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REPORT

Town of Arnprior

Integrated Waste Management Plan and Waste Recycling Strategy

July 2011





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Project Number:

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Date:

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Revision Log

Revision #	Revised By	Date	Issue / Revision Description
1	G. Laporte	October 6, 2011	Minor Corrections

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1. Introduction

This Integrated Waste Management Plan (IWMP) and Waste Recycling Strategy (WRS) is a comprehensive assessment of the existing waste management programs in the Town of Arnprior (Town) and a guide for changes and improvements. While many practices will remain unchanged, new initiatives will result in increased levels of service, efficiency, and stewardship. While some recommendations are immediate, others will guide the Town's decision making process over the next five to twenty years. This strategy is intended to be reviewed annually with formal updates every five years.

Preparation of this report commenced in 2010 and was well advanced by the end of March, 2011. Recent changes to the Town's waste management programs are not reflected in this report.

2. Overview of Planning Process

This Integrated Waste Management Plan and Waste Recycling Strategy was initiated by Town staff in May, 2010. The creative process has been guided by members of staff, with assistance from consultants from AECOM Canada Ltd. Targeted public consultation and stakeholder feedback has been incorporated in the strategy preparation.

This project has been delivered with the assistance of the Continuous Improvement Fund (CIF), a fund financed by Ontario municipalities and stewards of blue box waste in Ontario, as well as through the Town's general capital budget. Notwithstanding this support, the views expressed are the views of the project team, and Waste Diversion Ontario and Stewardship Ontario accept no responsibility for these views.

3. Study Objectives

The objective of the Integrated Waste Management Plan and Waste Recycling Strategy is to guide the Town of Arnprior on how to optimize its waste management program, increase waste diversion rates, maximize the lifespan of the waste disposal site, and realize additional programs to further reduce the municipality's total waste output.

Recommendations of the IWMP and WRS must be:

- Environmentally sound
- Compliant with regulations
- Feasible and easy to implement
- Cost effective and affordable

This study process will evaluate current practices, determine feasible goals, and identify points for improvement to the efficiency and effectiveness of the Town's waste management program.

The recommendations made in the IWMP and WRS are intended to inform Town Council and staff, and to assist with future decision making processes, which will include planning, budgeting, and public participation.

4. Definitions

While waste management is not a highly technical field, there are some industry-specific terms which may not be familiar to the reader. As many of these terms are used throughout this report, a brief list of definitions is included in this section.

- **ICI Waste** is short form for industrial, commercial, and institutional waste. The total waste stream for most municipalities is a combination of ICI waste and residential waste.
- **Diversions** includes all waste which is not disposed of at a landfill, and is created by practices such as backyard composting, material reuse, recycling, special processing, and reductions in personal waste generation.
- **E-waste** is discarded electrical and electronic materials such as televisions and computer parts that require special processing for removal of recyclable materials and disposal.
- **Household Hazardous Waste (HHW)** is material which would be toxic or damaging if it were to enter the environment. HHW is typically leftover cleaning supplies, paint, motor oil, batteries, and pharmaceuticals. HHW requires special processing for disposal.
- **Pay-As-You-Throw (PAYT)** is a specific type of user fee program where a fee is charged for every bag of garbage that is to be disposed of. PAYT programs are very effective in reducing waste generation rates and encouraging recycling.
- **Recyclables** are items which, after disposal, are processed and marketed for their raw material, such as aluminum, steel, and various types of plastic. Recyclables do not include reusable materials, such as reusable shopping bags, or hazardous materials which require special processing for safe disposal, such as paint or oil.
- **Blue Box Recyclables** are materials that are typically collected by blue box programs, but may also be collected by other means. Corrugated cardboard, for example, is collected in the blue box and at the Arnprior Waste Disposal Site.
- **Source Separated Organics (SSO)** are household-generated waste organics, such as kitchen scraps and yard wastes, which are collected curbside, separate from regular garbage and recyclables. SSO typically include all organic matter, including meat, dairy, and bones, which would be inappropriate for composting in a back-yard composter. Industrial-scale SSO processing facilities use accelerated techniques to process this material.
- **Waste** includes all materials that an individual discards in day-to-day life. This is a broad term which includes, but is not limited to recyclables, compostables, re-usable material, and garbage.
- **Waste Disposal Site** is a municipal facility where garbage is permanently disposed of, usually buried. The term is often used interchangeably with landfill, although Waste Disposal Sites often include other facilities such as separate collection areas for recyclables.
- **Waste Generation Rate** is the total quantity of waste generated per capita per year.
- **Waste to Waste Disposal Site (Landfill)** is the portion of the total waste stream that is permanently disposed of.

5. Study Area

The primary focus of this study is the Town of Arnprior and its waste management program. There are numerous components to this program, from curbside collection to landfill management to public education. All components are interrelated and need to be examined as such.

The Town does not receive service from other municipalities and is engaged in only one partnered program, HHW collection with the Town of Renfrew, at this time. The Town provides waste disposal services to the residents of McNab-Braeside and has recently issued a joint tender for blue box collection and processing services with the Town of Renfrew. This study will briefly investigate the possibility of entering into other partnerships with neighbouring municipalities.

Within the Town of Arnprior there are various sectors, each with its own requirements for waste and recycling management. Generally speaking, these sectors are:

- single-family residential (detached houses, duplexes, some row houses, and apartments with 6 or fewer units),
- multi-family residential (apartments with 7 or more units, some row house complexes),
- small town-centre commercial and mixed use properties (such as ground-floor retail with apartments above),
- large town-centre industrial/commercial/institutional properties (ICI) (large stores, businesses, factories, schools, nursing homes, etc).

This report focuses on sectors for which the Town is somewhat, if not entirely responsible, such as residential and small commercial properties, since the priority is to provide service to local ratepayers. This report also investigates the Town's relationship with local businesses and recommends services that are available to them.

6. Public Consultation Process

Public consultation and involvement are crucial to the success of any service strategy. This Integrated Waste Management Plan is meant to guide the Town's recycling and waste management policy over the coming years and will directly affect how waste management service is offered to the Town's residents. Ongoing consultation with members of the public at large will help establish which issues are most critical to the Town's residents and ensure that these issues are addressed and new ideas are considered.

Most of the public consultation undertaken during the creation of this report has been targeted at specific individuals or groups with a high level of involvement with waste services in the Town, such as contract managers or potential service providers. This streamlined approach provided valuable information while maintaining the scope of this exercise.

As the Town moves forward, public consultation, education, and ongoing involvement, are critical to a successful waste management program. Communication with the public can be achieved through a variety of means, such as open house events, flyers, advertisements, up-to-date information, and in particular web-based forums on the Town's website. Ongoing public communication is discussed in more detail later in this report.

7. Problem Statement

Management of municipal solid waste, including the diversion of blue box materials, is a key responsibility for all municipal governments in Ontario. The factors that facilitate or hinder effective municipal waste management can vary greatly and depends on the size of the municipality, geographic location, and population.

The key drivers that led to the development of this Integrated Waste Management Plan and Waste Recycling Strategy include:

- Waste Diversion Ontario (WDO) Requirements – Municipalities are required to report information pertaining to their recycling program to WDO each year, including qualitative questions regarding the development and implementation of an up to date blue box recycling strategy. In future years, the portion of funding allotted to a given municipality will be increasingly dependent on the implementation of a waste recycling strategy.
- Increasing Population and Demand – The Town of Arnprior has seen steady population growth over the past decade and anticipates further growth in the future. A larger population will produce more waste and recyclables, and existing practices may not be sufficient for the long term.
- Improved Efficiencies – The Town of Arnprior has established various components of their waste management program allowing different services to operate independently of each other or possibly in conflict. This strategy will thoroughly review all of the components and their relation to each other, and will lead to improved cost and service efficiencies. For example, this program will review tendering practices for curb side pick-up, transportation, and processing of recyclables to ensure that Town practices do not discourage participation by firms that may offer cost efficiencies.

8. Relevant Legislation

Provincial legislation – laws, regulations, and guidelines, are the original driving force behind most waste management programs. Municipalities are required to provide certain services to their residents and are required to do so in a manner which protects the natural and social environment. That is not to say that municipalities would not provide these services in the absence of legislation from higher authorities, but it does provide a standard framework and support for a wide variety of initiatives and policies.

Environmental Protection Act

The Environmental Protection Act (EPA) provides the legislative framework for the establishment of waste management facilities. The establishment, operation, management, alteration, enlargement, and/or extension of waste management facilities in the Province of Ontario requires a Certificate of Approval under Part 5, Section 27 of the EPA.

Ontario Regulation 347

Ontario Regulation 347 (formerly Regulation 309) under the EPA is the primary regulation for controlling the handling, disposal, and management of hazardous and non-hazardous wastes in the Province. Under the regulation, wastes are classified into categories that stipulate handling requirements. The Regulations specify control measures for disposal facilities.

Ontario Regulation 232/98

Ontario Regulation 232/98 (O. Reg. 232/98) and its accompanying Guideline specify a comprehensive standard for landfill design, operation, monitoring, and closure. O. Reg. 232/98 came into effect on August 1, 1998 and applies to all new or expanding Waste Disposal Sites, or any site of greater than 40,000 m³. Ministry staff relies heavily on the Guidelines associated with this regulation when reviewing Certificate of Approval applications. New Certificates issued since 1998 have generally enforced compliance with this standard.

Ontario Regulation 101/94

Ontario Regulation 101/94 (O. Reg. 101/94) is also known as the 3Rs Regulation. It, and accompanying regulations, became law on March 3, 1994. The regulations are an integral part of Ontario's Waste Reduction Action Plan. The plan was aimed at reducing the amount of waste going to disposal by at least 50 per cent by the year 2000 compared to the base year of 1987. The objective was achieved through a strategy based on the 3Rs — reduction, reuse, and recycling.

The 3Rs Regulations were designed to ensure that industrial, commercial, and institutional (ICI) sectors, as well as municipalities, developed programs to reduce the amount of valuable resources going to disposal.

