



Volume 2: Methodology & Model

A Study of the Optimization of the Blue Box Material Processing System in Ontario *Final Report*

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Prepared for Waste Diversion Ontario by:



Resource Recycling Systems
Sustainable Systems for a Waste-Free Future

STEWARDEDGE

Volume 2: Methodology & Model

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1. Introduction

The purpose of this study is to provide Waste Diversion Ontario (WDO), including the Continuous Improvement Fund (CIF), individual municipal owners, the Association of Municipalities of Ontario (AMO) and Stewardship Ontario (SO) with comprehensive independent information on a theoretical optimized MRF and transfer facility network for the province of Ontario.

The Project Team has developed a geographic information system (GIS) model that will:

- Theoretically reflect a cost-effective, efficient and successful recovery system for packaging & printed paper in Ontario, and
- Inform decision-making toward an optimized provincial system for the transfer, hauling and sorting of Blue Box recyclables for market

Volume 2 presents the architecture of the model and the methodology and basic assumptions underpinning the development of system options, including waste generation and recovery and operational data on haul distances and times. The software and data used are also presented.

This methodology, together with assumptions for capital and operating costs presented in Volume 3, provides for the development of the options for an optimized system, which are presented in Volumes 4 through 7.

1.1. General Approach

The project model used to determine the optimum number and location of MRFs and transfer stations in the province to handle municipal Blue Box material is comprised of separate detailed MRF and transfer station cost models and a transportation model in a geographic information system (GIS). The cost assumptions and models are described in detail in Volume 3. They were developed based on existing facilities in the US and Canada and assume state-of-the-art technology and process.

The GIS transportation model employs two steps. First the optimum location of aggregation points (either MRFs or transfer stations) was determined. Once these locations were determined, a second model is run to determine which aggregation points should be MRFs and which should be transfer stations. Further optimization is accomplished through the addition of MRFs, and/or utilizing existing MRFs and transfer stations.

The model does not consider municipal boundaries in determining the optimum location of facilities or the flow of material. Material within a specific municipality is allowed to flow to any point of aggregation, whichever was closest to the generation.

The analysis as part of this project considers only printed paper and packaging from residential sources and managed by municipalities, either with municipal forces or under contract to private sector companies. It is recognized that some MRFs, both municipal and privately-operated, handle both municipal material and Industrial, commercial and institutional (IC&I) material. While the modelling in this project does not address the IC&I material, transition planning at the local level (as described in

Volume 8) needs to address any IC&I material currently handled, and the model is capable of incorporating an analysis of the IC&I material flow in the future.

Data for modelling has been obtained primarily from existing desktop sources, including the WDO Datacall, CIF and other project reports, including the MRF inventory undertaken by the CIF and the private sector facility review undertaken by Stewardship Ontario. No contact was initiated with staff or representatives of Blue Box programs until the Ontario Recycling Workshop (ORW) where municipal staff had an opportunity to comment on the data and information and assumptions compiled by the Project Team. The project team also briefed members of the Ontario Waste Management Association (OWMA) and sought their input on the data and assumptions.

1.2. Software

The model was developed using ESRI's ArcGIS 10 suite of programs including ArcMap, ArcToolbox and Model Builder. The program extension used for the transportation mapping was the Network Analyst. Network Analyst has linear optimization tools built into it called Location Allocation. Algorithms used within the Location Allocation include *Minimize Facilities* and *Minimize Impedance*. *Minimize Facilities* will determine the number and location of the minimum number of facilities that will fit all of the conditions set. *Minimize Impedance* determines the optimum location of a specified number of facilities.

The model will minimize the total time traveled by all of the material in the province with a given number of MRFs. The conditions for each step in the model are described in Sections 3.1 and 3.4 of this Volume. The street network used is included in ArcGIS and is updated on an annual basis. The street network has the location, length and speed limit for each road in North America.

The cost models and recovery assumptions were developed in Microsoft Excel and the relevant data and equations were imported into model builder to develop the costs for a particular scenario. In addition, the analysis of regional costs was done by exporting the relevant transportation data to Excel where the different cost models were applied.

2. Existing System Profile

2.1. Existing Infrastructure & Material Flow

The current infrastructure for the municipal Blue Box recycling system and the flow of material within each municipality were mapped. Data were taken primarily from the 2010 WDO Datacall. However, they were verified and updated using additional information from the Ontario Waste Management Association (OWMA), Continuous Improvement Fund (CIF), Waste Diversion Ontario (WDO), Stewardship Ontario and other external contacts. Individual municipalities were not contacted directly.

For each municipality, the material flow is identified as either direct haul: material hauled directly to a MRF; or transfer: material delivered to a transfer station for transfer to a MRF. Detailed data on the material flow, facility owner, operator, address and CoFA are presented in Appendix 1.

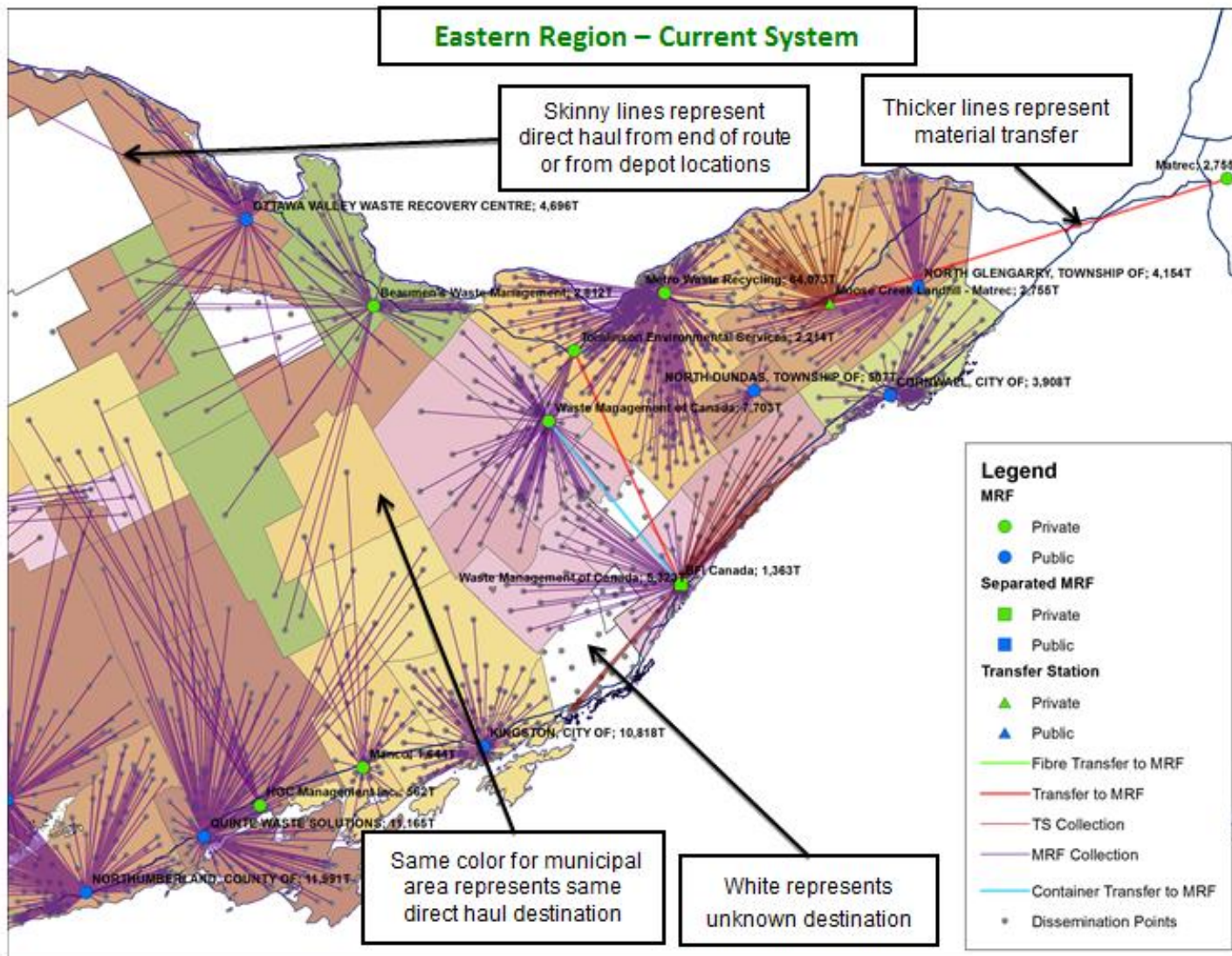
The modelling has been segmented into four separate regions:

1. Eastern Ontario
2. Central Ontario and GTA
3. Southwestern Ontario, and
4. Northern Ontario.

For each of the four regions a map has been developed to depict the known material flow and existing public and private processing and transfer facilities handling municipal Blue Box material within Ontario. Figure 1 is a sample map (for Eastern Ontario) showing how the existing facilities and material flow are depicted.

Several small municipalities did not identify their current material flow in the 2010 Datacall. These areas are represented as white areas on the maps.

Figure 1: Sample Map for Eastern Ontario



2.2. Existing System Cost Estimate

Cost estimates for the existing system are also based primarily on the cost data for 2010 reported by municipalities, verified by WDO and stored in the WDO Database. These data represent the most current and complete data on the actual cost of Ontario's Blue Box system. The development of the cost estimates is presented in Volume 3 Cost Modelling.

3. Greenfield System Model

3.1. Points of Generation

The model uses two Statistics Canada areas to develop a detailed map of the municipal Blue Box tonnes that could be recovered. The definitions of these areas from Statistics Canada are:

- Dissemination Area - Small area composed of one or more neighbouring dissemination blocks, with a population of 400 to 700 persons. All of Canada is divided into dissemination areas.
- Census Tract - Area that is small and relatively stable. Census tracts usually have a population of 2,500 to 8,000. They are located in large urban centres that must have an urban core population of 50,000 or more.

The model uses approximately 7,000 DAs province-wide allowing it to account for various population densities and urban centers within municipalities. For the dense urban areas in the GTA, census tracts (CT) were used instead of DAs to minimize the computer processing requirements (approximately 10,000 DAs in the area) where the level of detail is not required.

These points are treated as the end of curbside collection routes or in depot programs, the drop-off locations, for direct haul to points of aggregation which will be transfer stations or MRFs and which are the starting point for the cost analysis in this project.

