

Tri-Neighbours Board of Management

Residential Blue Box Waste Recycling Strategy

Report

Tri-Neighbours Board of Management

Residential Blue Box Waste Recycling Strategy

Prepared by:

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Project Number:

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Date:

October, 2013

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October 25, 2013

Mr. Boris Koehler,
Chair
Tri-Neighbours Board of Management
P.O. Box 220
169 Main Street
Thessalon, ON P0R 1L0

Dear Mr. Koehler:

Project No: 60141942

**Regarding: Tri-Neighbours Board of Management
Residential Blue Box Waste Recycling Strategy**

We are pleased to provide you with a copy of the Tri-Neighbours Board of Management Residential Blue Box Waste Recycling Strategy Report.

Residential Blue Box Waste Recycling Strategies are an essential tool in the achievement of Best Practices in the management of recycled materials and it is essential for municipalities to develop such a strategy in order to meet provincial expectations.

Thank you for selecting our firm to complete this work on behalf of the Tri-Neighbours Board of Management. We look forward to working with you again in the future.

Should you have any questions, please contact the undersigned.

Sincerely,
AECOM Canada Ltd.



Rick Talvitie, P.Eng.
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RT:ta
Encl.

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1. Introduction and Background

This Residential Blue Box Waste Recycling Strategy was initiated by the Tri-Neighbours Board of Management to assess and enhance its current blue box recycling program and to meet provincial expectations as outlined in the Best Practice section of the Waste Diversion Ontario (WDO) Municipal Datacall.

The key objectives of this Plan are to enhance participation and capture efficiency in the Blue Box Program, reduce reliance on disposal, and preserve the life of the Regional waste disposal site. The participating municipalities understand the importance of good environmental stewardship and are motivated to meet provincial expectations and protect the significant investment in their waste disposal site.

The focus of this Plan is residential blue box recyclables and it represents one component of an overall waste management plan. The strategy sets out the goals and objectives of the Tri-Neighbours blue box program over the next five to ten years.

Ontario municipalities are obligated to provide waste management services for their residents. Depending on the size of a municipality this may consist of disposal only or diversion and disposal programs. Regulation 101/94 under the Environmental Protection Act requires northern Ontario municipalities to provide blue box recycling programs in communities if their population exceeds 15,000 people. Each of the three communities that are the subject of this report have populations less than 15,000 and have voluntarily established their blue box recycling programs.

The Tri-Neighbours municipalities, consisting of the Town of Thessalon, the Town of Bruce Mines and the Township of Plummer Additional, joined together in 1995 to form the Tri-Neighbours Board of Management. The Board of Management is responsible for managing operating and maintaining the Tri-Neighbours (Rose Township) landfill site which is the only active disposal site for all three municipalities. Although no formal agreement exists for other elements of their waste management programs (eg. blue box recycling) they have taken advantage of the efficiencies associated with regional programs and have historically secured recycling collection and processing services jointly.

This project has been delivered with the assistance of Waste Diversion Ontario's Continuous Improvement Fund, a fund financed by Ontario Municipalities and Stewards of blue box waste in Ontario. Notwithstanding this support, the views expressed are the views of the author(s), and Waste Diversion Ontario and Stewardship Ontario accept no responsibility for these views.

2. Overview of Planning Process

This Residential Blue Box Waste Recycling Strategy was prepared through the efforts of The Tri-Neighbours Board of Management, the Mayors, Councils and staff of the Town of Thessalon, the Town of Bruce Mines and the Township of Plummer Additional and AECOM Canada Ltd. acting as the Waste Management Consultant.

The background research, data collection, program analysis, recommendations and reporting was completed by AECOM. The preparation of this Plan included consideration of previous Annual Reports, Municipal Datacalls, and discussions and correspondence with various stakeholders. Where relevant, this information was also compared against published WDO Datacall information for other municipalities with similar collection characteristics (ie. Municipalities grouped as "Rural Collection – North").

The decision making and the public consultation process related to this report was initiated and conducted by AECOM and the Tri-Neighbours Board of Management by way of open Board meetings, presentations to municipal council by the Board and public meetings conducted by the Board and its waste/recycling collection contractor. More details regarding the public consultation process are included in Section 4.

The key objectives identified in Section 1.0 will be addressed through the following keys steps:

- Review background information and reports to understand the status of the existing program;
- Identify best practices in collecting and managing recyclables;
- Develop specific performance goals;
- Identify cost effective ways of improving current performance levels and achieving the identified goals; and
- Monitor future performance.

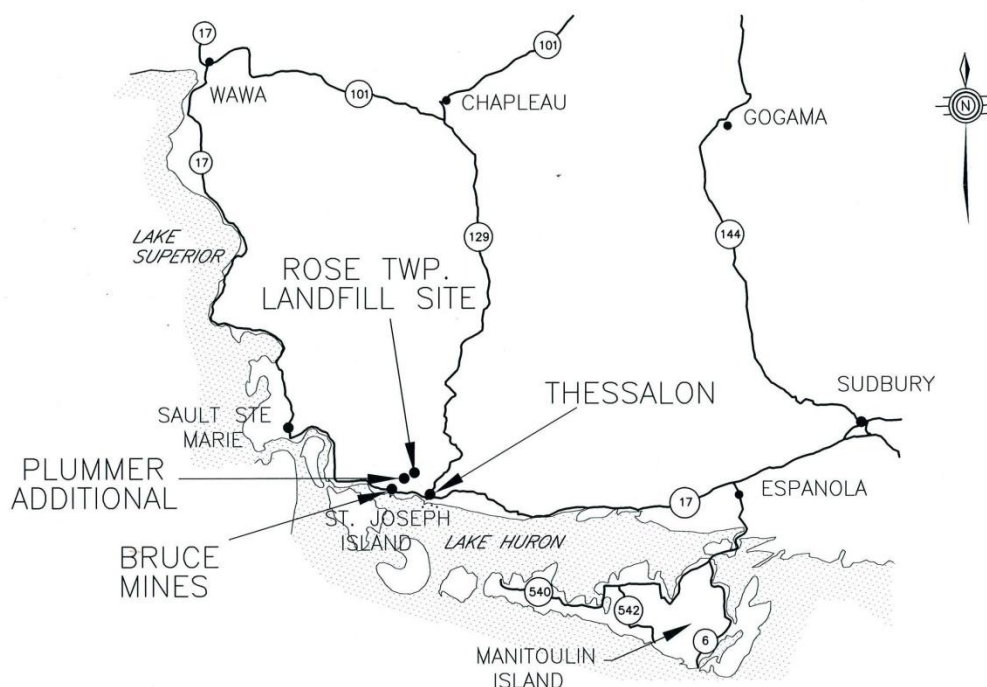
This is a “living” document and the proposed strategies should be re-evaluated and updated on a regular basis to address industry changes and ensure the Plan reflects current waste management trends and markets for recyclables.