O. Reg. 101/94 requires specified municipalities to implement recycling programs, including collection of Blue Box wastes, home composting of organic wastes, and composting of leaf and yard waste. Municipalities with populations greater than 5,000 are required to establish blue box collection systems. These municipalities must also provide rear yard composters at cost or less, along with educational material. Municipalities of greater than 50,000 people must provide a central leaf and yard waste composting facility.

Bill 90, Waste Diversion Act

Bill 90, an Act to promote the reduction, reuse, and recycling of waste, was given Royal Assent on June 27, 2002. The Act created Waste Diversion Ontario (WDO), a non-crown corporation. WDO was established to develop, implement, and operate waste diversion programs for a wide range of materials. The Act empowers the Minister of the Environment to designate a material for which a waste diversion program is to be established.

Once the Minister has designated a material through a regulation under the Waste Diversion Act (WDA), the Minister asks Waste Diversion Ontario, working co-operatively with stewards, to develop a diversion program. The Minister has designated Blue Box Waste, Used Tires, Used Oil Material, Waste Electronic and Electrical Equipment, and Municipal Hazardous or Special Waste under the WDA.

Ontario Regulation 101/07

Ontario Regulation 101/07, the Waste Management Project Regulation made under the Environmental Assessment Act (EAA), makes it easier for municipalities to find viable solutions for managing waste. The regulation sets out the EAA requirements for waste diversion facilities. Expansion of small rural landfills by up to 100,000 cubic metres would require only an environmental screening process. Accompanying regulations under the Environmental Protection Act are intended to streamline the approval process for recycling certain materials.

Provincial Policy Statement, 2005

Section 1.6.8 of the Provincial Policy Statement on land-use planning, issued under the authority of Section 3 of the Planning Act, states that:

“Waste management systems need to be provided that are of an appropriate size and type to accommodate present and future requirements, and facilitate, encourage, and promote reduction, reuse, and recycling objectives. Waste management systems shall be located and designed in accordance with provincial legislation and standards.”

Bill 146

Bill 146, Organic Waste Diversion Act, was brought to the provincial legislature in December of 2010 and proposed that organic material be banned from landfills in Ontario. The bill received enough support to proceed to Committee for review.

Bill 146 does not provide any specifics or guidance on how municipalities are to comply. Currently, source separated organics (SSO) programs exist only in a handful of municipalities – mostly large cities – and the development of industrial-scale composting has been slow due to nuisance issues such as odour. If Bill 146 were to pass, it would likely require municipalities to provide curbside collection and processing of SSO.

Fisheries Act

The Fish Habitat Protection provisions of the federal Fisheries Act provide for the protection of fish habitat. The principle provision (section 35) states that no one may carry on any work or undertaking that results in the harmful alteration, disruption or destruction (HADD) of fish habitat, unless authorized to do so by the Minister of Fisheries and Oceans Canada.

Other provisions related to Fish Habitat Protection and Pollution Prevention are also worth noting, including those related to the prohibition of deleterious substances into fish-bearing waters (section 36). Municipalities have been charged under this provision for allowing landfill leachate to discharge into a watercourse.

Violations under the Fisheries Act can result in substantial fines and the risk of imprisonment. A violator may also be required to cover the costs of restoring the habitat and may be required to perform other court ordered remedies.

Environmental Assessment Act and Ontario Water Resources Act

Waste management facilities are subject to approval under the Environmental Assessment Act and the Ontario Water Resources Act. These Acts apply to proposals for new or expanded sites and do not typically apply to ongoing operations.

9. Current Practice and Future Needs

Preparation of an Integrated Waste Management Plan (IWMP) and Waste Recycling Strategy (WRS) begins with a thorough understanding of current practices. It is intended that this plan build on the strengths of current programs, which is different than starting from scratch. In this chapter we document the Town of Arnprior's current practices.

9.1 Community Characteristics

The Town of Arnprior is situated at the junction of the Madawaska and Ottawa Rivers, approximately 70 kilometres north-west of Ottawa. The 2006 Statistics Canada Census listed the Town's population at 7,158 and the number of private dwellings at 3,160. For purposes of this report we have assumed that those numbers will grow at 1% per year.

The Town of Arnprior is predominantly urban and sub-urban, with a small amount of undeveloped rural area in the south-west. Under the CIF Municipal Guidelines, Arnprior is classified as a "Small Urban" municipality.

9.2 Current Waste Generation and Diversion

According to Ministry of the Environment and CIF Guidelines, a municipality the size and location of the Town of Arnprior would generate approximately 393 kilograms of waste per person per year from the residential sector. This equates to a total waste generation of 2,900 metric tons in 2009. This quantity includes all types of waste, whether diverted or not.

Recycling records from 2009 indicate that a total of 645 metric tons of blue box recyclables were collected and transferred for processing that year, equating to a recycling diversion rate of 22%.

While the Town of Arnprior keeps detailed site traffic records for their landfill, weigh scale tonnages are not available. Additionally, waste originating from the residential sector is not distinguishable from industrial, commercial, or institutional (ICI) waste. Since the total quantity of landfilled residential waste cannot be determined, a total waste diversion rate cannot be calculated. The rate can be estimated between 30% and 40%.

9.3 Potential Diversion Rates

9.3.1 Blue Box Diversion Rate

Waste Diversion Ontario (WDO) encourages municipalities to set goals for waste diversion through recycling programs. According to WDO, the average residential blue box diversion rate for municipalities of the size and location of the Town of Arnprior is 22%, which is equal to the Town's recycling diversion rate in 2009.

A recycling diversion rate of 25% is proposed as a reasonable and attainable goal for the Town to achieve within 5 years. This equates to an additional half kilogram of recycling per household per week.

9.3.2 Total Waste Diversion Rate

The Province of Ontario has set a total waste diversion goal of 60%, although achieving this rate almost always requires a three-stream collection of waste, recycling, and source separated organics.

It is difficult to set a total diversion goal for the Town of Arnprior since the current diversion rate is unknown. The Town's first priority should be to establish a system of measurement and accounting that will allow an accurate diversion rate to be calculated between residential waste and ICI waste (later in this report we will propose weigh scales at the waste disposal site and different bag tags for residential and commercial wastes).

Considering the extent of diversion programs already in place in Arnprior, and our experience with other municipalities, it is likely that the Town of Arnprior is currently diverting between 30% and 40% of its residential waste stream. A total waste diversion goal of 50% is proposed as feasible and affordable.

9.4 Existing Programs and Services

9.4.1 Waste

The Town of Arnprior provides curbside garbage collection to all households and small town-centre commercial properties within the Town limits. In the summer months, May to October inclusive, collection is weekly with a two free bag limit. In the winter months, November to April inclusive, collection is bi-weekly with a three free bag limit. Additional bags require a bag tag, which can be purchased for \$2.50 at the Town Hall, the Nick Smith Centre, or the Library. The maximum size bag is 66cm by 82cm, the maximum size container is 67L. The maximum weight per bag or container of garbage is 50 lbs.

Curbside collection is available to all ratepayers at the same level of service, but this level of service is not always sufficient for large commercial generators or multi-residential properties. Commercial and multi-residential users can opt-out of the service and receive a rebate of their garbage fees on their tax bill. Users that opt-out of garbage pickup are still required to pay recycling fees.

Curbside collection is undertaken by a private contractor who hauls the waste to the Town's Waste Disposal Site. Residents may deliver their garbage to the Waste Disposal Site themselves, however they must purchase a voucher in advance from Town Hall or Nick Smith Centre. Residents are allotted one free Waste Disposal Site pass per year. The vouchers permit disposal of a passenger car, mini-van, ½ ton truck or single axle trailer load. 1,450 free passes, with a value of \$13,775, were distributed in 2009.

All non-diverted waste that is generated within the Town of Arnprior is disposed of at the Town's Waste Disposal Site. Local institutional, commercial, and industrial customers are also permitted to use the Waste Disposal Site for a prescribed tipping fee that is based on the size of the vehicle delivering the waste. The Arnprior Waste Disposal Site accepts all solid, non-hazardous waste, including construction and demolition waste and bulky items. Currently, there are no weigh scales at the Arnprior Waste Disposal Site.

Residents of the neighbouring township, McNab-Braeside, are also permitted to use the Arnprior Waste Disposal Site at twice the tipping fee.

9.4.2 Recycling

9.4.2.1 Blue Box

The Town of Arnprior's curbside collection and processing of blue box recyclables is provided by a private contractor. The contractor provides curbside collection to households and to some businesses within the Town. Recyclables are collected on alternating weeks and hauled to the contractor's recycling facility for processing. Processing involves sorting, packaging, and marketing to material reclamation facilities. Some larger commercial generators and multi-residential users have opted out of this service because the level of service is not sufficient for large generators.

The contract includes the cost of curbside collection and hauling to the recycling facility. There are no tipping fees or rebates involved; the material is accepted at 'zero cost'.

Recycling must be sorted at the curbside into two streams – fibres and comingled containers. The Arnprior blue box program currently accepts all plastics, glass, fibres, and polycoat materials for recycling. The Town provides residents with two blue boxes and makes additional boxes available for \$7.00 – the box which the Town uses would be acceptable to all blue box collection contractors.

The contractor was slated to cease operations in 2011, though operations may yet continue. Town staff will be reviewing contract options in 2011.

Blue box recyclables are not accepted at the Arnprior Waste Disposal Site, with the exception of corrugated cardboard which is later transferred to the contractor's recycling facility.

In 2009, Arnprior collected 602 tons of blue box recyclables at the curbside, with an estimated 43 tons of cardboard at the Waste Disposal Site.

9.4.2.2 Electronic Waste

Electronic waste (e-waste) is accepted at the Arnprior Waste Disposal Site for a tipping fee. The e-waste is collected by Computer Recyclers for processing. Approximately 13,740 kg of e-waste was collected in 2009 and the cost for this service was \$7,529.00.

Funding assistance for municipal e-waste programs is available through Ontario Electronic Stewardship (OES). The Town of Arnprior has chosen not to register with this agency at this time – there are conditions associated with registration, such as storage requirements and constraints on who can process the material, that offset the value of the funding. Numerous municipalities have chosen not to offer free e-waste collection, instead residents are encouraged to take advantage of free programs offered by electronic retailers such as Future Shop or Staples.

