, achievable. The majority of these communities have adopted the concept of Zero Waste in name only recognizing that junior levels of government have no jurisdictional control over industry or their manufacturing practices. Instead these communities have focused their efforts on traditional waste diversion activities similar to those in place or planned by York Region. The Greater Vancouver Regional District, for example, in Spring 2006 recognized that the elimination of waste at a municipal level was not a realistic goal. They, instead, adopted a Zero Waste philosophy as a design principle for integrated solid waste planning. Some communities also support advocating action by senior levels of government to encourage industry to embrace "design for the environment" practices.

Communities known to have implemented Zero Waste policies in North America include the City of Toronto, Regional District of Kootenay Boundary, Regional District of Nanaimo, and the State of California. In all instances, these communities' Zero Waste strategies focus on waste diversion activities, over which they have jurisdiction, and as a result are not truly representative of the Zero Waste concept. Zero Waste programs have also been adopted, to a limited extent, in other countries such as Australia, New Zealand and in Europe. In most instances, these programs are very similar to those in Canada. Those with more aggressive diversion targets tend to be governments with jurisdiction over product design practices.

4.1.1 City of Toronto Approach to Zero Waste

In 2001, the City of Toronto announced its goal of Zero Waste as part of the development of its Waste Diversion Task Force 2010. The initiative was intended to produce a comprehensive waste diversion strategy that would ultimately divert 30% of waste from landfill by 2003, 60% by 2006 and 100% by 2010. To date, the City of Toronto diverts approximately 40% of its residential waste from landfill. The City has a number of proposed programs to achieve a higher level of waste diversion, they include the use of pay as you throw for single family dwellings, the use of clear bags for residual waste, deposit return for beverage containers, school and community education programs, additional landfill bans, levies for plastic shopping bags, and lobbying for packaging legislation, among other initiatives.

4.1.2 Regional District of Kootenay Boundary Zero Waste Goal

In 2000, the Regional District of Kootenay Boundary, British Columbia, population 89,000, adopted a goal of Zero Waste and the Provincial target of diverting 50% of the

waste being sent to landfill by 2000. This area currently diverts roughly 50% of its waste. Diversion programs currently in operation include curbside recycling, organics collection, and reuse centres. Proposed Zero Waste activities include implementing pay as you throw policies, promoting extended producer responsibility at a provincial level, and lobbying for an expansion of British Columbia's deposit return system currently in place for some beverage containers.

4.1.3 Regional District of Nanaimo Zero Waste Plan

In 2001, the Regional District of Nanaimo, British Columbia, population 133,000, endorsed its Zero Waste plan. Nanaimo currently diverts approximately 57% of its waste through user pay programs, curbside recycling, landfill bans on some recyclable materials, and the promotion of backyard composting. Future proposed programs include a curbside organics collection program, additional landfill bans, and a user pay or subscription based system for garbage collection. The District of Nanaimo had also proposed and approved the construction of an energy-from-waste facility, but due to the absence of funding, cancelled the project.

4.1.4 State of California Zero Waste Plan

In 2001, the Californian Integrated Waste Management Board established a Zero Waste plan. The plan mandates that the cities and counties of California divert at least 50% of waste generated from landfill. Several jurisdictions have reached the goal of 50% waste diversion. As a whole, in 2004, the state of California diverted approximately 48% of its waste from landfill. Current programs include curbside recycling, commercial organics collection, residential yard waste collection, deposit return for aluminium cans and glass and plastic bottles, a state agency "buy recycled products" campaign, and the collection and management of household hazardous waste. Proposed future programs include promoting best business practices in product manufacturing and handling, promoting new or existing technologies and processes to address existing and emerging waste streams, an education program to promote waste prevention and buying recycled products, and encouraging the practice of "cradle to cradle" producer responsibility.

