

Eastview Landfill Site

900 Richmond Avenue East
Brandon MB, R7A 7M1



2021



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Introduction

This annual report covers the period from January 1, 2021 to December 31, 2021, and has been prepared in accordance with our Environmental Act license number 3149. The license was issued August 25, 2015 in accordance with The Environment Act (C.C.S.M.c.E125) under the direction of Manitoba Conservation. The Eastview Landfill Site operates as a Class 1 Waste Disposal Ground (WDG) under the Manitoba Environment Act.

- Former and active disposal areas;
- Full depot for residential and commercial waste, including contaminated soil, all directed to the tipping face;
- Leachate collection that is pumped to a wastewater treatment facility;
- Scale house and operator;
- Snow removal dump site (City use only);
- Clean fill disposal;
- Concrete disposal area;
- Landfill gas collection system (waiting to be commissioned by Department of Labor);
- Material Recovery Facility (MRF);
- Separation of metals, propane tanks, tires, yard waste and tree brush from waste stream which is stored in designated areas of the site;
- Freon depleting device depot;
- Eco-Centre for used oil, filters and containers;
- Tree and wood chipping;
- Composting;
- E-Waste Depot;
- Household hazardous waste depot;

The purpose of this report is to meet the operational reporting requirements by providing the following information at a minimum:

- Updates to the operating manual;
- Closure/Post closure plans and financial evaluation;
- Planned improvements;
- Records of waste, recyclable materials, and compost quantities;
- A review of environmental monitoring data;
- Details on environmental protection programs;
- Operational information;



Beside is a copy of the landfill section map.



CITY OF BRANDON

**EASTVIEW
LANDFILL SITE**



ENTRANCE



Updates to The Operations Manual

The operating manual was submitted in 2008 to meet the requirements of the operating permit. The manual was completed internally by Sanitation administration and was to address at a minimum the following:

1. Cell developing and sequencing;
2. Waste receiving, placement and covering;
3. Nuisance control;
4. Surface water management;
5. Landfill gas management;
6. Leachate management;
7. Monitoring and reporting; and
8. Inspections and maintenance.

The operating manual also provides criteria for the acceptance, handling and disposal of special wastes such as hydrocarbon impacted soils, mold and asbestos. The manual provides information for dealing with hot loads within City collection trucks, commercial haulers, and commercial and residential self-haulers.

Closure & Post Closure Plan



In 2021, the City of Brandon issued a bid opportunity and subsequently hired the consulting firm KGS Group to update the site's Closure and Post Closure Plan. Prior to this, the most recent Closure and Post Closure Plan had been completed in 2018 by Golder Associates Ltd.

The decision to update the plan was based on the following criterion that had changed since 2015:

- 1 A Landfill Master Plan was completed in 2016
- 2 The final design contour of the landfill site was changed
- 3 There has been an increase in participation in the City's curbside organics collection program
- 4 The amount of commercial refuse received at the site has decreased since 2015



As part of the work, KGS Group reviewed historical waste generation data provided by the City, reviewed current site operations, and conducted a survey of the site's current elevations. Specifically, the updated plan included the following:

- Current waste generation estimate received at the Eastview Landfill Site based on current population trends;
- An estimate of the remaining usable life of the landfill site based on waste generation and available airspace;
- Estimated closure costs;
- An estimation of ongoing maintenance costs following site closure (post closure); and
- Preparation and submission of a report providing costing models and site development drawings

According to the Closure and Post Closure Report prepared in 2018, the estimated useful life of the existing landfill site was predicted to be 26 years, or an estimated closure date of 2044. However the updated plan, prepared by KGS in 2021, estimates that the Eastview Landfill Site will reach capacity in year 2053, thus increasing the life of the landfill by an additional 9 years.

The updated plan also provided detailed information on the requirements and procedures required during the closure of the current site along with post closure requirements. The updated plan determined that the following requirements be adhered to during the closure of the Eastview Landfill Site:

1. Prior to the application of the final cover, regrading to the final contours should take place in order to promote drainage away from the site and to discourage infiltration and local ponding of surface water.
2. A 4H:1V slope was proposed for the side slopes and a 2% grade is designed for the top of the landfill, directing drainage to the northeast.
3. The following final cover design has been proposed:
 - a. A vegetative layer consisting of a minimum of 15 cm of topsoil, capable of supporting vegetative growth.
 - b. A subsoil layer 0.35 m in thickness
 - c. A barrier layer that is constructed by compacted clay soils to a thickness of no less than 0.50 m measured perpendicular to the compacted waste surface and achieving maximum permeability of 1×10^{-7} .
 - d. Contoured such that no water pools over the landfill cells. Grade to achieve a minimum slope of 2%
4. A policy be implemented to monitor top of waste elevations to assist in planning the placement of the final cover within a year of reaching the final elevations.
 - a. The policy will minimize the amount of leachate that will be generated and handled.
 - b. It will also allow for the initial settlement of the landfill to take place prior to placement of the final cap.
5. General allowance including decommissioning of site facilities such as upgrading the storm water control work and modification of the landfill gas collection system.
6. Submittal of a formal detailed Closure and Post Closure Plan, which may include the following allowances:

The updated plan also cited the following requirements for the post-closure phase for the Eastview Landfill Site:

1. That a post closure plan should operate for a period of no less than 25 years to ensure proper care of the site, associated infrastructure and environmental control systems.
2. Protect and maintain integrity of final cover system.
3. Provide repairs to the final cover system as necessary to correct settlement, subsidence, erosion, leachate break-out.
4. Protect, maintain, and monitor groundwater, leachate and landfill gas.