9.4.2.3 Household Hazardous Waste

Residents of Arnprior are permitted to use the Household Hazardous Waste (HHW) transfer station at the Renfrew Waste Disposal Site in the Town of Renfrew. The operation of this transfer station is subsidized by Stewardship Ontario and there is no cost to residents when they drop off HHW. The Town of Arnprior contributes financially to operation of the HHW facility, costs are distributed based on the populations municipalities served. In 2009, an estimated 131 Arnprior residents used this program.

The Town of Arnprior does not currently offer any comprehensive HHW collection or transfer services within the Town limits. Cell phones and dry cell disposable batteries up to 5 kilograms are collected at the Town Hall, the Nick Smith Centre, and the Library and transferred to Call2Recycle for appropriate recycling and disposal, while the light bulbs from the Town's buildings are collected at the Town Hall and transferred to Aevitas for appropriate recycling and disposal.

9.4.2.4 Organics

The Town of Arnprior offers curbside collection of leaf and yard waste twice per year in the spring and fall. This activity is included in the curbside garbage collection contract. Leaf and yard waste must be in biodegradable paper bags and is taken to the Arnprior Waste Disposal Site. Additional leaf and yard waste and small brush are accepted directly at the site free of charge. Large brush with a diameter greater than 1.5 inches, is also accepted, subject to a tipping fee. This material is mulched on site at minimum annually and used as landfill cover. In 2009, an estimated 68 tons of yard waste was collected curbside and 327 tons received at the Waste Disposal Site.

The Town provides backyard composters to residents at the subsidized price of \$30. The Town also provides educational material for the use of the composters.

Arnprior does not currently offer source separated organics collection or transfer service.

9.4.2.5 Tires

Tires are accepted at the Waste Disposal Site for free and are hauled by a registered contractor for processing. The Town of Arnprior is registered with Ontario Tire Stewardship (OTS), an agency which funds municipal tire programs across the province.

9.4.2.6 Scrap Metal

Scrap metal, such as old furniture, barbecues or bath tubs, is accepted at the Waste Disposal Site and is hauled by a private contractor for recycling.

In 2009, Arnprior diverted 59 tons of scrap metal at the Waste Disposal Site.

9.4.2.7 White Goods

White goods, such as stoves and washing machines, and refrigerators that have had the Freon removed, are accepted at the Waste Disposal Site and collected by a private contractor for processing.

The white goods diverted from the Waste Disposal Site are included in the 2009 diverted tons of scrap metal.

9.4.3 Waste Disposal Site Operations

The operation of the Arnprior Waste Disposal Site is contracted to a private firm that is responsible for all site works, including covering and the provision of a site attendant. Ministry of the Environment guidelines for Waste Disposal Site operations include that

- All waste must be covered at the end of each working day
- Cover material – typically a sandy, inert soil – should be placed in 6 inch layers
- Waste should be compacted regularly to discourage rainwater infiltration
- A site attendant must be present at all times when the site is open
- Accurate records of the quantity and type of waste and cover material received on site must be kept
- Groundwater and surface water monitoring on and adjacent to the landfill property is required
- An Annual Report, documenting all activities and monitoring results, must be submitted to the Ministry

The Arnprior Waste Disposal Site also receives dewatered sludge from the Town's Water Pollution Control Centre (WPCC). It is expected that the upgrades to the WPCC will result in a different type of sludge that will be suitable for land application instead of landfill disposal. These upgrades are expected to be completed in 2011. Based on topographic surveys and Town records, up to 50% of the fill at the landfill in 2009 was cover material.

The Town has retained Golder Associates to carry out groundwater and surface water monitoring programs and prepare the annual report.

Arnprior Waste Disposal Site is open Monday, Wednesdays and Fridays from 9:00AM to 4:00PM and on Saturdays from 9:00AM to 1:00PM.

9.4.4 Waste Disposal Site Closure

The 2009 Annual Report for the Waste Disposal Site, prepared by Golder Associates, estimated a rate of fill of approximately 11,000 m³/year, which indicates the site will reach capacity in approximately 22 years. When a landfill is to close, the waste area is reshaped, covered with impermeable clay soil, topsoil, and grass seed. The cost of closing and capping the entire site is estimated at \$1.3 million, but this price is largely dependent on the availability of capping material (a detailed calculation of closure costs can be found in Appendix B). The Town contributes annually to a reserve fund for the closing of the Waste Disposal Site and for post closure monitoring that is a Ministry of Environment requirement. The amount of the reserve contribution is reviewed annually to ensure that the Town's liabilities are being met.

Landfills must close when they reach their prescribed capacity, but they also may close early if they are found to have a detrimental effect on the surrounding environment. Ongoing monitoring by Golder Associates is determining the extent of the impact the landfill is having on the environment and possible methods of mitigation. For more information, please refer to the Annual Report by Golder Associates.

9.4.5 Emerging Technologies

Town Council and Town staff are continually on the lookout for new waste diversion and disposal opportunities. An example of an emerging technology is plasma arc. Plasma arc, which is used to incinerate waste at very high temperatures with minimal negative by-products, is being tested at Plasco Energy Group's (Plasco) pilot facility in Ottawa. Technologies of this type require a significant quantity of waste each day – in the order of 100 tons – to make operation technically and economically viable. In comparison, the residents of the Town of Arnprior produce an average of 5 tons of waste per day (based on 0.75 kg/capita/day for 7,000 residents). Utilising such technology would likely require partnering with several other municipalities.

Source separated organics (SSO) composting, though not a new technology, is now being aggressively marketed to municipalities on a regional scale. Private firms have constructed facilities to serve Green Bin programs in the Cities of Ottawa and Kingston, while the Town of Perth has established their own processing facility at the Town's Waste Disposal Site. SSO programs have been slow to develop owing to the considerable capital and operational cost, and lack of readily available processing facilities. New processing facilities often encounter substantial public backlash and compliance difficulties with the Ministry of the Environment, often relating to odour issues. SSO has been considered for the Town of Arnprior, but are not currently recommended based on a cost/benefit analysis. This is an option, however, that will be worthy of further review as the processing industry develops.

Bio-reactors, which digest existing waste in landfills to produce usable methane gas, are being constructed across the province at both private and municipal landfills. Landfills must be very large and be shown to produce methane in substantive quantities for the initiative to be economically viable. The Lafleche Landfill in Moose Creek, which at 7.4 million cubic meters is one of the largest landfills in Eastern Ontario, has established a bio-reactor at their facility.

9.4.6 Diversion Initiatives

The Town of Arnprior's current diversion initiatives include:

- limiting the number of bags of garbage per week
- providing bi-weekly collection of garbage during the winter months, November 1 to April 30 inclusive
- offering convenient blue-box recycling with a broad and uncomplicated list of acceptable materials
- providing e-waste, HHW, scrap metal, tire, and white good depots
- providing yard waste collection and depot
- subsidizing back yard composters
- establishment of "Give Away Day" to encourage item reuse within the community.

The Town publishes several flyers, calendars, and informational brochures throughout the year to raise awareness and to educate the public on the various components of the Town's waste management program.

Some of the Town's practices can be considered a disincentive to recycling. For example, there is no incentive for residents to put out less than their total bag allowance. A two free bag limit is difficult to enforce – resident's with more than two bags can put their bags in front of other homes that otherwise would only have one. Similarly, the Town's practice of issuing free vouchers for the waste disposal site can be a disincentive. Residents can be expected to share loads so that some users get more than one free load.

9.4.7 Administration and Funding

The Town's waste management program is overseen by a single staff person working within the Department of Public Works. In addition to coordinating the various components discussed in this report, the program administrator is also responsible for interactions with the public, government agencies, neighbouring municipalities, consultants, and Town Council. The program administrator is responsible for promotion and education, data collection and analysis, including waste audits, as well as annual reporting, which are the basis of funding allotments by Waste Diversion Ontario (WDO). Additional administrative assistance and labour is provided as needed.

The three waste management contracts for garbage collection, recycling collection and processing, and site operations were all tendered competitively. The Town's waste management program is funded through the general tax roll, tipping revenues, and provincial grants. The tipping fees are mostly collected from the industrial, commercial and institutional (ICI) sector and significantly offset the cost of the residential waste management program. The estimated cost per ton for residentially generated garbage would nearly double if the ICI revenue were removed from the equation. However, on the other hand, the landfill capacity at the Arnprior Waste Disposal Site would last twice as long.

Financial information from 2009 is summarized in Appendix A for reference.

9.4.8 Joint Initiatives

The Town of Arnprior participates in the following joint initiatives:

- The Town contributes financially to the operation of the Town of Renfrew's Household Hazardous Waste Transfer Station, but it is not involved with administration of the program.
- The Town allows use of its Waste Disposal Site by residents of the neighbouring Township of McNab-Braeside at twice the tipping fee charged to Arnprior residents.

The Town of Arnprior and five other local municipalities investigated the possibility of purchasing and operating Renfrew County Recycling Centre (RCRC) as a joint municipal facility, however after much deliberation, this opportunity was not pursued.

9.4.9 Promotion and Education

The Town of Arnprior produces numerous flyers, calendars, and informational brochures throughout the year which cover all aspects of the waste management program. Critical information, such as the curbside collection schedule, is provided annually as an insert in the Arnprior Chronicle Guide newspaper and the Arnprior Life magazine. Informational flyers are also made available at various locations throughout Town. The Town keeps its website up to date with current waste management information.

The Town hosted a public Garbage and Recycling workshop in 2009 to provide details on the respective programs, which has proven to be quite successful and will be repeated in future years.

Research by WDO has found promotion and education to be one of the most effective methods of improving waste diversion. Promotion and education accounted for only 2% of the total waste management program expenditures in 2009.

9.4.10 Recent Changes

Work on this waste management plan commenced in 2010 and was well advanced by end of March, 2011. Between April and July 2011, while this report was being finalized, the Town initiated several changes to its waste management program. We have not revised our report but we will acknowledge here that:

- The Town has initiated weekly garbage collection year round (previously the Town provided weekly pick up in summer, bi-weekly in winter).
- Contracts for operation of the landfill and for collection of garbage and recyclables have been retendered. Several recommendations of this report have been implemented.
- A bin has been provided for residents with small loads of garbage at the Waste Disposal Site, residents are no longer required to access the waste face.