The next steps shall include implementation of the recommendations and monitoring the success of these changes over time.

3. Study Area

The study area for this project includes the Northern Ontario municipalities of the Town of Thessalon, the Town of Bruce Mines, and the Township of Plummer Additional, all located in the District of Algoma as shown in Figure 1.

Figure 1. Study Area



The problems, opportunities and strategies documented in this report apply to all three Tri-Neighbours communities as they all receive the same level of service under one collective recyclables collection and processing contract with Municipal Waste and Recycling Consultants (MWRC). This Residential Blue Box Waste Recycling Strategy addresses the single family and multi-family residential sectors; however there are very few multi-family units in

these communities. The industrial, commercial and institutional (IC&I) sectors are not a municipal responsibility and although the focus of this document is blue box recycling for the residential sector, the IC&I sector is referenced and included to some extent. The current blue box program includes the collection and processing of IC&I generated boxboard and old corrugated cardboard (OCC) at several depots and businesses throughout the Tri-Neighbours communities.

4. Public Education and Consultation

Public consultation and involvement are important to the success of any public service program. This Residential Blue Box Waste Recycling Strategy is intended to guide recycling practices in the Tri-Neighbours communities over a five to ten year time horizon. Engaging members of the public will:

- Enhance the awareness and understanding of recycling programs and promote their importance;
- Enhance the quality of the decision making process by capturing ideas and experiences of a broad cross-section of people;
- Ensure transparency in the decision making process; and
- Enhance public “buy-in” and participation in the blue box program.

Historically public education related to the blue box recycling programs in the Tri-Neighbours communities has consisted primarily of distributed collection schedules and rules respecting set out and allowable recyclables. There have also been periodic newsletters and flyers to alert residents of program changes.

During the conduct of this study, the following public input and comments have been considered in the development of this document:

- review and assessment of submissions and news articles respecting the conversion to clear waste disposal bags in 2010;
- waste management presentation made to the Board on July 31, 2011 (refer to Appendix A);
- public presentation/open house conducted by the Board and its waste collection and processing Contractor on June 22, 2010;
- various open Board and Council meetings; and
- preparation and posting of presentation boards summarizing the purpose and results of this study and requesting comments from the general public (refer to Appendix D). The intent is to provide an opportunity for the general public to review the content of this report and provide comments to the municipalities for their consideration and inclusion in future waste diversion programs and activities and future updates to this report.

Although the Board has addressed the rationale for some program changes in the past (eg. conversion to clear waste disposal bags) the educational materials may have lacked information on the importance of the blue box program and “what is in it for individual residents”. There is evidence that a clear understanding of “why” is important to effect behavioral changes. Therefore there may be an opportunity, in the future, to place more emphasis on being proactive in advance of program changes rather than reactionary.

Input from the general public will continue to be solicited in the future through a variety of means, particularly when program changes or enhancements are contemplated. This report includes recommendations for future targeted educational materials and enhanced public engagement.

5. Problem/Opportunity Statement

Management of municipal solid waste is a key responsibility for all municipal governments in Ontario. Although the three municipalities that are the subject of this report are not mandated to collect recyclables they have elected to provide and encourage diversion programs to demonstrate good environmental stewardship and to protect their investment in their waste disposal site.

They have developed a successful and effective blue box recycling program and other diversion initiatives with continual improvements over time. These communities have invested considerable resources in siting, developing and operating their waste disposal site and have a keen interest in enhancing its service life.

The following key problems/opportunities are addressed in this Plan:

1. WDO requires municipalities to have a Residential Blue Box Waste Recycling Strategy in place. ***There is an opportunity to fulfill this requirement through the preparation of this document.***
2. The original design of the regional landfill was developed assuming an overall waste diversion rate of 25%. To date, the Tri-Neighbours municipalities have been unable to achieve the design diversion rate. The estimated 2011 overall diversion rate was 13% and the estimated residential diversion rate was 17%. The actual versus design diversion rate may impact the planned service life of their disposal site. The planning, design, site development, operation, maintenance, closure and post closure care of the disposal site is a municipal responsibility and does not receive any ongoing external subsidies. The municipalities have a vested interest in preserving the service life of the disposal site. ***There is an opportunity to extend its service life through enhanced waste diversion.***
3. Historically the Tri-Neighbours waste collection and recyclables collection and processing contractor has struggled to provide accurate and reliable residual waste and recyclables quantity data. As a result, the historical reported waste diversion quantities and rates have varied dramatically and are very likely inaccurate. To provide some context the approach that has been used historically to quantify residual waste and recyclables is summarized in Appendix B. Given this problem the Tri-Neighbours communities do not have a good understanding of their historical performance. ***There is an opportunity to better understand the current diversion program performance and assess the level of improvement in the future if steps are taken to better quantify recyclable and residual waste quantities.*** Some steps have already been taken to address this problem.
4. Periodically there have been issues and concerns raised by residents regarding program changes that have been implemented over time. Some of the issues/concerns may have been averted through a more comprehensive approach to engaging the public in advance of the program changes. ***There is an opportunity to enhance public education/involvement in the future with the ultimate goal of gaining public support for current diversion programs and possible future changes.***

6. Current Practices and Future Needs

6.1 Community Characteristics

In 2011 the Tri-Neighbours communities had a population of 2,495 residents and 1,312 total households or dwellings. Approximately 272 of these are seasonal dwellings, which are generally occupied during the months of May through September or a portion thereof. Each of the Tri-Neighbours communities is included in the Rural Collection – North municipal grouping. Some key statistics related to each of the participating municipalities is provided in Table 1.

