

2023-2029

Waste Management Plan for the

Kahnawà:ke Mohawk Territory

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Work Team

2023-2029

Waste Management Plan for the

Kahnawà:ke Mohawk Territory

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Monique Clément, B.Sc. DGE Recycologue

In collaboration with

Holly McComber, General Manager Kahnawà:ke Waste Management Department

Gestion des matières résiduelles formation - conférence – vulgarisation

Téléphone : 819-835-0833 Courriel: <u>info@moniqueclement.ca</u> <u>www.moniqueclement.ca</u>

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List of acronyms

CRD	Construction, Renovation and Demolition		
EPR	Extended Producer Responsibility		
	Responsabilité élargie des producteur (REP)		
EPRA	Electronic Products Recycling Association		
FNQLSDI	First Nations of Quebec and Labrador Sustainable Development Institute		
FNWMI	First Nations Waste Management Initiative		
HHW	Household Hazardous Waste		
HR	Human resources		
ICI	Industry, commerce, Institution		
ISC	Indigenous Services Canada		
KWMD	Kahnawà:ke Waste Management Department		
МСК	Mohawk Council of Kahnawà:ke		
MELCC	Ministère de l'Environnement et de la Lutte contre les changements climatiques		
SOGHU	Société de gestion des huiles usagées		
Wmt	Wet metric ton (20 % of solid content)		

1 Geographic and socio-economic description of the community

1.1 Description of Kahnawà:ke Mohawk Territory

A portion of the Kahnawà:ke Mohawk Territory which encompasses 48,5 km² is located on the south shore of the St. Lawrence River within but not part of the MRC de Roussillon (Figure 1-1). The territory is accessible by Routes 132, 138 and 207, all of which cut through the territory and lead to the Honoré Mercier Bridge.

Routes 132 and 138 divide the territory influencing the division between an urban and a rural area and physically divide the territory. The urban center north of the transportation arteries, referred to as the "Village Area", is a high-density area with narrow streets making up the road network. The rural area south of the transportation arteries is predominately wooded with a small gravel road network. Housing development has greatly increased in this area immediately south of Route 132, and west of the Mercier Bridge.



Figure 1-1: Kahnawà:ke Territory within the MRC of Roussillon.

This more recent developed area is also densely populated and thereby creating two main residential areas within the Territory. Additional homes are in small clusters throughout the rest of the territory accessible by a gravel road network. There is approximately 72.5 kilometers of paved roads and 29 kilometers of gravel roads within the community.

1.2 Description of the community organization

The Mohawk Council of Kahnawà:ke (MCK) is the elected government which provides governmental, administrative, and operational services to the community of Kahnawà:ke. Politically, Chief and Council comprise the elected body; the Office of the Council of Chiefs provides support and advisory services for the Chiefs.

The MCK also provides direct administrative and operational services for several programs, including housing, roads and infrastructure, finance, policing, community insurance plan and more.

Indirectly, the MCK is linked to many of the community's main organizations through the Executive Directors Committee. The Committee meets to network, to exchange information and ideas, and to improve efficiency.

The integrated Solid Waste Management Department is within the Public Works Unit of the MCK Operations and Community Planning Division. The Waste Management Department is the body responsible for related strategic planning, programs' administration, operation, and fiscal management.

1.3 Community socio-economical profile

Kahnawà:ke is a Mohawk community of 11 343 people, of which about 3 378 are non-resident¹.

There are 2,527 households on the territory, primarily single dwelling homes. There are 26 duplexes, 4 triplex, 12 quadruplex, six (6) 6 plexes, and one 10 door apartment building. The average density is 52 households per square kilometer.

There are also approximately 217 businesses and 61 public institution buildings. In the absence of zoning regulations, commercial properties are dispersed throughout the residential areas.

Most of the commercial units are small convenience stores, often attached to a residence. The small commercial unit waste generation and recycling habits are like that of a residence. There is one grocery store, one variety store and several smaller corner stores, restaurants, service garages, service stations, etc.

¹ Indigenous communities in Quebec, The Nations 2022 https://www.sac-isc.gc.ca/fra/1634312499368/1634312554965

There are 61 institutional buildings on the territory with Kateri Memorial Hospital and the six schools being the largest. There are no industrial buildings of considerable size on the territory.

More than 80% of dwellings are connected to the centralized water and sewage network. Five hundred and fifty-eight (558) structures utilize individual septic systems, which include 90 ICI buildings.

The estimated regional population growth is at 2% over the next 5 years (0, 4% per year).¹

2 Existing Waste Management Infrastructure

2.1 Infrastructures within the community

2.1.1 Recycling Depot Operations

The recycling operation is currently based at the Public Work Town Garage as an interim measure until the construction of a new facility.

Cardboard and refundable containers collected through special collection are transported to the town garage. Community members can also drop off cardboard in the designated area behind the Town Garage during open hours.

An area has been assigned and a baler installed for the baling of cardboard. Bales are stored outside, under a carport due to limited storage space, and sold on a weekly basis. Refundable containers are separated and bagged accordingly and stored on site in shipping/storage container. When full, the refundable containers are redeemed with Pepsico.

Material category	Destination
Corrugated cardboard	Cascade Inc
Household Batteries	Laurentide Re/Sources
Ink Cartridges	MIRA /Staples
Pens and markers	Staples
Refundable containers	Pepsi Company
Refundable glass bottles	Grocery store

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¹ Institut de la statistique du Québec, Perspective démographiques, Québec et régions, 2001-2051, édition 2003 (région administrative de la Montérégie).

2.1.2 Community Composting Facility

The Community Composting Facility is situated at the rear of the Transfer Depot facility. The construction of a composting pad and 4 larger composting bays started in 2018, and aerated composting was implemented in 2019.

Compostable materials are dropped off at the Compost Facility, in one of the four bays (20' x 24' x 14 feet high) which are used to either accept organic materials, store wood chips & leaves, or to store composted materials. The maximum capacity is presently 750 m³. Composting is carried out on a paved surface with a leachate collection system install. During the summer months, leachate is reintroduced on to the compost pile, but organics collection and composting is carried out year long.

Upon arrival, the organic materials are mixed with and covered by a mixture of the available wood chips and leaves in Bay 1. The materials are then shredded using the Case 321 Loader with an Allu shredding attachment. Compost piles are turned using either the Case 321 Loader or a Case SR 175 skid steer in the compost bays during the winter months. During the summer months, a switch is made to extended aerated static piles. The forced air system is constructed and extended aerated static compost piles are maintained as weather permits.

The compost facility is open to kitchen food scraps as well as leaf and yard waste. The facility is open Monday to Saturday 8-4 pm. Trees and branches, less than or equal to 10" diameter, are also accepted and chipped on site by staff using a Vermeer BC 1000 XL woodchipper.

Mature compost is redistributed to community members that participate in the organics collection. However, compost is also provided to the Compost Garden, and other Grass Roots initiatives: Kahnawà:ke Community Garden Project, Kahnawà:ke Food Sovereignty initiative, and Kahnawà:ke Environment Protection Office Tree Giveaway/ Tree planting initiatives.

2.1.3 Transfer Depot (Eco-center)

The Transfer Depot is a short-term storage facility located along the St. Lawrence Seaway Road, approximately 5 kilometers east of the village center. The depot hours of operation are from 8 am to 4 pm, Monday to Saturday. There are two (2) employees that cover the hours of operation.

The Transfer Depot site is fenced and gated, and access is restricted after hours. Drop off at this facility is available to all residents free of charge. Residential and commercial garbage is not accepted at this facility, and this is ongoing since April 1st, 2013. The residual materials accepted at the Transfer Depot, as well as their destination are presented in Table 2-2.

Material	Destination		
Metal and Car batteries	Legault N Autos Démolisseurs Inc, Ste Catherine		
CRD Waste	Geant du Conteneur, sorting center, Chateauguay		
Branches	Chipped and composted on site (see section 2.1.2)		
Tires (no rims or studs)	Recyc-Quebec Tire Recycling Program		
Domestic paints and other	Laurentide Re-Source Eco-peinture program.		
products			
Used motor & other oil	Laurentide Re/Sources SOGHU program		
products			
Household Hazardous Waste	Laurentide Re/Sources program.		
(HHW)			
Electronics	Electronic Products Recycling Association (EPRA)		
Batteries	Laurentide Re/Sources program		
Propane Cylinders	Rapid Gaz		
Batteries	Laurentide Re-Source		
Fluo-compact and fluorescent	Recycfluo – Laurentide Re/sources		
lamps			
Cooking oil	Rothsay/Laurenco		
Refrigeration units and other	Frigo-Responsible (GoRecycle Canada Inc., as soon as		
appliances	possible)		

Table 2-2: Destination of the material recovered at the Transfer depot

Construction, renovation, demolition (CRD) materials are disposed of into two forty-cubic yard containers rented from Geant du Conteneur. Bins are accessed by a ramp to an elevated platform. There is also a forty-cubic yard container for the collection of scrap metal provided by N.Legault Recycling.