9.5 Anticipated Future Needs

The population of Arnprior is expected to grow at an above-average rate as Ottawa continues to expand westward. With increased population there will be increased waste production. However, it is expected that the gradual nature of the population increase will enable the Town to accommodate the increased demand on its waste management programs with only minor adjustments such as additional collection routes or larger bins.

Landfill capacity at the Town's Waste Disposal Site is expected to last at least another 20 years and even longer if recycling practices improve and the diversion rate increases. In the event that the site becomes unavailable, the Town will need to make alternative disposal arrangements, likely with a private waste management firm. The switch away from the Town owned waste disposal site, with its significant revenue stream, will make residential waste management more costly, making recycling or composting more advantageous now and in the future.

Increased interest in diversion, both from the general public and from oversight agencies such as WDO, will certainly be a driving force for ongoing assessment and improvements in the Town's waste management program. As recycling and composting gain prominence in the public sphere and funding is increasingly allocated based on best management practices, waste diversion programs will gain a higher priority. This will affect the approach to new opportunities and services, as well as attitudes towards costs versus benefits. The public desire for more diversion initiatives, for example, has been the driving force behind Source Separated Organics programs that have been implemented in larger municipalities, and in some smaller municipalities such as the Town of Perth.

10. Goals and Objectives

10.1 Diversion Goals

The Town of Amprior currently diverts 22% of its residential waste stream through blue box recycling. A recycling diversion rate of 25% is proposed as a reasonable and achievable goal for the Town, and is consistent with Provincial averages and targets.

Based on the waste diversion programs that are in place, and the experience of other municipalities with similar programs, the total waste diversion rate is estimated to be between 30% and 40%. An accurate diversion rate for Amprior cannot be determined as the Town's current records do not differentiate between residential and ICI wastes. This plan will propose changes to current practices that will provide this important measurement.

A total waste diversion goal cannot be set until the current diversion rate is accurately assessed. However, considering the size, location, current programs, and available services for the Town, a total diversion rate of 50% would be an admirable and attainable goal. Meeting the provincial target of 60% would likely require significant additions to the Town's waste management services, including a source separated organics program, which, as will be explained in Section 11.3.3, is neither easy to implement, nor affordable at this time.

10.2 Service Objective

The Town of Amprior provides waste management services to all its residents and is committed to maintaining the high level of service that its residents have come to expect.

Notwithstanding the above, this plan will propose changes to program delivery that may prove difficult for local residents. Implementation of higher user fees, for example, would be seen by some as a necessary step to encourage recycling, while others would see it as a tax grab. When implementing changes, the Town has to balance the interests of the Town, current and future residents, businesses, provincial policy, and the environment.

Service level expectations and resident satisfaction can be difficult to measure, however there are tools, such as Survey Monkey, that can undertake this task at low to no cost. The Town should endeavour to survey residents regarding their satisfaction with existing programs and their interest in new programs. Periodic surveys will provide a measurement of acceptance of changes.

11. Proposed Initiatives

In this chapter the Town's current waste management practices and viable alternatives are assessed against the stated objectives of this Integrated Waste Management Plan and Waste Recycling Strategy – i.e. to optimize the waste management program, increase waste diversion rates, and realize additional programs to further reduce the municipality's total waste output. Initiatives that will help the Town of Arnprior meet achieve these objectives are proposed for the consideration of Arnprior Town Council.

11.1 Waste

11.1.1 Curbside Collection

The Town of Arnprior should continue to offer curbside garbage collection to all residents and small town-centre commercial generators, provided that the waste at curbside complies with Town policies on bag sizes, limits, tags, etc. This service is critical for keeping waste 'in its place' and also prevents overwhelming and unmanageable traffic volumes at the landfill.

A town-centre commercial business' participation in the curbside collection program, or the requirement to make alternate arrangements, can be dealt with on a case by case basis. The decision should take into account anticipated volumes, collection routes, accessibility, and proximity to residential waste collection.

The current curbside collection contract is due to expire in 2011. As will be discussed in the following section, the Town should endeavour to synchronize the waste management contracts – for garbage collection, recycling collection and processing, and operations of the Waste Disposal Site – so that the three may be competitively tendered at the same time. Bidders would have the option to offer pricing for one, two, or all of the services, which may result in cost savings for the Town.

The Town's current practice of collecting garbage once every two weeks in the winter is in keeping with this plan as a cost saving practice and as an encouragement for diversion. The Town could consider once every two weeks pick up in the summer as well, although the current practice avoids the issue of odour and pests by limiting the program to winter months.

11.1.2 Bag Tags and User Fees

The Town of Arnprior allows residents two free bags of garbage before charging user fees of \$2.50 per bag. While this policy is helpful in reducing the amount of waste to landfill, it does not impose a significant constraint on the average resident's waste disposal requirements. This is evident in the sale of bag tags – only \$10,855 was raised from bag tag sales in 2009 – just over one tag per residence. Other municipalities have achieved a 30% reduction in the amount of residential waste to landfill by applying a "pay-as-you-throw" program. In a "pay-as-you-throw" program, residents must purchase a bag tag for every bag of garbage they wish to dispose of.

The Town of Arnprior should consider a two-stream "pay-as-you-throw" bag tag policy. It is recommended that the Town issue two sets of tags - one for residential generators and one for ICI generators that utilize curbside collection services. Separate tags would allow the Town to track the quantity of waste originating from the two sources, which are requirements for the Town's Certificate of Approval and funding applications.

“Pay-as-you-throw” would also apply at the waste disposal site – the current practice of issuing one free voucher per residence would be discontinued.

The advantages of a “pay-as-you-throw” program are two-fold – to offset the cost of waste collection and disposal services and to encourage diversion. Most municipalities in Ontario do not base bag tag fees on full cost recovery. The primary purpose of the bag tag fee is to provide a direct and tangible incentive for residents to create less garbage. The bag tag fee should be revisited annually as part of the budget process and should be increased gradually and as needed to cover inflation.

Bag tags should continue to be made available at Town facilities – such as they are now at Town Hall, the Library, and the Nick Smith Centre – as well as local retailers who wish to participate. Increased distribution across the Town will make it easier for residents to acquire tags. Participating retailers would be required to enter into an agreement with the Town.

Bag tags would also be required on all bagged waste delivered directly to the Waste Disposal Site. To encourage diversion, the policy must be consistent across all disposal options. Bag tags could be made available for purchase at the Landfill.

11.1.3 Bag Size and Type

Several municipalities in Eastern Ontario require the use of Town issued garbage bags. The Town of Arnprior may wish to consider this option, however, residents of Arnprior would require approximately 100 bags per household per year, in excess of 320,000 bags. The Town would be advised to have between 25%-50% of that quantity on hand at any given time. The handling, storage, and administration of that many bags would be difficult.

Municipalities which have pursued this option have experienced complaints from the public because the bags were not durable enough.

Town by-laws specify the maximum size and weight of a bag of garbage. Contractors should continue to be instructed not to pick up over-sized garbage bags and containers. The contractor should continue to leave notices as to why the garbage was not collected, referring the resident to the Town’s well established policy on this matter. This policy is consistent across many municipalities.

The Town should advise local retailers who sell over-sized garbage bags and containers of the Town’s bag-size policy. Retailers are often appreciative of this information and can work with the municipality to provide suitable bags and containers to local residents.

The mandatory use of clear plastic garbage bags is being enforced in several municipalities in Eastern Ontario. The use of clear bags has been shown to increase participation in diversion programs, however this initiative is generally unpopular with the public. The most common concern is privacy, followed by the cost and availability of clear bags. This initiative presumes rigorous enforcement, with collectors and attendants viewing the bags’ contents and rejecting any garbage bags that contain material which should have been recycled or otherwise diverted, including recyclables in smaller grocery bags or kitchen catchers. The use of clear plastic garbage bags is suggested as an option to be considered during the annual reviews of the Town’s waste management program if other diversion initiatives are not helping the Town reach its recycling and total waste diversion goals.

11.1.4 Waste Accepted at the Waste Disposal Site

11.1.4.1 Residential

The Arnprior Waste Disposal Site accepts all types of waste generated within the Town of Arnprior and residential wastes from the neighbouring Township of McNab-Braeside, provided this waste is in compliance with the Site's Certificate of Approval and Town By-laws.

Other municipalities have found it necessary to ban certain wastes, such as bulky objects like old sofas, to preserve their waste disposal site's lifespan. This is not a priority issue for the Town of Arnprior at this time, however, staff should always be on the lookout for options. For example, others are investigating the feasibility of recycling mattresses. If service becomes available then Arnprior would want to take advantage of it.

Residents should also be encouraged to donate reusable clothing and furniture to charities such as the Opportunities Shop or to the Diabetes Foundation.

In making decisions to ban certain wastes it is incumbent on the municipality to ensure that other disposal options are available. It should be noted that banning wastes at the waste disposal site is not a diversion initiative if the material has to be disposed of elsewhere – wastes that are disposed of elsewhere are still part of a municipality's waste stream.

11.1.4.2 Industrial, Commercial, and Institutional (ICI)

The Arnprior Waste Disposal Site accepts ICI waste generated within the Town of Arnprior for a fee. Revenue from tipping fees amounted to over \$240,000 in 2009. This revenue offsets the cost of owning, managing, operating, and monitoring the site, which amounted to nearly \$300,000 in 2009. The cost of operating a Waste Disposal Site is not proportional to site usage, the revenue generated by ICI customers exceeds the marginal cost of providing this service.

Waste site operators have found that ICI waste disposal is very "cost sensitive". Commercial users will quickly switch to other sites if rates are low enough to offset haulage. Current usage at Arnprior Waste Disposal Site indicates that Arnprior's rates are lower than the competition's, although direct comparisons are difficult because tipping fees at alternative disposal sites are based on weight.