The updated plan estimates that the average annual tonnage between 2022 and 2053 will be approximately 35,000 tonnes.

The net present value (NPV) of the landfill closure/post closure costs is expected to range between \$3.38 million and \$7.04 million dollars. This will require contributions to a capital reserve fund of between \$3.02 and \$6.29 per tonne. The increase in per tonne cost is due to the reduction in the annual tonnage projected over the remaining life of the landfill.

Closure & Post Closure Fees

In 2015, the Sanitation Section presented to City Council and requested that a \$4.00 per tonne closure levy be put in place to cover the costs of landfill closure. Council agreed to the request and the \$4.00 per tonne levy was implemented on January 1, 2016 on every tonne of material that enters the tipping face. The \$4.00 per tonne closure levy was amended by council in December 2021 to increase the levy from \$4 to \$5 per as a result of the recommendation from Closure/Post Closure plan completed by KGS Group in 2021.





Planned Improvements & Major Projects 2021

After a busy couple of years in 2019 and 2020 the Solid Waste Section did not have any major capital improvement projects at the Eastview Landfill Site. To help guide the section through the next 10 years and beyond it contracted with KGS Group to complete a Long Term Capital Plan that would help guide the section through this next period of time.

Some of the items that were looked at included the following items:

- Expansion of the Landfill Gas Collection System.
- Recommendations for future options on alternative daily cover.
- Technologies for reducing landfilling.
- Vertical and horizontal expansion.
- Alternate composting solutions.
- Wood waste management



Solid Waste Quantities

As part of the City of Brandon's Solid Waste Management System, the City owns and operates the Eastview Landfill Site located at NW 17-10-18, in the City of Brandon. This landfill is considered a Class 1 site, due to population (>5,000) it services not only residents of the City, but also a number of municipalities within close proximity to the site along with commercial and industrial businesses. Starting in 2011, the Eastview Landfill Site started receiving solid waste from the RM of Cornwallis.

To segregate larger commercial vehicle traffic from residential traffic, waste from commercial haulers was placed in cells 13 and 14, waste from City refuse collection was landfilled in cell 16, and cell 15 was used for waste hauled directly to site by residential customers.

Active Cell

All waste generated within the City of Brandon is either hauled directly by City refuse trucks, commercial haulers, or self-hauled by small businesses and residents. In 2021, the total amount of waste disposed of in the active cell was 30,687.89 tonnes.

Asbestos is placed along the East side of the cell 13-14 where it is covered and surveyed. In order for anyone to bring asbestos to the landfill site for disposal, they first need to purchase a daily permit. A separate permit is required for each day that asbestos is being delivered on site. Contractors, or anyone responsible for the disposal of asbestos, must insure that safe handling of the material occurs when transporting and disposing.

Residential refuse is the waste hauled to the landfill site by homeowners and/or occupiers of residential property. This includes all material that is not considered recyclable, compostable or requires special handling. City residential is the waste hauled by City of Brandon refuse trucks and delivered to the active cell.

