

Municipal Hazardous or Special Waste (MHSW) Program Plan



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**Municipal Hazardous or Special Waste
(MHSW) Program Plan**

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1.0 Introduction

On December 11, 2006, the Minister of the Environment filed Ontario Regulation 542/06 under the *Waste Diversion Act* (WDA) designating Municipal Hazardous or Special Waste (MHSW)¹.

The Regulation defines Municipal Hazardous Waste as:

- corrosive, flammable or toxic products by reference to Consumer Chemicals & Containers Regulations, 2001;
- flammable, corrosive or toxicity hazards by reference to CSA Standard Z752-03; or
- corrosive, ignitable, leachate toxic, reactive waste by reference to Regulation 347.

The Regulation defines Municipal Special Waste as:

- batteries
- pressurized & aerosol containers
- portable fire extinguishers
- fertilizers, fungicides, herbicides, insecticides, pesticides
- paints & coatings
- oil bottles & filters
- fluorescent light bulbs or tubes
- pharmaceuticals, sharps, syringes
- switches, thermostats, thermometers, barometers & measuring devices containing mercury
- antifreeze & solvents

On December 12, 2006, the Waste Diversion Ontario (WDO) Board of Directors received a Program Request Letter from the Minister of the Environment requesting a diversion program for MHSW and directing that Stewardship Ontario act as the Industry Funding Organization (IFO) for MHSW². The Minister's letter outlined program requirements and requested a consultation plan.

Stewardship Ontario is a not-for-profit corporation incorporated under the *Corporations Act* and governed by the provisions of the WDA. Ontario Regulation 273/02, as amended by Ontario Regulation 255/06, stipulates that Stewardship Ontario is designated as the Industry Funding Organization for the waste diversion program for Blue Box Waste.

Note to readers: A list of acronyms is included for reference in Appendix 7 of this plan.

1.1 Phase 1 Materials

The Minister's Program Request Letter directed that the MHSW program be implemented in multiple phases. Phase 1 of the program shall include:

- paints and coatings, and containers in which they are contained;
- solvent, and containers in which they are contained;

¹ <http://www.ene.gov.on.ca/envision/land/wda/542-06.htm>

² <http://www.ene.gov.on.ca/envision/land/wda/mwdo.htm>

- oil filters, after they have been used for their intended purpose;
- containers that have a capacity of 30 litres or less and that were manufactured and used for the purpose of containing lubricating oil;
- single use dry cell batteries;
- antifreeze, and containers in which they are contained;
- pressurized containers such as propane tanks and cylinders; and
- fertilizers, fungicides, herbicides, insecticides, or pesticides and containers in which they are contained.

While Ontario Regulation 542/06 represents the Minister's designation of MHSW, it is necessary for Stewardship Ontario, as the IFO responsible for developing the plan, to define the products to be included in the program for the purposes of levying fees on stewards. The definitions of products to be included in the program provide Stewardship Ontario with the legal authority, upon approval of the MHSW program plan by the WDO and the Minister of the Environment, to require stewards to register, submit reports and pay fees to cover the costs of the program developed for the management of the Municipal Hazardous or Special Waste. These definitions are provided in the material specific plans that follow in Section 3.

1.2 Designation of Phase 1 Stewards

The Minister's Program Request Letter specified that brand owners and/or first importers into Ontario of products that result in the generation of municipal hazardous or special waste will be designated as stewards of these products. More information on the definition of stewards is available in Section 6 and Schedule A of Section 8.

It should be noted that individual brand owners and/or first importers who wish to take direct responsibility for managing their obligations under the WDA can apply to the WDO for approval of an Industry Stewardship Plan (ISP). All stewards will be required to register with and pay fees to Stewardship Ontario unless and until an ISP is approved.

It is possible to have different plan components and various fee obligations for sub-categories of designated materials that include most or all of an identifiable group of products within a single program plan.

1.3 Important Considerations Pertaining to Phase 1 Materials

This program plan encompasses Phase 1 materials that are introduced as products into the Ontario market place through either one of the following avenues:

- product that is sold as an end product to consumers (e.g. paint and coatings)
- product that is included as component of a product sold to consumers (e.g. single use dry cell battery included in a remote control device)

Throughout this plan, the term "sold" refers to quantities of Municipal Hazardous or Special Materials (MHSW) that enters the Ontario market either in a unit or volume (litre) basis. The sales are converted to a weight basis (tonne) for the purposes of the program plan. The term "generated" is used to refer to the point at which a given material becomes a waste.

When reviewing this plan, it is important for the reader to understand the unique generation and handling characteristics associated with each of the Phase 1 materials. The materials in

Phase 1 include both those that are intended to be discarded after their useful life and those that are intended to be consumed in use.

Examples of Phase 1 materials that are designed to be discarded at the end of their useful life include single use dry cell batteries, oil filters, antifreeze and oil containers. These are typically available on a one-for-one basis (i.e. the discarded battery is replaced with another battery).

Other Phase 1 materials are consumable products that are intended to be fully used up by the consumer, and ideally, would not result in a waste requiring management. These materials are included in this MHSW plan because of the need to manage all or a portion of the residual products that are not been fully used up by the consumer or are no longer usable due to improper storage practices. Examples include left over paint, pesticides or fertilizers.

One challenge in developing a plan targeting consumable products is the difficulty in estimating how much of a particular product is actually consumed versus how much is not consumed and therefore available for management as waste. One of the objectives of the program is to actually reduce the quantity or volume of material that is available for collection and management through consumer education about purchasing what they need, using the product up and storing the product properly.

1.4 Preparing for Phase 2

The Minister's Program Request Letter indicated that Phase 2 of the program shall include all items listed in Phase I of the program, along with:

- batteries (other than single use dry cell);
- aerosol containers;
- portable fire extinguishers;
- fluorescent light bulbs and tubes;
- pharmaceuticals;
- sharps, including syringes;
- switches that contain mercury; and
- thermostats, thermometers, barometers, or other measuring devices containing mercury.

Phase 2 stewards are strongly encouraged to participate in the Phase 1 material program development and its implementation upon approval in preparation for Phase 2.

Future phases of the program will be determined as per future program request letters.

1.5 Plan Development Process

In the development of the MHSW Program Plan, the program planning team implemented the public consultation program as outlined by the WDO. A full description of the consultation program, the comments received and whether and how these comments were addressed in the program plan are provided in the companion document "Municipal Hazardous or Special Waste Consultation Document" which is available on the web sites of Stewardship Ontario and the WDO.

The plan development process was guided by an MHSW Stewards Program Committee which included representation from all Phase 1 materials. A list of Program Committee members can be found in Appendix 1.

In addition, throughout the development of the Program Plan, the planning team held several meetings with product sector representatives. These meetings were attended by Program Committee members representing their respective Phase 1 material, as well as other stewards of that material and their representative industry associations. The meetings provided the opportunity to obtain product sector information, and to consult on plan development issues relating to the particular Phase 1 material.

In parallel with this program planning process, a Stewardship Ontario Governance Restructuring Committee was established which included representation from the existing Stewardship Ontario Board and from future stewards of MHSM. A list of these committee members can be found in Appendix 2.

Contact with MOE and WDO staff was maintained throughout the program planning process to seek clarification and to review key program elements as required.

As the designated IFO for MHSW, the Stewardship Ontario Board was provided with progress reports throughout the planning process and the board reviewed and approved the Draft Final MHSW Program Plan on May 14, 2007 for submission to the WDO.

2.0 Common Plan Elements

2.1 Introduction

Some components of the MHSW Program Plan will be common to all Phase I materials while others will be unique to each of the designated materials. In some cases the common program elements result from policy directions given in the Minister's Program Request Letter that apply to all materials and in other cases (such as fee setting, program delivery and administration) these are program functions that encompass all of the obligated materials.

The following sub-sections provide a description of the MHSW common plan elements. Overviews of each of the material specific plans follow in Section 3.

2.2 Promotion and Education (P&E)

Section 7c of the addendum to the Minister's Program Request Letter requires that the plan include "education and public awareness activities to support the plan."

This section outlines strategies and tactics that will be considered for inclusion in the Promotion and Education (P&E) Strategic Plan to promote the objectives of the MHSW Program Plan in terms of public awareness and motivation, and support the 3Rs diversion targets while aiming to provide information that will help Ontarians change their management and diversion behaviour pertaining to these products. These activities are used as the basis for projecting program costs for this element of the plan, recognizing that the specific activities and details of how the strategic communication plan is implemented will depend on the initial research and the evaluation of the results during Year 1, as outlined below.

With the principles of good communications planning, implementation and evaluation in mind, this draft outline will be revised once empirical research (a critical first step in informing the development of a strategic communication plan) has been completed following MHSW plan approval.

Appropriate key messages, themes and language are important to the industry sectors affected by the MHSW preliminary plan. The empirical research that will be conducted before the communication plan is finalized could include focus group testing of themes, material messages, images and final tactics that would be used in the P&E campaign rollout.

The development of the P&E Strategic Plan will be based on the following industry accepted practices of:

1. undertaking research to collect pertinent consumer attitude and behavioural data;
2. analyzing the data to acquire a sound understanding of the audiences, issues, barriers and opportunities, and effective messages and tactics;
3. applying the tactics over a predetermined period of time; and
4. evaluating the results and adjusting the strategic approach, as needed.

Phasing in P&E

A multiplicity of factors affects the implementation of a full P&E Strategic Plan in the short term, not the least of which is the major issue of accessibility. For example, if P&E motivates citizens to respond to the “call to action” and to collect MHSW products and containers only to discover no convenient means of appropriate diversion, they quickly will become disappointed and disillusioned and might not participate in any further MHSW diversion activities. Another important factor that will influence the development of communications tactics for some materials is the need to develop diversion system capacity to manage the collected materials appropriately. Until additional systems for diversion are put in place where required, P&E will focus on materials where diversion gains can be achieved.

Consequently, the P&E Strategic Plan will be dynamic and will be revised and updated annually to ensure it reflects the objectives of the program and new developments over the five year period of the MHSW Program Plan. Table 2-1 below outlines the main stages of the P&E activities roll-out.

Table 2-1: P&E Activities Roll-Out Stages

Stage	Budgeted Activity
Pre-Commencement (plan submission to commencement date)	<ol style="list-style-type: none"> 1. <i>Select appropriate project management option</i> 2. <i>Establish Advisory Committees: Municipal & Industry</i> 3. <i>Perform Research: initiate benchmark qualitative & quantitative research that will include testing messages, images & communication vehicles; undertake communication audit of existing P&E materials used in other jurisdictions</i> 4. <i>Develop P&E Strategic Communication Plan: build strategic communication plan to establish strategic directions and tactics</i>
Post Commencement: Year 1 and Years 2 to 5	<p><i>Year 1:</i></p> <ul style="list-style-type: none"> • <i>Program Launch</i> • <i>First Quarter: produce & disseminate P&E materials & establish evaluation mechanisms</i> <p><i>Years 2 to 5:</i></p> <ul style="list-style-type: none"> • <i>Annual Update: Review the P&E plan & revise according to the results of the evaluation mechanisms, progress toward accessibility & targets.</i>

2.2.1 Pre-Commencement Stage (plan submission to commencement date)

1. Select Appropriate Project Management Option

A number of options will be available to manage P&E activities. These include contracting out all activities using a competitive bid process; contracting out some activities and relying on in-house staff to carry out the remainder, or relying on in-house staff to carry out all activities.

2. Establish Advisory Committees: Municipal and Industry

Stakeholders will be provided with an opportunity to comment and provide input on the planning and implementation of P&E through the creation of the two following advisory committees.

- Municipal Advisory Committee comprising municipal staff responsible for P&E to discuss P&E issues, e.g. P&E program silos vs. integrated communications related to both Blue Box and MHSW
- Industry Advisory Committee comprising representatives concerned about/interested in P&E activities, e.g. to discuss messages and appropriate descriptive language, to review strategic P&E approaches, to review issues such as point of purchase promotion materials

3. *Perform Research*

Goal: To implement and complete the research stage and develop the Strategic Communication Plan prior to the commencement date.

Objectives:

- To collect information about public opinions and behaviour
- To assess reactions to the concept of “Buy only what is needed, use it up, dispose of residue and container responsibly”
- To test concepts for messages and images
- To assess the strengths and weaknesses of P&E from existing programs

Timetable: Proposed from point of Minister’s approval of the MHSW Program Plan to the date of commencement.

Potential Activities:

- Qualitative Research (Focus Groups): To probe attitudes and behaviour pertaining to municipal hazardous or special waste, including attitudes toward the “Buy only what is needed, use it up, dispose of residue and container responsibly” philosophy.
- Quantitative Research (Telephone Survey): Province-wide telephone survey to establish awareness, attitudes and behaviour benchmarks against which progress will be measured annually in “tracking” telephone surveys.
- Communication Audit: Audit of existing P&E materials and tactics used in other provinces and by Ontario municipalities that have implemented successful household hazardous waste collection programs

4. *Develop Strategic Communication Plan*

- Based on the results of the research and the information pertaining to accessibility and material-specific collection
- Roadmap laying out how the P&E program will be developed, implemented and evaluated on a year-by-year basis
- Will include issues management, tactics, workplan and timetable

2.2.2 *Post-Commencement Stage—Year 1*

The proposed activities outlined below are preliminary planning concepts and are used as the basis for projecting program costs for this element of the MHSW program plan, recognizing that the specific activities and details of how the Strategic Communication Plan is implemented will depend on the initial research, as outlined above. These activities will be reviewed based on the evaluation of the results during Year 1.

Goals:

- To kick off the program with an event that establishes momentum through media coverage.
- To build awareness of the program, being sensitive to accessibility and to provide access to additional information.
- To support overall MHSW program collection targets.
- To ensure compatibility with material-specific P&E activities, e.g. paint container stickers (description and budget allocated under material-specific P&E).
- To develop parameters to support municipalities for local MHSW P&E and to implement accordingly.

Objectives:

- To create a launch that will capture media and public attention.
- To inform Ontarians of a MHSW-specific website where they will find details about 3Rs and collection.
- To implement a media relations strategy that potentially includes a 'media tour,' e.g. visits to media outlets around in key centres to talk about the program, and the distribution of a series of releases, letters, etc. introducing Ontarians to key messages such as "Buy only what is needed, use it up, dispose of residue and container responsibly" and motivating them to take unused materials and containers to a collection facility or event.
- To garner broader awareness of the program through the potential use of P&E materials such as print ads that would be placed in local newspapers to promote event and depot days and that would convey key messages.
- To produce a selection of material-specific P&E materials such as ads, original stock photography and clip art for Stewardship Ontario and that can be made available to municipalities to use in locally-produced materials.

Timetable: Implementation from commencement date for one full year.

Potential Activities:

- Program Launch: Launching the P&E program at commencement in Year 1 will require a strategic approach that announces the start of the program but succeeds in conveying the information that the roll-out will be staged as accessibility increases.
- First Quarter: Produce & Disseminate P&E Components
 - a. Media Tour & Relations: Spokespersons could undertake a strategic media tour to help heighten awareness in appropriate locations; talk with media and editorial boards about how and why the program is rolling out; includes news releases, backgrounders, letters to the editor and preparation of a media information kit.
 - b. MHSW Dedicated Website: Create and maintain a dedicated website. In Year 1, the information should reflect sensitivity to accessibility and expansion throughout the year.
 - c. Original Photography Stock: Produce original, proper photographs of MHSW materials that can be used on the website, in Stewardship Ontario P&E materials and made available to municipalities to use in P&E materials.
 - d. Material-Specific Ads and Clip Art: Material specific print ads using universal messaging and appropriate descriptive language and stock photography, and clip art could be created and made available to municipalities to use in locally-generated P&E materials or ads furthering the objective of building

- awareness of the program while being sensitive to accessibility. Use of these materials would help to develop the universal approach to proper images and messages (for municipal P&E such as annual calendars).
- e. Event/Depot Day Print Ads: Print ads could be developed for use in local newspapers to alert residents to event or depot days and to provide a minimum level of corporate profile for industry's role in MHSW program.
 - 1) It is anticipated that 424 MHSW events will be held over the course of Year 1.
 - 2) Some of these events will be run on the same day or consecutive days or weekends and would not need separate advertising.
 - 3) A demonstration of the effectiveness of this advertising will be undertaken in Year 1 targeting approximately 40% of the events, or 168 for planning purposes.
 - 4) It is assumed that there would be 3 print ad insertions per occasion (minimum number required to build a reasonable level of awareness among readers).
 - 5) Year 1 estimated budget @ 168 occasions X 3 insertions X average \$1,100.
 - 6) An option for consideration is that ad placement could be handled by WDO which is familiar with the process and already communicates with Ontario newspapers under the Blue Box "in-kind" program.
 - f. Point-of-Purchase (POP) All-material Brochure
 - 1) The number of MHSM retail outlets in Ontario is not yet known but is estimated to be between 15,000 and 20,000.
 - 2) A potential tactic in Year 1 could be to create a single brochure that would contain material-specific information and that would drive people to the universal website for local information (this tactic would be evaluated and reviewed in subsequent years).
 - 3) Could be displayed in a stand-up holder that can be displayed at point-of-purchase (POP) and sent to a large number of retail outlets in areas where MHSW service is provided.
 - 4) Year 1 target: 15% of outlets with a request to place one at each checkout counter.
 - 5) Estimated 3,000 MHSM retail outlets (15% of estimated 20,000 total) with estimated average five checkout counters = 10,000 POP brochures in holder @ estimated \$6 each
 - g. Ensure compatibility with material-specific P&E: As described in Section 5.3.3.
 - h. Assess Municipal Support Mechanisms
 - 1) With input from both the Industry and Municipal Advisory Committees, identify the most effective way to support municipal MHSW P&E activities.
 - 2) Implement activities to support local municipal MHSW P&E accordingly. A budget has been assumed for these activities (refer to Section 5.3.3)
 - i. Annual P&E Program Evaluation: In Year 1, both the benchmark and the first "tracking" survey will need to take place to provide the progress against targets that will inform revisions to the P&E plan for Year 2.

2.2.3 Post-Commencement Stage — Year 2 to 5

The level of P&E effort and expenditures required for subsequent years of the program are difficult to determine but will be based in large measure on the success of the MHSW program in achieving collection and diversion targets. The following activities could be included in a strategic communication plan assuming a campaign encompassing all Phase 1 materials. If increased P&E efforts are required only for select materials, then material specific campaigns may be more appropriate. Consideration will also need to be given to revising the overall approach and campaign as and when additional MHSW materials are designated.

Goals:

- To increase momentum established in Year 1.
- To support overall MHSW program collection targets.
- To ensure compatibility with material-specific P&E activities, e.g. paint container stickers (description and budget allocated under material-specific P&E).
- To review the effectiveness of the support provided to municipalities for local MHSW P&E in Year 1 and revise parameters accordingly for Year 2.
- To continue to implement and review annually during Years 2 – 5.

Objectives:

- Develop a P&E strategy based on progress against goals.
- Continue to inform Ontarians of the MHSW-specific website where they can find details about 3Rs and collection.
- Potentially maintain media relations strategy that includes the distribution of news releases, letters, etc. reinforcing key messages such as “Buy only what is needed, use it up, dispose of residue and container responsibly” and motivating them to take unused materials and containers to a collection facility or event.
- Support local event and depot days potentially with continuation of print ads.
- Potentially expand the selection of material-specific ads, original stock photography and clip art for Stewardship Ontario generated materials and for use in municipally produced materials.

Timetable: Implementation would likely be year by year. At the end of each year, the results of evaluation mechanisms would inform the review and development of the next year’s strategic communication plan.

Potential Activities:

- *Revise Strategic Communication Plan* - based on result of evaluation mechanisms; likely less effort would be required
- *Advisory Committees* - on-going quarterly meetings
- *MHSW Dedicated Website* - revise/update as needed.
- *Original Photography Stock* - revised, increase as needed.
- *Material Specific Ads and Clip Art* - update ads and clip art as needed
- *Event/Depot Day Print Ads* - if adopted could remain core awareness building activity. Depending on the success of the Year 1 advertising, a planning figure of \$990,000 is assumed and included in the common administration and program delivery budget to provide for 300 separate advertisements to cover the 424 events per year (noting that some of 424 events are concurrent or within same period and

- don't need separate advertising – assumed about 70%) with 3 print ad insertions per occasion (minimum number required to build a reasonable level of awareness).
- *POP All-material Brochure* - depending on the success of the demonstration of the brochure display kit, the demonstration could be expanded in Years 2 and 3 from 15% to 60% of MHSM retail outlets, linked to areas with MHSW service. Similarly, depending on the continued success of the brochure display kit, the demonstration could be expanded in Years 4 and 5 from 60% to 100% of MHSM retail outlets), linked to areas with MHSW service. Brochure would likely have to be updated with new information and graphics revised to lend fresh appeal and the kits re-sent to retail outlets each year since it is unlikely retail outlets would retain these indefinitely. Would likely be evaluated each year and alternative ideas such as shelf-talkers discussed with industry, if appropriate. Estimates have been provided for Years 2-5.
 - *Media Relations* - could be on going pro-active and reactive, news releases, backgrounders, letters, etc.
 - *Implement Municipal Support Mechanisms* - potential municipal financial support program. Based on current municipal P&E reported spending at \$500,000 to \$600,000. Year 2-5 estimated budgets is \$600,000/year.
 - *Annual P&E Program Evaluation* - toward the end of each year, likely would conduct an evaluation of the P&E to assess the effectiveness of the overall as well as individual elements. Evaluation at the end of each year likely would be measured through:
 - a. progress toward collection targets
 - b. awareness of program measured by tracking research
 - c. reported behaviour measured by tracking research

A P&E Budget Summary is provided in Table 5-9 in section 5.3.3

2.3 Small Quantity Waste from IC&I Businesses

2.3.1 Definition

The Minister's Program Request Letter defines small quantity MHSW waste from industrial, commercial and institutional (IC&I) businesses as waste being returned to an MHSW depot by a business that generates MHSW and is not required to submit a generator registration report with respect to the waste under subsection 18(1) of Regulation 347 under the EPA and that does not return more than 100 kg per month of MHSW through the program.

2.3.2 Regulatory Issues

For more information concerning requirements under existing legislation and regulations, please consult <http://www.e-laws.gov.on.ca/>.

Exemptions for MHSW for some requirements of Regulation 347 under the EPA

Regulation 347, made under the Environmental Protection Act (EPA), provides a comprehensive system for monitoring Hazardous and Liquid Industrial Wastes, from their point of generation, through to their ultimate disposal. It sets standards for waste generation facilities, waste management systems and disposal facilities. It also provides definitions to identify wastes that are Hazardous or Liquid Industrial Wastes. Such wastes must be registered on an annual basis by the waste generator through the Hazardous Waste

Information Network and require the completion of a waste manifest prior to their transportation from the generating facility. There are some exclusions from the requirement for generator registration including exclusions for residential waste and some for small quantities of waste from IC&I businesses. Please consult <http://www.e-laws.gov.on.ca/> for information on the specific requirements of Regulation 347.

Wastes that are subject to generator registration cannot be returned to MHSW facilities. Wastes excluded from generator registration and other designated MHSW from businesses that return less than the threshold of 100 kg per month prescribed in the Minister's Program Request Letter would be covered by the MHSW program. The quantities permitted from IC&I businesses would be the lower of those defined by the small quantity exclusions of Regulation 347 or the 100 kg per month prescribed in the Minister's Program Request Letter. Note that the transportation of IC&I waste and its receipt at a collection facility normally requires specific approval from the Ministry of the Environment unless specifically exempted from these requirements. It is advisable to check with the intended collection facility before transporting waste to that facility.

Transportation of small quantities of MHSW by IC&I businesses

Under Part V of the EPA, transportation of any waste is prohibited unless a Certificate of Approval (C of A) has been issued and except in accordance with any conditions set out in the C of A. While there is an exemption for delivery of a resident's own domestic and MHSW waste, IC&I generators are subject to the requirements of this section of the Act and are required to use an approved transportation system or alternatively seek approval for their own transportation system. In addition to this approval, IC&I generators must meet the requirements of the federal Transportation of Dangerous Goods Regulations (TDGR), that include safe handling procedures, shipping documentation and labelling, and specific training for the person transporting the material.

Transportation and tracking of small quantities of MHSW by IC&I businesses can therefore be an onerous endeavour, creating a significant barrier to increasing the collection and diversion of MHSW generated by this sector.

Receiving small quantities of MHSW by IC&I businesses

Part V of the EPA prescribes that establishing and operating any waste management system or disposal facility requires a C of A. The C of As for existing municipal facilities, including special events, generally do not permit the receipt of waste from IC&I businesses. As well, many non-municipal facilities and service providers are not permitted to handle the range of MHSW materials from IC&I businesses.

Changing C of As for all of the existing facilities and operations to be able to accept small quantities of MHSW from IC&I businesses could take a significant amount of time.

2.3.3 Options for Collecting Small Quantities of MHSW from IC&I Businesses

Given the regulatory issues raised in the preceding sections, three possible options to allow for, and increase the amount of MHSW collected and diverted from IC&I businesses that generate small quantities of MHSW, have been identified. Each of these requires discussions with key stakeholders including the provincial government, municipalities, and private sector service providers. These options will be explored in depth during the first year

of program implementation, bearing in mind that the timeline for assessing and possibly developing each option will depend on the MOE's position and timelines. These options include:

1) Changing C of As to accept small quantities of MHSW from IC&I businesses

Description:	Allow municipalities and service providers to change C of As on a voluntary basis
Advantages:	Flexible for municipalities and service providers
Disadvantages:	Uptake by municipalities uncertain
Timeframe:	Year 1 – identify requirements, impacts of existing programs (e.g. Peel Region), and identify willing municipalities and operators Year 2 – initial applications and continue identification of willing municipalities

2) Blanket C of A for material or region

Description:	Allow a corporation to obtain a C of A for a waste management system covering a geographic area or covering a specific material across the province. This would be a non-standard approval and would be complicated by several issues such as identification of person responsible under C of A, appropriate financial assurance, waste tracking, waste ownership and liability, and contractual obligations.
Advantages:	Allows broad coverage for generators and transporters with one C of A, reducing the number of applications and requirements for individual generators and transporters
Disadvantages:	May be applicable to only a few materials; and may take time to establish requirements and contracts
Timeframe:	Year 1 – investigate existing experience from similar programs, such as Rechargeable Battery Recycling Corporation (RBRC); explore with MOE applicability for other MHSW and regional contracts and explore with service providers and material sectors for possible pilot Year 2 – implementation of pilot and monitor with MOE Year 3 – implementation of other systems as applicable

3) Exemption under Regulation 347

Description:	Seek additional exemptions for other materials under Regulation 347
Advantages:	Allows for greater quantities of waste to be handled because of current relatively small thresholds under Regulation 347 or additional facilities to serve as depots
Disadvantages:	Amendments to Regulation 347 will take time
Timeframe:	Year 1 – investigate existing experience from current exemptions and explore with MOE applicability and requirements for possible additional exemptions Year 2 – continue work with MOE Year 3 – implementation of systems as applicable

Further analysis of these options and any others identified during the course of the plan development process will be initiated upon commencement of the program. Progress will be reviewed annually and actions identified to extend the accessibility and participation of IC&I businesses generating allowable small quantities of MHSW.

2.3.4 Verifying eligible IC&I businesses

One of the challenges of receiving MHSW from IC&I businesses that are not required to register under Regulation 347 is the difficulty for facility operators to verify that businesses are eligible to deliver MHSW materials and that they are not returning quantities in excess of the regulations, possibly to various facilities. A central reporting, verification and simple approval system may be required. In conjunction with the MOE, the requirement, feasibility and options for such a system will be investigated. One possibility is to extend the existing system for registering, reporting and remitting fees used by stewards, to cover IC&I businesses returning small quantities of MHSW.

2.4 Research & Development and Market Development

The Minister's Program Request Letter prescribes that the program plan provides for:

- Research and development activities to support and increase the effectiveness and efficiency of MHSW collection and diversion, and
- Activities to develop and promote diversion of MHSW that is available for collection.

Currently some quantities of MHSW materials collected are diverted from disposal, while others are disposed. The portion of each material diverted depends in part on the existing technology and infrastructure available to further process these materials. Through this program, the Minister is seeking to encourage 3Rs initiatives for these materials, to promote innovative and cost effective collection and diversion techniques and to reduce the amount of each material disposed. Some additional investment will be required for some materials to meet accessibility, collection and diversion targets set out in the plan. Therefore, increased collection and diversion activities will be promoted in the plan and the associated financial costs, where required, will be incorporated into stewards' fees. Whether the most appropriate mechanism for use of these funds is through direct investment by Stewardship Ontario or through requests for proposals from service providers on a fee for service basis will need to be determined by material type. The funding for such activities will be based on several principles, as follows:

- **Linked to targets:** The need for additional investments (directly or indirectly by service providers) in intermediate processing and end markets to support the diversion of materials and to make collection and diversion infrastructure more effective and efficient will be linked to specific targets for each material and to the progress required to meet those targets.
- **No Cross-subsidization:** Funding for market development activities and increased efficiency and effectiveness of collection and diversion infrastructure will be targeted for the materials that benefit from those investments. In some cases, investments will be specific to one material, but other investments may benefit a selection of materials or even all materials. These will be accounted for in assessing the fees.
- **Partnership:** Stewardship Ontario will undertake these activities wherever possible in partnership with other organizations, such as private sector service providers, provincial and federal agencies and municipalities.

These expenditures will cover the following types of activities:

- Research and analysis to assess system improvement needs and identify innovative, efficient and effective collection and diversion technologies and systems.
- Pilot and demonstration projects, including research and development studies for new technologies and practices and technology transfer projects.
- Capital funding (direct or indirectly through fee for service arrangements with service providers), if required, to assist with the development of appropriate processing infrastructure for diversion (separate from potential capital funding to increase accessibility for collection).

Initial estimates of the requirements for Year 1 have been developed and incorporated into proposed stewards' fees for Year 1. Funding and investment needs for subsequent years will be reviewed and refined based on analysis of the material specific needs during each subsequent year of the program and appropriate market development and research and development budgets will be incorporated into the stewards' fees each year.

2.5 Current Infrastructure, Quantities, Accessibility and Targets

In her Program Request Letter, the Minister of the Environment specified that the program plan shall describe:

- Program accessibility targets to ensure that the program is convenient and accessible to all Ontarians, including, but not limited to: high density urban areas, rural communities and northern Ontario.
- The methodology for expanding and improving the existing collection and diversion infrastructure for municipal hazardous or special waste to meet the capture and accessibility targets, and
- A description of any material diversion and diversion infrastructure in place.

2.5.1 Existing Collection Infrastructure

A variety of municipal and non-municipal systems are currently employed for collecting and managing Municipal Hazardous or Special Waste.

Municipal Infrastructure

The most significant collection infrastructure is the Ontario municipal MHSW collection system. It managed 15,800 tonnes of MHSW (all Phases) in 2005. Details of services, materials and tonnages collected by individual municipalities are captured annually through the Waste Diversion Ontario Municipal Datacall³. Based on data reported in 2005, 89 municipalities operated 98 depots and 169 collection events serving 11.4 million Ontario residents (4,357,671 households). A list of the number of depots and event days operated by each municipality is available in Appendix 3⁴. Maps in Appendix 4 show the locations of these depots and event days (some events are held at depots).

³ www.wdo.ca/content/?path=page82+item35931

⁴ The number of events reported in Appendix 1 is 270, this is due to 101 event double reported by upper and lower tier municipalities.

Municipal programs for hazardous and special waste have existed in Ontario since the late 1980's. A number of municipal programs were implemented in the late 1980's, with many coming on board in the early 1990's. As there is no provincial legislation requiring that municipalities handle this material, each program is voluntary and unique to local considerations, including geography and demographics. Some programs are implemented at the upper-tier, serving numerous smaller communities, while others have opted to serve their local residents directly. A few types of infrastructure used to collect and manage MHSW material are common to municipal programs.

Many municipalities collect their material at a fixed infrastructure depot. This type of facility is typically located in an industrial zone or at a landfill or transfer station and is sometimes part of a recycling centre offering other services. This maximizes the services available to residents at one location while facilitating the siting of such a facility. However, this also means the facility may not be convenient for many citizens as it lies outside of their normal travels.

Levels of service vary significantly. Some depots are permanent, open year-round to serve residents as waste is generated. Others are open certain months of the year to serve a seasonal surge in population or because the weather makes collection operation difficult. Hours of operation for a depot vary by season and usually include daytime hours in combination with evening or weekend openings to accommodate a variety of work schedules. Some municipal depots also house a reuse centre, where residents can pick up partially used materials rather than purchase new products. Each depot must meet the requirements of the program's C of A. In addition, other regulatory requirements must be met, such as the Ministry of Labour or Fire Department. As such, physical structures can vary from an open-air facility with a roof to a fully-enclosed building with specialized containment equipment. All depots must be secure and an attendant must be on-site during operating hours.

Municipalities may opt to operate their own facility or use a private contractor to provide part or all of the service. Promotion and education for most depot programs is commonly included with general waste management information provided to residents. Some programs check the postal codes of participants to ensure that users are residents and therefore eligible to use the facility. Postal codes are also used to track materials' source generation (i.e. where they are coming from).

Along with, or in place of permanent depots, municipalities rely on special events to collect hazardous and special waste. One-day events are typically sited in a central location, such as a large parking lot or a park, and include a temporary drop-off station. Events typically take place on weekends and evenings, rather than during a week day. Promotion and education for a given event normally focuses on the local community, generally drawing participation from a close proximity. Programs may hold several events over a year, rotating to different areas while opening the event to all residents. The staffing of the events may be a mix of municipal and service provider staff, or may be managed by the service provider alone.

A variation on the event day is the "toxic taxi" whereby, subject to conditions, hazardous and special waste is directly collected from households. This service, used by a few municipalities including Toronto, allows residents to call a special number and make an appointment for their material to be picked up. This service is considered to be effective for people who may have limited mobility or no access to a car. A minimum amount of material

may be required for a pick-up, so residents are encouraged to cooperate with their neighbours.

Non-Municipal Infrastructure

In addition to the municipal collection and handling system, Ontario residents may also have access to industry-run collection systems. Industry based collection services are product-specific. Some examples include oil filters and antifreeze that may be collected by commercial vehicle service centres from the cars being serviced. Many service stations and some retailers offer a program where they receive old unusable containers or they exchange empty propane tanks for full tanks. A voluntary industry program run by CropLife Canada collects empty pesticide containers through participating agricultural supply businesses, and conducts special events to collect obsolete pesticides. Some not-for-profit organizations run reuse centres for building materials or home supplies. Certain materials are part of “return to retail” programs, where retail outlets have agreed to accept items from consumers. This approach is actively promoted in the Ottawa area. Additional information on alternative collection channels is available under the material specific plans in Section 3.

2.5.2 Current Post-Collection and Diversion Infrastructure

Information from service providers has been compiled through consultation meetings, surveys and a pre-qualification questionnaire. This information is being used to outline the current diversion infrastructure. The following summarizes the preliminary information on current management options for each of the Phase 1 materials.

Preliminary information indicates that the majority of the service providers have excess service, transportation, storage and processing capacity. Where storage and processing capacity limitations exist, limiting factors are physical facility, throughput constraints and conditions of the existing C of A. Amendments to C of As to increase capacity may be obtained through ministry approval. Many service providers have indicated that they are prepared to expand existing capacity if there is sufficient volume of diverted materials available and economic justification.

Table 2-2: Preliminary Information on Current Management Options for Phase 1 Materials

Material Category	Current Management Practices
Paint & Coatings	Mainly recycled back into paint Some latex paint solidified and landfilled Some alkyd paint blended for fuel Metal containers usually recycled Plastic containers landfilled Poor quality paints cannot be recycled Some reuse, but limited
Solvents	Mainly blended for fuel Very limited recycling Containers mainly landfilled
Oil Filters	Mainly recycled for oil and scrap metal
Oil Containers	Mainly landfilled Very limited recycling
Single Use Dry Cell Batteries	Mainly landfilled Limited recycling
Antifreeze	Mainly recycled for industrial applications Containers mainly landfilled
Pressurized Containers	Combination of incineration of content and reuse of containers for industrial cylinders Refillable cylinders retested and refilled or recycled as scrap metal Some single use containers are recycled as scrap metal; most are landfilled
Pesticides	All incinerated Containers are landfilled
Fertilizers	Mainly landfilled Some reuse, but very limited

Preliminary data indicate 3Rs management options are available for most Phase 1 material, with the exception of pesticides and their containers, plastic paint containers, antifreeze containers and solvent containers. While the information indicates 3Rs management options are available for oil containers, fertilizers, and single use dry cell batteries, these options are very limited in capacity. For pesticides, the reuse and recycle options are not available due to the pesticide industry's concern over liability issues, and regulatory constraints. Pesticide, solvent, plastic paint, oil and antifreeze containers all pose contamination problems that currently limit recycling. While there may be recyclers in other provinces, within Ontario, there is currently:

- One paint recycler
- One single use dry cell battery recycler
- One oil container recycler (another company is in the process of permitting)

While recycling options may currently exist for a number of the materials, it is likely that portions of these materials will continue to require disposal in the early years of program implementation. In most cases, MHSW will need to be segregated and bulked properly in

order to meet the specifications for recycling. Materials failing to meet the quality control specifications will have to be directed to disposal.

Other challenges to recycling include:

- Limited recyclers in Ontario, potentially leading to limited or no competition
- Existing recyclers may not meet desired industry environment, health and safety standards
- Increased volumes of diverted materials are necessary to drive recycling technology investment, allow economic justification and increase recycling activity
- Public perception that recycled product is inferior to virgin product
- Demand for recycled product is a required driver for recycling

2.5.3 MHSW Waste Management Summary

Table 2-3 presents the baseline preliminary estimates of the quantities of each Phase 1 material sold, available for collection and collected either in the municipal MHSW system or through non-municipal channels, and the overall collection rate.

Two sources of data were used to establish the amount of each material collected through the municipal channel in 2005. First, municipalities reported information on the materials they collect as part of their submission to the 2005 WDO Datacall, segregated by waste class. To group these waste classes into Phase 1 or other material categories, work carried out by the AMRC HHW committee on tendering, and information from the AMRC HHW Baseline Composition Study 2004⁵ was used. Where the Baseline Composition Study material categories did not correspond to a Phase 1 or other material category, the product-based composition from the study was used to allocate the major material category to a Phase 1 material where appropriate, or to materials to be handled in a subsequent phase or another program.

For example, the waste class for Antifreeze as reported in the Datacall was allocated directly to the Phase 1 material category for Antifreeze. Materials reported in the Datacall as Flammables were allocated to Phase 1 material categories Paints and coatings, Solvents, and Pesticides, as well as materials to be handled in subsequent phases using the product composition information.

These data are the best available at this time but for some materials, such as solvents, issues have been raised and the refinement of the data will continue during Year 1.

It should be noted that since the latest available municipal collection figures are those that were reported in the 2005 Municipal Datacall, 2007 baseline collection quantities are likely higher. The 2005 estimates have been adjusted to account for growth in the quantities collected and sold and those available for collection. A growth rate of five percent (5%) has been applied to the quantities collected based on figures reported in the municipal Datacall in previous years. Table 2-4 presents the 2007 baseline figures resulting from these adjustments.

⁵ Ontario HHW Baseline Study: programs and operations (2005) AMRC and Product Care, available at http://www.amrc.ca/docs/HHW_Baseline_2005.pdf

Table 2-3: 2005 Baseline Phase 1 Materials Preliminary Estimates: Sales, Quantities Available for Collection¹

Note to reader: A dash ("-") indicates collection and diversion activities may be taking place, however they could not be confirmed during the plan development phase.

Phase 1 Materials	Sales (tonnes)	Available for Collection (tonnes)	2005 Collection Municipal ⁶ (tonnes)	Collection Other ⁶ (tonnes)	Total Collection (tonnes)	Collection (%)
Paint & coatings	122,500	12,250	5,803	5	5,808	47%
Solvent	4,213	1,475	479	0.5	479	32%
Oil filters ²	14,600	18,480	101	6,921	7,022	38%
Oil containers	4,370	4,370	103	131	234	5%
Single use dry cell batteries ³	5,040	4,940	204	21	225	5%
Antifreeze ⁴	16,800	14,400	244	2,000	2,244	16%
Refillable Pressurized cylinders ⁵	2,565	2,000	477	1,323	1,800	90%
Non-refillable Pressurized cylinders	658	658	65	9	74	11%
Fertilizers	8,200	144	40	-	40	28%
Pesticides (including fungicides, herbicides, insecticides)	530	133	61	-	61	46%
Total	179,477	58,849	7,577	10,411	17,988	31%

Notes:

- 1) The antifreeze numbers presented in this table include containers. The paint and coatings numbers presented in this table do not include containers. Please refer to material specific plans in Section 3 for more detail. Figures for solvents, fertilizers and pesticides do not include containers, as no data are available for these.
- 2) Oil filter sales estimates are based on industry sales figures. Greater weight available for collection due to residual oil within the filter.
- 3) Quantity of single use dry cell batteries available for collection is based on the average sales for the preceding 3 years assuming annual growth in sales of 2%, to account for the lag time during which the product is used.
- 4) Antifreeze sales are based on pre-packaged product sales volume. "Available for collection" represents estimated drained volume of used antifreeze originating as pre-packaged antifreeze, taking into account dilution of concentrate product at time of installation and amounts lost during use. Amount collected through automotive service providers is estimated.
- 5) Quantity of refillable pressurized containers available for collection is based on the assumption they are replaced after 10 years while current generation assumes annual growth in sales of 2%.
- 6) Further work to confirm the reported collection will be required in Year 1.

Table 2-4: 2007 Baseline Phase 1 Materials Preliminary Estimates: Sales, Quantities Available for Collection¹

Note to reader: A dash (“-”) indicates collection and diversion activities may be taking place, however they could not be confirmed during the plan development phase.

Phase 1 Materials	Sales (tonnes)	Available for Collection (tonnes)	2007 Baseline Collection Municipal (tonnes)	Collection Other (tonnes)	Total Collection (tonnes)	Collection (%)
Paint & coatings	124,950	12,495	6,383	5	6,388	51%
Solvent	4,297	1,504	526	1	527	35%
Oil filters	14,600	18,480	111	6,921	7,033	38%
Oil containers	4,370	4,370	113	131	244	6%
Single use dry cell batteries	5,141	5,039	224	21	245	5%
Antifreeze	16,800	14,400	268	2,000	2,268	16%
Refillable Pressurized cylinders	2,616	2,040	525	1,323	1,848	91%
Non-refillable Pressurized cylinders	672	672	72	9	81	12%
Fertilizers	8,364	146	44	-	44	30%
Pesticides (including fungicides, herbicides, insecticides)	541	135	67	-	67	50%
Total	182,351	59,281	8,334	10,411	18,745	32%

Note:

1) The antifreeze numbers presented in this table include containers. The paint and coatings numbers presented in this table do not include containers. There is no data available on the containers available for collection for solvents, fertilizers, and pesticides. Please refer to material specific plans in Section 3 for more detail.