11.1.4.3 Construction and Demolition

Banning of construction and demolition wastes is an option that has been implemented by other municipalities to preserve waste disposal site lifespan. The Town of Arnprior accepts all solid, non-hazardous wastes at its Waste Disposal Site. The remaining capacity of the landfill – over 200,000 m³ - is estimated to be able to serve both residential and ICI users for at least another 20 years. Attempting to plan waste management beyond that period of time is difficult as technology, alternatives, and acceptable practices are likely to change significantly.

The Town should take care to not allow contaminated or potentially hazardous waste, such as older waste insulation or soil from industrial lands, to enter the site. The Town and the designated attendant have the authority to refuse any waste for any reason.

The Town may continue to allow residents to bring bulky waste to the Waste Disposal Site although tipping fees should be carefully established to compensate for operational impacts. Items which are not easily compacted or buried, such as mattresses, cushions, and the like, should have higher tipping fees because they require addition compaction effort and they consume capacity at a higher rate (i.e. in terms of kilograms per cubic meter) than other waste. The Town should provide information about alternative garbage disposal firms with their other informational material. This information is also available in the Yellow Pages and the internet.

11.1.5 Waste Disposal Site Operations and Record Keeping

The Town of Amprior should consider the installation of weigh scales at the Waste Disposal Site. Weighing incoming material for billing purposes is easier to control, more accurate, and fairer than relying on volume measurements, and is the norm at commercial Waste Disposal Sites. The Town of Amprior should endeavour to be competitive with its rates. Current usage indicates that the Town's rates are better than what is available at private sites. Weigh scale records would allow the Town to quantify its disposal rate and total diversion rate. Accurate quantities are a critical part of reporting to funding authorities such as WDO.

A typical weigh scale installation is estimated to cost less than \$100,000 with additional operating costs of \$60,000 per year (primarily for one additional staff). Lower capital costs can be achieved by purchasing a used scale, and operating costs can be reduced by limiting hours.

If weigh scales are not available, then the Waste Disposal Site attendants should adjust their record keeping to record quantities of bags and number of items instead of traffic volumes. Numbers of bags and items are more useful to waste program accounting than traffic records, since bags are more easily converted into estimates of weight.

The fee schedule should be revisited annually as part of the budgeting process and to ensure competitiveness and fair compensation. The Town should strive for full cost recovery through tipping fees, although this cannot be guaranteed. Market forces may drive ICI users to other facilities causing an unpredictable fluctuation in the revenue stream whereas costs will remain relatively fixed. In setting its rates, the Town should consider tipping fees offered to local waste generators at neighbouring municipal sites or private waste disposal facilities, such as those operated by Lafleche Environmental, Waste Management Inc., and Tomlinson Environmental Services Ltd..

11.2 Recycling

11.2.1 Curbside Collection

The Town of Amprior is required by provincial legislation to provide residents with curbside collection of blue-box recyclables. The Town also collects blue-box recyclables from small town-centre commercial generators. The Town is permitted to set policy on sorting, contamination, bin size, etc.

Whether a town-centre commercial business can participate in the curbside collection program or be required to make alternate arrangements can be dealt with on a case by case basis. The decision should take into account anticipated volumes, collection routes, accessibility, and proximity to residential waste collection.

Recycling should always be as convenient for the user as waste disposal. The Town should consider offering recycling collection on a weekly basis to maximize participation and collection. As recycling collection is every other week (like garbage collection in the winter) some residents may run out of blue box capacity before collection day and resort to putting recyclables in the garbage.

The Town currently provides residents with two free blue boxes, additional boxes are available for purchase at \$7 each. Free replacements for broken or lost boxes can be offered on a case-by-case basis – but the Town has to protect against abuses of this service. Some residents would appreciate a larger box, particularly given the current frequency of pick up. The Town should go to the largest box that is acceptable to most collection contractors.

11.2.2 Recyclable Materials

The Town of Arnprior has limited control over the list of blue box items that can be put out by its residents. The Town should endeavour through its tendering practices, to maximize the list of materials that are picked up. If additional materials become feasible for recycling, either through new markets or new processing technologies, then the Town should encourage their recycling contractor to add these to the program. The Town should avoid removing materials from the 'acceptable' list as these changes cause confusion for residents, which leads to frustration and decreased participation. The exception to this is empty aerosol cans, which are classified as household hazardous waste and should be disposed of at an appropriate HHW facility.

The Town should continue to have residents separate the blue-box materials into two streams – fibres and containers – as this is the industry standard at most recycling facilities. In the event that the Town retains a different recycling processor, the new processor will likely require the same sorting practices, and there will be no change to the daily habits of Arnprior residents.

To a large extent, the Town of Arnprior is constrained in its ability to change the list of acceptable recyclable materials. The Town is not a large enough generator to maintain its own recycling processing facility, so it is limited by the services that are offered by private firms. The Town can encourage private firms to offer more services through its purchasing policies.

11.2.3 Collection, Hauling, and Processing Contract

The Town of Arnprior should time its waste management contracts to expire simultaneously. As discussed in Section 11.1, offering contractors the option to bid on one or all services may result in significant cost savings to the Town. Further cost savings may be available through partnerships with other municipalities – common tendering documents, such as currently being implemented, may provide the economies of scale necessary to influence the practices of local recycling firms. Joint efforts are considered a best practice by Waste Diversion Ontario and may result in better funding.

The collection contract for blue box recyclables should be an annual flat rate which includes haulage to an appropriate recycling facility and any tipping fees that may be charged. The contractor would be responsible for selecting an appropriate processing facility. A fixed fee will insulate the Town from sudden changes in market prices and assist with annual budgeting. Contractors should be required to collect a specified list of recyclable materials, as set forth by the Town. The contract for recycling collection should include provisions to adjust the rate if additional collection stops or new recyclable materials are introduced.

Alternatively, the Town could select a recycling processing facility in advance and require the collection contractor to haul to the designated facility. This option would allow the Town to 'shop around' for a facility which is close by (to reduce hauling charges), but also accepts the most types of materials (to increase recycling diversion). There are a few recycling processing facilities in the area – Renfrew County Recycling Centre in Renfrew, Ottawa Valley Waste Recovery Centre in Pembroke, and Cascade Inc. in Ottawa. Each facility accepts a different list of materials, has different rules regarding contamination, and different fee schedules. Additionally, Renfrew County Recycling Centre could potentially close in the near future. If the Town were to pursue the 'designated facility' option, a careful deliberation by Council and staff would be required where diversion and financial priorities are weighed.

11.2.4 Recycling at the Waste Disposal Site

The Town should consider expansion of the recycling collection facilities at the Arnprior Waste Disposal Site to include all blue-box recyclables. This could be as simple as providing separate bins for fibres and comingled materials. The Town should take every opportunity to facilitate recycling by residents and local businesses. The additional material could be accepted free of charge and transferred and processed in the same manner as the cardboard is now.

11.2.5 Recycling Transfer Station

The Town of Arnprior could consider establishing a regional recycling transfer station at Arnprior Waste Disposal Site. In this scenario, blue-box materials collected in Town and from neighbouring municipalities would be 'bulked' at the Waste Disposal Site and hauled 'en masse' to the processor, instead of each municipality hauling their recycling separately. This option may be advantageous if Renfrew County Recycling Centre were to close, as alternative facilities are considerably farther away. Participating municipalities would pay a portion of the operating and transportation costs based on their respective populations.

This initiative would require that all participating municipalities agree on common recycling practices, including acceptable materials and the contracted processing facility. This type of initiative would require significant discussion with several municipalities. If Council wished to pursue this initiative, they should establish an exploratory committee, or equivalent, to begin discussions and gauge interest. The situation, design, and approval of a transfer facility at Arnprior Waste Disposal Site would require the retention of a qualified consultant to perform the necessary background studies, prepare a design and operation plan, and make the appropriate applications to the ministry of the environment. Depending on the enthusiasm of neighbouring municipalities to participate, this process could begin as early as this year, and would likely take less than six months to complete. The facility could be equipped and ready for operation in less than a year.

A regional recycling transfer facility would consist of roll off bins, loaders and outdoor compaction equipment. The approximate cost to establish a regional recycling transfer facility has been estimated at \$100,000 for new equipment with annual operating costs estimated at \$60,000. Operating costs do not include haulage and tipping fees at a recyclables processing facility.

11.2.6 Municipal Recycling Facility

The Town of Arnprior could also consider establishment of its own Municipal Recycling Facility to receive, process (i.e. sort and bail) and market recyclables to end users. The capital cost for such a facility is estimated to be in excess of \$1,000,000 and would require several full time staff to operate. A facility of this type requires a very large waste stream and would be impractical for a municipality the size of the Town of Arnprior – the facility would need to draw on a regional basis to be cost effective. Renfrew County Recycling Center and Ottawa Valley Waste Recovery Center are examples of existing regional recycling facilities.

11.2.7 Recycling Around Arnprior

The Town of Arnprior should endeavour to provide an opportunity for recycling wherever there is an opportunity for garbage disposal. For example, recycling containers should be located next to garbage cans in public parks and recreation centres. The majority of Ontarians are accustomed to recycling at home, and, provided with the facilities, will do so in any situation.

For most municipalities, maintenance of garbage containers and recycling bins at public facilities is a staff function. This initiative would work best in conjunction with a recycling depot at the waste site (item 11.2.4 above), the recycling depot would provide a convenient location to hold recyclables for pick up by the recycling firm.

11.3 Organics

11.3.1 Back Yard Composting

The Town of Arnprior should continue to offer backyard composters for sale at a subsidized price along with educational material. The type of composters currently offered by the Town of Arnprior are the standard back-yard composters offered by most municipalities in Eastern Ontario and are generally considered the best-value option. If the Town is approached with an alternative composter, it should be reviewed by the waste management administrator and finance staff for operational effectiveness, ease of assembly, durability, and unit cost.

11.3.2 Leaf and Yard Waste

The Town Arnprior offers residents bi-annual curbside collection of leaf and yard waste. The frequency of pickup – once each in the spring and fall – is standard across most municipalities. If residents miss the pickup they have the opportunity to bring the leaf and yard waste to the Waste Disposal Site where it is accepted at no cost.