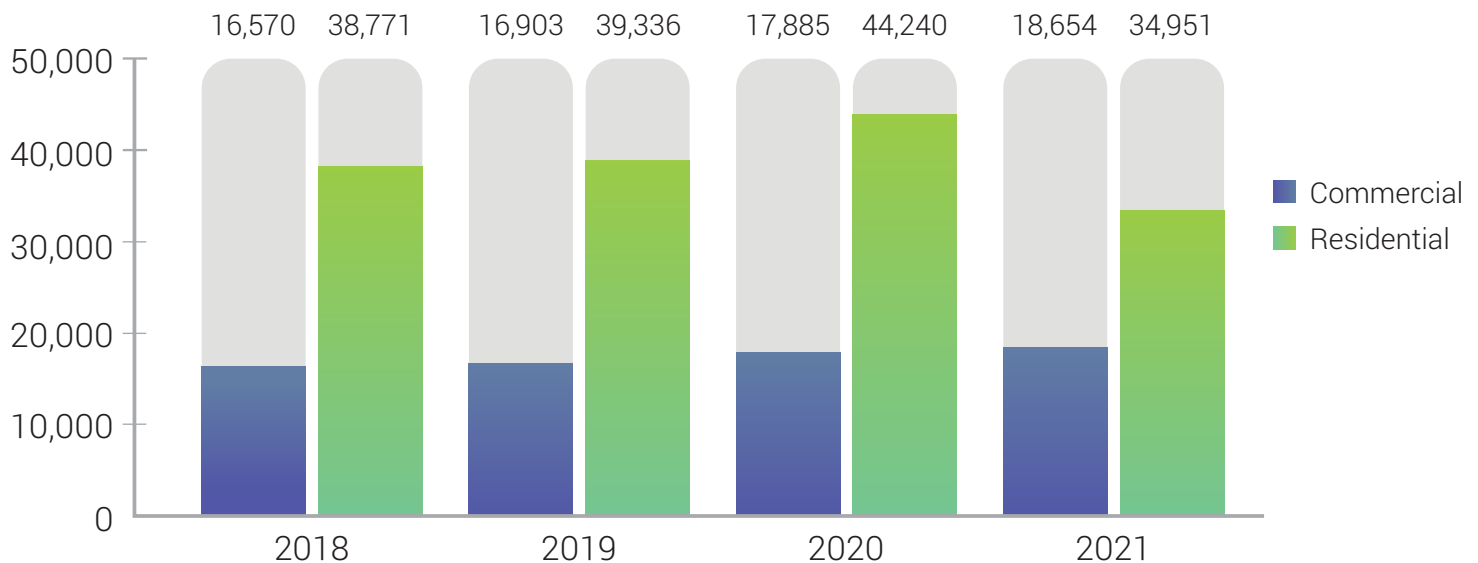
Eastview Landfill Material Quantities

Materials (tonnes)	2018	2019	2020	2021
Asbestos	375.78	168.87	231.98	305.03
Commercial Mixed Refuse	20,545.88	17,675.40	14,161.82	17,573.40
Residential Mixed Refuse	4,379.07	2,554.44	2,075.56	1,465.76
City Curbside Collection	9,361.11	9,921.21	9,921.21	10,815.32
Wastewater Treatment Facility Sludge	559.83	506.55	506.55	528.38
Total	33,342.38	30,826.47	27,887.32	30,687.89

Since 2018, the annual average for the total number of visitors entering the landfill has been 56,826. As illustrated in the following chart, the total number of visitors to the landfill site in 2021 was 53,605, with 34,951 of the visitors being residential and 18,654 of the visitors being commercial.

The commercial tipping fees increased from \$64 per tonne to \$75 per tonne on January 1, 2017. On January 1, 2019 the entrance fee to the landfill for residential customers was increased from \$2 to \$5. The commercial tipping fee of \$75/tonne has not increased since 2017.

Visitors to Eastview Landfill Site





Recycling and Organics Material Weights

Throughout 2021, the Sanitation Section of the City of Brandon continued in its efforts to divert as much material from the active cell as possible. This effort is made in order to extend the useful life of the landfill and spread the costs of developing new cells over longer periods of time.

In 2014, the City assumed responsibility for the processing of residential and commercial recyclables within the Material Recovery Facility (MRF) and awarded the shipping and marketing of recyclables to a third-party contractor. Processing of the recyclable material consists of the manual removal of residue (i.e. non-recyclable material) and old corrugated cardboard (OCC) from mixed recyclable material (or comingled material) on a sort line.

The MRF also accepts loads of OCC and shredded office paper (SOP) from commercial sources. In 2021, 2,918.27 tonnes of mixed recyclables, 987.74 tonnes of OCC and 156.73 tonnes of SOP were brought into the MRF by commercial haulers as single-stream loads.

Once sorted and comingled, OCC and SOP material are baled separately by MRF staff. The baled material is shipped by truck to the respective comingled processing plants for further sorting, and OCC and SOP are shipped by truck by the Contractor to end market.

Comingled material, or mixed recycling, is comprised of the following materials collected from residential and commercial sources:

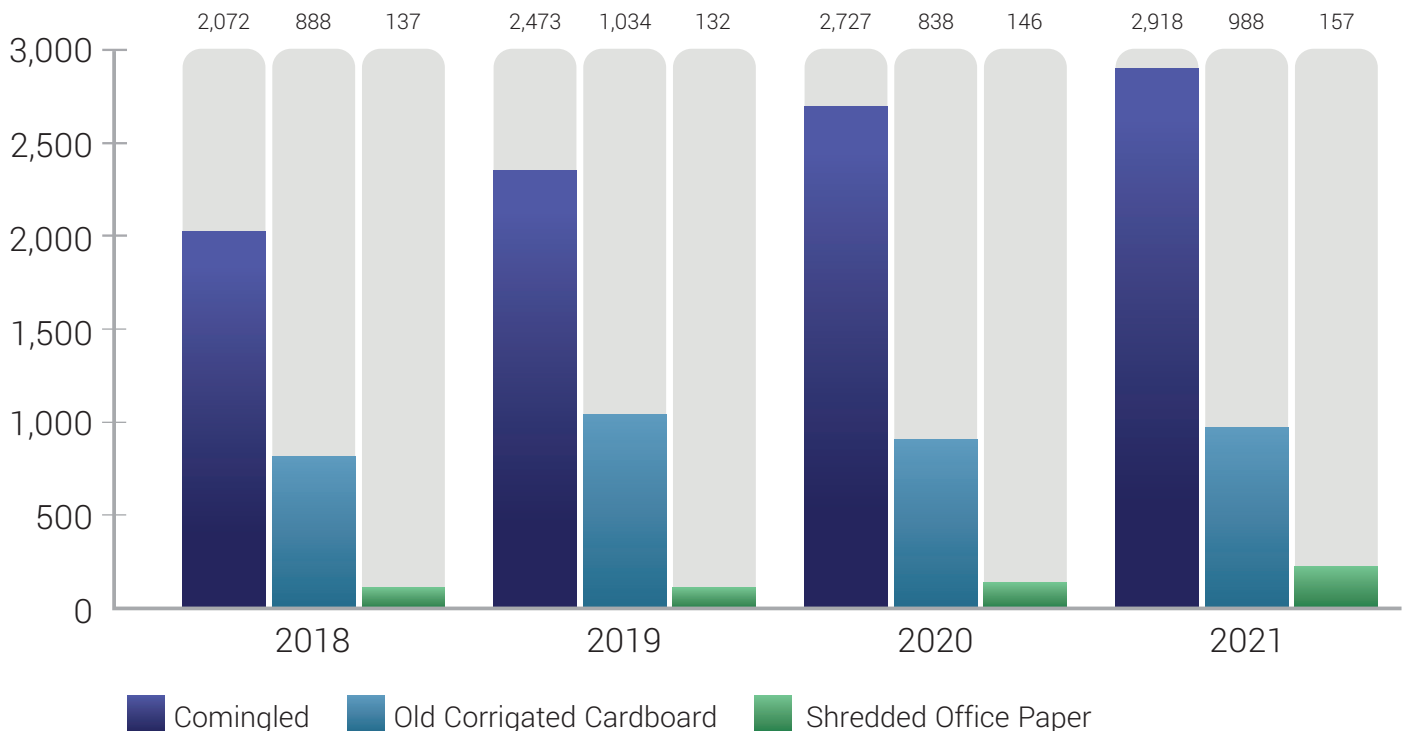
- Recyclable plastics (Beverage containers only)
- Newspaper & flyers
- Aluminum food and beverage containers
- Glass food and beverage containers
- Steel food and beverage containers
- Magazines and catalogues
- Gable top containers
- Boxboard
- Paper directories
- Corrugated cardboard
- Aseptic packaging