2.5.4 Increasing Accessibility

While the existing infrastructure clearly offers some measure of service to most parts of the province, one of the goals of the MHSW diversion program is to make it more convenient for people to dispose of their hazardous and special waste.

Accessibility can be considered in terms of:

- The location of depots and events – how much time is required and how easy it is to get to these locations
- The frequency – number of events and hours of operation of depots and events
- Awareness – generated through promotion and education

Therefore, the methodology for expanding and improving the existing collection and diversion infrastructure for Municipal Hazardous or Special Waste to meet the collection and accessibility targets involves a multi-year plan to upgrade the existing system by addressing these variables.

In Year 1 of the program, the following steps will be taken to increase accessibility.

- 1) A promotion and education plan for Phase 1 material will be developed to increase awareness (refer to section 2.2.2)
- 2) Recognizing their voluntary participation, municipalities that currently provide events will be encouraged to double the number of events while programs without existing services will be encouraged to provide two events per year. These events will be sited to augment the access provided by any existing depots and the municipality's regularly scheduled events. Table 2-5 provides a breakdown of the anticipated number of existing and new events in Year 1 for the purpose of planning. The map in Figure 2-1 presents a possible implementation scenario for a selected region in South-western Ontario.
- 3) Municipalities with depots will be encouraged and supported in making arrangements to extend their hours of operation where feasible.
- 4) At the same time, industry will be encouraged to implement or expand take-back programs through private operators.

Table 2-5: Proposed Number of Existing and New Events in Year 1

	Existing	New	Total
Events in existing programs	169		169
Doubling of existing events		169	169
New service		86 ¹	86
Total	169	255	424

Note:

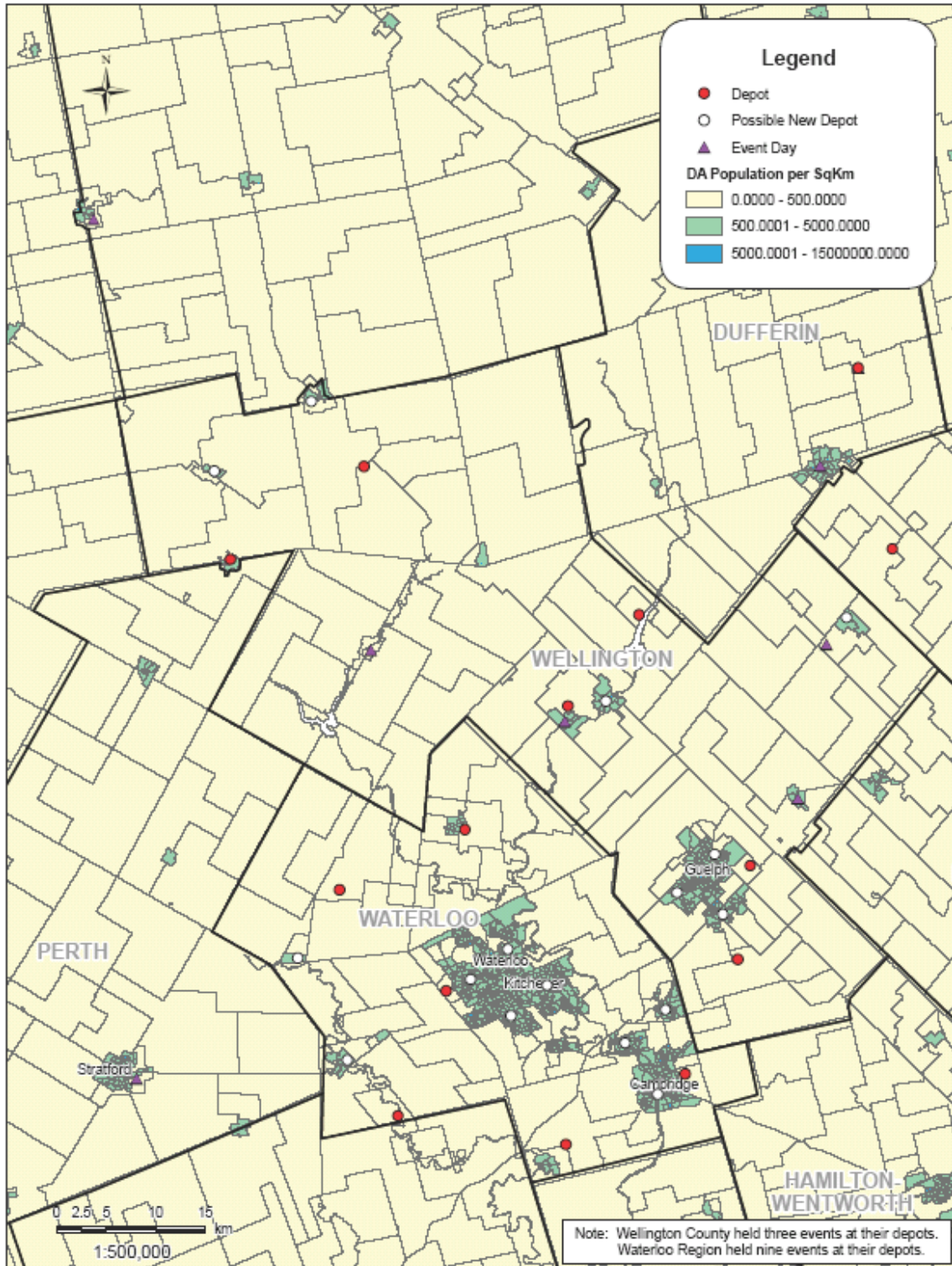
- 1) Assumes 2 events for programs without existing services and an additional 2 events for urban programs without existing service.

As these activities are implemented, data will be compiled with which to assess their effectiveness, including:

- Number of users at each event and depot, available from municipal operators
- Quantity of Phase 1 materials collected at each location and the contribution to achieving collection targets
- Cost to operate events and depots in relation to number of users and quantity collected

In subsequent years of the program the following steps will be taken to increase accessibility. Accessibility will be evaluated on an ongoing basis using these data as well as data compiled through the communications research on public attitudes regarding the accessibility of MHSW services. Based on the findings from these evaluations, accessibility targets will be developed for subsequent years of the program that will provide for greater accessibility for residents throughout the province to meet the collection and diversion targets.

Figure 2-1: Possible Implementation Scenario for a Selected Region (South-western Ontario)



The number of events, the need for capital investment in additional municipal depots, and options to encourage additional industry collection locations in Years 2 to 5 will be determined based on this evaluation in order to meet the resulting accessibility targets and the collection targets for each Phase 1 material.

2.5.5 Reduction, Collection and Diversion Targets

The Minister's Program Request Letter requires collection and diversion targets for each Phase 1 material for the first five years of the program, taking into account reduction of the quantity of MHSW available for collection as a result of the program. Thus, the program will encourage initiatives to reduce the quantities of residual MHSW available for collection.

Quantities introduced into the Ontario marketplace are determined using estimates of how much of each material is sold on a yearly basis. These estimates will be adjusted on a yearly basis to account for reported and projected changes in sales. Estimates will also be checked against annual stewards' reports, and adjusted accordingly.

Collection targets refer to the anticipated quantities of MHSW material returned or collected through all channels (municipal and non-municipal) and will take account of anticipated changes in both sales and the residual quantities available for collection. For consumable materials (paint, solvents, pesticides and fertilizers) it is anticipated that over time the material available for collection will decrease as a result of the program, particularly as a result of the promotion and education activities.

For all materials, growth rates for sales of MHSW were assumed to reflect natural growth in the population and the number of households. An annual growth rate of 2% for MHSW introduced into the market place has been assumed for all materials except for oil filters, oil containers and antifreeze, for which industry representatives indicated that annual sales would be flat over the 5-year planning period.

For consumable materials, while it is anticipated that there will be a natural growth in sales, the reduction elements of the program will attempt to offset this natural growth rate with an objective, at a minimum of holding the quantities of MHSW available for collection constant. Table 2-6 presents the target reduction in the amount of these MHSW materials that will be available for collection and on which the collection and diversion targets and cost projections are based. For all other materials, the amount available for collection tracks with the projected sales quantities given that they are not consumed in use.

Diversion targets refer to the anticipated quantities of each material that are diverted from disposal through reuse activities or recycling processes. Diversion does not include the recovery of energy. Options for reuse are identified in the material specific plans in Section 3. It is anticipated that over time, the material diverted from disposal will increase as a result of the program.

The progress toward meeting collection and diversion targets will be assessed annually. Implementation of various tools for achieving material-specific targets, including promotion and education, transport and processing fees, contracts that increase access for collection and opportunities for diversion, and research and development to increase efficiency and effectiveness and the 3Rs, will be considered.

Table 2-6: 5 Year Projection of Consumable MHSM Sales and MHSW Available for Collection

Phase 1 Consumable Products		Year 1 (tonnes)	Year 2 (tonnes)	Year 3 (tonnes)	Year 4 (tonnes)	Year 5 (tonnes)
Paint & coatings	Sales	127,500	130,000	132,600	135,250	137,960
	Available for Collection	12,500	12,500	12,500	12,500	12,500
Solvent	Sales	4,380	4,470	4,560	4,650	4,750
	Available for Collection	1,500	1,500	1,500	1,500	1,500
Fertilizers	Sales	8,530	8,700	8,880	9,050	9,200
	Available for Collection	146	146	146	146	146
Pesticides (including fungicides, herbicides, insecticides)	Sales	551	562	574	585	597
	Available for Collection	135	135	135	135	135

Table 2-7 shows the anticipated collection and diversion targets for each Phase 1 material for the five year planning period of the program. These targets are based on the best available data. The program's success in meeting these targets will be used as one of the criteria to evaluate accessibility to MHSW services.

Table 2-8 presents the projected quantities of each phase 1 material to be collected in tonnes.

Figure 2-2 shows the total tonnage, by program year, that is estimated to be available for collection, as well as the anticipated tonnage of material that will be collected and diverted through the program.

Table 2-9 presents the projected quantities diverted in tonnes.

Table 2-7: Anticipated 5 Year Collection and Diversion Targets for Phase 1 Materials

Note to reader: A dash (“-“) in the baseline column indicates collection and diversion activities may be taking place, however they could not be confirmed during the plan development phase. A dash (“-“) in future years indicates that while there is no basis for setting a target at this time, targets will be established if feasible options can be identified in future program years.

Phase 1 Materials	2007 Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	
Paint & coatings ¹	Collection	51%	53%	55%	57%	59%	61%
	Diversion	44%	46%	48%	50%	51%	53%
Solvent ²	Collection	35%	37%	39%	41%	43%	45%
	Diversion	-	-	-	10%	10%	10%
Oil filters ³	Collection	38%	65%	74%	78%	81%	84%
	Diversion	35%	60%	69%	73%	75%	78%
Oil containers ⁴	Collection	6%	30%	35%	40%	45%	50%
	Diversion	3%	15%	28%	40%	45%	50%
Single use dry cell batteries ⁵	Collection	5%	6%	7%	10%	15%	25%
	Diversion	0.5%	1%	2%	4%	7%	13%
Antifreeze ⁶	Collection	16%	25%	35%	40%	45%	50%
	Diversion	15%	24%	33%	38%	43%	47%
Pressurized containers ⁷ (refillable and larger than 1lb)	Collection	91%	92%	94%	95%	97%	98%
	Diversion	91%	92%	94%	95%	97%	98%
Pressurized containers ⁷ (single use 1 lb units)	Collection	12%	14%	16%	26%	36%	46%
	Diversion	12%	14%	16%	26%	36%	46%
Fertilizers ⁸	Collection	30%	32%	34%	37%	40%	45%
	Diversion	-	-	-	10%	20%	30%
Pesticides ⁹ (fungicides, herbicides, insecticides)	Collection	50%	51%	52%	53%	54%	55%
	Diversion	-	-	-	-	-	-
Total	Collection	32%	45%	51%	54%	58%	62%
	Diversion	28%	39%	45%	49%	52%	56%

Notes:

- 1) Assumes a 70:30 latex to alkyd paint ratio. Assumes latex paint is 80% re-processable as paint, including a small amount that is made available for local reuse; remaining 10% can be recycled in cement production, estimate 10% disposal. Assumes alkyd paint is 80% re-processable as paint, including a small amount that is made available for local reuse; remaining 20% not recyclable.

- 2) Assumes beginning in Year 3, 10% of solvent collected is processed and diverted through recycling of the solvent (not energy recovery).
- 3) Assumes 7.5% of wet filter weight is oil and therefore 92.5% of the collected oil filter weight is assumed to be diverted.
- 4) Assumes 2 year ramp up to get oil container recycling technology in place.
- 5) Assumes 50% of single use dry cell batteries that are sent for recycling are actually diverted (increasing % of what is collected).
- 6) Assumes technology exists for fluid but not for containers for the first 2 years of the program. Assumes 95% diversion rate.
- 7) Assumes 100% of pressurized containers collected are processed and diverted.
- 8) No current identified diversion of fertilizers but anticipate future diversion of some through local or centralized composting in Years 3 to 5.
- 9) No diversion option identified or anticipated for pesticides.

Table 2-8: Anticipated 5 Year Collection Targets for Phase 1 Materials (tonnes)¹

Note to reader: A dash (“-“) in the baseline column indicates collection and diversion activities may be taking place, however they could not be confirmed during the plan development phase. A dash (“-“) in future years indicates that while there is no basis for setting a target at this time, targets will be established if feasible options can be identified in future program years.

Phase 1 Products	2007 Baseline		Year 1		Year 2		Year 3		Year 4		Year 5	
	Municipal	Non-Municipal	Municipal	Non-Municipal	Municipal	Non-Municipal	Municipal	Non-Municipal	Municipal	Non-Municipal	Municipal	Non-Municipal
	(tonnes)		(tonnes)		(tonnes)		(tonnes)		(tonnes)		(tonnes)	
Paint & coatings	6,383	5	6,638	5	6,888	5	7,138	5	7,388	5	7,638	5
Solvent	526	1	557	1	587	1	617	1	647	1	677	1
Oil filters	111	6,921	121	11,891	126	13,549	130	14,285	134	14,835	138	15,386
Oil containers	113	131	119	1,193	125	1,405	131	1,618	138	1,830	145	2,041
Single use dry cell batteries	224	21	282	26	336	31	489	46	748	70	1,272	119
Antifreeze	268	2,000	295	3,279	310	4,701	326	5,404	342	6,106	359	6,807
Refillable Pressurized cylinders	525	1,323	544	1,372	564	1,422	584	1,474	606	1,527	627	1,582
Non-refillable Pressurized cylinders	72	9	85	11	99	12	164	21	232	29	303	38
Fertilizers	44	-	47	-	50	-	54	-	59	-	66	-
Pesticides (including fungicides, herbicides, insecticides)	67	-	68	-	70	-	71	-	73	-	74	-
Total	8,334	10,411	8,757	17,777	9,155	21,127	9,705	22,852	10,365	24,402	11,298	25,978

Note:

- 1) Paints and coatings and solvents handled through non-municipal channels have been kept constant, however increases are likely as industry take back programs are developed.

Figure 2-2: Year 1 to Year 5 Quantities Collected, Available for Collection, and Diverted for Phase 1 Materials

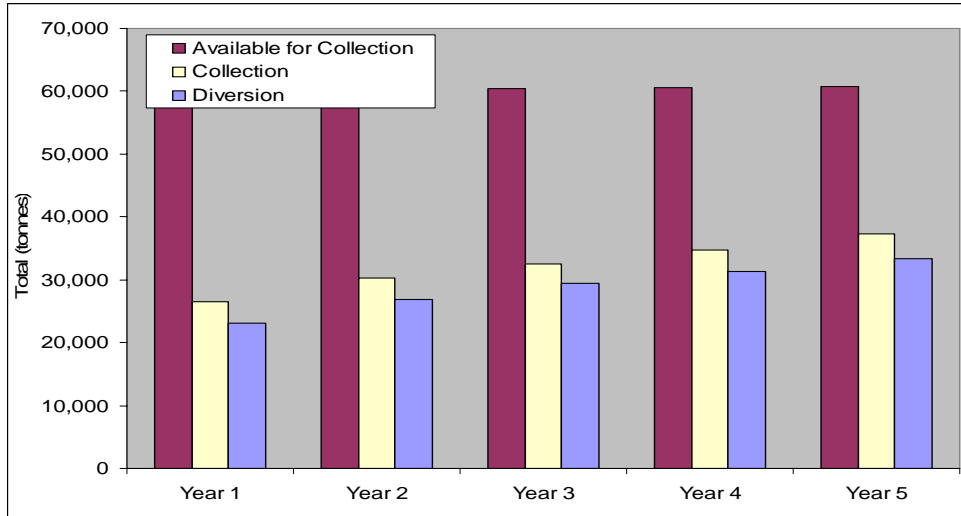


Table 2-9: Anticipated 5 Year Diversion Targets for Phase 1 Materials (tonnes)

Phase 1 Products	2007 Baseline	Year 1	Year 2	Year 3	Year 4	Year 5
	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
Paint & coatings	5,558	5,780	5,997	6,214	6,432	6,649
Solvent	-	-	-	62	65	68
Oil filters	6,540	11,171	12,718	13,405	13,921	14,437
Oil containers	131	670	1,209	1,749	1,967	2,186
Single use dry cell batteries	25	62	110	214	385	695
Antifreeze	2,155	3,395	4,761	5,443	6,125	6,807
Refillable Pressurized cylinders	1,848	1,916	1,986	2,058	2,132	2,209
Non-refillable Pressurized cylinders	81	96	112	185	262	341
Fertilizers	-	-	-	15	29	44
Pesticides (including fungicides, herbicides, insecticides)	-	-	-	-	-	-
Total	16,337	23,090	26,893	29,345	31,318	33,436

2.6 Performance Benchmarks and Tracking Mechanisms

The Minister's Program Request Letter requires the plan to:

- identify a tracking mechanism for Phase 1 MHSW material from collection at a MHSW depot through to its final destination
- provide a list of benchmarks and performance measures to be used to encourage 3Rs, promote best practices and encourage the development of innovative diversion techniques
- outline a tracking and audit mechanism to ensure overall program compliance

2.6.1 Tracking Mechanism

The program needs to ensure that there is accurate information on the flow of Phase 1 materials from collection through to final destination to be able to measure performance; to ensure that the costs can be fairly allocated; to ensure that there is progress toward moving materials that are collected from disposal to reuse and recycling in accordance with the Minister's Program Request Letter.

Therefore, the program will develop an audit procedure to ensure proper tracking mechanisms, such as certificates of recycling/destruction, are in place for management of MHSW from point of collection to final destination. The development of vendor standards will also be considered during the first year of the program.

Service providers, processors, recyclers and disposal facilities for MHSW are required to have a C of A for their operations. Tracking mechanisms are among the requirements set out in the C of As. The program tracking system also will have to include operations that don't require C of As, such as the transfer of propane cylinders.

Regulation 347 requires that a manifest be completed for the transfer of subject waste to a transportation system for transport to a receiving facility. Accordingly, the current practice for classifying material for recycling or disposal is to use Regulation 347 waste codes. However, these do not align in all cases with the Phase 1 materials. Service providers have given a preliminary indication that sorting according to Phase 1 categorization is possible but at an increased cost.

A tracking mechanism will also be needed to record the amount of materials given away for reuse at various collection points.

The development of this tracking system, including the development of vendor standards will be undertaken by Stewardship Ontario in Year 1 to allow for on-going monitoring and evaluation of program performance in subsequent years of the program. Budget has been allocated to support this activity in Year 1 as outlined in Section 5.3.

2.6.2 Performance Benchmarks and Measures

A year to year comparative analysis will be completed by Stewardship Ontario to monitor the overall progress compared to targets set out in the plan.

Data on diversion performance of events, depots and industry return locations and quantities recovered through these options will be reviewed annually for establishing accessibility targets for subsequent years of the program.

The most difficult information to quantify on an ongoing basis is the quantities of material available for collection. Information on these will be developed through a combination of methods, including waste audits and surveys to be implemented during the first two years of the program.

Each year, the data for the quantities of material introduced into the Ontario market (from stewards' reports), the quantities of material available for collection, the quantities of material collected, and the quantities of materials reused, recycled and disposed will be compared against targets. The relationship between accessibility and collection will be analysed over the first years of the program so that accessibility can be adjusted systematically to meet the program targets.

The cost of the program will be monitored and reported in relation to the performance against collection, diversion, and accessibility targets as they are defined in Years 2 through 5 to assess the cost effectiveness of the program. Consideration will be given as to whether alternative storage and transportation mechanisms might be tested and implemented to increase the cost-effectiveness of the system in future years. This will include assessing the need for additional R&D investments.

Other indicators of performance may be developed during the first years of implementation and will be incorporated into annual MHSW program reports.

2.7 Program Delivery and Administration

WDO and Stewardship Ontario ongoing administration and program delivery costs are identified as common costs. Each of these is described in detail as part of the fee setting methodology presented in Section 4. The administration costs and program delivery costs are allocated separately to all stewards according to a methodology presented in section 4.3.3.

2.8 MHSM Steward's Audit Procedures

Stewardship Ontario will audit MHSM steward's data collection and reporting procedures in order to:

- ensure the accuracy and comprehensiveness of the data submitted;
- protect the integrity of the MHSW Program Plan funding;
- provide assurances to the Stewardship Ontario Board and to the membership that all stewards are fully complying with the program Rules.

MHSM stewards are required to maintain records related to their obligations to Stewardship Ontario for a period of not less than five years from the date of submission of their report. Stewards are required to describe in detail how they calculated their MHSM obligation as per the MHSW program rules (Schedule A, Section 8). Stewardship Ontario staff will review and assess all MHSM Steward's Reports submitted in Year 1 of the program. The MHSM Steward's Report audit review process will address:

- The quantities of obligated materials reported

- The quantities of obligated materials for which the steward is remitting fees
- The methodology used to calculate this data
- The product brand names for all obligated materials included in the report

As outlined in the program rules, Stewardship Ontario reserves the right to request that stewards submit additional supporting documentation (e.g. data tables, product listings, audit reports and the basis for allocation percentages used) if required. The data submitted by stewards will be subject to audit by Stewardship Ontario. The Board of Directors of Stewardship Ontario will determine on an annual basis the number of audits to be completed within each Phase 1 material category. For Year One of the program, however, audits will be completed on no less than 20% of MHSM Steward's Reports for each Phase 1 material category. Stewardship Ontario will look for opportunities to harmonize audit activities, not only with the BBPP, but also with other stewardship programs in Canada that are auditing data from stewards (e.g. oil filter or container programs in other provinces).

Stewards identified for audits will be selected on a random basis and will receive written notification from Stewardship Ontario of its intention to audit their data collection and reporting systems. The audit letter will specify the nature of the review and the type of documentation required for the evaluation. Each steward will be allowed up to four weeks to contact Stewardship Ontario to schedule a day and time for the audit.

All stewards for whom an audit is completed will receive an audit report which will include comments on the data provided and the methodology used by the steward to calculate the obligation and will identify any required adjustments to their information systems and MHSM Steward's Report. Stewards will be provided with an opportunity to assess the audit report findings and recommendations before the report is finalized. Where adjustments to the Steward's Report are required, stewards will be notified and requested to submit a revised report prior to execution of the adjustment.

These audit procedures will to be reviewed by the Board of Directors of Stewardship Ontario prior to Year 2 of the Program and may be modified for future years of the Program.

2.9 Handling Containers

Among the Phase 1 materials covered by the Minister's program request letter are:

- paints and coatings, and containers in which they are contained;
- solvent, and containers in which they are contained;
- containers that have a capacity of 30 litres or less and that were manufactured and used for the purpose of containing lubricating oil;
- pressurized containers;
- antifreeze, and containers in which they are contained;
- fertilizers, fungicides, herbicides, insecticides, or pesticides and containers in which they are contained.

With the exception of oil containers and pressurized containers, the containers referred to in the Minister's letter are those in which the residual MHSW are usually returned for management under the MHSW program.

Once the MHSW Program is approved, and subject to the timing of the Stewardship Ontario fee setting cycle for the Blue Box Program Plan, it is anticipated that oil containers will be removed from the Blue Box Program and there will be a reconciliation of the cost of managing the other containers which are common to the MHSW and Blue Box systems to avoid any double counting and to ensure that fees on these containers are paid only once.

3.0 Phase 1 Material Specific Plans

The following sections present material specific plans for each of the Phase 1 materials. Definitions for each material category were developed in consultation with industry representatives, presented to all stakeholders during the public consultation program and were reviewed by the Ministry of the Environment. Appendix A, of Schedule A of Section 8.0 presents a summary table of all material definitions. Each of the material specific plans that follow further elaborates on its respective material definition.

This program plan encompasses Phase 1 materials that are introduced as products into the Ontario market place through either one of the following avenues:

- product that is sold as an end product to consumers (e.g. paint and coatings)
- product that is included as part of a product sold to consumers (e.g. single use dry cell battery included in remote control device)

Throughout this plan, the term “sold” refers to quantities of Municipal Hazardous or Special Materials (MHSM) that enters the Ontario market either in a unit or volume (litre) basis. The sales are converted to a weight basis (tonne) for the purposes of the program plan. The term “generated” is used to refer to the point at which a given material becomes a waste.

When reviewing this plan, it is important for the reader to understand the unique generation and handling characteristics associated with each of the Phase 1 materials. The materials in Phase 1 include both those that are intended to be discarded after their useful life and those that are consumable.

Examples of Phase 1 materials that are designed to be discarded at the end of their useful life include single use dry cell batteries, oil filters, antifreeze and oil containers. These are typically available on a one-for-one basis (i.e. the discarded battery is replaced with another battery).

Other Phase 1 materials are consumable products that are intended to be fully used up by the consumer, and ideally, would not result in a waste requiring management. These materials are addressed in this MHSW plan because of the need to manage all or a portion of the residual products that are not been fully used up by the consumer or no longer usable due to improper storage practices. Examples include left over paint, pesticide or fertilizers.

One challenge in developing a plan targeting consumable products is the difficulty in estimating how much of a particular product is actually consumed versus how much is not consumed and therefore available for possible management. One of the objectives of the program is to actually reduce the quantity or volume of material that is available for collection and management through consumer education about purchasing what they need, using the product up and storing the product properly.

3.1 Continuous Improvement of Data Accuracy

The Addendum to the Minister’s Program Request Letter requires the program submission to describe and include an assessment of the quantity of MHSM sold, broken down by material type, and an estimate of the quantity of each MHSW, generated from MHSM identified under the program, that is available for collection.

The preliminary data on product quantities sold into the Ontario marketplace and available for collection presented in this program plan are based on the best available data. The following sources of information were used to prepare a preliminary estimate of quantities sold for the purpose of consultation:

- Determine what products are captured by the MHSW Phase 1 product definition and which are not
- Approach key industry associations and leading brand owners to discuss available market data (industry reports, marketing information, company data etc)
- Adjust available data as appropriate to match product definitions (e.g. maximum container size) and other program plan parameters (e.g. residential vs. large quantity generator IC&I markets)
- Compare data from programs in other provinces

The following sources of information were used to develop preliminary estimates of the quantities available for collection for the purpose of consultation and plan development:

- Analyse product use pattern
 - a. certain products may be theoretically available for collection in the same quantities as sold (e.g. oil filters, oil containers, single use propane cylinders)
 - b. certain products may be consumed during use and only the unused quantity of the product is available for collection (e.g. paint, pesticides)
 - c. certain products may be collected in greater quantities than sold due to an increase in volume as a result of dilution before use (e.g. antifreeze)
- MHSW reported collected by municipalities to the WDO
- Composition of MHSW from the AMRC's 2004 HHW Baseline Composition Study
- Review of available data from municipal and industry sources and from programs in other provinces

Preliminary material sales data and data pertaining to quantities available for collection were submitted to their respective industry groups for review and comment. The key assumptions and sources used to derive these data are provided under the material specific plans that follow. It should be noted that significant assumptions were required by the plan development team for those materials for which information was not provided or not available.

All stakeholders were encouraged to provide additional data or to propose refinements to the assumptions used to strengthen the development of the draft program plan prior to submission of the Draft Final Program Plan to the WDO. While every effort has been made to attain precise and accurate data for each material category, the best available data has been used as the basis for detailed Year 1 program plans. Data will be continuously refined throughout program implementation using actual steward data received as part of required steward reports and from operational experience.

3.2 Paint and Coatings

3.2.1 Definition

Means latex, oil and solvent-based architectural coatings, including paints and stains sold as MHSM consumer products or designated IC&I business products, whether tinted or un-tinted. Includes all architectural paints and coatings for household and industrial use and paints sold in aerosol containers.

Exclusions:

- paints containing pesticides if they are captured in the pesticide category
- products sold in containers with a volume greater than 30 litres
- bitumen based driveway and roof coatings and sealers

3.2.2 Market and Product Information

Architectural paints and coatings are used for both protective and decorative purposes and can be water-based or solvent-based. They can be purchased at dedicated paint stores, hardware stores, and larger retailers and are sold under manufacturer brand names or retailer private labels. Other paints and coatings are developed for the IC&I market for a variety of purposes. Many paints manufactured for the IC&I market require special handling or training due to higher health and safety risks.

Paints and coatings are typically sold in 250ml, 0.945L, 3.78L and 18.9L size containers as well as in aerosol containers. Water based paints are packaged in plastic containers (HDPE or polypropylene), steel containers and also in containers made of plastic with steel parts. Solvent based paints are typically packaged in steel containers.

There is a continued trend in the marketplace from solvent based paints to water based paints.

3.2.3 Quantities Sold and Available for Collection

An estimated 94 million litres of architectural paint and containers weighting a total of 134,000 tonnes were sold in Ontario in 2005. Of this total weight, paint accounted for 122,500 tonnes and containers for 11,500 tonnes. Paint is a consumable product. It is estimated that about 10% of the original volume sold becomes leftover unwanted paint. It is also estimated that about 20% of containers are not emptied, and contain the leftover paint. Accordingly, 9,400,000 litres of paint weighting 12,250 tonnes are left over each year, in containers having a weight of about 2,300 tonnes. An additional amount of architectural paint products formulated for the IC&I market is also expected to be returned to the program by small quantity IC&I generators.

The information presented above, along with respective data sources and assumptions, is summarized in the table below.

Table 3-1: Quantities of Paint & Coatings Sold and Available for Collection

Total volume of paint sold in 2006 (Litres) ¹	94 million
Total weight of paint sold in 2006 (Tonnes) ²	122,500
Total weight of containers sold in 2006 (Tonnes) ³	11,500
Paint volume available for collection (Litres) ⁴	9.4 million
Paint weight available for collection (Tonnes) ⁵	12,250
Container weight available for collection (Tonnes) ⁶	2,300

Notes:

- 1) data provided by Canadian Paint and Coatings Association based on information reported by CPCA members and from other Canadian paint stewardship programs
- 2) latex paint weight based on 1.36 kg/L, alkyd paint weight based on 1.33 kg/L.
- 3) based on CPCA unit sales data and sample container weights
- 4) based on studies conducted for the Product Stewardship Institute, it is estimated that 10% of architectural paint is leftover after consumption
- 5) same as note 2
- 6) based on the experience in other programs, it is estimated that about 20% of architectural paint containers are not emptied and would be managed through MHSW programs together with the paint contained in them.

3.2.4 Collection, Diversion & Disposal Infrastructure

According to the 2005 WDO Datacall⁶, 92 municipalities offered collection services for leftover paint. This represents 4,345,198 households served. According to this same source, 5,803 tonnes of paint (excluding containers) were collected in 2005 through the Ontario municipal MHSW depot system.

Outside the municipal channel, latex paint is accepted in the Ottawa “take it back” program (new or unopened only) and most paint retailers will accept the return of “mis-tints” of products they sell. At this time, there are no other known collection channels for residential paint. It is estimated that 5 tonnes of paint are collected through non-municipal channels. In addition, waste management companies provide commercial services for IC&I products.

Given that there is an estimated 12,250 tonnes of architectural paint available for collection, the amount collected through the municipal system represents a 47% collection rate for leftover paint (excluding containers). This calculation is subject to verification.

3.2.5 Management Options

Reduction

- Promote trend from alkyd paints and coatings that are solvent based to latex paints and coatings that are water based and therefore offer reduced environmental impact in relation to the release of volatile organic compounds during application and drying, and in terms of potential environmental hazard from the waste product.

⁶ Waste Diversion Ontario implements an annual electronic survey of Ontario municipalities to compile the quantities of materials collected and disposed. Data reported are verified by WDO staff.

- Promotion and education
 - “buy what you need, use what you buy”
- Retailer advice on quantity required for job
- How to store paint properly for reuse

Reuse

- Make paint available for reuse at collection depots and events
- Donate paint to users such as theatre groups, anti graffiti programs etc

Recycling

- Remanufacture into recycled content paint
- Solvent distillation and diversion for oil based paints
- Latex paint in concrete and cement production
- Recycle steel containers as scrap metal
- Recycle plastic where technically feasible

Disposal

- It is estimated that 80% of leftover paint is re-useable/recyclable with the processes currently available. Where reuse and recycling options are not available and/or technically feasible, some quantity of collected material may require disposal.

3.2.6 Barriers and opportunities to increased diversion

Barriers to increase diversion of paint and coatings include:

- Return of residual paint and coatings to retail outlets is an option on a voluntary basis as is the case in Quebec, but may be constrained by permitting, storage, and health and safety issues.
- Reuse options and recycled paint must consider consumer liability and labelling issues.
- There is a lack of recycling options for some plastic paint containers.

Opportunities to increase diversion of paint and coatings include:

- expanding municipal collection and reuse services
- investigating return to retail collection opportunities
- increasing the use of 3Rs options for product management
- developing markets for plastic paint containers

3.2.7 Material Specific Promotion and Education

Promotion and education specific to paint and coatings will include consideration of (and is not limited to):

- Signage and brochures at point of sale
- Stickers applied to paint cans at the point of sale displaying information on how to manage residual materials and where to return them
- local municipal P&E such as waste collection day calendars

3.2.8 Research and Development

Research and development specific to paint and coatings will include consideration of (and is not limited to):

- Activities to ensure sufficient capacity for recycling paint including continuation of research into the use of waste latex paint as an ingredient in making concrete
- Activities to develop 3Rs options for latex paint and solvent based paint that are not currently suitable for paint recycling
- Activities to develop recycling options for plastic paint containers
- Statistically significant testing program to determine levels of regulated ingredients and contaminants in collected leftover paint

3.2.9 Targets

Paint is a product intended to be consumed entirely through use. Ideally, none should be left over. Leftover paint is often retained by the user for other surfaces, or for later “touch up” of the originally painted surface. Because of the practice of storing leftover paint for future use, there is typically a considerable lag time between its sale and its eventual disposal. Ignoring the time lag effect, it is estimated that 10% of architectural paint sold in a given year is available for collection. Accordingly:

- 122,500 tonnes of architectural paint sold annually
- 10% of paint sold annually is 12,250 tonnes available for collection
- 5,803 tonnes of paint was reported collected by Ontario municipalities in 2005, which represents a 47% collection rate

Before confirming the 47% figure as the baseline collection rate, a thorough review of the derivation of the 5,803 tonnes paint collection figure must be undertaken. This figure is the collective sum of all municipal programs currently collecting paint, each of which likely operates under different circumstances (loose pack, bulking on site, etc). The conversion factors used to convert loose packed volume to liquid volume also require verification.

Ideally all paint purchased should be used by the purchaser. Reduction of the quantity of leftover paint will be an objective of the program, in order to lower the amount available for collection below 10%. Strategies to accomplish this will include better education of consumers regarding the computation of the amount of paint needed.

The collection system for leftover paint appears to be fairly well developed compared to many other MHSW materials. Notwithstanding this, the program will strive to increase the collection rate over the 5 year term of the plan at an estimated 2% per year, or 10% over 5 years.

3.2.10 Program Costs

Table 3-2 below summarizes the estimated Year 1 program cost for paints and coatings.

Table 3-2: Year 1 Program Costs for Paints and Coatings

Cost Category	Description	Year 1 Costs
Municipal Channel	Includes allocation of municipal costs for depots & special events	\$7,397,000
Non-Municipal Channel	Includes costs associated with non-municipal channels	\$5,571
Material Specific Program R&D	Costs associated with direct R&D for material	\$100,000 ¹
Material Specific Program Promotion & Education	Costs associated with direct P&E for material	\$5,000 ²
Common Program Administration & Program Deliver	Shared costs allocated according to agreed methodology, including MOE enforcement and WDO costs	\$1,230,761
Totals Year 1 Costs		\$8,921,662

Notes:

- 1) Assumes \$100,000 for R&D costs annually for five years to continue studies into alternative recycling options for paint, such as utilizing waste latex paint in concrete and to develop recycling options for plastic containers and to conduct a statistically significant testing program to determine levels of regulated ingredients and contaminants in collected leftover paint.
- 2) Assumes \$5,000 P&E costs to pilot test stickers on paint and coating containers that would communicate the website and possible hotline to get more information on how to manage leftover paint and coating. For years 2, 3, 4, and 5 it is estimated that \$75,000 per year would be required to roll out the sticker program to the entire province.

3.2.11 Fees

Table 3-3 below summarizes the estimated Year 1 fees for paints and coatings.

Table 3-3: Year 1 Fees for Paint and Coatings

Fee per Kilogram	\$0.073
Fee per Unit – 1 US Gal container (3.78 L)	\$0.36

3.3 Solvents

3.3.1 Definition

Means liquid products that are sold as MHSM consumer products and that are intended to be used to dissolve or thin a compatible substance and are,

- comprised of 10% or more of water-immiscible liquid hydrocarbons, including halogen-substituted liquid hydrocarbons; or,
- flammable as described in part (c) of “municipal hazardous waste” in Ontario Reg. 542.

Includes solvents sold in aerosol containers.

Water-miscibility means the ability of a material (or mixture) to mix uniformly with water, without separating. A 1:5 ratio of material to water at 20°C does not display visible separation in less than 1 hour. This includes mixing by dissolving, reacting, suspending, or dispersing (ref. CSAZ752).

Examples of products not included in the definition:

- products sold as fuels
- cleaning products that are not sold as solvents
- products sold in containers with a volume greater than 20 litres

Based on this definition, products sold as solvents contain (but not limited to) materials as turpentine, alcohols (methanol, isopropanol, ethanol), ketones (acetone, methyl ethyl ketone), xylene, toluene, mineral spirits, linseed oil, naphtha and methylene chloride. Such products are marketed as paint thinners, lacquer thinners, automotive body resin solvents, contact cement thinners, paint strippers and degreasers sold into the retail market.

3.3.2 Market and Product Information

The solvent market as it is traditionally known, is a very narrow category, and can include typical types of solvents sold in small household sizes, commercial sizes used by small businesses, or industrial sizes used for manufacturing purposes.

For the purposes of this plan, obligated solvent products are sold through retail stores, mass merchandisers, or home improvement stores. A small quantity of solvents sold through these channels will be used at small IC&I establishments.

Solvent products are in liquid form and mostly sold in HDPE bottles and steel containers and most often range in size from 1 litre to 5 litre. A very limited amount of solvent is sold through retail in sizes of 5 to 20 litre, and those are typically sold in steel containers. These products can be sold under manufacturer brand names or retailer private labels.

3.3.3 Quantities Sold and Available for Collection

It is estimated that the volume of solvent sold in Ontario that meets the definition above is approximately 4.96 million litres. This estimate is approximately equivalent to just over 4,200 tonnes sold in Ontario. Included in this figures are estimates for solvents sold in volumes of 20 litres or less into the retail markets and for which industry data was not available at this time.

Sales data will be refined once the program is in place using the information provided in the reports filed by stewards. The estimate for the total weight of containers sold in 2006 has yet to be determined. Detailed container information will also be obtained through stewards' reports.

The information outlined below, along with respective data sources and assumptions, is summarized in the table below.

Table 3-4: Quantities of Solvents Sold and Available for Collection

Total volume of solvents sold in 2006 (Litres) ¹	4,957 million
Total weight of solvents sold in 2006 (Tonnes) ²	4,213
Total weight of containers sold in 2006 (Tonnes)	Not yet available
Solvent weight available for collection (Tonnes) ³	1,475

Notes:

- 1) Industry calculation based on Ontario sales and the total volume of solvent sales market extrapolated. Also includes an additional 10% to account for 10 litre and 19 litre containers sold.
- 2) Based on estimate of 1 litre = 0.85 kg
- 3) This is an estimate only. Many solvents are used in a manner where the solvent is consumed and lost (e.g. evaporated, absorbed in rags, spilled) while some other solvents are used in a manner that allows for the used solvent to be available for collection (e.g. cleaner for paint brushes in a container).

3.3.4 Collection, Diversion & Disposal Infrastructure

Most municipal MHSW programs collect and report on solvents as part of a larger category of flammable products. According to the 2005 WDO Datacall⁷, 88 municipalities offered collection services for flammables. This represents potentially 4,326,990 households served to some degree.

A thorough review of the waste categories was made, and AMRC HHW Baseline Composition Study 2004 was used to extrapolate the weight of solvents collected as part of the flammable category. Many of the flammables identified in the composition study are not captured by the solvent definition, including cleaning products, adhesives, fuels, lubricants, polishes and glues. Based on this analysis of flammables covered by the solvent definition,

⁷ Waste Diversion Ontario implements an annual electronic survey of Ontario municipalities to compile the quantities of materials collected and disposed. Data reported are verified by WDO staff.

it is estimated that 479 tonnes of solvents were collected in 2005 through the Ontario municipal MHSW system. This number has been adjusted to account for a specific gravity of 0.85 kg/L since the municipal Datacall assumes 1 kg/L.

Solvents are identified as collected in the Ottawa Take it Back program, however no accurate figures are available and therefore some non-municipal collection may be occurring.

The solvent products collected likely vary from pure solvent to solvent mixed with solute (e.g. paint, grease, oil, sediment), or could be products that have flammable characteristics. Solvents can be recycled depending on the quality of the material and types of contamination that is often included in with the solvent. These contaminants can be removed through processes, and the new solvent is sold back to manufacturers.

Due to the inconsistency of the municipal waste stream received by the recyclers, and large amounts of solids present in the waste on occasion, it is sometimes unsuitable for recycling. Further research and development is needed to increase the amount of solvent that is recycled.

A fraction of collected solvents is sent for energy recovery depending on its fuel value and chlorinated solvent content, while solvents not suitable for energy recovery are sent for incineration. Empty solvent containers are sent to landfill or hazardous landfill. More R&D is required to assess the recyclability of empty solvent containers.