3.2. Generation Estimates

Each DA was classified as either Large Urban or Small Urban & Rural depending on the location and municipality in which it is located to match Stewardship Ontario's classification of each municipality¹.

A baseline estimate of the annual generation of each residential printed paper and packaging material was developed based on waste characterization studies conducted through the Effectiveness and Efficiency (E&E) Fund from 2005 to 2007 and further verified and refined according to the trends in corresponding annual data reported by stewards to Stewardship Ontario. The waste studies classified the data into one of five categories according to the type of area and household in which the data were sampled:

- Single Family – Large Urban
- Single Family – Small Urban & Rural

¹ Stewardship Ontario groups municipalities according to the assumed generation of residential printed paper and packaging material to estimate province-wide generation and recovery of each material for the purpose of establishing stewards' fees within the Blue Box Program.

- Multi-Family – Large Urban
- Multi-Family – Small Urban & Rural
- Seasonal

The model multiplies these material-specific generation rates (kg/hh/yr) by the number of households in each DA or CT. Table 1 presents the per-household material-specific generation rates used in the model for 2012.

Table 1: Current Household Generation (kg/hh/yr)

Material	Household Type					
	Single Family		Multi Family		Seasonal	
	LU	SUR	LU	SUR	LU	SUR
Newspaper	77.12	63.35	55.20	39.55	6.56	6.56
Telephone Books	2.53	1.44	2.31	0.95	0.19	0.19
Old Magazines	17.69	19.93	11.82	11.76	2.01	2.01
Other Printed Paper	26.68	20.01	21.64	13.28	2.13	2.13
OCC	37.91	36.64	30.85	29.83	4.19	4.19
Gable Top	3.06	2.75	2.78	2.38	0.32	0.32
Paper Laminants	8.09	9.66	6.97	5.95	1.03	1.03
Aseptic	0.97	0.75	0.83	0.56	0.07	0.07
OBB	27.36	28.68	21.21	19.23	3.22	3.22
PET	9.71	10.24	7.89	8.22	1.32	1.32
HDPE	6.07	6.02	4.12	3.79	0.69	0.69
PS	4.88	4.21	3.53	2.27	0.49	0.49
Film	9.77	10.26	10.53	6.08	1.12	1.12
Plastic Laminants	6.91	7.78	5.83	4.26	0.89	0.89
Other Plastics	11.29	12.78	10.01	7.35	1.42	1.42
Aluminum Food & Beverage Cans	4.45	5.05	3.18	3.01	0.60	0.60
Foil and Other Aluminum	0.82	0.77	0.68	0.40	0.08	0.08
Steel Cans	9.48	11.56	7.97	8.22	1.09	1.09
Aerosol	0.93	0.84	0.74	0.84	0.09	0.09
Paint Cans from Steward Reports	1.26	1.02	0.63	1.13	0.11	0.11
Food and Beverage Glass Clear	16.38	17.78	11.44	10.08	1.97	1.97
Food and Beverage Glass Coloured	5.86	4.85	3.85	1.08	0.51	0.51
Total Generation	289.23	276.36	224.01	180.20	30.09	30.09

3.2.1. Projection for 2025

Generation projections for the 2025 system address both changes in population and material composition. Population projections were obtained from Statistics Canada.

In the absence of data specific to household growth, the Project Team assumed household growth will increase at the same rate as population based on the Statistics Canada projections, noting that the number of people per household may change and the relative growth between single-family and multi-family households may be different.

As well, potential changes to the printed paper and packaging material composition were assumed based on:

- trends in the data on packaging and paper introduced into Ontario consumer market reported to Stewardship Ontario by stewards
- research undertaken by Kelleher and Associates for the City of Toronto²
- additional research undertaken by the Project Team

These assumed changes expressed as % increases or decreases are presented in Table 2. The 2010 per-household material specific generation rates were adjusted accordingly and then multiplied by the projected number of households in 2025 for each dissemination area or census tract area. The province-wide total projected generation of printed paper and packaging materials are also shown in Table 2.

Table 2: 2025 - Assumed Changes to Generation Rates (kg/hh/yr)

Material	Household Type						Change
	Single Family		Multi-Family		Seasonal		
	LU	SUR	LU	SUR	LU	SUR	
Newspaper	46.27	38.01	33.12	23.73	3.94	3.94	-40%
Telephone Books	0.63	0.36	0.58	0.24	0.05	0.05	-75%
Old Magazines	13.27	14.95	8.87	8.82	1.51	1.51	-25%
Other Printed Paper	29.34	22.01	23.80	14.60	2.34	2.34	10%
OCC	51.18	49.47	41.64	40.27	5.65	5.65	35%
Gable Top	4.29	3.85	3.90	3.33	0.44	0.44	40%
Paper Laminants	10.11	12.07	8.71	7.44	1.28	1.28	25%
Aseptic	1.36	1.05	1.17	0.78	0.10	0.10	40%
OBB	27.36	28.68	21.21	19.23	3.22	3.22	0%

² Kelleher and Associates, *City of Toronto Future Blue Bin Study, Technical Memorandum #1 Lifestyle and Packaging Trends Research*, December, 2010

Kelleher and Associates, *City of Toronto Future Blue Bin Study, Technical Memorandum #2 Packaging Audits*, December, 2010

Kelleher and Associates, *City of Toronto Future Blue Bin Study, Technical Memorandum #3 Blue Bin Quantity and Composition Scenarios*, December, 2010

Material	Household Type						Change
	Single Family		Multi-Family		Seasonal		
	LU	SUR	LU	SUR	LU	SUR	
PET	12.62	13.31	10.26	10.68	1.72	1.72	30%
HDPE	5.46	5.42	3.70	3.41	0.62	0.62	-10%
PS	2.44	2.10	1.77	1.14	0.25	0.25	-50%
Film	8.79	9.23	9.48	5.47	1.01	1.01	-10%
Plastic Laminants	8.98	10.11	7.57	5.54	1.16	1.16	30%
Other Plastics	18.06	20.45	16.02	11.76	2.27	2.27	60%
Aluminum Food & Beverage Cans	4.01	4.55	2.86	2.71	0.54	0.54	-10%
Foil and Other Aluminum	0.73	0.69	0.61	0.36	0.08	0.08	-10%
Steel Cans	7.59	9.25	6.38	6.57	0.88	0.88	-20%
Aerosol	0.93	0.84	0.74	0.84	0.09	0.09	0%
Paint Cans	0.88	0.71	0.44	0.79	0.08	0.08	-30%
Food and Beverage Glass Clear	11.47	12.44	8.01	7.06	1.38	1.38	-30%
Food and Beverage Glass Coloured	4.10	3.39	2.69	0.76	0.36	0.36	-30%
Total Generation	269.89	262.95	213.53	175.53	28.93	28.93	

3.3. Recovery Estimates

Two scenarios were modelled for 2025 to represent the potential recovery of the future system:

1. Natural Growth
2. High Recovery

3.3.1. Natural Growth

In the Natural Growth scenario recovery rates are based on current recovery levels reported by municipalities through the WDO Datacall and are assumed to continue to increase in line with trends from previous years, but there are no substantially new or different initiatives to increase recovery. It is assumed that markets for some materials will strengthen based on current efforts. Table 3 presents the assumed material specific recovery rates for the Natural Growth scenario.

3.3.2. High Recovery

In the High Recovery scenario, it is assumed that recovery rates are substantially higher as the benefits from an optimized system are exploited. The system is enhanced to collect a consistent set of materials province wide allowing easier promotion of recycling programs. See Appendix 2 for the consistent province-wide list of printed paper and packaging materials to be collected for recycling. As well best practices in collection and recovery and incentive programs such as Recycle Bank provide for further increases in recovery. Table 3 presents the assumed material specific recovery rates for the High Recovery scenario.

Table 3: Recovery Rates for Natural Growth and High Recovery Scenarios

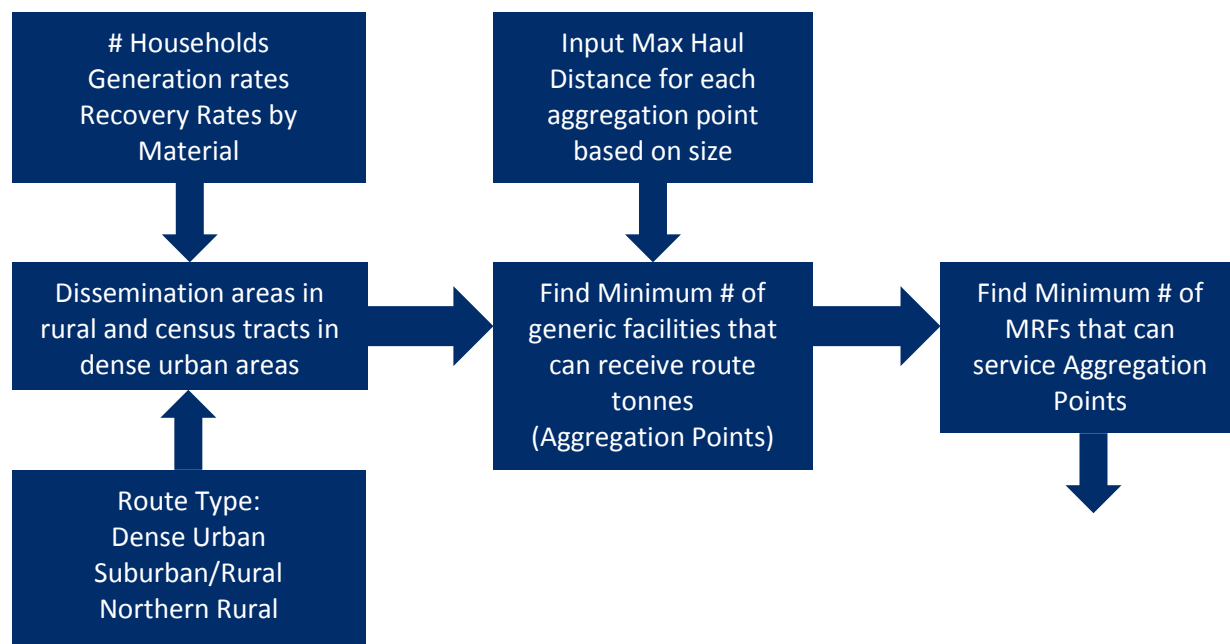
Material	Assumed Generation	Recovery Rate			Recovered Tonnes	
	2025	Current - 2010	Natural Growth - 2025	High Recovery - 2025	Natural Growth - 2025	High Recovery - 2025
Newspaper	242,227	97%	98%	98%	237,382	237,382
Telephone Books	3,175	97%	98%	98%	3,112	3,112
Old Magazines	76,121	97%	98%	98%	74,599	74,599
Other Printed Paper	153,352	56%	60%	75%	92,011	115,014
OCC	283,329	87%	88%	95%	249,330	269,163
Gable Top	24,303	34%	50%	75%	12,151	18,227
Paper Laminants	61,784	1%	5%	30%	3,089	18,535
Aseptic	7,266	12%	30%	75%	2,180	5,450
OBB	157,159	55%	60%	80%	94,295	125,727
PET	73,642	61%	65%	75%	47,867	55,232
HDPE	30,091	57%	60%	75%	18,055	22,568
PS	12,957	4%	10%	50%	1,296	6,478
Film	53,681	6%	15%	40%	8,052	21,472
Plastic Laminants	53,417	1%	1%	10%	534	5,342
Other Plastics	108,704	19%	40%	60%	43,482	65,222
Aluminum Food & Beverage Cans	23,297	50%	55%	75%	12,813	17,472
Foil and Other Aluminum	4,108	9%	20%	50%	822	2,054
Steel Cans	46,669	61%	65%	75%	30,335	35,002
Aerosol	5,152	28%	30%	50%	1,545	2,576
Paint Cans from Steward Reports	4,422	18%	20%	50%	884	2,211
Food and Beverage Glass Clear	65,290	89%	90%	95%	58,761	62,025
Food and Beverage Glass Coloured	20,940	71%	72%	80%	15,077	16,752
Total	1,511,086	68%	67%	78%	1,007,672	1,181,615

