

**Township of Killaloe, Hagarty and
Richards
CIF # 262**

**Blue Box Recycling Program Best
Practice Assessment Report
August 2010**

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Executive Summary

On behalf of the Continuous Improvement Fund (CIF), a recycling program assessment was conducted for the Township of Killaloe, Hagarty and Richards (KHR). The assessment approach was developed by CIF and is used to systematically review program status against the best practices questions found in the WDO Municipal Datacall. Program performance is also reviewed since this too is a factor that influences WDO funding.

Observations, conclusions and potential opportunities for improvement were developed primarily as a result of a one-day interview and site visit, which was conducted on June 2, 2010. The output of the process is a high-level analysis: prior to implementing any of the potential opportunities it may be necessary to examine their appropriateness and practicality in more detail. Where initiatives call for capital investment, a cost/benefit and/or payback analysis is required, as might be a feasibility review.

A preliminary comparison to municipalities within its WDO municipal grouping was performed. KHR recycling collection costs were well below the average but depot and transfer costs are considerably higher than the average. A second comparison to selected Ontario municipalities was made where KHR was shown to have a higher gross and net cost per tonne than the comparator programs. A number of factors were considered and strategies suggested to address these high costs. The performance measure E&E Factor is also relatively high (the lower the number the better) but not the highest, but more than enough to present a funding threat in a system that will use performance as a relative measure against which funding is allocated.

A review against each of the following best practices questions was performed. In the case of KHR, a number of questions are being addressed. Best practice questions 1 and 2, for instance, are being addressed through an Integrated Waste Management Planning process and, as part of that, a Waste Recycling Strategy Plan.

1. Blue box recycling plan as part of an integrated waste management plan
2. Established performance measures
3. Multi-municipal planning approach
4. Optimization of collection and processing operations
5. Training of staff in key competencies
6. Appropriately planned, designed and funded communications program
7. Established and enforced policies that induce waste diversion

Questions 3 through 7 represent areas of opportunity for KHR. In general it was concluded that KHR operates an efficient and economical recycling program, and that program operators are aware of potential opportunities as well as issues of related cost. A number of recommendations are offered in the report, all of which can be considered in the spirit of prudent management already exercised by KHR.

Recommendations target both the administrative and report requirements that will help KHR secure a maximum share of the best practice funding available, but also improve material recovery and cost efficiency aspects that are used to measure program performance. These take several forms: annual reporting, staff training, enhanced program promotion, operating adjustments, potential economies of scale, and changes to contractual or third party agreements. Specific recommendations include:

- Complete the Waste Recycling Strategy in 2010
- Generate an annual report that addresses WDO review requirements for monitoring, reporting and review

- Make changes to the curbside collection system to reduce the physical requirements created by the loading height
- Develop a recognizable and consistent approach to program promotion and create or adopt an icon or identifier to “brand” communication materials
- Initiate discussions with other neighbouring programs about opportunities for cooperation including joint strategies to deal with high depot/transfer costs
- Examine strategies to increase material recovery using incremental enhancements and measuring their impact on program cost and effectiveness prior to implementing additional measures
- Adopt a communications plan and a plan to measure the effectiveness of P&E strategies
- Separate transfer/haul and processing costs in future agreements
- Consider assuming responsibility for revenues from recyclables in order to eliminate potential risk for processors that result in higher cost.
- Study the potential for ownership of transfer capital and the use of controlled compaction to reduce transportation costs.
- Take advantage of training opportunities that meet the WDO requirement

By following up with the noted recommendations it is hoped that KHR will be in a position to attain the goals of the CIF program assessment, namely the implementation of program improvements and strategies that improve recycling program effectiveness and efficiency.

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Table of Contents

Executive Summary Table of Contents

1	INTRODUCTION	1
1.1	Killaloe, Hagarty and Richards	1
1.2	Best Practice Questions and the WDO Municipal Datacall	1
2	THE PROGRAM ASSESSMENT AND BEST PRACTICES REVIEW	3
3	PRELIMINARY REVIEW AND ANALYSIS	4
4	PROGRAM ANALYSIS USING THE BEST PRACTICE QUESTION REVIEW	7
4.1	Development and implementation of an up-to-date blue box recycling plan as part of a Waste Diversion System or Integrated Waste Management System	7
4.2	Establishing defined performance measures including diversion targets, monitoring objectives and a continuous improvement program	8
4.3	Multi-municipal planning approach to collection and processing of recyclables	9
4.4	Optimization of operations in collections and processing by following generally accepted principles (GAP) for effective procurement and contract management.....	10
4.5	Training of key program staff in core competencies	18
4.6	Appropriately planned, designed, and funded promotion and education program.....	19
4.7	Established and enforced policies that induce waste diversion	20
5	CONCLUSIONS AND RECOMMENDATIONS.....	23
5.1	Conclusions	23
5.2	Recommendations	23

List of Tables

Table 3-1	WDO Funding Allocation Model.....	4
Table 3-2	Comparative Analysis: KHR within its WDO Municipal Grouping.....	5
Table 3-3	Comparative Analysis: KHR versus selected Townships in Ontario (2008)	5
Table 4-1	Mixed Curbside/Depot Rural Collection Systems ¹	11
Table 4-2	Population Density and Collection System for Select Ontario Municipalities ¹	12

Appendices

Appendix A	Blue Box Program Plan Update on Funding for Municipal Programs [Presentation]
Appendix B	WDO Municipal Datacall Best Practice Questions
Appendix C	Small Rural Southern Blue Box Program Profile, from the <i>Program Enhancement and Best Practices Assessment Project Final Report</i>
Appendix D	Communications and Communications Monitoring Plan Samples

1 Introduction

1.1 Killaloe, Hagarty and Richards

The Township of Killaloe, Hagarty and Richards (KHR) operates a mixed collection system, with curbside service provided to 324 households in the village of Killaloe. The remaining 1,251 households are serviced by three depots.

Blue box materials are collected in a multi stream system, with containers, fibres and old corrugated cardboard collected bi-weekly at curbside, and received continuously at depots. Garbage is collected weekly, at cost to residents of \$1.00 per bag, with no bag limit. All Municipal Datacall blue box material categories are accepted for collection in the recycling program. The Township owns and operates the collection system, including curbside collection and the three recycling depots at the Killaloe, Round Lake and Red Rock waste disposal sites. Blue Box materials collected at the depots are hauled and processed by Beauman Waste Management in Renfrew, Ontario. Beauman has indicated that it will be closing as of August, 2011.

The Township marketed a total of 163 tonnes of blue box recyclables in 2009. Killaloe, Hagarty and Richards is categorized as a “Rural Collection – South” municipality by the WDO, and the Township reported an impressive 39% residential diversion rate in 2009, well above the 27% average in 2008 for the municipal grouping.

1.2 Best Practice Questions and the WDO Municipal Datacall

Starting in 2010 the answers to the “best practice” questions in the Waste Diversion Ontario (WDO) Municipal Datacall will have a bearing on the amount of funding made available to individual municipal programs. Over a three year period the percentage value relative to overall funding will escalate from a starting point of 5%, to 15% and finally to 25% in 2012. Under the model being implemented by the WDO, funding will be awarded based on a three part formula, with the Best Practice questions forming the first, a performance factor (possibly the E&E Factor) forming the second, and program cost making up the final portion.

Given the increasing significance of the Best Practices portion of the funding distribution model, the Township of Killaloe, Hagarty and Richards (KHR) asked the Continuous Improvement Fund (CIF) to fund an assessment of their program against each of the Best Practice question categories. The objective is to position KHR to maximize their performance against each question, since each will have a point value and will be tabulated to arrive at an overall score that will determine how much of the Best Practice question portion will be made available to the municipal program operator. CIF retained GENIVAR to perform the assessment.