Table 1 – Community Populations and Households (Note 1)

| Municipality | Population | Permanent Households ^{Note 2} | Seasonal Dwellings |
|----------------------------------|------------|--|--------------------|
| Town of Thessalon | 1279 | 510 | 84 |
| Township of Plummer Additional | 650 | 277 | 156 |
| Town of Bruce Mines | 566 | 253 | 32 |
| Totals for Tri-Neighbours | 2495 | 1040 | 272 |

Notes: 1. Data obtained from Statistics Canada

2. There are essentially no multi-residential dwellings in these communities.

6.2 Residential Waste Management Program

6.2.1 Overview of Existing Policies and Programs

Currently, Tri-Neighbours has the following policies and programs in place to manage residential solid waste:

- Weekly curbside residual waste collection contracted to MWRC;
- Weekly curbside recyclables collection with fibres and containers picked-up on alternating weeks – contracted to MWRC;
- Bag limits/Partial Pay-as-You-Throw (PAYT) program;
- Tipping fees;
- Mandatory segregation of recyclables;
- Mandatory use of transparent bags for residual waste;
- Tag and leave policy for unacceptable blue box and refuse set-outs;
- Provisions for the proper management and/or diversion of household hazardous waste (HHW), waste electronics and electrical equipment (WEEE), tires, metals, white goods and organics; and
- A re-use center.

These policies and programs have been implemented by the Board as an aggressive approach to encourage recycling and to ultimately reduce the volume of waste being landfilled. More details regarding these programs are included in the following subsections.

6.2.2 Waste Collection

Weekly curbside residential residual waste collection is provided in all three Tri-Neighbours communities. Residents are given a 3 bag/week refuse limit and any additional bags require a \$2 bag tag. In addition, the segregation of recyclables is also mandatory and residents are required to use transparent bags which have been shown to be successful in diverting waste as evidenced by use in other jurisdictions. The Board has also implemented a tag and leave policy for unacceptable blue box and refuse set-outs.

6.2.3 Recyclables Collection

Blue Box recyclable materials are collected weekly in the Tri-Neighbours communities with fibre recyclables picked up one week and container recyclables collected the alternate week. All material is processed through a recycling facility located in the community of Blind River, Ontario.

The materials which are eligible for curbside collection include:

- Newsprint, magazines, household fine paper, catalogues, telephone books, paper/hard cover books;
- Corrugated cardboard;

- Boxboard;
- Clear and coloured glass bottles and jars;
- Metal and aluminum; and
- #1 PETE and #2 HDPE plastic beverage and food containers.

6.2.4 Household Hazardous Waste

In 2001 the City of Sault Ste. Marie established a Household Hazardous Waste Depot which manages a variety of hazardous wastes. There is an extensive list of acceptable materials posted on the City of Sault Ste. Marie website including oils, paints, batteries, antifreeze, pesticides, etc. The Tri-Neighbours Board of Management entered into an agreement with the City of Sault Ste. Marie in 2005 to allow all residents in the Tri-Neighbours municipalities to dispose of their hazardous wastes at the City of Sault Ste. Marie depot. This proactive approach enhances diversion and reduces adverse environmental impacts associated with the disposal of these wastes in the Rose Lake landfill.

6.2.5 Re-use Centre

In 2003 the Tri-Neighbours Board of Management established a successful re-use centre at the Rose Township landfill site which diverts several tonnes per year of doors, windows, household items, furniture, tools, sports equipment, etc.

6.2.6 Electrical and Electronic Waste

The Tri-Neighbours Board of Management is also very active in the diversion of WEEE (Waste Electrical and Electronic Equipment). A new building was constructed at the landfill site in 2009 to collect and temporarily house WEEE. Ultimately the collected WEEE is transferred and processed by a Third Party. The Board also encourages residents to self haul WEEE material to the Community Recycling Depot in Sault Ste. Marie themselves.

6.2.7 Tires

The Tri-Neighbours Board of Management is also a registered collector with Ontario Tire Stewardship (OTS). The costs associated with the collection, storage, transportation and processing of scrap tires is covered through fees paid by the tire stewards. As a Collector the Tri-Neighbours municipalities receive a nominal fee from OTS for each tire collected. Residents are able to dispose of tires at the Regional landfill free of charge.

6.2.8 Metal/White Goods

Metals/white goods are successfully collected at transfer stations located at the Rose Lake landfill and in the communities of Thessalon and Bruce Mines. The material is removed for recycling once there is sufficient quantity. Refrigerants must be removed from appliances (eg. air conditioners, refrigerators, freezers, etc.) prior to acceptance at the depots.

6.2.9 Organics

Clean brush, wood and organic yard and garden waste is accepted at the Thessalon and Bruce Mines transfer stations for periodic controlled burning.

6.2.10 Program Funding

The majority of the Tri-Neighbours Waste Management Programs are funded through municipal taxes. They also receive nominal revenues from bag fees and tipping fees. Bag tags can be purchased at the municipal offices and at several local businesses. Currently the Board also provides residents with replacement blue boxes at cost.

There is no limit to the quantity of recyclables that may be set out curbside (ie. no cost to residents) and the Board receives an annual grant from Waste Diversion Ontario to offset a portion of the cost of blue box recycling program. This incentive should be communicated through the public education program.

6.3 IC&I Waste Management Program

IC&I waste collection consists of weekly curbside collection in all three Tri-Neighbours communities. The IC&I recycling program includes bi-weekly collection of corrugated cardboard and boxboard at several depot locations and businesses throughout the Tri-Neighbours municipalities.

6.4 Current Waste Generation and Diversion

In 2011, the Tri-Neighbours municipalities generated approximately 978 tonnes of solid waste and recyclables (residential and IC&I). The total estimated quantity of diverted waste was 128 tonnes and the estimated residual waste landfilled was 850 tonnes. This results in an estimated overall diversion rate for Tri-Neighbours of 13.1%. The total estimated residential waste generated was 419 tonnes with 73 tonnes diverted (ie. residential diversion rate = 17.4%). Of this, 63 tonnes, or 15.0%, was diverted through the residential blue box program.

A summary of the estimated residential blue box material types and quantities collected in the 2011 curbside program is included in Table 2.