Used motor oil (and related products), residential paints (and related products) are collected and stored in 3' x 4' x 4' bins provided by Laurentide Re/Sources. 2 Fire, explosion, and spill proof color coded bins were purchased for the storage of inorganic wastes (toxics, acids, and bases). Household hazardous waste overflow, batteries and fluorescent bulbs are temporarily stored in a 16'x16' concrete building. Electronics are stored in a 12''x34'' shed separately, a collection bin for used cooking oil is provide by the service provider, and a cage is rented from the service provider for propane tanks. A 20' sea containers was purchased to store refrigeration units (i.e. refrigerators, air conditioners etc.). Tires are stacked up against the fence with no containment area.

2.2 Infrastructures and organisations outside the community

There are many recyclers within the vicinity of the community. Presented in the following tables are the business's main activities and accepted materials are:

Business company	Accepted material	Activity
AIM Recyclage La Prairie	Scrap metal of any type, auto batteries,	Buy metal, sort
1975, Jean-Marie-Langlois St.	refrigerators, etc.	and sell
La Prairie		
Tel : 450 444-4424		
https://aim-recycling.com		
Centre de Récupération GLG	Ferrous and non-ferrous metal Appliances	Metals recovery
437, rang St-Pierre Sud		
Saint-Constant		
Tel : 514 949-6992		
Globe Métal Recyclage	Metals in any form, including solids, turnings,	Buy and recycle
1545, 1 st Avenue	chips, powder, dust, sludge, overspray,	
Sainte-Catherine	catalysts, waste, grindings, filter cake, tailings,	
Tel: 1-888-517-6368	flue dust, and filters. Specialized in recycling	
https://globemetal.com	tungsten carbide, high speed steel, nickel,	
	molybdenum, cobalt, tantalum, thermal	
	spray, catalysts, etc.	
Associated Steel Industries Ltd	Ferrous and non-ferrous metal, appliances,	Metals recovery
7140, route 132	cars	and shredding
Sainte-Catherine		80 000 t per
Tel : 450 632-1881		year
http://asiriva.com		
Legault N Autos Démolisseurs Inc	All types of metal ,ferrous and non-ferrous	Metals recovery
1505, des Quais St.	metal, appliances, cars	Container rental
Sainte-Catherine		Sale of auto
Tel : 450 632-2168		parts
www.recyclagenlegault.com		
Pièces d'autos G & C inc.	Carcasses and car part.	Sale of new and
1545, Édouard VII Rd.		used auto parts
Saint-Philippe		
Tel : 514 866-9114		
www.piecesdautosgc.com		
Recyc-Métaux Solution inc.	Carcasses and car part, appliances, any	Metals recovery
164, Foucreault St., Saint-Philippe	furniture and equipment containing metal	Pickup service
Tel : 514 712-7160		
www.recyc-metauxsolution.com		
Terrapure Environnement	Lead-acid batteries (car batteries) and other	Lead Battery
1200, Garnier St., Sainte-Catherine	lead-bearing materials	Recyling
Tel: 1-800-724-5924		
https://terrapureenv.com		

Table 2-3: Main metal recycling company in the Kahnawà:ke area

	Table 2-4: Main	CRD waste	recycling co	mpany in the	Kahnawà:ke	area
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Business company	Accepted material	Activity
Ali Excavation Inc.	Asphalt, concrete and used oil	Crunching material for
760, des Érables Blvd., Valleyfield		reuse
Tel : 450-373-2010		
www.aliexcavation.com		
DMS Dépôt de matériaux secs	CRD waste, wood branches,	CRD sorting center
224, Industriel Blvd., Chateauguay	cardboard, bricks, rocks, soil,	Container rental
Tel : 514-990-9990	concrete, asphalt, gypsum,	
www.depot-materiaux-secs.com	asphalt shingles, metal,	
Géant du conteneur	cardboard, PVC, Glass,	
303, Industriel Blvd., Chateauguay	electronics, yard waste, bulky	
Tel : 450-699-6862	waste	
www.geantduconteneur.com		
Écoservices Tria	CRD Waste	CRD sorting center
1985, Jean-Marie-Langlois St., La Prairie		
Tel : 450 659-9333		
Lafarge Canada	Concrete, foundation	Recycling
436, de la Petite Côte Rd., Saint-Constant	aggregates	
Tel : 450 638-0311		
Pro-Jet A&A Division conteneur inc.	Aggregate, CRD waste, Asphalt	CRD sorting center
166, Industriel Blvd., Chateauguay	Shingle, wood	Container rental
Tel : 514 251-9191 <u>http://projetaa.com</u>		
Recycle Gypse Québec Inc	Gypsum	Recycling
81, Saint-Rémi, Blvd., Saint-Rémi		
Tel : 450 992-0628		
www.recyclegypse.com		
Sintra Inc. (Métropole)	Asphalt and concrete	Crunching material for
7, rang Saint-Régis Sud		reuse
Saint-Isidore-de-Laprairie		
Tel : 450 638-0172; <u>https://sintra.ca</u>		

Table 2-5: Main hazardous material recycling company in the Kahnawà:ke area

Business company	Accepted material	Activity
CRI Environnement Inc.	HHW, solvents,	Treatment and disposal of hazardous
75, du Progrès St., Coteau-du-Lac	commercial and industrial	waste
Tel : 450 763-5541	hazardous waste	
www.cri-env.com		
Safety-Kleen	Hazardous waste, solvents	Treatment and disposal of hazardous
2730, Industrial Blvd., Chambly		waste
Tel : 450 572-6250		
www.safety-kleen.com		
Suntech Recycle Inc.	Electronic waste	Sorting and reusing electronics that
642, Guimond Blvd., Longueuil		meet the Ready Reuse standards
Tel : 514-967-5198		Electronics Dismantling and recycling
http://suntechrecycle.com		
Terrapure Environnement	Industrial hazardous	Collection & Transportation, Disposal,
125, Bélanger St., Chateauguay	waste	Waste Treatment & Recovery
Tel. : 450 698-7500		
https://terrapureenv.com		

Table 2-6: Other recycling company in the Kahnawà:ke area

Business company	Accepted material	Ac	tivity
Lafarge Canada Inc.	Tires		Cement manufacturer
1, Lafarge Rd., Saint-Constant			Energy recovery
Tel : 450 632-7750			
Matt Canada	Mattresses, Upholstered furnitu	re	
10 701-B, Sécant St., Montreal			
Tel.: 514 648-7575			
https://mattcanada.com			

Table 2-7: Organic material recycling company in the Kahnawà:ke area

Business company	Accepted material	Activity
GSI Environnement division d'Englobe	Organic material	Composting platform
6985, Des Sources Rd., Lachute		
Tel : 1 800 463-1030		
www.englobe-composts.com		
Régie intermunicipale de valorisation des	Organic material	Composting project in
matières organiques de Beauharnois-		Beauharnois in progress.
Salaberry et de Roussillon (RIVMO)		
2, Ellice St., Beauharnois		
Tel : 450 225-0870; <u>www.rivmo.ca</u>		
Rothsay/Laurenco div. Darling	Animal products, cooking oils,	Recycling
international Canada	cooking grease.	Bone meal manufacturer
605, 1 st Avenue, Sainte-Catherine		
Tel : 450 632-3250; <u>www.rothsay.ca</u>		
Mun	icipal and septic sludge	
Chayer Sanitaire	Municipal and septic sludge	Cleaning of septic tanks
91, Rang du Cinq		0 1
Saint-Stanislas-de-Kostka		
Tel : 1-800-567-3927		
https://sanitairechayer.ca		
Fosses septiques Sanibert	Municipal and septic sludge	Cleaning of septic tanks
600, des Érables Blvd.		0 1
Salaberry-de-Valleyfield		
Tel : 450-371-6850		
www.sanibert.com		
Sani Vac Inc	Municipal and septic sludge	Cleaning of septic tanks
100, Huot St.		
Notre-Dame-de-l'île-Perrot		
Tel : 514-984-1212; <u>www.sanivac.ca</u>		

Table 2-8: Munic	ipal waste	company i	in the	Kahnawà:ke	area
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Business company	Accepted material	Activity
Complex Enviro Connexions Ltd	Municipal, commercial, and	Landfill site
3779, chemin des Quarante-Arpents	industrial waste	11 200 000 m ³
Terrebonne	Organic Material	Max : 1 230 000 to
Tel : 450 474-2423		1 255 000 t per year
www.complexenviroconnexions.com		Biomethanation
		composting
Enviro Connexions (Raylobec)	Municipal Waste	Waste transfer station;
325, Marie-Curie St., Vaudreuil-Dorion		175 000 t per year
Tel : 450 424-0060		
http://entreprisesanitairefa.com		
Matrec / Saint-Hubert	Recyclable material from	Sorting center
5300, Albert-Millichamp St.	municipal curbside recycling	Waste transfer station
Saint-Hubert	program	Hauling service
Tel : 450 656-2171; <u>www.matrec.ca</u>	Municipal waste	
RICOVA	Recyclable material from	Sorting center
235, Industrial Blvd., Chateauguay	municipal curbside recycling	
Tel : 450-466-6688 ext 5433	program	
RCI Environment transfer station (WM)	Municipal, commercial, and	Waste transfer station
112, Saint-Rémi Blvd., Saint-Rémi	industrial waste	Hauling service
Tel : 514-352-2020		
1-844-279-2506; 887-565-2025		
Ricova Services Inc.		Transportation of waste
12 000, Henri-Bourassa East Blvd.		and recyclables.
Montreal		Rental of containers and
Tel : 450-466-6688 <u>http://ricova.com</u>		compactors.