This collection of leaf and yard waste should continue to be part of the curbside garbage collection contract as the contractor is already equipped with the necessary trucks and Ministry of the Environment Licensing. The cost of licensing Town trucks would not be prohibitive (likely less than \$1,000), though it is somewhat unnecessary for only two days per year.

The Town should continue to accept all leaf and yard waste and brush under 1.5 inches in diameter for free at the Arnprior Waste Disposal Site. This is considered a form of diversion and should be encouraged and facilitated wherever possible. The leaf and yard waste and brush should be mulched as often as necessary to keep the size of the stockpile to a manageable size. The Arnprior Waste Disposal Site is licensed to store up to 4,500 m³ at a time. The resulting mulch could be provided free of charge to residents for pick up at the site, or mixed with sandy inert soil and used as cover material on the landfill (as is the current practice).

11.3.3 Source Separated Organics (SSO)

Source separated organics (SSO) collection and processing programs have been implemented by several, typically larger municipalities in Ontario. SSO is seen as a necessary service if municipalities are to meet the Provincial objective for 60% waste diversion, although costs have generally been prohibitive for smaller municipalities such as the Town of Arnprior (the Town of Perth being the exception). SSO curbside collection requires significant capital investment – nearly \$150,000 – to provide a ‘green bin’ to every household. Collection of SSO requires specialized trucks which are slowly being added to the fleets of local private contractors. SSO is a new industry, the closest processing facilities to Arnprior are in east Ottawa and Perth. The estimated cost of operating a SSO program in Arnprior is estimated at over \$140,000 per year, which is a very high cost for what is likely to amount to a small increase (5%) in total waste diversion, based on recent waste audits undertaken by the Town.

However, arguments opposing SSO will likely change over the next five years. As larger cities implement and improve their SSO programs, more opportunities will immerge for smaller-scale participants. It can be expected that existing companies will expand their services, new facilities will open, and operating and capital costs will decrease. The Town should review the state of the SSO industry and the opportunities for Arnprior on an annual basis, as part of the review and monitoring plan described in Section 13.

Implementation of a SSO composting facility at the Arnprior Waste Disposal Site is not recommended. SSO facilities have significant and complex operational requirements, including daily monitoring by trained staff. Process “upsets” can result in nuisance odours that can travel long distances. Available space at the Waste Disposal Site is limited, and the Ministry of the Environment will not permit composting operations on top of existing waste or in areas designed for waste disposal.

11.4 Household Hazardous Waste (HHW)

The Town of Arnprior participates in the Renfrew Household Hazardous Waste program. The facility is conveniently located for residents of Arnprior and the cost to the Town is significantly less than establishing a facility within the Town.

A permanent HHW depot could be established at the Arnprior Waste Disposal Site. This would entail greater capital and operating expense, but it would be more convenient for Town residents and operation would be independent of other municipalities. A permanent, well-ventilated structure would have to be built on site and staffed by trained operators. The storage facility would be emptied, typically on an annual basis in the fall, by a specialized waste management firm. Operating a HHW transfer facility at the Arnprior Waste Disposal Site would require an amendment to the site’s Certificate of Approval and additional annual reporting to the Ministry of the Environment.

The cost to establish a permanent HHW transfer facility at Arnprior Waste Disposal Site is estimated at \$135,000. Additional staffing to operate the facility one day per week through the summer, with annual clean out in the fall, is estimated at \$20,000 per year. This estimate does not include disposal of the waste, Stewardship Ontario will reimburse the Town for costs associated with packing, shipping and disposal.

Mobile HHW depots which set up single-day collection events are not recommended. To maintain a reasonable level of service to the local residents, these event days should be scheduled 6-10 times per year at a substantial cost per each. A permanent facility provides better service at a lower unit cost.

Regardless of the type of municipal depot, the Town should encourage residents to return HHW to retailers wherever possible. For example, most paint retailers now accept partially empty paint cans at their stores and see to their proper processing and disposal. Pharmaceutical can be returned to the drug store. Unfortunately, similar opportunities do not exist for all types of HHW and some sort of municipal program is still be required. However, increased use of commercial retail recycling and return programs will reduce the use of municipal programs and the annual expense to the Town. The Town should continue to make available in its publications and website a list of commercial retail programs that are available within the local area.

11.5 E-Waste

The Town of Arnprior should continue to offer e-waste collection at Arnprior Waste Disposal Site. Electronic devices are constructed of valuable materials, precious metals for example, that can be recovered and reused. Electronic devices contain hazardous materials that may worsen the landfill's environmental impacts.

As with HHW, the Town should encourage residents to return e-waste to commercial retailers wherever possible. Electronics retailers generally have relaxed policies regarding the return of this material and will often accept all manner of electronics, regardless of age or where it was purchased. Increased use of commercial retail recycling programs will reduce the need for municipal programs. If, in the future, the Town finds that the municipal e-waste program is chronically under-utilized in favour of commercial retail programs, then the Town may consider discontinuing their program. This decision should be reviewed annually as part of the regular review of this IWMP.

Funding to assist municipalities with e-waste processing costs is available from the Ontario Electronic Stewardship, a province-wide funding organization representing producers of electronic equipment. The Town has chosen not to register with OES at this time (for reasons noted in chapter 9.4.2.2). This decision should also be subject to annual review.

11.6 Waste Disposal Site Operations

11.6.1 Contracted Operations

The Town of Arnprior should continue to contract for operation of Arnprior Waste Disposal Site. Upon expiration of the operations contract, the contract should be competitively tendered. The contract must include specifications to guarantee that the site is operated in compliance with its Certificate of Approval and Ministry of the Environment best practices. These specifications include, but are not limited to:

- compaction rates of 500 kg/m³ or greater
- daily cover material ratios of 1:4
- grading of slopes no steeper than 4:1
- progression of fill areas as prescribed by the current Design & Operation Plan
- management of on-site surface water to mitigate ponding
- use of heavy equipment specific to landfill operations (e.g. sheep's foot compactor or equivalent)
- daily record keeping of quantity, type, and source of all waste and cover material received
- daily, weekly, and monthly site inspections for both operational and environmental issues

However, it needs to be recognized that the role of the landfill site attendant, which is currently contracted, has changed. The Town has to be able to rely on the site attendant for more than just caretaker duties – the attendant is also responsible for enforcing the Town's by-laws, collection of user fees, promotion of good waste diversion practices, record keeping, etc.. It is suggested that a Town employee may be the attendant, while the contractor be

solely responsible for operations. The attendant would be required to be on-site during all open hours to the general public (25 hours per week), while the operators would be required at the end of each operating day to relocate collected waste, compact, and cover. Under this scenario, the cost of the operations contract is expected to decrease by approximately 25% (approximately \$54,000 annually), which would offset the cost of a part-time Town employee to act as attendant.

It is recommended that monthly operation and environmental inspections, mentioned above, be carried out by a senior Town employee, such as the waste management administrator. The inspection would document a wide variety of potential issues and generate an action plan for the Town and the operator to ensure compliance with the Certificate of Approval and the operations contract.

The Town of Arnprior could transition into performing site operations at the Arnprior Waste Disposal Site themselves, instead of contracting the service. The operation does not have to be solely by Town forces or contracted forces, nor should it. The Arnprior Waste Disposal Site operations periodically requires certain specialized equipment - such as heavy compactors or large backhoes - which may be more economical to rent or contract as needed, than to own.

If the Town wishes to pursue the operation of the site itself, a recommended action plan is:

- Enlist a Town employee as attendant (the contractor may continue to provide operators). Purchase landfill operation equipment during 2013 (estimated cost of \$300,000), and train operators on methods of landfill management
- In 2014, Waste Disposal Site operations may be primarily by Town forces, with specialized contractors, hired as needed to perform specific tasks.

The Arnprior Waste Disposal Site should continue to be operated in an area-fill fashion, as prescribed by the site's current Design and Operation Plan and Certificate of Approval. Waste is pushed out over an area and covered, as opposed to methods involving excavation and backfilling.

11.6.2 Access

To improve public access and safety on the site, the allowable areas for traffic should be limited and clearly delineated. A one-directional loop should be established with designated drop off locations for waste, recycling (including scrap, white goods, tires, etc.), yard waste, and e-waste. By limiting driving areas as much as possible, maintenance of the driving areas will be easier and user safety will improve. Access to the waste face should be restricted to the operations contractor and curbside collection trucks. A drop zone for small quantities of waste from the general public should be established adjacent to the driving loop and the deposited waste moved out to the active area later by the operator.

If the Town decides to pursue the development of a regional recyclables transfer station at the Arnprior Waste Disposal Site as discussed in Section 11.2, improvements to the site entrance will be required. The current access road, Dochart Street, and the existing driveway are not well suited for all traffic. It may be possible to establish a new access from River Road. Additionally, a qualified traffic engineer would have to be retained to address the issue of trucks turning on a busy County Road.

11.6.3 Weigh Scales

As mentioned in Section 11.1, the Town of Arnprior would benefit from the installation a weigh scale at the Waste Disposal Site. Basing tipping fees on estimates of volume or type of vehicle is inaccurate and does not assure the Town adequate compensated for the use of its facility or the life of the site. This is particularly important when accepting waste as revenue, as the Town does. The estimated cost to install weigh scales is less than \$100,000 and would require the employ of an additional site attendant during operating hours. The attendant will be responsible for assigning fees to each load and as such it is recommended that he/she be a Town employee.

Weigh scales would provide accurate records of site usage and would greatly improve the Town's ability to apply for funding, set tipping fees, and plan for eventual site closure.

The weigh scale should be installed adjacent to the site access road and within the operational buffer surrounding the landfill, so as not interfere with future landfilling activities. All vehicles depositing wastes or cover material would be required to pass over the scales on entering and before leaving the site. Weigh scales of the type used at waste disposal sites are not accurate for loads of less than 100 kg – operators generally set a minimum tipping fee, or use bag tags, for small loads.

There is an active market for used weigh scales – The Town might be able to reduce installation costs by installing a reconditioned unit - after the site closes the scales would have resale value. Also, there is a market for weighing vehicles – the standard fee to weigh a truck is \$7.00.