3.3.3. Material Density

With the change in the printed paper and packaging put onto the market in 2025 and the change in recovery rates, the composition of the recovered material stream will change. This will affect the density of the material collected. Assuming the density of current packaging and printed paper materials, the density of the recovered material stream is projected to be about 30% lower in 2025 than 2010. This will have an effect on the cost of transfer and processing, which are addressed in Volume 3.

3.4. Model algorithm

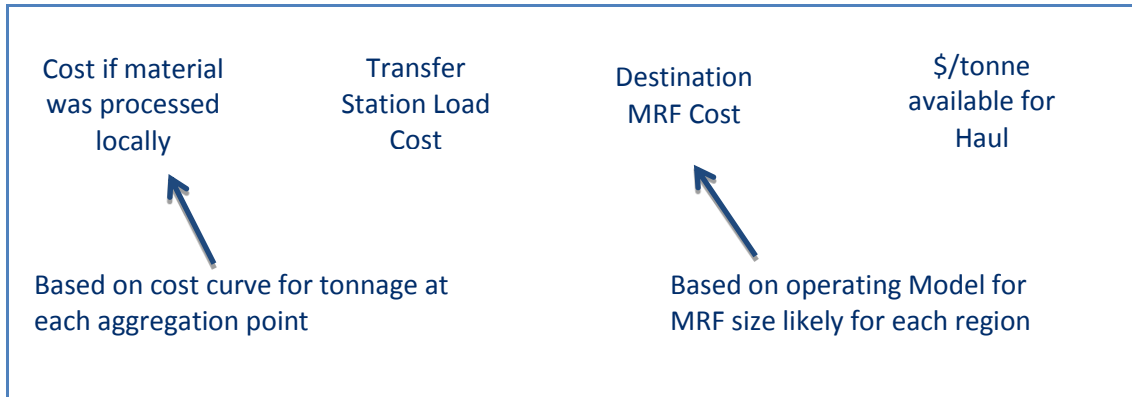
Figure 2: Model Flowchart



The first step in the model is to determine the optimum locations of the aggregation points (either MRFs or transfer stations). This is accomplished with the following steps:

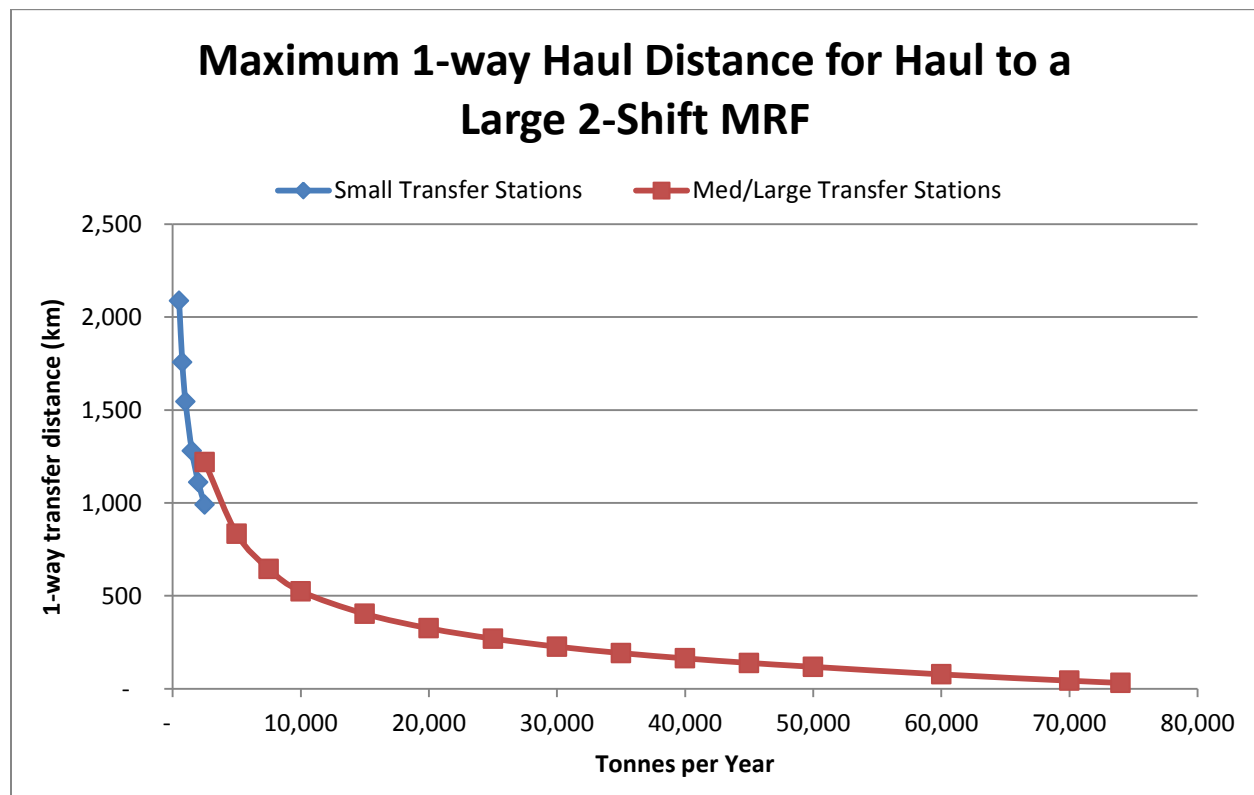
- Each dissemination area (or census tract in urban areas) was assigned the tonnes of Blue Box material recovered based on the number of single family, multifamily and seasonal households in that area and whether that area was urban or rural
- Each dissemination area or census tract was assigned a maximum time from end of route based on location in an urban, suburban, rural or other area (See Section 3.4.1 for a map and more information)
- The *minimum facilities algorithm* was run with the limit that the tonnes at each point could not travel longer than the end of route time. The model determined the optimum number and location of the aggregation points that minimized the overall distance that tonnes travelled

The second step in the model uses the MRF cost models described in detail in Volume 3 to determine whether each aggregation point should be a MRF or transfer station. The following equation was utilized to determine the maximum distance that each aggregation point could haul their tonnes.



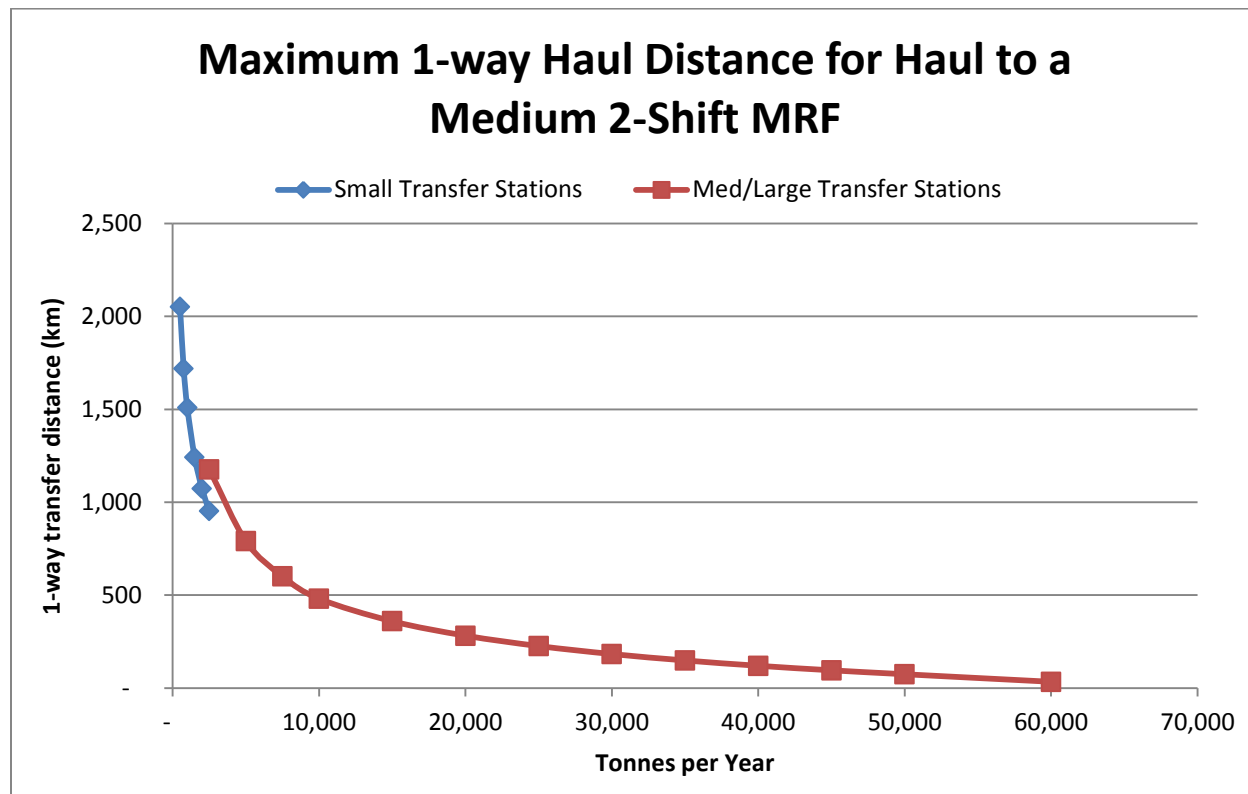
Based on this equation, the maximum distance (or more specifically, time) that material from each aggregation point could be hauled economically is determined. The following chart shows the maximum haul times for material from all aggregation points if the destination is a large 2-shift MRF (see Volume 3 for more detail).