Recycling Comparison

Materials (tonnes)	2018	2019	2020	2021
Residential	3,811.62	3,635.00	3,703.63	3,483.96
Commercial	3,096.53	3,643.00	3,704.55	4,062.74
Total	6,908.15	7,278.00	7,408.00	7,546.70

The City of Brandon receives a rebate from the shipping and marketing contractor for the sale of OCC and SOP. The total amount of OCC shipped and marketed in 2021 was 2,321.64 tonnes, which means that approximately 1,333.90 tonnes of OCC was pulled from the comingled recycling stream on the MRF sort line. The 2019 audit maintained that the OCC in the recycling carts remained at approximately 23%. Within the same audit it was also shown that 17% of all materials that was placed in the black lidded cart actually should have been placed in the blue cart and 7% of what was placed in the blue cart should have gone into the black cart. An audit was completed by MMSM contractors in December of 2021 and at this time we have not received the results of the audit.

Recyclables from Commercial Sources



Compost Facility

Since the early 1990's, the City of Brandon has been operating a yard and tree trimming collection facility. In the mid to late 1990's, the facility was upgraded to include a retention pond for the collection of any surface water runoff that originates from the compost windrows.

In 2021, 6,293.58 tonnes of organic material (including tree and wood waste) was collected on site and diverted from the active cell – this represents an decrease of 2,377.26 tonnes from the amount of organic material collected in 2020.

Organic Quantities

Materials (tonnes)	2018	2019	2020	2021
Residential	3,759.90	4,261.00	5,044.42	3,940.02
Commerical	1,630.70	1,608.00	1,863.18	2,193.94
Industrial	1,526.38	1,855.00	1,763.18	159.62
Total	6,916.98	7,724.00	8,670.84	6,293.58

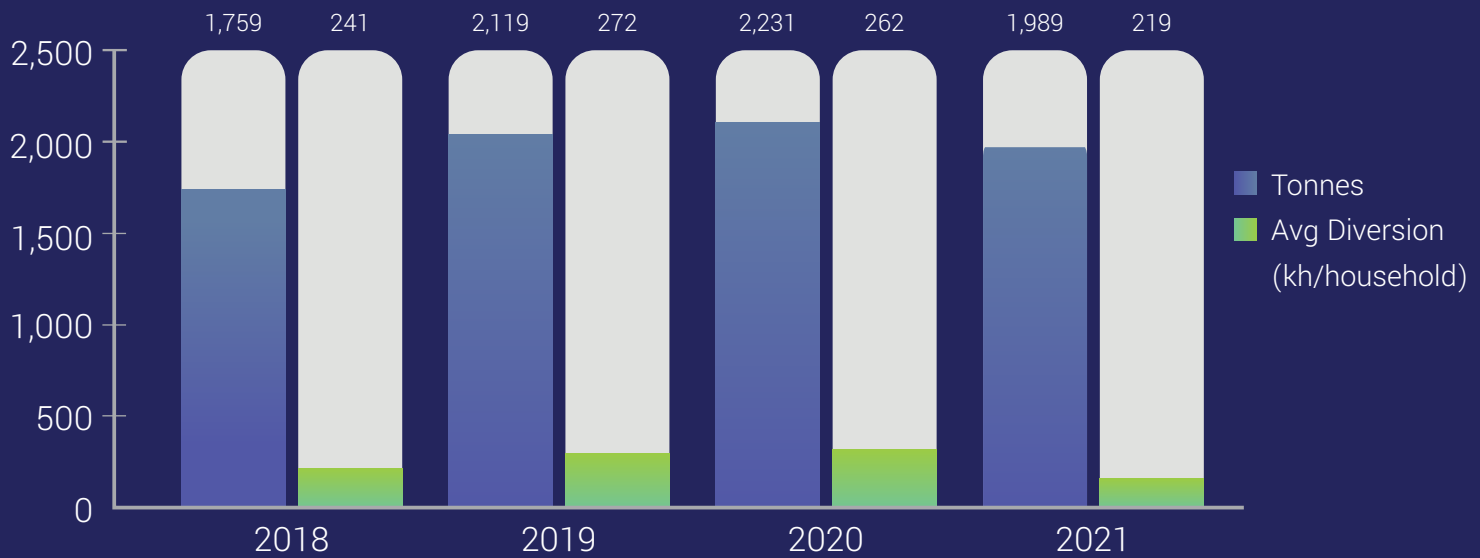
Tree chips made from the tree waste collected on site are utilized in the composting process to facilitate aerobic decomposition of the yard waste and manure feed stock materials. Once the windrowed material has completed the active composting phase, it is placed in a separate curing pile. Once curing is complete, the finished compost is mixed with black dirt at a ratio of 3 parts black dirt to 1 part compost, screened, and then stored on site until it is utilized by the City for landscaping purposes.