Table 2. Residential Solid Waste Generated and Blue Box Material Diverted

| Residential Waste Stream/Blue Box Material | Tonnes (per capita kg/yr) | Percent of Residential Waste |
|--|------------------------------|---------------------------------|
| Total Waste Generated | 419.1 (168) | - |
| Papers (ONP, OMG, OCC, OBB and fine papers) | 41.95 (16.81) | 10.01% |
| Commingle – Metals (aluminum, steel, mixed metal and Plastics (containers, film, tubs and lids) | 16.09 (6.45) | 3.84% |
| Glass | 4.81 (1.93) | 1.15% |
| Total Blue Box Material Diverted | 62.85 (25.19) | 15.00% |

For the purposes of assessing the current blue box program performance, representative data was provided in the “Guidebook for Creating a Municipal Waste Recycling Strategy” for various municipal groupings. Each of the Tri-Neighbours communities belongs to the “Rural Collection – North” grouping.

Based on the data in the guidebook, the average blue box diversion rate for Rural Collection – North municipalities is 20.3% and the Tri-Neighbours communities are achieving 15.0%. Despite the uncertainty regarding the accuracy of the Tri-Neighbours diversion and residual waste disposal quantities, as documented elsewhere in this report, there is a desire to improve the performance of the blue box program.

6.5 Potential Waste Diversion

Waste audit data was not available for any the Tri-Neighbours communities. To estimate the recyclables that may be available in the waste stream we have used the data in Table 7c-4 of the Guidebook. This data was derived from a West Nipissing waste audit.

Applying the West Nipissing data to the Tri-Neighbours communities there is an estimated 159.3 tonnes of blue box recyclables available in the residential waste stream. The estimated 2011 capture efficiency is 39.5%. This data, together with the potential increase in diversion which may be achieved with enhanced capture efficiency is included in Table 3. Please note this information is very sensitive to the accuracy of the recycling and residual waste quantities. Every effort should be made to enhance the accuracy of these quantities to provide a reliable assessment of future performance.

Table 3. Current and Potential Waste Diversion

| Material | Total Available in Waste Stream (Tonnes/Year) | Currently Recycled (Tonnes/Year) | Estimated Capture Efficiency (%) | Potential Increase assuming 70% Capture Rate (Tonnes/Year) |
|---|---|----------------------------------|----------------------------------|--|
| Papers (ONP, OMG, OCC, OBB and fine papers) | 96.4 | 41.95 | 43.7 | 25.53 |
| Commingle – Metals (aluminum, steel, mixed metal and Plastics (containers, film, tubs and lids) | 46.1 | 16.09 | 34.9 | 16.18 |
| Glass | 16.8 | 4.81 | 28.6 | 6.95 |
| Total Blue Box Material | 159.3 | 62.85 | 39.5 | 48.66 |

We have also compared this data with data we extracted from a waste audit that AECOM completed for the City of Sault Ste. Marie in 2006. Based on the City of Sault Ste. Marie waste audit, 36% of the curbside waste stream consisted of recyclables. The application of the Sault Ste. Marie data to the Tri-Neighbours communities would result in a total quantity of available blue box material of 151 tonnes which compares favorably with the data presented in Table 2.

If the capture efficiency is increased from the current 40% level to 70% the blue box diversion rate will increase from 15% to 26.6%.

6.6 Anticipated Future Waste Management Needs

Solid waste generation rates are expected to generally remain unchanged in the Tri-Neighbours communities over the 5 to 10 year planning period. There has been a continual decline in population over the last 10 years and further changes are possible. For the purposes of this Plan we have assumed that the population and waste generation rates and composition will remain stagnant. The Table below summarizes the future residential waste management needs including the blue box diversion targets for the planning period. This information can be modified in future years to reflect actual population changes.

Table 4. Historical and Projected Residential Waste and Blue Box Material Quantities

| | 2002 | 2006 | 2011 | 2016 | Year 2021 |
|--------------------------------------|--------|--------|-------------|-------------|--------------|
| Population | 2,684 | 2,521 | 2,495 | 2,495 | 2,495 |
| Total Waste (Tonnes) | Note 1 | Note 1 | 419 | 419 | 419 |
| Blue Box Material Available (Tonnes) | Note 1 | Note 1 | 159 | 159 | 159 |
| Targeted Blue Box Diversion (Tonnes) | N/A | N/A | 63 (Note 2) | 87 (Note 3) | 112 (Note 3) |

Notes: 1. Due to concerns with the accuracy and reliability of historical waste quantities only the 2011 quantities have been included in the table.
 2. Estimated actual quantity.
 3. Refer to Sections 7 and 8 of this report.

6.7 Current and Future Waste Diversion Program Costs

In 2011 the contract costs for the collection and processing of recyclables was \$29,709 (ie. \$22/hh or \$11.91/capita or \$473/tonne). This is the net cost to the Tri-Neighbours communities as the Contractor receives all material revenues.

The net annual recycling cost per tonne for the Tri-Neighbours municipalities is below average for its WDO municipal grouping (Rural Collection – North) which is estimated by the WDO to be \$508.83 per tonne. Furthermore the cost/hh is also below the costs incurred by other municipalities in the rural collection – north municipal grouping. Based on data we have available for the rural collection – north municipal grouping, the average cost/hh ranged from \$25 to 33/hh from 2002 to 2004.

The Tri-Neighbours municipalities can expect the cost for recyclables collection and processing to increase in the future to at least keep pace with inflation. In addition there may be other cost increases if the blue box program is expanded to include the collection of additional materials. This would have to be negotiated between the municipalities and their collection/processing contractor.

7. Goals and Objectives

In the previous sections of this Residential Blue Box Recycling Strategy, problems/opportunities have been identified and the current blue box program performance has been summarized. The following goals and objectives have

been developed to guide the Tri-Neighbours Residential Blue Box Waste Recycling Strategy for the next 5 to 10 years. The specific recommendations to guide the Municipalities in achieving these goals and objectives are included in Section 8 of this report.