Figure 3: Maximum Haul Times to Large 2-Shift MRF



The following chart shows the maximum haul times for material from all aggregation points going to a medium 2-shift MRF. The maximum distance that each tonne can be hauled economically is about 40km less if the destination is a medium 2-shift than if they end up at a large 2-shift MRF.

Figure 4: Maximum Haul Times to Medium 2-Shift MRF



The steps by which the model determines whether each aggregation point is optimally a MRF or transfer station are as follows:

- Each aggregation point is assigned a maximum transfer time based on the relationships described in the previous charts. In the southern part of the province, the haul time was capped at 5 hours one-way.
- The *Minimize Facilities model* was run to determine the minimum number of MRFs required to handle the material in the province along with the location of each.
- The *Minimize Impedance model* was run with the same 1-way haul time limits and the number of MRFs found in the *Minimize Facilities model*. The model is then re-run with an increasing number of MRFs in the province. Each MRF is added in the next most optimal position by the model.
- The MRFs and transfer stations are then divided into regions to summarize the model results and determine the cost of adding each MRF to the region.

3.4.1. Operational Assumptions

End-of-Route Haul times: The economics of end-of-route haul times are generally determined by the density of population. Therefore, the initial assumptions for the maximum end-of-route haul times for

each dissemination area (or census tract) were based on census classifications of urban and rural. However, since the census classifies very small towns as urban areas, as the model was refined, only cities with populations over 50,000 were classified as urban and therefore assigned the shortest end-of-route time. The rural areas were classified further to account for areas that are in general serviced by drop-off depots instead of curbside collection. These areas were classified as isolated and an end-of-route time of up to 4 hours. Figure 5 shows the end-of-route times for the southern portion of the province. The assumed end-of-route times reflected in the maps are:

- Isolated: 240 min
- Northern: 180 min
- North Urban: 90 min
- Rural: 60 min
- Suburban: 60 min
- Urban: 30 min
- Dense Urban: 30 min

Regional MRF size – For each region the maximum 1-way transfer time was determined based on an expected regional MRF size specific to that region, given the quantity and concentration of material geographically.

- Eastern Region: Medium 2-shift MRF
- Central Region: Large 2-shift MRF
- Southwestern Region: Medium 2-shift MRF
- Northern Region: Small 2-shift MRF

An iterative approach was used initially to determine the most appropriate MRF size for the typical maximum transfer times in a given region. Also, individual aggregation point maximum 1-way transfer times were modified to be different than the typical time for the region as necessary to ensure all transfer times are economical for any scenarios.

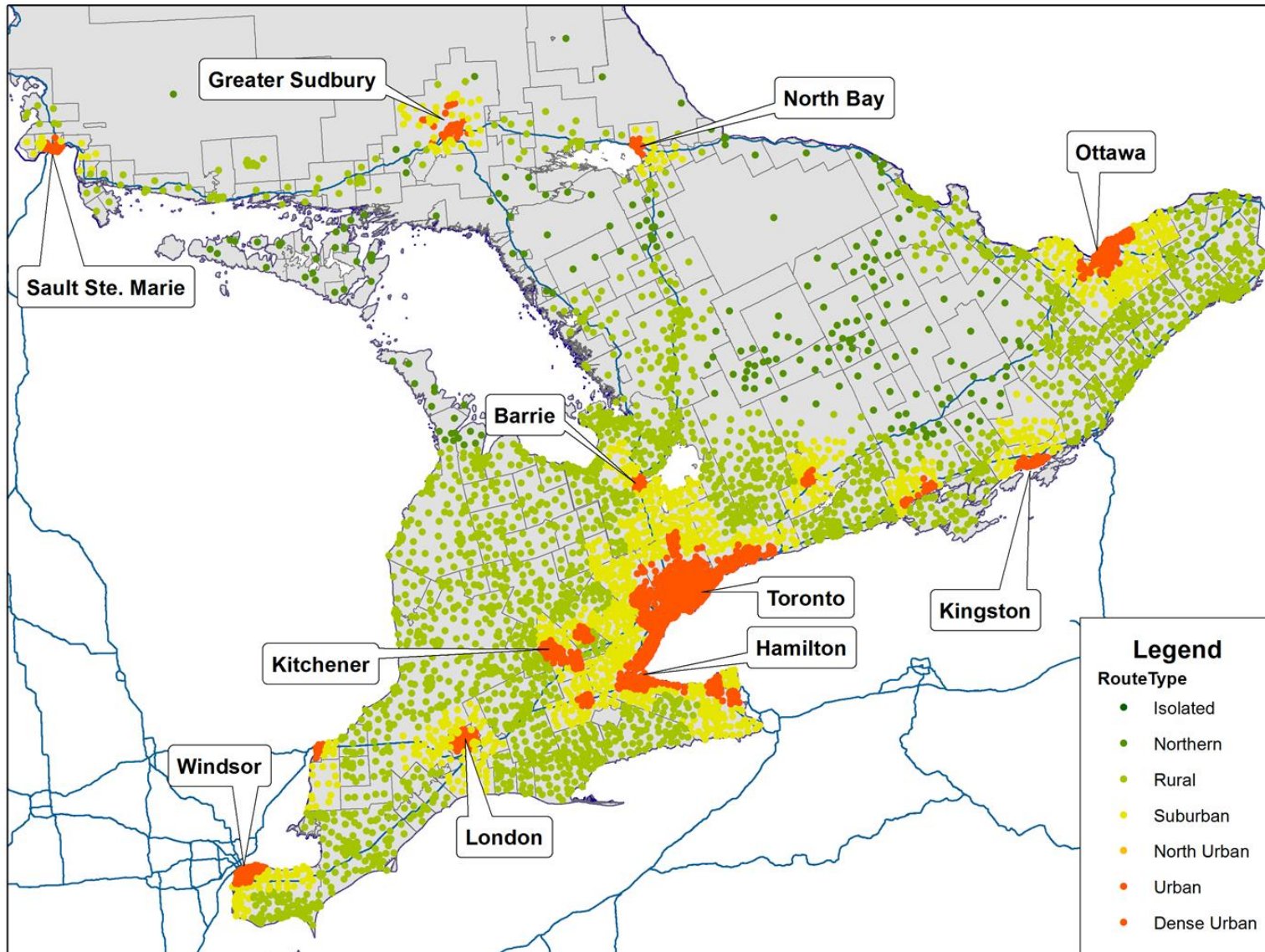
4. Model Components and Data

The model components and data to be provided to CIF are detailed below.

- GIS Layers for:
 - Existing MRF and transfer station locations indicating current tonnes processed and whether public or private
 - Existing system material destination – Program boundary, quantities (tonnes) managed at destination, destination transfer station, destination MRF
 - Material Generation points for Current, Natural Growth and High Recovery scenarios – number of single, multi-family and seasonal households for each material generation points (dissemination area or census tract area), quantities (tonnes) generated, maximum haul from end-of-route or depot location
 - Street network – All streets for North America including speed limit and street type
- GIS Network Analyst Layers for:

- Location of aggregation points for all scenarios included in the report for both Natural Growth and High Recovery scenarios
 - Individual layers for the *minimize facilities model* and the *minimize impedance model* runs
 - Lines storing distance and time traveled for all material (tonnes)
- MRF locations for all province wide and regional scenarios, including all options and variations described in the report
 - Individual layers for the *minimize facilities model* and the *minimize impedance model* runs
 - Lines storing distance and time traveled for all material (tonnes)
- Model Builder Scripts
 - Cost per tonne script to add tipping fee data to each MRF or transfer station location
- Excel Spreadsheets
 - MRF and Transfer Station Cost models – Complete cost model including all assumptions and calculations
 - Maximum one-way haul distance model – Complete model calculations, charts and regression curves, and sensitivity analysis
 - Scenario (options and variations) costing model – Exported data for each option and variation to calculate full system cost based on MRF and Transfer Station Cost model, GIS transfer times and quantities (tonnes) managed at each MRF or transfer station.

Figure 5: Map of End-of-Route Haul Times



Appendix 1

Table 4: Existing System Profile

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
ADDINGTON HIGHLANDS, TOWNSHIP OF	Direct Haul		Beaumen's Waste Management	Renfrew County Recycle Centre
ADMASTON/BROMLEY, TOWNSHIP OF	Direct Haul		Beaumen's Waste Management	Renfrew County Recycle Centre
AKEWESANE, MOHAWK COUNCIL OF	Direct Haul		CORNWALL, CITY OF	HGC Management
ALFRED AND PLANTAGENET, TOWNSHIP OF	Transfer	Moose Creek Landfill - Matrec	Matrec	Matrec
ALGONQUIN HIGHLANDS, TOWNSHIP OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
ALGONQUINS OF PIKWAKANAGAN	Unknown		OTTAWA VALLEY WASTE RECOVERY CENTRE	OTTAWA VALLEY WASTE RECOVERY CENTRE
AMARANTH, TOWNSHIP OF	Transfer	Dufferin Transfer & Recycling Facility - Sandhill Disposal	GUELPH, CITY OF	GUELPH, CITY OF
ARMOUR, TOWNSHIP OF	Direct Haul		ARMOUR, TOWNSHIP OF	ARMOUR, TOWNSHIP OF
ARNPRIOR, TOWN OF	Direct Haul		Beaumen's Waste Management	Renfrew County Recycle Centre
ASHFIELD-COLBORNE-WAWANOSH, TOWNSHIP OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
ATHENS, TOWNSHIP OF	Transfer			
ATIKOKAN, TOWNSHIP OF	Direct Haul		Recool Inc.	Recool Inc.
AUGUSTA, TOWNSHIP OF	Direct Haul/Transfer		Waste Management of Canada	Waste Management of Canada
AUGUSTA, TOWNSHIP OF	Direct Haul/Transfer	Waste Management of Canada	Waste Management of Canada	Waste Management of Canada
AYLMER, TOWN OF	Direct Haul		LONDON, CITY OF	Miller Waste Systems - WMC
BALDWIN, TOWNSHIP OF	Direct Haul		GREATER SUDBURY, CITY OF	Canada Fibres
BANCROFT, TOWN OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
BARRIE, CITY OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
BAYHAM, MUNICIPALITY OF	Direct Haul		BFI Canada Inc.	BFI Canada Inc.
BECKWITH, TOWNSHIP OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
BILLINGS, TOWNSHIP OF	Unknown			
BLIND RIVER, TOWN OF	Direct Haul		MWRC	Municipal Waste Services &