4.2 Zero Waste and It's Relationship to Other Waste Management Options

In December 2005, the Association of Municipalities of Ontario (AMO), endorsed a European model for integrated waste management known as Lansink's Ladder. The AMO hierarchy, like the 3R's hierarchy, prioritizes methods of managing waste depending on its characteristics. Unlike the 3R's hierarchy, however, the AMO hierarchy specifically acknowledges the Zero Waste philosophy of environmentally conscious product design and puts it into context with other waste management options as shown below:

- 1) Prevention
- 2) Enhanced Design for Reduction or Reuse
- 3) Product Reuse
- 4) Material Recycling and Composting
- 5) Resource Recovery

6) Disposal via an Energy-from-Waste Facility

7) Disposal via Landfill

Hierarchies similar to AMO's have been endorsed by a number of member states in the European Union. AMO also asserts that communities with an integrated approach to waste management are more successful at diverting waste from landfill, reducing costs, and preserving the natural environment. Regional staff support the AMO endorsed hierarchy given the consistency between it and the integrated waste management system under development by the Region.

4.3 Integrated Waste Management In York Region

Since 2003, Regional staff has been working towards the development of an integrated waste management strategy that would minimize the Region's dependence on landfill. Underlying the strategy is a focus on maximizing diversion and providing long-term stable waste disposal capacity. The strategy parallels the AMO hierarchy and consists of three key components including:

- Advocacy to encourage "design for the environment" concepts in the manufacturing and sale of consumer products
- Waste diversion through the draft Inter-Municipal Waste Diversion Strategy
- Resource recovery through projects such as the Dongara fuel pelletizing proposal and joint residual waste Environmental Assessment (EA) with Durham Region.

This strategy is also consistent with the Region's direction towards building a sustainable community. In June of 2006, Regional Council adopted the final report of the Towards Sustainability in York Region Advisory Group. The report contains seven key recommendations which are consistent with the underlying goals of the Region's integrated waste management system including balancing economic, social and environmental priorities.

4.3.1 Advocating for Change by Product Stewards

Regional staff has been working for several years to encourage product stewards and the Province to take action on waste management issues associated with consumer packaging. Staff are currently involved in waste management related policy development and advocacy work through the Association of Municipalities of Ontario, Association of Municipal Recycling Coordinators and Municipal Industry Program Committee(MIPC).

In the summer of 2006, local municipal and Regional staff conducted extensive public consultation to solicit feedback on the draft Inter-Municipal Waste Diversion Strategy. The single most common issue raised was a concern with the lack of effort by manufacturers and businesses, as a whole, to reduce over packaging of consumer products and establish "take back" programs for their product related waste.

In response to these concerns, the draft 2007 operating budget for Council's upcoming consideration, includes a proposed new advocacy program. The new program includes resources to advocate for further policy development at a federal level to incorporate total quality and lifecycle management concepts into product design by the manufacturing industry. It also includes resources to encourage local property owners to establish recycling programs for their tenants and customers.

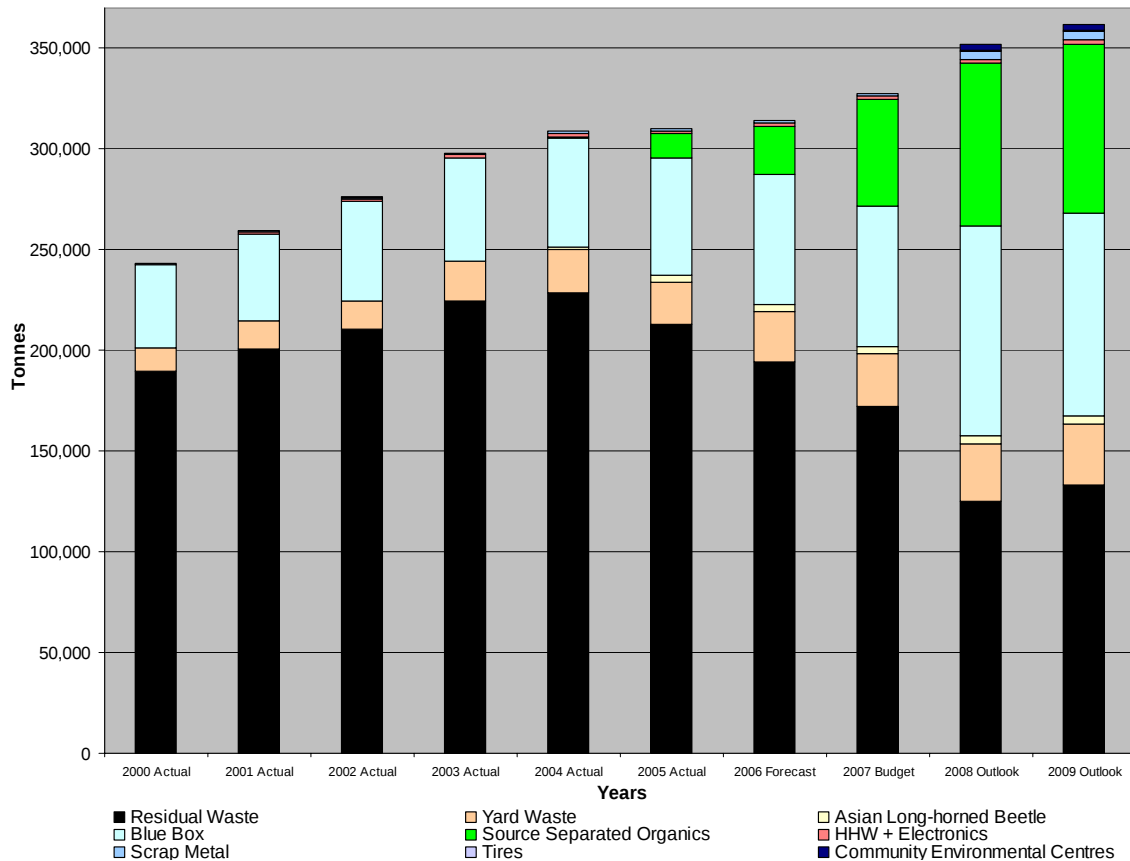
This new program will ensure the Region is actively supporting the concept of Zero Waste and the principles of "Waste Prevention" and "Enhanced Design for Reduction or Reuse" embodied in the AMO waste hierarchy.