The values for each of the best practice sections in the Datacall are as follows:

Blue box recycling plan as part of an integrated waste management plan	12.5%
Established performance measures	25.0%
Multi-municipal planning approach	8.3%
Optimization of collection and processing operations	12.5%
Training of staff in key competencies	8.3%
Appropriately planned, designed and funded communications program	8.3%
Established and enforced policies that induce waste diversion	25.0%

TOTAL 100.0%

More detail is provided in Appendix A, a PowerPoint presentation made at the October 15, 2009 Municipal Waste Association Fall Workshop held in Toronto. The best practice questions as published by the WDO appear in Appendix B.

The main WDO best practice questions are divided into a series of sub questions, each worth a proportionate share of the total question. More specifically, sub-questions that are in bold print count against the total. Theoretically, if a question worth 12.5% has five bolded sub questions, the answers to those sub questions would count for 2.5% each.

In practice, however, there are a number of issues with respect to the sub questions that make it difficult to advise with accuracy the exact financial impact of each sub question. Inquiries were made of the WDO and of the Municipal Support person for municipal MIPC members to try and clarify, but it is evident that the application of the questions is still a works in progress (this is the first Datacall in which the questions will actually be applied against funding).

Despite the fact that there may be a few questions for which the financial implications of the sub-questions is unclear, parties associated with the best practice questions and how they are evaluated are aware of the concerns and working to develop a fair approach, It is still prudent therefore to work towards meeting the best practice questions, where appropriate, given their increasing significance within the funding allocation formula.

2 The Program Assessment and Best Practices Review

The approach used in this report was developed by CIF and is used to systematically assess program status against those best practices, with which the Township is unable to comply as noted in the Township's Datacall submission. The exercise is more than a strict assessment of KHR practices: question 6 calls for a program review, making it necessary also to discuss program performance as well.

In order to assess both practices and performance, the Continuous Improvement Fund (CIF) program assessment model uses the best practice questions to examine all areas of program performance. The CIF developed a recycling program assessment to provide an objective and thorough assessment of the participating program's blue box program. This approach is partly based on the site visit and assessment process utilized as part of the Blue Box Program Enhancement and Best Practices Assessment Project (Best Practices Project).

There are a number of goals and objectives associated with the CIF approach, including:

- Recommending, for implementation, recycling program effectiveness and efficiency improvements through examination of program components , and
- Providing municipal recycling programs with timely and objective input to aid decision making about program improvements, upgrades, contracts, tenders and any other program development issues.

Observations, conclusions and potential opportunities for improvement outlined in this report are developed primarily as a result of a one-day interview and site visit, which was conducted on June 2, 2010. The output of the process is a high-level analysis: prior to implementing any of the potential opportunities it may be necessary to examine their appropriateness and practicality in more detail. Where initiatives call for capital investment, a cost/benefit and/or payback analysis is required, as might be a feasibility review.

3 Preliminary Review and Analysis

The overall blue box recycling funding formula employed by the WDO contains two elements other than the best practice questions. Funding is distributed according to a 3 part model: best practice questions, a performance factor (possibly the E&E factor or a modified version of same), and program cost. The WDO funding allocation model* for 2010 through 2012 is as follows:

Table 3-1 WDO Funding Allocation Model

Allocation Method	2010	2011	2012
Datacall Best Practice Questions	5%	15%	25%
Program Performance	30%	40%	45%
Net Cost	65%	45%	30%

* Taken from the *Guidebook for Creating a Municipal Waste Recycling Strategy*, produced by Trow for CIF in March, 2010.

By 2012 70% of WDO funding eligibility will be dependent on factors other than net cost. The average funding amount received by KHR for 2008 through 2010 WDO was \$20,202. By 2012, by applying the cost allocation model above to the funding, approximately \$5,050 of this amount will be dependent on the answers to the best practices questions. \$9,090 would be the maximum available to the program based on program performance, but could be subject to reduction if the program is deemed a poor performer.

It is important for all program operators to assess and improve program cost and performance measures in a system where *relative* position regarding program performance may have a direct bearing on funding. This means that the broad assessment undertaken here is much more than an exercise to confirm practices; programs will be driven to examine cost and recovery in order to maximize funding eligibility.

KHR has no control of the process or rationale used by WDO to categorize the program within a WDO municipal grouping, which in this case is referred to as the Rural Collection – South category. There are municipalities in this grouping with widely divergent characteristics in terms of population, geographic size, location, and program delivery. Reporting of data also varies depending on contract structures and operating relationships. Regardless, WDO uses municipal groupings for comparative reasons and as part of funding allocation strategies where poor performers within a municipal grouping can lose a portion of their funding.

When compared to municipalities within the WDO municipal grouping, KHR is seen to have collection costs well below the average. The collection figure likely reflects the small geographic size of the curbside collection area, a collection frequency that is half that of most programs and a system that does not rely on expensive capital.

Depot and transfer costs, on the other hand, are considerably higher than the average. Even when it is understood that this includes processing costs (reported as \$0 in the Municipal Datacall) the figure is high and is not totally explained by either transportation or processing costs. Other factors, and quite possibly a lack of competition in the area for these services, may come into play here. According to the WDO information, blue box recovery for KHR is about 10% lower than the average.

Consideration should be given to defining specific processing and transfer costs, preferably within the next contract. This will allow KHR to more accurately identify exact costs, and take appropriate action.

Table 3-2 Comparative Analysis: KHR within its WDO Municipal Grouping

		KHR	KHR	Group Average ¹	Group Range*
	Year	2009 (reported)	2008	2008	2008
	Households	1,575	1,575	4,291	230 – 19,199
	Tonnes Reported or Calculated	165	163	582	3 – 3,017
Residential	Collection Cost / Tonne	\$ 55	\$ 51	\$ 224	\$ 0 - 453
	Processing Cost / Tonne	\$ 0	\$ 0	\$ 40	\$ 0 - 381
	Depot-Transfer Cost / Tonne	\$ 354	\$ 363	\$ 63	\$ 0 - 631
	Promotion and Education Cost / Tonne	\$ 0	\$ 9	\$ 6	\$ 0 - 40
	Calculated Administrative and Interest on Municipal Capital / Tonne	\$ 20	\$ 21	\$ 23	\$ 2 - 263
	Gross cost / Tonne	\$ 430	\$ 444	\$ 451	\$ 72 - 5,524
	Net Cost / Tonne	\$ 401	\$ 435	\$ 451	\$ 72 - 5,524
	% Recovery	Unavailable	43	53	7 - 94
	E&E Factor ²	Unavailable	10.01	7.98 ³	\$ 0.62 - 34.45

¹ The WDO Municipal Grouping for KHR is the “Rural Collection – South” grouping which includes 69 Municipalities.

² The Efficiency and Effectiveness Factor (E&E Factor) is expressed by dividing a recycling program’s efficiency (net cost per tonne) with its effectiveness (percent of materials recovered). Better performing programs have a relatively low cost per tonne in the numerator combined with a relatively high recovery rate in the denominator, resulting in a low E&E Factor. The figure of record with the WDO at the time of this report was prepared was from the previous year. While the E&E Factor is considered to be a reasonable measure, it has limitations. For instance, a poor performing program with a very low cost per tonne could possess a low E&E factor.

³ Calculated excluding outliers w/ E&E factors > 100

To obtain another perspective, a number of other Ontario municipalities were selected for the purpose of comparison. The attributes used to make the selection included mixed depot / curbside collection system, number of households served, population, geography and program tonnage.