11.6.4 Landfill Site Expansion

The 2009 Annual report for Arnprior Waste Disposal Site estimates remaining capacity at 200,000 cubic meters and remaining lifespan at 22 years. It should be feasible to extend the life of the site by another ten years with good operations and improved diversion. Expansion of the site is not required at this time.

The Province of Ontario has passed legislation, Ontario Regulation 101/07, which makes it easier for municipalities to expand small rural landfill sites by up to 100,000 cubic meters. An additional 100,000 cubic meters represents only nine years at current usage rates. Expansion of the site under O. Reg. 101/07 should only be considered as a stop gap measure to be implemented if no other feasible options exist.

Proposals to expand an existing landfill by more than 100,000 cubic meters, or to develop a new landfill site, must undergo a full environmental assessment. This entails costly studies to establish that the proposed expansion or the proposed new site is preferred over any other viable option. The expanded or new site will require synthetic liners and leachate treatment facilities. Most municipalities in Ontario have found this process to be prohibitively expensive and prone to failure. Most recent approvals have been granted to private firms that have an advantage over municipalities in that they do not have to assess multiple sites.

In summary, expansion of the Arnprior Waste Disposal Site is not required at this time. As the site approaches five years of being full the Town of Arnprior will need to initiate studies to identify its waste disposal options. A small extension of the currents site's lifespan may be achievable, however in the future the Town will need to seek waste disposal services elsewhere.

11.6.5 Ongoing Monitoring

Ongoing ground and surface water monitoring at the Arnprior Waste Disposal Site is a requirement of the site's Certificate of Approval. Compliance is mandatory. The purpose of ongoing monitoring is to establish compliance with Ministry of the Environment guidelines. Site impacts can be expected to increase over time, as more waste is disposed of. Mitigation measures, such as the purchase of additional buffer land, may be required. Ongoing monitoring and trending of data will allow the Town time to prepare for major expenditures.

The Town should, on a five-year basis, request proposals from qualified consultants to perform the monitoring, analysis, and reporting at the Arnprior Waste Disposal Site. A five year term allows a consultant to develop a good understanding of the issues at a site and allows start up costs to be spread out over several years.

11.6.6 Design & Operational Plan

The Town should, on a ten-year basis, update the Design and Operational Plan for Arnprior Waste Disposal Site. This work should be performed by a consultant already familiar with the site, typically the same firm conducting the Annual Monitoring and Reporting. An up to date and effective Design and Operational Plan is critical for Ministry compliance and efficient operating practices.

11.7 Waste Disposal Site Closure

The Town of Arnprior should plan for the eventual closure of the Arnprior Waste Disposal Site. The 2009 Annual Report for the site estimates that the site will reach capacity in 22 years. Closure costs are estimated at \$1,300,000. The Town should continue to contribute annually to a reserve fund to ensure that adequate financial resources are available when the time for closure is reached.

Remaining capacity of the site is updated each year in the site's annual report. Reserve contributions should be adjusted to reflect current information.

It should be reiterated that landfills do not only close when they reach capacity, they may also close if they are shown to have detrimental effects on the surrounding environment. Currently, the impact that the Arnprior Waste Disposal Site is having on the environment is not considered unsatisfactory. If ongoing monitoring begins to show otherwise, then the Town should consider accelerating their financial contributions to be prepared for an early closure.

Closing a landfill involves capping the entire waste area with 600 mm (2 feet) of impermeable clay soil and 150mm (6 inches) of top soil. Acquiring clay and top soil is the most expensive part of a closure operation. The Town should take advantage of any free or low cost cover material that is made available to it. Materials can be stockpiled on site, either on the buffer land or on an inactive part of the landfill, and periodically (i.e. every three to five years) applied to those portions of the site that have reached final elevation.

Periodic closures of those portions of the landfill that have reached capacity – as opposed to one large closure at the end – are considered preferable for both environmental reasons and for site control. Capping of a portion of the site will reduce leachate generation. Parts of the site that have closed will re-vegetate and it will be obvious to site operators to stay off those areas. It is appropriate to use reserved funds for periodic closures, and the total reserve requirement for final closure can be reduced following each partial closure.

Before the site is closed, the Town will have to make alternative arrangements for its garbage disposal. The Town will have to add to the curbside collection contract, either as an amendment or a second contract, to include hauling costs to another landfill and tipping fees. Currently, there are no local landfills that can accept new waste clients; the Town may need to make arrangements with a firm that has access to private facilities and broad transfer networks.

Optimizing the use of Arnprior Waste Disposal Site, and delaying the need to haul to a private disposal facility, has long term economic benefits for the Town.

11.8 Emerging Technologies

Waste management staff from the Town of Arnprior should continue to monitor emerging technologies in the region and the opportunities that may result. Staff should continue to work with organizations committed to improved waste management practices, such as Waste Diversion Ontario, Ontario Waste Management Organization, Municipal Engineering Association, Association of Ontario Municipalities, and the Solid Waste Association of North America (SWANA). As discussed in Section 0, new technologies which could potentially be very beneficial to the Town of Arnprior are still in their early developmental stages and not yet financially, or practically, appealing. The status of new technologies should be re-evaluated annually as part of the monitoring program described in Section 13.

11.9 Diversion Initiatives

To encourage recycling and overall waste diversion, the Town of Arnprior should investigate a broad array of initiatives. Research by Waste Diversion Ontario concluded that the most effective initiatives include:

- a pay-as-you-throw program
- reduced frequency of garbage collection, and
- mandatory clear garbage bags

All of the above initiatives have been considered in this report and are discussed in more detail in Section 11.1. Of the three, a pay-as-you-throw program is preferred.

The frequency of garbage collection in Arnprior has already been reduced to once every two weeks in the winter. However, the concept of a lower level of service can apply to other waste policies as well – for example, the current practice of allowing one free landfill voucher per year is counterproductive in terms of reducing waste and encouraging recycling.

The use of clear garbage bags has been successfully implemented by several municipalities in Eastern Ontario, but not without some resistance. Residents will be concerned about privacy. The use of clear bags in by Arnprior is suggested as a possible initiative if diversion targets are not met by other means.

11.10 Administration and Funding

Day-to-day management of the Town of Arnprior's waste management programs require a full-time, experienced staff member to coordinate. The Town should continue to designate a specific full-time staff member to oversee all waste management programs and related responsibilities, as discussed in Section 9.4.7, and field all public inquiries relating to waste and recycling. This is a common practice across other municipalities, as a central administrator is necessary to manage the numerous and varied components of waste management. Additional support staff resources should be added as required by the administrator.

The Town's waste management practices must continue to evolve as new opportunities for diversion are identified or as changes are forced by new legislation or by service providers. Council should task a committee of Council, such as an Environmental Committee, to provide policy guidance and to consider significant changes.

The majority of the funding for the Town's waste management program should continue to be from the general tax roll and revenue generated from tipping fees at the waste disposal site. As discussed earlier, the revenue generated from tipping fees is extremely valuable to financing the Town's waste management program and, if carefully managed, will not shorten the expected remaining lifespan of the landfill beyond its current predictions. Additional revenue can be generated from a pay-as-you-throw program, but it should be stressed that this is intended to be a *diversion* initiative, not a fund generator, with the goal being to have the Town produce fewer bags of waste.

The Town should initiate measures to distinguish between the residential and ICI waste streams and accurately measure quantities of each. These measures would include different bag tags for residential waste and ICI waste and improved record keeping (preferably with weigh scales) at the landfill. Accurate quantities will assist with budgeting and with reporting for the WDO Datacall. WDO distributes funding largely based on a municipality's diversion rate. It is believed, though this cannot be verified at the present time, that the Town of Arnprior has been over-reporting its garbage tonnages by including ICI waste, thereby driving down its comparative rate of recycling and overall diversion rate. This has likely cost the Town funding in past years. Improving measurement of waste and record keeping practices will, therefore, improve the Town's rate of funding.

11.11 Joint Initiatives

The provision of waste management services through joint initiatives with neighbouring municipalities is encouraged by the Province of Ontario and by agencies such as WDO. With WDO, higher levels of funding may be available. A decision to enter into a cooperative venture with another municipality involves careful coordination at both staff and municipal Council levels. This report cannot speak to the willingness of neighbouring municipalities to enter into any type of venture. The following areas, however, offer the best opportunities for cooperative arrangements and may be worth pursuing:

- joint tendering for waste management services, with neighbouring municipalities, can offer economies of scale that may result in lower costs. The Town's current tender for collection of recyclables, which has been called jointly with the Town of Renfrew, is a good example of this type of initiative.
- establishment of a regional recycling transfer station at the Arnprior Waste Disposal Site, as discussed in Section 11.2.5.
- accepting leaf and yard waste, tires, and e-waste at the Arnprior Waste Disposal Site from neighbouring municipalities. This proposal, specific to these materials, would not require any modifications to the layout or operation of the Arnprior Waste Disposal Site, though it would require an amendment to the Certificate of Approval. Town Staff and Council would have to decide on a method of remuneration from participating municipalities, based perhaps on proportional populations utilizing the facilities.

- in the event that the Town decides to offer residents collection of source separated organics, services might be available from the City of Ottawa or the Town of Perth. Ottawa provides 'green bin' collection to all of its residents, and could, potentially, extend collection routes into Arnprior. This potential joint venture has not been discussed with the City, as provision of SSO is not currently recommended; however, it is something that could be considered in the future.

11.12 Promotion and Education

Promotion and education (P&E) is the single most important initiative a municipality can take to improve diversion and waste management program efficiency. The Town of Arnprior should continue to provide collection schedule calendars, service guides, and informational flyers to residents free of charge. These materials, as well as the Town's website, should be reviewed on a semi-annual basis by the waste management administrator, or their designate, to ensure correctness and clarity.

The Town of Arnprior should pursue a wide spread promotion and education campaign relating to the implementation of this Integrated Waste Management Plan and Waste Recycling Strategy. This campaign will begin once Council has received the report and decided on courses of implementation for the various components discussed herein. A campaign of this nature is expected to last for 6 months, depending on the chosen strategy.