At this time, aside from municipal services, there are no other collection channels for residential residual solvents. Waste management companies provide services for solvent products generated by IC&I businesses registered under Regulation 347.

3.3.5 Management Options

Reduction

- P&E
 - Consumer education message to “Buy what you need, use what you buy”
 - Advice provided at point of purchase
 - Educate on improved storage practices to reduce leakage and evaporation

Reuse

- Some clean solvents can be reused in their original container
- Make reuse available at depots and events

Recycling

- Recycling is possible by distillation and other technologies for many types of solvents
- Steel containers can be recycled as scrap metal
- Some plastic containers may be recyclable

Disposal

- Secure disposal may be the only option for some solvents unsuitable for recycling, or in excess of recycling capacity (further research and development is required in this area)

3.3.6 Barriers and Opportunities to Increased Diversion

Reuse options must consider consumer safety, liability and labelling issues, and require careful sorting.

Solvent recyclability is determined by solid content and ingredients. Increasing the quantities of solvents that are recycled may require more separation and sorting by municipalities or service providers. Less bulking may be required at municipalities. There is a lack of recycling options for empty plastic and steel solvent containers. R&D is required to assess the quantity of solvent containers recycled.

There are opportunities to increase the amount of solvent recycled if new processes and procedures can be identified and implemented to ensure that the quality of material sent to the recyclers is suitable. More research and development is needed in this area.

IC&I wastes may pose higher risks compared to products currently collected. IC&I wastes will include materials with levels of toxicity and flammability that are prohibited from sale to residential consumers. The level of training and protective equipment required by the municipalities handling this material may have to be increased significantly.

3.3.7 Material Specific Promotion and Education

Promotion and education specific to solvents will include consideration of (and is not limited to):

- Stickers applied to original containers displaying information on how to manage residual materials and directing consumers to a website
- Education focused on “Buy what you need, use what you buy”
- Education on improved storage practices to reduce leakage and evaporation
- Assess impact of brochures available at point of sale

3.3.8 Research and Development

Research and development specific to solvents will include consideration of (and is not limited to):

- Working with the solvent recyclers, service providers and municipalities to assess feasibility of sorting or removing solvents from mixed flammables that are collected for the purposes of directing this solvents to diversion options
- As part of the R&D above, assess the suitability of solvents collected for recycling by looking at residual content
- Activities to develop recycling options for plastic and metal solvent containers.

3.3.9 Targets

The assistance of affected industry stakeholders is required to estimate five year sales projections. More research is also necessary to determine the amount of solvent that is available for collection. As the program matures, and as public education encourages consumers to store solvent properly for future use and ultimately use up their solvent, it is anticipated that the volume of solvents available for collection will decrease.

As the program matures, it is anticipated that the volume of solvents collected will increase. An aspirational program plan five year collection target for solvents has been set at 45% of what is theoretically available. This estimate will be reviewed as operational experience is gained.

More information is required to set practical targets for diversion. Technology exists to recycle a portion of the solvents that is currently managed. However, research and development is needed to improve the quality of the solvent sent to recyclers and to optimize the amount available for recycling. It may be possible to set container recycling targets, however more information is required to determine the quantity of containers included in this plan and the existence of recyclers and end markets for this product. At this time, it is anticipated that opportunities for diverting solvents from other flammables for the purposes of recycling will begin in Year 3.

3.3.10 Program Costs

The following table summarizes the estimate Year 1 program cost for solvents

Table 3-5: Year 1 Program Costs for Solvents

Cost Category	Description	Year 1 Costs
Municipal Channel	Includes allocation of municipal costs for depots & special events	\$ 741,000
Non-Municipal Channel	Includes costs associated with non-municipal channels	\$665
Material Specific Program R&D	Costs associated with direct R&D for material	\$10,000 ¹
Material Specific Program Promotion & Education	Costs associated with direct P&E for material	\$5,000 ²
Common Program Administration & Program Deliver	Shared costs allocated according to agreed methodology, including MOE enforcement and WDO costs	\$215,928
Totals Year 1 Costs		\$972,592

Notes:

- 1) Assumes \$10,000 R&D for research into recycling options for solvent containers. In Year 2 it is proposed that \$25,000 be allocated to researching options for increased recycling or diversion options for solvents.
- 2) Assumes \$5,000 P&E costs to pilot test stickers on solvent containers that would communicate the website and possible hotline to get more information on how to manage leftover solvents. In Years 2, 3, 4, and 5 it is estimated that \$25,000 per year would be required to roll out the sticker program to the entire province.

3.3.11 Fees

The following table summarizes the Year 1 fees for solvents

Table 3-6: Year 1 Fees for Solvents

Fee per Kg	\$0.231
Fee per 1 Litre Unit	\$0.196

3.4 Oil Filters

3.4.1 Definition

Spin-on-style or element-style fluid filters that are used in hydraulic, transmission or internal combustion engine applications, and; oil, diesel fuel, storage tank diesel fuel, coolant, household furnace fuel oil, sump type automatic transmission, plastic / paper element style filters, but does not include gasoline, air, household furnace air filters, filters or sock type filters.

3.4.2 Market and Product Information

Oil filters are mainly used in automotive engines and other equipment for the purpose of filtering out contaminants from the various oils and coolants. They come in various sizes, makes and shapes. For the purposes of this plan, it is assumed that 85% of oil filters sold are less than 8" (203 mm) in length (mainly for use in automobiles), and 15% are equal to or greater than 8" (usually for heavy duty vehicle applications, predominately diesel engines, farm equipment, and on or off road vehicles).

Oil filters are installed and replaced in vehicles either by the vehicle owner – "Do-it-yourself" (DIY), or more commonly, by an automobile service business – "Do-it-for-me" (DIFM). The number of oil filters used in the life of a motor vehicle is expected to reduce gradually over time due to technology improvements (see section 3.4.5 Management Options below).

3.4.3 Quantities Sold and Available for Collection

The MHSW plan for used oil filters proposes to introduce a system to manage used oil filters regardless of category of user, i.e. whether generated by a consumer or a large or small IC&I business. On this basis, all of the 21,000,000 million filters sold into the Ontario marketplace each year would be available for collection. The weight of oil filters available for collection is estimated to be 18,480 tonnes (includes weight of used filter and weight of residual oil remaining in used filter).

This information, along with respective data sources and assumptions, is summarized in the table below.

Table 3-7: Quantities of Used Oil Filters Sold and Available for Collection

Total units of oil filters sold in 2006 ¹	21 million
Total weight of oil filters sold in 2006 (Tonnes) ²	14,600
Oil filter units available for collection ³	21 million
Oil filters weight available for collection (Tonnes) ²	18,480

Notes:

- 1) Based on DesRosiers report for the number of automobiles and light trucks (but not counting motorcycles and heavy duty trucks, both on and off road) in Ontario, and assumes an average of three oil changes for each vehicle annually.
- 2) Based on average "dry" weight of 0.694 kg per filter and average "wet" weight (weight of filter residual oil) of 0.88 kg per filter. Information provided by the National Used Oil Management Association Council (NUOMAC)

- 3) Assumes the number of filters available for collection is equal to number of new filters installed.

3.4.4 Collection, Diversion & Disposal Infrastructure

According to the 2005 WDO Datacall⁸, 45 municipalities offered collection services for oil filters. This represents 3,387,493 households served. According to this same source, 101 tonnes of oil filters were collected in 2005 through the Ontario municipal MHSW depot system. Based on the estimation of 18,480 tonnes of oil filters available, the amount collected through the municipal system represents a <1% collection rate.

There are approximately 12,500 automobile services provider outlets in Ontario⁹, most of which collect oil filters from vehicles serviced, but not all accept oil filters from DIYs. Of the oil filters collected during the servicing of vehicles, it is estimated that 6,921 tonnes are diverted and recycled. Based on 18,480 tonnes available for collection, this indicates a diversion rate through the automobile service sector of 38% (DIYs and DIFMs).

3.4.5 Management Options

Reduction

- Service intervals generally lengthening for new vehicles, thus reducing the number of oil changes/oil filters needed

Reuse

- Oil Filters cannot be reused

Recycling

- Oil filters are collected and transported to waste management facilities where they are crushed and recycled as scrap metal

Disposal

- The rubber gasket and filter paper cannot be recycled and are consumed during the metal recycling process. Where recycling facilities are not available or do not have sufficient capacity, some quantity of collected material may require disposal

3.4.6 Barriers and Opportunities to Increased Diversion

There are insufficient locations for DIYs to take used oil filters for recycling. Smaller shops may not have rigorous recycling programs.

Opportunities to increase diversion of oil filters include:

- Increase the number of municipal and non-municipal/private sector sites accepting used oil filters from DIYs by introducing a program to stimulate the removal of used
-

⁸ Waste Diversion Ontario implements an annual electronic survey of Ontario municipalities to compile the quantities of materials collected and disposed. Data reported are verified by WDO staff.

⁹ Source: Automobile Industries Association

- oil filters from collection sites. Refer to section 5.2 on transportation and processing fees.
- Increase smaller shops' accessibility to recycling programs. Refer to section 5.2 on transportation and processing fees.
 - Increase the capacity for reprocessing recovered filters, if required.

3.4.7 Material Specific Promotion and Education

Promotion and education specific to oil filters will include consideration of (and is not limited to):

- Signage and brochures available at point of sale
- Information targeting automobile service providers
- Local municipal P&E such as waste collection day calendars
- Educate service centres and DIYs that oil filters (and used oil and containers) should be recycled
- Educate automobile owners regarding appropriate oil change intervals

3.4.8 Research and Development

Research and development specific to oil filters will relate to the establishment, within a limited timeframe, of a province wide transportation fee system by which haulers will be paid a fee to pick up used oil filters from any location (including automobile service providers, municipalities, farms, fleet operators etc.) upon proof of recycling.

The development of this system will require research into collection locations; the recruitment, verification and registration of haulers, verification of fee rates and the identification and verification of approved related processors. This will include the development of hauler and processor manuals and a fee claims administration database system.

In addition, a survey and assessment of the markets for small engine (off road), heavy duty (on/off road) and farming mobile or stationary equipment is required. After program set up and launch, the development of an audit review system for fee claims must also be established.

3.4.9 Targets

Theoretically, the 21 million oil filters (having a dry weight of 14,600 tonnes) introduced each year into the Ontario market are eventually available for collection and diversion and this estimate is expected to remain stable over the five year planning horizon.

Based on industry estimates and municipal data, 7,022 tonnes of oil filters (based on wet weight) are collected annually representing a 38% collection rate.

The diversion rates achieved in the five provinces where programs exist were in every case higher than the 50% originally estimated. The existing used oil filter programs have achieved as high as 70% diversion in year one and, after 8-10 years, these programs are achieving as high as 92% diversion. Based on these results, it is estimated that given the awareness developed by other provincial programs and building on the existing filter hauler and processor infrastructure, a 64% collection rate will be achieved in Year 1. More information

on the five existing used oil product management programs including diversion rates is available at www.usedoilrecycling.com.

Finally, given that oil change intervals are lengthening on new vehicles, an initiative of the MHSW communication program will be to educate owners regarding appropriate oil change intervals in accordance with the recommendations in their owner's manual.

3.4.10 Program Costs

The table below summarizes the estimated Year 1 program cost for oil filters.

Table 3-8: Year 1 Program Costs for Oil Filters

Cost Category	Description	Year 1 Costs
Municipal Channel	Includes allocation of municipal costs for depots & special events	\$87,000
Non-Municipal Channel	Includes costs associated with non-municipal channels	\$9,579,000
Material Specific Program R&D	Costs associated with direct R&D for material	\$300,000 ¹
Material Specific Program Promotion & Education	Costs associated with direct P&E for material	\$200,000 ²
Common Program Administration & Program Deliver	Shared costs allocated according to agreed methodology, including MOE enforcement and WDO costs	\$1,885,913
Totals Year 1 Costs		\$12,051,913

Notes:

- 1) Year 1 R&D: see 3.4.8 above
- 2) Year 1 P&E: see 3.4.7 above

3.4.11 Fees

The table below summarizes Year 1 oil filter fees.

Table 3-9: Year 1 Fees for Oil Filters

Fee per Kilogram	\$0.825
Fee per Unit – filter < 8"	\$0.499
Fee per unit – filter > 8"	\$0.998

3.5 Oil containers

3.5.1 Definition

Oil containers with a volume of 30 litres or less, produced or arriving into the province, and which are for sale in Ontario for the containment of lubricating oil products category including:

- Petroleum-derived or synthetic crankcase, engine and gear oils, and hydraulic, transmission and heat transfer fluids, and
- Fluids used for lubricating purposes in machinery or equipment.

The above definition includes the following products:

- | | |
|--|---------------------------------------|
| • synthetic crankcase or engine oil | • textile oil |
| • hydraulic fluid | • chain oil |
| • polyolester fluids | • rock drill oil |
| • circulating oil or turbine oil | • 2-cycle engine oil |
| • paper machine oil | • gasoline / 2-cycle engine oil mixes |
| • transmission fluid | • saw guide oil |
| • power steering fluid | • drawing, stamping and shaping oil |
| • gear oil | • process oil |
| • vegetable oil for lubrication | • dedusting oil |
| • re-refined oil | • marine cylinder oil |
| • electrical insulating oil | • machine tool and slideway lubricant |
| • refrigeration system oil | • natural gas compressor oil |
| • compressor oil | • conveyor lube |
| • mineral heat transfer fluid | • drip less lube |
| • marine engine oil for vessels operating domestically | • quenching oil |
| • metal working oil | • pneumatic system oil |
| • form release oil | • rustproof oil |
| | • food grade white mineral oil |

The following products are not included in the above definition:

- | | |
|--|-------------------------------|
| • ethylene glycol heat transfer fluid | • winter start fluid |
| • propylene glycol heat transfer fluid | • brake fluid |
| • silicone heat transfer fluid | • undercoating |
| • synthetic aromatic hydrocarbon heat transfer fluid | • penetrating oil |
| • glycol-based heat transfer fluid | • hydraulic jack oil |
| • water glycol hydraulic fluid | • 3-in-1 household oil |
| • phosphate ester hydraulic fluid | • aerosol propelled lubricant |
| • hydraulic oil dye | • gun oil |
| • polyglycol synthetic compressor oil | • kerosene |
| • base oil, including re-refined base oil | • urethane coating |
| • grease | • sewing machine oil |
| • oil additive | • export oil sales |
| • oil treatment | • cooking oil |
| • diesel fuel treatment | • windshield washer fluid |
| | • emulsified oil |

- cleaning/flushing fluids for motors/equipment

The above definition is consistent with the definition employed by the used oil stewardship programs in other Canadian provinces.

3.5.2 Market and Product Information

Oil containers are usually sold as the packaging for lubricating oil and not sold solely as a container. Oil containers are typically sold in 500 ml, 946 ml, 1L, 3.78L, 4L, 4.4L, 4.73L 5L, 10L, 18.9L, 20L sizes. They are primarily manufactured from HDPE plastic.

Oil containers containing lubricating oil are used and emptied by the vehicle owner – “Do-it-yourself” (DIY), or more commonly, by an automobile service provider – “Do-it-for-me” (DIFM).

3.5.3 Quantities Sold and Available for Collection

An estimated 42 million lubricating oil containers (< 30 L size) are sold in Ontario annually, containing 83 million litres of lubricating oil. The MHSW plan for used oil containers proposes to introduce a system to manage all used oil containers regardless of category of user, i.e. whether generated by a consumer or a large or small IC&I business. On this basis, all of the 42 million containers sold into the Ontario marketplace each year would be available for collection. The weight of the empty oil containers available for collection annually is estimated to be 4,370 tonnes. This information, along with respective data sources and assumptions, is summarized in the table below.

Table 3-10: Quantities of Oil Containers Sold and Available for Collection

Total units of oil containers sold in 2006 ¹	42 million
Total weight of oil containers sold in 2006 (Tonnes) ²	4,370
Oil container units available for collection ¹	42 million
Oil containers weight available for collection (Tonnes) ²	4,370

Notes: Information provided by the National Used Oil Management Association Council (NUOMAC)

- 1) Estimate based on information from OUOMA 2004 Program Plan
- 2) Dry weight based on average weight of 0.104 kg per container

3.5.4 Collection, Diversion & Disposal Infrastructure

According to the 2005 WDO Datacall¹⁰, no municipalities offered collection services for oil containers, although many (90) municipalities do accept used oil which often arrives in oil containers. Some municipalities accept empty oil containers as part of their Blue Box program.

¹⁰ Waste Diversion Ontario implements an annual electronic survey of Ontario municipalities to compile the quantities of materials collected and disposed. Data reported are verified by WDO staff.

Accordingly, of the containers brought to depots by householders with the 2,670 tonnes of used oil reported in the WDO Datacall, an estimated 103 tonnes of used oil containers are in effect collected at MHSW depots and events. It must be noted that the majority of these containers are not currently being recycled due in part to limited processing capacity.

There are approximately 12,500 automobile services provider outlets in Ontario¹¹ that manage the oil containers generated from vehicles serviced, but few accept empty oil containers from DIYs.

Some oil containers are recycled with other plastic containers, however most plastics recyclers limit or do not accept oil containers because of problems associated with treatment of the oil residue. Currently most oil containers are landfilled. It is estimated that only about 131 tonnes of oil containers emptied at automobile service centres are currently being recycled.¹² Therefore, it is estimated that the collection rate is approximately 5% (234 tonnes); however, only an estimated 3% of the total is being recycled.

3.5.5 Management Options

Reduction

- Service intervals generally lengthening for new vehicles, thus reducing the number of oil changes/oil containers needed.

Reuse

- A NUOMAC study found that many (up to 10%) larger containers (20 L pails) are commonly reused especially by agricultural users. This may however only delay the point in time when the container is available for collection.

Recycling

- Specialized systems to recycle plastic from oil containers have developed in provinces with oil container stewardship programs where fees are provided to recyclers. These systems include consolidation, shred/grind, washing and marketing as a commodity.

Disposal

- Where reuse and recycling options are not available and/or technically feasible, some quantity of collected material may require disposal.

3.5.6 Barriers and Opportunities to Increased Diversion

There are insufficient locations for DIYs to take oil containers for recycling.

Opportunities to increase diversion of oil containers include:

- Increase the number of municipal and non-municipal/private sector sites accepting used oil containers from DIYs by introducing a transportation fee program to

¹¹ Source: Automobile Industries Association

¹² Source: Ontario Used Oil Material Association Used Oil Material Program Plan, July 2004

- stimulate the removal of used oil containers from collection sites (refer to section 5.2 on transportation and processing fees).
- Increase the capacity for recycling collected oil containers by introducing an oil container processing fee program (refer to section 5.2 on transportation and processing fees).

3.5.7 Material Specific Promotion and Education

Promotion and education specific to oil containers will include consideration of (and is not limited to):

- Signage and brochures available at point of sale
- Information targeting automobile service providers
- Local municipal P&E such as waste collection day calendars
- Educate service centres and DIYs that oil containers (and used oil and oil filters) should be recycled
- Educate owners regarding appropriate oil change intervals

3.5.8 Research and Development

Research and development specific to oil containers will relate to the establishment, within a limited timeframe, of a province wide transportation fee system by which haulers will be paid a fee to pick up used oil containers from any location (including automobile service providers, municipalities, farms, fleet operators etc.) upon proof of recycling, with some transition during the R&D phase in the first years.

The development of this system will require research into collection locations; the recruitment, verification and registration of haulers, verification of fee rates and the identification and verification of approved related processors. This will include the development of hauler and processor manuals and a fee claims administration database system.

In addition, a significant R&D investment will be required over a period of years to develop processing technology, capacity and markets in Ontario for managing the used oil containers after they have been collected. The program will capitalize on the experience gained in the used oil product programs in other provinces.

3.5.9 Targets

Theoretically all of the estimated 42 million oil containers (4,370 tonnes) introduced into the Ontario market are available for collection.

Based on industry estimates and municipal data, 234 tonnes are collected and managed annually, representing 5% of the quantity sold.

An initiative of the MHSW communication program will be to educate owners regarding appropriate oil change intervals in accordance with the recommendations in their owner's manual. The recent declining trend in the number of DIYs will likely result in more bulk oil used and less packaged oil. Finally, oil change intervals are lengthening on new vehicles.

Based on experience in other programs, it is estimated that the collection rate will increase to 50% over a five year period following the introduction of an oil container transportation and processing fee program similar to the programs which have been successful in other provinces.

3.5.10 Program Costs

The following table summarizes the estimated Year 1 program cost for oil containers.

Table 3-11: Year 1 Program Costs for Oil Containers

Cost Category	Description	Year 1 Costs
Municipal Channel	Includes allocation of municipal costs for depots & special events	\$178,000
Non-Municipal Channel	Includes costs associated with non-municipal channels	\$2,101,000
Material Specific Program R&D	Costs associated with direct R&D for material	\$500,000 ¹
Material Specific Program Promotion & Education	Costs associated with direct P&E for material	\$300,000 ²
Common Program Administration & Program Deliver	Shared costs allocated according to agreed methodology, including MOE enforcement and WDO costs	\$628,100
Totals Year 1 Costs		\$3,707,100

Notes:

- 1) Due to the considerable R&D investment that is described in Section 3.5.8, there is an annual R&D allocation of \$500,000 for five years.
- 2) Year 1 and 2 P&E is estimated at \$300,000. For Years 3, 4, and 5, the allocation is reduced to \$200,000. See Section 3.5.7 above

3.5.11 Fees

The following table summarizes Year 1 oil containers fees.

Table 3-12: Year 1 Fees for Oil Containers

Fee per Kilogram	\$0.848
Fee per L	\$0.045
Fee per Unit – 3.78L (fee for container and fluid) ¹	\$0.17

Note:

- 1) For the purpose of calculating the fee for oil containers not sold in the 3.78L size, the per litre fee rate will be used.

3.6 Single Use Dry Cell Batteries

3.6.1 Definition

The term single use dry cell battery means batteries that are one or more cells, including case, terminals and markings. The source of electrical energy is obtained by the direct conversion of chemical energy that is not designed to be charged by any other electrical source. Within the industry, single use dry cell batteries are called primary batteries and shall be referred as such throughout the plan. Secondary batteries include any battery that is designed to be recharged.

Therefore, the MHSW program includes easily removable primary batteries that are designed and intended to be removable and replaceable by the consumer with the following chemistry:

- Alkaline-Manganese (including batteries containing mercury)
- Zinc-Carbon
- Lithium batteries
- Button Cells (a variety of chemistries such as those used in hearing aids, watches)

3.6.2 Market and Product Information

The market includes a number of North American companies that manufacture batteries under their own national brands, but may also manufacture batteries sold under another brand name or a retailers' private label.

The market also includes batteries sold pre-installed in or included with various electronic devices. These batteries are in many cases imported by the electronic device brand owner.

Following the European experience, the North American battery industry voluntarily removed mercury from legitimate brand name alkaline dry cell batteries. This initiative was largely completed by 1993 and fully completed by major North American manufacturers in 1996. Unlike Europe, maximum mercury levels have not been regulated in Canada. Even in Europe, there is a measurable level of mercury in the waste battery stream that must be managed in end of life programs. The North American battery manufacturers support Canada adopting similar restrictions on mercury in primary batteries.

Some companies and retailers do import batteries from non-North American manufacturing sources and these batteries may contain mercury at higher levels. This may further complicate post-collection processing of collected batteries, and increase environmental risks and management costs.

The market also includes a disproportionate number of counterfeit batteries. These batteries typically are of inferior quality, often convey misleading claims (e.g. mercury free) and inherently have performance, safety and environmental concerns.

Most battery sales are through consumer retail channels. However, the various applications for batteries results in some percentage (<10%) sold by wholesale distributors that supply businesses with products and services.

Primary batteries come in various sizes. The vast majority of dry cell batteries are alkaline-manganese of various sizes (AAA, AA, 9-volt, D, C) that range in weight from 11 grams up to 142 grams. Most primary button batteries such as lithium or silver oxide that are used in watches and hearing aids, weigh approximately 2 grams each.

There are various battery chemistries and therefore compositions. The following table presents a composition breakdown of the most common types of primary batteries¹³:

Table 3-13: Composition Breakdown of Common Types of Primary Batteries

Material	Alkaline Manganese	Zinc Carbon	Lithium
Steel	23%	4%	50%
Zinc	16%	23%	0%
Manganese Dioxide	37%	27%	30%
Water	9%	18%	0%
Electrolyte	5%	5%	6%
Carbon	4%	10%	2%
Other Metals	2%	0%	1%
Other Non-metals	4%	4%	8%
Lithium	0%	0%	3%

Button batteries are considerably smaller than other primary batteries. Their composition nonetheless includes many of the same materials¹⁴:

Table 3-14: Composition Breakdown of Common Types of Button Batteries

Material	Alkaline	Zinc Air	Silver Oxide	Lithium
Steel	37%	42%	42%	50%
Zinc	11%	35%	9%	0%
Manganese Dioxide	36%	0%	3%	28%
Water	6%	10%	2%	0%
Electrolyte	2%	4%	1%	2%
Carbon	2%	1%	0.5%	2%
Other Metals	0%	0%	33%	10%
Other Non-metals	3%	8%	9%	5%
Mercury	0.6%	1%	0.4%	0%
Lithium	0%	0%	0%	3%

¹³ Primary battery composition provide by K. Marolia, P&G Duracell

¹⁴ Button battery composition provide by K. Marolia, P&G Duracell

3.6.3 Quantities Sold and Available for Collection

According to 2006 retail market research data¹⁵, the quantity of primary batteries sold in Ontario is estimated at 125 million annually. The industry estimates that retail market research data historically captured about 70% of the battery market. The other sources of batteries include those sold through non-retail distributors, and primary batteries included with durable products such as toys, small household electronics (e.g. smoke detectors, etc.) and larger appliances (e.g. batteries for a remote with a television or DVD player).

Therefore, the total number of primary batteries sold in Ontario is estimated at roughly 175 million annually. With an estimated weighted average of 28.8 grams¹⁶, the total weight of batteries sold annually is 5,040 tonnes.

3.6.4 Collection, Diversion & Disposal Infrastructure

Of the 95 municipal MHSW programs reported in the 2005 WDO Datacall, 69 programs collect primary batteries (73% of the programs) that represent 95% of the households that have access to MHSW programs.

The quantity of batteries of all types (not only single use batteries) reported collected in 2005 through municipal programs was approximately 250 tonnes. This has been adjusted down to 204 tonnes based on the AMRC waste composition study to account for the removal of rechargeable secondary batteries collected in this mixed stream.

At this time, it is not accurately known what percentages of these batteries were sent for recycling versus disposal. However, data provided by the Ontario based battery recycler indicates that less than 7% (about 14 tonnes) of batteries collected through Ontario municipal collection programmes may have been directed to recycling. The balance (190 tonnes) collected by municipalities would appear to have been disposed in landfill.

The existing battery processor provides a program to collect primary batteries from businesses and institutions. The processor charges a fee per pail, which includes transportation and processing. They have distributed almost 3,500 pails to non-municipal locations, including two retail chains. Each of the pails hold approximately 18 kg and the quantity of batteries collected annually through this program is approximately 21 tonnes¹⁷.

The combined annual collection of single use dry cell batteries from municipal and non-municipal sources in Ontario is therefore estimated at 225 tonnes; of which 190 tonnes is assumed to be disposed.

The methodology in Europe for measuring the collection rate is the weight collected, as a percent of weight sold; where weight sold is the average of sales in that year and the preceding two years. This methodology will be replicated as part of the Year 1 R&D to assess and produce accurate estimates for the program in Ontario.

¹⁵ Industry sales estimate provided by the Canadian Household Battery Association

¹⁶ Data provided by the Canadian Household Battery Association

¹⁷ Rick Unyi, Raw Materials Company, correspondence received March 21, 2007

Using this methodology, the quantity available for collection is estimated at 4,940 tonnes, assuming a 2% annual growth in sales. With a total collection estimate of 225 tonnes, the baseline collection rate is estimated at 5%.

3.6.5 Management Options

Reduction

- Battery manufacturers continually compete in the marketplace on longer use life span.
- Mercury has been removed by North American manufactured alkaline and zinc carbon batteries since 1996.
- Importers and private label brand owners sourcing batteries outside of NA should ensure that batteries purchased are mercury free and that claims by suppliers are verified.

Reuse

- Primary batteries are designed not to be recharged.
- Consumers are now provided with a rechargeable battery alternative for many applications.

Recycling

- There are a limited number of primary battery processors in Ontario and North America who recover components such as steel, zinc, manganese and other metals. Mechanical and chemical processes are used to recover as much of the battery as technically and economically feasible. These processors are more prevalent in Europe.
- An important issue for battery recycling is the ability of the processor to manage end-of-life batteries containing mercury to ensure no emissions to the workplace or natural environment.
- Currently one company in Ontario processes batteries. Their process diverts for recycling the steel and zinc components (~27-49% of the mixed primary battery stream). The other parts are either not recovered in the processing or diluted and mixed with other ferrous streams.

Disposal

- Non recoverable materials from the battery processing may require disposal

3.6.6 Barriers and Opportunities to Increased Diversion

There are a number of characteristics unique to batteries that present barriers to increased diversion. For example, counterfeit batteries (which possibly contain mercury) are indistinguishable from mercury-free name brands to the average eye. Counterfeit batteries can lead to environmental, health, and consumer safety issues and the management of

mercury containing batteries represent a significantly higher cost than mercury free batteries.¹⁸

It should also be noted that lithium batteries (in particular lithium button cells) pose the biggest overheating risk due to short circuits, leading to leakage and explosions.¹⁹

The industry has been actively collaborating with Health Canada on addressing risk of accidental ingestion of button batteries by children and by the elderly, who tend to be the users of hearing aids, and who have sometimes confused the used batteries with medication. Therefore, encouraging in home collection of button batteries may pose further risks in this area.

It may be possible to return batteries to retail and/or other industry return systems, however mixing primary batteries with other batteries such as rechargeable batteries in existing collection systems may pose handling problems. It may also pose potential safety issues as mixed batteries may have electrical charges and may leak.

The greatest challenge expressed by the battery industry is the uncertainty related to processing capabilities in North America for primary batteries. While there is a strong and competitive battery processing infrastructure in Europe, the North American infrastructure for processing primary batteries (the majority of which is alkaline-manganese) has not been firmly developed.

There is an existing battery processor in Ontario who processes a mix of primary and secondary batteries; however the industry would like to undertake an assessment of all options as well as a full vendor qualification assessment process as part of R&D activities. The rationale for undertaking this processing assessment is to provide all stakeholders involved (service providers, stewards, Stewardship Ontario, the Ministry of the Environment) the confidence that the management of batteries under this program is done according to the highest health, safety and environmental standards in a cost effective and competitive marketplace.

3.6.7 Material Specific Promotion and Education

Promotion and education specific to primary batteries will include consideration of (and is not limited to):

- Education could focus on informing consumers on the most appropriate applications for primary batteries.
- Specific household information would be developed once the processing capabilities are in place and the focus shifts to increasing collection from the residential sector
- A specific program that targets collection of primary batteries from non-residential locations will also be considered once the processing capabilities are in place.

¹⁸ National Electrical Manufacturers Association (NEMA) comment submission to Stewardship Ontario, March 21 2007

¹⁹ Same as above

3.6.8 Research and Development

The following proposed R&D plan is intended to be implemented throughout the first five years of the program.

Year 1

- Identify and contract person/organization who will undertake the work described below. This may involve contracting with a partner organization who will serve as a staging area for collected batteries that will be further analyzed and studied as described below.
- Develop a statistical protocol for auditing the stream of collected waste batteries with the objective of:
 - a. measuring the concentration of mercury in alkaline manganese and zinc carbon batteries
 - b. determining the percentage fraction of batteries by chemistry and type (e.g. single cells, button cells, packs, etc.) in the waste stream
 - c. establishing an inventory of materials in waste batteries collected in Ontario, for which recycling opportunities may be sought
 - 1) chart all collection points together with population density and weight collected throughout Ontario
 - 2) establish procedures for drawing a statistically significant sample from the collected batteries and execute
 - 3) identify suitable laboratory to assay the sample for target materials
 - 4) forecast weight of materials, include contaminants such as mercury, that are contained within batteries collected in Ontario and could be recycled
 - 5) define procedure and frequency of future audits
- Develop specification for approval of vendors for waste management services including, transportation, sorting, recycling, etc.
- Research potential recycling operations in North America for processing all types of batteries collected in Ontario. They may be recycled according to chemistry or as a mixed feedstock.
- Contact the companies and hold introductory discussions towards the objective of approving them as a recycling vendor.
- Battery stewards will continue to advocate that the Canadian Council of Environment Ministers (CCME) support and the Federal Government introduce legislation restricting the use of mercury in batteries in Canada as has been done in other countries.

Year 2

- Organize approval trials with selected vendors to prove their process capabilities for recycling batteries without adversely affecting the output products and emissions and discharges to the environment. This step could be accelerated if acceptable processors come forward.
- Using the findings of the waste stream audit and in accordance with the process specification of recycling vendors, develop a methodology, procedure and technology to sort collected batteries.

Year 3

- Complete all recycling trials, issue reports and vendor qualification audits on all partnering recycling facilities. Prioritize approval of facilities that recycle alkaline manganese and zinc carbon batteries. Note: These may contain mercury at a concentration determined by the waste stream audit.
- Agree on logistics optimization protocols with all municipalities that collect batteries so as to increase efficiencies, reduce environmental risks due to transportation impacts and minimize costs.
- Investigate economies of scale benefits available via negotiating single contracts with sorting and recycling companies for all batteries collected in Ontario.
- Assess feasibility of collecting primary batteries from non-residential sources such as colleges, universities, hospitals, nursing homes, small IC&I establishments and retailers who might choose to offer customers a return to retail option.

Year 4

- Design, develop and undertake trials with municipalities and other partners to investigate opportunities for increasing collection of waste batteries from consumers. Establish systems for sharing best practice with all collection partners.
- Establish sorting, and recycling contracts and scale up diversion of collected batteries from landfill to recycling according to availability of technology and cost factors.

Year 5

- Investigate and develop opportunities to increase competition within the battery sorting and recycling sectors for all types of batteries.
- Optimize P&E initiatives and investigate their link with collection results.

3.6.9 Targets

Setting targets for primary batteries will be challenging given the plan is to ensure there are environmentally acceptable processing outlets for primary batteries in place before collection efforts are widely expanded. The current collection rate is estimated at no more than 5%.

The European Union's (EU) Directive on Batteries and Accumulators was released in 2006 and has established a minimum collection target for each country in the EU of 25% of all spent primary batteries after 4 years and 45% after 8 years. A 50% diversion target for collected primary batteries has also been established. Therefore 50% of the total weight of material collected must be recovered for recycling purposes. European countries that are recycling portable batteries (typically including secondary batteries) report the following collection rates²⁰:

- Belgium: operating for 9 years – 56%
- Austria: operating for 14 years – 41%
- Germany: operating for 6 years – 36%
- France: operating for 4 years - 21%
- Poland: operating for 2 years – 7%

²⁰ European Portable Battery Association; <http://www.epbaeurope.net/recycling.html#collectionrate>

It should also be noted that the processing infrastructure in Europe is much stronger due in part to the Directive, but also due to the economies of scale attributable to higher volume of batteries sold and recovered. There are 31 battery recycling companies operating in Europe, including 15 for alkaline and zinc carbon batteries, 9 for button cells and 7 for portable rechargeable batteries.²¹

Generally, if steel is the only material that is recycled from the battery processor, then the recycling rate has an upper limit of approximately 25%. If steel, zinc and manganese can be also captured and utilized for other beneficial uses, a maximum diversion rate of 50% can potentially be achieved²². The diversion targets established in the EU are likely achievable depending on the processing technologies that are employed in North America.

Setting targets for primary batteries in Ontario will be challenging until such time as processing capabilities, whether inside or outside Ontario, are known. The collection targets have been conservatively established in order to ensure that collection volumes increase in step with the capacity of end markets to process the batteries in an environmentally acceptable way.

The MHSW plan is proposing a collection target of 25% by Year 5. Based on European processing technologies, a 13% diversion target is proposed for Year 5.

3.6.10 Program Costs

The following table summarizes the estimated Year 1 program cost for single use dry cell batteries.

Table 3-15: Year 1 Program Cost for Single Use Dry Cell Batteries

Cost Category	Description	Year 1 Costs
Municipal Channel	Includes allocation of municipal costs for depots & special events	\$152,000
Non-Municipal Channel	Includes costs associated with non-municipal channels	\$14,252
Material Specific Program R&D	Costs associated with direct R&D for material	\$300,000 ¹
Material Specific Program Promotion & Education	Costs associated with direct P&E for material	\$0 ²
Common Program Administration & Program Deliver	Shared costs allocated according to agreed methodology, including MOE enforcement and WDO costs	\$164,385
Totals Year 1 Costs		\$630,637

Notes

- 1) Assumes \$300,000 R&D costs each year for five years. A description of R&D expenditures is provided in section 3.6.8 above.
- 2) Assumes no material specific P&E costs for Year 1 or 2. However, P&E expenditures of \$25,000, \$75,000, and \$100,000 have been allocated for Years 3, 4, and 5 respectively. The

²¹ Information provided by K. Marolia, P&G Duracell, March 21, 2007.

²² Information provided by K. Marolia, P&G Duracell.

P&E expenditures will grow to match the increasing end market capacity to manage collected batteries.

3.6.11 Fees

The following table summarizes the Year 1 fees for single use dry cell batteries.

Table 3-16: Year 1 Fee for Single Use Dry Cell Batteries

Fee per Kilogram	\$0.13
Fee per Unit – one Battery (average 28.8 g)	\$0.003

3.7 Antifreeze

3.7.1 Definition

Ethylene or propylene glycol based vehicle engine coolant sold in containers less than 30L either premixed (ready to install without dilution) or concentrated product (requiring dilution with water).

The focus on pre-packaged product is expected to cover all antifreeze packaging and waste antifreeze from all DIY and small quantity ICI waste generation. Bulk antifreeze (not pre-packaged in containers of 30 L or less) is not included in the program. Other products referred to as “antifreeze” which are not designed for application as an engine coolant and/or are not comprised of ethylene or propylene glycol are not included in the program. The following is a list of excluded products:

- Engine coolant sold in bulk, or in containers with a volume greater than 30 litres
- Plumbing antifreeze
- Vehicle windshield antifreeze
- Product marketed as industrial heat transfer fluid
- Fuel (gasoline & diesel) antifreeze
- Lock de-icer & antifreeze
- Air brake antifreeze
- Antifreeze that does not contain ethylene or propylene glycol

3.7.2 Market and Product Information

Antifreeze, also referred to as coolant, is used exclusively in combustion engines as a heat transfer fluid. The main ingredient is ethylene glycol or propylene glycol.

It is sold in concentrate form that is diluted with water to desired concentration by user, for “flush and fill” fluid changes. It is sold also premixed with water (ready to use – RTU) generally intended for “top ups” to replenish lost fluid due to evaporation and leaks.

Pre-packaged antifreeze is sold primarily in a 3.78L format, but also in 1L, 1.89L, 9.46L and 18.9L containers that are made of HDPE plastic. Antifreeze can be purchased from retailers, service stations, gas stations, automotive shops and dealerships.

Antifreeze is manufactured by a limited number of companies but sold under numerous private label and national brand names. Motor and coolant technology improvements are extending the interval between fluid changes.

Antifreeze is installed and replaced in vehicles either by the vehicle owner – “Do-it-yourself” (DIY), or more commonly, by an automobile service business – referred to as “Do-it-for-me” (DIFM).

3.7.3 Quantities Sold and Available for Collection

Industry estimates 4 million containers of pre-packaged antifreeze are sold in Ontario annually, containing approximately 15 million litres of product, half of which is “premix” and half of which is “concentrate”. Despite an estimated annual 2% growth in the number of

motor vehicles, extended service intervals are expected to result in a gradual net decline in future sales of antifreeze. Pre-packaged antifreeze is used by DIYs, but is also often used by automobile service centres where a bulk system is not installed, or when a customer specifies a brand of product.

Based on an average weight of 0.140 kg each, the 4 million containers have a weight of 560 tonnes.

Premix product is generally used to replenish lost antifreeze. Waste antifreeze is not created during this kind of “top up” service. Concentrate is generally used, after dilution with water, for “flush and fill” service resulting in the increased volume of waste antifreeze typically drained from the cooling system. Taking into account these factors, it is estimated that the volume of waste antifreeze derived from pre-packaged product is 13.4 million litres, or 14,400 tonnes.

This information, along with respective data sources and assumptions, is summarized in the table below.

Table 3-17: Quantities of Antifreeze Sold and Available for Collection

Total volume of antifreeze sold in 2006 (Litres) ¹	15 million
Total weight of antifreeze sold in 2006 (Tonnes) ²	16,800
Total weight of containers sold in 2006 (Tonnes) ³	560
Antifreeze volume available for collection (Litres) ⁴	13.4 million
Antifreeze weight available for collection (Tonnes) ²	14,400
Container weight available for collection (Tonnes) ⁵	560

Notes:

- 1) For pre-packaged product, actual volume as sold, before any dilution. Data based on information from Leading Edge Reports, Ward’s Auto Infobank, US Census and Aftermarket Business
- 2) Conversion from volume to weight based on density of concentrate antifreeze (1.15 kg/L) and diluted antifreeze (1.075 kg/L)
- 3) Based on average container weight of 0.140 kg
- 4) Net result of volume increases due to dilution of concentrate product, and volume decreases due to leakage and evaporation
- 5) Antifreeze container is typically emptied at the time of installation of antifreeze in the vehicle and becomes available for collection at that time. Product container and additional containers (to capture additional volume due to dilution) may be used by DIYs to capture waste antifreeze.

3.7.4 Collection, Diversion & Disposal Infrastructure

According to the 2005 WDO Datacall²³, 55 municipalities offered collection services for antifreeze. This represents 3,358,900 households served. According to this same source, 244 tonnes of antifreeze (excluding containers) were collected in 2005 through Ontario

²³ Waste Diversion Ontario implements an annual electronic survey of Ontario municipalities to compile the quantities of materials collected and disposed. Data reported are verified by WDO staff.

municipal programs. Based on the estimation of 14,400 tonnes of waste diluted antifreeze originating from pre-packaged product, the amount collected through the municipal system would represent a 1.7% collection rate for leftover antifreeze (excluding containers).

There are approximately 12,500 automobile services provider outlets in Ontario²⁴. Most have arrangements with a service provider to pick up waste antifreeze and take it to an antifreeze recycler, but there is no data available regarding the volumes managed in this way. It is estimated that at least 2,000 tonnes of waste diluted antifreeze originating from pre-packaged product is currently collected and diverted for recycling by automobile service providers. Few automobile service providers accept waste antifreeze from DIYs.