Table 3-3 Comparative Analysis: KHR versus selected Townships in Ontario (2008)

Program Name	Calculated Blue Box Tonnes Marketed	Total Gross Costs	Gross Costs Per Tonne	Total Gross Revenue
Township of Bonnechere Valley	289	\$ 60,302	\$ 209	\$ 663
Township of Front of Yonge	108	\$ 36,881	\$ 342	\$ 1,393
Township of Madawaska Valley	416	\$ 159,532	\$ 383	\$ 5,794
Township of Killaloe, Hagarty and Richards	163	\$ 72,519	\$ 444	\$ 1,519

Program Name	Material Revenue Per Tonne	Other Revenue Per Tonne	Total Net Cost	Net Cost Per Tonne	E&E Factor
Township of Bonnechere Valley	\$ 1.95	\$ 0.31	\$ 59,650	\$ 207	2.58
Township of Front of Yonge	\$ 11	\$ 1.42	\$35,489	\$ 329	10.30
Township of Madawaska Valley	\$ 13	\$ 1.33	\$ 153,738	\$ 369	6.05
Township of Killaloe, Hagarty and Richards	\$ 8	\$ 1.18	\$ 70,999	\$ 435	10.01

In general recycling performance is measured as cost per tonne, and the limited comparison above reveals that KHR has a higher gross and net cost per tonne than the comparator programs. The performance measure E&E Factor is also relatively high but not the highest, but more than enough to present a funding threat in a system that will use performance as a relative measure against which funding is allocated.

4 Program Analysis using the Best Practice Question Review

The best practices questions appear in Appendix B. In the following section, a general finding is documented for all WDO headings, with additional narrative offered on those questions and specific sub-questions that either require attention by KHR, or have been identified in the program assessment.

4.1 Development and implementation of an up-to-date blue box recycling plan as part of a Waste Diversion System or Integrated Waste Management System

- a) Does the municipality have a blue box recycling plan that has been prepared or revised between the years of 2005 and 2009?
- e) Does the plan define and establish Blue Box Program goals and objectives that are in line with the overall waste diversion system plan or the overall integrated waste management system?
- f) Does the plan set Blue Box diversion targets?
- h) Does the plan require performance monitoring against Blue Box diversion targets?
- j) Is there a review process (e.g. quarterly, annual reviews) to monitor and evaluate performance against the Blue Box Program goals and objectives stated in the Waste Diversion System Plan or the Integrated Waste Management Plan?

KHR is proactively addressing this deficiency. Representatives have attended a CIF sponsored workshop which offers guidance with respect to the development of an appropriate plan, and is engaged in the development of an Integrated Waste Management Plan. If KHR is able to complete the basic elements as outlined in the CIF *Guidebook for Creating a Municipal Waste Recycling Strategy*, and report on same to their Council, they should be in a position to answer the Best Practices questions affirmatively. The main planning steps to be addressed in 2010 would be to:

- quantify the current state of the program, for instance the current recovery and cost situation
- determine a future state including objectives and goals for the program
- provide a plan on what actions would be taken to get to the future state, and
- indicate how progress will be measured
- report publicly (ie to Council) or post the plan on KHR's website

Completion of these elements by KHR will comply with the WDO best practice section.

The development of the plan should not affect the overall IWMP process, and in fact it is not necessary for the IWMP process to be complete in 2010 to qualify for the funding. The Waste Recycling Plan can be treated as a sub-plan and revised as part of the ongoing IWMP process even after 2010 if KHR decides to do so.

4.2 Establishing defined performance measures including diversion targets, monitoring objectives and a continuous improvement program

- a) Does your program set defined objectives and targets for recycling programs that are implemented and evaluated within a defined time period, and part of a defined recycling plan?
- b) Does your program collect specific program data to evaluate the effectiveness of recycling programs before and after implementation?
- c) Have the results of the monitoring been used to identify and analyze the factors that influence your program's ability to meet established objectives and targets within the years of 2005 to 2009.

The planning process discussed for the previous question should allow KHR to answer affirmatively sub-questions a) and b) for Best Practice question #2. Attention should be given to defining objectives and targets and solidifying data collection processes in order to address these questions. In the case of b), the question is not whether the municipality has actually done an evaluation, but whether data is collected to support an evaluation if and when program implementations occur.

An example of this would be the development of an enhanced Promotions and Education (P&E) program. It is helpful at the outset to inventory what sources of information would be used to determine the effectiveness of a promotions campaign. This could include invoices that track processing costs, weigh slips, participation studies or set out studies. The type of information collected should reflect the objectives of the campaign, which could target:

- participation
- material recovery (general or a specific item)
- material contamination
- how boxes are placed at the curb or what is an acceptable container
- any combination of the above

The data collected should first be used to establish a baseline for the objective prior to the implementation, and then revisited over time to measure progress. In the case of KHR, a natural starting point might be the measurement of material recovery and data sources might be processing invoices, haulage records and Datacall reporting. After initiating a program to increase recovery these sources would be reviewed and compared to baseline to determine whether there has been an increase that can be attributed to the P&E program. Processing volumes are a natural starting point, but frequency of haulage may also provide insight as might a participation study.

With respect to the latter, a curbside participation study can be done quite easily and inexpensively. Participation is a measure over time and measures the percentage of households who put their blue box (or equivalent) out for collection. In weekly collection systems a household is considered to participate if they place their blue box out *once per month*. In the case of KHR which collects once every two weeks, one out of four collection opportunities equates to once within an eight week period. For each of the four collection days a staff person would be asked to drive down a number of streets, based on a representative sample, to record which addresses have placed their blue box out for collection. This route would be exactly the same for all four collection days. After the fourth survey all homes recorded will have placed the blue box out at least once. If there were 40 homes in the sample area (about 10% of the households getting curbside collection in KHR) and 28 put recyclables at the curb at least once in the four collection period, KHR would have a curbside blue box participation rate of 70%.

KHR may also want to monitor recycling participation at the depot sites. This may be as simple as recording whether users bringing garbage to the site also brought separated recyclables over a fixed period of time and repeating the exercise after implementation of the communications plan.

4.3 Multi-municipal planning approach to collection and processing of recyclables

- b) Does your municipality deliver and/or provide recyclable material collection services jointly with one more other municipalities through an agreement?
- c) Does your municipality deliver and/or provide Blue Box recyclable material processing services jointly with one more other municipalities through an agreement?
- d) Does your municipality deliver and/or provide Blue Box recyclable material transfer/depot services jointly with one more other municipalities through an agreement?
- e) Does your municipality deliver and/or provide Blue Box recyclable material marketing services jointly with one more other municipalities through an agreement?
- f) Does your municipality deliver and/or provide Blue Box recyclable material public education services jointly with one more other municipalities through an agreement?
- g) If none of these services (collection, processing, depot/transfer, marketing, and promotion and education) are currently being delivered and/or provided jointly with another municipality, has your program synchronized the expiry date of its recycling contract with the recycling contracts of neighbouring municipalities?

The WDO requirement is intended to place a dollar value on efforts by municipalities to seek opportunities to gain economies of scale by partnering with their neighbours. This approach is uncommon in some parts of the province, and in fact the notion of pooling resources or services may occasionally meet with resistance. On the other hand, some municipalities have banded together in order to develop collective systems that pool recyclables and services in an effort to obtain efficiencies. A number of the municipal partnerships have created board or authority structures to manage waste, such as the Bluewater Recycling Association, the Essex Windsor Solid Waste Authority, the Ottawa Valley Waste Recovery Centre, or Quinte Waste Solutions. Each has evolved to meet the needs of a collective group, and in some cases beyond just delivery of blue box service.