In developing their P&E campaign, the Town should take advantage of additional resources from the Continuous Improvement Fund and Waste Diversion Ontario. CIF provides tools to create a customized P&E strategy, geared towards smaller municipalities. With this strategy in place, additional funding of up to \$5,000 is available for print materials and certain upgrades to recycling programs.

12. Implementation

Implementation of recommended initiatives first requires a decision from Council regarding the Town's priorities, goals, and more specifically, which initiatives will be pursued. Implementation can begin as early as the summer of 2011 for certain recommendations (such as adding recycling containers to all municipal parks and facilities), while others require financial planning and negotiations/contracting with other parties and institutions.

13. Monitoring & Reporting

This Integrated Waste Management Plan and Waste Recycling Strategy will be presented to Town Council for information. It will also be submitted to the Continuous Improvement Fund for review and funding approval.

Town waste management staff should review the status of implemented initiatives and recommendations on an annual basis, concurrent with regular annual reporting practices for the Arnprior Waste Disposal Site and completion of the WDO Datacall. As part of this annual review, staff should prepare a brief report to Council which include information such as:

- Waste and recycling statistics from the previous year, including blue box and total diversion rate
- Comparison to the previous year and identification of any trends over several years
- Status of all proposed initiatives and progress toward implementation
- Obstacles encountered
- Identification of new opportunities
- Recommended changes

The Integrated Waste Management Plan and Waste Recycling Strategy should be thoroughly reviewed and updated every five years. The entire report need not be completely re-written, but the same research and review process undertaken in the development of this report should be followed. This review would consider changes to the Town population and service demands, local and regional opportunities, effectiveness of initiatives, and the status of diversion activities across the province. All of these topics can change substantially in five years and it is important to ensure that these documents continue to be current, accurate, and relevant. This review would likely require the retention of a consultant and the Town should plan to budget for this in 2016.

14. Conclusion

This Integrated Waste Management Plan and Waste Recycling Strategy has included a thorough review of the Town of Arnprior's existing practices, opportunities, and constraints. For the most part, this plan has observed that the Town's current waste management practices are environmentally sound, compliant with regulations, and financially responsible. The number of recommended changes is small, as the Town's current practices have evolved over time in response to changes to the waste management landscape.

Proposed initiatives that involve change to the Town's current waste management practices are summarized below. Initiatives are proposed to help the Town meet the following goals:

1. To increase diversion of blue box recyclables from 22% to 25% of the residential waste stream.
2. To increase diversion from waste disposal at landfill to 50%.

Proposed initiatives are listed in the order in which they appear in this report; the order is not intended to convey priority. Further detail on each initiative can be found in the chapter that is indicated at the end of each bullet:

- The Town should synchronize the tendering and duration of waste management contracts, including curbside collection of garbage and blue box recyclables, processing of recyclables, and Waste Disposal Site operations to allow firms the option of bidding one or all services (see sections 11.1.1 and 11.2.1).
- To encourage waste diversion, the Town should consider a two-stream "pay as you throw" bag tag policy. A nominal fee would encourage users to minimize their waste to landfill. The Town should issue two sets of tags, one for residential generators and one for ICI generators, so that quantities from each source can be tracked (11.1.2).
- The Town should consider installation of weigh scales at the Arnprior Waste Disposal Site. Weigh scales would allow the Town to set fair and competitive tipping fees, and keep better records of waste sources and site usage (11.1.5).
- The Town should establish a recycling transfer station at Arnprior Waste Disposal Site, alongside existing scrap metal, cardboard recycling, tires, white goods, e-waste and yard waste facilities. Residents should always find recycling to be as easy and as convenient as waste disposal (11.2.4, 11.3.2 and 11.5).
- The Town should provide opportunities for recycling where ever trash cans are located – at parks and recreation centers for example. Town maintenance staff would be responsible for emptying the bins, this initiative works best in conjunction with the recycling station noted above (11.2.7).
- As part of its ongoing promotion and education program, the Town of Arnprior should continue to make residents aware of commercial retailers that will allow the return of used goods for proper recycling. Many household hazardous wastes and e-wastes can be returned to the place of purchase, reducing reliance on municipally funded services (11.4 and 11.5).
- Access to Arnprior Waste Disposal Site should be improved. A one-directional loop with drop off locations for waste, recycling (including scrap metal and white goods), tires, yard waste, and e-waste should be developed. Access to the waste disposal face should be restricted to the site operator, small loads of waste should be collected on the loop and later transferred to the waste face by the site operator (11.6.2).
- The Town should stock pile free or low cost clay and topsoil that may be made available to it at the waste disposal site. Parts of the landfill that are full should be graded and capped on a periodic basis (every three to five years) to reduce final closing costs and environmental impacts (11.7).
- The Town is encouraged to continue to participate in joint initiatives with neighbouring municipalities to achieve economies of scale that may help to reduce waste management costs. The recent tendering of recycling services with the Town of Renfrew is a good example of a joint initiative (11.11).
- Promotion and education is the most cost effective initiative that municipalities can undertake to improve diversion and waste program efficiencies. The Town should continue to enhance its current practices and take advantage of available funding (11.12).

- Town staff should undertake reviews and report annually on the effectiveness of the Town's waste diversion initiatives. Full updates of this waste management plan should be undertaken every five years (13).

This plan has considered numerous other waste management initiatives. The following is a partial list of initiatives considered but not currently recommended:

- mandatory use of clear bags or Town issued bags (11.1.3);
- restrictions on source and types of wastes received at the Arnprior Waste Disposal Site (11.1.4);
- development of a regional recycling transfer station at the Arnprior Waste Disposal Site (11.2.5);
- collection of Source Separated Organics (11.3.3);
- development of a local HHW transfer facility (11.4);
- expansion of the Arnprior Waste Disposal Site (11.6) and
- further reductions to the frequency of garbage collection (11.9).

Though not recommended at this time, several of the above initiatives could be implemented in the future if costs permit, or in response to changes to legislation, or if the Town of Arnprior is unable to achieve acceptable waste diversion rates with the current initiatives. Reconsideration of the above initiatives should be part of staff's annual review of this plan.

The above initiatives are proposed for consideration of Arnprior Town Council and reflect the stated objectives of this Integrated Waste Management Plan and Waste Recycling Strategy – i.e. to optimize the waste management program, increase waste diversion rates, and to realize additional programs to further reduce the municipality's total waste output.



Appendix A

2009 Cost Breakdown

Memorandum

To Town of Arnprior Page 1

CC

Subject 2009 Cost Breakdown

From Anne Kloosterman

Date February 1, 2011 Project Number 60162539

The Town of Arnprior provided their expenses & revenues for 2009 along with tonnages reported in the 2009 Datacall. The 2009 data is summarized as follows:

	Garbage	Recycling	Organics
Tonnage	5,392	645	470
Percent of Site Traffic	92%		8%
Expenses			
Salaries	\$ 1,550	\$ 1,550	\$ 1,550
Operating Supplies	\$ 3,578	\$ 3,578	\$ 3,578
Equipment - Internal	\$ 392	\$ 392	\$ 392
Contracted Services	\$ 34,291	--	\$ 2,982
Monitoring	\$ 33,978	--	\$ 2,955
Recycling Contract	--	\$ 129,089	--
Landfill Operations	\$ 199,733	--	\$ 17,368
Garbage Collection	\$ 154,447	--	--
Promotion & Education	\$ 2,404	\$ 2,404	\$ 2,404
E-waste	--	\$ 7,572	--
Reseres	\$ 46,920	--	\$ 4,080
Total	\$ 477,293	\$ 144,585	\$ 35,309
Revenue			
Bag Tags	\$ 10,855	--	--
Bins/Composters	--	\$ 734	\$ 734
Tipping Fees	\$ 231,648	--	--
Scrap Metal	--	\$ 3,427	--
WDO Grant	--	\$ 57,843	--
Total	\$ 242,503	\$ 62,004	\$ 734
Net Expense	\$ 234,790	\$ 82,581	\$ 34,575
Cost per tonne	\$ 43.54	\$ 128.03	\$ 73.56

It must be noted that the garbage figures include both residential and ICI waste, while the recycling numbers are limited to mostly residential. Based on best estimates, if Arnprior were to refuse ICI waste from their landfill, the net expense and cost per tonne for garbage would be significantly different, as shown below:

Net Expense	\$ 446,438	\$ 82,581	\$ 34,575
Cost per tonne	\$ 223.22	\$ 128.03	\$ 73.56

Appendix B

Landfill Closure Cost

Memorandum

To	Town of Arnprior	Page	1
CC			
Subject	Landfill Closure Cost		
From	Anne Kloosterman		
Date	February 1, 2011	Project Number	60162539

Landfills are closed either when they reach their prescribed capacity, or they are found to be having a detrimental impact on the surrounding environment. The method of closure is designed to minimize further impact.

The site is first regraded to compact the waste and create even, shallow slopes on all sites. The waste area is then covered with 600mm of impermeable clay soil or a geosynthetic fabric which performs the same 'water-proofing' function. An additional 150 mm of topsoil is placed on top, followed by grass seed.

The impermeable clay or geosynthetic layer encourages rainwater to run off the site, rather than percolating through the waste pile and generating leachate. The topsoil and grass promote evapotranspiration and help stabilize the slope.

The most expensive part of a landfill closure is the acquisition of a suitable clay soil. If a suitable nearby source can be found, and the material stockpiled in advance, then the cost will be reduced. A geosynthetic fabric is usually more expensive than the soil, but local unavailability of clay may make the fabric a more attractive option.

The estimated cost of closing the Arnprior Landfill, assuming the use of impermeable clay soil, is shown below:

Item	Quantity	Unit Price	Total
Litter Clean-up	1 ea	\$5,000	\$5,000
Grading and Shaping	6.5 hectare	\$100,000	\$100,000
Cover Material	39,000 m ³	\$18	\$702,000
Top Soil and Seed	65,000 m ²	\$7	\$455,000
Subtotal			\$1,262,000
Engineering and Contingency			\$100,000
Total			\$1,362,000

These estimates are based on costs incurred recently by other municipalities. As stated earlier, the cost of sourcing a suitable clay material will largely dictate the cost of closure.