Therefore, the estimated combined collection rate for antifreeze is 16%.

3.7.5 Management Options

Reduction

- Extended service intervals are expected to result in a gradual net decline in future sales of antifreeze. Educate motorists to observe antifreeze service intervals which are generally lengthening for vehicles, reducing waste volume generated.

Reuse

- On-site antifreeze recycling systems are used by a number of automobile service providers. Using special equipment, drained antifreeze is cleaned, usually by filtration, and following the addition of an “inhibitor package” with corrosion inhibitors, the antifreeze can be reused in a vehicle.

Recycling

- Technology currently exists and is employed by larger scale “off-site” recycling systems for the distillation and recovery of glycol from antifreeze
- Recovered glycol can be used in other markets and industries for heat transfer, de-icing or dehumidifying applications
- Recycling of the collected containers

Disposal

- Where reuse and recycling options are not available and/or technically feasible, some quantity of collected material may require disposal.

3.7.6 Barriers and Opportunities to Increased Diversion

There are insufficient locations where DIYs can take waste antifreeze and containers for recycling. There is a lack of recycling options for plastic antifreeze containers.

Opportunities to increase diversion of antifreeze include:

- Develop a fee program to encourage the diversion of waste antifreeze and containers relating to packaged antifreeze sales. Through this program, increase the
-

²⁴ Source: Automobile Industries Association

- number of municipal and non-municipal/private sector sites accepting used antifreeze from DIYs (refer to section 5.2 on transportation and processing fees).
- Increase the capacity for recycling collected antifreeze containers by introducing a processing fee program (refer to section 5.2 on transportation and processing fees).

3.7.7 Material Specific Promotion and Education

Promotion and education specific to antifreeze will include consideration of (and is not limited to):

- Promotion and education
 - “buy what you need, use what you buy”
 - Retailer advice on quantity required for job
 - How to properly store antifreeze for reuse
- Signage and brochures available at point of sale
- Stickers applied to antifreeze containers at the point of purchase displaying information on how to manage residual materials and direct consumers to a web site
- Local municipal P&E such as waste collection day calendars
- Information targeting auto services providers
- Educate service centres and DIYers that antifreeze/coolant containers should be recycled

3.7.8 Research and Development

Research and development specific to antifreeze will relate to the establishment, within a limited timeframe, of a province wide transportation fee system by which haulers will be paid a fee to pick up waste antifreeze and containers from any location (including automobile service providers, municipalities, farms, fleet operators etc.), upon proof of recycling.

The development of this system will require research into collection locations; the recruitment, verification and registration of haulers, verification of fee rates and the identification and verification of approved related processors. This will include the development of hauler and processor manuals and a fee claims administration database system.

In addition, a survey and assessment of the markets for small engine (off road), heavy duty (on/off road) and farming mobile or stationary equipment is required. After program set up and launch, the development of an audit review system for fee claims must also be established.

Finally, R&D investment will be required to develop processing technology and capacity for waste antifreeze and containers in Ontario.

3.7.9 Targets

The focus on pre-packaged product is expected to cover all antifreeze packaging, waste antifreeze from DIYs as well as from small quantity ICI waste generation and more. Bulk antifreeze (not pre-packaged in containers of 30 L or less) is not included in the program.

An estimated 14,400 tonnes of waste diluted antifreeze and 560 tonnes of antifreeze containers originate from pre-packaged product sales.

Some vehicle owners have their antifreeze changed more frequently than necessary. An initiative of the MHSW communication program will be to educate owners regarding correct antifreeze change intervals and the proper storage of antifreeze. Generally speaking, antifreeze intervals are lengthening on new vehicles, sometimes for the life of the vehicle. Finally, the number of DIYs is decreasing, which results in less DIY antifreeze available for collection.

The MHSW program will target a significant increase in the diversion of antifreeze originating from pre-packaged product to a 50% diversion rate over a five year period following the introduction of the program.

3.7.10 Program Costs

The following table summarizes the estimated Year 1 program cost for antifreeze.

Table 3-18: Year 1 Program Cost for Antifreeze

Cost Category	Description	Year 1 Costs
Municipal Channel	Includes allocation of municipal costs for depots & special events	\$120,000
Non-Municipal Channel	Includes costs associated with non-municipal channels	\$352,000
Material Specific Program R&D	Costs associated with direct R&D for material	\$300,000 ¹
Material Specific Program Promotion & Education	Costs associated with direct P&E for material	\$100,000 ²
Common Program Administration & Program Deliver	Shared costs allocated according to agreed methodology, including MOE enforcement and WDO costs	\$236,397
Totals Year 1 Costs		\$1,108,397

Notes:

- 1) Assumes significant investments of \$300,000 in Year 1 and \$200,000 in Year 2 to establish the provincial network. Lower R&D estimates of \$50,000 in Year 3 and \$10,000 in Years 4 and 5 are proposed to address issues that arise as the program matures.
- 2) Assumes significant investments in Years 1, 2 and 3 of \$100,000 which reduces to \$75,000 in Years 4 and 5.

3.7.11 Program Fees

The following table summarizes the Year 1 program fees for antifreeze.

Table 3-19: Year 1 Program Fees for Antifreeze

Fee per Kilogram	\$0.066
Fee per L ¹	\$0.073
Fee per Unit 1 US Gal container (3.78 L) – fee for container and fluid	\$0.277

Note:

- 1) For the purpose of calculating the fee for packaged antifreeze not sold in the 3.78L size and less than 30L in size, the per litre fee rate will be used.

3.8 Pressurized containers

3.8.1 Definition

The Transportation of Dangerous Goods (TDG) Regulations require that compressed gas cylinders and tubes be manufactured, re-qualified, repaired, re-heat treated and rebuilt at facilities that are registered with Transport Canada, in accordance with CAN/CSA-B339-96, "Cylinders, Spheres and Tubes for the Transportation of Dangerous Goods".

In Canada, all refillable pressurized cylinders must be inspected and re-qualified, or replaced every 10 years. The date on which the cylinder was last qualified is stamped on the collar of the cylinder. It is also possible that a cylinder less than 10 years old may need replacing. A rusty or damaged cylinder would result in the cylinder not being recertified. If the cylinder cannot be recertified it is purged, the valve mechanism is removed and both it and the empty steel container are recycled.

Pressurized cylinders include a wide range of cylinder sizes for industrial and domestic uses. Commercial uses include gas cylinders for industrial, welding, medical and laboratory uses for gases such as helium, argon, hydrogen, oxygen and acetylene.

While there are various sizes and applications where pressurized cylinders are used, they generally fall into three broad categories:

- Refillable cylinders for industrial gases
- Refillable containers for domestic applications
- Non-refillable containers for domestic applications

For the purposes of this plan, the pressurized containers covered in the plan are domestic refillable and non-refillable pressurized containers. The industrial gas cylinders are not included in the program as these are all managed outside of the municipal MHSW stream through exchanges systems through the gas suppliers. Even small IC&I establishments using industrial gas cylinders (e.g. welding gases) would use the exchange system provided through their gas supplier.

In Canada, only a properly trained and certified attendant is permitted to fill a tank. An attendant is not permitted to fill an outdated cylinder, or fill any cylinder tank beyond 80% of its capacity. New propane cylinders must be purged to release all of the air and moisture within before it is filled with propane.

Domestic refillable pressurized containers include portable breathing air supply, carbon dioxide (used to attract and capture mosquitoes) and most commonly the refillable propane cylinders (typically holding 9 kg or 20 lbs. of propane). These cylinders are known in the industry as TC-4BAM. The vast majority of these cylinders are used for storing propane for barbeques and for cooking and heating application on recreational vehicles. While the 9 kg size is most common, other sizes in 13.5 kg and 18 kg (30 and 40 lbs).

The other domestic pressurized cylinders include TC-39M cylinders (commonly referred to as the single use cylinders). The most common application is the portable propane cylinder used for barbeques and heating appliances (typically holding 400 to 600 grams of compressed gas). Other portable applications include portable welding torches.

While the vast majority of domestic pressurized containers requiring management at the end of their useful life are generated from homes, it should be recognized that some of these containers are generated at small IC&I establishments (e.g. soldering torches or portable heaters for job sites).

3.8.2 Market and Product Information

There are only a few manufacturers of domestic use refillable and non-refillable pressurized cylinders. The only manufacturer in Canada is Wolfedale Engineering that manufactures tanks under their and other brand names. A second large manufacturer is Worthington Industries in the United States that markets containers through distributors to various customers including propane distributors who provide cylinders to retailers and service centres on a regional or provincial basis.

Pressurized containers are marketed to consumers under brand names of manufacturers, national brand names (e.g. Coleman, BernzOmatic, Fiesta Barbeques), retailers (e.g. Home Hardware, Canadian Tire) and propane distributors (e.g. Propane Experts, Superior Propane, etc.).

3.8.3 Quantities Sold and Available for Collection

The number of domestic pressurized containers sold falls into two categories: refillable propane cylinders and single-use pressurized cylinders.

The number of domestic refillable propane containers sold is estimated to be 250,000 to 285,000 in Ontario²⁵. With each container weighing approximately 8.5 to 9 kg, the weight of empty propane cylinders that comes into the marketplace is estimated at between 2,200 to 2,565 tonnes. For the purpose of this plan, the higher sales and tonnage estimates will be used.

The cylinders have a mandated ten year first life span. Once the ten years has passed, the tanks are removed from service, typically when the consumer attempts to refill the cylinder. There are a number of exchange programs available at hundreds of propane distributor locations across the province. The empty cylinders are purged and in many instances any residual propane is recovered. The empty cylinder is pressured tested and either recertified and sold back into the domestic market or removed from service and recycled. At this time, the exact quantities are of empty propane cylinders recycled through this system, however the industry believes that it is above 90% of what is available in any given year.

The industry estimates that approximately 1,463,000 single-use pressurized cylinders are sold in Ontario yearly. This is comprised of approximately 1,250,000 camping style propane containers and about 213,000 propane welding torches. With each container weighing 0.45 kg, this calculates to approximately 659 tonnes of steel non-refillable cylinders sold annually.

²⁵ Estimate from cylinder manufacturer of national sales quantities that were adjusted for Ontario's population.

3.8.4 Collection, Diversion & Disposal Infrastructure

According to the 2005 WDO Datacall²⁶, 52 programs collected non-refillable propane cylinders. According to the same source, 65 tonnes of non-refillable refillable propane cylinders were collected by these programs. It is estimated that the collection rate of non-refillable pressurized cylinders collected through municipal programs is approximately 11%.

Empty non-refillable containers are also being disposed at municipal, provincial, federal and private parks and conservation authorities. At this time, the project team was only aware of one consolidated program for containers generated at parks.

In 2004, Ontario Parks put in place a program to manage and recycle non-refillable containers left behind by campers visiting the parks. Currently 83 provincial park locations store the containers. Ontario Parks has issued tenders for the past few years to transport and recycle the containers that have accumulated at park locations. The Ontario Parks program diverted 40,000 containers (18 tonnes) in 2004.

Ontario Parks implemented a communication program asking visitors to take the containers to their municipal MHSW depot or collection event. This resulted in a reduced number, some 20,000 containers (9 tonnes), being collected for recycling in 2005. The tendered cost to have the containers recycled is \$2.50 per unit and as such, Ontario Parks is continuing to communicate with visitors and explore other options.

The combined estimated collection of non-refillable cylinders in 2005 was 74 tonnes, for a collection rate of 11%.

In 2005, 68 municipalities reported collecting 477 tonnes of refillable propane cylinders. It is possible that the containers handled by municipalities in 2005 could represent cylinders sold between 5 to beyond 10 years ago.

The largest quantity of refillable pressurized containers collected for re-certification and recycling is through the exchange programs propane distributors have established with non-municipal channels such as retail stores (e.g. Canadian Tire, Home Depot) and automotive and propane distributors (e.g. Petro Canada, Esso, Pioneer Gas, Sunoco, etc.) across Ontario. The number of collection locations is not accurately known, but it is estimated at close to 1,000 establishments.

3.8.5 Management Options

Reduction

- There are few opportunities to reduce the weight of refillable or non-refillable cylinders due to the rigid standards that are required in Canada and the United States.

²⁶ Waste Diversion Ontario implements an annual electronic survey of Ontario municipalities to compile the quantities of materials collected and disposed. Data reported are verified by WDO staff.

Reuse

- Refillable tanks are reused for a maximum of ten years before they have to be recertified.
- At this time, the single-use cylinders cannot be refilled without the North American industry establishing new system, standards, and technologies for refilling these containers.

Recycling

- Once the pressurized containers have been evacuated of any residual gases, the cylinders are fully recyclable.

Disposal

- Propane cylinders are typically prohibited from disposal at many municipal disposal sites.
- It is possible that drop-off waste disposal in northern or rural areas may include propane cylinders that were improperly disposed.

3.8.6 Barriers and opportunities to increased diversion

For refillable cylinders there appear to be few opportunities to increase diversion as they are managed in a well known and well used exchange type system through propane distributors. Cylinders that are not returned through an exchange system are also typically prohibited from disposal and are removed for separate collection. The market for the refillable cylinders is strong and competitive and it appears as though the number of cylinders that are not eventually captured and diverted is very small.

The opportunity to increase collection and diversion of non-refillable cylinders is much greater. While the possibility is there to build on the exchange style program currently in place throughout Ontario, the pathways for the non-refillable cylinders are different than the refillable cylinders.

The empty non-refillable containers tend to become available for collection, away from the home at campgrounds and picnic locations. Consumers either deposit empty cylinders there or bring them home for management.

Collection of empty containers is taking place in some Ontario parks and there are opportunities to implement or expand programs at federal, provincial parks, conservation authority and private campgrounds. Municipal parks and beaches are other locations where empty non-refillable propane cylinders are generated and can potentially be consolidated for collection and management.

Once collected, a barrier to recycling has been the cost associated with handling the containers that are regulated under the TDG and therefore have special storage, handling and transportation requirements.

3.8.7 Material Specific Promotion and Education

Promotion and education specific to pressurized containers will include consideration of (and is not limited to):

- Stickers with information on how to manage pressurized cylinders at the point of purchase
- Brochures available at point of sale and at propane distributors and exchange locations
- Integrating with local municipal P&E and possibly expand to other locations where cylinders are generated such as provincial parks, conservation authorities and private camp grounds.
- A consolidated website that would allow consumers to check for propane distribution, exchange and management locations within their community, possibly in conjunction with their local municipality or region.

3.8.8 Research and Development

Research and development specific to pressurized containers will include consideration of (and is not limited to):

- Explore the feasibility of a portable depressurization unit for non-refillable containers that would allow the containers to be evacuated at the point of collection, thereby resulting in an empty steel container
- Investigate collection and diversion opportunities with federal, provincial, conservation authority and municipal parks where non-refillable cylinders can be aggregated and managed.
- Conduct a feasibility study to assess whether a transportation fee program could be adapted for the non-refillable containers through the refillable exchange network

3.8.9 Targets

At this time, the targets for the refillable cylinders are preliminary in nature because data from the industry and municipalities suggests that the overall diversion is very high (likely exceeding 90%). The MHSW program will include reporting systems to monitor and track reuse and recycling performance for the refillable cylinder.

For the non-refillable cylinder, the estimated baseline collection rate is 11%, which is a conservative estimate. The MHSW program will work to achieve a collection and diversion target for non-refillable program cylinders of 50% by Year 5 of the program. Recovery channels will include a combination of municipal MHSW depots and events, parks, and existing propane exchange network at service stations and retailers.

A transportation fee payment to propane fillers and processors may be required for this particular cylinder given the smaller quantity of recyclable steel (0.45 kg versus 8.5 kg) necessary to economically handle and transport to processors. R&D activities in Year 1 and 2 will focus on the feasibility of establishing a transportation fee system for non-refillable pressurized containers. Refer to section 5.2 for more information on transportation fees.

3.8.10 Program Costs

The following table summarizes the estimate Year 1 program cost for pressurized containers.

Table 3-20: Year 1 Program Costs for Pressurized Containers

Cost Category	Description	Year 1 Refillable	Year 1 Non-Refillable
Municipal Channel	Includes allocation of municipal costs for depots & special events	\$60,000	\$176,000
Non-Municipal Channel	Includes costs associated with non-municipal channels	\$0	\$47,131 ¹
Material Specific Program R&D	Costs associated with direct R&D for material	\$10,000 ²	\$70,000 ³
Material Specific Program Promotion & Education	Costs associated with direct P&E for material	\$0	\$5,000 ⁴
Common Program Administration & Program Deliver	Shared costs allocated according to agreed methodology, including MOE enforcement and WDO costs	\$27,946	\$119,024
Totals Year 1 Costs		\$97,946	\$417,154

Notes

- 1) Assumes potential \$1,250,000 in transportation fees for Years 2 through 5 depending on positive outcome of feasibility study in Year 1.
- 2) Assumes a \$10,000 Year 1 study to baseline current recycling infrastructure and establish reporting systems with service refillable cylinder service providers.
- 3) Assumes \$70,000 in Year 1 to assess feasibility of transport and processing fee system that would be integrated into existing refillable exchange program. An additional budget of \$100,000 has been included in Year 2 and \$70,000 in Year 3 to assess the feasibility of a portable unit that could be used to depressurize non-refillable containers at the point of collection.
- 4) Assumes \$5,000 pilot program in selected municipalities in Ontario to test the effectiveness and impact of stickers being applied on NR cylinders at retail locations. The sticker pilot is being done in conjunction with paint, solvent, pesticides and fertilizers and will be rolled out across Ontario if successful. The roll out P&E costs are estimated to be \$25,000 annually for Years 2 through 5.

3.8.11 Fees

The following table summarizes the Year 1 fees for pressurized cylinders.

Table 3-21: Year 1 Fee for Pressurized Containers

	Refillable	Non-Refillable
Fee per Kilogram	\$0.038	\$0.634
Fee per Unit – one container	\$0.366	\$0.334

3.9 Fertilizers

3.9.1 Definition

The Minister's Program Request Letter for Phase 1 listed fertilizers, fungicides, herbicides, insecticides, or pesticides together. Fertilizers are products that contain nitrogen, phosphorus, potassium (N-P-K), or other plant food sold or represented for use as a plant nutrient.

For the purposes of this plan, fertilizers have been separated from pesticides. The rationale for this is that fertilizers and pesticides are completely different products. Fertilizers are regulated by the Canadian Food Inspection Agency (CFIA) under the Fertilizers Act and Fertilizers Regulations. Pesticides are regulated by the Pest Management Regulatory Agency under the Pest Control Products Act under the authority of Health Canada.

The products covered under fertilizers include all N-P-K (Nitrogen, Phosphorus, Potassium) fertilizers, micronutrients, and supplements that are registered under the Fertilizers Act. Some products are a combination fertilizer and herbicide (also known as weed and feed products). Certain products including fertilizer/herbicide combination products require registration under the Fertilizers Act. All registered fertilizers require a Fertilizers Act Registration Number on the label.

Excluded from the plan are fertilizer products that are exempted from registration under the Fertilizers Regulations, as outlined below:

- Fertilizers and supplements set out in Schedule II; (e.g. urea and other nitrogen products, blood or bone meal, manures, composts, potash, rock phosphate and phosphate products, gypsum, perlite, etc.)
- Farm fertilizers that do not contain pesticides (e.g. fertilizers blended and packaged in either bagged or bulk formats for farm use).
- Supplements sold only for correction of soil acidity or alkalinity (e.g. lime, sulphur, etc.)
- Supplements referred to in subsections 10.2(3) and (5) (e.g. pre-inoculated seeds for use in agriculture).
- Peat, peat moss, sphagnum moss, tree bark and other fibrous organic matter that is represented for use only in improving the physical conditions of the soil.
- Customer-formula fertilizers (e.g. fertilizers without pesticides that are prepared for a specific farm only and are based on soil or leaf analysis).
- Specialty fertilizers, other than those referred to in paragraph (b) of the definition "specialty fertilizers", that do not contain pesticides (e.g. N-P-K fertilizers without pesticides that are blended for use on houseplants, urban gardens & lawns, golf courses, nurseries or greenhouses. Specialty fertilizers also include products that contain a mixture of only magnesium, calcium or sulphur. Limestone is one of the more common examples).
- Potting soils with or without supplements such as wetting agents or moisture retention crystals (e.g. garden and houseplant soils).

3.9.2 Market and Product Information

Fertilizer products are sold to the agricultural market (products used by farmers), commercial market (lawn care applicators, golf courses, etc.) and homeowners (consumers). There are no formal product classifications (i.e. domestic, commercial, and agricultural) for fertilizer products under the Fertilizers Act. However, large quantities of commercial and agricultural fertilizers typically are sold in bulk or in containers (reusable bulk bags) greater than 30 kg through agricultural supply wholesale and distribution centres. Domestic fertilizers are sold through traditional hardware, garden supply centres and retail outlets.

Registered fertilizers used by consumers are typically sold in plastic containers for liquids (ranging from 250 grams to 5 kg) or cardboard boxes or plastic bags for dry or granular products (1 kg – 30 kg). Some registered fertilizers are sold to commercial landscapers in containers less than 30 kg through wholesalers and dealers. For the purposes of this plan, all registered fertilizers in packages of 30 kg or less are included.

3.9.3 Quantities Sold and Available for Collection

It is estimated that 8,200,000 kg of registered fertilizers are sold in Ontario in containers of 30 kg or less²⁷. It is estimated that over 85% of the 8,200 tonnes sold would be domestic registered fertilizers and the balance being commercial fertilizers. Adjustments to these estimates will be made through accurate sales information reported by brand owners covered under the plan.

Detailed container information will also be obtained through reporting by brand owners. The volume of registered fertilizers available for collection is difficult to estimate as the product is intended to be used up by the consumer. The estimated volume of registered fertilizers available for collection is 144 tonnes²⁸ or approximately 1.75% of sales. This information, along with respective data sources and assumptions, is summarized in the table below.

Table 3-22: Quantities of Fertilizer Sold and Available for Collection

Total volume of fertilizers sold in 2006 (kg) ¹	8,200,000
Total weight of fertilizers sold in 2006 (Tonnes)	8,200
Fertilizers weight available for collection (kg)	144,000
Fertilizers weight available for collection (Tonnes) ²	144

Notes:

- 1) Volume provided by industry source.
- 2) Estimated weight provided by industry source is 1.75% of sales. This will be modified as more information becomes available.

²⁷ Estimate developed by David Watson, Spectrum Brands, in conjunction with other fertilizer producers and Clyde Graham, Canadian Fertilizer Institute

²⁸ Ontario HHW Baseline Study: programs and operations (2005) AMRC.

3.9.4 Collection, Diversion & Disposal Infrastructure

According to the 2005 WDO Datacall²⁹, 85 municipalities offered collection services for fertilizers. This represents 4,272,932 households served. Based on the composition of fertilizer category from the AMRC waste composition study, approximately 40 tonnes of registered fertilizers were collected in 2005 through the Ontario municipal MHSW system. Other products identified through the waste composition study include non-registered materials (manure, compost, bone meal, potting soils) and other materials such as pool chemicals. Therefore, the estimated collection rate for fertilizers is 28%.

Most fertilizers are lab packed at municipal sites, then sent to service providers for sorting and/or bulking. Waste fertilizers are either sent to hazardous landfill, or sent for incineration. Fertilizers that can clearly be identified as not being a registered fertilizer can and are sometimes being reused by the municipality. Empty fertilizer containers are sent to landfill or hazardous landfill by service providers.

3.9.5 Management Options

Reduction

- Nutrient Management Planning strategies based on the Right Rate, Right Time, Right Place™³⁰ system are recommended.
- Education to buy what you need, buy the right product for the desired purpose, promote appropriate options.
- Pulling weeds by hand or spot treating are alternatives to fertilizer/herbicide combinations.
- Enhanced advice on appropriate usage provided at point of sale is recommended.

Reuse

- Registered fertilizers, with the exception of fertilizer/pesticide combinations, can safely be included with home or centralized composting
- Some reuse by municipalities at permanent depots is taking place.
- Make reuse available at depots and events
- Habitat for Humanity, roads maintenance, publicly owned spaces, etc.
- Industry is not in support of reselling unused fertilizers as it is not possible to ensure that the product inside the bag is actually the product labelled on the outside.

Recycling

- No known options are available for recycling fertilizers.
- Recycle plastic containers where technically feasible

Disposal

- Energy recovery is not an option for fertilizers as they have no energy value.
- Non-hazardous landfill or hazardous landfill as required.

²⁹ Waste Diversion Ontario implements an annual electronic survey of Ontario municipalities to compile the quantities of materials collected and disposed. Data reported are verified by WDO staff.

³⁰ Trademarked program of the Canadian Fertilizer Institute

3.9.6 Barriers and Opportunities to Increased Diversion

Reuse options where packaged fertilizers are available to the public must consider consumer liability and labelling issues. There are, however, opportunities to explore on-site reuse practices at depots by municipalities.

There is a lack of recycling options for empty plastic fertilizer containers. Most packaging is in plastic film bags. However, the residual product found in the bags (e.g. dust, dirt) has typically been a contaminant to film recyclers. These end market issues will be assessed in Year 1. There may be opportunities to partner with developing recycling processors for used oil and used antifreeze containers as they will require washing systems.

3.9.7 Material Specific Promotion and Education

Promotion and education specific to fertilizers will include consideration of (and is not limited to):

- The fertilizer industry will work with the CFIA to explore options for improved consumer education pertaining to appropriate disposal language on fertilizer product labels.
- Increased education of householders through the municipalities will encourage other use options for non-registered fertilizers such as putting unused fertilizer in compost or using it up on gardens or lawns.
- Consumer education should also adopt a “Buy only what is needed, use it up, dispose of residue and container responsibly” approach similar to what is being discussed for other MHSW materials.

3.9.8 Research and Development

Research and development specific to fertilizers will include consideration of (and is not limited to):

- Research will be conducted to determine an accurate composition of the materials collected by municipalities to assess what portion of the mixed fertilizers received are safe to reuse, either onsite or blended into existing composting operation.
- Research will be conducted to determine other use options for fertilizers returned to municipalities. For example, what safe levels of registered fertilizers can be blended with existing composting programs without impacting compost quality standards.
- Activities to develop recycling options for plastic fertilizer containers.

3.9.9 Targets

The assistance of affected industry stakeholders is required to estimate five year sales projections. More research is also necessary to determine the amount of fertilizers that is available for collection. As the program matures, and as public education encourages consumers to store fertilizers properly for future use and ultimately use up their fertilizer, it is anticipated that the volume of fertilizers available for collection will decrease.

As the program is expanded, it is anticipated that the volume of fertilizers collected will increase. A reasonable five year collection target for fertilizers could be set at 45% of the amount available for collection.

Reuse targets may be possible; however more research is required to determine if it is feasible, and if there are opportunities for unused registered fertilizers to be blended with municipal composting systems or simply used or applied on-site.

Container recycling targets may be possible, however more information is required to determine the quantity of containers covered in the plan and determine available processors and markets.

3.9.10 Program Costs

The following table summarizes the estimate Year 1 program cost for Fertilizers

Table 3-23: Year 1 Program Costs for Fertilizers

Cost Category	Description	Year 1 Costs
Municipal Channel	Includes allocation of municipal costs for depots & special events	\$ 60,000
Non-Municipal Channel	Includes costs associated with non-municipal channels	0
Material Specific Program R&D	Costs associated with direct R&D for material	\$ 5,000 ¹
Material Specific Program Promotion & Education	Costs associated with direct P&E for material	\$ 25,000 ²
Common Program Administration & Program Deliver	Shared costs allocated according to agreed methodology, including MOE enforcement and WDO costs	\$ 97,607
Totals Year 1 Costs		\$ 187,607

Notes

- 1) Assumes \$5,000 R&D for research into recycling options for fertilizer containers in Year 1. In Years 2 and 3, the R&D budget is increased to \$15,000 for each year with the objective of researching how registered fertilizers collected at municipal depots can be managed on site through the application of the material to municipal composting programs.
- 2) Proposal for \$25,000 to be allocated to work with municipalities on communication activities to educate residents about managing excess fertilizers at home instead of returning unused fertilizers through the municipal collection channel. In Years 2, 3, 4, and 5 it is estimated that \$5,000 per year would be required to maintain education support activities.

3.9.11 Fees

The following table summarizes the Year 1 fees for Fertilizers

Table 3-24: Year 1 Fee for Fertilizers

Fee per Kilogram	\$0.023
Fee per Unit – 7 kg bag of fertilizer with weed control	\$0.16

3.10 Pesticides

3.10.1 Definition

Pesticides are regulated under the *Pest Control Products Act* by the Pest Management Regulatory Agency (PMRA), a division of Health Canada. Pesticides are registered by the PMRA as “domestic”, “commercial”, “agricultural”, or “restricted”. These products are required to be labelled according to the type. For example, the domestic products must say “domestic” on the front panel of the product label.

Pesticides contain a variety of active ingredients and are sold to the consumer (residential) market, commercial market (which includes lawn care companies, golf courses), and agricultural market (products used by farmers). Domestic products are sold through retail stores, farm supply stores, greenhouses, etc. These products can be sold under manufacturer brand names or retailer private labels.

Commercial and agricultural pesticides are generally sold in sizes larger than 5 L and are already handled under a program managed by CropLife Canada. CropLife Canada’s *Stewardshipfirst (TM)* initiatives responsibly manage the health, safety and environmental sustainability of the industry’s products throughout their life cycle, including the recycling of empty pesticide containers and collection and disposal of unusable pesticides on the farm³¹.

Pesticides, including fungicides, herbicides, and insecticides, are registered under the Pest Control Products Act (Canada) that are required to display on the label the symbol shown in Schedule III of the Pest Control Products Regulation (Canada) the signal words “danger” or “warning”, and “poison” and represented by the skull & crossbones inside the precautionary symbols diamond or octagon. Only pesticides which are classified as “Domestic” are targeted by this plan.

Pesticides that meet the above definition and that are packaged in aerosol containers are included in this plan. Paints containing pesticides that meet the above definition are also included in this plan.

Examples of products that would not meet the definition:

- insect repellents for personal use
- sanitizers and disinfectants
- pet products
- products regulated under the Food and Drugs Act
- pool chemicals
- insecticidal soaps
- diatomaceous earth
- ant traps

³¹ CropLife Canada website; <http://www.cropro.org/english/aboutcpi/stewardshipfirst.cfm>

3.10.2 Market and Product Information

A majority of domestic pesticides are in liquid format and sold in HDPE bottles and aerosols. They can range in size from 1 gram up to 5 L. Some pesticides are sold in a dry format (powder, dust, solid, granular) in plastic film bags, pouches, boxes, etc. These products can range in size from 50 g to 500 g. Some pesticide products, typically insecticides, are sold in an aerosol form ranging in size from 350 g to 500 g.

3.10.3 Quantities Sold and Available for Collection

An estimated 530,000 litres of domestic pesticides meet the definition in 3.10.1. This estimate is approximately equivalent to 530 tonnes that were sold in Ontario in 2006. Adjustments to these estimates will be made through accurate sales information reported by stewards covered under the plan. The pesticides volume available for collection is difficult to estimate as the product is intended to be used up by the consumer. This information, along with respective data sources and assumptions, is summarized in the table below.

Table 3-25: Quantities of Pesticides Sold and Available for Collection

Total volume of pesticides sold in 2006 (Litres) ¹	530,000
Total weight of pesticides sold in 2006 (Tonnes) ²	530
Pesticides volume available for collection (Litres) ³	133,000
Pesticide weight available for collection (Tonnes) ⁴	133

Notes:

- 1) Industry calculation based on 2005 B.C. pesticides sales data collected under the PCA program. The definition in B.C. is similar but not identical to the definition outlined in the plan. The B.C. volume was adjusted to represent Ontario sales based on sales distribution information. This number may be updated with 2006 PCA data.
- 2) Based on estimate of 1 litre = 1 kg
- 3) It is estimated that 25% of quantities sold are not used up, and are available for collection
- 4) Based on estimate of 1 litre = 1 kg

3.10.4 Collection, Diversion & Disposal Infrastructure

According to the 2005 WDO Datacall³², 87 municipalities offered collection services for pesticides. This represents 4,323,308 households served. According to this same source, an estimated 61 tonnes of pesticides meeting the definition were collected in 2005 through the Ontario municipal MHSW system.

The estimated 61 tonnes was calculated using the 2005 WDO Datacall information and applying the percent of program pesticides that would be captured using the Quick Translator from the AMRC HHW Baseline Composition Study. The estimated collection rate is therefore 46%.

³² Waste Diversion Ontario implements an annual electronic survey of Ontario municipalities to compile the quantities of materials collected and disposed. Data reported are verified by WDO staff.

Most pesticides are lab packed at municipal sites, then sent to service providers for sorting and/or bulking. Pesticides are sent to hazardous landfill or sent for incineration. Most empty pesticide containers appear to be sent to landfill or secure hazardous landfill by service providers.

While agricultural and commercial pesticides are not covered under this program plan, Stewardship Ontario will look for opportunities to work with CropLife Canada and draw on their considerable expertise and experience in managing residual pesticides and pesticide containers. CropLife Canada operates a collection program for obsolete agricultural and commercial pesticides approximately every 4 years. The last program in Ontario was in 2005, and there were 17 collection points in the province. There was approximately 116,000 kg of obsolete commercial and agricultural pesticide collected for disposal in the province. It is very difficult to measure the actual collection rate that this represents, as it is not known how much obsolete/unwanted pesticide was available for collection in Ontario during this period. These pesticides were disposed of largely by high temperature incineration. While commercial and agricultural pesticides are not targeted in this plan, Stewardship Ontario will explore opportunities to work with CropLife Canada on R&D and P&E activities in the future.

CropLife Canada also operates an empty container recycling program for commercial and agricultural products. In 2004, containers were collected at approximately 250 Agrichemical Warehouse Standards Association certified Ag-retail facilities throughout the province; 680,310 containers were recycled by Crop Life through this program. The granulated plastic is recycled into fence posts for agricultural use, highway guardrail posts, field drainage tile or used for energy.

CropLife Canada does not account for provincial collection or diversion rates (only a national rate), but it can be assumed that there is approximately a 70% diversion rate, or slightly above based on Canadian diversion rate information.

3.10.5 Management Options

Reduction

- Education on buying the right product for the right problem, buying only what is needed or what can be used in a season, etc.

Reuse

- Industry is not in support of reuse options for pesticides due to different chemistries used in the products and concerns about labelling and public health and safety.

Recycling

- No known options are available for recycling pesticides.
- Recycle steel aerosol containers as scrap metal
- Recycle plastic containers where technically feasible

Disposal

- Management options include hazardous landfill or incineration.
- Energy recovery may be an option for some pesticides. Further research and development is required in this area.

3.10.6 Barriers and Opportunities to Increased Diversion

Reuse options must consider consumer liability and labelling issues.

There is a lack of recycling options for empty plastic pesticide containers. Research and development is needed to increase the amount of pesticide containers recycled.

3.10.7 Material Specific Promotion and Education

Promotion and education specific to pesticides will include consideration of (and is not limited to):

- Educate consumers about Integrated Pest Management (IPM) strategies.
- Education on buying the right product for the right problem, buying only what is needed or what can be used in a season, etc.

3.10.8 Research and Development

Research and development specific to pesticides will include consideration of (and is not limited to):

- Activities to develop recycling options for plastic pesticide containers.
- Research may be needed to increase the amount of pesticides sent for energy recovery. Research into whether or not increased sorting would allow for increased material suitable for energy recovery. Chlorine content may limit the amount of flammable pesticides that can be sent for energy recovery.

3.10.9 Targets

Five year sales projections need to be estimated with the assistance of the affected industry stakeholders. Also, more research is necessary to determine the amount of pesticides that is available for collection. As the program matures, and as public education encourages consumers to store pesticides properly for future use and ultimately use up their pesticides, it is anticipated that the volume of pesticides available for collection will decrease.

As the program is expanded, it is anticipated that the volume of pesticides collected will increase. An aspirational five year program plan collection target for pesticides has been set at 55% of the amount available for collection. This target will be reviewed on an annual basis as operational experience is gained.

Container recycling targets may be possible, however more information is required to determine the quantity of containers covered in the plan and determine available processors and markets

3.10.10 Program Costs

The following table summarizes the estimate Year 1 program cost for Pesticides

Table 3-26: Year 1 Program Costs for Pesticides

Cost Category	Description	Year 1 Costs
Municipal Channel	Includes allocation of municipal costs for depots & special events	\$ 142,000
Non-Municipal Channel	Includes costs associated with non-municipal channels	0
Material Specific Program R&D	Costs associated with direct R&D for material	\$ 5,000 ¹
Material Specific Program Promotion & Education	Costs associated with direct P&E for material	\$ 5,000 ²
Common Program Administration & Program Deliver	Shared costs allocated according to agreed methodology, including MOE enforcement and WDO costs	\$ 108,611
Totals Year 1 Costs		\$ 260,611

Notes:

- 1) Assumes \$5,000 R&D for Year 1 to research and assess diversion options for pesticide containers. An allocation of \$10,000 has been proposed for Year 2 to address findings from Year 1 research. An additional \$5,000 per year has been proposed for Years 3, 4 and 5 to address issues that arise through program implementation as necessary. These will be assessed on an annual basis.
- 2) Assumes \$5,000 per year for five years to support pesticide specific P&E. This will include providing shelf talkers to retailers that agree to use them. The sticker program discussed for paints and solvents cannot be done in Canada as it would require federal approval from PMRA.

3.10.11 Fees

The following table summarizes the Year 1 fees for Pesticides

Table 3-27: Year 1 Fees for Pesticides

Cost per Kilogram/Litre	\$ 0.492
Cost per Unit – 1 Litre Malathion concentrate	\$ 0.492

4.0 Fee Setting Methodology

4.1 Authority

Under the WDA the Industry Funding Organization for an approved program plan may assess fees against companies designated as stewards under the plan. Section 30 of the Act sets out the powers for fee setting as follows:

“30. (1) If an industry funding organization is designated by the regulations as the industry funding organization for a waste diversion program, the organization may make rules,

- (a) designating persons or classes of persons as stewards in respect of the designated waste to which the waste diversion program applies;
- (b) setting the amount of the fees to be paid by stewards under subsection 31 (1) or prescribing methods for determining the amount of the fees;
- (c) prescribing the times when fees are payable under subsection 31 (1);” [2002, c. 6, s. 30 (1)]

4.2 Principles

Section 30 of the WDA also defines principles relating to fees as follows:

“(3) In making rules under clause (1) (b), the industry funding organization shall have regard to the following principles:

1. The total amount of fees paid by stewards under subsection 31 (1) should not exceed the sum of the following amounts:
 - i. The costs of developing, implementing and operating the program.
 - ii. A reasonable share of costs not referred to in subparagraph i that are incurred by Waste Diversion Ontario in carrying out its responsibilities under this Act.
 - iii. A reasonable share of costs incurred by the Ministry in administering this Act.
2. The fee paid by a steward should fairly reflect the proportion of the sum referred to in paragraph 1 that is attributable to the steward.” [2002, c. 6, s. 30 (3)]

Stewardship Ontario struck a task group of affected stewards to develop an appropriate fee setting methodology for each of the designated Phase I Municipal Hazardous or Special Materials (MHSM). As an initial step the task group identified three guiding principles for this fee setting process:

- 1) Fee setting is to begin with the cost to manage each MHSW under the program as determined by a transparent cost allocation methodology.
- 2) Material specific fees may then be modified to achieve (a) overall MHSW program policy goals and (b) material specific policy goals including achieving targets established for accessibility, collection and diversion.

- 3) Common and shared Stewardship Ontario costs will be assessed across all stewards in a fair and transparent manner.

These guiding principles were used to develop the fee-setting methodology outlined in Section 4.3.

4.3 MHSM Fee-Setting Methodology

4.3.1 Context

In addition to the requirements set out by the WDA, the fee setting methodology for the MHSW Program Plan must also meet the requirements and policy objectives as set out in the Minister's MHSW program request letter. Furthermore, while Stewardship Ontario has made every effort in the time available to secure the best available data for the purposes of setting fees for Year 1 of the MHSW Program Plan, the quality of the data that will be available for fee setting in subsequent program years will be improved significantly by the requirement for stewards and service providers³³ to provide more detailed reports upon program approval and implementation.

Therefore, Stewardship Ontario will use a three-stage approach to setting MHSM stewards' fees over the five year life of the proposed program plan, in part to take into account the potential for inclusion of Phase 2 and additional materials in the program over the five year planning period.

4.3.2 Methodology for Setting MHSM Stewards' Fees for Year 1

Stewardship Ontario has calculated the Year 1 fees for MHSM stewards using the following methodology and incorporating into the fee calculations the best available data and agreed approaches for allocating costs. Section 5.0 describes the cost items included in the fees.

4.3.3 Year 1 Calculation Steps for Setting Stewardship Ontario MHSM Stewards' Fees

Stewardship Ontario has calculated and applied material-specific fee rates to municipal hazardous or special materials (MHSM) to support the management of related MHSW as set out in the program plan in the following steps:

- 1. Determine operating cost to manage each MHSW material³⁴**
 - a. Determine the operating cost associated with managing each material through the Ontario MHSW system as set out in the program plan, including:

³³ Service provider means any agent with which Stewardship Ontario contracts to provide services for managing MHSW such as hauling, bulking, recycling, etc.

³⁴ As per item 5e of the Addendum to the Minister's program request letter, stewards of municipal hazardous or special waste (MHSW) are required to pay for the cost of managing MHSW after the initial collection of waste at the MHSW or other collection facilities.

- **municipal channels:** costs for post collection activities conducted by or on behalf of municipalities, including supply of packing materials, transport of collected MHSW to treatment and disposal facilities, treatment for reuse or recycling, disposal, and any agreed processing at the municipal site such as preparation for local reuse, bulking and drying.
- **non-municipal channels:** costs for managing materials through non-municipal channels including processing and transport fees for service providers to increase the return and diversion of MHSW, transport of collected MHSW to treatment and disposal facilities, treatment for reuse or recycling, and disposal.

b. Sources of Data:

- Material-specific prices for packing and managing individual materials identified through existing contracts between municipalities and MHSW service providers or other related contracts have been used, where available, as the basis for establishing the cost to manage each material.
- Costs identified for managing materials other than those designated for Phase 1³⁵ have been estimated and these costs will not be included in the Year 1 steward fees.

2. Add additional investment costs required for each material to reach accessibility targets set out in the program plan

- a. Determine Year 1 capital investments or service agreements necessary to reach accessibility targets, for both municipal and non-municipal infrastructure as determined through a competitive tender process and approved by Stewardship Ontario.