Regardless, there are local sensitivities to the approach. Some decision makers worry that consideration of co-operative tendering for waste services or recycling may usurp local authority or promote amalgamation. There are enough examples to demonstrate that municipalities can easily maintain their authority and still work collectively to enhance their recycling programs. The most obvious example is the case of the six municipalities in York Region who joined together to issue a collection tender for regionalized three stream collection. These participants maintained their autonomy throughout the process, structuring a request for proposals that allowed them to stay within the joint project if they realized a benefit and opt out if the collective service package for cost and service was not seen as an improvement. The “York Region North Six” successfully worked together to secure a garbage collection and waste diversion services contract that saved the partners, collectively, about \$900,000 annually for seven years (an average of \$150,000 each annually) while increasing the frequency and number of waste diversion programs.

The development of the “York Region North Six” was funded, in part, by the E&E Fund (predecessor of the CIF) under project #214. E&E Fund reports are available for viewing on the Recycling Knowledge Network, at <http://vubiz.com/stewardship/Welcome.asp>.

At the very least the local options should be explored since the WDO questions on multi-municipal collection will continue to drive home the point. At 8.3% of the total best practice questions, the overall value to Killaloe assuming the current funding average of \$20,202 remains relatively steady would be about \$400 in 2012, when the Best Practice questions represent 25% of the WDO funding allocation. This amount is not likely to create much pressure to act purely for the sake of meeting the WDO Best Practice questions; on the other hand, failure to at least initiate the process is in effect a failure to investigate possibilities that might improve KHR recycling performance in a number of other areas, and in 2012 a considerable portion of the funding allocation (45%) will be based on program performance likely measured using the E&E Factor.

Currently KHR is not working with other municipalities but in discussion on June 2nd recognized some advantages. The nature of the WDO question is such that not all sub-questions can be answered positively immediately and not all are appropriate. A starting point is required, and that starting point is as basic as inviting neighbouring municipalities to discuss potential opportunities. Given that KHR does not have a formal agreement with their current processor, and further that this processor has signalled the intention to close in August 2011, a potential and immediate opportunity for multi-municipal co-operation exists by exploring processing of recyclables by the Ottawa Valley Waste Recovery Centre.

An inaugural meeting on the matter can focus on developing an inventory of practices and timelines. Issues for discussion could include:

- Contracting versus municipal service for recycling, including who uses municipal capital
- collection, transfer and processing contracts, including expiration dates and opportunities to harmonize contract periods in a manner that at least allows consideration of a collective operating approach
- Program particulars: who collects what materials, how often and how much. Are programs similar enough, or could they be, to permit collective P&E approaches, such as pooling of P&E efforts through the development of common materials?
- How do service costs compare? Are there any particular cost elements, for instance depot and haulage costs, that could be brought forward for a common solution? Is there any way to explain cost variations?

General comparisons between cost and recovery will help each municipality identify operational priorities and the general information sharing may lead to program improvements even before coordinated, collective actions are taken.

The process of coordinating contracts and operations takes time, and the first and most immediate step for KHR and its neighbours is to document their meeting invitations or e-mails, meeting times, related resolutions or letters, and agendas such that the municipality can continue to demonstrate and prove if asked that it has approached or worked with others. Cooperative operational arrangements, such as joint procurement of services and regional transfer points will follow over time where appropriate and workable.

4.4 Optimization of operations in collections and processing by following generally accepted principles (GAP) for effective procurement and contract management

- a) Are any of your collection services municipally operated?

If so, has your program conducted a comprehensive assessment of collection inefficiencies within the past two years?

If so, have the recommendations been documented and assessed, or are the recommendations being added to a future collection contract?

Have you worked with, or applied for funding through the Effectiveness and Efficiency Fund or the Continuous Improvement Fund pertaining to collection optimization projects?

Has your municipality undertaken a review of your Blue Box program in relation to the Blue Box Program Enhancement and Best Practices Assessment Project Report?

The driving principal for this question is the desire by WDO (responsible to the Minister of the Environment for reaching Blue Box Program Plan targets) and industrial stewards (responsible for 50% of net system costs) to be assured that municipal recycling operations are subject to a regular cycle of continuous improvement.

For the 2010 Municipal Datacall KHR will, as a result of this report, be in a position to report that they have assessed collection inefficiencies within the past two years, and that they have worked with the CIF (which sponsored this report) pertaining to optimization, and that the assessment was based in part on the Blue Box Program Enhancement and Best Practices Assessment Project Report.

From a cost perspective, there is no issue with the KHR collection system. Unit costs, measured per tonne or per household, are low and compare favourably with other programs. In some respects this is likely due to the frequency of collection, which does not meet the best practice (more about this in the discussion related to best practice question #7) where garbage collection frequency is less than recycling collection frequency. KHR also uses a specialized, adapted collection trailer with blue 90 gallon totes, a low cost alternative which in some respects is a reasonable approach but may in the long term create workplace related issues. It might be prudent to obtain an opinion from a health and safety or ergonomics professional.

Options are somewhat limited in that KHR garbage and recycling collection are performed by separate parties: a contractor collects garbage while the Township collects recycling. This limits the ability to explore shared truck models, such as the allocation of the same truck on different collection days for recycling and garbage, or split truck models (co-collection on the same day), that might also resolve other handling issues.

The issue of potential expansion of the curbside collection program to additional households was discussed during the visit. The decision to expand curbside service is often a politically challenging one since it is difficult to determine exactly what the curbside service cut-off should be. More specifically, those who do not receive curbside service might ask why others do, and there will likely be some debate as to why a firm line was drawn where it was.

In this case KHR provides garbage and Blue Box collection services to 323 of the 1575 households within the Township, with the remaining households serviced by three depot sites. Curbside collection is provided in the urban area of the Township (Village of Killaloe), and the depots are provided for the low-density rural population. This arrangement is typical of many smaller rural municipalities with low population densities in Ontario, as shown in Table 4-1.

Table 4-1 Mixed Curbside/Depot Rural Collection Systems ¹

Program Name	Reported and/or Calculated Marketed Tonnes	HH Serviced by Curbside/ Depot Collection	Collection Frequency: Weekly (W), Every other week(EOW) or Alternating Weeks (AW)	Kgs per HH	Collection Cost per Curbside HH ²
Highlands East (Municipality)	347.56	260/4,292	W	76.35	\$66.34
Madawaska Valley (Township)	416.29	751/2,234	AW	139.46	\$56.01
Lanark Highlands (Township)	322.70	441/3,100	W	91.13	\$62.04
Armour (Township)	258.70	494/2,255	W	94.11	\$54.25
Merrickville-Wolford (Village)	188.03	427/713	EOW	164.93	\$39.81
KHR	163.21	324/1,251	EOW	103.63	\$25.75
West Elgin (Municipality)	169.64	1,041/1,410	EOW	69.21	\$42.57
Bonnechere Valley (Township)	288.70	511/1,217	EOW	167.07	\$47.55
Front of Yonge (Township)	107.97	150/1,068	W	88.64	\$38.20

¹ Based on the 2008 WDO Municipal Datacall

² Calculated as 'Total Collection Cost' divided by 'HH Serviced by Curbside Collection'

There are no examples of municipalities with population densities somewhat similar to that of KHR (6.4 per km²) that have implemented full curbside collection. A preliminary look at WDO and Statistics

Canada data, shown in Table 4-2, reveals that there are no full curbside collection systems in communities with population densities less than 10 per km². When looking at the Best Practice Report measure of 10 hhlds/km of road as the line between depot and curbside collection, it would appear that KHR, which reports this figure at 10.3 hhlds/km, is on the cusp of the recommended density limit with respect to expansion to additional or full curbside collection.