Table 2-9: Thrift stores and Resource centers in the Kahnawà:ke area

Business company	Accepted material	Activity
Centre communautaire de	Clothing, toys, books, CDs,	Donation center
Châteauguay	cassettes, dishes, kitchenware,	Thrift Store
3, Principale St., Chateauguay	sporting goods, shoes, appliances,	Pickup and delivery of
Tel : 450 699-3464	electronics, furniture, etc.	used furniture
www.centrecommunautairechateauguay.com		
Complexe Le Partage	Clothing, baby items, kitchen items,	Donation center
547, Saint-Henri St., La Prairie	sporting items, shoes, school	Thrift Store
Tel : 450 444-0803	supplies, games and toys, bedding,	Many community
125, Saint-Pierre St., Saint-Constant	books, hardware, non-reusable	services
Tel.: 450 633-1688	textiles, bicycles, etc.	
https://lepartage.info		
Corne d'Abondance	Clothing, baby items, kitchen items,	Donation center
255, Montcalm Nord Blvd.	sporting items, shoes, school	Thrift Store
Candiac	supplies, games and toys, bedding,	
Tel.: 450 444-6999	books, hardware, bicycles, etc.	

Business company	Accepted material	Activity
Entraide Mercier	Items in good condition only.	Donation center and
959, Saint-Joseph St., Mercier	Clothing, shoes, accessories,	Thrift Store
Tel : 450 698-2137	bedding, kitchen items, tools,	Home pick-up and
www.entraidemercier.ca	books, baby items, games, toys,	delivery service
	electronics, sporting goods,	offered by the
	reusable bags, CDs, jewelry,	Chateauguay
	antiques, etc.	Community Center.
La Clé des Mots	Books, VHS, CDs, DVD, puzzles	Used BookStore
200, Saint-Pierre St. #103		Donation center
Saint-Constant		
Tel.: 450 635-1411		
www.lacledesmots.ca		
Société Saint-Vincent-de-Paul de	Non-wearable or torn stained	Donation center
Châteauguay	clothing accepted.	Thrift Store
42, Gilmour St. Chateauguay	Items in good condition only :	
Tel : 450 691-1007	baby items, kitchen items, sporting	
	items, shoes, school supplies, games	
	and toys, bedding, books, hardware,	
	bicycles, etc.	
Vestiaire Kateri	Clothing, kitchen supplies, sporting	Donation center
5367, Marie-Victorin Blvd.	goods, games and toys	Thrift Store
Sainte-Catherine		
Tel : 450 638-5303		

3 Current waste management services and practices

3.1.1 Waste Management Department

Established in 2016, The Integrated Solid Waste Management Department (WMD) operates within the Public Works Unit. The manager oversees planning, operations, implementation of new services, communications /education, administration, and fiscal management of all components. The department consists of Recycling, Transfer Depot (Eco-Center) and Composting operations.

Residents of Kahnawà:ke have access to the services listed in Table 3-1 All services are free of charge and are further explained in the following subsection.

	Type of waste or	_		Destination of the
Service	type service	Frequency	Responsible	material
Recycling	Automated curbside collection using 360- liter bin	Once a week	KWMD	Ricova Sorting center in Chateauguay
	Cardboard Only	Monday to Friday 7am-12pm Drop- off (covid response)	KWMD	Town Garage in Kahnawà:ke, then see Table 2-1
Special collections	Curbside collection: HHW, refundable bottles, electronics, batteries, used cooking oil, ink cartridges	Weekly Collection	KWMD	Transfer Depot in Kahnawà:ke
Transfer Depot	HHW, Tires, Electronics, Metal, CRD, Propane Tanks Refrigerated units	Monday – Saturday 8 – 4 Drop off	KWMD	See Table 2-2
Organics Collection and Community Composting	Door to door service using 12-gallon bin	Weekly Collection	KWMD	Transfer Depot in Kahnawà:ke for processing
Residential Waste	Door to door service. Max 4 bags per household	Once a week	Matrec	Transfer station in St. Hubert, then sent to the Lachenaie landfill site operated by BFI
	From wastewater treatment plant	As needed	Andana Services	Sludge Valorization on agricultural land
Siudge Disposal	From Septic System	As needed	Sanibert	City of Valleyfied sewage treatment plant

Table 3-1: Waste management residential services, including sludge management

3.2 Residential recycling services

The curbside recycling pickup service was implemented since 1993 (recycling drop offs has been in place since 1985) in Kahnawà:ke. The Waste Management Department has provided the community with an automated curbside recycling collection program. The program provides a weekly residential, commercial, and institutional recyclable materials collection. The collection of recyclable materials is achieved using an automated 17cyd Labrie Minimax, owned by the MCK – KWMD.

In 2017, 360 litre bins were distributed to the community to facilitate automated curbside collection using a side loading recycling truck. The collected material is transported directly to the nearest recycling center in the neighboring municipality.

The following recyclable items are accepted in the program, as announced on the web site:

- Paperboard and paper products;
- Milk & Juice Cartons;
- Metal cans, aluminum foil;
- Small metal items;
- Plastic containers (1, 2, 3, 4, 5, 7);
- Glass bottles and jars;
- Plastic bags (Please wrap together);

3.3 Special collections

The Waste Management Department also offers a special collections service due to the absence of an easily accessible drop off location. The special collection targets the collection of cardboard, refundable containers, and other items that do not go into the blue bin collection. This service uses an F150 truck with trailer to carry out the collection of cardboard and small items that are transported to either the Transfer Depot or the interim Recycling facility at the Public Works – Town Garage.

Community members are asked to use their old small recycle bin or cardboard box for the special collection pick up. Cardboard is disposed in a pile at the curbside. The following items are accepted in the special collection service:

- Cardboard; Public Works Town Garage.
- Refundable containers; Public Works Town Garage.
- Household Rechargeable & non-rechargeable Batteries (Transfer Depot);
- Cell Phones (Transfer Depot).
- Electronics (Transfer Depot)
- Pens and marker Public Works Town Garage. (Staples)
- Ink Cartridges Public Work Town Garage. (MIRA Foundation)

- HHW (Transfer Depot)
- Metal (Transfer Depot)
- Used motor or cooking oil. (Transfer Depot)

3.4 Residential organics collection

Started as a pilot project in 2017, residence and ICI now have access to organics collection. Green compost bins (12 gallon) and kitchen collectors are provided free to participants on a voluntary basis. At the end of 2020, approximately 800 compost bins have been distributed. Those who do not do back yard composting have the option to participate in the community compost service. Organic material is collected weekly using a ½ ton truck and a hydraulic dump trailer. The materials are then transported to the compost facility situated at the rear of the Transfer Depot facility.

The compost facility is also open to kitchen food scraps as well as leaf and yard waste. The facility is open Monday to Saturday 8-4 pm.

The accepted material in the program are: Fruits and vegetables, egg shells, coffee grounds with filter, tea bags, leaves, grass clipping, twigs, and diseased free plants.

While these items are not accepted: meat, fish, bones, grease, dairy products, bread, tissue, animal droppings, diseased plants, dryer lint/dryer sheets, fruit stickers, and all plastic contaminants: bread tags, rubber bands, creamer cups, etc.

3.5 Residential waste service

KWMD has a contract with Services Matrec Inc., to service the residential solid waste pickup. This contract recently renewed for 3 years which is based on an annual (January to December 2021, 2022 & 2023). This contract includes roadside collection, transportation, and disposal of solid waste, once a week with a 4-bag limit. All homes within the territory receive this waste disposal service at no charge to the user. The St-Hubert Transfer station receives the waste and then sent to the Lachenaie landfill site operated by BFI (Table 2-8). This site has an authorization to receive up to 1 230 000 tons per year for approximately 10 years (2030), until the site reaches the maximum capacity of 11 200 000 m³, including daily cover.

Kahnawà:ke's waste collection contract includes waste produced by households only. The MCK does not contribute financially to waste disposal services for commercial enterprises, or other private waste bin contracts.

3.6 Household hazardous waste (HHW)

Household hazardous waste (HHW) is accepted 6 days a week at the Transfer Depot.

Some HHW, such as electronics, cell phones, ink cartridges, and household batteries are also collected within the curbside special collection program. These materials are source separated, collected, and transported to the Transfer Depot. These items are also acceptable as dropped off items at the Transfer Depot.

The Waste Management Department also organizes an annual HHW collection event, which coincides with the Annual Kahnawà:ke Clean-up event held in April of each year. Items collected or dropped off are transported to the Transfer Depot.

3.7 Industrial, Commercial, and Institutional (ICI) Sector

The industrial, commercial, and institutional (ICI) sectors are responsible for their own waste disposal. They usually have a contract with a private company. Waste is collected in 2 to 8 cubic yard front-load containers, rented by the service supplier. In some cases, small businesses use the residential services, since it is difficult to distinguish their waste from residential waste. However, the maximum of four bags per household applies.

ICI currently has access to the residential curbside recycling service and special collection. The transfer depot is another location to dispose of select recyclable materials free of charge. ICI sector also has access to the Organic materials collection service using the 12-gallon containers provided by KWMD.