Note: The Stewardship Ontario Board will review and determine the need for additional capital investment expenditures or service agreements on an annual basis

b. Sources of data

- Estimates of required Year 1 capital investments or service agreement costs dedicated to specific materials as set out in the program plan.
- Estimates of required Year 1 capital investments or service agreement costs that will be shared by all materials or by groups of materials, as set out in the program plan.

3. Add costs for research and development (R&D) required for each material to reach diversion targets set out in the program plan

Add costs to be incurred in Year 1 as direct investments or from service agreements required to promote improved diversion capacity and markets for specific materials. These costs would result from investments and/or contracts with service providers as determined through a competitive tender process and approved by Stewardship Ontario.

³⁵ Phase 1 material were defined in the Minister's program request letter received December 12, 2006

Note: The Stewardship Ontario Board will review and determine the need for additional R&D expenditures on a material-by-material basis annually.

4. Add costs for Year 1 MHSW promotion and education (P&E) expenditures as set out in the program plan to support:

- a. Material-specific promotion and education to promote improved collection for specific materials.
- b. A share of common P&E costs allocated on the same basis as the sharing of common program delivery costs as set out in step 5.

Note: The Stewardship Ontario Board will review and determine the need for additional common and material-specific P&E expenditures annually.

5. Add a share of the direct Stewardship Ontario MHSW program delivery costs, and Waste Diversion Ontario and Stewardship Ontario administration costs attributable to MHSW (together referred to as common costs) to each material based on the following calculation.

- a. 15% of the common costs are allocated in an equal portion to each material group, i.e. to each of the eight materials designated in Phase 1 with fertilizers and pesticides itemized separately, for a total of nine material groups
- b. 85% of the common costs are allocated in proportion to the direct costs associated with management of each material group as defined in calculation steps 1 through 4

These factors were established by the Program Plan Committee in the absence of a direct material-specific driver for the common costs. A commonly accepted approach to allocating common costs is to use a combination of direct costs and some equal sharing among materials or program participants to reflect the fact that there is a certain level of effort and cost required for a steward regardless of the volume of material for which that steward is responsible. In the absence of reliable data on the number of stewards, the Program Committee decided to use the material categories as the basis of the equally shared portion. The choice of 85% and 15% was considered to be the optimum balance to ensure that stewards in those categories with very few stewards are not assigned a disproportionate share of the common cost.

Stewardship Ontario on-going administration costs are the MHSW program share as agreed by the Stewardship Ontario Board of Directors on an annual basis and include:

- Stewardship Ontario Board operating costs
- Accounting
- Legal
- Registering obligated stewards
- Receiving, verifying and auditing stewards' reports
- Reporting to WDO, MOE and the Stewardship Ontario board and membership
- IT activities to develop and maintain reporting and accounting systems
- General administration costs including:
 - Staff recruitment and staff costs

- Telephone
- Postage
- Stationary and printing
- Subscriptions
- Photocopy/Fax
- Equipment leases
- Meeting expenses
- Bank charges
- Office supplies
- Rent
- Travel
- Insurance
- Depreciation
- Computer supplies
- Internet access

Program delivery costs include:

- MHSW share of WDO costs directly attributable to MHSW and the MHSW share of WDO's unattributable costs
- Development of a methodology for the ongoing measurement of the quantities of MHSW material available for collection
- MHSW data tracking and verification processes and establishing vendor standards
- Stewardship Ontario administration of the tendering and contracting process for program services related to MHSW
- Developing detailed business plans for meeting accessibility, collection and diversion targets and for the purposes of future fee setting
- Designing and implementing research and development programs to improve overall MHSW program efficiency and cost effectiveness
- Determining approaches to collecting MHSW from small quantity IC&I generators
- Annual review and modification, as required, of the program cost calculations, cost allocation methodologies, fee setting methodology and fee setting through the approved fee setting methodology, including:
 - Assessment and consultation on provision for potential factors to modify MHSW specific fee rates to achieve program policy objectives
 - Development of a methodology for allocating a fair share of program development costs to stewards of subsequent MHSW program phases
- Stewardship Ontario MHSW material-specific cost allocation field work
- Planning and implementation work related to Phase 2 and subsequent phases of the MHSW program as directed by the Minister
- Design and Implementation of the provincial MHSW promotion and education program
- Stewardship Ontario and MOE MHSW related compliance activities

Program Delivery also includes the costs for program development and start-up:

- Program Development Costs: These are costs that were incurred by WDO and Stewardship Ontario in the development of the MHSW plan following designation in December 2006, including:

- Development and operation of WDO and Stewardship Ontario committees which helped to develop the MHSW plan
- Discussions and negotiations among MOE, municipalities, WDO and Stewardship Ontario in the development of the plan
- Assessment of the municipal MHSW program costs
- Consultation with municipalities, industry and the general public in the development and review of the draft plan
- The analytical and technical work completed by Stewardship Ontario in the drafting of the plan itself
- Legal costs related to the revision of Stewardship Ontario's governance, development of the program plan and rules and drafting of the program agreement between the WDO and Stewardship Ontario in preparation for delivery of the plan
- Program Start-up Costs: These are the costs that will be incurred by Stewardship Ontario and WDO to put the resources, facilities and systems in place that will be required to successfully implement the MHSW plan in a timely manner. These costs will include:
 - Providing clarifications and responding to requests for additional information following submission of the final program plan, as required
 - Ongoing discussions and pre-implementation planning with key stakeholders
 - Development of MHSW program administrative procedures
 - IT and data management systems development
 - Legal and accounting services
 - Communications and advertising
 - Industry consultation
 - Identification and notification of potential stewards
 - Establishment and operation of Stewardship Ontario MHSW registration "call centre"
 - Recruiting and registering obligated stewards

6. Calculate the total costs applicable to each individual material type by summing the allocated share of costs for each material as determined through fee calculation steps 1 through 5.

7. Calculate the fee rates

For each individual material type the total costs (step 6) have been divided by the estimates of the total quantity of the obligated material introduced into the Ontario market as set out in the program plan and expressed in the appropriate units for each material as set out in the MHSW program Rules.

4.3.4 Proposed Methodology for Setting MHSW Fees for Year 2 of an Approved MHSW Program Plan

Stewardship Ontario will calculate the Year 2 fees for MHSW stewards using the same methodology as for Year 1, with specific differences and improved data as noted below:

Improved Data Sources:

- determining the quantities of obligated materials introduced into the Ontario market on the basis of stewards' reports received during Year 1
- contracts negotiated between municipalities and service providers for the management of MHSW after initial collection
- modified fee for service arrangements agreed with municipalities for the management of MHSW after initial collection
- contracts between Stewardship Ontario and service providers for the management of MHSW within and outside of municipal MHSW programs
- detailed cost allocation methodologies approved by the Stewardship Ontario Board of Directors for MHSW materials that are managed together
- further analysis of material-specific R&D or capital investments or service agreements required to expand diversion infrastructure for these materials and to meet targets for accessibility, collection and diversion of MHSW
- findings from review of the performance of the new events implemented in Year 1 and an assessment of the relative cost-effectiveness of events and depots or other capital infrastructure
- the results of research and monitoring of P&E activities undertaken in Year 1

Modifications to the MHSW Program Fee-setting Methodology for Year 2

1. Following consultation on Year 2 fee setting, the Stewardship Ontario Board of Directors may consider applying factors to modify the material-specific fees calculated in steps 1 to 4 of the Year 1 methodology within a material category to account for possible differences in the collection and diversion performance achieved and the relative cost to manage those materials or to meet other MHSW Program Plan policy objectives established by Stewardship Ontario.
2. Add the following step after step 5 of the Year 1 MHSW Program Fee Setting Methodology

Add the appropriate share of any shortfall or surplus in total MHSW Program fees collected in Year 1 of the MHSW Program to be recovered or credited in Program Year 2³⁶ fees based on the combination of:

- a. Any amount of fees either underpaid or overpaid by each material for material-specific costs incurred during Year 1
- b. Any deficit or surplus in the amount of common expenses incurred during Year 1, allocated on the same basis used to determine allocation of common costs (described in step 5 of the Year 1 MHSW Program fee setting methodology)

There are numerous factors which make it difficult to collect precisely 100 percent of the fees set, including: non-payment and late-payment by stewards, mergers and acquisitions, changes in sales between data at the time the fees were established and

³⁶ It is anticipated that this step would carry forward into the fee setting methodology in subsequent years

at which the stewards make payments, higher or lower actual recovery rates on which payments must be made than had been projected for setting fees, etc.

The amount of any surplus that the Stewardship Ontario Board of Directors agrees to maintain from material-specific contributions will be directed only to activities prescribed in the MHSW Program Plan and fee setting methodology in respect of the specific materials for which the contributions have been made.

3. Modify Step 7 of the Year 1 MHSW Program Fee Setting Methodology

Under step 7 **Calculate the fee rates**, modify the source of data for the quantity of each material generated to be used for determining the material fee rates to be:

- the generation of each material will be based on Stewardship Ontario reports from stewards within each obligated material category

4.3.5 Proposed Methodology for Setting MHSM Stewards' Fees for Subsequent Years of an Approved MHSW Program Plan

It is proposed that provision be made in the MHSW program plan for review and modification, if required, of the MHSM Fee Setting Methodology upon inclusion of Phase 2 and additional materials. Any further revisions would be developed following public consultation by Stewardship Ontario and would be submitted for consideration and approval to the WDO Board and the Minister of the Environment.

One component of this review will be a provision for recovering an appropriate share of the costs of developing the Phase 1 program plan and any investments made in common infrastructure under the approved program plan that will be of benefit to the Phase 2 and additional materials added to the program. This would be accomplished through the introduction of an additional step in the proposed revision to the MHSM Fee Setting Methodology that will be undertaken at that time.

4.4 Year 1 MHSM Steward Fees

Costs included in the material specific fees are a combination of material specific and common and shared program costs, as per the program budget outlined in Section 5.

It is important to note that Year 1 fees are based on the best available data and the estimated Year 1 costs set out in the program plan. These costs will be refined during each subsequent year of the program to ensure that the sum of the stewards' fees matches the total MHSW program costs in each year.

It should be noted that individual stewards who wish to take direct responsibility for managing their obligations under the WDA can apply to the WDO for approval of an Industry Stewardship Plan (ISP) following approval of the MHSW program plan and with regard to the annual fee setting cycle. That is, all MHSM stewards will be required to register with Stewardship Ontario and pay approved fees unless and until an ISP is approved.

4.5 Cost Internalization Options

The Minister's Program Request Letter set out key parameters for an acceptable MHSW program plan including in the Addendum to the letter the specific requirement that:

"The program shall consider options with respect to internalizing program costs and determine which option is most appropriate for Ontario as part of the program."

Under the WDA, an IFO may assess fees against a designated steward. In the case of MHSW, Stewardship Ontario may assess fees against brand owners and/or first importers of Municipal Hazardous or Special Material. It is the responsibility of individual stewards to determine how their fees will be managed internally and, ultimately, how the fees will be reflected in their product costs.

The following description of how stewards may respond to these fees is drawn from the *Waste Electronic and Electrical Equipment Study* completed by CSR on behalf of the WDO in July 2005:

"The presence of a fee or levy will tend to modify the behaviour of parties to a transaction. Consumers may choose to consume less of a more expensive product, and producers may choose ways of producing goods that generate lower environmental burdens and therefore, presumptively, lower fees. What happens in practice will depend on market conditions, as discussed below.

When considering a fee – whether imposed at the retail or manufacturing stage of production – an important question is to understand its economic incidence. The legal incidence of a fee is easy to determine: it falls on the person who is liable to pay the fee; for example, a producer may be legally responsible to remit fees or alternatively, the fee is legally payable by the customer. In the Ontario context, an IFO will collect fees from stewards, meaning brand owners, first importers and assemblers will be legally responsible to remit fees.

Economic incidence, however, is a different matter. Although a steward may be legally obligated to remit a fee, the cost of the fee may be shifted forward by raising the product price charged to the consumer, or shifted back by cutting wages and salaries payable to workers, or reducing the income accruing to the owners (shareholders) of the business.

Typically, therefore, when a fee is imposed on a market, it will be shifted forward as higher consumer prices or shifted back to bear on producers. Even where a fee is identified on consumer invoices, competitive markets may shift back the incidence to producers, who internalize the fees as a cost. Questions arise from this statement including the following:

- *Under what conditions are fees shifted forward or back in competitive markets?*

- *How would economic incidence affect consumer and producer incentives?*
- *Would it make a difference if the fee is visible or not with respect to its economic incidence?*

In this discussion, nothing should be interpreted as to how broad or narrow a market can be defined. In theory, fees on products can be finely demarcated according to type, location and time in each and every market and can therefore be priced for a product type at a particular location or point of time. In practice, however, the number of fees that will be set is determined by the information available – and the cost of information – to distinguish among product types.

The notion of extended producer responsibility hinges on the recognition that internalizing the costs of pollution to the parties to a transaction will produce an efficient and socially desirable distribution of costs and benefits.

One feature of market-based incentives is policy tools' presumed ability to drive incremental environmental mitigation on the part of producers through market forces once the program is in place. If the producer is responsible for handling more of the product lifecycle costs associated with the production, use and end-of-life handling of related waste, the presumption is that the producer will take upstream design steps – possibly including process, handling and supply-chain management adjustments – that will lower the end-of-life and other environmental costs that would otherwise bear on the producer. Hence the aim of policies directed at encouraging design-for-environment is that a financial signal should be sent to producers about the environmental costs flowing from their actions.”

Other options which may be considered by Stewards in order to manage their MHSW program costs would include:

- Offering and promoting reusable product options where possible
- Considering marketing options to avoid or minimize potential for generation of residual material such as
 - Pricing strategies to encourage consumers to purchase the appropriate quantity of product for the task at hand
 - Utilizing packaging that enhances re-seal ability to maintain product integrity during storage
 - Providing instructions for proper storage to maintain product integrity
- Considering product re-formulation to facilitate management by reuse or recycling rather than disposal
- Selecting recyclable packaging over non-recyclable packaging

5.0 Year 1 Program Budget and Fees

The program budget includes all known and projected costs expected to be incurred by the MHSW program. These include:

- post-collection costs for managing MHSW through municipal and non-municipal channels or service agreements including incentives for service providers to expand diversion programs where required
- Stewardship Ontario program delivery costs, including costs associated with contracting for services
- capital costs to meet accessibility targets, set at zero for Year 1 pending a review of the effectiveness of the different approaches including the expansion of events as described in Section 2.5.4
- costs to develop and enhance diversion infrastructure
- research and development costs to support and increase the effectiveness and efficiency of collection and diversion systems
- developing a tracking and auditing system for materials and vendor standards
- educational and public awareness activities to support the program
- Stewardship Ontario administration costs, including cost allocation and fee setting
- WDO costs for development and start-up of the MHSW program
- WDO costs directly related to delivery and administration of MHSW program and a reasonable share of WDO's unattributable costs
- MOE enforcement costs

Estimates of all of these costs are outlined in the sections below.

5.1 Municipal Post-Collection Cost

In her Program Request Letter, the Minister of the Environment indicated that fees collected during Phase 1 of the program shall be used to:

- pay for program activities after the initial collection of waste at the MHSW or other collection facilities. Examples of appropriate activities include: transportation of waste from collection facilities, processing, recycling and disposal of waste, and other related waste management activities; and promotional and public education activities; and
- In addition potential fees collected during Phase 1 of the program shall also consider capital costs to meet Phase 1 program accessibility targets

Municipalities will continue to be responsible for the cost of collection activities for the full range of MHSW managed through municipal programs and for the recycling/disposal of all non-Phase 1 material for the initial phase of the program.

Collection services provided by municipalities at existing or new depots and/or events³⁷ established under the MHSW program include:

- Receiving MHSW from householders and small quantity IC&I generators during agreed upon hours of operation;

³⁷ See Glossary in Appendix 6 for a definition of the terms "depots" and "events"

- Placement of MHSW into transportation containers (i.e. lab packing) provided under the program, using packing materials (e.g. liners, vermiculite) and labels provided under the program;
- Completion of the manifest documents required under Regulation 347.

Municipal collection activities include staffing of the depots and/or events, staff training, safety equipment and operation and maintenance of the depot and/or event locations.

Municipalities are not obligated under provincial regulations to provide MHSW services. Therefore, whether expanding services in municipalities currently providing MHSW services or introducing new services where no service exists, it is recognized that an agreement between the municipality and Stewardship Ontario will be required between the time the program plan is approved and program commencement.

Stewardship Ontario will be responsible for the cost of post collection activities for Phase 1 materials and for program initiatives designed to encourage a shift in the management of these materials from disposal options towards the 3Rs options, where available and technically feasible.

Where municipalities are requested to handle specific materials at a depot in a fashion other than lab-packing, consideration will be given to establishing a fee for this service to be paid to the municipality. Examples include:

- Bulking of antifreeze for which the municipality would receive payment on the basis of a set fee per drum;
- Sampling bulked material for testing, if required, with a per sample fee;
- Separating and distributing reusable paint to local residents with payment based on the quantity reused; and
- Activities that reduce the cost of transportation, processing, recycling or disposal, as agreed between the municipality and Stewardship Ontario.

As a starting point for determining the cost of the program, all municipalities currently offering MHSW services were contacted by the AMRC to gather information regarding their current net program cost, including the cost paid to their service providers and the cost of any promotion and education associated with the program. Responses were received from over 88 percent of programs. The resulting total operating cost of the existing system, including estimates for non-responding programs, is approximately \$15.7 million. This figure includes the cost for all activities, collection, transport, treatment and disposal, and represents cost for all materials, including Phase 1 and non-Phase 1 materials.

Since Stewardship Ontario is responsible for costs after collection, an estimate of the cost of post-collection activities is required. As well, a breakdown of the costs by material is required as a starting point to establish material-specific fees. A selection of municipal programs were contacted by Stewardship Ontario, the AMRC and other municipal representatives to provide more detailed cost information to develop estimates of the cost of these activities and of these costs for each Phase 1 material. These programs were selected to be representative of those across the province, including different demographic factors (geography, population and population density), service provider, materials collected and type of system (i.e. permanent or seasonal depot, event days).

Cost data for the provision of services to municipalities also were requested from MHSW service providers from across the province using a pre-qualification questionnaire intended to gather data on the quantities of MHSW materials managed through both municipal and non-municipal channels and the associated costs.

Representative unit costs were developed from these data for the collection and post collection activities for each material, including set-up costs for events, bulking, transport, disposal, etc. These considered the different costs to handle material using different shipping containers, e.g. labpacks, bulk drums, cages, etc.

A detailed cost model has been developed based on the information obtained. The model provides an analysis of the existing system as well as the expansions to it as proposed under the first year accessibility plans. Table 5-1 summarizes the estimated cost of managing phase 1 materials within the 2007 baseline municipal system, accounting for anticipated growth in collection since 2005 and the cost of managing phase 1 materials through Year 1, accounting for increased accessibility. The table illustrates that between 75% and 80% of the cost of managing phase 1 materials is transferred from the municipalities to Stewardship Ontario.

Table 5-1 Summary of Estimated Cost of Managing Phase 1 Materials in Municipal MHSW System

Activity	Total (\$)	Proportion (%)
<i>2007 Baseline</i>		
Post collection Phase 1	\$7,353,057	78.8%
Collection Phase 1	\$1,979,214	21.2%
Total	\$9,332,271	100.0%
<i>Year 1</i>		
Post collection Phase 1	\$9,114,129	79.4%
Collection Phase 1	\$2,368,850	20.6%
Total	\$11,482,979	100.0%

Table 5-2 summarizes the estimated municipal MHSW system cost for managing Phase 1, Phase 2 and other MHSW materials not yet designated. This also illustrates the potential transfer of between 75% and 90% (subject to designation of other materials) of the cost from municipalities to stewards under Phase 2 and possible subsequent phases with a split of responsibilities similar to Phase 1.

Table 5-2 Estimated municipal MHSW system cost for managing Phase 1 and non Phase 1 MHSW materials

Year	Activity	Collection (\$)	Post-Collection (\$)	Total (\$)	Post-Collection Proportion (%)
2007 Baseline	Phase 1	\$1,979,214	\$7,353,057	\$9,332,271	78.8%
	Phase 2	\$228,394	\$3,402,062	\$3,630,456	93.7%
	Other Materials	\$1,141,989	\$4,499,915	\$5,641,904	79.8%
	Total	\$3,349,597	\$15,255,034	\$18,604,631	82.0%
Year 1	Phase 1	\$2,368,850	\$9,114,129	\$11,482,979	79.4%
	Phase 2	\$404,264	\$4,131,810	\$4,536,074	91.1%
	Other Materials	\$1,727,433	\$5,449,049	\$7,176,482	75.9%
	Total	\$4,500,546	\$18,694,989	\$23,195,535	80.6%

Table 5-2 also indicates that the total cost of the municipal system is estimated to increase by about \$4.6 million as a result of Year 1 activities – for both Phase 1 and non-phase 1 materials. The estimated increase in the post-collection cost for Phase 1 materials is about \$1.8 million while the estimated increase in the municipal collection cost and post-collection cost for non-phase 1 materials is about \$2.8 million. The savings to municipalities resulting from the transfer of \$7.4 million of post-collection costs of the 2007 baseline system to Stewardship Ontario more than offsets this increase in all MHSW collection and the non-phase 1 material management costs and provides an overall savings to municipalities of about \$4.6 million. However, it is important to note that for municipalities that do not currently have an MHSW program, the collection costs are new costs, and they will have to consider whether or not to provide this service.

A more detailed summary of these municipal system cost estimates is presented in Appendix 5-A.

5.1.1 Transition of Municipal Contracts

The transition from full municipal responsibility to shared responsibilities as it relates to contracting for collection, diversion and disposal services may be achieved in a number of ways but not without challenges due particularly to the division of responsibility for post collection cost of Phase 1 and non-Phase 1 materials. The options presented below are currently being discussed with municipalities to identify advantages and disadvantages and the preferred approach.

- a) Municipal and Stewardship Ontario co-tendering
- b) Separate tendering/contracting
- c) Municipalities manage and tender the entire contract and Stewardship Ontario reimburses municipalities
- d) Stewardship Ontario manages and tenders the entire contract and municipalities reimburse Stewardship Ontario
- e) A mix of these options

The preferred option may be different depending on whether the purpose is transition for existing contract terms or for longer term transition during Phase 1, prior to Phase 2. Following expiry of existing contracts, a key issue will be the need by both municipalities and Stewardship Ontario to be involved in tendering, evaluation and decision to award.

For the initial transition during existing contracts, option c), in which municipalities manage the contract with reimbursement from Stewardship Ontario, may be the most feasible recognizing that:

- An appropriate verification process is established, that is not onerous
- Payment for value added services would be negotiated between Stewardship Ontario and the municipality.
- Stewardship Ontario is responsible to assume Phase 1 post collection costs in existing contracts; alternatively, Stewardship Ontario and the municipality could agree to cancel the contract with Stewardship Ontario paying any related cancellation penalty

Where early termination clauses exist in existing service provider contracts, municipalities could exercise the option. Where early termination clauses or changes to the contract are unavailable and the existing contracts must be honoured, one possible option may be for Stewardship Ontario to reimburse the municipalities the post collection costs for Phase 1 material as stated in the contract until such time as the contract expires. This could mean, however, a delay in the transition to the adoption of enhanced 3Rs options, as the majority of Phase 1 materials are currently managed by non-3Rs options.

Reimbursement rates for reuse, packing supplies, and onsite bulking or other processing will need to be negotiated with the municipalities.

In those instances where Phase 1 and non-Phase 1 materials are packed together for transportation purposes, a cost allocation formula must be agreed to, for example, to break out solvents from other flammable materials not designated in Phase 1. This may be done based on reviewing a combination of the AMRC composition study and the WDO Datacall and an analysis of additional samples to develop an allocation formula that is acceptable to both parties and meets the objective that fees reflect actual costs attributable to each material.

For the longer term purposes of transition during Phase 1 prior to Phase 2, option b) – separate tendering/contracting – may be the only option that meets the requirements of both parties, recognizing the need by both municipalities and Stewardship Ontario for control over tendering, evaluation and a decision to award.

It is anticipated that the preferred option will be negotiated between each municipality and Stewardship Ontario. As part of a pre-qualification questionnaire to MHSW service providers, Stewardship Ontario obtained some input as to how to issue tenders most effectively for required MHSW services. As well, as part of a survey of selected municipal programs representing a cross-section of programs across the province, Stewardship Ontario gathered information on their existing contracts relating to possible transition to shared responsibilities under the program. This included whether there are provisions for termination; provisions allowing for adjustments to the range of products collected; increasing the number of events; provisions mandating handling method, e.g. disposal or recycling, lab-packing or bulking, etc. The compilation and analysis of these data will assist Stewardship in planning the initial transition.

5.2 Management Through Non-Municipal Channels and Transport and Processing Fees

To encourage management of Phase 1 materials through non-municipal channels, transport and processing fees will be available to service providers to establish and expand accessibility and to increase quantities diverted.

A transport fee would be available to registered haulers to transport MHSW from collection locations (both municipal and industry) to registered processing locations. Services to be provided under the transport fee would include provision of necessary transport containers and packing materials.

A processing fee would be available to registered processors to process MHSW delivered to them by registered haulers. Examples of processes that would likely require a processing fee include washing/shredding plastic oil bottles and plastic paint cans, compacting/shredding oil filters, separating and processing mercury and non-mercury batteries and venting and shredding non-refillable pressurized containers.

Transport and processing fees would be established for specific materials or groups of materials, such as oil filters, oil bottles and antifreeze. Contracts would be established with service providers, possibly on a regional basis.

For the purpose of setting Year 1 MHSM stewards' fees the value of the transportation fee has been determined using available information³⁸ and is based on the rates provided to haulers operating under similar programs in other provinces. A number of these programs have been in existence for more than 8 years. This also promotes consistency with cross border haulers that operate or collect in Ontario, but have facilities in other provinces. In the early stages of the MHSW program implementation, a call for tenders will be issued by Stewardship Ontario to check the appropriateness of the proposed fees in the Ontario market and the fees adjusted accordingly, if required.

Additional material specific funds would be devoted to research to confirm the rates at the transporter and processor level and would be adjusted as needed as part of the Year 2 assessment process.

The estimated cost of the transport and processing fees for the materials that are likely to be affected are presented in Table 5-3. It is not anticipated that other Phase 1 materials will be collected in significant quantities through non-municipal channels in Year 1.

³⁸ 2004 OUOMA Plan and established NUOMAC zone rates.

Table 5-3 Estimated Year 1 Cost of Transport and Processing Fees for Non-Municipal System

Material	Year 1 Cost of Transport and Processing Fees
Paints and coatings	\$5,571
Solvents	\$665
Antifreeze	\$352,000
Oil filters	\$9,579,000
Oil containers	\$2,101,000
Non-refillable pressurized containers	\$47,131
Single use dry cell batteries	\$14,252

A more detailed summary of these non-municipal system cost estimates is presented in Appendix 5-B.

5.3 Year 1 MHSW Program Plan Budget

The above estimates of post collection costs for Phase 1 materials managed in the municipal and non-municipal MHSW system are combined with estimates for all other elements of the program to develop cost estimates for the program in Year 1 and for making projections for subsequent years.

The program budget for Year 1 is based upon best available data and estimates derived through the consultation program and these have been used for calculating Year 1 steward fees. Due to the limited availability of reliable data and the MHSW program activities to be further investigated and developed during the first years of the program (e.g. options for increasing collection and diversion of MHSW from IC&I businesses that generate small quantities of this material), budget projections for future program years are considered to be preliminary planning estimates and these will be reviewed in each subsequent year prior to setting stewards fees.

These costs will be refined during each year of the program to ensure that the sum of stewards' annual fees matches the total program financial obligations in each year. As well, the program budget in subsequent years will depend on the additional level of investments required to meet the program accessibility, collection and diversion targets.

5.3.1 Year 1 Stewardship Ontario Administration and Program Delivery Costs

Stewardship Ontario administration costs are the agreed MHSW program share of those costs that cannot be directly attributed to stewards within the Blue Box Program or the MHSW Program. The allocation of these costs between MHSW stewards and Blue Box stewards has been established based on the relative preliminary projections of program fees of one third MHSW and two thirds BBPP.

Estimates of the Stewardship Ontario program delivery cost assume stand-alone MHSW program implementation and management of the MHSW program plan activities, as a worst case scenario. These costs have been developed based on a review of all similar

Stewardship Ontario activities relating to the implementation and management of the Blue Box Program Plan activities and identification of additional activities and costs that are unique to the MHSW program.

Efforts will be made to identify opportunities for reducing program delivery costs during implementation by considering sharing of common Stewardship Ontario functions. The Stewardship Ontario administration and program delivery budget for Year 1 is presented below in Table 5-4.

Table 5-4 Summary of Year 1 MHSW Program Common Costs

Cost Centre	Year 1 Cost
Stewardship Ontario Start-up	\$330,000
Administration costs	\$386,000
Program costs	\$1,522,000
Cost allocation/fee setting studies	\$50,000
Waste characterization	\$150,000
Audits/verification	\$150,000
Data tracking/vendor standards	\$150,000
Options for SQ IC&I	\$25,000
Shared promotion & education ¹	\$1,500,000
MOE Compliance	\$50,000
WDO Start-up	\$295,000
WDO Admin & Program	\$290,000
Total Common Cost	\$4,898,000

Note:

1) Refers to common P&E cost that is shared among MHSW materials

Stewardship Ontario plan development and start-up costs are estimated to be about \$1 million and it is proposed that these be recovered over the first three years of the program, at approximately \$330,000 per year.

A budget totalling \$525,000 has been included for key activities to establish cost allocation methodologies and data for determining fees in subsequent years as well as for scoping and beginning to develop an appropriate material tracking system and for working with the Ministry of the Environment, service providers and municipalities to determine the most effective way to engage the small quantity generators of MHSW from the institutional, commercial and industrial (IC&I) sector.

The budget for the Year 1 common promotion and education (P&E) is approximately \$1.5 million to conduct initial qualitative and quantitative research and needs assessment for the P&E approach for implementation in subsequent years of the program, to initiate the program and to develop materials and provide support for local P&E and point of purchase (POP) activities.

The cost of \$50,000 for Ministry of the Environment activities for ensuring steward compliance with the MHSW program have been budgeted based on the successful arrangements that have been developed during the first years of the Blue Box Program. The WDO program development and start-up costs and Year 1 administration and program delivery costs are estimated to be about \$295,000 and \$290,000 respectively. WDO plan development costs will be billed to Stewardship Ontario 90 days after program commencement. There will be ongoing WDO administration and program delivery costs. These costs estimates have been incorporated into Year 1 stewards' fees.

The total common costs for the MHSW program budgeted for Year 1 are approximately \$4.9 million.

5.3.2 Year 1 Material Specific P&E and R&D Costs

In addition to the common promotion and education, activities to promote increased 3Rs and collection will be undertaken for specific materials. These are identified within the profiles for each material in Section 3. Similarly, research and development activities will be undertaken for specific materials and these also are summarized in the material profiles in Section 3.

For Year 1, total Material-specific P&E and R&D fees are \$645,000 and \$1.6 million respectively.

5.3.3 MHSW Program 5-Year Budget

The five year cost estimates are based on information available, but will be refined during the first years of the program as better data become available and depending on the results of the program. Cost estimates have been developed for Years 2 through 5. Summaries of the 5-year costs for each material are presented in Appendix 5-C.

Table 5-5 shows the estimated costs for post-collection management of Phase 1 materials through the municipal and non-municipal systems. For the purpose of setting fees for Year 1, the estimated Year 1 cost of managing Phase 1 materials includes a contingency of 10% to account for possible additional program costs. Detailed calculations for municipal post collection costs are presented in Appendix 5-A, and those for non-municipal channels are presented in Appendix 5-B.

Table 5-5: Estimated Post-Collection Cost for Management of Phase 1 Materials through Municipal and Non-Municipal Channels

	Year 1	Year 2	Year 3	Year 4	Year 5
Municipal System	\$9,114,129	\$10,079,961	\$11,415,670	\$13,031,092	\$15,182,639
Non-Municipal System	\$12,099,619	\$13,981,687	\$15,088,691	\$16,064,201	\$17,083,198
Total	\$21,213,748	\$24,061,648	\$26,504,361	\$29,095,293	\$32,265,837

Table 5-6 shows the range of estimated costs for post-collection of specific materials that will be managed primarily through the non-municipal system.

Table 5-6: Estimated Post-Collection Cost for Management of Phase 1 Materials through Non-Municipal Channels

Material	Year 1	Year 2	Year 3	Year 4	Year 5
Paints and coatings	\$5,571	\$5,854	\$6,152	\$6,464	\$6,792
Solvents	\$665	\$699	\$734	\$771	\$811
Antifreeze	\$352,000	\$504,000	\$579,000	\$653,000	\$728,000
Oil filters	\$9,579,000	\$10,915,000	\$11,508,000	\$11,951,000	\$12,395,000
Oil containers	\$2,101,000	\$2,476,000	\$2,850,000	\$3,224,000	\$3,597,000
Non-refillable Pressurized containers	\$47,131	\$54,947	\$91,102	\$128,680	\$167,726
Single use dry cell batteries	\$14,252	\$25,187	\$53,703	\$100,286	\$187,870

Table 5-7 shows the projected material-specific costs for promotion & education (P&E) through the five year plan. These investments will depend on achievement of targets and will be refined in Year 1 of the program when additional data become available.

Table 5-7 Estimated 5-Year Material-Specific Costs for Promotion and Education

Material	Year 1	Year 2	Year 3	Year 4	Year 5
Paints and coatings	\$5,000	\$75,000	\$75,000	\$75,000	\$75,000
Solvents	\$5,000	\$25,000	\$25,000	\$25,000	\$25,000
Antifreeze	\$100,000	\$100,000	\$100,000	\$75,000	\$75,000
Oil filters	\$200,000	\$200,000	\$200,000	\$150,000	\$150,000
Oil containers	\$300,000	\$300,000	\$200,000	\$200,000	\$200,000
Non-refillable Pressurized containers	\$5,000	\$25,000	\$25,000	\$25,000	\$25,000
Refillable Pressurized containers	-	-	-	-	-
Single use dry cell batteries	-	-	\$25,000	\$75,000	\$100,000
Pesticides	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fertilizers	\$25,000	\$5,000	\$5,000	\$5,000	\$5,000
Total	\$645,000	\$735,000	\$660,000	\$635,000	\$660,000

Table 5-8 shows the projected material-specific costs for research and development (R&D) through the five year plan. These investments will depend on achievement of targets and will be refined in Year 1 of the program when additional data become available.

Table 5-8 Estimated 5-Year Material-Specific Costs for Research and Development

Material	Year 1	Year 2	Year 3	Year 4	Year 5
Paints and coatings	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Solvents	\$10,000	\$25,000	-	-	-
Antifreeze	\$300,000	\$200,000	\$50,000	\$10,000	\$10,000
Oil filters	\$300,000	\$200,000	\$100,000	-	-
Oil containers	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Non-refillable Pressurized containers	\$70,000	\$100,000	\$70,000	-	-
Refillable Pressurized containers	\$10,000	-	-	-	-
Single use dry cell batteries	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Pesticides	\$5,000	\$10,000	\$5,000	\$5,000	\$5,000
Fertilizers	\$5,000	\$15,000	\$15,000	-	-
Total	\$1,600,000	\$1,450,000	\$1,140,000	\$915,000	\$915,000

Table 5-9 presents the possible expenditures on common P&E over the 5-year plan. These will depend on the research during the first year and the on-going results of increased accessibility and demonstrations in Year 1. It is estimated that the expenditures in future years could be approximately \$2 million depending on the results of the research conducted in Year 1 and depending on progress toward reaching MHSW program targets. The appropriate P&E budget for subsequent years will be refined in each subsequent year of the program.

Table 5-10 and Figure 5-1 present the projected overall program budget over the five years of the plan.

Table 5-9 Estimated Cost for Potential Common Promotion and Education Activities over 5 Years of Plan (\$000's)

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Advisory Committees					
- Municipal Expenses	\$6	\$6	\$6	\$6	\$6
Qualitative Research	\$53	-	-	-	-
Quantitative Research	\$27	\$30	\$30	\$30	\$30
Launch Event	\$10	-	-	-	-
Media Tour & Expenses	\$8	-	-	-	-
Website	\$50	\$20	\$20	\$20	\$20
Stock Photography	\$20	\$10	\$10	\$10	\$10
Material Specific Ads & Clip Art	\$40	\$10	\$10	\$10	\$10
Event / Depot Days	\$554	\$990	\$990	\$990	\$990
- WDO Ad Placement	\$10	\$14	\$14	\$14	\$14
POP all - Material Brochure	\$94	\$210	\$360	\$480	\$600
Municipal Support for local P&E (not event/depot ads)	\$600	\$600	\$600	\$600	\$600
Annual P&E Program Evaluation					
- "Tracking" Survey	\$28	\$30	\$30	\$30	\$30
Totals	\$1,500	\$1,920	\$2,070	\$2,190	\$2,310

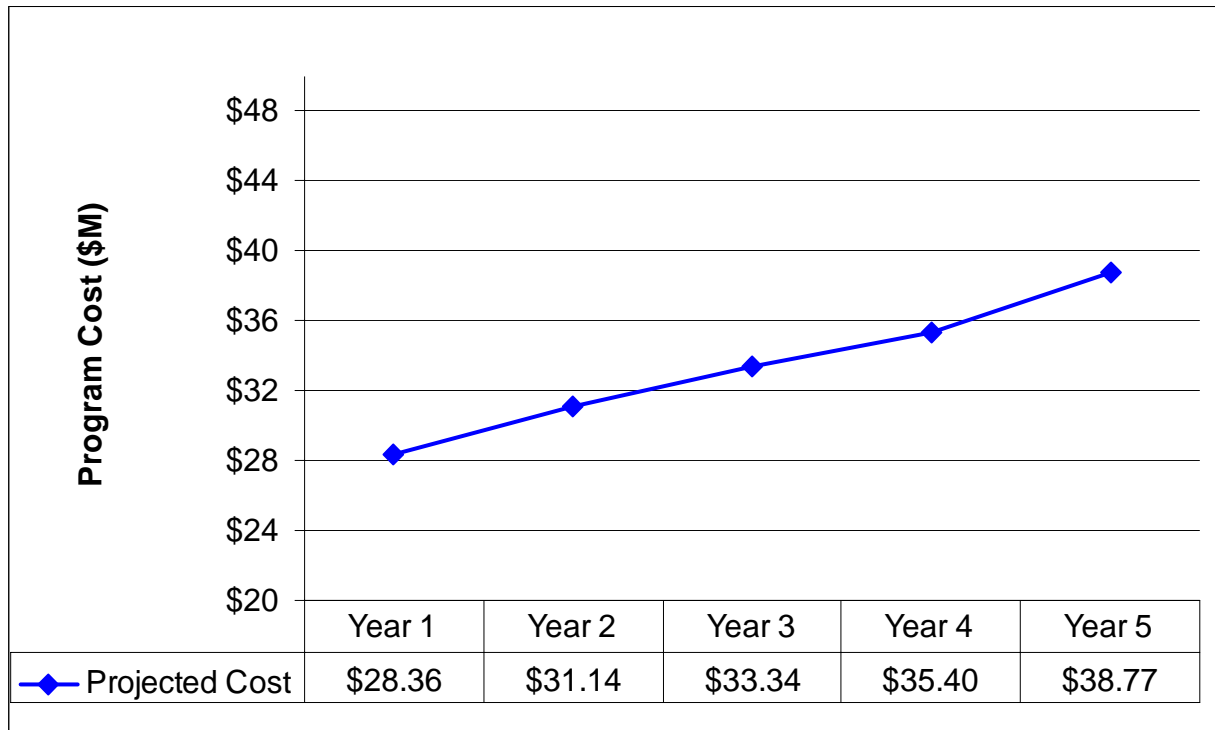
Table 5-10: Overall program budget over the five years of the plan

	Program Costs (\$ 000's)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Common Costs					
SO & WDO start-up	\$625	\$330	\$330	\$0	\$0
SO & WDO Admin & Program Delivery	\$2,723	\$2,570	\$2,590	\$2,535	\$2,605
Shared Promotion & Education ¹	\$1,500	\$1,920	\$2,070	\$2,190	\$2,310
MOE Compliance	\$50	\$75	\$50	\$25	\$10
Total Common Cost	\$4,898	\$4,895	\$5,040	\$4,750	\$4,925
Material-Specific Direct Costs					
Municipal Post Collection Cost	\$9,114	\$10,080	\$11,416	\$13,031	\$15,183
Non-Municipal Post Collection Cost	\$12,100	\$13,982	\$15,089	\$16,064	\$17,083
Promotion & Education	\$645	\$735	\$660	\$635	\$660
Research & Development	\$1,600	\$1,450	\$1,140	\$915	\$915
Total Direct Cost	\$23,459	\$26,247	\$28,304	\$30,645	\$33,841
Total Cost					
	\$28,357	\$31,142	\$33,344	\$35,395	\$38,766
Tonnes Diverted	23,090	26,893	29,399	31,342	33,436
\$/kilogram diverted (\$/kg)	1.23	1.16	1.13	1.13	1.16
Kilograms diverted/\$ (kg/\$)	0.81	0.86	0.88	0.89	0.86

Note:

1) Refers to common P&E that is shared among MHSW materials

Figure 5-1 Summary of Projected Program Cost



5.4 MHSM Fee Rates

Tables 5-11 and 5-12 present the calculation of Year 1 fees and fee rates. As noted in Table 5-12, the units for the fee rates are based on the information currently available to Stewardship Ontario on sales of these products into Ontario. The fee rates presented in Table 5-12 are the rates which are included in the rules and will be the basis of Steward Report's and payments. The fee rates are applied to each kg or unit or litre of MHSM as appropriate.