Table 4-2 Population Density and Collection System for Select Ontario Municipalities ¹

Program Name	Reported and/or Calculated Marketed Tonnes	HH Serviced by Curbside Collection	HH Serviced by Depot Collection	Collection Cost per Curbside HH ²	Kgs per HH	Population Density (per km ²) ³
Papineau-Cameron (Township)	39.61	467	70	\$51.35	73.76	1.9
Highlands East (Municipality)	347.56	260	4,292	\$66.34	76.35	4.4
Lanark Highlands (Township)	322.70	441	3,100	\$62.04	91.13	5.0
Bonnechere Valley (Township)	288.70	511	1,217	\$47.55	167.07	6.2
KHR	163.21	324	1,251	\$25.75	103.63	6.4
Madawaska Valley (Township)	416.29	751	2,234	\$56.01	139.46	6.5
Armour (Township)	258.70	494	2,255	\$54.25	94.11	7.6
Mulmur (Township)	313.87	1,609	0	\$54.30	195.07	11.6
Montague (Township)	215.29	1,367	0	\$62.13	157.49	13.0
North Stormont (Township)	418.38	2,638	0	\$38.17	158.60	13.1
Front of Yonge (Township)	107.97	150	1,068	\$38.20	88.64	21.9

¹ Based on the 2008 WDO Municipal Datacall

² Calculated as 'Total Collection Cost' divided by 'HH Serviced by Curbside Collection'

³ Statistics Canada, 2006

In the case of KHR the interest in expanding curbside collection stems from the desire to recover more material. There is some guidance that may be helpful to the Township in this regard: the answer is not a simple yes or no but instead a suggestion on how expansion might be implemented if a decision is made to extend the curbside service.

Guidance is available in the Blue Box Program Enhancement and Best Practices Assessment Project Final Report (2007) for both northern and southern small rural Blue Box programs. It says:

Use of drop-off depots for recovering recyclables is a Best Practice in low density rural areas, where curbside recycling is cost prohibitive. It is more cost effective to employ the use of depots in areas where curbside collection costs exceed \$50 per household per year. This is almost always the case for rural communities generating less than 2,000 tonnes per year.

It is interesting to note that KHR has kept annual household curbside collection costs to \$25 to \$28 but collects far less than the 2,000 tonnes noted in the Best Practices report. The report notes that with respect to obtaining higher participation and capture rate, curbside collection is preferred over depot systems and suggests that when it is feasible, curbside blue box collection should be offered to every eligible household. Small rural communities that elect to provide curbside collection should:

- employ measures that increase the amount of material collected per stop and maximize collection efficiency;
- for curbside programs, provide sufficient rigid collection containers free of charge; and
- schedule collection of Blue Box materials to be at least as frequent as waste collection.

The per household curbside collection costs for KHR were \$25.75 and \$28.16 in 2008 and 2009 respectively. The best practices report suggests that collection costs should be maintained below \$50 per household. The average per household collection cost for rural Ontario municipalities in WDO's Rural Collection - North and Rural Collection - South categories reporting separate collection/processing costs is just above \$42 per household.

The best practices report identifies the number of households per km of road as a criterion in determining when curbside collection may not be feasible. Less than 10 hhld/km may be too dispersed for full curbside collection services. Household per road km density data is not available for all communities, but KHR has reported 10.30 hhld/km in 2009.

These factors allow KHR to consider the possibility of extending curbside collection and remain within the best practice guidelines. Based on the high-level WDO numbers, KHR might approach the discussion from a number of angles. The Township has exercised good judgement when assuming recycling costs and the same conservative approach might be employed to improve recovery performance. There may be other program adjustments that help KHR to reach recycling recovery goals, and based on current curbside collection levels KHR might incrementally move towards their objectives.

The current annual per/household expense for recycling collection is very reasonable and in fact is the lowest for any of the examples cited. At the same time KHR recovery levels measure favourably against the selected comparators but is still a bit low when compared to their municipal grouping. There are a number of options that might be exercised by KHR to increase recovery while maintaining a watchful eye on related cost. The Township could:

- implement a promotional campaign to address recovery and review and enforce policies that support recycling
- engage in a program "refresh" that includes the distribution of new blue boxes, either for the curbside area or across the entire municipality. This strategy is currently underway as there are plans to provide free new blue boxes to each household, which should be executed in conjunction with well designed promotional support.
- consider increasing service frequency to the existing curbside collection area while enhancing the promotion and enforcement support for recycling by depot users.
- offer the existing level of curbside service (once every two weeks) to all residents
- offer increased level of curbside service (weekly) to all residents

While it is difficult to predict the overall impact on cost and recovery, a monitoring plan should be devised that will allow KHR to regularly check their performance in both areas. There will be additional discussion about program promotion below, however for the purposes of this section it is noted that any changes to service frequency, availability of curbside collection or depot recycling should be preceded and supported by a meaningful educational and promotional campaign, part of which may be funded by the CIF.

d) Do you own your own collection capital?

If so, have you worked with, or applied for funding through the Effectiveness and Efficiency Fund or the Continuous Improvement Fund pertaining to collection optimization projects?

As noted in the introduction of this report, this document provides a high-level analysis: prior to implementing any of the potential opportunities it may be necessary to examine their appropriateness and practicality in more detail. Where initiatives call for capital investment, a cost/benefit and/or payback analysis is required, as might be a feasibility review. Question 4d) above represents an opportunity to engage the CIF for just such a purpose, specifically the implementation of the collection system improvements

Clearly it is difficult to argue with the low collection cost reported by KHR. The Township has been successful in keeping costs down and compares quite favourably to other programs in the same WDO

municipal grouping, but low collection cost is also due partly to the frequency of collection, which is once every two weeks. There are a number of potential pressures that could impact the current approach to collection:

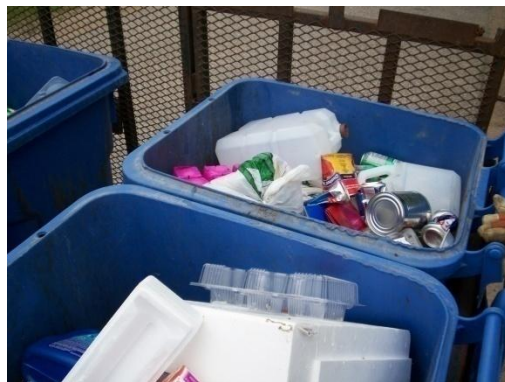
- the current model of once every two weeks is not a best practice, where garbage collection frequency is less than recycling collection frequency. At the very least the two services would be offered with equal frequency. From the perspective of the garbage contract, the end date for the current contract is March 31, 2012, the next opportunity for change. It should be noted, however, that changes in garbage collection frequency should be balanced by offsetting changes in recycling frequency and other waste diversion tactics.
- From a labour perspective the current system is not sustainable. Curbside labour is required to hoist materials over their heads and into the rolling bins situated in the trailer. From an ergonomic standpoint this has the potential to lead to shoulder and back issues, and almost all modern systems are designed to accommodate low loading heights and minimize lifting. The need to raise fibres, the heavier of the two material streams (the other being containers), over one's head is of particular concern.
- There is consideration being given to increasing blue box material recovery. Regardless of how this is accomplished, whether from increased collection frequency, an expanded curbside collection area, an enhanced promotional campaign to encourage recycling, or any combination of these measures, inefficiencies in the collection system will become more pronounced as a result. Despite the current low cost the current system may not survive these potential pressures if some adjustments are not made:
 - o The current loading height does not lend itself to efficient handling. The desire to improve recovery and divert more recyclables will require streamlined curbside loading. If KHR wants to minimize collection time (maintain a one-day schedule, for instance) but collect more material and/or increase the geographic scope of collection, the current approach will be very limiting.
 - o The use of a trailer is limiting and there is an element of double-handling at the depots. Material is dumped out of the rolling bins and pushed into haulage bins. If at all possible efforts should be made to accommodate a direct transfer from collection vehicle to transfer bins.
 - o Time at the curb is also lost to sort through material at the curb. While this aspect will be discussed more thoroughly later in this report, there are potential measures that would also help to mitigate time lost during the collection activity.