4.3.2 Draft Inter-Municipal Waste Diversion Strategy

The nine local municipalities and the Region have cooperatively developed the draft Inter-Municipal Waste Diversion Strategy. This strategy outlines a number of waste diversion activities for immediate and future implementation which support the principles of "Product Reuse", "Material Recycling and Composting" and "Resource Recovery" included in the AMO hierarchy. Some of the activities being considered for immediate implementation include curbside collection of organics, optimized blue box diversion, the construction of community environmental centres, the use of bag limits and financial incentives, textiles diversion and enhanced communication and public outreach.

Proposed programs for future consideration include improved yard waste diversion, the use of mandatory by-laws, and expanded advocacy efforts. At the present time, the Region diverts approximately 33% of its waste from landfill, as seen in Figure 1. It is estimated that by implementing the activities identified in the strategy for immediate consideration, the Region could divert 65% of its waste from landfill, and when the programs for future consideration are added the Region could achieve approximately 75% curbside waste diversion. These goals are currently more aggressive than those actually being achieved by identified communities with Zero Waste policies.

Figure 1
York Region's Historical and Projected Waste Tonnage



4.3.3 The Dongara Fuel Pelletizing Project

In January 2004, the Region issued Request for Proposals P-03-81 which solicited proposals to build a commercially viable facility to manage 70,000 tonnes of the Region's waste. The purpose of the RFP was to secure an alternative for the waste currently being shipped to the Onyx Landfill in Michigan for when the Region's contract with Onyx expires at the end of 2007. The Dongara proposal was the successful outcome of that process. The proposal includes developing a plant that will create fuel pellets from 100,000 tonnes of the Region's residual waste. The fuel pellets produced by this plant will initially be sold to cement kilns and marketed as an alternative to coal. The proposed plant includes front end recovery of recyclables to maximize diversion and is consistent with the principle of resource recovery identified in the AMO hierarchy.