Table 5-11 Preliminary Year 1 Fees

	Material Specific Direct Costs						Common Costs							
	Municipal System	Non-Municipal System	Material-specific P&E	Material-specific R&D	Total Material-specific	Rel. Direct Cost (%)	SO Admin & Program Delivery	MOE compliance	WDO Charges	Total Common	Total	Rel. Fees (%)	Tonnes Sold (2005)	Basic Fee Rate (\$/kg)
							\$4,263,000	\$50,000	\$585,000	\$4,898,000				
Paints and coatings	\$7,397,000	\$5,571	\$5,000	\$100,000	\$7,507,571	32.0%	\$1,230,761	\$14,435	\$168,894	\$1,414,090	\$8,921,662	32%	122,500	\$0.073
Solvents	\$741,000	\$665	\$5,000	\$10,000	\$756,665	3.2%	\$187,934	\$2,204	\$25,790	\$215,928	\$972,592	3.4%	4,213	\$0.231
Antifreeze	\$120,000	\$352,000	\$100,000	\$300,000	\$872,000	3.7%	\$205,750	\$2,413	\$28,234	\$236,397	\$1,108,397	3.9%	16,800	\$0.066
Oil filters	\$87,000	\$9,579,000	\$200,000	\$300,000	\$10,166,000	43.3%	\$1,641,414	\$19,252	\$225,247	\$1,885,913	\$12,051,913	43%	14,600	\$0.825
Oil containers	\$178,000	\$2,101,000	\$300,000	\$500,000	\$3,079,000	13.1%	\$546,670	\$6,412	\$75,018	\$628,100	\$3,707,100	13%	4,370	\$0.848
Non-refillable pressurized containers	\$176,000	\$47,131	\$5,000	\$70,000	\$298,131	1.3%	\$103,593	\$1,215	\$14,216	\$119,024	\$417,154	1.5%	658	\$0.634
Refillable pressurized containers	\$60,000	-	-	\$10,000	\$70,000	0.3%	\$24,323	\$285	\$3,338	\$27,946	\$97,946	0.3%	2,565	\$0.038
Single use dry cell batteries	\$152,000	\$14,252	-	\$300,000	\$466,252	2.0%	\$143,073	\$1,678	\$19,634	\$164,385	\$630,637	2.2%	5,040	\$0.125
Pesticides	\$142,000	-	\$5,000	\$5,000	\$152,000	0.6%	\$94,530	\$1,109	\$12,972	\$108,611	\$260,611	0.9%	530	\$0.492
Fertilizers	\$60,000	-	\$25,000	\$5,000	\$90,000	0.4%	\$84,952	\$996	\$11,658	\$97,607	\$187,607	0.7%	8,200	\$0.023
Total	\$9,113,000	\$12,099,619	\$645,000	\$1,600,000	\$23,457,619	100.0%	\$4,263,000	\$50,000	\$585,000	\$4,898,000	\$28,355,619	100%	179,477	

Notes:

- 1) Common costs have been allocated on the basis of 85% in proportion to direct cost and 15% as an equal share to each material group.
- 2) Columns may not add due to rounding.

Table 5-12 Preliminary Year 1 Fee Rates

Material	Units for Fee Rate	Standard Sizes	Fee Rate	Comments
Paints and coatings				
< = 250 mL	\$/unit	0.250	\$0.024	Does not take into consideration more complete consumption of larger formats and therefore lower cost to manage for these. Conversion from basic fee on Table 5.11 uses specific gravity of 1.3 kg/l.
> 250 mL – 1 L	\$/unit	0.945	\$0.089	
> 1 – 5 L	\$/unit	3.785	\$0.358	
> 5 L	\$/unit	18.900	\$1.789	
aerosols	\$/unit	0.300	\$0.028	
Solvents	\$/litre		\$0.196	Conversion from basic fee on Table 5.11 uses specific gravity of 0.85 kg/l
Antifreeze	\$/litre		\$0.073	Conversion from basic fee on Table 5.11 uses specific gravity of 1.1125 kg/l.
Oil filters	\$/unit	<8"	\$0.499	Based on 21 million units sold, 85% small (<8") and 15% large (>8")
	\$/unit	>8"	\$0.998	
Oil containers	\$/litre		\$0.045	Based on 82.5 million litres sold
Pressurized containers				
Non-refillable	\$/unit		\$0.334	Based on 1,463,000 units sold
Refillable	\$/unit		\$0.366	Based on 250,000 to 285,000 (use 267,500) units sold
Single use dry cell batteries	\$/kg		\$0.125	A separate table will be made available to stewards when they submit their report. The table will provide fee rates for different types/sizes of single-use dry cell batteries.
Pesticides	\$/litre or \$/kg		\$0.492	
Fertilizers	\$/litre or \$/kg		\$0.023	

5.5 Economic Implications of Preferred Program Options

Tables 5-13, 5-14 and 5-15 provide a summary analysis of key projected economic impacts of the proposed program on the Municipal Hazardous or Special Material to Municipal Hazardous or Special Waste value chain.

Table 5-13: Total Program Cost Comparisons – Current System vs. Year 1 Projections for Phase 1 Materials only (\$million)

	Annual Total	Municipal Cost	Program Start-up	IFO post-collection Municipal Channels	IFO post-collection Non-Municipal Channels	IFO Program Delivery & Admin ²	R&D	Promo & Education ³
Current ¹ 2007 Baseline	NA	\$9.3	NA	NA	NA	NA	NA	unknown
Proposed	\$30.7	\$2.4	\$0.6	\$9.1	\$12.1	\$2.8	\$1.6	\$2.1

Notes:

- 1) Where this information is available or can be approximated
- 2) Includes SO and WDO program delivery and administration
- 3) Includes both shared and material-specific P&E

Table 5-14: Year 1 – 5 Key Program Element IFO Cost Projections (\$million)

	Annual Total	Program start-up	IFO post-collection Municipal Channels	IFO post-collection Non-Municipal Channels	IFO Program Delivery & Admin ¹	R&D	Promo & Education ²	Capital
Year 1	\$28.3	\$0.6	\$9.1	\$12.1	\$2.8	\$1.6	\$2.1	NA
Year 2	\$31.1	\$0.3	\$10.1	\$14.0	\$2.6	\$1.5	\$2.7	unknown
Year 3	\$33.3	\$0.3	\$11.4	\$15.1	\$2.6	\$1.1	\$2.7	unknown
Year 4	\$35.4	-	\$13.0	\$16.1	\$2.6	\$0.9	\$2.8	unknown
Year 5	\$38.8	-	\$15.2	\$17.1	\$2.6	\$0.9	\$3.0	unknown

Notes:

- 1) Includes SO and WDO program delivery and administration
- 2) Includes both shared and material-specific P&E
- 3) Figures may not sum due to rounding

Table 5-15: Examples of Product Specific Cost Impacts

Category	Product Example	Fee Rate	Cost Per Unit	Example Consumer Price 2007 ³⁹
Paints & Coatings	1U.S. Gallon latex paint (3.78 L)	> 1 - 5 L: \$0.358/unit	\$0.358	\$13.99 to \$27.99
Solvent	1 L Paint thinner	\$0.196/litre	\$0.196	\$3.75 to \$4.00
Oil filters	filter less than 8"	\$0.499/unit	\$0.499	\$4.00 to \$13.00
Oil container	1 L bottle	\$0.045/litre	\$0.045	\$3.19 to \$12.49
Battery ¹	AA alkaline (23 g)	\$0.125/kg (1)	\$0.003	\$0.56 to \$1.50
Antifreeze	1 U.S Gallon antifreeze (3.78 L)	\$0.073/litre	\$0.277	\$3.49 to \$17.99
Pressurized Container	1 lbs. non-refillable propane	\$0.334/unit	\$0.334	\$4.59
	20 lbs. refillable propane	\$0.366/unit	\$0.366	\$29.99 to \$44.99
Fertilizers	7 kg bag of Lawn Fertilizer with Weed Control	\$0.023/kg	\$0.160	\$11.99 to \$18.99
Pesticides	Malathion 1L concentrate	\$0.492/litre	\$0.492	\$6.49 to \$27.99

Note:

1) A separate table will be made available to stewards when they file their report. The table will provide fee rates for typical battery types (AA, C, D, etc.)

³⁹ Range of prices on a per unit basis taken from retailer websites and catalogues.

6.0 Program Rules

Stewardship Ontario, as the IFO for MHSW, is required to develop Rules for the MHSW program. Section 30 and 31 of the WDA outlines what the rules cover:

Section 30: Rules relating to stewards

30. (1) If an industry funding organization is designated by the regulations as the industry funding organization for a waste diversion program, the organization may make rules,
- (a) designating persons or classes of persons as stewards in respect of the designated waste to which the waste diversion program applies;
 - (b) setting the amount of the fees to be paid by stewards under subsection 31 (1) or prescribing methods for determining the amount of the fees;
 - (c) prescribing the times when fees are payable under subsection 31 (1);
 - (d) requiring the payment of interest or penalties on fees that are not paid in accordance with subsection 31 (1);
 - (e) exempting stewards or classes of stewards from subsection 31(1), subject to such conditions and restrictions as may be prescribed by the rules;
 - (f) requiring stewards to keep records prescribed by the rules and governing the submission of those records to persons specified by the rules and the inspection of those records by persons specified by the rules;
 - (g) requiring stewards to provide reports and other information to persons specified by the rules.

Stewards

30. (2) A rule made under clause (1) (a) shall not designate a person as a steward in respect of a designated waste unless the person has a commercial connection to the designated waste or to a product from which the designated waste is derived.

Section 31: Payment of Stewardship fees

31. (1) A person who is designated under the rules made by an industry funding organization as a steward in respect of a designated waste shall pay to the organization the fees determined in accordance with the rules at the times specified by the rules.

A separate set of Rules will be required for the MHSW program as key issues such as fee rates, exemptions and definition of materials will be different than those related to the BBPP.

The Rules for the MHSW program will follow the same basic architecture as those for the BBPP in other key areas such as designation of brand owner and first importer, penalties and interest and dispute resolution.

As required by Section 30 (4) of the WDA, the Rules for the MHSW program have been included as Schedule A of Section 8.0 Program Agreement.

7.0 Governance

Paragraph 26 (2) 6 of the WDA requires that information submitted with the program plan include:

A proposal for a regulation governing the composition and appointment of the board of directors of the industry funding organization.

It is proposed that such a regulation be enacted as soon as possible upon MHSW Program Plan approval to allow for incorporation of appropriate representation on the Stewardship Ontario board from the full range of affected MHSW program stewards prior to the program Commencement Date. Given that the actual number of MHSW stewards and the quantity of fees to be paid by each of the Phase 1 material categories is uncertain until such time that the first full MHSW steward reporting cycle is complete, it is proposed that the regulation be structured as follows.

The current Stewardship Ontario board, consisting of 15 directors, will continue in office until a special meeting of the Stewardship Board of Directors to be held within 45 days of enactment of a regulation governing the composition and appointment of the revised board of directors and following approval of the MHSW Program Plan.

The regulation to be enacted will provide that the board of directors will consist of fifteen (15) members, ten (10) of whom will be elected by the “Blue Box Stewards” and five (5) of whom will be appointed to represent the “MHSW Stewards”. The regulation will provide that the ten (10) individuals to be elected by the “Blue Box Stewards” be elected by the same process as currently set out in O. Reg. 273/02, as amended by O. Reg. 255/06 but for a term to expire at the first Stewardship Ontario annual meeting following the first fiscal year of the MHSW program, likely to be held in May, 2010. The five (5) appointed directors representing the MHSW Stewards will be five (5) individuals nominated by the organizations set out below, that is, one (1) individual from each of:

- i. Canadian Paint and Coatings Association,
- ii. Retail Council of Canada,
- iii. Canadian Consumer Specialty Products Association,
- iv. Automotive Industries Association of Canada – Association des Industries de l’automobile du Canada., and
- v. Jointly chosen by Procter & Gamble Inc., Energizer Canada Inc., Panasonic Canada Inc. and Spectrum Brands Canada, Inc.; provided that should these stewards fail to agree to a nominee, the CEO of Stewardship Ontario shall make such appointment.

Following the first Stewardship Ontario annual meeting following the first complete fiscal year of the MHSW program, or at such later date as may be determined, Stewardship Ontario will propose that consideration be given to a further regulation that would allow for the election of fifteen (15) directors. The regulation may provide that Board representation shall be proportionate to the Stewardship Fees paid by the Blue Box Stewards on the one hand and by the MHSW Stewards on the other hand in the most recently completed fiscal year. To arrive at the appropriate numbers, a calculation will be made to determine the percentage of stewardship fees paid, from the January 1, 2009 to December 31, 2009 by each of the Blue Box Stewards and the MHSW Stewards. If, for example, 40% of the stewardship fees paid to Stewardship Ontario for the period commencing on January 1,

2009 and ending December 31, 2009 were paid by MHSW Stewards, the MHSW Stewards would be entitled to elect six (6) directors and the Blue Box Stewards would be entitled to elect nine (9) directors. These directors will be elected for a two (2) year term. Thereafter, directors will be elected every two (2) years and representation on the board shall be based on the stewardship fees in the prior fiscal year.

For the purpose of assigning board representation, stewardship fees paid by a Remitter in accordance with a Remitter's Agreement are to be attributed to the Steward on whose behalf the Remitter has remitted. The fees will not be attributed as fees paid by the Remitter.

As a companion to this proposal it is proposed that the current Blue Box Waste Regulation (O. Reg. 273/02) and Municipal Hazardous or Special Waste Regulation (O. Reg. 542/06) be amended to centralize the Stewardship Ontario composition in one regulation, with the Blue Box Waste Regulation and Municipal Hazardous or Special Waste Regulation identifying Stewardship Ontario as the Industry Funding Organization for both programs. In conjunction with modifying O. Reg 273/02 and O. Reg 542/06, it is proposed that a separate Stewardship Ontario regulation will be made to continue Stewardship Ontario and will address the election and appointment of Stewardship Ontario directors.

8.0 Program Agreement

The Program Agreement between Stewardship Ontario and the WDO follows.

Replacement Program Agreement

Preamble

THIS AGREEMENT made in duplicate is effective as of this 12th day of December, 2007.

B E T W E E N:

WASTE DIVERSION ONTARIO,
a corporation without share capital
incorporated by the *Waste Diversion Act, 2002*
(hereinafter referred to as "Waste Diversion Ontario")

- and -

STEWARDSHIP ONTARIO,
a corporation without share capital
incorporated pursuant to the *Corporations Act (Ontario)*
(hereinafter referred to as "Stewardship Ontario")

WHEREAS according to Subsection 25 (3) of the *Act*, a waste diversion program developed under this *Act* must include an agreement between Waste Diversion Ontario and the industry funding organization that the program is developed in cooperation with, governing the role of the industry funding organization in the implementation and operation of the program and governing the exercise of the industry funding organization's powers under the *Act*;

AND WHEREAS the Minister of the Environment has required that Stewardship Ontario be the industry funding organization established under Section 24 of the *Act* for the purposes of developing and implementing a waste diversion program for designated Municipal Hazardous or Special Waste under the *Act*;

AND WHEREAS the parties entered into an agreement dated 23rd May, 2007 and wish to replace it with this agreement so as to alter the dates contained in the proposed Rules;

NOW THEREFORE in consideration of the premises and mutual agreements contained herein and subject to the terms and conditions hereinafter set forth, the parties covenant and agree as follows:

1. Purpose of the Agreement

- 1.1 The purpose of this Agreement between Waste Diversion Ontario and Stewardship Ontario is to:
- a) Define the roles and responsibilities of the two parties;
 - b) Set out the operating relationships between the two parties; and
 - c) Ensure openness and transparency to serve the public interest.

2. Definitions and Interpretation

- 2.1 Terms beginning with capital letters and used herein without definition shall have the meanings given to them in the Act, unless otherwise specified.
- 2.2 When used in this Agreement, the following words and expressions have the following meanings:
- (a) "**Act**" means the *Waste Diversion Act, 2002*, S.O. 2002, c. 6, as the same may be amended from time to time;
 - (b) "**Agreement**" means this Program Agreement which is entered into pursuant to Section 25 (3) of the *Act* and includes all attached schedules and any amendments thereto;
 - (c) "**Municipal Hazardous or Special Waste Program Plan**" means the waste diversion program submitted by Stewardship Ontario and approved by Waste Diversion Ontario and submitted to the Minister for approval, of which this Agreement forms a part;
 - (d) "**Municipal Hazardous or Special Waste**" means waste materials defined under Ontario Regulation 542/06;
 - (e) "**Business Day**" means any working day, Monday to Friday inclusive, excluding statutory and other holidays, namely: New Year's Day; Good Friday; Easter Monday; Victoria Day; Canada Day; Civic Holiday; Labour Day; Thanksgiving Day; Remembrance Day; Christmas Day, Boxing Day and any other day which the Government of Ontario has elected to be closed for business;
 - (f) "**Documentation**" means, for purposes of Section 9 of this Agreement, correspondence, documentation pertaining to public consultation during development of the Municipal Hazardous or Special Waste Program Plan, minutes of meetings of the Board of Directors and subcommittees, internal reports, consultants' reports, agendas and other information and data obtained, created or maintained by Stewardship Ontario;
 - (g) "**FIPPA**" means the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c. F.31, as amended;
 - (h) "**Funds**" means monies received by Stewardship Ontario as described in Subsection 32(3) of the *Act*;
 - (i) "**Material change**" means a change to this agreement which requires review and approval by Waste Diversion Ontario and by the Minister of the Environment as outlined in Section 3.5;
 - (j) "**Operating Agreement**" means the Operating Agreement entered into between Waste Diversion Ontario and the Minister;

- (k) "**Stewards**" means the persons or classes of persons designated under the Municipal Hazardous or Special Waste Program Plan rules as responsible for paying fees to Stewardship Ontario;
- (l) "**Steward**" means any member of the class of "Stewards";
- (m) "**Waste Diversion Program**" means a program referred to in Sections 23 and 25 of the *Act*.

2.3 In this Agreement,

- (a) Words denoting the singular include the plural and vice versa and words denoting any gender include all genders;
- (b) The word "including" or "includes" shall mean "including [or includes] without limitation";
- (c) Any reference to a statute shall mean the statute in force as at the date hereof, together with all regulations promulgated thereunder, as the same may be amended, re-enacted, consolidated and/or replaced, from time to time, and any successor statute thereto, unless otherwise expressly provided;
- (d) When calculating the period of time within which or following which any act is to be done or step taken, the date which is the reference day in calculating such period shall be excluded; if the last day of such period is not a Business Day, the period shall end on the next Business Day;
- (e) All dollar amounts are expressed in Canadian dollars;
- (f) Any tender of notices or documents under this Agreement shall be made upon the relevant party at the address set out in Section 13;
- (g) The division of this Agreement into separate sections and subsections, and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement; and
- (h) Except as specifically defined or provided for in this Agreement, words and abbreviations which have well known or trade meanings are used in accordance with their recognized meanings.

2.4 The parties acknowledge that the recitals to this Agreement are true and correct.

3. Term of Agreement and Amendment

3.1 The term of this Agreement shall commence upon the effective date of this agreement and shall remain in effect until five (5) years after that date and for successive periods of five (5) years each thereafter unless terminated earlier in accordance with Section 17 of this Agreement or amended in accordance with Subsection 3.5.

- 3.2 Any changes to the terms of this Agreement shall be by written amendment signed by both parties. No changes shall be effective or shall be carried out in the absence of such an amendment.
- 3.3 The parties agree to conduct a review of the performance and implementation of this Agreement not later than two (2) years following the date of this Agreement first written above and every two (2) years thereafter. As part of such review, each of the parties may suggest any appropriate amendments to the terms of this Agreement.
- 3.4 Notwithstanding Subsection 3.3, the parties agree that Waste Diversion Ontario and Stewardship Ontario shall be able to suggest appropriate amendments to the terms of this Agreement to the Minister at any time.
- 3.5 No material change may be made to the Municipal Hazardous or Special Waste Program Plan or to the terms of this Agreement without the written approval of the Minister as set out in Section 27 of the *Act*. Material changes include but are not limited to the following:
- (i) Definition of Municipal Hazardous or Special Waste wastes in the approved Municipal Hazardous or Special Waste Program Plan
 - (ii) Definition of Stewards - Meaning the persons or classes of persons designated under the Municipal Hazardous or Special Waste Program Plan Rules for Stewards as responsible for paying fees to Stewardship Ontario.
 - (iii) Change in the methodology for calculating fees as outlined in approved Municipal Hazardous or Special Waste Program Plan.

4. Roles of the Parties

- 4.1 Waste Diversion Ontario represents and warrants that it has approved the Municipal Hazardous or Special Waste Program Plan.

Waste Diversion Ontario:

- (a) Will ensure that the terms and conditions of this Agreement are carried out in a responsible, complete and thorough manner, and on a timely basis;
- (b) Will provide estimates to Stewardship Ontario from time to time of the following: (i) the costs incurred or expected to be incurred by Waste Diversion Ontario in respect of developing, implementing and operating the Waste Diversion Program in respect of Municipal Hazardous or Special Waste; (ii) a reasonable share of the other costs incurred or expected to be incurred by Waste Diversion Ontario in carrying out its responsibilities under the *Act*; (iii) and a reasonable share of the costs incurred or expected to be incurred by the Ministry in administering the *Act*, all of which are to be charged to Stewardship Ontario under Section 32 of the *Act*;
- (c) Will invoice Stewardship Ontario for the costs referred to in paragraph 4.1(b) commencing at the end of the first quarter following the date upon which the Municipal Hazardous or Special Waste Program Plan commences following designation of Stewardship Ontario by the regulations made under the *Act* as

the industry funding organization for the Municipal Hazardous or Special Waste Program Plan (such costs to include costs identified in paragraph 4.1(b) incurred prior to the date upon which Stewardship Ontario is so designated);

- (d) Will implement the programs, policies and procedures identified as the responsibility of Waste Diversion Ontario in the Municipal Hazardous or Special Waste Program Plan approved by the Minister; and
- (e) Will implement relevant activities and functions as outlined in the Operating Agreement with the Minister of the Environment.

4.2 Stewardship Ontario:

- (a) Will, following approval by the Minister, implement the Municipal Hazardous or Special Waste Program Plan;
- (b) Will honour invoices from WDO with payment within 30 days; and
- (c) Will comply with all of its obligations under the *Act* including the preparation of an annual report pursuant to Section 33 of the *Act*.

5. Rules

- 5.1 Stewardship Ontario proposes to make the Rules set out in Schedule A pursuant to Section 30 of the *Act* and Waste Diversion Ontario confirms that it agrees to the making of such rules. Any amendments to the rules set out in Schedule A hereto and any new rules shall be subject to the prior written approval of Waste Diversion Ontario.

6. Transparency

- 6.1 Stewardship Ontario will maintain an Internet website accessible by the public and will post every rule made pursuant to the *Act* on its website. Subject to confidential or proprietary considerations, and provided that information is available in electronic format, Stewardship Ontario's website is to include information on, or contain the appropriate electronic links to, the Municipal Hazardous or Special Waste Program Plan and Stewardship Ontario's annual report pursuant to Section 33 of the *Act*. Stewardship Ontario will provide a copy of a rule to every person who requests a copy and may charge the person a reasonable fee for such copy.

7. Information Sharing

- 7.1 Subject to confidential and proprietary considerations, Stewardship Ontario shall provide data and information obtained in the course of developing or implementing the Municipal Hazardous or Special Waste Program Plan to Waste Diversion Ontario upon request. The parties acknowledge and agree that data and information which might be confidential or proprietary in relation to one Steward may cease to be proprietary or confidential if aggregated with data and information relating to more than one Steward, provided that after such aggregation it will not be possible to identify individual Stewards within the aggregated information. Information to be

- shared shall include, without limitation, comments received from Stewards with respect to the Municipal Hazardous or Special Waste Program Plan. The parties agree to negotiate in good faith with a view to agreeing upon an information sharing protocol to implement the provisions of this Section 7.1.
- 7.2 Stewardship Ontario acknowledges that information provided by Waste Diversion Ontario to the Minister is under the control of the Minister within the meaning of FIPPA. Waste Diversion Ontario shall retain full control over all other information obtained, created or maintained by Waste Diversion Ontario.
- 7.3 Any data or materials provided by Stewardship Ontario to Waste Diversion Ontario which are confidential and are to remain confidential shall be clearly marked as confidential. In the event that the Minister receives a request under the FIPPA relating to the disclosure of any such confidential information which has been provided by Waste Diversion Ontario to the Minister and provides notice thereof to Waste Diversion Ontario, Waste Diversion Ontario agrees to provide Stewardship Ontario with notice to that effect. Notwithstanding the foregoing, Stewardship Ontario acknowledges that the Minister is bound by FIPPA and may be required by order of a court or tribunal to disclose confidential information provided by Stewardship Ontario to Waste Diversion Ontario which has in turn been provided by Waste Diversion Ontario to the Minister.
- 7.4 Each of the parties agrees to hold data and information received from the other which are marked confidential in confidence, unless:
- (a) Such party is required to disclose such data or information by applicable law or by the order of any court or tribunal of competent jurisdiction;
 - (b) Such data or information have become generally available to the public without breach of this Agreement;
 - (c) Such data or information were developed independently by the recipient without the use of such confidential data or information or were lawfully received from another source having the right to furnish such data or information; or
 - (d) Such data or information were previously known to the recipient free of any restriction as evidenced by documentation in the recipient's possession.

8. Stakeholder and Public Consultation

- 8.1 Waste Diversion Ontario may require Stewardship Ontario to provide opportunities for consultation with stakeholders, including the public, who may be affected by any proposed material changes to the Municipal Hazardous or Special Waste Program Plan. Such consultation is to be open, accessible and responsive to concerns expressed.

9. Stewardship Ontario Responsibility for Documentation and Audit

- 9.1 Stewardship Ontario shall be responsible for maintaining Documentation in carrying out its responsibilities under this agreement, in a responsible and complete manner.

- Documentation may be maintained in paper or electronic format, as permitted by applicable law.
- 9.2 Without limiting the generality of the foregoing, the Board of Directors of Stewardship Ontario shall maintain the following:
- (a) All Documentation relating to its consultation activities, comments and responses received and a review of whether and how comments and responses were addressed; and
 - (b) All Documentation relating to the Funds.
- 9.3 The receipt and disbursement of the Funds will be reflected in the audited financial statements of Stewardship Ontario. The audited financial statements are to be prepared in accordance with generally accepted accounting principles and accompanied by the auditor's report thereon.
- 9.4 Stewardship Ontario agrees to implement and maintain measures to ensure the security and integrity of the Documentation and to protect the Documentation against loss, alteration and destruction.

10. Complaints and Inquiries Handling

- 10.1 Waste Diversion Ontario shall be responsible for handling all complaints and inquiries it receives in the following manner:
- (a) Waste Diversion Ontario will be responsible for determining if the complaint and/or inquiry is related to:
 - (i) its responsibilities as set out under the *Act* or as set out in this Agreement;
 - (ii) any other action of Waste Diversion Ontario; or
 - (iii) Stewardship Ontario;
 - (b) If the complaint/inquiry is related to Waste Diversion Ontario's responsibilities as set out under the *Act* or as set out in this Agreement, or to any other action of Waste Diversion Ontario, Waste Diversion Ontario will be responsible for addressing the complaint or responding to the inquiry;
 - (c) If the complaint/inquiry is related to Stewardship Ontario, Waste Diversion Ontario shall forward the complaint/inquiry to Stewardship Ontario asking it to address the complaint or respond to the inquiry (in accordance with any applicable dispute resolution mechanism) and report to Waste Diversion Ontario within one calendar month and every calendar month thereafter until the dispute is resolved;
 - (d) In the event that Waste Diversion Ontario receives complaints/inquiries pertaining to enforcement issues, Waste Diversion Ontario will forward such complaints/inquiries to the Ministry; and

- (e) With respect to any other complaint or inquiry, Waste Diversion Ontario will be responsible for forwarding the complaint or inquiry to the appropriate person.

11. Insurance

- 11.1 Stewardship Ontario shall put into effect and maintain throughout the term of this Agreement all the necessary and appropriate insurance for a prudent not-for-profit corporation.
- 11.2 Without limitation to the generality of the foregoing, Stewardship Ontario shall obtain and maintain directors and officers liability insurance in amounts which are customary for a prudent not-for-profit corporation.

12. Assignment

- 12.1 Stewardship Ontario shall not assign any of its rights or obligations under this Agreement or any part thereof without the prior written consent of Waste Diversion Ontario and the Minister.
- 12.2 Stewardship Ontario shall not subcontract any of its rights or obligations under this Agreement or any part thereof without the prior written consent of Waste Diversion Ontario.

13. Notices

- 13.1 All notices to or upon the respective parties hereto shall be in writing and shall be delivered to the party to which such notice is required to be given under this Agreement at the respective address set out below by personal delivery, facsimile with confirmation of transmission, pre-paid registered post or electronically by email. All notices shall be deemed to have been duly given:
 - (a) one (1) Business Day after such notice is received by the other party when delivered by personal delivery, by facsimile or by email; or
 - (b) five (5) Business Days after posting by prepaid registered post. In the event of a postal disruption, notices must be given by personal delivery or by a signed back facsimile and all notices delivered within one (1) week prior to the postal disruption must be confirmed by a signed back facsimile to be effective.

Notices to Waste Diversion Ontario shall be delivered to:

Waste Diversion Ontario
45 Sheppard Avenue East, Suite 920
North York, Ontario M2N 5W9

Attention: Executive Director

Facsimile: 416-226-1368

Notices to Stewardship Ontario shall be delivered to:
Stewardship Ontario
26 Wellington Street East, Suite 601
Toronto, Ontario M5E 1S2
Attention: Chief Executive Officer

Facsimile: 416-594-3463

- 13.2 Either party may, by written notice delivered to the other party, designate a new address or facsimile number for these notices.

14. Waiver

- 14.1 No term, condition or provision hereof shall be or be deemed to have been waived by Waste Diversion Ontario by reason of any act, forbearance, indulgence, omission, or event. Only an express written waiver by Waste Diversion Ontario shall be binding and each such waiver shall be conclusively deemed to be limited to the circumstances, right or remedy therein specified.

15. Severability

- 15.1 In the event that any provision of this Agreement or any part of such provision shall be determined to be invalid, unlawful or unenforceable to any extent, such provision or part thereof shall be severed from the remaining terms and conditions of this Agreement which shall continue to be valid and enforceable to the fullest extent permitted by law.

16. Dispute Resolution

- 16.1 Stewardship Ontario shall include a dispute resolution mechanism in all contracts to which Stewardship Ontario is a party with the exception of contracts for goods and services in the ordinary course of business.
- 16.2 If any dispute arises between Stewardship Ontario and Waste Diversion Ontario as to their respective rights and obligations under this Agreement, the parties shall use the following dispute resolution procedures to resolve such disputes:
- (a) The parties shall attempt to resolve disputes in the spirit of mutual cooperation through discussions and negotiations between the designated representatives of the parties within thirty (30) days of the date upon which written notice of the dispute was first given by one party to the other or as otherwise agreed upon;
 - (b) If the parties are unable to resolve the dispute in the manner aforesaid, either party shall have the right, on notice in writing to the other, to require that such dispute be submitted to the Executive Director of Waste Diversion Ontario and the CEO of Stewardship Ontario for discussion and resolution within thirty (30) days of the date of the notice requiring such dispute to be submitted to them or as otherwise agreed upon;

- (c) In the event that the Executive Director of Waste Diversion Ontario and the CEO of Stewardship Ontario are unable to resolve such dispute, either party shall have the right, on notice in writing to the other, to require that such dispute be submitted to the Chair of the Board of Directors of Waste Diversion Ontario and the Chair of the Board of Directors of Stewardship Ontario for discussion and resolution within thirty (30) days of the date of the notice requiring such dispute to be submitted to them or as otherwise agreed upon;
 - (d) If the Chair of the Board of Directors of Waste Diversion Ontario and the Chair of the Board of Directors of Stewardship Ontario are unable to resolve the dispute, either party shall have the right to refer the matter to binding arbitration in accordance with the provisions of the *Arbitration Act, 1991*, S.O. 1991, c. 17, as amended. Each party shall bear the cost of its own counsel and witnesses but the costs of the arbitration including the fees of the arbitrator(s), the cost of court reporters and transcripts and the cost of the arbitration facility shall be borne equally by the parties. The arbitration shall take place in Toronto, Ontario, Canada, before a single arbitrator to be chosen jointly by the parties. If the parties cannot agree on the choice of an arbitrator within thirty (30) days of the notice requiring such dispute to be submitted to arbitration, then the parties will each select an arbitrator who in turn will select a third arbitrator as soon as reasonably practicable following such thirty (30) day period; and
 - (e) The parties may determine the procedure to be followed by the arbitrator(s) in conducting the proceedings, or may request the arbitrator(s) to do so. The arbitrator(s) shall issue a written award within thirty (30) days of completion of the hearing.
- 16.3 Notwithstanding the provisions of Subsection 16.2, if such dispute relates to the costs recoverable by Waste Diversion Ontario (on its own behalf or on behalf of the Ministry) from Stewardship Ontario, to any invoice issued by Waste Diversion Ontario to Stewardship Ontario in respect of such costs or to any other issue which, in the reasonable opinion of Waste Diversion Ontario, pertains to the calculation of or responsibility for costs in relation to the Municipal Hazardous or Special Waste Program Plan, the following provisions shall apply:
- (a) The parties shall attempt to resolve such dispute in the spirit of mutual co-operation through discussions and negotiations between the designated representatives of the parties within fifteen (15) days of the date upon which written notice of the dispute was first given by one party to the other or as otherwise agreed upon;
 - (b) If the parties are unable to resolve the dispute in the manner aforesaid, either party shall have the right, on notice in writing to the other, to require that such dispute be submitted to the respective auditors of the parties for discussion and resolution within fifteen (15) days of the date of the notice requiring such dispute to be submitted to them or as otherwise agreed upon;
 - (c) In the event that the respective auditors of the parties are unable to resolve such dispute within such further fifteen (15) day period, such auditors shall,

upon the request in writing of either party, select a third independent auditor as soon as possible to act as an arbitrator and to resolve such dispute in accordance with the provisions of the *Arbitration Act*, 1991, S.O. 1991, c. 17, as amended. In the event that the respective auditors of the parties are unable to agree upon the selection of an independent auditor to serve as arbitrator within five (5) days of the date of the written request by either party, Waste Diversion Ontario shall propose three (3) independent auditors to Stewardship Ontario and Stewardship Ontario shall, within two (2) days of receipt of such list, select one of such auditors to serve as the arbitrator;

- (d) The auditor chosen as arbitrator shall make a final decision within fifteen (15) days of its appointment or such longer period as the parties may agree upon; and
 - (e) If any such dispute with respect to an invoice has not been finally resolved prior to the due date of such invoice, Stewardship Ontario shall pay the undisputed amount immediately to WDO and shall pay the disputed amount into a solicitor's trust account to be held pending the conclusion of the dispute resolution procedure. The disputed amount shall be disbursed by the solicitor in accordance with the results of the dispute resolution procedure. Each party agrees to continue performing its obligations under the Agreement pending the resolution of any dispute with respect to an invoice.
- 16.4 Stewardship Ontario will develop a dispute resolution procedure providing for the resolution of any dispute between Stewardship Ontario and a person with respect to the person's obligations under Section 31 of the Act or the person's obligations under the rules made by Stewardship Ontario under Section 30 of the Act, such dispute resolution procedure to be satisfactory in all respects to Waste Diversion Ontario.
- 16.5 Stewardship Ontario agrees to submit any dispute with respect to payments or in-kind contributions to be made to the municipalities under the Municipal Hazardous or Special Waste Program Plan for resolution in accordance with the dispute resolution procedure adopted by Waste Diversion Ontario for this purpose, as amended from time to time. Waste Diversion Ontario Agrees to consult with Stewardship Ontario upon request, but without obligation, with respect to the terms of such dispute resolution procedure.

17. Termination

- 17.1 If, in the reasonable opinion of Waste Diversion Ontario, there has been a breach of this Agreement by Stewardship Ontario, Waste Diversion Ontario may terminate this Agreement after giving Stewardship Ontario ninety (90) Business Days prior written notice of the breach or default if Stewardship Ontario fails to remedy such breach by the expiry of the ninety (90) day notice period. In the event that the remedy of such breach by Stewardship Ontario reasonably requires more than ninety (90) days, Stewardship Ontario shall so advise Waste Diversion Ontario without delay and provide a revised time line. Waste Diversion Ontario shall notify Stewardship Ontario in writing as to whether the revised time line is acceptable and, if it is, the revised time line to remedy such breach will apply.
- 17.2 Notwithstanding subsection 17.1, Waste Diversion Ontario may terminate this Agreement immediately upon written notice to Stewardship Ontario if:

- (a) Stewardship Ontario assigns or subcontracts any of its rights or obligations under this Agreement or any part thereof except as expressly provided for herein;
- (b) Stewardship Ontario makes a voluntary assignment or a proposal under the *Bankruptcy and Insolvency Act* or a petition or any other proceeding shall be filed, instituted or commenced with respect to Stewardship Ontario under any bankruptcy, insolvency, debt restructuring, reorganization, liquidation, winding-up or similar law now or hereafter in effect, unless such proceedings are commenced by a party other than Stewardship Ontario and are being diligently contested by Stewardship Ontario and are stayed within 30 days from the date of notice of such proceedings being received by Stewardship Ontario; or
- (c) A receiver or trustee is appointed for any part of the assets of Stewardship Ontario.

18. Agreement Binding

- 18.1 This Agreement shall enure to the benefit of and be binding upon the parties hereto and their respective permitted successors and assigns.

19. Entire Agreement

- 19.1 This Agreement embodies the entire Agreement between the parties with regard to the implementation of the Municipal Hazardous or Special Waste Program Plan and supersedes any prior understanding or agreement, collateral, oral or otherwise, existing between the parties at the date of execution of this Agreement.

20. Public Announcements

- 20.1 Neither Waste Diversion Ontario nor Stewardship Ontario shall make any press release or other formal public announcement which refers to the role of the other in the development and implementation of the Municipal Hazardous or Special Waste Program Plan without first consulting the other concerning the contents of such proposed press release or public announcement. The parties agree that prior consultation shall not be required in respect of routine communications or other general information provided by either of the parties to the public with respect to the implementation of the Municipal Hazardous or Special Waste Program Plan.

21. Governing Law

- 21.1 This Agreement shall be construed and interpreted in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein and the parties hereby agree that any dispute arising out of or in relation to this Agreement shall be determined in Ontario.
- 21.2 Stewardship Ontario agrees that it shall, and shall require its officers, directors and staff to, comply with all laws, ordinances, rules and regulations which apply to the

operation of Stewardship Ontario, any activities of Stewardship Ontario and the responsibilities of Stewardship Ontario under the *Act*.

22. Signatures

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the date stated in the Preamble to this Agreement.

WASTE DIVERSION ONTARIO

Per: _____
Gemma Zecchini
Chair

I/We have authority to bind
Waste Diversion Ontario

STEWARDSHIP ONTARIO

Per: _____
Dennis Darby
Chair

I/We have authority to bind
Stewardship Ontario

SCHEDULE A
RULES FOR STEWARDS WITH RESPECT TO PAYMENT OF FEES RESPECTING
MHSW (2008/2009)

1. Interpretation in these Rules:

Affiliates, means a steward is affiliated with another entity if it controls or is controlled by the other entity or if both entities are controlled by a common entity, where "control" in the case of a corporation has the meaning ascribed thereto by subsection 1(5) of the Business Corporations Act (Ontario) as amended from time to time;

Base Interest Rate means the prejudgment interest rate established from time to time under the Rules of Civil Procedure of the Courts of Justice Act, as amended from time to time, for prejudgment interest;

Brand Owner, with respect to a specific product or good, that is MHSM, where such product/good, or its packaging bears a trademark means during any time in the Data Period;

- (a) a person Resident in Ontario who is the registered holder of the trademark, or
- (b) a person Resident in Ontario who is the licensee, in respect of the trademark, or
- (c) a person Resident in Ontario, who owns the intellectual property rights to the brand of the product or good, or
- (d) a person Resident in Ontario, who is the licensee, in respect of the intellectual property rights or the trademark;

Where "licensee" includes a person who packages goods, the products/goods are MHSM and bears a trademark, other than a packer, producer or filler of Private Label Goods, and includes any person whose corporate name or business name registration contains the trademark;

Commencement Date means July 1, 2008;

Data Period means the 3 month periods ending September 30, 2008; December 31, 2008, March 31, 2009, June 30, 2009, September 30, 2009 and December 31, 2009;

Designated IC&I business means a business that is not required to submit a Generator Registration Report with respect to municipal hazardous or special waste under subsection 18 (1) of Regulation 347, made under the Environmental Protection Act, as amended from time to time, and generates municipal hazardous or special waste and that does not generate more than 100 kilograms per month of municipal hazardous or special waste;

Filed means electronically submitted or mailed to Stewardship Ontario or such other address as identified to the stewards by mail or electronically;

First Importer means a person Resident in Ontario, who imports into Ontario, a specific product or good that is MSHM, for which a Brand Owner does not exist in Ontario and includes a person Resident in Ontario who is the first to take title to such product or good, upon or after arrival in Ontario from elsewhere during the Data Period;

Franchisor, Franchisee and Franchise System have the meaning ascribed thereto under the Arthur Wishart Act (Franchise Disclosure), 2000, as amended from time to time;

Municipal Hazardous or Special Materials (MHSM) means those goods and products set out in Appendix A which are sold or delivered in Ontario to consumers, or consumed / used by Designated IC&I businesses, that result in the generation of municipal hazardous or special waste;

MHSM Steward's Report means a report prepared by a steward describing the aggregate amount of MHSM, that was sold or delivered in Ontario in the Data Period by the steward or his Franchisees and / or his Affiliates containing the information in accordance with Appendix B;

MHSM Packaging means materials that are used for the containment, protection, handling, delivery and presentation of MHSM products/ goods sold or delivered to consumers in Ontario;

Private Label Goods means goods that carry the brand or trademark of a Brand Owner and sold or delivered to consumers by such Brand Owner that is a retail outlet in Ontario;

Published Address means an address in Ontario appearing in a current telephone directory or a recognized current published business directory;

Remitter means a company that has executed a Remitter's Agreement;

Remitter's Agreement means an agreement among Stewardship Ontario, a Remitter and a person designated under these Rules as a MHSM steward which provides that the Remitter will file a Remitter's Report and pay fees to Stewardship Ontario on behalf of a steward for such MHSM that was sold or delivered by the Remitter in Ontario and will inform such steward of the amount of fees paid to Stewardship Ontario. Stewardship Ontario shall not be required to execute a Remitter's Agreement with any party;

Remitter's Report means a report prepared by a Remitter and filed with Stewardship Ontario on behalf of a steward, pursuant to a Remitter's Agreement, describing the aggregate amount of MHSM that was sold or delivered by the Remitter in Ontario in the Data Period on behalf of the steward and containing the information in accordance with Appendix C;

Resident in Ontario, with respect to a corporation, means a corporation that has a permanent establishment in Ontario, in accordance with the provisions of Appendix D, during any time in the Data Period;

Rules means these rules;

2) Designation of Stewards

- (1) A Brand Owner is designated as a steward with respect to all MHSM, for which it is Brand Owner in the Data Period.
- (2) A First Importer is designated as a steward with respect to all MHSM, for which it is First Importer in the Data Period.
- (3) A Franchisor is designated as a steward with respect to all MHSM, which are within the relevant Franchise System in the Data Period.
- (4) In the event there are two Brand Owners or a Brand Owner and a First Importer for the same MHSM, the Brand Owner or First Importer more directly connected to the production of the MHSM shall be designated as the steward, but where the Brand Owner is a Franchisor who is Resident in Ontario, the Franchisor shall be designated as the steward.
- (5) In the event there is not a brand for a particular MHSM product/good and if the manufacturer is resident in Ontario, the manufacturer of said product / good shall be designated as the steward for such product, otherwise the First Importer shall be designated as the steward for such MHSM product/good.