Collectively these elements represent limitations on collection time (loading height, curbside sorting) and turnaround time (handling at the depot) as well as potential long-term lost time for labour due to poor ergonomics. Experienced and knowledgeable collection crews are a great asset to any collection program, and other programs have altered their collection systems to insure that their experienced collectors will not lose time for injuries related to lifting stress or strain.

None of this, however, is meant to suggest that KHR can't employ the same local ingenuity it did in arriving at what is otherwise a collection system of proper scale to meet the need of the program. There are some limitations to the Township that may prevent a fix, such as the separation of garbage collection service as a contracted service versus recycling as a municipal operation. This limits opportunities for vehicle sharing at least until a new contract term approaches. KHR may wish to apply for CIF funds for the purpose of implementing changes that will increase material recovery and improve collection ergonomics.



The collection trailer and material totes, which are loaded from the top.



Looking down into the totes. Material quality was generally good but is achieved in part as a result of curbside sorting by crews

e) Are any of your processing services provided by a contractor?

If so, was your last tender/RFP developed using a recycling tender/procurement tool such as the Stewardship Ontario Model Tender Tool?

WDO figures for KHR show processing costs to be \$0, but in fact the cost of processing is hidden within an “all-in” cost for transfer and haulage from the recycling depot sites. The contractor has indicated that it will cease to operate in August 2011, and this may present KHR with opportunities to reduce associated costs related to both transfer and haul as well as processing. This is also an opportunity to obtain pricing which, as previously mentioned, clearly separates transfer and processing costs.

For the purpose of examining the reported cost the previous comparators were used again using reported costs for 2008:

Program Name	Calculated Blue Box Tonnes Marketed	Residential Depot/Transfer Costs Per Tonne
Township of Bonnechere Valley	289	\$111.91
Township of Front of Yonge	108	\$254.32
Township of Madawaska Valley	416	\$256.95
Township of Killaloe, Hagarty and Richards	163	\$362.75

KHR is not alone with respect to the fact that the biggest cost per tonne impact on their program is the depot/transfer cost. Part of the cost can be attributed to long distances and light loads, but further evaluation is required to address this high cost.

One area that may be impacting the cost is the nature of the agreement with the processor who is transporting the material to the MRF. If the agreement stipulates that the processor keeps all revenues for the recyclables, then the processor has taken on the risk of marketing recyclables in a volatile commodities market. In this case it is highly possible that the haulage price has been established to mitigate this risk such that losses are minimized. One way to know what the risk premium might be is to ask for two prices: a price where the municipality receives the revenues (or most of the revenues) and a price where the contractor receives the revenues. The difference between the first, in which the processor is quoting purely on the price for providing a service, and the second in which the contractor is actually assuming market risk, will be what the municipality is being asked to pay to cover the risk.

A report prepared with input from the Ontario Waste Management Association, entitled Blue Box Residential Recycling Best Practices: A Private Sector Perspective, states:

Risk must reside with the party who has the power and authority to manage that risk. Consultants have a tendency to encourage their municipal clients to offload as much risk as possible on their contractor. If a contractor accepts risks he cannot control then he will either make provisions in his price and the municipality will pay a premium or he will not make such provisions and leave himself vulnerable to serious financial loss. Furthermore, it is the smaller, less sophisticated, operator who is most vulnerable. This serves nobody's best interests, not the contractor's nor the municipalities.

Examples of risks which should not be assigned to the contractor are: fuel price fluctuation, changes in law, weather, force majeure, international border closure (residue disposal from a MRF), major maintenance of the municipality's MRF (if caused by normal wear and tear) and market risk on sale of products.

Best Practices related reports can be found at: <http://www.stewardshipontario.ca/stewards/library/ee-fund-approved-projects>

While Killaloe does not own the depot capital, it may wish to investigate the potential for controlled compaction of recyclables at the site. At the June 17, 2010 Ontario Recycler Workshop sponsored by the CIF, McDougall Township shared details around the implementation of their new depot collection compaction system. The Township, which has a permanent population of 2,700 but a seasonal population approaching 34,000, was being charged about \$600 per pick-up of non-compacted recyclables at two collection sites. While initial capital costs were high (\$112,000 for 2 compactor bins at the transfer station and \$133,000 for 2 compactor bins at the landfill) annual savings in the realm of \$30,000 are expected from implementation. Load weights have increased by 4 or 5 times, based on a compaction limit of 2.5:1. The limit is required to prevent processing problems caused by over compacted material.

In the case of McDougall Township, a portion of the expense includes the installation of a solar powered system backed up by a generator, which seems to be working effectively.

In the case of KHR, which does not currently own the depot haulage equipment, a cost/benefit analysis would be required to determine the potential for compaction at the depot sites.

Depot Best Practices

KHR will likely continue to operate recycling depots, even if curbside collection services are extended to an increased number of households within the Township. It is therefore recommended that KHR consider best practices applicable to the operation of recycling depots, in order to maximize the effectiveness and material recovery potential of existing resources. A review of recycling depot best practices is provided here for the Township's consideration.

As with all municipal recycling programs there are a variety of factors and issues that will affect the performance of rural recycling depot collections systems. Strategies to address these issues vary widely, and are not all appropriate for every rural depot system. However, several themes arise in the best practices literature, and most depots are able to increase recovery rates by implementing strategies in these areas:

- Depot attendants
- Site conditions and accessibility
- Promotion and education
- Depot capacity

The role of the attendant is very important. The 2006 Quinte Waste Solutions report states that “a responsible attendant is the best defence against contamination.” The report authors drew a strong connection between responsible attendants with a good rapport with the public and high recovery rates. Attendants can be crucial to an effective public education strategy, reduce illegal dumping and encourage better material sorting. Support and training for depot attendants is recommended.

The conditions on the ground at the depot site itself will also affect the overall effectiveness of the recycling depot program. Conveniently located, well maintained, organized, clean, uncluttered sites encourage participation. Site design elements such as sheltered recycling areas, adequate parking, signage and traffic flow all help to increase material recovery rates. In addition, health and safety considerations such as no idling and no smoking policies can make depots more attractive to the public.

In all municipal recycling programs, the importance of public education and promotion can not be underestimated. For rural depot systems, best practices literature identifies the need for integrated, municipally supported promotional efforts, and greater public education resources.

Issues relating to how materials are managed at the site can affect the efficiency and effectiveness of rural depot systems. Having adequate capacity to handle recyclables during peak seasons, especially where there is a large seasonal population, prevents bin overflow onto the depot grounds. Compaction and co-mingling of recyclables at rural depots can result in increased cost effectiveness.