Table 5. Proposed Goals and Objectives for the Planning Period

| Goal | Objectives |
|---|---|
| 1. Ensure the design service life of the regional landfill is not compromised. | The Municipalities understand the significant investment that has been made and continues to be made in their waste disposal site. The Municipalities have a keen interest in ensuring that the design service life is not compromised as a result of reduced diversion rates relative to the design rates. The overall waste diversion rate in 2011 was estimated at 13% and the design diversion rate was 25%. The blue box program is the most significant component of the Tri-Neighbours diversion programs and has a significant influence on the overall diversion rate. |
| 2. Enhance current blue box diversion rates. This goal supports Goal No. 1 | The blue box program represents the largest component of residential waste diversion programs in the Tri-Neighbours municipalities. The Tri-Neighbours municipalities have established a goal to increase blue box waste diversion from 15% to 20% over the next 5 years and to 25% within the 10 year planning period. |
| 3. Enhance blue box participation and material capture rates. This goal supports Goal No. 2 and ultimately Goal No. 1. | In order to achieve Goal No. 2 the Municipalities have established a goal to enhance participation and material capture efficiency. They are currently capturing an estimated 40% of blue box material in the waste stream. They have established a goal to increase this to 50-55% within 5 years and 65-70% within ten years to ensure goals 1 and 2 are met. |
| 4. Ensure blue box program performance is being measured using reasonably accurate quantity estimates. This Goal is critical to understand current and future blue box program performance relative to the goals and objectives noted in this table. | To date, the approaches used to estimate residual waste and recyclables quantities have largely been unreliable. Best practices should be implemented to confirm current program performance and to monitor future performance relative to the established goals. |

8. Planned Recycling System

The Tri-Neighbours Communities have been aggressively pursuing continual improvement in their diversion efforts. To date many of the best practices included in the guidebook are either not suited to the Tri-Neighbours communities or have already been implemented as summarized below:

- Promotion and outreach – this is an ongoing effort by the Tri-Neighbours municipalities. There may be an opportunity to enhance public understanding and participation in the blue box program in the future as described later in this section.
- Training of key program staff - this is an ongoing effort by the Tri-Neighbours municipalities and it is important as it can lead to enhanced public outreach. There may be an opportunity to enhance this component in the future as described later in this section.
- There are a number of items associated with a multi-municipal operation that have already been implemented to achieve the best efficiency possible. These include optimization of collection and processing operations, inter-municipal committees, standardized service levels and collaborative hauling.
- Bag Limits – the Tri-Neighbours municipalities have bag limits in place. Consideration should be given to further restrictions as described later in this section.
- Tri-Neighbours has implemented a landfill ban on recyclables and mandated the use of clear plastic bags for residual waste to assist in enforcing the landfill ban.

- Collection frequency – recyclables are collected weekly with fibres and containers collected on opposite weeks.

Despite these significant efforts the Tri-Neighbours municipalities understand that further improvement is required to achieve the goals identified in Section 7. A number of options have been identified and evaluated based on the following criteria:

- % waste diverted;
- proven results;
- economic feasibility;
- public acceptance; and
- ease of implementation.

A summary of the options reviewed and their scoring is provided in Appendix C. The options are described in some detail and have been subdivided into priority and future initiatives in the following subsections. Specific recommendations have also been included with each initiative.

8.1 Priority Initiatives

8.1.1 Promotion and Education

The current approach to public outreach has included a variety of promotional materials and media including municipal websites, notices, collection calendars and periodic newsletters/flyers. These materials have been informative and have assisted in communicating schedules and rules for waste and recyclables set out.

In order to enhance participation and capture efficiency there is a need to expand the messaging to clearly identify what is in it for individual residents or more specifically why their participation is important not only for the community but also for themselves.

In 2009 the Tri-Neighbours Board of Management established a policy requiring the mandatory segregation of recyclables and the use of clear bags for residual waste to assist in enforcing this segregation. There was some discontent with the new policies which resulted in some interaction between the Board and the residents.

Based on some of the submissions received from residents at that time it was evident that a more proactive approach to public consultation would have likely assisted in the transition to the new policies. Ideally people need to understand the “payoff” for change to be more readily accepted.

Recommendation: Further improvement in participation and capture efficiency will in part depend on an effective public education program that focuses on the “why” rather than “how”. Efforts should be made to promote the benefits of the program and to enhance public education with a focus on why their participation will benefit them. The key messages should include the importance of environmental stewardship and more importantly that waste disposal is funded solely by residents whereas waste diverted through the blue box program is subsidized through the stewards. There should also be clear messaging regarding the 3R’s hierarchy with waste Reduction and Reuse being the preferred approach to managing waste.

It is also recommended that a public open house be considered in Bruce Mines and Thessalon to communicate any planned program changes (eg. collection of additional materials). Feedback should also be obtained on possible future changes such as a reduction in the bag limits from three to two bags. Open houses provide an effective forum to allow an exchange of ideas between residents and policy makers. Residents can be educated on the importance or why specific program changes are being contemplated and how it will impact them directly and conversely individuals are able to communicate their ideas and concerns to municipal officials.

Furthermore it is also recommended that displays be posted at prominent locations in each community to disseminate the results of this study and allow residents to review this report and provide feedback. Copies of the display boards and comment sheets are included in Appendix D.

8.1.2 Staff/Policy Maker Training

Training is a WDO Best Practice and staff/policy maker training is important as it can have a significant positive influence on public promotion and education. If staff and policy makers do not have a clear understanding of the importance and the rationale for the blue box program and relevant supporting policies (eg. bag limits) it is difficult for them to convey the appropriate message to local residents.

Recommendation: Key municipal staff and policy makers should participate in third party training sessions periodically. The format for the training could consist of online webcasts that are available through various waste and recycling associations and organizations or through in-house presentations offered through the municipality's waste consultant. Ideally some form of training should be offered to all Tri-Neighbours Board members, council members and front line staff and as a minimum it should be provided following each change of membership on the board and/or following each municipal election. The presentation should include all facets of waste management with a focus on the historical performance of diversion programs and their future direction.

8.1.3 Collection of Additional Materials

The collection of additional materials will enhance the level of diversion achieved through the program over time. There will be a learning curve as residents become familiar with the additional products that can be included with their recycling set out. Proactive and effective public education is important part of any program changes that are being contemplated. The inclusion of additional materials in the recycling program also provides an opportunity to reduce the set out limit for residual waste. The promotional messaging can clearly indicate that although a reduction in bag limits is being contemplated, residents will have an opportunity to reduce their residual waste by placing more materials in their blue boxes.

Recommendation: The Municipality's should continue to consider the collection of additional materials through the blue box program (eg. additional plastics beyond No's 1 and 2). It is important that there is an established market for the additional materials and effective public education is undertaken in conjunction with any changes. (Note: The Tri-Neighbours communities added the collection of plastics 3 through 6 in January 2013). It is also recommended that residents are informed that Tri-Neighbours is contemplating a further reduction in the residual waste setout limits (ie. 3 bags to 2 bags) in conjunction with the expanded blue box collection.