3) Steward's Report

- (1) Every steward shall file its first MHSM Steward's Report with Stewardship Ontario not later than 90 days after Commencement Date, or 90 days after such steward is notified, whichever is later. A steward is notified:
 - (a) on the day the steward receives personal service via email, or
 - (b) three days following the sending by prepaid first class postage to the steward at its Published Address in Ontario, of a copy of these Rules or a written notice of how to obtain a copy of these Rules,
- (2) Stewards may amend a MHSM Steward's Report with the consent of Stewardship Ontario to correct information in the Steward's Report that is in error or to replace data previously reported.
- (3) Thereafter, a MHSM Steward shall file a MHSM Steward's Report in accordance with the schedule as set out in Appendix E.
- (4) Notwithstanding the above Stewardship Ontario may, acting reasonably require a steward to file a MHSM Steward's Report by sending a written request to the steward.

4) Fees Payable

Stewards shall pay fees to Stewardship Ontario in accordance with Appendix E of these Rules. The amount of fees payable shall be the sum for categories set out in the MHSM Steward's Report of the product of the amount of each such MHSM set out in a MHSM

Steward's Report multiplied by the rates set out in the table of fees attached as Appendix F of these Rules.

5) Relief from Requirements to Report and Pay Fees

To the extent that a Remitter reports and pays fees on MHSM of a Steward in accordance with a Remitter's Agreement, such steward shall be relieved of reporting such MHSM under subsection 3 (1) and 3 (3), and paying fees on such MHSM under section 4.

6) Penalties, Interest and Back Fees

- (1) Stewards who fail to pay fees by the dates specified in Appendix E, will be subject to a penalty calculated at 10% of fees due and payable.
- (2) Interest on unpaid fees shall accrue from such date at the Base Interest Rate plus 3%.
- (3) Stewardship Ontario may waive all or part of any penalty or interest charges otherwise payable under these Rules.
- (4) In the event that the amounts reported in a MHSM Steward's Report are inaccurate, any deficiency in fees paid resulting from such inaccuracies shall be immediately due and payable from the date of the filing of the correcting MHSM Steward's Report, and, if not paid within 30 days, will be subject to a penalty equal to 10% of such fee deficiency.

7) Record Provision and Retention

- (1) Stewards shall promptly provide data including calculation methodology, product and packaging data, audit reports, list of brands reported and list of brands excluded from report, and allocation percentages, used by stewards in the preparation of the MHSM Steward's Report upon request from Stewardship Ontario.
- (2) Stewards shall retain records to substantiate and verify the amount set out in their MHSM Steward's Report for a period of not less than five years from the date of the MHSM Steward's Report to which they relate. A steward shall grant access to Stewardship Ontario upon its request to examine its books and records to enable Stewardship Ontario to audit and inspect such records respecting a MHSM Steward's Report up to five years after the date of receipt of such MHSM Steward's Report by Stewardship Ontario.

8) Dispute Resolution

If any dispute arises between a steward and Stewardship Ontario as to the amount of MHSM that is required to be included in a MHSM Steward's Report:

- (1) The parties shall attempt to resolve the dispute through designated representatives from each of Stewardship Ontario and the steward within thirty (30) days upon which written notice of the dispute was first given, or as otherwise agreed upon.

- (2) If the parties are unable to resolve the dispute within the above period, the steward and Stewardship Ontario shall, within thirty (30) days thereafter, jointly select an arbitrator to arbitrate the dispute.
- (3) The arbitrator shall render a decision on the dispute and the award arising there from, in accordance to the Arbitration Act, 1991, as amended from time to time.
- (4) Non-payment or failing to file a MHSM Steward's Report by a steward shall not be items subject to arbitration.

9) Interpretive Memoranda

Stewardship Ontario may publish on its website interpretive memoranda describing its interpretations of these Rules and how it proposes to administer them.

10) Publishing of Company Names

- (1) The names of stewards filing MHSM Steward's Reports with Stewardship Ontario will be posted on the Stewardship Ontario website.
- (2) The names of companies who have executed a Remitters Agreement will be posted on the Stewardship Ontario website.
- (3) Stewardship Ontario may post the registry of all brands reported in MHSM Steward's Reports from time to time.
- (4) Stewardship Ontario may publish on its website the names of any person that may appear to be a steward Resident in Ontario, but which it has determined upon investigation not to be Resident in Ontario.

Appendix A
Municipal Hazardous or Special Materials Definitions

MHSM Definitions	Inclusions	Exclusions
<p>Paints and Coatings – Means latex, oil and solvent-based architectural coatings, including paints and stains, whether tinted or untinted.</p>	<p>All architectural paints and coatings for household and industrial use</p>	<ul style="list-style-type: none"> • Paints containing pesticides that would be included in the pesticide category • Products sold in containers with a volume greater than 30 litres • Bitumen based driveway and roof coatings and sealers
<p>Solvents – Means liquid products that are intended to be used to dissolve or thin a compatible substance and,</p> <ol style="list-style-type: none"> 1. are comprised of 10% or more of water-immiscible liquid hydrocarbons, including halogen-substituted liquid hydrocarbons; or, 2. are flammable as described in part (c) of “municipal hazardous waste” in Ontario Reg. 542. <p>Water-miscibility – Means the ability of a material (or mixture) to mix uniformly with water, without separating. A 1:5 ratio of material to water, at 20°C does not display visible separation in less than 1 hour. This includes mixing by dissolving, reacting, suspending, or dispersing. [ref. CSA Z752]</p>	<p>Based on this definition, products sold as solvents contain (but not limited to) materials as turpentine, alcohols (methanol, isopropanol, ethanol), ketones (acetone, methyl ethyl ketone), xylene, toluene, mineral spirits, linseed oil, naphtha and methylene chloride. Such products are marketed as paint thinners, lacquer thinners, automotive body resin solvents, contact cement thinners, paint strippers and degreasers sold into the retail market</p>	<ul style="list-style-type: none"> • Products sold as fuels • Products sold in containers with a volume greater than 30 litres • Cleaning products that are not sold as solvents
<p>Oil Filters – Means filters produced and/or arriving into the province, and which are for sale, directly or as part of a product, in Ontario.</p>	<p>Applicable Filter List</p> <ul style="list-style-type: none"> • Spin-on or element style filter that is used in hydraulic, transmission or internal combustion engine applications including diesel fuel filters • Household furnace fuel filter • Coolant filter • Storage tank diesel fuel filter • Sump type automatic transmission filter • Plastic/paper element style filter <p>Diesel fuel filter used at retail & commercial pump islands</p>	<ul style="list-style-type: none"> • Gasoline fuel filter • Air filter • Household furnace air filter • Sock-type filter
<p>Oil Containers – Means, oil containers with a volume of 30 litres or less, which are used for the containment of lubricating oil products including:</p> <ul style="list-style-type: none"> o Petroleum-derived or synthetic o Crankcase, engine and gear oils, and hydraulic, transmission and heat transfer fluids, and o Fluids used for lubricating purposes in machinery or equipment. 	<p>Applicable Oil Container List</p> <ul style="list-style-type: none"> • Synthetic crankcase or engine oil • Hydraulic fluid • Polyolester fluids • Circulating oil or turbine oil • Paper machine oil • Transmission fluid • Power steering fluid • Gear oil • Vegetable oil for lubrication • Re-refined oil 	<p>Excluded Oil Container List</p> <ul style="list-style-type: none"> • Ethylene glycol heat transfer fluid • Propylene glycol heat transfer fluid • Silicone heat transfer fluid • Synthetic aromatic hydrocarbon heat transfer fluid • Glycol-based heat transfer fluid • Water glycol hydraulic fluid • Phosphate ester hydraulic fluid • Hydraulic oil dye

MHSM Definitions	Inclusions	Exclusions
	<ul style="list-style-type: none"> • Electrical insulating oil • Refrigeration system oil • Compressor oil • Mineral heat transfer fluid • Marine engine oil for vessels operating domestically • Metal working oil • Form release oil • Textile oil • Chain oil • Rock drill oil • 2-cycle engine oil • Gasoline / 2-cycle engine oil mixes • Saw guide oil • Drawing, stamping and shaping oil • Process oil • Dedusting oil • Marine cylinder oil • Machine tool and slideway lubricant • Natural gas compressor oil • Conveyor lube • Dripless lube • Quenching oil • Pneumatic system oil • Rustproof oil • Food grade white mineral oil 	<ul style="list-style-type: none"> • Polyglycol synthetic compressor oil • Base oil, including re-refined base oil • Grease • Oil additive • Oil treatment • Diesel fuel treatment • Cleaning/flushing fluids for motors/equipment • Winter start fluid • Brake fluid • Undercoating • Penetrating oil • Hydraulic jack oil • 3-in-1 household oil • Aerosol propelled lubricant • Gun oil • Kerosene • Urethane coating • Sewing machine oil • Export oil sales • Cooking oil • Windshield washer fluid • Emulsified oil
<p>Single Use Dry Cell Batteries – Means batteries that are one or more cells, including case, terminals and markings. The source of electrical energy is obtained by the direct conversion of chemical energy that is not designed to be charged by any other electrical source.</p>	<p>Easily removable batteries according to the following chemistry:</p> <ul style="list-style-type: none"> • Alkaline-Manganese • Zinc-Carbon • Lithium batteries • Button Cells (a variety of chemistries such as those used in hearing aids, watches) <p>Includes batteries provided within other products such as toys, electronics.</p>	<ul style="list-style-type: none"> • Secondary batteries that are designed to be recharged
<p>Antifreeze – Means ethylene or propylene glycol used or intended for use as a vehicle engine coolant.</p>	<p>Includes premixed (water diluted) and concentrated product</p>	<ul style="list-style-type: none"> • Factory Fill initial charge of vehicle antifreeze • Plumbing antifreeze • Vehicle windshield antifreeze • Product marketed as industrial heat transfer fluid • Fuel (gasoline & diesel) antifreeze • Lock De-Icer & Antifreeze • Air Brake antifreeze • Antifreeze which does not contain ethylene or propylene glycol • products sold in containers with a volume greater than 30 litres

MHSM Definitions	Inclusions	Exclusions
<p>Pressurized containers – Means:</p> <ul style="list-style-type: none"> - Seamless Cylinders and Tubes: TC-3AAM, TC-3AAXM, TC-3ALM, TC-3AM, TC-3ANM, TC-3ASM, TC-3AXM, TC-3EM, and TC-3HTM. - Welded Cylinders and Spheres: TC-4AAM-33, TC-4BM, TC-4BM17ET, TC-4BAM, TC-4BWM, TC-4DM, TC-4DAM, TC-4DSM and TC-4EM - Non-refillable Containers: TC-39M - Composite Cylinders: TC-3FCM and TC-3HWM. - Insulated Cylinders: TC-4LM - Cylinders for Acetylene Service: TC-8WM and TC-8WAM 	<p>This includes:</p> <ul style="list-style-type: none"> • All industrial gas cylinders • All medical gas cylinders • All laboratory gas cylinders • All Beverage gas cylinders • All Specialty gas cylinders • All Breathing air supply cylinders • All Single use non-refillable cylinders • All Portable refillable propane cylinders 	<ul style="list-style-type: none"> • Aerosols • Butane Lighters • Reservoir tanks intended for use with an air compressor • Cylinders that must be punctured for use (e.g. small CO₂) • Cylinders over 100 kilogram
<p>Fertilizers - Means packaged products regulated under the Fertilizers Act (Canada)</p>	<p>All N-P-K fertilizers, micronutrients, supplements that are registered under the Fertilizers Act (Canada), and therefore would bear a Fertilizers Act Registration Number and are packaged in 30 kilogram quantities or less.</p>	<ul style="list-style-type: none"> • Compost (that do not make N-P-K claim) • Fertilizers and supplements exempted from registration including: <ul style="list-style-type: none"> a) fertilizers and supplements set out in Schedule II (Fertilizer Regulations) b) farm fertilizers that do not contain pesticides and that satisfy section 10 of the Fertilizer Regulations; c) supplements sold only for correction of soil acidity or alkalinity; d) supplements referred to in subsections 10.2(3) and (5) (Fertilizer Regulations) – (i.e., seeds coated with inoculant); e) peat, peat moss, sphagnum moss, tree bark and other fibrous organic matter that is represented for use only in improving the physical conditions of the soil; f) customer-formula fertilizers; g) specialty fertilizers, other than those referred to in paragraph (b) of the definition "specialty fertilizers", that do not contain pesticides; and h) potting soils that contain supplements, if those supplements are registered under the Act.

MHSM Definitions	Inclusions	Exclusions
<p>Pesticides – Means pesticides including fungicides, herbicides and insecticides registered under the Pest Control Products Act (Canada) that are required to display on the label the symbol shown in Schedule III of the Pest Control Products Regulation (Canada) the signal words “danger” or “warning”, and “poison” and represented by the skull & crossbones inside the precautionary symbols diamond or octagon.</p>	<p>Pesticides meeting the definition include all Federal Classifications, i.e., Domestic, Commercial, Agricultural and Restricted pesticides. The definition ensures that pesticides that contain at least 10% petroleum distillates (and therefore pose an aspiration hazard) are included.</p>	<ul style="list-style-type: none"> • Insect repellents for personal use • Sanitizers and disinfectants • Pet products • Products regulated under the Food and Drugs Act (Canada) • Pool chemicals • Insecticidal soaps • Diatomaceous earth • Ant traps

Appendix B
Form of MHSM Steward's Report

Name of Steward

Mailing address

Billing address

Primary Contact Person for MHSM Steward's Report

Email address

Units, Kilograms or Volume of Municipal Hazardous or Special Materials sold or delivered in Ontario for the brands owned, or first imported into Ontario in the data period.

MHSM	MHSM Sub-Category	Units	Volume	Kilograms
Paint & Coatings	< = 250 mL >250 ml – 1 L <1 – 5 L >5 L Aerosols			NA
Solvents				NA
Used Oil Filters	<8 inches > 8 inches		NA	
Oil Containers				NA
Single Use Batteries			NA	
Pressurized cylinders	Non-refillable Refillable		NA	
Antifreeze				NA
Pesticides				
Fertilizer				

NA – not applicable

Required information to be included in the MHSM Steward's Report:

1. Description of methodology and data used to prepare this MHSM Steward's Report;
2. Description of Excluded Waste deductions from MHSM Steward's Report,
3. List of brands or trade marks covered in this MHSM Steward's Report;
4. List of affiliates and /or franchisees included in this MHSM Steward's Report; and
5. Declaration of accuracy of contents of this MHSM Steward's Report.

Appendix C
Form of MHSM Remitter's Report

Name of Remitter

Mailing address

Billing address

Primary Contact Person for MHSM Remitter's Report

Email address

Units, Kilograms or Volume of Municipal Hazardous or Special Materials sold or delivered in Ontario for the products covered in the Remitter's Agreement in the data period.

MHSM	MHSM Sub-Category	Steward Name	Units	Volume	Kilograms
Paint & Coatings	< = 250 mL >250 ml – 1 L <1 – 5 L >5 L Aerosols				NA
Solvents					NA
Used Oil Filters	<8 inches > 8 inches			NA	
Oil Containers					NA
Single Use Batteries				NA	
Pressurized cylinders	Non-refillable Refillable			NA	
Antifreeze					NA
Pesticides					
Fertilizer					

NA – not applicable

Required information to be included in the MHSM Remitter's Report:

1. Description of methodology and data used to prepare this MHSM Remitter's Report;
2. Description of Excluded Waste deductions from MHSM Remitter's Report,
3. List of brands or trade marks covered in this MHSM Remitter's Report;
4. List of all stewards that this Remitter's agreement includes and associated fees by steward; and
5. Declaration of accuracy of contents of this MHSM Remitter's Report.

Appendix D

Resident in Ontario (Corporation)

Resident in Ontario, with respect to a corporation, means a corporation that has a permanent establishment in Ontario, where:

- (a) “**permanent establishment**” includes branches, mines, oil wells, farms, timberlands, factories, workshops, warehouses, offices, agencies and other fixed places of business and
- (b) the following rules apply,

Contracting Employees or Inventory Sufficient

Where a corporation carries on business through an employee or agent who has general authority to contract for the corporation or who has a stock of merchandise owned by the corporation from which the employee or agent regularly fills orders which the employee or agent receives, such employee or agent shall be deemed to operate a permanent establishment of the corporation.

Commission Agent not Sufficient

The fact that a corporation has business dealings through a commission agent, broker or other independent agent shall not of itself be deemed to mean that the corporation has a permanent establishment.

Parent of Subsidiary not Sufficient

The fact that a corporation has a subsidiary controlled corporation in a place or a subsidiary controlled corporation engaged in a trade or business in a place shall not of itself be deemed to mean that the first-mentioned corporation is operating a permanent establishment in that place.

Licensed Insurance Company Sufficient

An insurance corporation is deemed to have a permanent establishment in each jurisdiction in which the corporation is registered or licensed to do business.

Purchasing Office not Sufficient

The fact that a corporation maintains an office solely for the purchase of merchandise shall not of itself be deemed to mean that the corporation has a permanent establishment in that office.

Ownership of Land Sufficient

Where a corporation, otherwise having a permanent establishment in Canada, owns land in a province or territory of Canada, such land is a permanent establishment.

Production Packing and other Activities Sufficient

The fact that a non-resident corporation in a year produced, grew, mined, created, manufactured, fabricated, improved, packed, preserved or constructed in whole or in part anything in Canada, whether or not the corporation exported that thing without selling it prior to exportation, shall of itself, be deemed to mean that the corporation maintained a permanent establishment at any place where the corporation did any of those things in the taxation year.

Machinery or Equipment Sufficient

The use of substantial machinery or equipment in a particular place at any time in a year of a corporation constitutes a permanent establishment of such corporation in that place for such a year.

Principal Place of Business Sufficient

Where a corporation has no fixed place of business, it has a permanent establishment in the principal place in which the corporation's business is conducted.

Charter or By Laws designating Head or Registered Office Sufficient

Where a corporation does not otherwise have a permanent establishment in Canada, it has a permanent establishment in the place designated in its charter or by-laws as being its head office or registered office.

Appendix E

Payment and Reporting Schedule

Payment and reporting schedule will be quarterly. The reporting schedule will depend on when a steward is notified, outlined below.

Description of Steward Responsibility	2008/2009 Period End Date	2008/2009 Payment and Filing Due Date
2008 Q3 Obligation	September 30, 2008	October 31, 2008
2008 Q4 Obligation	December 31, 2008	January 31, 2009
2009 Q1 Obligation	March 31, 2009	April 30, 2009
2009 Q2 Obligation	June 30, 2009	July 31, 2009
2009 Q3 Obligation	September 30, 2009	October 31, 2009
2009 Q4 Obligation	December 31, 2009	January 31, 2010

Stewards who fail to pay fees as set out in the instalment schedule above shall pay in addition:

- A penalty of 10% of the fees due and payable.
- Interest at the posted prime interest rate plus 3% on any outstanding balance due

If a steward is notified within the meaning of 3 (1) later than June 29, 2008, then the filing deadlines shall be as follows:

Notification date is on or after	Filing schedule	Obligation	2008/2009 Filing and Payment Due Date
June 29, 2008 and before October 30, 2008	First	Q3 - 2008	Notification date plus 93 days
	Second	Q4 - 2008	January 31, 2009
	Third	Q1 - 2009	April 30, 2009
	Fourth	Q2 - 2009	July 31, 2009
	Fifth	Q3 - 2009	October 31, 2009
	Sixth	Q4 - 2009	January 31, 2010
October 30, 2008 and before January 27, 2009	First	Q3 - 2008 & Q4 - 2008	Notification date plus 93 days
	Second	Q1 - 2009	April 30, 2009
	Third	Q2 - 2009	July 31, 2009
	Fourth	Q3 - 2009	October 31, 2009
	Fifth	Q4 - 2009	January 31, 2010
January 27, 2009 and before April 29, 2009	First	Q3 - 2008 Q4 - 2008 & Q1 - 2009	Notification date plus 93 days
	Second	Q2 - 2009	July 31, 2009
	Third	Q3 - 2009	October 31, 2009
	Fourth	Q4 - 2009	January 31, 2010

April 29, 2009	and before	July 30, 2009	First	Q3 - 2008 Q4 - 2008 Q1 - 2009 & Q2 - 2009	Notification date plus 93 days
			Second	Q3 - 2009	October 31, 2009
			Third	Q4 - 2009	January 31, 2010
July 30, 2009	and before	October 30, 2009	First	Q3 - 2008 Q4 - 2008 Q1 - 2009 Q2 - 2009 & Q3 - 2009	Notification date plus 93 days
			Second	Q4 - 2009	January 31, 2010
October 30, 2009			First	Q3 - 2008 Q4 - 2008 Q1 - 2009 Q2 - 2009 Q3 - 2009 & Q4 - 2009	Notification date plus 93 days

Description of Steward Responsibility	2008/2009 Period End Date	2008/2009 Payment and Filing Due Date
2008 Q3 Obligation	September 30, 2008	October 31, 2008
2008 Q4 Obligation	December 31, 2008	January 31, 2009
2009 Q1 Obligation	March 31, 2009	April 30, 2009
2009 Q2 Obligation	June 30, 2009	July 31, 2009
2009 Q3 Obligation	September 30, 2009	October 31, 2009
2009 Q4 Obligation	December 31, 2009	January 31, 2010

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June 29, 2008 and before October 30, 2008	First	Q3 - 2008	Notification date plus 93 days
	Second	Q4 - 2008	January 31, 2009
	Third	Q1 - 2009	April 30, 2009
	Fourth	Q2 - 2009	July 31, 2009
	Fifth	Q3 - 2009	October 31, 2009
	Sixth	Q4 - 2009	January 31, 2010
October 30, 2008 and before January 27, 2009	First	Q3 - 2008 &	

Notification date plus 93

				Q4 - 2008	days
			Second	Q1 - 2009	April 30, 2009
			Third	Q2 - 2009	July 31, 2009
			Forth	Q3 - 2009	October 31, 2009
			Fifth	Q4 - 2009	January 31, 2010
January 27, 2009 and before April 29, 2009			First	Q3 - 2008 Q4 - 2008 & Q1 - 2009	Notification date plus 93 days
			Second	Q2 -2009	July 31, 2009
			Third	Q3 -2009	October 31, 2009
			Fourth	Q4 -2009	January 31, 2010
April 29, 2009	and before	July 30, 2009	First	Q3 - 2008 Q4 - 2008 Q1 - 2009 & Q2 - 2009	Notification date plus 93 days
			Second	Q3 - 2009	October 31, 2009
			Third	Q4 - 2009	January 31, 2010
July 30, 2009	and before	October 30, 2009	First	Q3 - 2008 Q4 - 2008 Q1 - 2009 Q2 - 2009 & Q3 - 2009	Notification date plus 93 days
			Second	Q4 - 2009	January 31, 2010
October 30, 2009			First	Q3 - 2008 Q4 - 2008 Q1 - 2009 Q2 - 2009 Q3 - 2009 & Q4 - 2009	Notification date plus 93 days

Appendix F

Table of Fees: July 1, 2008 to December 31, 2009

Material	Units for Fee Rate	Standard Sizes	Fee Rate
Paints and coatings			
< = 250 mL	\$/unit	0.250L	\$0.024
> 250 mL – 1 L	\$/unit	0.945L	\$0.089
> 1 – 5 L	\$/unit	3.78L	\$0.358
> 5 L	\$/unit	18.90L	\$1.789
aerosols	\$/unit	0.300L	\$0.028
Solvents	\$/litre		\$0.196
Antifreeze	\$/litre		\$0.073
Oil filters	\$/unit	8 inches or less	\$0.499
	\$/unit	Greater than 8 inches	\$0.998
Oil containers	\$/litre		\$0.045
Pressurized containers			
Non-refillable	\$/unit		\$0.334
Refillable	\$/unit		\$0.366
Single use dry cell batteries	\$/kg		\$0.125
Pesticides	\$/litre or \$/kg		\$0.492
Fertilizers	\$/litre or \$/kg		\$0.023

MHSW Program Plan Appendices:

Appendix 1: MHSW Stewards Program Committee Members

Appendix 2: Stewardship Ontario Governance Restructuring Committee Members

Appendix 3: 2005 MHSW Depots and Events by Program

Appendix 4: Maps Showing Depot and Event Day Locations

Appendix 5: A, B, and C: Detailed Cost Calculations

Appendix 6: Glossary of Terms

Appendix 7: List of Acronyms

Appendix 1: MHSW Stewards Program Committee Members

Chair

Jim Quick, Canadian Paint and Coatings Association (CPCA)

Members

Grant Caven, Canadian Tire

Vaughn Crofford, Canadian Hardware and Housewares Manufacturing Association (CHHMA)

Brian Prendergast, Recochem

Doug Thiemann, Home Hardware

Megan Currie, Honeywell ASCa Inc.

Jerry Monteiro, PPG

Chris McCurdy, S.C. Johnson

Andrew Horsman, Wal-mart

Rachel Kagan, Retail Council of Canada

Susan Antler, Canadian Household Battery Association (CHBA)

Mark Reed, Pennzoil Quaker State

Lyle Clarke, LCBO

Dennis Darby, Procter & Gamble

Alternate: Anne McConnell, Procter & Gamble

John Bailie, ElectroFed

Alternate: Wayne Edwards, ElectroFed

Kim McKinnon, Canadian Council of Grocery Distributors (CCGD)

Alternate: Dave Wilkes, CCGD

Clyde Graham, Canadian Fertilizers Institute (CFI)

Susan Peterson, ICI Paints

Dave Watson, Ontario Agro Business

NOTE: Program Committee members may designate an alternate (either named or unnamed) to attend meetings on his or her behalf.

**Appendix 2: Stewardship Ontario Governance Restructuring Committee
Members**

Chair

Vaughn Crofford, CHHMA

Members

Susan Antler, CHBA

Sandra Banks, Coca Cola Bottling

Shannon Coombs, Canadian Consumer Specialty Products Association

Diane Brisebois, Retail Council of Canada

Grant Caven, Canadian Tire

John Coyne, Unilever Canada

Marina Kovrig, Recochem

Sarah Webb, Canadian Tire

Jim Quick, CPCA

Appendix 3: 2005 MHSW Depots and Events by Program

Please note that the information presented here was compiled from the 2005 WDO datacall. The information will be verified during the MHSW program start up phase.

Municipality	Depot	Event
Totals >	98	270
Addington Highlands, Township Of	0	0
Admaston/Bromley, Township Of	0	0
Alfred And Plantagenet, Township Of	0	0
Algonquin Highlands, Township Of	0	1
Almaguin Recycling Initiative	2	4
Amaranth, Township Of	0	6
Armour, Township Of	0	0
Arnprior, Town Of	0	0
Ashfield-Colborne-Wawanosh, Township Of	0	0
Athens, Township Of	0	0
Atikokan, Township Of	0	0
Augusta, Township Of	0	0
Aylmer, Town Of	0	1
Baldwin, Township Of	0	0
Barrie, City Of	1	0
Bayham, Municipality Of	0	0
Beckwith, Township Of	1	0
Blind River, Town Of	0	1
Bluewater Recycling Association	0	0
Bonfield, Township Of	0	0
Bonnechere Valley, Township Of	0	0
Brant, County Of	0	1
Brantford, City Of	7	0
Brockville, City Of	0	1
Bruce Area Solid Waste Recycling	0	0
Brudenell, Lyndoch And Raglan, Township Of	0	0
Callander, Municipality Of	0	0
Calvin, Municipality Of	0	0
Carleton Place, Town Of	1	0
Carling, Township Of	0	0
Carlow Mayo, Township Of	1	5
Casey, Township Of	0	0
Casselman, Village Of	0	0
Central Elgin, Municipality Of	0	0
Central Frontenac, Township Of	0	0
Central Manitoulin, Township Of	0	1
Chatham-Kent, Municipality Of	4	1
Chatsworth, Township Of	0	0

Municipality	Depot	Event
Clarence-Rockland, City Of	1	0
Cochrane Temiskaming Waste Management Board	0	0
Conmee, Township Of	0	0
Cornwall, City Of	1	0
Deep River, Town Of	0	0
Drummond-North Elmsley, Township Of	1	0
Dryden, City Of	1	1
Durham, Regional Municipality Of	4	1
Dutton-Dunwich, Municipality Of	0	1
Dysart Et Al, Township Of	0	1
East Ferris, Township Of	0	0
East Garafraxa, Township Of	0	6
East Luther Grand Valley, Township Of	0	6
Edwardsburgh Cardinal, Township Of	0	0
Elizabethtown-Kitley, Township Of	0	1
Elliot Lake, City Of	0	0
Emo, Township Of	0	0
Enniskillen, Township Of	0	0
Espanola, Town Of	0	0
Essex-Windsor Solid Waste Authority	0	0
Fort Frances, Town Of	0	1
Front Of Yonge, Township Of	0	0
Frontenac Islands, Township Of	0	0
Gananoque, Town Of	0	0
Georgian Bluffs, Township Of	1	7
Gillies, Township Of	0	0
Greater Madawaska, Township Of	0	0
Greater Napanee, Township Of	0	1
Greater Sudbury, City Of	1	0
Grey Highlands, Municipality Of	0	0
Guelph, City Of	1	0
Haldimand, County Of	0	4
Halton, Regional Municipality Of	1	1
Hamilton, City Of	2	12
Hanover, Town Of	0	1
Hastings Highlands, Municipality Of	0	0
Hawkesbury Joint Recycling	1	1
Highlands East, Municipality Of	0	2
Hilliard, Township Of	0	0
Horton, Township Of	0	0
Howick, Township Of	0	0
Hudson, Township Of	0	0
Huron East, Municipality Of	0	0
Huron Shores, Municipality Of	0	0

Municipality	Depot	Event
Johnson, Township Of	0	0
Kawartha Lakes, City Of	2	0
Kenora, City Of	0	2
Kerns, Township Of	0	0
Killaloe, Hagarty, And Richards, Township Of	0	1
Kingston, City Of	1	0
Kirkland Lake, Town Of	0	0
Lanark Highlands, Township Of	1	0
Laurentian Hills, Town Of	0	0
Leeds And The Thousand Islands, Township Of	0	0
London, City Of	1	0
Loyalist, Township Of	0	0
Macdonald, Meredith & Aberdeen Additional, Township Of	0	0
Madawaska Valley, Township Of	0	1
Malahide, Township Of	0	0
Marathon, Town Of	0	1
Mattawa, Town Of	0	0
Mcdougall, Municipality Of	0	0
Mckellar, Township Of	0	0
Mcnab-Braeside, Township Of	0	0
Meaford, Municipality Of	0	0
Melancthon, Township Of	0	6
Merrickville-Wolford, Village Of	0	0
Minden Hills, Township Of	1	0
Mississippi Mills, Town Of	1	0
Mohawks Of The Bay Of Quinte	0	0
Mono, Town Of	1	6
Montague, Township Of	1	0
Morris-Turnburry, Municipality Of	0	0
Mulmur, Township Of	0	6
Muskoka, District Municipality Of	6	0
Nairn & Hyman, Township Of	0	0
Neebing, Municipality Of	0	0
Newbury, Village Of	0	0
Niagara, Regional Municipality Of	1	28
Norfolk, County Of	0	4
North Bay, City Of	1	0
North Dundas, Township Of	1	0
North Frontenac, Township Of	0	0
North Glengarry, Township Of	0	1
North Grenville, Municipality Of	1	0
North Huron, Township Of	0	0
North Stormont, Township Of	0	0
Northeastern Manitoulin & Islands, Town Of	1	0

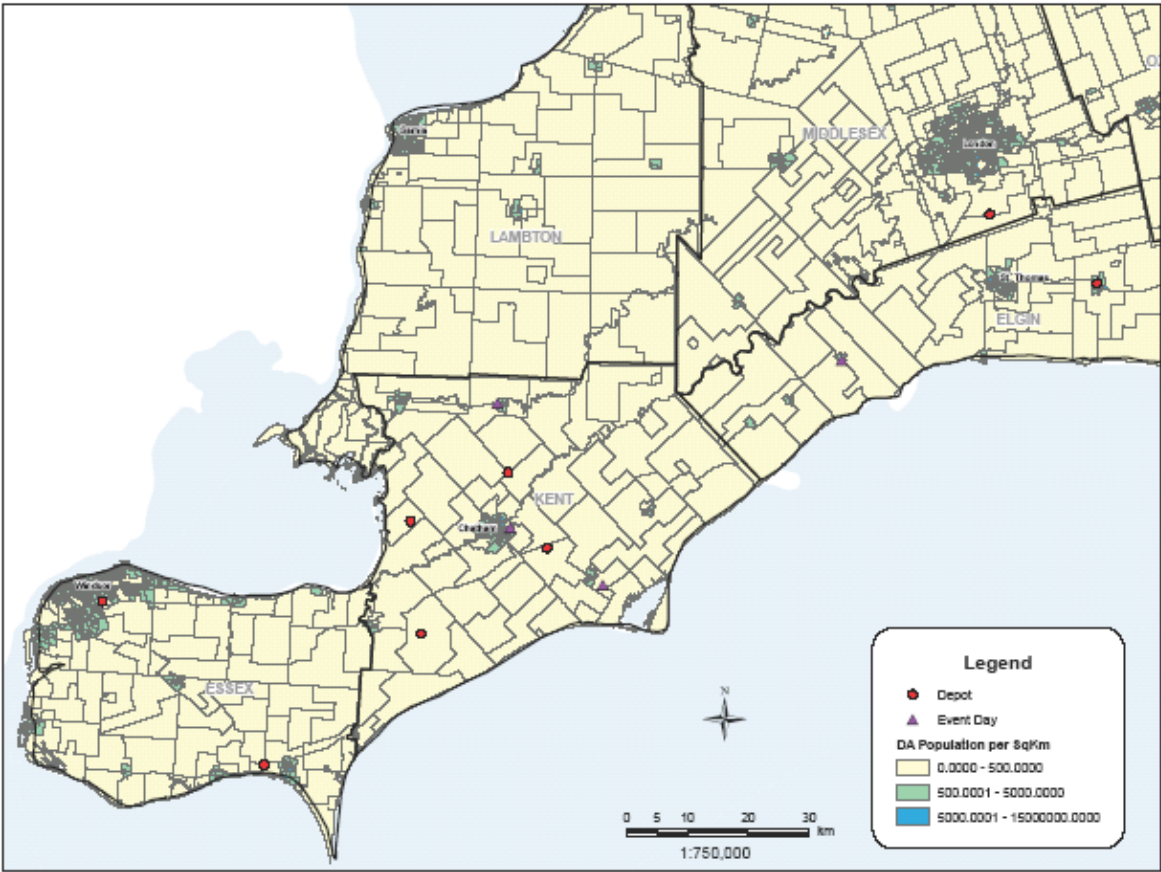
Municipality	Depot	Event
Northern Bruce Peninsula, Municipality Of	0	0
Northumberland, County Of	4	0
Oconnor, Township Of	0	0
Oliver Paipoonge, Municipality Of	0	0
Orangeville, Town Of	0	6
Orillia, City Of	1	0
Ottawa Valley Waste Recovery Centre	1	4
Ottawa, City Of	0	10
Owen Sound, City Of	0	0
Oxford, Restructured County Of	0	4
Papineau-Cameron, Township Of	0	0
Parry Sound, Town Of	1	0
Peel, Regional Municipality Of	4	3
Perry, Township Of	0	0
Perth, Town Of	1	0
Peterborough, City Of	1	0
Peterborough, County Of	4	0
Plympton-Wyoming, Town Of	0	0
Prince, Township Of	0	0
Quinte Waste Solutions	2	13
Renfrew, Town Of	1	0
Rideau Lakes, Township Of	0	0
Russell, Township Of	1	0
Sables-Spanish Rivers, Township Of	0	0
Sarnia, City Of	0	0
Sault Ste. Marie, City Of	1	0
Seguin, Township Of	0	0
Shelburne, Town Of	0	6
Simcoe, County Of	3	9
Sioux Lookout, Town Of	1	0
Sioux Narrows Nestor Falls, Township Of	0	0
Smiths Falls, Town Of	0	16
South Dundas, Township Of	0	0
South Frontenac, Township Of	0	0
South Glengarry, Township Of	0	0
South Stormont, Township Of	0	0
Southgate, Township Of	0	0
Southwest Middlesex, Municipality Of	0	0
Southwold, Township Of	0	0
Spanish, Town Of	0	0
St. Clair, Township Of	0	0
St. Thomas, City Of	0	0
Stone Mills, Township Of	0	0
Stratford, City Of	0	2

Municipality	Depot	Event
Tarbutt & Tarbutt Additional, Township Of	0	0
Tay Valley, Township Of	1	0
Thames Centre, Municipality Of	0	0
The Archipelago, Township Of	0	0
The Blue Mountains, Town Of	1	0
The Nation Municipality	0	0
Thunder Bay, City Of	1	0
Timmins, City Of	0	0
Toronto, City Of	6	43
Tri-Neighbours	0	0
Waterloo, Regional Municipality Of	6	11
Wellington, County Of	5	7
West Elgin, Municipality Of	0	1
West Grey, Municipality Of	0	10
West Nipissing, Municipality Of	0	0
West Perth, Township Of	0	0
Whitestone, Municipality Of	0	0
Whitewater Region, Township Of	0	0
York, Regional Municipality Of	0	0

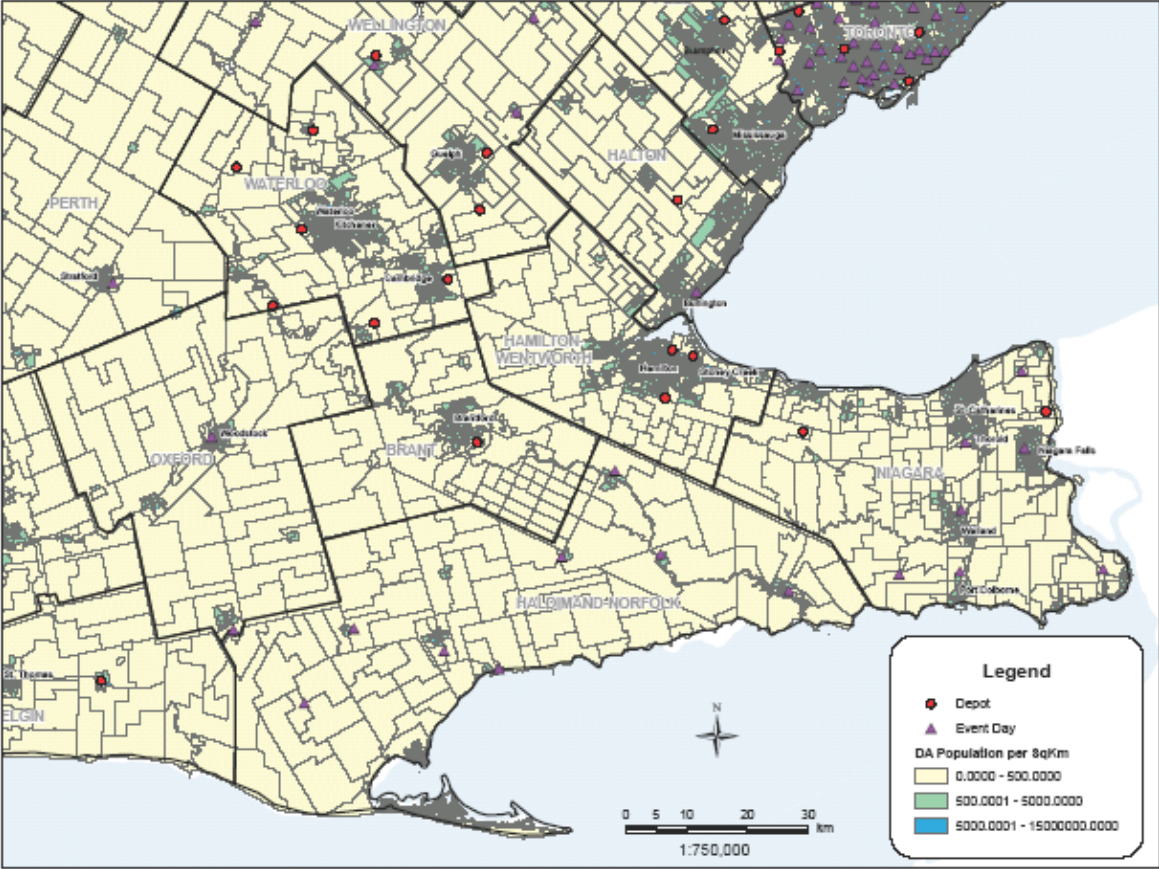
Appendix 4: Maps Showing Depot and Event Day Locations