The 2006 report “Evaluation of Best Practices of Rural Recycling Depot Programs” prepared by SGS for Quinte Waste Solutions produced the following recommendations for maximizing diversion of blue boxes materials in rural recycling depot systems:

- Increase capture rate of existing Blue Box material by promoting the depot program in high traffic areas (i.e. waste disposal site, grocery store, convenience stores, seasonal bait shops, hardware stores, libraries, schools, banks, post offices, etc.).
- Municipalities that rely on the same contractor to provide collection and processing services should require costs to be itemized according to lift fees, hauling fees, and processing fees. Such cost itemization allows municipalities to review specific costs associated with the program and hence to consider changes to improve efficiency.
- Encourage revenue sharing or a revenue rebate from the processing contractor or negotiate a reduction of processing costs for materials that have higher market values such as corrugated cardboard, aluminum beverage cans, and clean newspaper. Information on price trends for post consumer metals, glass, plastic and fibre is available on a monthly basis from StewardsEdge’s web site (<http://www.stewardedge.ca/pricesheet/index.html>) and Waste Diversion Ontario’s website (www.wdo.ca). Based on WDO data, revenue from the sale of PET plastic and aluminum cans represents 33% of the residential Blue Box revenue stream.
- A responsible depot attendant is the best defense against material contamination. An attendant who promotes the program and encourages proper material separation contributes to the program’s success and increases its perceived and actual effectiveness. This in turn, results in higher community participation and overall capture rate. The provision of a depot attendant also

supports mandatory recycling by-laws and/or user pay programs as the attendant can regulate and monitor inbound material.

- Compacting and co-mingling material reduces the frequency of collection from the depot site and increases the potential for a municipality to haul a greater distance at a lower cost. This in turn increases the range of processing facility alternatives available to the municipality. Indeed, depot programs located in areas where there are many hauling and processing contractor options can get bids from several contractors which will reduce the risk of inflated costs since the contractors want to remain competitive. It is important, however, to ensure that the processing MRF is equipped with the necessary infrastructure to handle the change in the material preparation.
- One cost-effective compaction alternative municipalities might consider is to retrofit enclosed containers with an on-site generator to power compaction equipment where access to hydro is not available.
- Consider leasing or renting collection containers if initial purchase of capital equipment is cost prohibitive. Municipal programs currently renting roll-off containers have the convenience of not incurring any maintenance cost and having low monthly payments (\$100 to \$200/month, depending on length of the contract period).
- Ensure the depot site is well maintained to reduce contamination and to increase participation from the public.
- Diversion policies such as mandatory recycling or user pay systems directly impact recycling depot program capture rates. Depot programs can exceed curbside Blue Box collection capture rates by implementing community programs that support the use of the recycling depot site.

4.5 Training of key program staff in core competencies

- a) Within 2007, 2008 and 2009, have staff responsible for Blue Box recycling attended recycling-specific workshops or courses totalling 4 days or more, individually or collectively?
- b) Was the training received from a workshop/course provided by an industry association, post-secondary educational institution or recognized body which, based on successful completion of the course and/or course assessment, offers a certificate of completion or certification?
- c) Was the course/workshop primarily dedicated to blue box recycling (minimum 50% by content and/or time)?

This is a particularly onerous requirement for small municipalities, however represents a fundamental best practice within the Best Practices Project. In order to assist municipalities in obtaining the required funding, the E&E Fund supported the development and implementation of a training program that meets the requirement and which, at least until the end of 2011, is offered free of charge to recycling program operators and decision makers in Ontario municipalities.

All aspects of best practice question 5 are addressed in the training. The fundamental training is a 4 day course and the additional specialized courses in data management, promotion and education, contract management and material markets are two days each. The course has been built to an academic standard and would be suitable as part of a certification program, and includes an assessment aspect: a 2 hour exam for the 4 day course and a post-course assignment for the specialized two-day courses. The content, in this case, is 100% blue box recycling and far exceeds the 50% required in the WDO question.

The course is currently organized by the Municipal Waste Association (MWA), which is now publicizing a course offering in Ottawa, September 27 to October 1, 2010. More details are available by contacting the MWA at (519) 823-1990. Other opportunities for training include SWANA courses, and less formal

approaches including the Ontario Recyclers Workshop (CIF) and MWA workshops, however the latter two workshop approaches do not qualify against all best practice training questions, most notably 5 b) which requires the completion of a course assessment.

4.6 Appropriately planned, designed, and funded promotion and education program

- a) Does your program currently have a communications plan (either a stand-alone plan or as part of a larger plan document) with identified goals and measurable objectives that is regularly updated?
- b) Does your plan include a monitoring and evaluation component (an example would be: identification of 'spikes' in recovery or overall annual tonnages coinciding with specific P&E efforts)?

It is generally acknowledged that a promotion and education (P&E) program is a necessary component of a healthy recycling system. P&E can be a very cost effective way to improve program performance by increasing participation and recovery, and decreasing contamination of recycling streams.

Research suggests that the public's perception of a recycling program's effectiveness is closely tied to the program's actual effectiveness (Gamba and Oskamp 1994 in SGS 2006). Effective P&E, along with a well-designed program, leads to a perception of increased effectiveness and better program performance.

There are four key factors to consider in developing an appropriate P&E program (Best Practices Project 2007):

- Design – the main idea here is to create a strong icon or identifier, to “brand” communication materials so residents instantly recognize the information as relevant to recycling or waste management. Based on observations made during the visit, and on the information available on the KHR website, P&E materials for KHR are highly narrative and do not use graphics or a consistent, branded approach.
- Funding – the best practices reports that those municipalities reaching 60% recovery of available blue box material spend in the area of \$1 per household per year on promotion and education. This amount represents a floor spending level and in 2008 KHR approached this level of spending, yet in 2009 reported spending nothing on program promotion.
- Deployment – it is generally recommended that programs be promoted consistently and repeatedly to get and keep public attention.
- Monitoring and evaluation – an ongoing record of program performance can be reviewed to determine whether a promotional approach or campaign has made a difference. Monitoring and evaluation is difficult for small programs with limited resources. However, it is important to have a way to assess the effectiveness of P&E strategies. One suggestion provided in the literature is simply to look for spikes in material recovery or reductions in contamination based on material tonnages.

In a practical sense it is a challenge for small programs like KHR to dedicate the time and resources to accomplish all these things, but there are a number of options that would allow the municipality to consider upgrading its P&E efforts. KHR should inquire about CIF Project #192, Small Program P&E Plans, which is in place to help small municipalities develop P&E Plans as well as develop communication materials using templates, through on-line resources.

Appendix D also includes sample communications and communications monitoring plans that may be adapted to the KHR situation, or might be useful as KHR reviews options noted in Section 4 (Optimization), especially in conjunction with a chosen strategy to increase recovery, and issues related to poor separation at the curb. A well conceived and targeted P&E program may be helpful in attaining

local targets and improving curbside sorting issues, namely lost time cause by the need to sort through mixed material at the curb. .

The remaining discussion in this section will focus on P&E best practices for recycling depots, including recommendations and observations made in both the Best Practices Project (2007) and Quinte (2006, 2008) reports. During the June 2, 2010, site visit the depot sites were closed to the public and observations about the interaction of site staff with the public unavailable. The following is offered to assist KHR in evaluating management of recyclables at depots.

Best practices in P&E program design boil down to having a well-organized communications plan. This is stated clearly in the Best Practices Project report and echoed in the Quinte reports. A review of rural recycling depot programs revealed that most “promotional work was generally done in bits and pieces by various staff members.” In order to obtain the greatest effect and operate a cost effective P&E program, two elements should be in place: a communications plan outlining objectives, target audiences, key messages, tactics, timing and a monitoring mechanism; and, a designated person to oversee the communications plan.

The Phase 2 Quinte report provides several recommendations that address deployment issues in P&E for rural recycling depots. The recommendations highlight the importance of making depots accessible and easy to use for residents. Some of these recommendations were even pilot tested by Quinte Waste Solutions to determine their effectiveness.