Compost was made available for purchase as Soil Amendment in the 2020 City of Brandon Fee Schedule at a cost of \$27.50 per tonne. A total of 301.39 tonnes of compost was sold as soil amendment in 2021. All customers who purchased the product were instructed to mix one part soil amendment with three parts top soil.

By the end of 2021 there were 9,066 participating households registered and participating in the residential green cart program. A total of 1,988,940 kgs of material were collected via this program or an average of 219 kgs per household.



Organic Quantities Trends



In comparison, there are approximately 16,404 households that use the depots or self-haul compostable material to the landfill, which amounts to 650.11 tonnes of organic material diverted from the landfill cell.

Comparison of Collection Systems of Organic Materials

Materials (tonnes)	2018	2019	2020	2021
Depots	309.29	400.79	423.74	381.53
Self-Haul	1,584.63	329.17	401.34	268.58
Curbside	1,784.99	2,119.34	2,231.47	1,988.94
Total	3,518.06	2,849.30	3,056.55	2,639.05



Landfill Gas Volumes

In 2021, we collected and flared 52,436,969 (cfm) of landfill gas. This equates to approximately 8,953 tonnes of CO₂ being diverted from the landfill site during the year, which is an increase of 615 tonnes from 2019.

Given that the average passenger vehicle emits approximately 4.7 tonnes of CO₂ per year, the amount of CO₂ collected and flared from the landfill site in 2021 is equivalent to taking approximately 1,905 vehicles off the road.

Annual Landfill Gas Generation

Materials (tonnes)	2018	2019	2020	2021
Annual CO ₂ Equivalent	12,412	12,404	8,338	8,953
Landfill Gas Flow (scf)	81,590,597	75,138,253	48,346,297	52,436,969

Residential Collection

The City of Brandon's residential curbside collection provides year-round weekly collection of residential recycling and refuse along with the weekly collection of green carts (for participating households) during the months of April through to November. Collection occurs on the same day each week (Tuesday's to Friday's) for each household, which has proven to be convenient for both residents and City operations.

The City of Brandon tracks bins issued to properties using a bin database, where the serial numbers assigned to each recycling, refuse and green bin are linked to the street address of the property they were issued. As there are approximately 16,404 households in the City of Brandon, the average rates of residential waste generation are 659 kg in refuse and 212 kg in recycling.



Waste Reduction & Diversion Initiatives

Residential Drop-off Area

At the Eastview Landfill Site, there are a number of areas that are used for residential and commercial customers. Outside of the entrance gate, there are containers located for the dropoff of mixed recycling as well as yard waste.

Inside the landfill, customers are able to drop off grass, trees, wood, metal, tires and glass in separate piles along the south side of the main landfill road. People delivering these items may, have loads mixed with other items that are non-recyclable. The scale operator is responsible for ensuring that each customer is notified of the need to separate each material into the proper pile and not to contaminate any pile with mixed refuse.

Customers entering the landfill with large amounts of recyclable materials are encouraged to deliver these items directly into the MRF.



Recycling Depots

The recycling depot system was first implemented in the City of Brandon in 1990. At that time there was only three (3) locations for drop off and they were limited to only metals as that was the only product that could be sold locally. At that time, materials were picked up on a weekly basis.

At its peak, before the introduction of the curbside collection system, nine (9) depots were available throughout the City of Brandon for residents to drop off their recyclable materials. The need to service these sites quickly grew from weekly to daily collection.

A major downfall of the depot network is the amount of illegal dumping that occurs at these sites. This has a negative impact on our recycling efforts as many loads become contaminated, and depending on the amount of contamination, may need to be landfilled. Unfortunately, due to the depots being unmanned, large volumes of items that are not recyclable end up at these locations. In 2021, the City of Brandon collected 477.80 tonnes of recyclable materials from its network of depots located throughout the City. The location of depots that accept recyclable materials are:

1. Sportsplex
2. 34th Street and Victoria Avenue
3. Keystone Centre
4. Eastview Landfill

As well as recyclables, the City also offers the collection of compostable material at the following depot locations:

1. Sportsplex
2. 34th Street and Victoria Avenue
3. Westridge Community Centre
4. 1st Street and Richmond Avenue
5. Rideau Park
6. Eastview Landfill



E-Waste

In June of 2007, the City of Brandon in partnership with Green Manitoba started a pilot project to start an E-waste collection program for residential customers. This program would run from May to the end of September each year and became a year round program in 2010. City staff stack e-waste items on pallets and secures them for travel. Once a sufficient number of pallets of e-waste products are collected, the product is transported to an EPRA-approved facility for dismantling and recycling. Approximately 86.88 tonnes of e-waste was diverted from the landfill in 2021, which represents a slight increase from the quantity collected in 2020.