3.8 Construction Renovation and Demolition (CRD) Sector

Construction Renovation demolition materials come from two main streams: road and public infrastructures, and buildings. Waste generated from road and public infrastructure sectors generally consist of asphalt, concrete, and fill materials (earth, gravel, sand, etc.), while waste coming from the building sector includes bricks, asphalt shingles, vinyl cladding, ceramics, plumbing, insulation, wood, glass (windows, etc.), metal and aluminum (girders, rebar siding, doors, etc.).

CRD is accepted at the Transfer Depot if a homeowner has completed his own small home renovation. When a contractor completes the work, however, CRD is not accepted. Construction contractors are responsible for the disposal of their residual material at their expense Since a construction or renovation permit is not necessary on the reserve, it is difficult to estimate the quantity of waste coming from this sector. According to the Kahnawà:ke Business Directory, there are approximately 30 businesses working in this

field. The MCK Capital Unit is comprised of Capital Construction, Technical Services and Capital Unit Administration. This unit oversees construction of community facilities and infrastructure. In previous years, the asphalt removed from road works was used as road base by the Landfill Department. The Landfill department is responsible for the movement of soil and aggregates within the community. In 2014, they began stock piling asphalt which was then crushed, and reused in asphalt mix, and as backfill for driveways and parking lots. A long-term disposal solution continues to be necessary for this material, as well as for concrete and rocks.

The 2015 Interim Landfill Policy for Clean Soil contains the regulations concerning land filling with Landfill material defined as uncontaminated, non-water soluble, non-decomposable, inert material. Uncontaminated soil and gravel are accepted. The Interim Landfill Policy for Clean Soil (APPENDIX 2) provides procedures to monitor landfill material coming into the community as well as the monitoring of landfill material moving from one area of the community to another.

3.9 Wastewater and Sludge Sector

3.9.1 From wastewater treatment plant

The Kahnawà:ke wastewater treatment facility was re-built in 2003. It is located near the community center, along the St Lawrence Seaway canal, with more than 80% of dwellings in the community connected to the sewage and water network.

The average flow rate is approximately 14 000 m³ per day. The plant is equipped with a dewatering press and the biosolids are free of industrial contaminants since there is no heavy industry operating on the territory.

The sludge, currently hauled away by Geant du Conteneur, and is recycled for agricultural purposes through Andana Services Inc.

3.9.2 From individual septic system

There are 558 individual septic systems on the Kahnawà:ke territory, including 90 for commercial and institutional building¹.

In the rural area of the community, the sanitary treatment systems consist of a septic tank connected to a leaching pit. The Technical Services Unit (the engineering department of

¹ Housing inventory 2020, updated by Harold Skye as of January 29, 2020.

the community) maintains an inventory of the individual septic tanks since 1988. They are also responsible for the construction of new installations.

Sanibert, in Valleyfield, contracts the residential Septic cleaning on an «as needed» basis while Sanivac of Ile Perrot empties the lift stations. The sludge brought to the City of Valleyfield sewage treatment plant, undergoes dehydration treatment and agricultural use.

All residents of Kahnawà:ke are eligible for a one-time service connection at a cost of a \$500 for the water hook-up and sewage disposal services connected to the centralized system. In addition, there is an annual maintenance fee of \$59 to cover both services. In the rural areas, this installation fee covers septic system installation and maintenance and drinking water systems (submersible well pump, pressure tanks, water softeners, chlorine systems) and maintenance. Those who require a second installation do so at their own expense.

3.10 Other type of waste

Street sweeping residues: Street sweeping occurs once a year during the spring or early summer. The sweeping residues, mostly sand, are sampled for PAH, PH, and metals analysis, and depending on the results, the material is either re-used or disposed of at a licensed site.

Events: Recycling is encouraged at annual community events such as, Powwow, which could host up to 10 000 visitors over a two-day period; and other local events such as Young Adult community Fun Fair; and other fund raising or awareness raising events. Assistance to aim towards a waste free event is offered to community event organizers Support for the promotion of a waste free event, and assistance with recycling and composting is offered as part of the waste disposal needs. No events were held in 2020 or 2021 due to COVID.

4 Current administration of waste management

The Mohawk Council of Kahnawà:ke (MCK) maintains full waste management responsibilities and does not share any responsibilities with the neighbouring municipalities or MRC. Since 2016, the newly formed Waste Management Department is responsible for the management and administrative duties related to solid waste disposal, recycling, composting, Transfer Depot operations, as well as education and awareness and all community outreach, and the development of educational materials.

4.1 Bylaws and regulation

The Waste Management Department operates within the framework of Kahnawà:ke's environmental legislation, which includes the Sanitary Conditions Law, and the Interim Landfill Policy for Clean Soil. The statutes outline waste management rules relating to landfills, refuse accumulation, collection and disposal, and associated penalties for non-conformity (Table 4-1).

Title	Date	Subject
Kahnawà:ke Sanitary	Enacted on April	Prohibit accumulation of refuse
Conditions Law	1968.	Establish rules for collection, disposal, and destruction
	Last amended April	of refuse
	2012	Obligation to have an operating permit for landfill or
		demolition waste recycling activities
Landfill policy for clean	Last amended June	Ensure that the necessary procedures are in place to
soil and	2015	eliminate any risk of environmental contamination
Landfill procedures for		associated with landfill operations (the process of
clean soil		moving landfill material from a source site to a receptor
		site for remedial purposes).
		Monitoring and testing procedure for material moved to
		and from sites within the Territory, and for excavation
		material brought into the Territory of Kahnawà:ke.

Table 4-1: Bylaw and regulation regarding waste management

4.2 Agreements and contracts

Since the community executes recycling operations in general, there are just a few agreements and contracts with external contractors regarding waste management. Contracts and agreements are presented in Table 4-2.

Contractor	Duration	Subject
Services Matrec Inc.	3 years on an annual renewal basis (January to December 2021, 2022 & 2023)	Roadside collection and transportation & disposal of residential solid waste.
Geant du Conteneur	No contract, only pricing agreement	Transfer Depot Bins
Ricova	No contract only pricing agreement	Recycled materials processing
Sanibert	NA	On-call agreement
Andana	No contract Service Agreement	Sludge valorisation on agricultural land
Soghu Laurentide Re-Source Recyc-Fluo EPRA Frigo-Responsibility Recyc-Québec (tires)	NA	Agreement for being a drop-off point

Table 4-2: Agreements with external contractors for waste management services

4.3 Awareness raising and other initiatives

The Waste Management Department - Communications continues its efforts to educate and raise awareness among the community to encourage and support positive lifestyle changes that help further reduce negative environmental impacts. Eco-patrol summer students are hired to assist the communication liaison with the summer activities, video development and the distribution of information on social media. The main initiatives listed below include:

- Distribution of information and educational materials on what is recyclable is done during major events such as, Kahnawà:ke Clean-up events (April) Tree Give-way (May), Echoes of a proud nation pow-wow (July), Creek Clean-up (September) and Annual Harvest Fair (October). Examples of educational material include composting booklet, Waste Newsletter, etc.
- Social Media; Facebook page, Instagram page
- MCK web site provides updated information on services, facility, and contact information.

- A waste management booklet developed to supply information on all available services, and includes an annual event listing, information on proper recycling and composting, and new initiatives and services at Transfer Depot.
- A recycling signboard installed at the local arena to promote recycling.
- An events recycling booklet is also being developed.
- Information Kiosks that take place 4 times a year in the public green space.
- Annual Compost giveaway

Available media:

There are diverse ways to inform Kahnawà:ke's population:

- MCK Communications Unit
- Kahnawà:ke web site: <u>http://www.Kahnawake.com/</u>
- Onkwarihwa'shón:'a Newsletter: published twice a year by the Mohawk Council of Kahnawá:ke
- Online survey
- Mass mailing list: People must register to receive up-to-date news release, public service announcements and community information from the MCK.
- Face Book Page: Iontenatatkweniens ne Onkwana:takon/Recycling in Kahnawake
- Instagram Page: Kahnawake.waste.management
- Kahnawá:ke media consists of radio, newspaper and television outlets that are independent from the MCK.
- The Eastern Door newspaper (<u>www.easterndoor.com</u>)
- Iorí:wase Kahnawà:ke News (<u>www.Kahnawakenews.com</u>)
- K103 Radio (<u>www.k103radio.com</u>)
- Zoom meetings.

5 Waste audit

5.1 Waste audit

A waste characterization study has been conducted by the First Nation of Quebec and Labrador Sustainable Development Institute (FNQLSDI) for the Mohawk Council of Kahnawà:ke.

A waste sample of 3.8 metric tons was analyzed in November 2019. Most of the sample was final waste¹ (41%), followed by organic waste (23%) and recyclable materials (15%). This study demonstrates that a total of 59% of the materials could still be diverted from the landfill through reuse, recycling, recovery or safe disposal facilities and initiatives (Figure 5-1 and Table 5-1). The full report is joined in the Appendix.





Table	5-1	: I	Detailed	house	hold	waste	comp	osition	in 2019.	