8.1.4 Recyclables and Residual Waste Quantities

The waste and recyclables quantity data is critical to measuring the current status and future success of the blue box program. The lack of reasonably accurate and reliable quantity estimates has been a problem for a number of years. Recent improvements including the installation of a weigh scale at the processing facility in Blind River should result in a significant improvement in the accuracy and reliability of the data received from the collection contractor.

Recommendation: Efforts should focus on continual improvement related to the residual waste quantities to ensure best practices are being used to quantify these wastes. The residual waste quantities also have a significant influence on the program performance.

8.2 Future Initiatives

8.2.1 Bag Limits

There is documented evidence that bag limits have a positive influence on diversion and capture efficiency. The Tri-Neighbours communities currently have in place a partial pay-as-you-throw program which allows for the placement of up to 3 bags of waste curbside. If more than three bags are set out curbside in a given week a fee is levied through the purchase of a bag tag.

One of the key benefits of PAYT programs is the positive influence on residential waste diversion programs. Residents are more inclined to maximize participation in available diversion programs in order to reduce bag fee costs. Based on evidence in other communities a bag limit of four or more rarely has a noticeable reduction in waste sent to landfill or an increase in diversion. The introduction of a three bag limit can alter waste disposal/diversion behaviour.

In the City of Sault Ste. Marie the average number of bags set out curbside prior to the implementation of a partial PAYT program was 2.67. Assuming similar characteristics in the Tri-neighbours communities it is likely that a further reduction from three bags to two bags would likely have a positive influence on waste disposal/diversion behaviours.

Recommendation: Consideration should be given to reducing the bag limit from 3 bags to 2 bags/hh/week. Prior to proceeding with any change in bag limits it is recommended that the current bag set out rates be confirmed by the current collection contractor using a tally sheet along the routes. Through this process the level of participation in the blue box program and the average number of residual waste bags being setout could be confirmed. Based on the alternating collection cycle for fibres and containers the inventorying process should ideally cover a period of at least four weeks as some residents do not set out recyclables every week. This recommendation has been identified as a future initiative as there is a need to gather data and information regarding current waste and recyclables setout characteristics prior to making a decision to proceed with this recommendation. Furthermore this initiative also requires a significant level of public consultation well in advance of making the change.

We have also summarized, in Table 6, how the specific recommendations relate to the goals that were established in Section 7.

Table 6. Recommendations to Assist in Achieving the Goals

| Goal | Recommendations |
|---|---|
| 1. Ensure the design service life of the regional landfill is not compromised. | Proceed with the implementation of the recommendations below. |
| 2. Enhance current blue box diversion rates. This goal support Goal No. 1 | <p>The current blue box diversion rates can be enhanced through the implementation of some or all of the following recommendations:</p> <ol style="list-style-type: none"> 1. A significant proportion of the recyclables in the waste stream are likely disposed of in the landfill based on the quantity data provided. Presently only 40% of the available blue box materials are being captured through the blue box program. The level of participation and the capture efficiency could be improved to divert more of the recyclable materials (refer to recommendations for Goal No. 3 below). 2. Expand the program to include additional recyclable materials – for example, No. 1 and 2 plastics are currently collected in the program and the collection could be expanded to include additional plastics provided there is a suitable market for the materials. (Note: The Tri-Neighbours communities added the collection of plastics 3 through 6 in January 2013). 3. The current pay-as-you-throw program could become more restrictive to allow only 2 bags per household per week. It has been demonstrated that PAYT programs are effective in enhancing diversion as residents will opt to divert as much waste as possible before paying additional bag fees. |
| 3. Enhance blue box participation and material capture rates. This goal supports Goal No. 2 and ultimately Goal No. 1. | <p>In order to meet this goal it is important to understand current participation levels. It is recommended that the Tri-Neighbours municipalities develop a tally sheet to allow the collection contractor to record the current level of participation in the blue box program. This should be completed over a period of at least one month as some residents will not set out recyclables every week. Consideration should also be given to repeating this task in different seasons.</p> <p>It is also recommend that the Tri-Neighbours municipalities confirm the quantity of recyclables collected in the program. A weigh scale was installed in the summer of 2011 and 2012 represents the first year that 12 months of weigh scale records will be available to quantify recyclables collected. In addition to considering a more restrictive PAYT program, as noted above, the Municipalities should undertake an aggressive public promotion and education campaign to highlight the importance of the blue box program as it relates to their regional landfill and their tax dollars (ie. Landfill is supported by user fees and taxes but the blue box program receives external funding).</p> |
| 4. Ensure blue box program performance is being measured using reasonably accurate quantity estimates. This Goal is very important to monitoring future program performance relative to the goals established above. | The recyclable quantities that will be provided by the contractor will be derived from weigh scale records and should be reasonably accurate and reliable in the future. The residual waste quantities are also an important factor in calculating residential blue box diversion rates. It is recommended that the Municipalities and the Contractor continue to work to enhance the accuracy and reliability of the curbside residential waste collection quantities. |

9. Monitoring and Reporting

Monitoring and reporting on the Tri-Neighbours recycling program is considered a Blue Box program fundamental best practice and will be a key component of this Residential Blue Box Waste Recycling Strategy. Once implementation of the strategy begins, the performance of the blue box program will be monitored and measured on an annual basis against the baseline established for the current system as documented herein.

Recycling quantities will be provided to the Tri-Neighbours communities each year from the recyclables collection and processing Contractor. The results will be based on weigh scale records throughout the year commencing in 2012. These results will be reported to the Board in the Tri-Neighbours (Rose Township) Landfill Site Annual Report. This report is prepared annually by the Board's Waste Consultant to address the requirements of the Ministry of the Environment (MOE) Certificate of Approval for the landfill site. The report includes a comprehensive section dedicated to waste diversion with the following topics covered:

- overview of current waste diversion programs (both residential and IC&I sectors);
- waste and recyclables quantities for the previous year; and
- new policies/programs that were implemented.

The entire Residential Blue Box Waste Recycling Strategy should be reviewed and updated every five to ten years. The review should consider changes to the population and waste generation characteristics, local and regional opportunities, effectiveness and success of diversion initiatives, and the status of recycling across the province. The Residential Blue Box Waste Recycling Strategy should be amended to meet any new waste management challenges and opportunities at that time or anticipated in the future.