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
				Recycling Consultants
BLUEWATER RECYCLING ASSOCIATION	Direct Haul		BLUEWATER RECYCLING ASSOCIATION	BLUEWATER RECYCLING ASSOCIATION
BONFIELD, TOWNSHIP OF	Direct Haul		Miller Waste Systems - WMC	Miller Waste Systems - WMC
BRANT, COUNTY OF	Direct Haul		Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.
BRANTFORD, CITY OF	Direct Haul		Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.
BROCKVILLE, CITY OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
BROCKVILLE, CITY OF	Direct Haul	Waste Management of Canada	Waste Management of Canada	Waste Management of Canada
BRUCE AREA SOLID WASTE RECYCLING	Direct Haul		BRUCE AREA SOLID WASTE RECYCLING	BRUCE AREA SOLID WASTE RECYCLING
BRUDENELL, LYNDONCH AND RAGLAN, TOWNSHIP OF	Direct Haul		Beaumen's Waste Management	Renfrew County Recycle Centre
CALLANDER, MUNICIPALITY OF	Direct Haul		Miller Waste Systems - WMC	Miller Waste Systems - WMC
CALVIN, MUNICIPALITY OF	Direct Haul		Miller Waste Systems - WMC	Miller Waste Systems - WMC
CARLETON PLACE, TOWN OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
CARLING, TOWNSHIP OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
CARLOW MAYO, TOWNSHIP OF	Direct Haul		HGC Management Inc.	HGC Management Inc.
CASEY, TOWNSHIP OF	Direct Haul		Service Sani-Tri	Service Sani-Tri
CASSELMAN, VILLAGE OF	Direct Haul		NORTH GLENGARRY, TOWNSHIP OF	NORTH GLENGARRY, TOWNSHIP OF
CENTRAL ELGIN, MUNICIPALITY OF	Direct Haul		Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.
CENTRAL FRONTENAC, TOWNSHIP OF	Direct Haul		HGC Management Inc.	HGC Management Inc.
CENTRAL MANITOULIN, TOWNSHIP OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
CHARLTON AND DACK, MUNICIPALITY OF	Direct Haul		Service Sani-Tri	Service Sani-Tri
CHATHAM-KENT, MUNICIPALITY OF	Direct Haul		South Buxton Recycling Ltd	Waste Services INC/ BFI
CHATSWORTH, TOWNSHIP OF	Transfer	Dufferin Transfer & Recycling Facility - Sandhill Disposal	GUELPH, CITY OF	GUELPH, CITY OF
CHIPPEWAS OF GEORGINA ISLAND	Unknown		PETERBOROUGH, CITY OF	HGC Management Inc.
CHIPPEWAS OF KETTLE AND STONY	Unknown		Waste Management of Canada	Waste Management of Canada

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
POINT FIRST NATIONS				
CHIPPEWAS OF NAWASH FIRST NATION	Direct Haul		BRUCE AREA SOLID WASTE RECYCLING	BRUCE AREA SOLID WASTE RECYCLING
CHIPPEWAS OF RAMA FIRST NATION	Unknown		Waste Services INC/ BFI	Waste Services INC/ BFI
CHISHOLM, TOWNSHIP OF	Direct Haul		R & D Recycling	R & D Recycling
CLARENCE-ROCKLAND, CITY OF	Transfer	Moose Creek Landfill - Matrec	Matrec	Matrec
COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD	Direct Haul		COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD	COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD
COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD	Direct Haul		COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD	COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD
CONMEE, TOWNSHIP OF	Direct Haul		Recool Inc.	Recool Inc.
CORNWALL, CITY OF	Direct Haul		CORNWALL, CITY OF	HGC Management
CURVE LAKE FIRST NATION	Direct Haul		PETERBOROUGH, CITY OF	HGC Management Inc.
DEEP RIVER, TOWN OF	Direct Haul		OTTAWA VALLEY WASTE RECOVERY CENTRE	OTTAWA VALLEY WASTE RECOVERY CENTRE
DESERONTO, TOWN OF	Direct Haul		QUINTE WASTE SOLUTIONS	Waste Management of Canada
DRUMMOND-NORTH ELMSLEY, TOWNSHIP OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
DRYDEN, CITY OF	Transfer	Dryden Landfill - DRYDEN, CITY OF	Metro Recycling	Metro Recycling
DURHAM, REGIONAL MUNICIPALITY OF	Direct Haul		DURHAM, REGIONAL MUNICIPALITY OF	Metro Municipal Recycling Services
DUTTON-DUNWICH, MUNICIPALITY OF	Direct Haul		BFI Canada Inc.	BFI Canada Inc.
DYSART ET AL, TOWNSHIP OF	Direct Haul/Transfer		Mid Ontario Disposal	Mid Ontario Disposal
DYSART ET AL, TOWNSHIP OF	Direct Haul/Transfer	Mid Ontario Disposal	Durham Shred & Recycle	Durham Shred & Recycle
EAST FERRIS, TOWNSHIP OF	Direct Haul		R & D Recycling	R & D Recycling
EAST GARAFRAXA, TOWNSHIP OF	Transfer	Dufferin Transfer & Recycling Facility - Sandhill Disposal	GUELPH, CITY OF	GUELPH, CITY OF
EAST LUTHER GRAND VALLEY, TOWNSHIP OF	Transfer	Dufferin Transfer & Recycling Facility - Sandhill Disposal	GUELPH, CITY OF	GUELPH, CITY OF
EDWARDSBURGH CARDINAL, TOWNSHIP OF	Transfer	BFI Canada	Tomlinson Environmental Services	Tomlinson Environmental Services
ELIZABETHTOWN-KITLEY, TOWNSHIP OF	Direct Haul		Waste Management of Canada	Waste Management of Canada

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
ELLIOT LAKE, CITY OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
EMO, TOWNSHIP OF	Direct Haul/Transfer	Asselin Transportation	Cascades Winnipeg	Cascades Winnipeg
ENNISKILLEN, TOWNSHIP OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
ESPANOLA, TOWN OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
ESSEX-WINDSOR SOLID WASTE AUTHORITY	Direct Haul		ESSEX-WINDSOR SOLID WASTE AUTHORITY	ESSEX-WINDSOR SOLID WASTE AUTHORITY
FARADAY, TOWNSHIP OF	Direct Haul		PETERBOROUGH, CITY OF	HGC Management Inc.
FORT FRANCES, TOWN OF	Transfer	FORT FRANCES, TOWN OF	Metro Recycling	Metro Recycling
FRENCH RIVER, MUNICIPALITY OF	Direct Haul		GREATER SUDBURY, CITY OF	Canada Fibres
FRONT OF YONGE, TOWNSHIP OF	Unknown		Waste Management of Canada	Waste Management of Canada
FRONT OF YONGE, TOWNSHIP OF	Unknown	Waste Management of Canada	Waste Management of Canada	Waste Management of Canada
FRONTENAC ISLANDS, TOWNSHIP OF	Direct Haul		KINGSTON, CITY OF	BFI Canada
GANANOQUE, TOWN OF	Transfer	BFI Canada	Tomlinson Environmental Services	Tomlinson Environmental Services
GEORGIAN BLUFFS, TOWNSHIP OF	Direct Haul		Miller Waste Systems - WMC	Miller Waste Systems - WMC
GILLIES, TOWNSHIP OF	Direct Haul		Recool Inc.	Recool Inc.
GREATER MADAWASKA, TOWNSHIP OF	Direct Haul		OTTAWA VALLEY WASTE RECOVERY CENTRE	OTTAWA VALLEY WASTE RECOVERY CENTRE
GREATER NAPANEE, TOWNSHIP OF	Direct Haul		Manco	Manco
GREATER SUDBURY, CITY OF	Direct Haul		GREATER SUDBURY, CITY OF	Canada Fibres
GREY HIGHLANDS, MUNICIPALITY OF	Transfer	Dufferin Transfer & Recycling Facility - Sandhill Disposal	GUELPH, CITY OF	GUELPH, CITY OF
GUELPH, CITY OF	Direct Haul		GUELPH, CITY OF	GUELPH, CITY OF
HALDIMAND, COUNTY OF	Transfer	Canborough Recycling Transfer Station	NIAGARA, REGIONAL MUNICIPALITY OF	Niagara Recycling (MRF Processor)
HALTON, REGIONAL MUNICIPALITY OF	Direct Haul		Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.
HALTON, REGIONAL MUNICIPALITY OF	Transfer	Leferink Transfer Limited	Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.
HALTON, REGIONAL MUNICIPALITY OF	Transfer	NorJohn Transfer System Ltd. - Walker Industries	Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.
HAMILTON, CITY OF	Direct Haul		HAMILTON, CITY OF	Canada Fibers