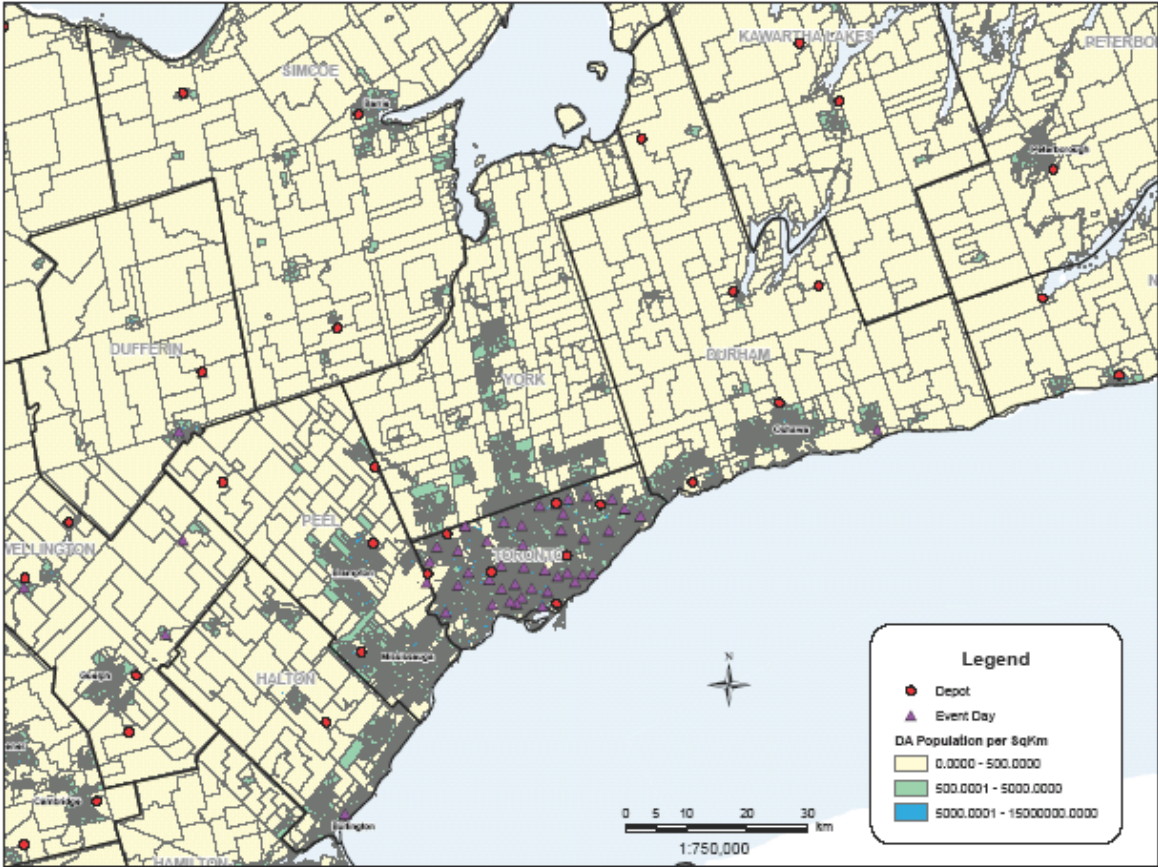
Southwest Ontario



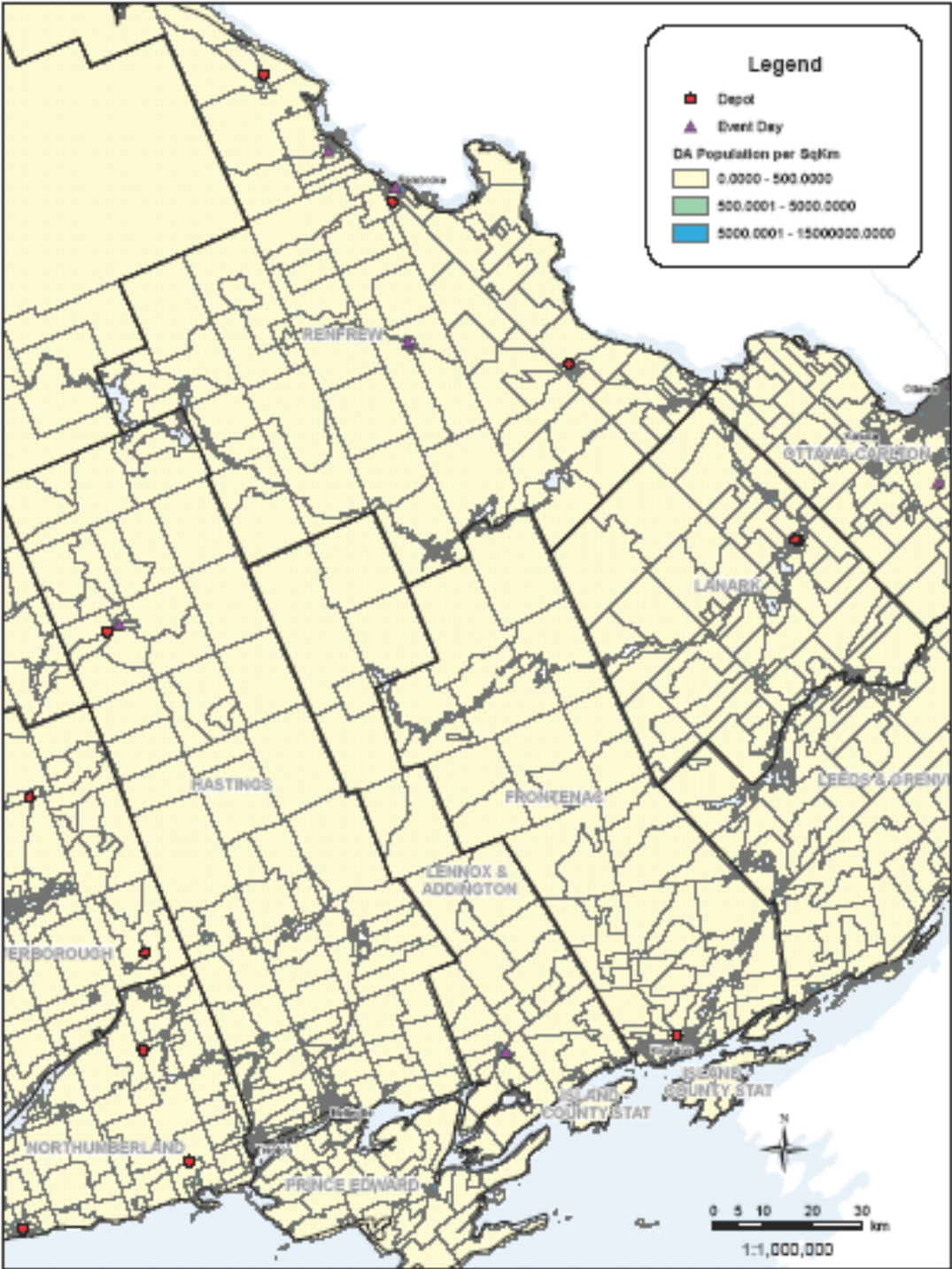
Oxford to Niagara



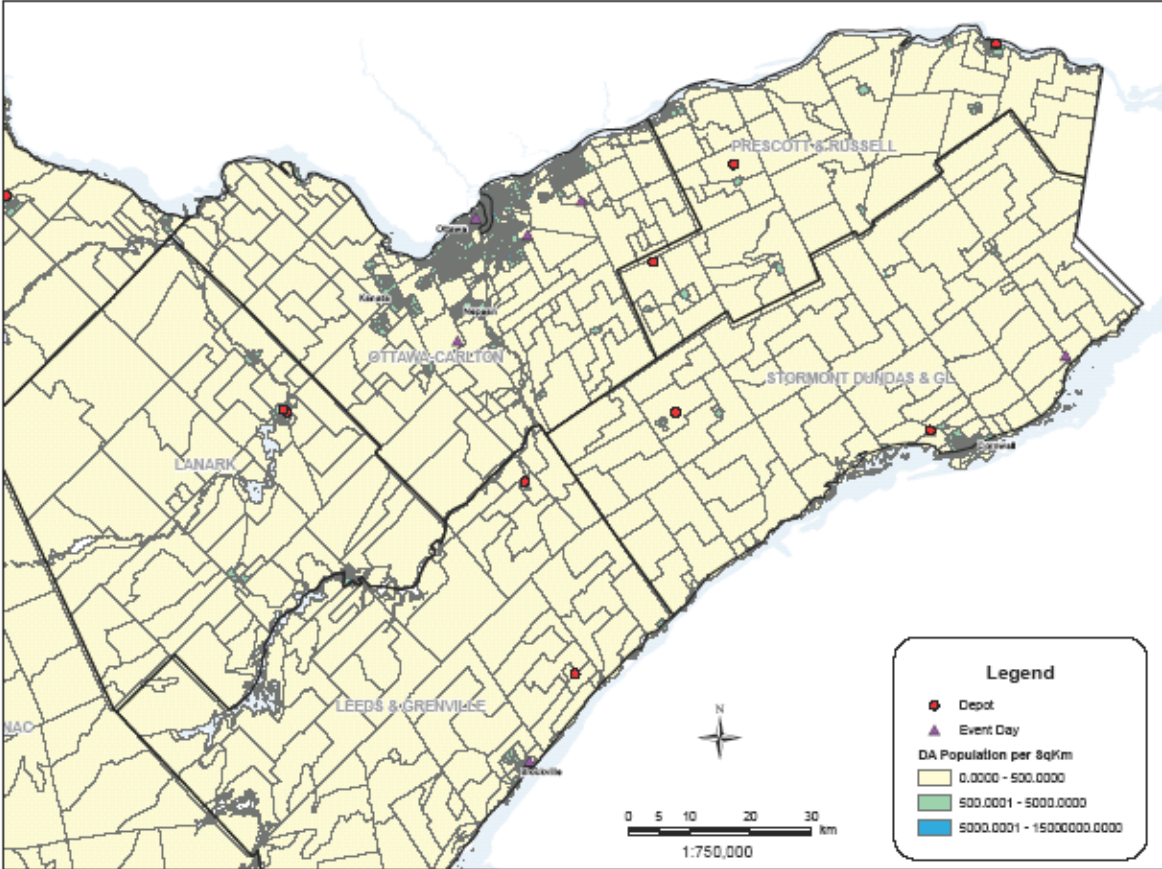
GTA



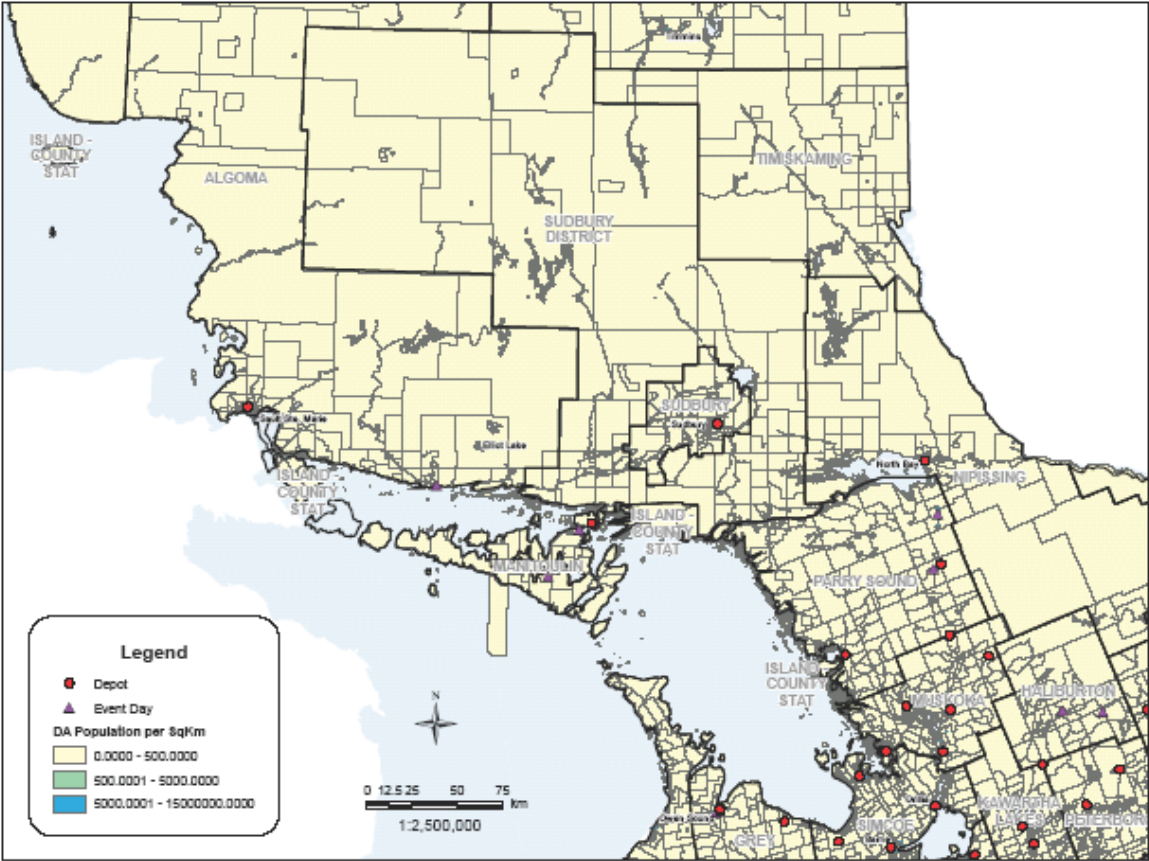
Renfrew to Lennox



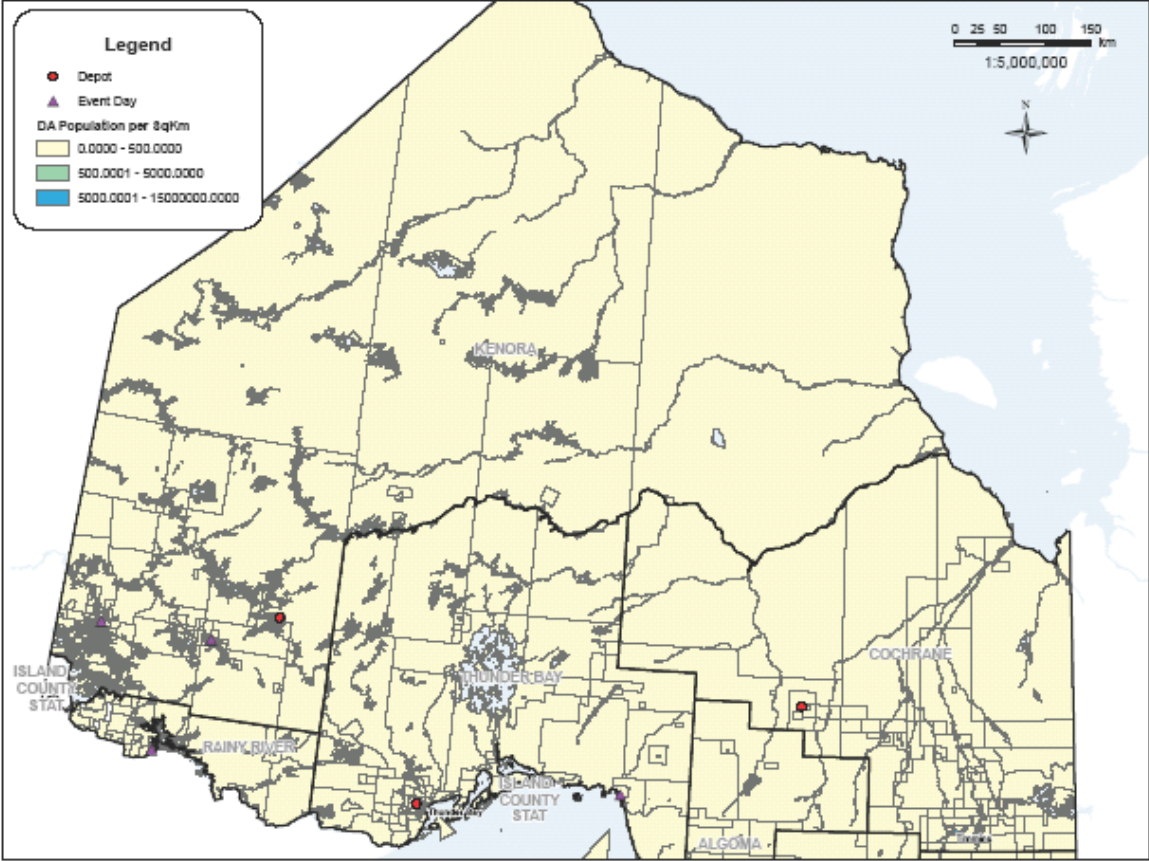
Ottawa Area



Mid-North Ontario



Northern Ontario



Appendix 5-A: Municipal Cost Model

The municipal cost model calculates the cost of reaching the municipal collection targets for each program year. The following appendix outlines the steps in this calculation.

Material-Specific Unit Costs for Phase 1 Materials

To determine the relative cost of handling, bulking (if required), transporting and disposing each material, information was gathered by Stewardship Ontario and the AMRC through a cost and contract survey of municipalities and a pre-qualification questionnaire directed at service providers. While approximately 88% of municipalities provided total costs for their programs, only a selection of municipalities were asked to provide costs for activities as well as material-specific prices. Some services providers provided material-specific prices as well as information on the relative contribution of each component (bulking, transport, disposal) to the total cost. Prices and costs were compared across municipalities according to geography to determine a reasonable province-wide estimate to account for distance to processing facilities, markets, or other appropriate site. Table 5A-1 shows unit costs for each Phase 1 material, by transport container, as well as the assumptions used to arrive at this unit cost.

Table 5A-1: Post-Collection Costs For Phase 1 Materials by Transport Container and Activity

Material	Type of Transport Container	Post-Collection Costs					Notes
		Packing Material	Bulking	Transport	Disposal	Total	
		\$/transport container	\$/transport container	\$/transport container	\$/transport container	\$/transport container	
Paints and coatings	A Cages	\$5.00	\$0.00	\$135.00	\$634.50	\$774.50	Based on weight relative to a lab pack.
	B Cages	\$5.00	\$0.00	\$157.50	\$740.25	\$902.75	Based on weight relative to a lab pack.
	Bulk drums	\$3.00	\$25.00	\$10.00	\$60.00	\$98.00	Range reported \$50-265, with most between \$90-100. Bulking cost is based on time to scrape material residue from the containers.
	Kg	\$0.00	\$0.00	\$0.00	\$1.00	\$1.00	Reported data.
	Lab Packs	\$3.00	\$0.00	\$10.00	\$47.00	\$60.00	Range reported \$36-245, with most between \$45-55.
	Litres	\$0.00	\$0.00	\$0.00	\$1.00	\$1.00	Reported data.
	Pails 20 L	\$2.00	\$0.00	\$10.00	\$25.00	\$37.00	Reported data.
Solvents	Small Cages	\$3.00	\$0.00	\$71.00	\$336.00	\$410.00	Based on weight relative to a lab pack.
	Bulk drums	\$3.00	\$15.00	\$10.00	\$85.00	\$113.00	Range reported \$70-285, with most between \$100-125. Bulking cost based on time to pour residual liquid from the containers.
	Kg	\$0.00	\$0.00	\$0.00	\$0.55	\$0.55	Similar to paints and coatings.
	Lab Packs	\$3.00	\$0.00	\$10.00	\$75.00	\$88.00	Range reported \$45-125, with most between \$70-98.
Antifreeze	Litres	\$0.00	\$0.00	\$0.00	\$0.55	\$0.55	Similar to paints and coatings.
	Bulk drums	\$3.00	\$15.00	\$10.00	\$45.00	\$73.00	Range reported \$55-285, with most between \$55-65. Bulking cost is based on time to pour residual liquid from the containers.
	Lab Packs 80 L	\$3.00	\$15.00	\$10.00	\$25.00	\$53.00	Range reported \$25-245, with most between \$45-55. Bulking cost is based on time to pour residual liquid from the containers.
Oil filters	Litres	\$0.00	\$0.00	\$0.00	\$0.35	\$0.35	Reported data, includes bulking.
	Kg	\$0.00	\$0.00	\$0.10	\$0.50	\$0.60	Based on weight relative to a lab pack.
	Lab Packs	\$3.00	\$0.00	\$15.00	\$60.00	\$78.00	Range reported \$44-100, with most between \$70-80.
Oil containers	Units	\$0.00	\$0.00	\$0.10	\$0.65	\$0.75	Based on weight relative to a lab pack.
	Kg	\$0.00	\$0.00	\$0.00	\$1.50	\$1.50	Weighted average on processor fee values.
Non-refillable pressurized containers	Kg	\$0.00	\$0.00	\$0.00	\$0.00	\$1.80	Reported data.
	Lab Packs	\$3.00	\$0.00	\$15.00	\$90.00	\$108.00	Range reported \$70-120, with most between \$80-100
	Units	\$0.00	\$0.00	\$0.00	\$0.00	\$0.82	Reported data.

Refillable pressurized containers	Kg	\$0.00	\$0.00	\$0.00	\$0.10	\$0.10	Reported data.
	Units	\$0.00	\$0.00	\$0.00	\$1.00	\$1.00	Reported data.
Single use dry cell batteries	Kg	\$0.00	\$0.00	\$0.00	\$0.00	\$0.34	Range reported \$0.5-4.40, with most around \$1.60
	Lab Packs	\$3.00	\$0.00	\$15.00	\$80.00	\$98.00	Range reported \$44-375, with most between \$90-100.
Pesticides	Units	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	
	Bulk drums	\$3.00	\$15.00	\$10.00	\$225.00	\$253.00	Range reported \$100-245, with most between \$200-225. Bulking is based on time to pour residual liquid from the containers.
	Kg	\$0.00	\$0.00	\$0.00	\$1.25	\$1.25	Reported data.
Fertilizers	Lab Packs	\$3.00	\$0.00	\$10.00	\$135.00	\$148.00	Range reported \$50-245, with most between \$175-190.
	Kg	\$0.00	\$0.00	\$0.00	\$1.15	\$1.15	Reported data.
	Lab Packs	\$3.00	\$0.00	\$10.00	\$60.00	\$73.00	Range reported \$50-150, with most between \$100-125.
Fertilizers	Litres	\$0.00	\$0.00	\$0.00	\$1.15	\$1.15	Reported data.

Post-Collection Costs for Phase 1 Materials for the 2005 Municipal System

As part of their 2005 Datacall submissions, municipalities reported information on the quantities of MHSW material collected at their events and depots. From these data, a representative composition for the range of materials received at both a typical event and a typical permanent depot were determined. The combined composition was used to scale up the reported 169 events and 98 depots calibrated to the quantity of material collected in 2005 by material and by shipping container. The material-specific management costs from Table 5A-1 were then applied to these quantities to determine the post-collection cost for each Phase 1 material in the 2005 system. Table 5A-2 shows this calculation for paint as an example, while Table 5A-3 shows the resulting cost of each Phase 1 material.

Table 5A-2: Detailed Post-Collection Cost Calculation for Paint (2005 System)

Type of Transport Container	Average Event Composition (2005 WDO Datacall)		Average Depot Composition (2005 WDO Datacall)		2005 System		Post-Collection Cost Per Transport Container (\$/transport container)	Post-Collection System Cost (\$)
	Transport Containers	Kilograms	Transport Containers	Kilograms	Transport Containers	Kilograms		
A Cages	2	1,529	1	1,106	485	366,801	774.5	\$375,777
B Cages	0	41	1	943	113	99,285	902.75	\$101,621
Bulk drums 205 L	4	883	48	9,871	5,447	1,116,592	98	\$533,786
Kg	4	4	26	26	3,249	3,249	1	\$3,249
Lab Packs	68	4,123	333	19,997	44,186	2,656,475	60	\$2,651,149
Litres	2	2	17	17	1,975	1,975	1	\$1,975
Pails 20 L	112	2,246	10	198	19,943	398,853	37	\$737,878
Small Cages	6	2,225	20	7,997	2,899	1,159,681	410	\$1,188,673
						5,802,912		\$5,594,107

Table 5A-3: Post-Collection Costs for Phase 1 Materials in 2005 System

Phase 1 Material	Post-Collection Cost
Paints and coatings	\$5,594,107
Solvents	\$550,542
Antifreeze	\$86,098
Oil filters	\$63,073
Oil containers	\$5,150
Non-refillable pressurized containers	\$135,461
Refillable pressurized containers	\$44,453
Single use dry cell batteries	\$69,902
Pesticides	\$109,502
Fertilizers	\$44,722
PHASE 1 TOTAL	\$6,703,011

2007 Baseline and Years 1 through 5 Projections

The projections for the 2007 Baseline are based on assumed growth in the system since 2005 and projections for Years 1 through 5 are based on the number of tonnes that must be collected in order to satisfy the collection targets set out in the plan. To determine the resulting costs, the material-specific post-collection costs by transport container were combined using a weighted average to arrive at a cost per tonne for management of each material. Table 5A-4 shows the resulting unit cost for each Phase 1 material.

Table 5A-4: Post-Collection Unit Costs for each Phase 1 Material

Phase 1 Material	Post-Collection Cost (\$/kg)
Paints and coatings	\$0.96
Solvents	\$1.15
Antifreeze	\$0.35
Oil filters	\$0.62
Oil containers	\$0.05
Non-refillable pressurized containers	\$1.79
Refillable pressurized containers	\$0.10
Single use dry cell batteries	\$0.34
Pesticides	\$1.80
Fertilizers	\$1.11

To project the growth in tonnage from the 2005 system to the 2007 baseline system, all materials were assumed to have increased in tonnage by 10% over two years, based on the growth in the system for the range of materials since 2002 as reported in the WDO municipal datacall. For Years 1 through 5, the Phase 1 material collected was assumed to be the tonnage required to meet collection targets. While not covered in the program, estimates were also developed for non-Phase 1 materials. To be conservative, Phase 2 and other non-designated materials were assumed to grow at the same overall rate as

Phase 1 materials, although it is likely that growth for these materials would be lower since they will not be promoted.

Just as tonnage was adjusted for each year, material specific unit costs were also modified to account for changes over the five years of the program. For the 2007 baseline year, no growth in material-specific unit costs was assumed, as data collected are from current contracts.

For Year 1, a 10% contingency was applied to all the assumed unit costs. For each program Year 1 through 5, all material-specific unit costs except for batteries, also have been adjusted as follows:

- An annual increase of 2.5% for CPI to reflect general increases in costs.
- An annual 1.25% increase in transportation and sorting costs to reflect more lab packing and less bulking of materials, as well as more post-collection sorting at service provider facilities.
- An annual 1.25% increase is applied to Phase 1 materials to reflect requirements for 3Rs management for these materials under the Plan.

For batteries, the unit costs were adjusted as follows:

- An annual increase of 2.5% for CPI to reflect general increases in costs.
- annual increase in the reflecting the relative quantity sent for recycling compared to those being sent to landfill and the relative cost of landfill compared to recycling.

Many non-phase 1 materials fall under the same waste classes and will likely continue to be handled with Phase 1 materials. Therefore, to be conservative, the municipal cost to manage these materials has been treated in the same way.

Appendix 5-B: Cost of Managing Phase 1 Materials through Non-Municipal Channels

It is anticipated that three Phase 1 materials, oil filters, oil containers, and antifreeze, will be managed primarily through non-municipal channels. Tables 1, 2 and 3 show the detailed calculation of the post-collection costs for each of these materials.

Table 5B-1: Calculation of Post Collection Cost for Non-Municipal Management of Oil Filters

		Year 1	Year 2	Year 3	Year 4	Year 5
Collection Target		65%	74%	78%	81%	84%
		(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
Target		12,012	13,675	14,414	14,969	15,523
Municipal System		121	126	130	134	138
Non-Municipal System		11,891	13,549	14,285	14,835	15,386
Transportation Fee						
	Fee Rate (\$/kg)	Forecasted Collection⁴⁰ (%)	Collected (tonnes)	Fee (\$)	Collected (tonnes)	Fee (\$)
Zone 1	\$0.68	38.60%	4,590	\$3,121,124	5,230	\$3,556,409
Zone 2	\$0.74	48.40%	5,755	\$4,258,845	6,558	\$4,852,802
Zone 3	\$0.76	4.80%	571	\$433,780	650	\$494,277
Zone 4	\$0.90	5.50%	654	\$588,600	745	\$670,688
Zone 5	\$0.94	2.70%	321	\$301,791	366	\$343,880
Zone 6	\$1.19	0.03%	4	\$4,245	4	\$4,837
Total			11,891	\$8,708,385	13,549	\$9,922,893
					14,285	\$10,461,484
					14,835	\$10,864,653
					15,386	\$11,267,736

⁴⁰ Proportion of each material collected from each Zone taken from OUMA Plan.

Table 5C-3: Calculation of Post Collection Cost for Non-Municipal Management of Antifreeze

		Year 1	Year 2	Year 3	Year 4	Year 5						
Collection Target		25%	35%	40%	45%	50%						
Fluid		(000s of litres)	(000s of litres)	(000s of litres)	(000s of litres)	(000s of litres)						
	Target	3,345	4,683	5,352	6,022	6,691						
	Municipal System	295	310	326	342	359						
	Non-Municipal System	3,050	4,373	5,027	5,680	6,332						
Containers		(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)						
	Target	140	196	224	252	280						
	Municipal System	11	11	12	13	13						
	Non-Municipal System	129	185	212	239	267						
Fluid Transportation Fee												
	Fee Rate	Forecasted Collection⁴²	Collected	Fee	Collected	Fee	Collected	Fee	Collected	Fee	Collected	Fee
	(\$/kg)	(%)	(tonnes)	(\$)	(tonnes)	(\$)	(tonnes)	(\$)	(tonnes)	(\$)	(tonnes)	(\$)
Zone 1	\$0.03	38.60%	1,177	\$35,320	1,688	\$50,644	1,940	\$58,212	2,192	\$65,772	2,444	\$73,321
Zone 2	\$0.04	48.40%	1,476	\$59,049	2,117	\$84,669	2,433	\$97,322	2,749	\$109,960	3,065	\$122,582
Zone 3	\$0.06	4.80%	146	\$8,784	210	\$12,595	241	\$14,478	273	\$16,358	304	\$18,235
Zone 4	\$0.07	5.50%	168	\$11,743	241	\$16,838	276	\$19,354	312	\$21,867	348	\$24,377
Zone 5	\$0.08	2.70%	82	\$6,588	118	\$9,447	136	\$10,858	153	\$12,268	171	\$13,677
Zone 6	\$0.09	0.03%	1	\$82	1	\$118	2	\$136	2	\$153	2	\$171
Sub-total			3,051	\$121,566	4,375	\$174,311	5,028	\$200,360	5,681	\$226,378	6,334	\$252,364

⁴² Proportion of each material collected from each Zone taken from OUMA Plan.

Containers Transportation Fee			Year 1	Year 2		Year 3		Year 4		Year 5		
	Fee Rate (\$/kg)	Forecasted Collection ⁴³ (%)	Collected (tonnes)	Fee (\$)	Collected (tonnes)	Fee (\$)	Collected (tonnes)	Fee (\$)	Collected (tonnes)	Fee (\$)	Collected (tonnes)	Fee (\$)
Zone 1	\$1.19	38.60%	50	\$59,285	71	\$84,757	82	\$97,355	92	\$109,939	103	\$122,510
Zone 2	\$1.25	48.40%	62	\$78,084	89	\$111,634	103	\$128,226	116	\$144,802	129	\$161,359
Zone 3	\$1.31	4.80%	6	\$8,116	9	\$11,603	10	\$13,327	11	\$15,050	13	\$16,771
Zone 4	\$1.31	5.50%	7	\$9,299	10	\$13,295	12	\$15,271	13	\$17,245	15	\$19,216
Zone 5	\$1.35	2.70%	3	\$4,704	5	\$6,726	6	\$7,725	6	\$8,724	7	\$9,722
Zone 6	\$1.52	0.03%	0	\$59	0	\$84	0	\$97	0	\$109	0	\$122
Sub-total			129	\$159,547	185	\$228,097	212	\$262,001	239	\$295,868	267	\$329,699
Processor Fee Costs												
	Fee Rate (\$/kg)											
Sub-total	\$0.30		129	\$38,720	185	\$55,356	212	\$63,583	239	\$71,802	267	\$80,013
Total			3,051	\$319,833	4,375	\$457,764	5,028	\$525,944	5,681	\$594,049	6,334	\$662,075

⁴³ Proportion of each material collected from each Zone taken from OUMA Plan.

Appendix 5-C: 5 Year Cost Projections for each Phase 1 Material

Table 5C-1: Five Year Cost Projections for Paints and Coatings

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$7,396,764	\$8,065,008	\$8,782,049	\$9,551,119	\$10,375,653
Non-Municipal Management	\$5,571	\$5,854	\$6,152	\$6,464	\$6,792
Promotion and Education	\$5,000	\$75,000	\$75,000	\$75,000	\$75,000
Research and Development	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Share of Common Costs	\$1,413,925	\$1,388,781	\$1,440,593	\$1,361,484	\$1,388,027
Total	\$8,921,261	\$9,634,643	\$10,403,793	\$11,094,067	\$11,945,473
Tonnes Generated	122,500				
Fee Rates					
< = 250 mL (\$/unit)	\$0.024				
> 250 ml – 1 L (\$/unit)	\$0.089				
> 1 – 5 L (\$/unit)	\$0.358				
> 5 L (\$/unit)	\$1.789				
Aerosols (\$/unit)	\$0.028				

Table 5C-2: Five Year Cost Projections for Solvents

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$740,650	\$820,293	\$906,115	\$998,539	\$1,098,013
Non-Municipal Management	\$665	\$699	\$734	\$771	\$811
Promotion and Education	\$5,000	\$25,000	\$25,000	\$25,000	\$25,000
Research and Development	\$10,000	\$25,000	\$0	\$0	\$0
Share of Common Costs	\$215,803	\$219,659	\$225,063	\$214,078	\$221,127
Total	\$972,118	\$1,090,650	\$1,156,912	\$1,238,388	\$1,344,950
Tonnes Generated	4,213				
Fee Rate (\$/L)	\$0.196				

Table 5C-3: Five Year Cost Projections for Antifreeze

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$120,397	\$132,837	\$146,563	\$161,706	\$178,414
Non-Municipal Management	\$352,000	\$504,000	\$579,000	\$653,000	\$728,000
Promotion and Education	\$100,000	\$100,000	\$100,000	\$75,000	\$75,000
Research and Development	\$300,000	\$200,000	\$50,000	\$10,000	\$10,000
Share of Common Costs	\$236,390	\$230,121	\$216,587	\$197,741	\$204,674
Total	\$1,108,787	\$1,166,958	\$1,092,149	\$1,097,447	\$1,196,088
Tonnes Generated	16,800				
Fee Rate (\$/L)	\$0.073				

Table 5C-4: Five Year Cost Projections for Oil Filters

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$87,385	\$95,496	\$103,356	\$111,863	\$121,070
Non-Municipal Management	\$9,579,000	\$10,915,000	\$11,508,000	\$11,951,000	\$12,395,000
Promotion and Education	\$200,000	\$200,000	\$200,000	\$150,000	\$150,000
Research and Development	\$300,000	\$200,000	\$100,000	\$0	\$0
Share of Common Costs	\$1,885,826	\$1,890,354	\$1,886,787	\$1,688,222	\$1,648,919
Total	\$12,052,211	\$13,300,849	\$13,798,143	\$13,901,086	\$14,314,990
Tonnes Generated	14,600				
Fee Rate (\$/unit)					
Small unit	\$0.499				
Large unit	\$0.998				

Table 5C-5: Five Year Cost Projections for Oil Containers

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$178,483	\$196,925	\$217,272	\$239,721	\$264,490
Non-Municipal Management	\$2,101,000	\$2,476,000	\$2,850,000	\$3,224,000	\$3,597,000
Promotion and Education	\$300,000	\$300,000	\$200,000	\$200,000	\$200,000
Research and Development	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Share of Common Costs	\$628,073	\$632,141	\$654,153	\$627,771	\$646,298
Total	\$3,707,556	\$4,105,065	\$4,421,425	\$4,791,492	\$5,207,788
Tonnes Generated	4,370				
Fee Rate (\$/L)	\$0.045				

Table 5C-6: Five Year Cost Projections for Non-refillable Pressurized Containers

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$175,896	\$215,482	\$375,409	\$557,192	\$763,144
Non-Municipal Management	\$47,131	\$54,947	\$91,102	\$128,680	\$167,726
Promotion and Education	\$5,000	\$25,000	\$25,000	\$25,000	\$25,000
Research and Development	\$70,000	\$100,000	\$70,000	\$0	\$0
Share of Common Costs	\$118,992	\$132,521	\$159,640	\$165,105	\$193,715
Total	\$417,019	\$527,949	\$721,151	\$875,977	\$1,149,585
Tonnes Generated	658				
Fee Rate (\$/unit)	\$0.334				

Table 5C-7: Five Year Cost Projections for Refillable Pressurized Containers.

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$60,021	\$65,379	\$71,196	\$77,512	\$84,368
Non-Municipal Management					
Promotion and Education	\$0	\$0	\$0	\$0	\$0
Research and Development	\$10,000	\$0	\$0	\$0	\$0
Share of Common Costs	\$27,951	\$21,807	\$20,168	\$18,113	\$17,021
Total	\$97,972	\$87,186	\$91,364	\$95,625	\$101,389
Tonnes Generated	2,565				
Fee Rate (\$/unit)	\$0.366				

Table 5C-8: Five Year Cost Projections for Single Use Dry Cell Batteries

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$152,293	\$269,142	\$573,859	\$1,071,626	\$2,007,525
Non-Municipal Management	\$14,252	\$25,187	\$53,703	\$100,286	\$187,870
Promotion and Education	\$0	\$0	\$25,000	\$75,000	\$100,000
Research and Development	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Share of Common Costs	\$164,513	\$175,747	\$228,241	\$282,983	\$403,095
Total	\$631,058	\$770,077	\$1,180,804	\$1,829,894	\$2,998,490
Tonnes Generated	5,040				
Fee Rate (\$/kg)	\$0.125				

Table 5C-9: Five Year Cost Projections for Pesticides

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$142,126	\$152,293	\$163,125	\$174,666	\$186,957
Non-Municipal Management					
Promotion and Education	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Research and Development	\$5,000	\$10,000	\$5,000	\$5,000	\$5,000
Share of Common Costs	\$108,609	\$108,057	\$110,184	\$103,540	\$106,453
Total	\$260,736	\$275,350	\$283,310	\$288,206	\$303,410
Tonnes Generated	530				
Fee Rate (\$/kg or \$/L)	\$0.492				

Table 5C-10: Five Year Cost Projections for Fertilizers

	Year 1	Year 2	Year 3	Year 4	Year 5
Post Collection Costs					
Municipal Management	\$60,114	\$67,107	\$76,726	\$87,148	\$103,004
Non-Municipal Management					
Promotion and Education	\$25,000	\$5,000	\$5,000	\$5,000	\$5,000
Research and Development	\$5,000	\$15,000	\$15,000	\$0	\$0
Share of Common Costs	\$97,606	\$95,375	\$98,681	\$91,288	\$95,443
Total	\$187,719	\$182,482	\$195,407	\$183,436	\$203,447
Tonnes Generated	8,200				
Fee Rate (\$/kg or \$/L)	\$0.023				

Appendix 6: Glossary of Terms

3Rs - reduce, reuse, recycle

Depot - Refers to a permanent facility/location for receiving MHSW from the public and small quantity generators. Hours and periods of operations vary from one program to another

Design for the Environment (DfE) - Policies intended to promote design for environment (i.e. removal of hazardous substances, improve ease and cost of recycling, etc.

Diversion - managed through reduction, reuse and recycling

Effectiveness - The degree to which a measure achieves its target.

Efficiency - A measure of benefits adjusted for costs (net benefits), such as the amount of environmental improvement delivered per dollar of abatement cost

Energy From Waste (EFW) - the disposal of waste through burning with energy recovery

Events - Refers to one-day collection events conducted to receive MHSW from the public and small quantity ICI generators. Events range in frequency from one to several events per season, often in different locations within a county or region

Fee - A levy intended to cover some or all of the average (unit) cost of providing a service. A fee may contain fixed and variable elements. A levy creates a difference between the consumer price of goods sold (prices inclusive of the levy) and the price at which producers make a profit (the price exclusive of the levy).

Future wastes - MHSM products that will be sold in the future and will subsequently become MHSW

Hazardous Landfill - the disposal of waste in a landfill specifically designed to accept hazardous waste

Historic wastes - Waste that can be attributed to a currently operating brand owner (also used as a general term to refer to MHSM products already sold that will become waste)

IFO - Industry Funding Organization incorporated under the WDA

ISP - Industry Stewardship Plan (refer to WDA Section 34)

Household - Includes single family dwellings, multi-unit residential buildings and all other non-institutional dwellings.

Incidence - Economic incidence is a measure of who pays a levy, as between producers (or their employees or shareholders) and consumers. The incidence – who pays – depends on market conditions, specifically the price elasticities of supply and demand. The more elastic is supply and the less elastic is demand, the greater is the share of a levy passed forward

into consumer prices. The more price inelastic is supply and the more price elastic is demand, the greater is the share of a levy passed back in lower producer prices.

Incineration - the disposal of waste through burning without energy recovery

MOE - Ministry of the Environment

Non-hazardous Landfill - the disposal of waste in a landfill designed to accept non-hazardous waste

Orphan waste - Waste for which a brand owner is no longer in operation or cannot be identified under the *Waste Diversion Act*.

Permitting – The process whereby a recycling facility must apply to the Ministry of the Environment for the necessary certificate(s) of approval under Environmental Protection Act, and any other permits necessary to operate such a facility.

Recycle - to make use of the physical, chemical or biological properties of the waste after a waste is generated by a waste generator

Reduce - actions taken prior to a waste being generated by a waste generator

Reuse - repeated use of a product or packaging of a product without a material change to the form of the product or packaging between uses

Stewards - Companies obligated by an IFO to pay fees under an approved waste diversion program plan

Unidentified products - MHSW for whom the steward cannot be identified (i.e. no markings, damaged beyond recognition, pre-processed or in parts)

WDO - Waste Diversion Ontario

WDA - Ontario *Waste Diversion Act* (2002)

Appendix 7: List of Acronyms

AIA	Automobile Industries Association
AMO	Association of Municipalities of Ontario
AMRC	Association of Municipal Recycling Co-ordinators
BBPP	Blue Box Program Plan
BOFI	Brand owner/first importer
C of A	Certificate of Approval (issued by MOE)
CCGD	Canadian Council of Grocery Distributors
CCSPA	Canadian Consumer Specialty Products Association
CNA	Canadian Newspaper Association
CFIA	Canadian Food Inspection Agency
CPCA	Canadian Paints & Coatings Association
CPPI	Canadian Petroleum Products Institute
Depot	Refers to a permanent facility where residents can drop off materials. Hours and periods of operations vary from one program to another.
DIY	Do it yourself (i.e. oil changes at home)
E&E	Efficiency and Effectiveness
EBR	Environmental Bill of Rights Registry
EPR	Extended Producer Responsibility
Events	Refers to one-day collection events at which residents can drop off materials. Events range in frequency from one to several events per season, often in different locations within a county or region.
HDPE	High Density Polyethylene (#2)
HHW	Household Hazardous Waste
IC&I	Industrial, Commercial & Institutional (Recycling)
IFO	Industry Funding Organization
ISP	Industry Stewardship Plan
LDPE/LLDPE	Low Density Polyethylene/Low Linear Density Poly'
MHSM	Municipal Hazardous or Special Material
MHSW	Municipal Hazardous or Special Waste
MOE	Ministry of the Environment
MRF	Material Recycling Facility
NUOMAC	National Used Oil Management Association Council
OBC	Old Boxboard Containers
OCC	Old Corrugated Containers
OUOMA	Ontario Used Oil Management Association
OWMA	Ontario Waste Management Association
P&E	Promotion and education
PMRA	Pesticide Management Regulatory Agency
RCC	Retail Council of Canada
RCO	Recycling Council of Ontario
REOI	Request for Expression of Interest
RFP	Request for Proposal
TDGA	Transportation of Dangerous Goods Act
SK	Safety-Kleen
SO	Stewardship Ontario
WDA	Waste Diversion Act
WDO	Waste Diversion Ontario