E-Waste

Materials (tonnes)	2018	2019	2020	2021
Annual Total	115.89	110.21	76.73	86.88

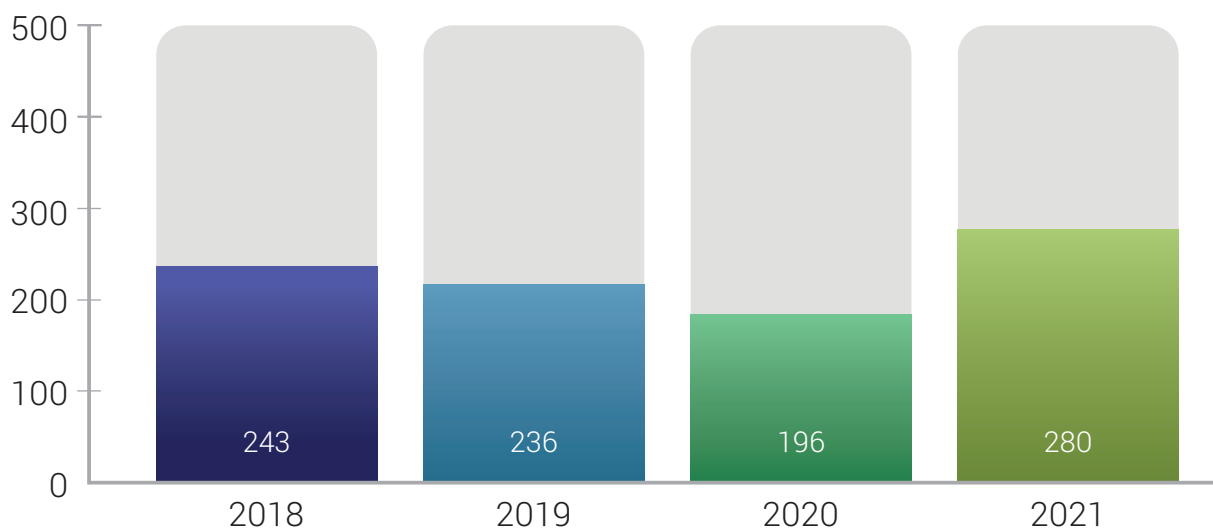
Tires



Tire Stewardship Manitoba was launched in April of 2008 as a not-for-profit organization to help manage the problem of scrap tires. In 2021, 279.69 tonnes of scrap tires were removed from the Eastview Landfill Site.

Properly managed scrap tires reduce environmental risk and create jobs and economic opportunities in Manitoba. Manitoba’s scrap tire products are sold locally and internationally. Scrap tires can be used to make flooring products for agricultural, recreational, and industrial use. They are used for artificial turf fields, rubberized asphalt, blast mats, geo-technical projects and energy recovery.

Annual Trend of Scrap Tire Collection & Removal (Tonnes)

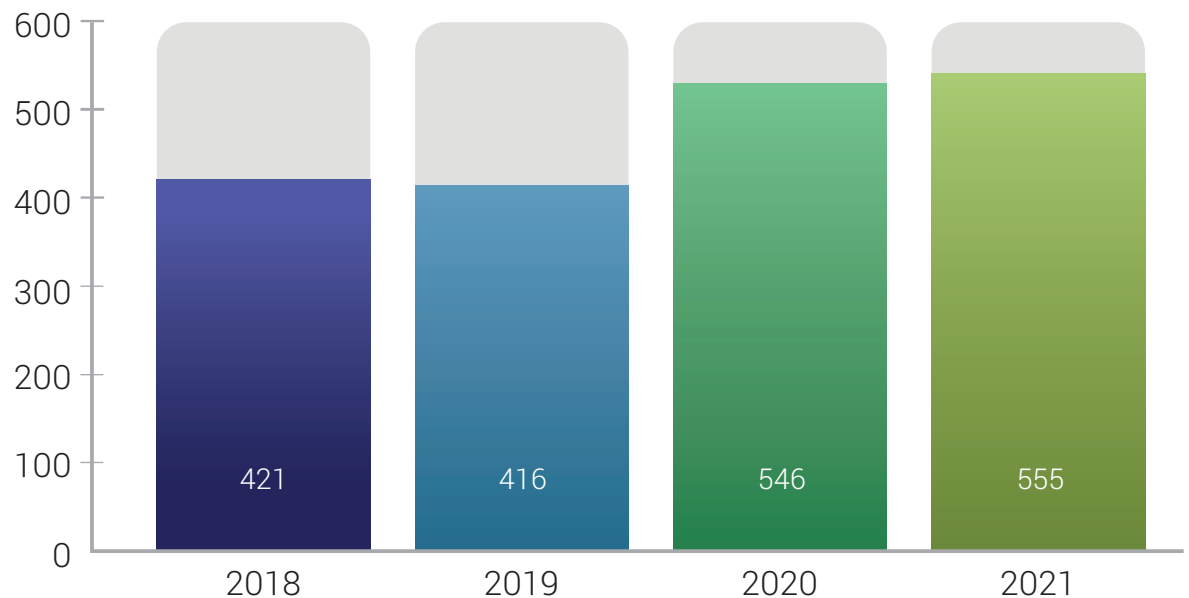




Metal

Household appliances that do not have freon devices are stockpiled on site and sent to a processor when we have a full load of material. In 2021 34 loads of scrap metal was shipped away for processing, These 34 loads accounted for approximately 555 tonnes of material which was a small increase over 2021.