10. Conclusion

This Residential Blue Box Waste Recycling Strategy will be presented to the Tri-Neighbours Board of Management for adoption and will be submitted for review to the Continuous Improvement Fund. Upon its acceptance by the Board, Tri-Neighbours will continue with its process of continual improvement through the implementation of the recommendations contained within the report.

This strategy is intended to be a guiding document for ongoing improvement and should be considered flexible and adaptable to the changing needs and ambitions of the Tri-Neighbours communities.

Appendix A

July 13, 2011 Waste Management
Presentation

Tri-Neighbours Board of Management Waste Management Presentation

Rick Talvitie



July, 2011

AECOM

Presentation Overview

- AECOM – historical involvement
- Diversion
- Landfill Site
- 2010 Monitoring Program
- WDO Datacall
- Performance Measures

Historical Involvement

- AECOM's involvement dates back to the mid-1990's
- Completed an Environmental Assessment to obtain EA Act approval for the current site
- Prepared an EP Act submission (ie. Technical Approval) and obtained a CofA for the current site
- Prepared tender documents to secure a Contractor to collect waste and operate the landfill site
- Prepared tender documents to secure a Contractor to collect blue box materials
- Ongoing assistance and advice as needed related to waste management

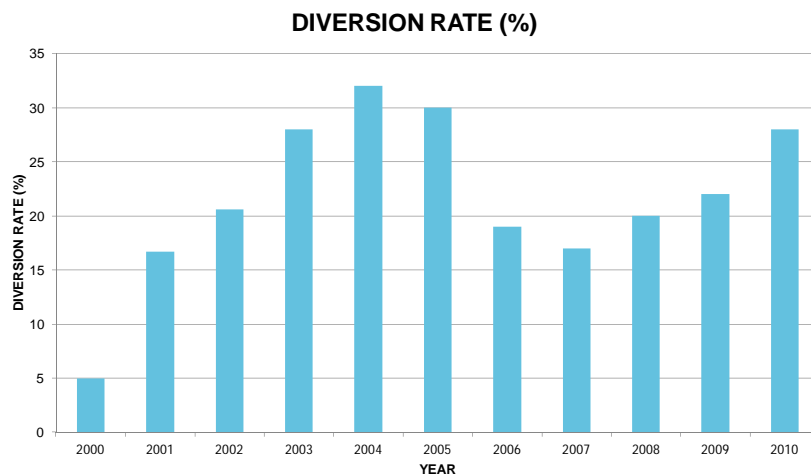
Historical Involvement

- Preparation of annual report to the MOE – compliance with the site CofA
- Periodic assessment of rate of utilization
- Preparation of the WDO Datacall submission
- Preparation of waste management performance measures

Diversion

- Initiated diversion programs in 2001
- Diversion opportunities:
 - Curbside blue box program;
 - OCC collected from the IC&I sector;
 - HSW facility in SSM;
 - Tires – Tri-Neighbours is registered as a Collector under OTS in Feb/10;
 - Metals/appliances;
 - Construction wastes;
 - Re-use Building;
 - WEEE collection; and
 - Plastic grocery bag program.
- Diversion opportunities are supported through public education, bag limits and clear bags

Diversion



Landfill Site

- Reporting period – calendar year
- Disposal Sequence – Progressing east to west
- Compaction – Bomag – will enhance longevity relative to the track loader used previously
- Final cover applied to a limited number of cells at the east limit
- Several other cells are expected to be ready to receive final cover this year



Landfill Site

- Naturally attenuating site
- Compliance is assessed using reasonable use criteria at the property boundary



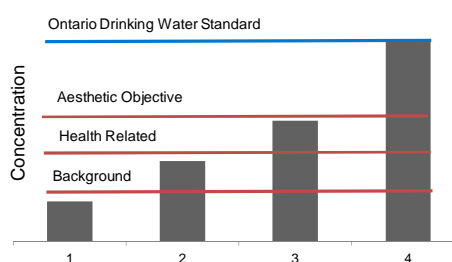
Reasonable Use Defined

- Discharge to a neighbouring property must have no more than a negligible or trivial effect on the existing or potential reasonable use of a property.
- Reasonable use in the case of the Tri-Neighbours landfill is drinking water.

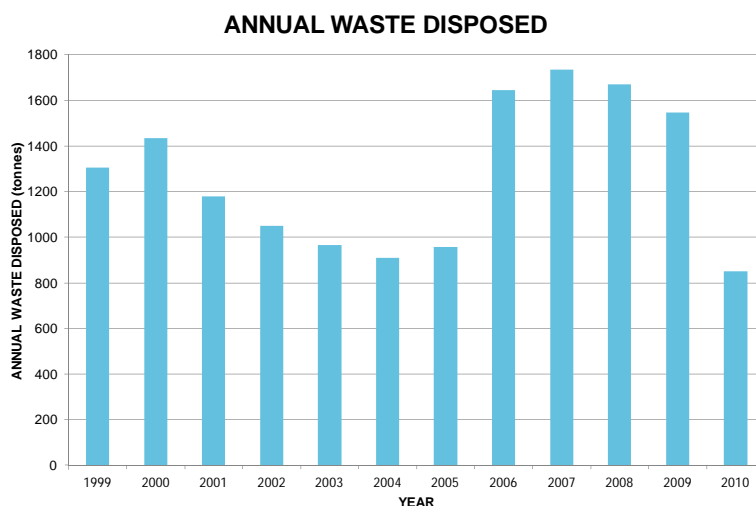


Contaminant Limits

- Water quality cannot be degraded in excess of 25% of the difference between background and the ODWS for **health related parameters**
- Water quality cannot be degraded in excess of 50% of the difference between background and the ODWS for **non-health related parameters**



Historical Waste Disposal Quantities



Residual Disposal Capacity

- Computed and reported annually
- Fluctuates due to:
 - Settlements that occur over time
 - Disposal rates
 - Survey technique
- Rate of utilization is moderately less than design rate
- The estimate completed at the end of 2010 indicated approximately 37 years or remaining site life (based on a topographic survey of the site)

2010 Results – Ground and Surface Water Monitoring

- 14 monitors in the program
- Results obtained for 10 monitors and 4 had insufficient water
- One surface water sampling location – was dry in 2010
- Previously sampled 3 times/yr and we requested that it be reduced to once annually in 2009.
- OW9-96 is being used as the source monitor
- Water levels measured in all monitors

2010 Results – Groundwater

- Groundwater moves predominantly south to south east.
- Some localized flow north towards OW9-96
- Groundwater moves slowly – 1 to several meters per year
- Leachate impacts identified at monitors OW9-96, OW5A-95, OW7B-95
- Limited impacts may be starting to occur at OW3B-95
- Other monitors are unaffected

WDO Data Call

Maximize blue box funding from Waste Diversion Ontario by providing detailed information about the Tri-Neighbours Waste Diversion Program

- Population/household statistical data;
- Recycling and waste collection program information for both Residential and IC&I (ie: collection schedule, recycling material types, etc.)
- Promotion and Education;
- Diversion quantities from Recycling Contractor;
- Operating and capital costs;

WDO Data Call

- Diversion program information/quantities:
 - Blue Box materials
 - Organics;
 - MHSW;
 - WEEE;
 - Garbage;
 - Other Recyclables (ie: Metal, Bulky Good, Wood, Tires).