Materials	Sampled quantity (pounds)	Percentage	2019 generation (metric tons)
Recyclable material	1,251	14.9%	245.6
Paper-cardboard	670	8.0%	131.5
Glass/plastic/metal	581	6.9%	114.1
Non-refundable	503	6.0%	98.7
Refundable	79	0.9%	15.4
Organic material	1,969	23.5%	386.7
Compostable materials accepted in	723	8.6%	141.9
Kahnawà:ke			
Green residues	74	0.9%	14.4
Other compostable materials	1173	14.0%	230.3
Animal carcasses	14	0.2%	2.7
Household hazardous waste (HHW)	180	2.1%	35.3
Batteries	15	0.2%	2.9
Paints/Dyes	20	0.2%	3.8
Electronics	124	1.5%	24.3
Oils, antifreeze, coolants	6	0.1%	1.1
Fluorescents/Fluocompacts	1	0.0%	0.1
Other HHW	16	0.2%	3.0

¹ Final waste includes diapers, broken small and big appliances, unusable textiles, unusable furniture, or broken household items, and miscellaneous final residues not belonging to any other previous category.

Materials	Sampled quantity (pounds)	Percentage	2019 generation (metric tons)
Construction, renovation and	438	5.2%	86.0
demolition (CRD)			
Wood	218	2.6%	42.7
Metal	129	1.5%	25.2
Others	92	1.1%	18.1
Other waste	1,090	13.0%	213.9
Textiles	485	5.8%	95.1
Small household appliances	93	1.1%	18.2
Large household appliances	105	1.2%	20.5
Liquids (leachate)	74	0.9%	14.4
Furniture, usable household items	328	3.9%	64.3
Biomedical waste	7	0.1%	1.4
Final waste	3,452	41.2%	677.9
Total	8,379	100.0%	1,645.4

Furthermore, in this study, FNQLSDI were able to calculate the recovery rate of various material. The generation of recyclable materials from the residential sector was estimated at 846 metric tons for 2019, of which 73% were recovered through recycling and the special collection services (Table 5-2).

Table 5-2 : Generation of recyclable materials from the residential sector, according to the audit waste.

Recyclable,	Annual quantity	Proportion of
Excluding refundable containers	(metric tons)	residential generation
Recyclable collection:		
80% of recyclable material collected, for the	615.8	73%
other 20 % are coming from the ICI sector		
Recyclables disposed of in garbage:	220.1	270/
15 % of residential waste	230.1	Z / %
Total recyclables generated	845.9	100%

In the same manner, they also estimate the recovery rate of organic material (Table 5-3). However, when the study was done, the organic collection program was just beginning, and the amount of material recovered was estimated from the number of households participating to the program. The quantity generated and recovered by the program seem to be underestimated. An updated estimation is presented in section 6.1.

Organic Waste	Annual quantity (metric tons)	Recovery rate
Organic collection : Estimated from 61.8 kg/household/yr x 475	29.4	10%
Home composting Estimated from 61.8 kg/household/yr x 200	12.4	10%
Recyclables disposed of in garbage: 23.5 % of residential waste	386.7	90%
Total organics material generated	430.2	100%

Table 5-3 : Generation of organic materials from the residential sector, according to the audit waste.

The study also determined that 31 % of HHW, including electronics were recovered through the special collection and direct deposit at the Transfer Depot. (Table 5-4)

Table 5-4 : Generation of household hazardous waste (HHW) from the residential sector

Household hazardous waste (HHW)	Annual quantity (metric tons)	Proportion of residential generation
Total HHW (with electronics) brought to Transfer Depot	16.2	31%
Total HHW disposed of in garbage	35.3	69%
Total HHW generated	51.6	100%

For the other material, such as CRD waste and textile, it was not possible to estimate the recovery rate since all data was not available to do so.

5.2 Recycling audit

An audit of the recycling collection in Kahnawà:ke was conducted in October 2020 to evaluate the composition and quantity of materials disposed of in the collection on an annual basis as well as the collection rate of recyclable materials.

Samples of 1.95 metric tons collected from the residential sector and 0.44 metric tons from the ICI sector were analyzed. With those two samples, a global portrait of the community was created. The results show that paper and cardboard make up 47% of the community recycling collection, followed by plastic (15%), ultimate waste (11%), glass (11%) and metal (8%) (Figure 5-2). Other materials are present in smaller quantities such as textiles (4%), construction, renovation, and demolition waste (CRD) (1%), organic waste (0.5%), household hazardous waste (HHW) (0.4%), furniture (0.5%), electronics (0.4%) and biohazardous waste (0.02%).

The recycling collection has a level of contamination of 24%. The main contaminants are ultimate waste (49%), followed by non-recyclable plastic (18%) and textiles (15%). Low rates are observed for materials that have another clearly designated location for disposal, such as organic, CRDs and HHWs. However, there seems to be greater confusion with materials that should be disposed of in the garbage.

The residential sector has more

contamination than the ICI sector with respectively 25% and 19%.

The study also concluded that 69% of the recyclable materials generated by the residential sector of the community are recycled. The population dispose of 510.14 metric tons annually through recycling and special collections, out of a total of 740.28 metric tons generated (Table 5-5).

Glass

11.3%

Metal

7.8%

Recyclable material	Annual Quantity (mT)	Proportion of residential generation
Special collection (Cardboard) 2018-2019	186.73	25.2 %
Recyclables disposed of in the recycling collection(plastics/mix) (excluding contaminants)	323.40	43.7 %
Total recyclables disposed of in the recycling collections (cardboard and plastics/mix)	510.14	68.9 %
Recyclables disposed of in the household garbage*	230.15	31.1 %
Total	740.28	100 %

Table 5-5 : Disposal of residential recyclable materials (ref. table 12, of Recycling Audit Report)

6 Waste management results

6.1 Municipal waste

The following table describe the quantity of municipal residual material collected from all the services. Statistics from Kahnawà:ke Waste Management Department (KWMD) for the year 2019-2020 (April to March) are then compared with the data from the inventory tools provided by Recyc-Quebec (Table 6-1).



Paper/Cardboard 46,8%

TYPE OF MATERIAL	Data from KWMD	Data from Recyc-Quebec Tool		
RECYCLABLE MATERIAL (tool data)	Recycled (t)	Recycled (t)	Waste (t)	Generated (t)
Paper and Cardboard	321.11 t ¹	330 t	103 t	433 t
Metal		24 t	26 t	51 t
Plastic	548.37 t ²	69 t	126 t	195 t
Glass		116 t	35 t	152 t
Returnable containers	1.27 t ³	40.1 t	22.4 t	62.5 t
TOTAL	870.75 t	579.1 t	313.4 t	893.5 t
ORGANIC MATERIAL (user data)				
Organics collection (food scrap)	112 t ⁴			
Branches and Christmas trees	54 t⁵	54 t	0 t	54 t
Leaf and Yard Waste	19 t ⁶	25 t	299 t	324 t
Food residues (home composting)	20 t ⁷	132 t	227 t	358 t
Other organic waste	0 t	0 t	270 t	270 t
TOTAL ORGANICS	205 t	211 t	795 t	1 006 t
END OF LIFE VEHICULES	NA	371 t	0 t	371 t
TEXTILES	NA	51 t	70 t	121 t
OTHERS				
Residues from sorting center		0 t	81 t	81 t
Sorting center		0 t	81 t	81 t
 Treatment of organic material 		0 t	1 t	1 t
Household Hazardous Waste (HHW)	5.01 t ⁸		4 t	4 t
Electronics	13.59 t			
Large Waste		174 t	33 t	208 t
Ferrous	32.67 t ⁹	174 t	16 t	190 t
Non-ferrous			17 t	17 t
TOTAL OTHER	51.27 t	174 t	119 t	293 t
END WASTE	1 666.09 t ¹⁰		10 t	
TOTAL (without Sludge)	2 793.11 t	1 387.1 t	1 307.4 t	2694.5 t

Table 6-1: Type and quantity of residential residual material collected in Kahnawà:ke in 2019-20

¹ Cardboard Only

² Recycled though the curbside recycling program, including paper, plastic and glass, metal.

³ Collected beside the recycling bins.

⁴ Organics collection (green carts): around 2,5 trailer per week= 130 trailer/yr

Volume of trailer: 10 ft * 6 ft * 1 ft= $1.7 \text{ m}^3 \times 130 = 221 \text{ m}^3/\text{yr}$ estimated at $0.505 \text{ t}/\text{m}^3 = 112 \text{ tons/yr}$.

 $^{^{5}}$ 2 bays (20 ft x 20 ft x 9 ft) of wood chips per year (@90%) = 240 yd³/year @ 500 lbs/yd³ = 54 tons.

 $^{^{6}}$ 1 bay (20 ft x 20 ft x 9 ft) of leaves per year (@90%) = 120 yd³/year @ 350 lbs/yd³ = 19 tons.

⁷ Considering 100 kg/house * 204 participants.

⁸ Data from Laurentide Resource and Rothsay Lorenco for cooking oil

⁹ Metal recovered at the Transfer Depot

¹⁰ Waste collected door to door by Matrec and sent to a landfill. This is not only "end waste".

6.2 Municipal Sludge

In year 2019-2020, **192 t** of sludge with an average solid content of 45% has been pumped out the sewage treatment plant. 100% of the sludge have been valorised for agricultural use.

Septic tanks are emptied by Sanibert. 17 tanks have been emptied in 2019 and 24 in 2020. The sludge went to the City of Valleyfied sewage treatment plant. According to their web site, the sludge from the plant is thickened and dehydrated to then be used as fertilizer on agricultural land.

This information has been used in the Recyc-Quebec inventory tool, and the solid content has been adjusted to 20% by the tool. The results are shown in Table 6-2.