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
HANOVER, TOWN OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
HARLEY, TOWNSHIP OF	Direct Haul		Service Sani-Tri	Service Sani-Tri
HASTINGS HIGHLANDS, MUNICIPALITY OF	Unknown		HGC Management Inc.	HGC Management Inc.
HASTINGS HIGHLANDS, MUNICIPALITY OF	Transfer/Unknown Transfer facility	Roslin - David Moore & Sons	NORTHUMBERLAND, COUNTY OF	NORTHUMBERLAND, COUNTY OF
HAWKESBURY JOINT RECYCLING	Direct Haul		NORTH GLENGARRY, TOWNSHIP OF	NORTH GLENGARRY, TOWNSHIP OF
HEAD, CLARA AND MARIA, TOWNSHIPS OF	Direct Haul		OTTAWA VALLEY WASTE RECOVERY CENTRE	OTTAWA VALLEY WASTE RECOVERY CENTRE
HIGHLANDS EAST, MUNICIPALITY OF	Transfer	Gooderham Transfer Station	Waste Services INC/ BFI	Waste Services INC/ BFI
HILLIARD, TOWNSHIP OF	Unknown			
HORTON, TOWNSHIP OF	Direct Haul		Beaumen's Waste Management	Renfrew County Recycle Centre
HOWICK, TOWNSHIP OF	Unknown			
HUDSON, TOWNSHIP OF	Direct Haul		Service Sani-Tri	Service Sani-Tri
HURON SHORES, MUNICIPALITY OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
JOHNSON, TOWNSHIP OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
KAWARTHA LAKES, CITY OF	Direct Haul		NORTHUMBERLAND, COUNTY OF	NORTHUMBERLAND, COUNTY OF
KEARNEY, TOWN OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
KENORA, CITY OF	Transfer	Kenora Area Solid Waste Transfer Facility	Metro Recycling	Metro Recycling
KERNS, TOWNSHIP OF	Direct Haul		Service Sani-Tri	Service Sani-Tri
KILLALOE, HAGARTY, AND RICHARDS, TOWNSHIP OF	Direct Haul		Beaumen's Waste Management	Renfrew County Recycle Centre
KILLARNEY, MUNICIPALITY OF	Direct Haul		GREATER SUDBURY, CITY OF	Canada Fibres
KINGSTON, CITY OF	Direct Haul		KINGSTON, CITY OF	BFI Canada
KIRKLAND LAKE, TOWN OF	Direct Haul		Teck Northern Roads	Teck Northern Roads
LANARK HIGHLANDS, TOWNSHIP OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
LAURENTIAN HILLS, TOWN OF	Direct Haul		OTTAWA VALLEY WASTE RECOVERY CENTRE	OTTAWA VALLEY WASTE RECOVERY CENTRE

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
LEEDS AND THE THOUSAND ISLANDS, TOWNSHIP OF	Unknown			
LONDON, CITY OF	Direct Haul		LONDON, CITY OF	Miller Waste Systems - WMC
LOYALIST, TOWNSHIP OF	Direct Haul		KINGSTON, CITY OF	BFI Canada
MACDONALD, MEREDITH & ABERDEEN ADDITIONAL, TOWNSHIP OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
MACHAR, TOWNSHIP OF	Unknown		Waste Services INC/ BFI	Waste Services INC/ BFI
MADAWASKA VALLEY, TOWNSHIP OF	Direct Haul		OTTAWA VALLEY WASTE RECOVERY CENTRE	OTTAWA VALLEY WASTE RECOVERY CENTRE
MAGNETAWAN, MUNICIPALITY OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
MALAHIDE, TOWNSHIP OF	Direct Haul		BFI Canada Inc.	BFI Canada Inc.
MARATHON, TOWN OF	Direct Haul		Recool Inc.	Recool Inc.
MATTAWA, TOWN OF	Direct Haul		R & D Recycling	R & D Recycling
MCDOUGALL, MUNICIPALITY OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
MCKELLAR, TOWNSHIP OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
MCNAB-BRAESIDE, TOWNSHIP OF	Direct Haul		Beaumen's Waste Management	Renfrew County Recycle Centre
MEAFORD, MUNICIPALITY OF	Direct Haul		Miller Waste Systems - WMC	Miller Waste Systems - WMC
MELANCTHON, TOWNSHIP OF	Direct Haul		GUELPH, CITY OF	GUELPH, CITY OF
MERRICKVILLE-WOLFORD, VILLAGE OF	Unknown			
MINDEN HILLS, TOWNSHIP OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
MISSISSAUGAS OF THE NEW CREDIT FIRST NATION	Unknown			
MISSISSIPPI MILLS, TOWN OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
MOHAWKS OF THE BAY OF QUINTE	Direct Haul		HGC Management Inc.	HGC Management Inc.
MONO, TOWN OF	Transfer	Dufferin Transfer & Recycling Facility - Sandhill Disposal	GUELPH, CITY OF	GUELPH, CITY OF
MONTAGUE, TOWNSHIP OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
MULMUR, TOWNSHIP OF	Direct Haul/Transfer		Mid Ontario Disposal	Mid Ontario Disposal
MULMUR, TOWNSHIP OF	Direct Haul/Transfer	Mid Ontario Disposal	Durham Shred & Recycle	Durham Shred & Recycle
MUSKOKA, DISTRICT MUNICIPALITY OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
NAIRN & HYMAN, TOWNSHIP OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
NEEBING, MUNICIPALITY OF	Direct Haul		Recool Inc.	Recool Inc.
NIAGARA, REGIONAL MUNICIPALITY OF	Direct Haul		NIAGARA, REGIONAL MUNICIPALITY OF	Niagara Recycling (MRF Processor)
NORFOLK, COUNTY OF	Direct Haul		NORFOLK, COUNTY OF	HGC Management Inc.
NORTH BAY, CITY OF	Direct Haul		Miller Waste Systems - WMC	Miller Waste Systems - WMC
NORTH DUNDAS, TOWNSHIP OF	Direct Haul		NORTH DUNDAS, TOWNSHIP OF	NORTH DUNDAS, TOWNSHIP OF
NORTH FRONTENAC, TOWNSHIP OF	Direct Haul		Manco	Manco
NORTH GLENGARRY, TOWNSHIP OF	Direct Haul		NORTH GLENGARRY, TOWNSHIP OF	NORTH GLENGARRY, TOWNSHIP OF
NORTH GRENVILLE, MUNICIPALITY OF	Direct		Metro Waste Recycling	Metro Waste Recycling
NORTH HURON, TOWNSHIP OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
NORTH STORMONT, TOWNSHIP OF	Direct Haul		NORTH GLENGARRY, TOWNSHIP OF	NORTH GLENGARRY, TOWNSHIP OF
NORTHEASTERN MANITOULIN & ISLANDS, TOWN OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
NORTHERN BRUCE PENINSULA, MUNICIPALITY OF	Direct Haul		Miller Waste Systems - WMC	Miller Waste Systems - WMC
NORTHUMBERLAND, COUNTY OF	Direct Haul		NORTHUMBERLAND, COUNTY OF	NORTHUMBERLAND, COUNTY OF
OCONNOR, TOWNSHIP OF	Direct Haul		Recool Inc.	Recool Inc.
OLIVER PAIPOONGE, MUNICIPALITY OF	Direct Haul		Recool Inc.	Recool Inc.
ORANGEVILLE, TOWN OF	Transfer	Dufferin Transfer & Recycling Facility - Sandhill Disposal	GUELPH, CITY OF	GUELPH, CITY OF
ORILLIA, CITY OF	Direct Haul/Transfer		Mid Ontario Disposal	Mid Ontario Disposal
ORILLIA, CITY OF	Direct Haul/Transfer	Mid Ontario Disposal	Durham Shred & Recycle	Durham Shred & Recycle
OTTAWA VALLEY WASTE RECOVERY CENTRE	Direct Haul		OTTAWA VALLEY WASTE RECOVERY CENTRE	OTTAWA VALLEY WASTE RECOVERY CENTRE
OTTAWA, CITY OF	Direct Haul		Metro Waste Recycling	Metro Waste Recycling
OWEN SOUND, CITY OF	Direct Haul		Miller Waste Systems - WMC	Miller Waste Systems - WMC
OXFORD, RESTRUCTURED COUNTY OF	Transfer	Woodstock	Canada Fibres	Canada Fibres

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
OXFORD, RESTRUCTURED COUNTY OF	Direct Haul		HGC Management Inc.	HGC Management Inc.
PAPINEAU-CAMERON, TOWNSHIP OF	Direct Haul		R & D Recycling	R & D Recycling
PARRY SOUND, TOWN OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
PEEL, REGIONAL MUNICIPALITY OF	Direct Haul		PEEL, REGIONAL MUNICIPALITY OF	Canada Fibres
PERRY, TOWNSHIP OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
PERTH, TOWN OF	Unknown		Tomlinson Environmental Services	Tomlinson Environmental Services
PETERBOROUGH, CITY OF	Direct Haul		PETERBOROUGH, CITY OF	HGC Management Inc.
PETERBOROUGH, COUNTY OF	Direct Haul		PETERBOROUGH, CITY OF	HGC Management Inc.
PETROLIA, TOWN OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
PLYMPTON-WYOMING, TOWN OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
POWASSAN, MUNICIPALITY OF	Direct Haul		R & D Recycling	R & D Recycling
PRESCOTT, TOWN OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
PRESCOTT, TOWN OF	Direct Haul	Waste Management of Canada	Waste Management of Canada	Waste Management of Canada
PRINCE, TOWNSHIP OF	Direct Haul		Green Circle Environmental	Green Circle Environmental
QUINTE WASTE SOLUTIONS	Direct Haul		QUINTE WASTE SOLUTIONS	Waste Management of Canada
RAINY RIVER FIRST NATIONS	Direct Haul		Greg's Recycling	Greg's Recycling
RAINY RIVER, TOWN OF	Transfer/Unknown Transfer facility	Asselin Transportation	Cascades Winnipeg	Cascades Winnipeg
RENFREW, TOWN OF	Direct Haul		Beaumen's Waste Management	Renfrew County Recycle Centre
RIDEAU LAKES, TOWNSHIP OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
RIDEAU LAKES, TOWNSHIP OF	Transfer	Waste Management of Canada		
RUSSELL, TOWNSHIP OF	Direct Haul		NORTH GLENGARRY, TOWNSHIP OF	NORTH GLENGARRY, TOWNSHIP OF
SABLES-SPANISH RIVERS, TOWNSHIP OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
SAGAMOK ANISHNAWBEK FIRST NATION	Unknown			
SARNIA, CITY OF	Direct Haul		Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.
SAULT NORTH WASTE MANAGEMENT COUNCIL	Direct Haul		Green Circle Environmental	Green Circle Environmental