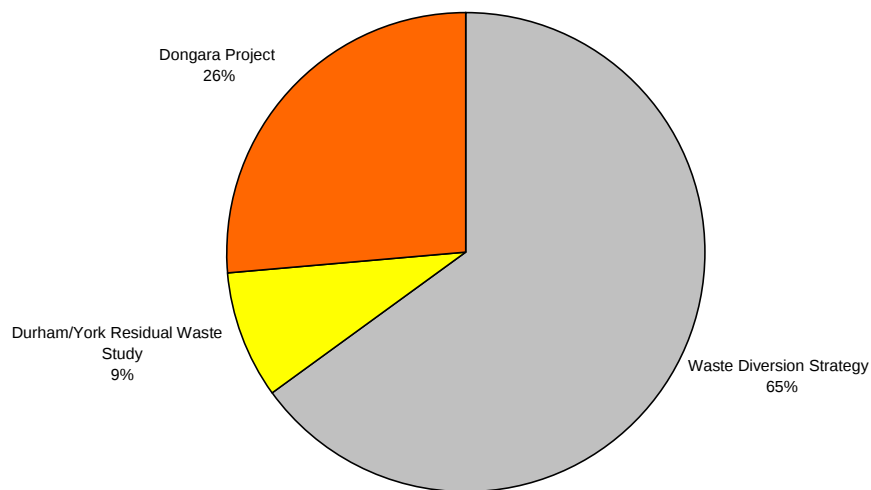
4.3.4 The Durham/York Residual Waste Study

The Durham/York Residual Waste Study has committed to recover energy and thermally reducing the volume of residual waste remaining after recycling and composting as supported by the AMO hierarchy of waste management options. This initiative will manage the waste remaining after implementation of the Inter-Municipal Waste Diversion Strategy and Dongara proposal. The study recognizes that manufacturers

currently produce products that can not be effectively diverted through reuse, composting or recycling and, therefore, require disposal. The proposed energy-from-waste facility is expected to provide the Region with waste management capacity for 35 years. Should manufactures begin to embrace the concept of Zero Waste during that period and begin generating fewer disposal products, the facility can be closed without having the long-term environmental hazards associated with a landfill.

Figure 2 demonstrates how staff envision integrating the various initiatives underway by the Region to effectively waste in the future. It is anticipated that advocacy efforts to encourage manufacturers to adopt Zero Waste principles will increase the proportion of waste that will be reusable or recyclable over time.

Figure 2
York Region's Integrated Waste Management System



5. FINANCIAL IMPLICATIONS

The proposed 2007 operating budget includes an enhancement for staff and project resources to address advocacy issues such total quality and lifecycle management in the manufacturing industry. This proposal involves hiring a full time employee to perform such activities as lobbying the federal government to pass legislation requiring industry to change packaging standards and encouraging the province to penalize businesses that produce difficult to recycle packaging through the Waste Diversion Act. Recent provincial intensification legislation and York Region's population growth may require the future development of unique waste management solutions specific to high density residential developments, and these may be future considerations for this proposed program. Encouraging local property owners to establish recycling programs for their tenants and customers may also be considered. Gross costs for this proposed enhancement are outlined in Table 1.

Table 1
Cost Implications of Proposed Advocacy Staff

	2007	2008	2009
Salary	\$57,000	\$60,000	\$63,000
Benefits	\$12,000	\$13,000	\$13,000
O/T	\$1,000	\$1,000	\$1,000
Training	\$2,000	\$2,000	\$2,000
Travel	\$4,000	\$4,000	\$4,000
Office Equipment	\$5,000	\$5,000	\$6,000
Consulting	\$50,000	\$53,000	\$55,000
Mat & Supplies	\$1,000	\$1,000	\$1,000
Computer Equipment	\$4,000	\$4,000	\$5,000
Gross Costs	\$136,000	\$143,000	\$150,000

6. LOCAL MUNICIPAL IMPACT

Implementation of the plans outlined in the draft Inter Municipal Waste Diversion Strategy will allow all local municipalities to achieve a level of waste diversion that exceeds those currently being achieved by communities which have, to date, adopted Zero Waste strategies.

7. CONCLUSION

The original Zero Waste concept was intended to promote the design and manufacture of commodities and packaging by industry to prevent the generation of waste. As a result, this concept does not apply directly to municipal government. Some communities have,

however, adopted the term Zero Waste to apply to their traditional waste diversion and advocacy efforts.

York Region has been working towards development of a successful integrated waste management model. The model incorporates development of the Inter-Municipal Waste Diversion Strategy, Durham/York Residual waste EA process, resource recovery projects such as the Dongara fuel pelletizing proposal and proposed new programs such as increased advocacy efforts to reduced overpackaging. These efforts are consistent with AMO's integrated waste management hierarchy and already embody the principles of Zero Waste. It is recommended that the Region support and advocate for further change by the provincial and federal governments to mandate industry to implement design standards that take environmental considerations into account and reduce waste.

The Senior Management Group has reviewed this report.