Table 6-2 : Municipal sludge generated in Kahnawà:ke, according to Recyc-Quebec Inventory tool at 20% solid content).

MUNICIPAL SLUDGE	Recycled	Waste	Generated
Municipal sludge from mechanized sewage treatment plant	432 t mh	0 t mh	432 t mh
Municipal sludge from aerated lagoon	0 t mh	0 t mh	0 t mh
Sludge from septic tanks	12 t mh	0 t mh	12 t mh
TOTAL	444 wmt	0 wmt	444 wmt

6.3 ICI waste

Recyc-Quebec's inventory Tool calculated type and the amount of waste generated and recycled from the ICI sector (Table 6-3). The data from the Monteregie region was used to populate the tool. However, these data are not representative of the Kahnawà:ke ICI reality, because there are only small stores on the territory and there is no industry. The data from the MELCC website shows that in 2019, **only 1410 tons of ICI** waste has been disposed of.

On the other hand, most of the cardboard and other recyclable materials from ICI are collected within the residential stream. Therefore, it is not possible to quantify the amount coming from the ICI Sector.

TYPE OF ICI WASTE	Recycled (t)	Waste (t)	Generated (t)
Paper and Cardboard	707 t	559 t	1 266 t
Metal	64 t	76 t	140 t
Plastic	62 t	289 t	351 t
Glass	33 t	82 t	115 t
Residues from Food Processing Industries	1 727 t	7 t	1 733 t
Yard Waste	0 t	72 t	72 t
Food Waste	0 t	504 t	504 t
Other Organic Waste	0 t	105 t	105 t
Other Marine Waste	0 t	559 t	1 266 t
Sands from Foundry			
Dust from Cement Plant			
Drilling Mud			
Steel Slag			
Lime Dust			
Other Lime Residues			
Ashlar			
Other Waste			
Residues from ICI recyclable sorting center	0 t	129 t	129 t
Residues from ICI organics treatment	0 t	0 t	0 t
Residues from metal recyclers (Bulky and End	0 t	255 t	255 t
of Live Vehicles)			
End Waste	0 t	65 t	65 t
TOTAL	2 593 t	2 143 t	4 736 t

Table 6-3 : Inventory of ICI Waste, according to Recyc-Quebec Inventory Tool, version 2020.

6.4 CRD waste

Construction permits are currently not required on the reserve. It is therefore difficult to estimate the quantity of CRD waste generated from Recyc-Quebec's tool. However, Kahnawà:ke housing programs invested \$1,749,048 in construction and renovation projects in the year 2019-2020. This amount does not include other works done either exclusively through the bank or in the absence a loan. This partial estimate was used in the Recyc-Québec tool to estimate the amount of CRD waste (Table 6-4)

The bins at the Transfer depot are for construction renovation and demolition, but for individual homeowners only. In the fiscal year 2019-20, **340,97 tons** of material was collected. Contractors are required to dispose of waste using other means, and no data is available. The data from the MELCC website shows that only **78 tons of CRD** waste from Kahnawà:ke has been disposed of in 2019. The amount of material sent to a recycling center is unknown.

TYPE OF CRD WASTE	Recycled (t)	Wasted (t)	Generated (t)
Aggregate	354 t	22 t	376 t
Gypsum	1 t	21 t	22 t
Asphalt Shingles	2 t	18 t	20 t
Other	0 t	18 t	18 t
Construction wood	84 t	47 t	130 t
Industrial processing wood residues	0 t	0 t	0 t
TOTAL from residential works (partial)	441 t	126 t	567 t
Other known data			
CRD collected at Transfer Depot (2019-20)	341 t		
CRD eliminated according to MELCC (2019)		78 t	

Table 6-4 : Inventory of CRD Waste, according to Recyc-Quebec Inventory Tool, 2020 version (Partial data)

6.5 Global results

The following tables present the summary of residues recovered and disposed of, according to Kahnawà:ke data (Table 6-5), and according to Recyc-Québec inventory tools (Table 6-6). A recovery rate of 40 % has been calculated for the residential sector, for which data are completed. The recovery rate has also been calculated form the Recyc-Quebec tool, and reach 55 %. But this is for personal information only, for this rate is an estimation only.

On the other hand, the quantity of waste eliminated per person have been calculated and reach 448 kg/pers, according to Recyc-Quebec tool. Kahnawà:ke reaches the Quebec Waste Management Policy objective (2019-2024) of 525 kg/pers.

Table 6-5 : Summary of residues recovered and disposed of, by activity sector, according to Kahnawà:ke data.

Activity Sector	Recycled (t)	Waste (t)	Generated (t)	% recycled
Residential	1 127	1 666	2 793	40 %
ICI	NA	1 410	1 410 (partial)	
CRD	341	78	419 (partial)	
Total (without sludge)	1 468	3 154	4 622 (partial)	
		398 kg/pers		

TYPE OF MATERIAL	Recycled (t)	Waste (t)	Generated (t)
Paper and Cardboard	1 037 t	662 t	1 699 t
Metal	88 t	103 t	191 t
Plastic	131 t	415 t	546 t
Glass	150 t	117 t	267 t
Organic material	1 938 t	1 482 t	3 420 t
CRD Waste	441 t	126 t	567 t
Residues from industrial process			
Household Hazardous Waste (HHW)		4 t	4 t
Other waste	596 t	569 t	1 165 t
End Waste	0 t	74 t	74 t
TOTAL (without Sludge)	4 381 t	3 553 t 448 Kg/pers	7 934 t
Global Recovery Rate	55 %		
Municipal sludge	444 t mh	0 t mh	444 t mh

7 Identification of challenges and issues

Many of the actions planned in the prior PGMRs have been implemented, with only a few still pending (see Annual Progress Report for Redevance Funding in appendix 3).

The main issues identified in the Kahnawà:ke Waste Management programs are presented below.

A. Organic material

Less than 40% of the community members participate in the organic collection, and approximately 1000 more bins are needed to assist in increasing participation, as well, the accepted material list is limited. One challenge found is to increase community participation in the voluntary organics and yard waste collection operation, and with that, the purchase of bins for easier access. A second challenge is ensuring only acceptable materials are collected, which are free of waste / garbage items. And finally, the challenge of balancing the acceptable items list versus the quality and integrity of the final product intended for the use in community garden and edible food production.

B. Recycling Quality

According to the 2020 recycling audit, there is a contamination rate of 24% in the recycling bins. This is quite high, and the need for the education and awareness raising continues. The challenge is to reach community members with the correct information of acceptable materials and to adjust the delivery of the message to meet the needs of today's society.

C. Communications

Communication on the web site is outdated. The challenge is to ensure the information reflects all services offered by the Waste Management Department and to ensure this information is kept updated on a regular basis. As well, to ensure the information is easily accessible and to build on this information to improve participation and collected material quality.

D. Septic tank sludge

Septic systems are emptied upon request, and not on a regular basis; this may lead to the possibility of malfunctioning and obstruction of spill pit, or the surface discharge of grey water. There is record keeping of the septic tank cleaning, but there is a lack of information about the installations built before 1988, and compliance status. There is no annual report completed on the number of systems cleaned, or on the volume of sludge vacuumed. A collaboration with the responsible MCK Department is needed to build the data collection and reporting system for septic systems.

E. Transfer depot services

The Transfer depot serves as an eco-center facility. It is located more than 5 km outside of the main village area making accessibility difficult for some residents. The access road is gravel and at time unmaintained. Residential clients have access to this free service, and non-residences have limited access, such as for hazardous material collected by Re-sources Laurentide.

The Transfer Depot area no longer accommodates for new services, or the proper storage of existing materials (Tires). Although all available services are offered, there is no room for further expansion. Several waste items are accepted at the Transfer Depot, but those excluded from CRD waste from contractors are excluded, as well as concrete, brick, and cinderblocks. Services offered may be expanded to include CRD waste, and increased accessibility for the ICI and CRD sectors with the development of a usage fee.

F. Textile

There is no drop-off point for textile within the community. Since clothing and textiles were accepted in the recycling bin before, there is still some confusion about the right way to dispose of this material.

G. ICI Waste and Recycling

The community has limited data on waste management in the ICI. Almost all businesses have their own waste removal contract. An inventory is necessary to better gage the challenges and issues of this sector. However, ICI are currently offered recycling collection and cardboard drop-off as well as organics collection service free of charge. The inventory will need to determine the percentage of participation, and to ensure special needs are addressed to improve waste diversion efforts.

H. Recycling for CRD Residues

Asphalt and concrete from road infrastructure have been re-used or stored to date, but more sustainable solution is being investigated. Reuse or recycling of other aggregates such as bricks and rocks are also an issue. This is carried over and continue to be an issue.

I. Illegal Dumping

Illegal dumping occurs in the community within the isolated areas, but the situation has improved. It is an ongoing and is perpetrated by both non-community and community members. Individuals caught receive tickets and are responsible to clean up the debris. Increased patrols of the area act as a deterrent, however additional measures are necessary such as signage.

8 Objectives and guidelines

The Quebec Residuel Material Management Policy seeks to create a waste-free society that looks to maximize benefit through intelligent management of its residual materials. The main goal of the Policy is as follows:

• Make end waste the only residual material sent for disposal in Québec.