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
SAULT STE. MARIE, CITY OF	Direct Haul		Green Circle Environmental	Green Circle Environmental
SEGUIN, TOWNSHIP OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
SERPENT RIVER FIRST NATIONS	Unknown			
SHELBURNE, TOWN OF	Transfer	Dufferin Transfer & Recycling Facility - Sandhill Disposal	GUELPH, CITY OF	GUELPH, CITY OF
SHUNIAH, MUNICIPALITY OF	Direct Haul		Recool Inc.	Recool Inc.
SIMCOE, COUNTY OF	Direct Haul		SIMCOE, COUNTY OF	SIMCOE, COUNTY OF
SIMCOE, COUNTY OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
SIOUX LOOKOUT, TOWN OF	Transfer	Drayton Disposal	Metro Recycling	Metro Recycling
SIOUX NARROWS NESTOR FALLS, TOWNSHIP OF	Direct Haul/Transfer	Asselin Transportation	Cascades Winnipeg	Cascades Winnipeg
SMITHS FALLS, TOWN OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
SOUTH DUNDAS, TOWNSHIP OF	Transfer	BFI Canada	Tomlinson Environmental Services	Tomlinson Environmental Services
SOUTH FRONTENAC, TOWNSHIP OF	Direct Haul		KINGSTON, CITY OF	BFI Canada
SOUTH GLENGARRY, TOWNSHIP OF	Direct Haul		CORNWALL, CITY OF	HGC Management
SOUTH STORMONT, TOWNSHIP OF	Direct Haul		CORNWALL, CITY OF	HGC Management
SOUTHGATE, TOWNSHIP OF	Direct Haul		GUELPH, CITY OF	GUELPH, CITY OF
SOUTHWEST MIDDLESEX, MUNICIPALITY OF	Direct Haul		BLUEWATER RECYCLING ASSOCIATION	BLUEWATER RECYCLING ASSOCIATION
SOUTHWOLD, TOWNSHIP OF	Direct Haul		BFI Canada Inc.	BFI Canada Inc.
SPANISH, TOWN OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
ST. CHARLES, MUNICIPALITY OF	Direct Haul		GREATER SUDBURY, CITY OF	Canada Fibres
ST. JOSEPH, TOWNSHIP OF	Direct Haul		GREATER SUDBURY, CITY OF	Canada Fibres
ST. CLAIR, TOWNSHIP OF	Direct Haul		Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.
ST. THOMAS, CITY OF	Direct Haul		BFI Canada Inc.	BFI Canada Inc.
STONE MILLS, TOWNSHIP OF	Direct Haul		Manco	Manco
STRATFORD, CITY OF	Direct Haul		Brian Leyser Recycling Inc.	Brian Leyser Recycling Inc.
STRONG, TOWNSHIP OF	Transfer/Unknow facility	Landfill - STRONG, TOWNSHIP OF		

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
SUNDRIDGE, VILLAGE OF	Direct Haul		ARMOUR, TOWNSHIP OF	ARMOUR, TOWNSHIP OF
TARBUTT & TARBUTT ADDITIONAL, TOWNSHIP OF	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
TAY VALLEY, TOWNSHIP OF	Direct Haul		Tomlinson Environmental Services	Tomlinson Environmental Services
THAMES CENTRE, MUNICIPALITY OF	Direct Haul		Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.
THE ARCHIPELAGO, TOWNSHIP OF	Unknown		Waste Services INC/ BFI	Waste Services INC/ BFI
THE BLUE MOUNTAINS, TOWN OF	Direct Haul		Miller Waste Systems - WMC	Miller Waste Systems - WMC
THE NATION MUNICIPALITY	Transfer	Moose Creek Landfill - Matrec	Matrec	Matrec
THUNDER BAY, CITY OF	Direct Haul		Recool Inc.	Recool Inc.
TIMMINS, CITY OF	Transfer	Deloro Landfill Site - TIMMINS, CITY OF	GREATER SUDBURY, CITY OF	Canada Fibres
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Scarborough	Metro Municipal Recycling Services	Metro Municipal Recycling Services
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Bermondsey	Metro Municipal Recycling Services	Metro Municipal Recycling Services
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Disco	Metro Municipal Recycling Services	Metro Municipal Recycling Services
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Vic Park	Metro Municipal Recycling Services	Metro Municipal Recycling Services
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Dufferin	Metro Municipal Recycling Services	Metro Municipal Recycling Services
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Ingram	Metro Municipal Recycling Services	Metro Municipal Recycling Services
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Scarborough	TORONTO, CITY OF	Canada Fibres
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Bermondsey	TORONTO, CITY OF	Canada Fibres
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Disco	TORONTO, CITY OF	Canada Fibres
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Vic Park	TORONTO, CITY OF	Canada Fibres
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Dufferin	TORONTO, CITY OF	Canada Fibres
TORONTO, CITY OF	Transfer	TORONTO, CITY OF - Ingram	TORONTO, CITY OF	Canada Fibres
TRI-NEIGHBOURS	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants

Municipal Program	Material Flow	Transfer Station Name/ Owner / Operator	Facility OWNER	Facility OPERATOR
TUDOR & CASHEL, TOWNSHIP OF	Direct Haul		QUINTE WASTE SOLUTIONS	Waste Management of Canada
WAHNAPITAE FIRST NATION	Unknown		GREATER SUDBURY, CITY OF	Canada Fibres
WALPOLE ISLAND FIRST NATION	Unknown			
WATERLOO, REGIONAL MUNICIPALITY OF	Direct Haul		WATERLOO, REGIONAL MUNICIPALITY OF	HGC Management Inc.
WATERLOO, REGIONAL MUNICIPALITY OF	Transfer	WATERLOO, REGIONAL MUNICIPALITY OF	WATERLOO, REGIONAL MUNICIPALITY OF	HGC Management Inc.
WATERLOO, REGIONAL MUNICIPALITY OF	Transfer	WATERLOO, REGIONAL MUNICIPALITY OF	NIAGARA, REGIONAL MUNICIPALITY OF	Niagara Recycling (MRF Processor)
WELLINGTON, COUNTY OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
WEST ELGIN, MUNICIPALITY OF	Unknown			
WEST GREY, MUNICIPALITY OF	Direct Haul		Waste Management of Canada	Waste Management of Canada
WEST NIPISSING, MUNICIPALITY OF	Direct Haul		West Nipissing Environmental S	WEST NIPISSING, MUNICIPALITY OF
WHITESTONE, MUNICIPALITY OF	Direct Haul		Waste Services INC/ BFI	Waste Services INC/ BFI
WHITEWATER REGION, TOWNSHIP OF	Direct Haul		Beaumen's Waste Management	Renfrew County Recycle Centre
WIKWEMIKONG UNCEDED INDIAN RESERVE	Direct Haul		MWRC	Municipal Waste Services & Recycling Consultants
WOLLASTON, TOWNSHIP OF	Direct Haul		QUINTE WASTE SOLUTIONS	Waste Management of Canada
YORK, REGIONAL MUNICIPALITY OF	Direct Haul		YORK, REGIONAL MUNICIPALITY OF	Miller Waste Systems - WMC
YORK, REGIONAL MUNICIPALITY OF	Transfer	YORK - Miller - Earl Turcott Waste Management Centre	YORK, REGIONAL MUNICIPALITY OF	Miller Waste Systems - WMC
YORK, REGIONAL MUNICIPALITY OF	Transfer	YORK - Dongara	YORK, REGIONAL MUNICIPALITY OF	Miller Waste Systems - WMC

Table 5: Private MRFs Handling Blue Box Materials

Facility OWNER	Facility OPERATOR	Address	City	Province	Postal	Type	CofA Number
Recool Inc.	Recool Inc.	RR#3 Highway 61 South	Thunder Bay	ON	P7C 4V2	Private	0729-6QXPC8
Manco	Manco	109 Enviropark Lane	Napanee	ON	K7R 4C6	Private	2234-7QUJM6 / 7204-6U7JXF
Metro Municipal Recycling Services	Metro Municipal Recycling Services	45 Thornmount Dr	Toronto	ON	M1B 5P5	Private	4804-5PGPXU / 5162-62UJEC
Brian Leyser Recycling Inc.	Brian Leyser Recycling Inc.	26 Hahn Court	Stratford	ON	N5A 6S4	Private	6746-8NNPFD
HGC Management Inc.	HGC Management Inc.	50 Shaver Road	Brantford	ON	N3T 5M1	Private	7504-5MBKY9
R & D Recycling	R & D Recycling	Highway 17 W	North Bay	ON	P1B 8G5	Private	7651-4KNQ4K
Green Circle Environmental	Green Circle Environmental	86 Sackville Road	Sault Ste. Marie	ON	P6B 4T6	Private	9058-5JAK37
Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.	15 Buchanan Court	London	ON	N5Z 4P9	Private	A040147
Waste Management of Canada	Waste Management of Canada	200 Sligo Rd. W	Mount Forest	ON	N0G 2L2	Private	A170404
Beaumen's Waste Management	Renfrew County Recycle Centre	610 Lisgar St	Renfrew	ON	K7V 3N8	Private	A410403
Miller Waste Systems - WMC	Miller Waste Systems - WMC	112 Patton Street	North Bay	ON	P1B 8G4	Private	A530114
Miller Waste Systems - WMC	Miller Waste Systems - WMC	2125 20th Avenue East	Owen Sound	ON	N0H 1V0	Private	A620065
Waste Services INC/ BFI	Waste Services INC/ BFI	580 Esslestone Drive	Bracebridge	ON	P1L 1V7	Private	A620268
Emterra / Halton Recycling Ltd.	Emterra / Halton Recycling Ltd.	1122 Pioneer Rd	Burlington	ON	L7M 1K4	Private	A680142
Metro Waste Recycling	Metro Waste Recycling	2811 Sheffield	Ottawa	ON	K1B 3V8	Private	A710151 / 3460-4UTNR8
BFI Canada Inc.	BFI Canada Inc.	4695 Wellington Road South	London	ON	N6E 0A6	Private	Unable to find online
Canada Fibres	Canada Fibres	322 Horner Ave	Etobicoke	ON	M8W 1Z3	Private	Unable to find online
Greg's Recycling	Greg's Recycling	568 Norris	Devlin	ON	P0W	Private	Unable to find online