Performance Measures

Breakdown of operating costs and disposal/diversion quantities between each of the three Tri-Neighbours Municipalities

- Operating costs for each Municipality and per household:
 - Garbage collection (\$);
 - Garbage disposed (\$);
 - Solid waste diversion (\$);
- Disposal/diversion quantities – residential, commercial and all property classes:
 - Solid waste diverted (tonnes);
 - Solid waste disposed (tonnes);
 - Solid waste diversion rate (%).

Questions/Comments??

Appendix B

Methodology used to Quantify Wastes

Annual Residual Waste Disposal Quantity Estimate Techniques (2006 to 2009)

Curbside collection vehicles were filled to capacity and weighed at an offsite weigh scale on three separate occasions in 2006 and the net weights were then averaged to be 10,490 kg. Based on the capacity of the collection vehicle, 26 m³, the compacted unit weight of the waste was estimated to be 403 kg/m³.

Similarly, the unit weight of non-compacted waste collected in containers at depots was found to be 112 kg/m³. The number of container lifts was recorded each month and multiplied by its capacity and the unit of weight of non-compacted waste. Curbside waste collection weights are then added to the container collection weights in order to achieve the estimated quantity of waste disposed of in the Tri-Neighbours landfill site.

Annual Blue Box Recyclables Quantity Estimate Techniques (2006 to 2010)

Similarly, the approach used to quantify recyclables up until and including 2010 was estimated by the recycling contractor based on the following procedures:

- At the depot locations, the 'percentage full' of each collection bin was estimated and multiplied by the typical net weight of a full bin to estimate quantity of recyclables collected in each bin.
- For curbside pickup, the collected material was weighed during representative weeks for different periods of the year. The weights of recyclables collected during the representative weeks was averaged and multiplied by the number of collections throughout the year.

Appendix C

Options/Best Practices Evaluation

| Description of Options | Criteria Score (out of 5) | | | | | Total Criteria Score |
|---|---------------------------|----------------|-----------------------|-------------------|------------------------|----------------------|
| | % Waste Diverted | Proven Results | Economically Feasible | Public Acceptance | Ease of Implementation | |
| <u>Public Education and Promotion Program</u> Enhanced public education and promotion related to program changes and how the blue box program benefits them | 4 | 4 | 4 | 5 | 4 | 21 |
| <u>Residual Waste Bag Limits</u> Assess the feasibility of reducing the bag limit from three bags/hh/week to two bags/hh/week. | 5 | 5 | 5 | 2 | 3 | 20 |
| <u>Additional Materials</u> Consider the collection of additional materials (eg. other plastics). | 4 | 4 | 3 | 4 | 3 | 18 |
| <u>Training of Key Staff</u> Ongoing training of key staff will assist with public education and promotion. | 2 | 3 | 3 | 4 | 4 | 16 |
| <u>Program Performance</u> Implement best practices in estimating recycling and residual waste disposal quantities. | NA | NA | NA | NA | NA | NA |

Appendix D

Presentation Boards and Comment Sheet

Residential Blue Box Waste Recycling Strategy

Tri-Neighbours Board of Management and its consultant AECOM has developed a Waste Recycling Strategy with the assistance of Waste Diversion Ontario's Continuous Improvement Fund, a fund financed by Ontario municipalities and Stewards of blue box waste in Ontario. The preparation of this plan is a mandated requirement in order to receive annual subsidies for the operation of the current blue box program.

The key objectives of the Plan are to:

- enhance participation (more residents participating) and capture efficiency (more materials being diverted) in the blue box program; and
- extend the useful life of the landfill.

REMEMBER waste diversion is subsidized by the WDO and waste disposal is NOT. The more we divert the longer our waste disposal site will last the lesser the impact on our property taxes and user fees.

There are a number of recommendations presented in the report and we want to know what you think! Key recommendations presented in the report include:

Public outreach – expand public education and outreach programs to ensure residents understand the environmental and financial benefits of the blue box recycling program. It is important that residents understand “why” it is important to recycle.



TRI-NEIGHBOURS WASTE MANAGEMENT BOARD

Residential Blue Box Waste Recycling Strategy

Reliable and accurate quantities - ensure all recyclables collected through the blue box program are quantified through the use of a weigh scale. This is important to better understand how the Tri-Neighbours Municipalities are currently performing and how they perform in the future. It is difficult to monitor performance with unreliable data. (Note: this was implemented in the late summer of 2011 and will be a requirement of any future new recycling contract)

Collection of additional materials – consideration should be given to collecting additional blue box recyclables (eg. additional plastics) provided an established market is in place to purchase the materials. (Note: additional plastics were added in January 2013)

Reduced waste set out limits – consideration should be given to a further reduction in waste set out limits from three bags to two bags. There is documented evidence that reduced bag limits has a positive influence on diversion and capture efficiency. This is listed as a future consideration as additional information on waste and recycling set out characteristics and public input and feedback is required prior to moving forward with this initiative.

WE LOOK FORWARD TO RECEIVING YOUR FEEDBACK! PLEASE TAKE THE TIME TO READ THE REPORT AND FILL-IN A COMMENT SHEET.



TRI-NEIGHBOURS WASTE MANAGEMENT BOARD

Residential Blue Box Waste Recycling Strategy

| Name (print) | Address (Optional) | Phone No. |
|--------------|-----------------------|-----------|
|--------------|-----------------------|-----------|

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Please leave your completed form at your local municipal office or mail or deliver it to:

Attention: Ms. Pat Watson, Acting Clerk