End waste is the waste that results after residual materials have been sorted, processed, and reclaimed and cannot be processed any further under existing technical and economic conditions to extract reclaimable content or reduce its polluting or hazardous character.

The Policy applies to all residual materials generated by Quebec households, industries, businesses, and institutions, including those produced by construction, renovation, and demolition (CRD) activities. These residual materials also include municipal and industrial sludge and out-of-service vehicles and their waste. The Policy also applies to household hazardous materials.

The action plan 2019-2024 of the Quebec Waste Management Policy aims to reach the following objectives by the end of 2023:

- 1. Reduce the quantity of residual materials sent for disposal to 525 kilograms per capita;
- 2. Recycle 75% of paper, cardboard, plastic, glass, and metal waste;
- 3. Recycle 60% of organic putrescible waste;
- 4. Recycle and recover 70% of construction, renovation, and demolition waste.

These goals represent a national average to which everyone must contribute. Each residual materials management plan must include measures that are compatible and that will ensure achievement of all goals in the area covered by the plan.

Although Kahnawà:ke already reach the objective of 525 kg/person of residual material sent to landfill, the community still must work on the other objectives.

Furthermore, the objectives of the "Quebec Organic material recovery strategy" are the following, and must be considered:

- 5. Establish organic material management on 100% of the municipal territory by 2025;
- 6. Manage organic material in 100% of industries, businesses and institutions by 2025;
- 7. Recycle or recover 70% of the targeted organic material in 2030;
- 8. Reduce by 270,000 t eq. CO₂ GHG emissions in 2030.

8.1 Kahnawà:ke objectives

Based on the Quebec objectives and the main issues described in the previous chapter, the main goals of the community of Kahnawà:ke are the following :

- 1. Reduce by 10% the weight of residential solid waste sent to landfill, by 2029.
- 2. Recover 60% of organic material, through home composting initiatives and organic collection service, by 2025.
- 3. Recover 75% of paper, cardboard, plastic, glass, and metal through the recycling program, by 2025. The community reaches a recovery rate 69%.
- 4. Improve quality of the material collected through the recycling program and reduce the contamination rate to less than 10%, by 2029.
- 5. Expand the organic collection program to every member of the community, including ICI, by 2026.
- 6. Improve efficiency of other recycling programs, especially for electronics, textile, and household hazardous waste (HHW), by 2029.
- 7. Recycle 70% of CRD waste (including wood) coming from the building segment and infrastructure works, by 2028.
- 8. Enhance information and awareness about waste recovery services and programs for residential, ICI and CRD sectors, by 2029.

9 Proposed action plan, including cost and schedule

To achieve these goals, it is important to pursue an action plan that will involve all parties which include residents, ICI and the CRD sectors, as well as the community's administration.

The action plan presented below (Table 9-1)identifies each objective, the lead agency, the timeline, and an estimated cost. Since many actions can contribute to achieve many objectives, the action plan has been divided in the following categories of actions.

- A. New programme and infrastructure
- B. New procedures or policy
- C. Information, education measures
- D. Specific Measures for CRD Waste
- E. Monitoring and follow-up measures

For each action, the Kahnawà:ke objectives have been identified by a number, corresponding to those indicated in section 8.1; and the issue or challenge to which it responds to are shown by a letter, corresponding to those indicated in chapter 7.

Then, in Table 9-2, the cost of each action has been distributed over time. This gives a approximate cost for each year covered by the Waste Management Plan.

Table 9-1 : Action plan, including estimated cost ans schedule

No	Actions	Kahnawà:ke Objective Issue	Target sector	Responsible	Schedule	Cost
Α.	NEW PROGRAMME AND INFRASTRUCTURE			•		
1.	Continued promotion of the Organics Collection and Composting Facility. This will include the continued distribution of the green compost bucket and kitchen collector buckets to both residential and ICI for the purpose of promotion, and improved community participation in Community Compost. (Bin damage, new housing, multiple bins for high usage)	1, 2, 5 A	Residential and ICI	KWMD	2022-25	HR costs included in Pt #13 + \$12 700
2.	Relocate and Improve the Transfer Depot ECOCENTER. (New localisation, improved accessibility, Increased service availability, ample space for expansion of services and improved further sorting of incoming materials, etc.).	1, 6, 7 E, H, I	Residential, ICI, CRD	KWMD	2024	\$1.27 million
3.	Preparation for bottle deposit program, including audits and action plan. The second step will be to implement a program for refundable containers, according to the recommendations. This will be done in compliance with the new EPR on the Deposit system.	1, 3	Residential, ICI	KWMD with Echo-Logique	2022	Consultant: \$ 4 500 Meeting, needs, action plan, Audits \$6 700 Total : \$11 200
4.	Implement a textile recuperation service or special collection bins for clothing and textile within the community.	4, 6 B, F	Residential	KWMD	2023	Bin costs - \$3000, Empty, sort and Transport: 2 people to empty bin 52 weeks x 7.5 hrs /week x 21\$/hr = \$7800.00
5.	Establish reusable items drop off location and develop community wide yard sale / free exchange of items / Low Waste Markets, along with a database on drop of locations for or household items and clothing.	1, 6, 8 C, E, F	Residential and ICI	KWMD	2025	Shipping Container \$6000 Shelving \$1000 Maintenance and oversight 3hrs /week x 52 weeks x 20/hr = \$3120

No	Actions	Kahnawà:ke Objective Issue	Target sector	Responsible	Schedule	Cost
6.	Mobilize with event organizers to encourage and support waste diversion at various community events, i.e., recycling and organics collection bins during community events and in public areas. This is a service offered to community event organizers. A service offering should be developed to assist event coordinators to incorporate recycling and composting as part of the waste disposal needs.	1, 2, 3	Public Events	KWMD	Yearly	\$2500 Special Event Bins \$400 x5 = \$2000 (Varied depending on # and size of number of events over the course of the year)
7.	Develop a septic tank database and cleaning program based on needs (number of people and volume of the tank). Improve on the existing electronic registry to identify and quantify all septic systems within the community. Information such as location, capacity, last cleaning date, and functioning status will be compiled for each of them, and other relevant information.	D	Residential and ICI septic sludge	Infrastructure Operations Maintenance Manager & KWMD	2025	1 person x 60 days x 7.5 hr/day x \$16.80 / hr = \$7560
В	NEW PROCEDURE OR POLICY					
8.	Develop Waste Management Department structure based on existing services (update job description to reflect new services and so on, to improve and expand services to complete the development of the waste management department.	1	Internal management	KWMD	2024	Department general manager, reception and administration: \$ 128 000
9.	Develop Policy on Best Management Practices to act as a guide for waste reduction within the community. Ex. Limiting the material entering the waste stream.	1	Residential	KWMD	2028	\$2000
10.	Develop an Organics Collection and Compost Operation Code of Practice (the code of practice will include the sampling protocol for compost maturity and quality.) to outline the requirements for the design, construction, operation, and maintenance of the compost operation. It will be inspired by the "Lignes directrices pour l'encadrement des activités de compostage" of Quebec Government.	2 A	Internal management	KWMD with Consultant	2023	\$5000

No	Actions	Kahnawà:ke Objective Issue	Target sector	Responsible	Schedule	Cost
11.	Evaluate the possibility to reduce waste collection frequency to once every two weeks . This action aims to encourage people to further use available services to reduce their waste. But it is tricky to do, to not increase illegal dumping.	1	Residential	KWMD	2028	HR costs included in Pt #8
С	INFORMATION AND EDUCATION MEASURES			_		
12.	Prepare communication plan to address new provincial changes to recycling new container consignment and changes to blue bin items – update all communications	8 C	All	KWMD	2023	\$3000 printing of new pamphlets HR included in point #13
13.	Continue to improve and build on the current communication Plan. Improve diffusion of information concerning new waste recovery services and programs for residential, ICI and CRD sectors: Continually update Web site, distribution of information and educational materials on what is recyclable during annual events, etc.	All	All	KWMD	yearly	Full time communication person 52 weeks X 37.5 hrs /week \$24.10/hr = \$47 000
14.	Update, as needed, the Waste Management booklet to provide information on all available services, annual events listing, do's and do nots of recycling and composting, new initiatives and services at Transfer Depot, drop-off points, special collection day, 3R approach, etc.	1, 2, 3, 4, 6, 8 B, C	Residential	KWMD	yearly	HR costs included in Pt #13
15.	Ask Recyc-Quebec to translate the "Ça va où?" tool to include the recovery services in Kahnawà:ke	1, 3, 4, 6, 8 B, C, F, I	Residential	KWMD	2022	HR costs included in Pt #13
16.	Continue to promote the organics recovery program. Publication of all the information on the web site, Facebook, Twitter, Radio, TV and other medias. Hold kiosk and virtual tour of the facility, open house, and other mobilization activities.	2, 5, 8 A, C	Residential	KWMD	2022-27	HR costs included in Pt #13
17.	Establish an Eco patrol program that will verify recycling and compost quality. The patrol will aid and support to communication in delivering education and awareness programs.	3 ,4 A, B, C	Residential, ICI, CRD	KWMD	yearly	Summer Student x 2 x 10 weeks x 37.5/week x 16.80 / hr x 1.04 = \$6552x2= \$13 104