Facility OWNER	Facility OPERATOR	Address	City	Province	Postal	Type	CofA Number
					1C0		
HGC Management Inc.	HGC Management Inc.	555 Station Street, RR #6	Belleville	ON	K8N 4Z6	Private	Unable to find online
MWRC	Municipal Waste Services & Recycling Consultants	9 Industrial Park E	Blind River	ON	P0R 1B0	Private	Unable to find online
South Buxton Recycling Ltd	Waste Services INC/ BFI	6584 Middle Line Rd	Merlin	ON	N0P 1W0	Private	Unable to find online
Teck Northern Roads	Teck Northern Roads	37 Duncan Ave N	Kirkland Lake	ON	P2N 1X7	Private	Unable to find online
Tomlinson Environmental Services	Tomlinson Environmental Services	2173 Richardson Side Rd	Carp	ON	K0A 1L0	Private	Unable to find online
Waste Management of Canada	Waste Management of Canada	8011 Hwy 15	Beckwith	ON	K7C 3P2	Private	Unable to find online
Waste Management of Canada	Waste Management of Canada	1380 California Road	Brockville	ON	K6V 6K8	Private	Unable to find online
Waste Management of Canada	Waste Management of Canada	4485 Progress Drive	Petrolia	ON	N0N 1R0	Private	Unable to find online

Table 6: Public MRFs Handling Blue Box Materials

Facility OWNER	Facility OPERATOR	Address	City	Province	Postal	Type	CofA Number
LONDON, CITY OF	Miller Waste Systems - WMC	3438 Manning Drive	London	ON	N6L 1K4	Public	0968-8G4GQA
YORK, REGIONAL MUNICIPALITY OF	Miller Waste Systems - WMC	100 Garfield Wright Blvd	East Gwillimbury	ON	L0G 1V0	Public	1839-5PXJLW
West Nipissing Environmental S	WEST NIPISSING, MUNICIPALITY OF	225 Holditch Street	Sturgeon Falls	ON	P2B 2C5	Public	3454-84YKES
NIAGARA, REGIONAL MUNICIPALITY OF	Niagara Recycling (MRF Processor)	4935 Kent Avenue	Niagara Falls	ON	L2H 1J5	Public	3576-5DTNNJ
PEEL, REGIONAL MUNICIPALITY OF	Waste Management of Canada	795 Torbram Road	Brampton	ON	L6S 5Z7	Public	6021-6DBKZ7
ESSEX-WINDSOR SOLID WASTE AUTHORITY	ESSEX-WINDSOR SOLID WASTE AUTHORITY	3560 North Service Road	Windsor	ON	N8W 5R7	Public	A010137
HAMILTON, CITY OF	Canada Fibers	1579 Burlington	Hamilton	ON	L8H	Public	A130213

Facility OWNER	Facility OPERATOR	Address	City	Province	Postal	Type	CofA Number
		St E			3L2		
WATERLOO, REGIONAL MUNICIPALITY OF	HGC Management Inc.	925 Erb Street	Waterloo	ON	N2G 3W7	Public	A140301
GUELPH, CITY OF	GUELPH, CITY OF	110 Dunlop Drive	Guelph	ON	N1L 1E4	Public	A170128
SIMCOE, COUNTY OF	SIMCOE, COUNTY OF	1700 Golf Link Road	Midland	ON	L9M 1R4	Public	A253102
BRUCE AREA SOLID WASTE RECYCLING	BRUCE AREA SOLID WASTE RECYCLING	126 Concession 14	Southampton	ON	N0H 2L0	Public	A273103
TORONTO, CITY OF	Canada Fibres	35 Vanley Crescent	Toronto	ON	M3J 2B7	Public	A280709
NORTHUMBERLAND, COUNTY OF	NORTHUMBERLAND, COUNTY OF	280 Edwardson Road	Grafton	ON	K0K 2G0	Public	A311713
QUINTE WASTE SOLUTIONS	Waste Management of Canada	270 West Street	Trenton	ON	K8V 2N3	Public	A360209
KINGSTON, CITY OF	BFI Canada	196 Lappan's Lane	Kingston	ON	K7K 6Z4	Public	A380107
DURHAM, REGIONAL MUNICIPALITY OF	Metro Municipal Recycling Services	4590 Garrard Rd	Whitby	ON	L1H 7K4	Public	A390509
OTTAWA VALLEY WASTE RECOVERY CENTRE	OTTAWA VALLEY WASTE RECOVERY CENTRE	900 Woito Station Road	Pembroke	ON	K8A 6W5	Public	A411601
NORTH GLENGARRY, TOWNSHIP OF	NORTH GLENGARRY, TOWNSHIP OF	265 Industrial Boulevard	Alexandria	ON	K0C 1A0	Public	A480203
NORTH DUNDAS, TOWNSHIP OF	NORTH DUNDAS, TOWNSHIP OF	12620 Boyne Road	Winchester	ON	K0C 2K0	Public	A482101
ARMOUR, TOWNSHIP OF	ARMOUR, TOWNSHIP OF	141 Chetwynd Rd	Armour	ON	POA 1C0	Public	A521003
GREATER SUDBURY, CITY OF	Canada Fibres	1825 Frobisher Street	Sudbury	ON	P3A 6C8	Public	A540231
NORFOLK, COUNTY OF	HGC Management Inc.	28 Grigg Drive	Norfolk	ON	L0K 2A0	Public	A650033
PETERBOROUGH, CITY OF	HGC Management Inc.	390 Pido Road	Peterborough	ON	K9J 2J4	Public	A710080
COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD	COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD	181 Brunetville Road	Kapuskasing	ON	P5N 2H2	Public	A770076
BLUEWATER RECYCLING ASSOCIATION	BLUEWATER RECYCLING ASSOCIATION	415 Canada Ave	Huron Park	ON	N0M 1Y0	Public	Unable to find online

Facility OWNER	Facility OPERATOR	Address	City	Province	Postal	Type	CofA Number
COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD	COCHRANE TEMISKAMING WASTE MANAGEMENT BOARD	7 Barr Drive	New Liskard	ON	POJ 1K0	Public	Unable to find online
CORNWALL, CITY OF	HGC Management	2590 Cornwall Centre Road	Cornwall	ON	K6H 5R6	Public	Unable to find online

Table 7: Out-of-Province MRFs Handling Ontario Blue Box Materials

Facility OWNER	Facility OPERATOR	Address	City	Province	Postal	Type
Service Sani-Tri	Service Sani-Tri	3369 Saguenay	Rouyan-Noranda	QC	J9X 5A3	Private
Matrec	Matrec	5300 Rue Albert Millichamp	St-hubert	QC	J3Y 1B7	Private
Cascades Winnipeg	Cascades Winnipeg	680 Wall St	Winnipeg	MB	R3G 2T8	Private
Metro Recycling	Metro Recycling	100 Omands Creek Blvd	Winnipeg	MB	R2R 1V7	Private

Table 8: Private Transfer Stations

Transfer Station Name/Owner/Operator	Transfer Address	Transfer City	Transfer Province	Transfer Postal	Type	CofA Number
Asselin Transportation	401 Keating Ave	Fort Francis	ON	P9A 3T7	Private	2237-6QHRZ4
BFI Canada	4800 Development Drive	Brockville	ON	K6V 5V6	Private	4018-4RHL8D
Dufferin Transfer & Recycling Facility - Sandhill Disposal	473051 County Road 11	Orangeville	ON	L9W 2Z3	Private	8661-5M2PDD
NorJohn Transfer System Ltd. - Walker Industries	5030 Mainway	Burlington	ON	L7L 5Z1	Private	A210114
YORK - Miller - Earl Turcott Waste Management Centre	300 Rodick Road	Markham	ON	L3R 5X8	Private	A230303
Mid Ontario Disposal	24 Kitchener Street	Orillia	ON	L3V 5H5	Private	A252604
Moose Creek Landfill - Matrec	17125 Lafleche Road	Moose Creek	ON	K0C 1W0	Private	A420018
Drayton Disposal	69 Abram Lake Road	Sioux Lookout	ON	P8T 1A5	Private	A900156
Canborough Recycling Transfer Station	499 James Road	Dunnville	ON	N1A 2W4	Private	Unable to find online

Leferink Transfer Limited	57 Armstrong Ave	Georgetown	ON	LOP 1K0	Private	Unable to find online
Roslin - David Moore & Sons					Private	Unable to find online
YORK - Dongara	7251 27 Hwy	Woodbridge	ON	L4L 1A5	Private	Unable to find online

Table 9: Public Transfer Stations

Transfer Station Name/Owner/Operator	Transfer Address	Transfer City	Transfer Province	Transfer Postal	Type	CofA Number
Kenora Area Solid Waste Transfer Facility	401 Mellick Ave	Kenora	ON	P9N 0E1	Public	3840-4LHJFE
WATERLOO, REGIONAL MUNICIPALITY OF	201 Savage Drive	Cambridge	ON	N1T 1S5	Public	6383-57TPZW
TORONTO, CITY OF - Dufferin	400 Commissioners St.	Toronto	ON	M4M 1A9	Public	A210343
TORONTO, CITY OF - Disco	120 Disco Rd.	Toronto	ON	M9W 1M4	Public	A280303
TORONTO, CITY OF - Scarborough	1 Transfer Place	Toronto	ON	M1S 4A4	Public	A280408
TORONTO, CITY OF - Bermondsey	188 Bermondsey Rd.	Toronto	ON	M4A 1Y1	Public	A280701
TORONTO, CITY OF - Ingram	50 Ingram Dr.	Toronto	ON	M6M 2L6	Public	A280703
TORONTO, CITY OF - Vic Park	3350 Victoria Park Ave.	Toronto	ON	M2H 3K5	Public	A280707
Landfill - STRONG, TOWNSHIP OF	483 Forest Lake Rd	Strong	ON	P0A 1Z0	Public	A522702
Deloro Landfill Site - TIMMINS, CITY OF	2180 Pine Street South	Timmins	ON	P4N 7C2	Public	A580703
Dryden Landfill - DRYDEN, CITY OF	398 HWY-502	Kenora District	ON	P0V 2J0	Public	Unable to find online
Woodstock	201 Savage Drive	Woodstock	ON	N1T 1S5	Public	Unable to find online

Appendix 2

List of Province-Wide Recyclables
Newsprint
Other Printed Paper
Magazine/Catalogues
Phone Books
Corrugated Cardboard
Box Board
Gabletop Cartons
Aseptic Cartons
PET Bottles
HDPE Containers
Tubs and Lids
LDPE/HDPE Film
Polystyrene Foam Pillow Packaging
Polystyrene Foam Food and Beverage Containers
Polystyrene Crystal Packaging
Thermoform PET clamshells
Other Plastic Containers
Steel Food and Beverage Containers
Empty Aerosol Cans
Empty Paint Cans
Aluminum Food and Beverage Containers
Other Aluminum Packaging and Foil
Clear Glass
Coloured Glass