Good signage is very important in a rural recycling depot, where residents are sorting and depositing materials themselves. Best practices for depot signage identified in Best Practices Project report include the following:

- The use of universally recognizable graphics and symbols, photos or displays of acceptable / unacceptable materials. Pilot tests conducted as part of the Quinte report showed that graphics, as opposed to text-only signage, resulted in a reduction in sorting errors made by the public.
- Clear, visible lettering and bright colours.
- Styles and fonts consistent with the rest of the municipal recycling program.
- Clear labelling of individual bins to increase ease of use and reduce contamination.
- Large, visible signs near depot entrance indicating acceptable / unacceptable materials.
- Signs prohibiting illegal dumping in appropriate locations.
- Clear directional signs, where depots aren't visible from main roads.
- Weatherproof information area at the site with take-away pamphlets.

Recycling depot attendants can also play a central role in communicating key messages to residents. Attendants, supported with training and dedicated time to interact with residents, are able to make recycling depots more accessible, improve understanding of how to use the program, and enforce illegal dumping and municipal recycling policies. The Best Practices Project and Quinte reports further recommend that printed P&E materials should be made available to the public at recycling depots, either through a weatherproof display area, or to be distributed directly by depot attendants.

4.7 Established and enforced policies that induce waste diversion

- a) Does your program provide Blue Boxes (or the equivalent) free of charge, or below cost?

One of the practices recognized in the best practices report is the provision of free blue boxes to residents. There is a correlation between household recycling capacity and participation in that a lack of capacity – more specifically meaning that when the household blue box or boxes are full – will result in

recycling materials being placed in the garbage. The provision of free replacement blue boxes is seen to both assure that recycling capacity is available in the household and act to promote the program.



Curbside containers, June 2, 2010. Eager participants have purchased covered containers. Unfortunately the covers require handling and add another step for collectors at the curbside

A third benefit, as noted in the picture, is that the provision of containers by the municipality improves the compatibility of containers to the collection operation: functionally and ergonomically. The picture above is a perfect example of what can happen if a municipality does not maintain control over the containers used. The covered containers pictured will add time and effort to the collection process.

b) Does your program have any of the following policies in place?

- Bag limits
- Garbage collection frequency less than recycling collection frequency
- Recycling incentive program for households that rewards increased recycling, set-out and participation
- Has your program commenced a reduction in garbage collection frequency or requirement for clear bags in the past year?

The policies noted above represent only those WDO noted policies that KHR currently does not employ. KHR, in fact, has tackled the most ambitious of the policy areas by implementing a pay-as-you-throw (PAYT) program. Having done so, there are at least two of the remaining policy areas that might feasibly be implemented by the Township. The most obvious policy, one that the Best Practices identifies as having meaningful impact on recycling recovery and for which much of the groundwork would have been done when the PAYT policy was enacted is bag limits. In general this is a policy that, with enough advance notice for residents, would be enforced with the same type of curbside and depot based enforcement practices used to uphold other waste by-laws and policies.

A second policy objective will depend on the approach chosen in Section 4 (Optimization of Collection and Processing) to increase recovery. One option is to offer recycling collection as often as garbage collection.

In general, however, the adoption of any one of the policies noted in the question qualifies KHR when being assessed against the question, and KHR is currently able to confirm two of the six policy approaches mentioned (PAYT, tag and leave).

5 Conclusions and Recommendations

5.1 Conclusions

KHR operates an efficient and economical recycling program, with a collection system designed in-house to meet the needs of a small municipality. During the site visit for this report it appeared that program administrators were interested in improving the recovery level of the program, and subsequent review of program data would suggest that there is some room for improvement in this area.

There are a number of recycling program areas to be reviewed by KHR staff, including multi-municipal co-operation, collection and transfer optimization, and improved P&E. A coordinated approach that accounts for all three of these best practice areas could lead to improved recovery, and while the cost conscious approach taken by KHR is to be commended and encouraged, the Township will want to move forward with the understanding that recycling performance, being the second and eventually most significant factor in the WDO funding allocation model, is measured not only by cost but also by recovery. Prudent and strategic investments in the program can be targeted at recovery and collection efficiency.

Most notably, while the curbside collection system has been scaled to meet the needs of a small municipality, the need for the collector to pitch materials over his/her head may, if left unchecked, lead to ergonomic issues and potential injury over time. While collection costs are low, depot/transfer costs are very high. In general, overall program net cost per tonne is below the average for the comparable municipal grouping but high related to select comparator programs. Recovery levels are below the average for the municipal grouping as well, and the E&E factor performance measure indicates that the overall performance is also sub-average.

Opportunities for improvement, however, are available and include the closure of the current processing contractor in August 2011. This will allow KHR to develop a strategy, possibly with neighbouring municipalities, to attack high depot/transfer costs, which currently have the largest single impact on program costs.

5.2 Recommendations

Complete the Waste Recycling Strategy in 2010: In order to qualify for the funding associated with WDO best practice questions 1 and 2, KHR must complete the Waste Recycling Strategy (WRS) by the end of 2010. For this reason the development of the plan, which has been initiated, should be given priority.

Generate an annual report that addresses WDO review requirements: There are several instances within the best practice questions where monitoring, reporting and review are required. KHR is encouraged to develop an annual reporting regime that includes monitoring program for all best practice elements that require monitoring and reporting: plan review, blue box targets and performance, effectiveness of P&E, and operational reviews.

Make changes to the curbside collection system: the current practice for the collector to pitch materials over his/her head is not sustainable. KHR should review the current collection process and implement changes that will reduce the physical requirements and possibly the double handling of materials at the depots. The aim of the review would be to bring the loading height down to a reasonable level and reduce stop time. A secondary aim will be to employ methods that reduce double handling at the depots.

Develop a recognizable and consistent approach to program promotion: create or adopt a strong icon or identifier to “brand” communication materials. Inquire about CIF Project #192, Small Program P&E

Plans, which is in place to help small municipalities develop P&E Plans as well as develop communication materials using templates, through on-line resources.

Initiate discussions with other neighbouring programs about opportunities for cooperation: The WDO best practice requirement for municipal cooperation places a value on cooperative efforts. In order to examine potential opportunities for cooperation and economies of scale KHR should consider organizing a discussion with neighbouring municipalities and particularly those affected by the announced Beauman closure in August 2011. A discussion agenda for potential partners would include joint strategies to deal with high depot/transfer costs, common collection contracts and pooling of recyclables for the purpose of attracting more and better bids for processing and haulage services.

Examine strategies to increase recovery: Specifically, KHR is in a position to develop an implementation plan that would allow the Township to make incremental enhancements, particularly with respect to material recovery, measuring their impact on program cost and effectiveness prior to implementing additional measures. These program enhancements could include increased or expanded curbside recycling, a starting point might be to increase recycling collection frequency within the existing curbside zone that matches garbage collection frequency.

Adopt a communications plan and a plan to measure the effectiveness of P&E strategies: Samples have been attached and the CIF has also initiated a project to assist small municipalities in the development of these plans. KHR should also apply to CIF for P&E support for the development of professional support materials and a communications plan.

Given the upcoming closure of the processor:

Use the opportunity to restructure future contracts starting with a requirement to separate transfer/haul and processing costs.

Consider assuming responsibility for revenues from recyclables in order to eliminate potential risk for processors. Ask for separate pricing under two revenue scenarios: 1) all revenue goes to the municipality, and 2) all revenue goes to the contractor. Contractors may resist because KHR materials are collected as a "mix" and specific composition by marketable material is not known, but enough data exists with other sources, including most processing contractors, to feasibly allocate material quantities to the mix and negotiate a fair revenue.

Consider ownership of transfer capital and especially the use of controlled compaction to reduce transportation costs, based on a feasibility study.

Take advantage of training opportunities that meet the WDO requirement: an opportunity exists in late September for training in Ottawa.

By following up with the noted recommendations it is hoped that KHR will be in a position to attain the goals of the CIF program assessment, namely the implementation of program improvements and strategies that improve recycling program effectiveness and efficiency.