No	Actions	Kahnawà:ke Objective Issue	Target sector	Responsible	Schedule	Cost
18.	Develop and provide educational workshops in schools and after school clubs and for youth to promote zero waste, recycling and composting programs to the students.	2, 3, 4, 8 C	Schools and youth groups	KWMD	Yearly	HR costs included in Pt #13
19.	Maintain backyard composting education and grass- cycling and mulching program, through community workshops and at community events.	2	Residential	KWMD	continuo us	HR costs included in Pt #13
20.	Promote the septic system maintenance booklet. This booklet will continue to be sent to all owners of an individual septic system and publicized on the MCK website.	D	Residential and ICI septic sludge	KWMD	2025	\$2000 Printing and distribution
21.	Continue to promote recycling and composting program to the ICI sector . Inform them about all the accepted items (according to the new EPR on recycling system) and the procedure to improve community participation. Create an "ICI package" based on their needs. This package will include information on waste diversion options and available programs.	1,2, 3,5 G	ICI	KWMD	2026	HR costs included in Pt #13 \$2000
22.	Promote zero waste initiatives: Improve reduction at source including food waste, and single use plastic also emphasising the second chance / reusable items drop-off, free yard sale. Encourage garage sale and purchase of second-hand items.	1	Residential	KWMD	continuo us	HR costs included in Pt #13
D	SPECIFIC MEASURES FOR CRD WASTE from the buildin	g segment and	infrastructure wo	orks		
23.	Accept CRD waste from contractors at the Transfer Depot (with appropriate tipping fee). Purchase a scale or implement a procedure to estimate the amount of incoming CRD waste and conceive a pricing list based on volume and type of material. Send the incoming material to the appropriate recycler or to a CRD sorting center (Table 2-4).	7 E, H	CRD	KWMD	2027	Scale included in Pt #2 Data development \$200 Staff training \$250

No	Actions	Kahnawà:ke Objective Issue	Target sector	Responsible	Schedule	Cost
24.	Develop Information on website and pamphlet form on pre-sorting CRD waste on construction sites. Update the directory of available resources for CRD Waste recycling and disseminate the information to contractors and the population.	7 H	CRD	KWMD	2025	HR costs included in Pt #13 Pamphlet -printing and distribution costs \$2000
25.	Continue to research a cost-effective recycling solution for asphalt and concrete residues from all road infrastructure work, and submit a solution for consideration to the relevant authorities.	7 H, I	CRD	KWMD and Capital	2028	\$500
E	MONITORING AND FOLLOW-UP MEASURES		ſ			
26.	Realise an audit (cost /benefit analysis) of all the waste collection services (including, recycling compost, waste, and special collection, as well as the transfer depot).	4, 6 A, B	internal management	KWMD	2023	\$11 725 Performed by a consultant
27.	Carry out follow up recycling and waste audit to verify the improvement in waste diversion and recycling quality, including refundable containers recovery program.	4 B	residential	KWMD	2025 2026	Recycling & refundable containers Audit \$15 000 Waste Audit \$24 000
28.	Continue inventory of all ICI and the waste management services they use , including size and type of containers and collection frequency. This will draw a big picture of what is currently done and what could be improved. This inventory could then be used to estimate the amount of residual material generated by the ICI sector.	5 G	ICI	KWMD	2023 and on	Student Project (2) 10-week x \$16.80/hr X 37.5 hrs/week x 1.04 =\$6552
29.	Prepare and publish an annual report on recycling, composting and waste disposal to see progress and trends. Keep population informed about the results to encourage them to continue their efforts. (Digital communication)	8 C	All	KWMD	yearly	HR costs included in Pt #8 (Digital communication)
30.	Prepare an annual progress report of the waste management activities, transmit it to the MELCC and make it available on the MCK Web Site.	8 C	PGMR	KWMD	yearly	HR costs included in Pt #8

Table 9-2: Repartition of cost of each action over time.

No	Actions	2023	2024	2025	2026	2027	2028	2029
Α.	NEW PROGRAMME AND INFRASTRUCTURE							
1.	Continued promotion of the Organics Collection and Composting Facility.	HR Incl. \$6 000	HR Incl.	HR Incl. \$ 6 700	HR Incl.			
2.	Relocate and Improve the Transfer Depot ECOCENTER.			\$1.27 million				
3.	Preparation for bottle deposit program	\$11 200						
4.	Implement a textile recuperation service or special collection bins for clothing and textile within the community.		\$3 000 \$7 800	\$7 800	\$7 800	\$7 800	\$7 800	\$7 800
5.	Establish reusable items drop off location.				\$7 000 \$3 120	\$3 120	\$3 120	\$3 120
6.	Mobilize with event organizers to encourage and support waste diversion at various community events.	\$2 500 \$2 000	\$2 500	\$2 500	\$2 500	\$2 500	\$2 500	\$2 500
7.	Develop a septic tank database and cleaning program based on needs (number of people and volume of the tank).				\$7 560			
В	NEW PROCEDURE OR POLICY							
8.	Develop Waste Management Department structure based on existing services	\$128 000	\$128 000	\$128 000	\$128 000	\$128 000	\$128 000	\$128 000
9.	Develop Policy on Best Management Practices to act as a guide for waste reduction within the community.							\$2 000
10.	Develop an Organics Collection and Compost Operation Code of Practice (the code of practice will include the sampling protocol for compost maturity and quality.		\$5 000					
11.	Evaluate the possibility to reduce waste collection frequency to once every two weeks.							HR incl.
С	INFORMATION AND EDUCATION MEASURES							
12.	Prepare communication plan to address new provincial changes to recycling new container consignment and changes to blue bin items.		\$3 000 RH Incl.					
13.	Continue to improve and build on the current communication Plan.	\$47 000	\$47 000	\$47 000	\$47 000	\$47 000	\$47 000	\$47 000
14.	Update, as needed, the Waste Management booklet	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.

No	Actions	2023	2024	2025	2026	2027	2028	2029
15.	Ask Recyc-Quebec to translate the "Ça va où?" tool to include the recovery services in Kahnawà:ke	Incl.						
16.	Continue to promote the organics recovery program.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
17.	Establish an Eco patrol program that will verify recycling and compost quality.	\$13 100	\$13 100	\$13 100	\$13 100	\$13 104	\$13 100	\$13 104
18.	Develop and provide educational workshops in schools and after school clubs and for youth	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
19.	Maintain backyard composting education and grass-cycling and mulching program, through community workshops and at community events.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
20.	Promote the septic system maintenance booklet.				\$2 000			
21.	Continue to promote recycling and composting program to the ICI sector.					\$2 000		
22.	Promote zero waste initiatives.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
D	SPECIFIC MEASURES FOR CRD WASTE							
23.	Accept CRD waste from contractors at the Transfer Depot (with appropriate tipping fee).						\$450	
24.	Develop Information on website and pamphlet form on pre-sorting CRD waste on construction sites.				\$2 000			
25.	Continue to research a recycling solution for asphalt and concrete residues from road infrastructure work.							\$500
E	MONITORING AND FOLLOW-UP MEASURES							
26.	Realise an audit (cost /benefit analysis) of all the waste collection services	\$6 000	\$5 725					
27.	Carry out follow up recycling and refundable containers audit (2025), and waste audit (2026) to verify the improvement in waste diversion and recycling quality.				\$15 000	\$24 000		
28.	Continue inventory of all ICI and the waste management services they use,		\$6 550	\$6 550	\$6 550			
29.	Prepare an annual report on recycling, composting and waste disposal	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
30.	Prepare and publish an annual progress report of the waste management activities. (Digital distribution)	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
	TOTAL	\$ 215 800	\$ 221 675	\$ 1 481 650	\$ 241 630	\$ 227 520	\$ 201 970	\$ 204 020

9.1 Revenues

The following table (Table 9-3) lists all possible revenues. It states if it is a recurrent yearly revenue, or a revenue for a specific project. In that case the action number is indicated, and it refers to the action plan (Table 9-1). The remaining of the expenses will be paid among the general budget of the community.

Sources of revenues	2020-2021	Yearly estimate	For a specific project	Action number (Ref. Table 9-1)
Landfilled waste Redevance return program	\$100 502	\$99 000		
« Compensation pour la collecte selective" program. Until the reform of the program.	\$179 626	\$150 000 until 2025	Recycling collection	
ISC - FNWMI 2021-2028 - 7yr Funding based on project approvals Communications, Compost Operations, Transfer Depot Relocation, acquisitions, Eco-patrol	\$537 883		\$ 48 000 Adm/com. \$ 170 000 Compost \$ 1.3 M Ecocenter	A12,13 A 1, 10 A 2
Tewa summer student program	0	\$ 6 150		A 28
Eco-patrol FNQLSDI – Based upon funding approval	0	\$12 500		A 17
Recycling (sale of material): cardboard and PepsiCo, cooking oil	\$9 046	\$10 000		
EPRA: EPR program for electronics products	\$1 956	\$1 500		
Sale of Large metal items - recycling	\$3 667	\$5 000		
GoRecycle Canada Inc. For appliances covered by the EPR	\$0	\$1 500		
Remaining of the expenses are paid among the general budget of the community	\$703 527			
Total	\$1 536 207	\$273 150	\$1 518 000	

Fable 9-3 : Sources of revenues for	year 2020-21 and	projection for	the future
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Appendix

2021 Annual report on PGMR

Waste Characterisation Study, Kahnawà:ke, February 2019