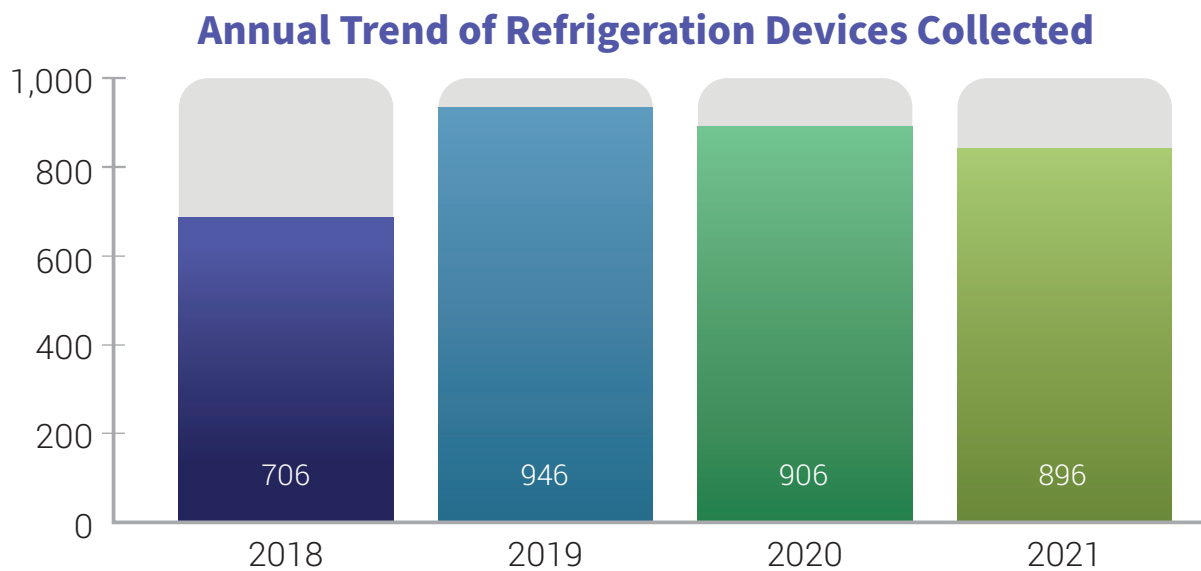
Annual Trend of Scrap Metal Collection & Removal (Tonnes)



Refrigeration & Air Conditioning Equipment

These products rather than being degassed onsite and then being removed by the contractor are now being handled by Puresphera out of Winnipeg where they go through a much more detailed process of recycling all the different parts in a much more environmentally friendly manner. With their process, 96% of the raw materials are recycled including the separation of the hard materials (mixed plastics) and the soft materials (polyurethane foam).

In 2021, a total of 896 devices containing refrigerant were delivered to the Eastview Landfill Site for proper disposal



Units containing refrigerant (or halocarbons) are stored in a segregated location on site until proper disposal. The City of Brandon continued its agreement with a third-party contractor (Puresphera) for 2021 to both remove and destroy the refrigerants from the device and then recycle its components. Puresphera decommissioned a total of 1,278 devices throughout the 2021 calendar year, including:

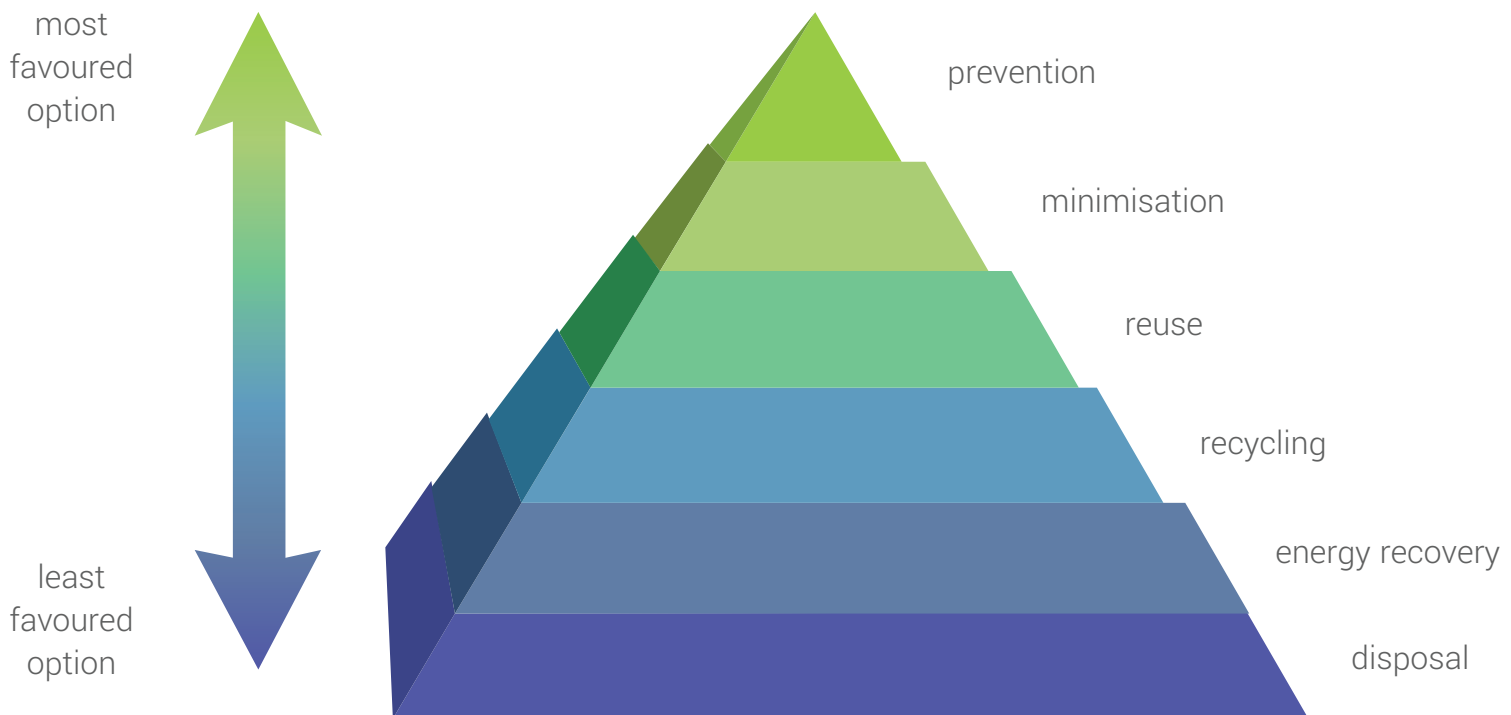
- Refrigerators 545
- Water coolers 10
- Air conditioners 400
- Freezers 96
- Dehumidifiers 127

The proper removal and disposal of the refrigerants from these units has avoided the release of equivalent CO₂ gas into the atmosphere. Furthermore, Puresphera's method of breaking down each device for further recycling has resulted in the recovery of the following from the devices:

- Ferrous metals recycled
- Mercury
- Non-ferrous metals recycled
- Recycled oil
- Plastics
- CFC's collected & destroyed

Extending Landfill Life

The main purpose in providing alternatives to disposal is to ensure the health and safety of residents, not only in Brandon, but of anyone living in the region that may be impacted by potential impacts to ground water supply. Through these efforts, we also gained the added benefit of extending the life of our current landfill. In the hierarchy of waste, there are 7 options for handling waste, with the least favored being disposal and the preferred option being prevention.



Environmental Protection Plan

Leachate Management

In 1994, the Sanitation Section developed its first lined waste cell in phase 7 of the cell development plan. This cell was lined using a clay max liner. In addition to the liner, a leachate collection system was included in the design of this cell. The purpose of this collection system was to ensure that leachate that is produced is contained on site before it can have a negative impact on the surrounding environment.

The Eastview Landfill Site has 8 manholes around the perimeter of the site that collect leachate before it is able to migrate into the ground water offsite.

In addition to phase 7 completed in 1994, phases 11, 12 & 13 all drain into a manhole at the north end of cell 11, where it is then pumped directly to the leachate storage tanks located directly west of the old scale building. The pumping of leachate is weather-dependent and typically occurs between May and October.

Phases 8, 9 & 10 have been closed and capped with 3 to 5 feet of clay and the volume of leachate produced in these cells is much less than when these cells were active. This has reduced the need to have the manholes pumped on a regular basis. Initially these manholes were pumped weekly, and sometimes daily during periods of high precipitation, whereas now these manholes are periodically checked and only pumped as needed.

Development of cell 13 was planned in conjunction with cell 11 so that leachate produced from cell 13 runs into cell 11 and then drains to the manhole at the north end. Once leachate is contained in the storage tanks, the City of Brandon's Wastewater Treatment Facility can control the flow of the leachate to its site for treatment.

Leachate is produced when precipitation percolates through landfilled refuse and has leached out some of the chemical and physical constituents of the refuse. Effective leachate management involves collecting leachate at the bottom of a lined refuse cell with perforated pipes that collect and transport the leachate to a manhole where it is stored before it is treated.



Ground/Surface Water

Monitoring Program

In 2018, the ground water monitoring contract was issued for tender and KGS Group was awarded the contract to conduct a 5-year groundwater and surface water monitoring program at the Eastview Landfill Site. According to the streamlined sampling and monitoring program approved by Manitoba Sustainable Development in December 2017, the water quality monitoring program includes:

- Annual measurement of overburden (till and sand units) water levels within all 30 on-site groundwater monitoring wells;
- Establishment of a Primary Monitoring Network consisting of 10 onsite wells, 2 off-site wells, 3 surface water pond locations and a leachate monitoring location to be sampled on an annual basis;
- Establishment of a Secondary Monitoring Network consisting of 18 on-site wells and 1 offsite well sampled once every three years;
- Creation of set groundwater and surface water laboratory analytical packages, tailored to site conditions and current best practices.

Contaminated Soil Remediation Facility (S.R.F.)

Located at the Eastview Landfill Site, directly east of the tire stock pile, is the soil remediation facility. At this location, contractors deliver soil contaminated with hydrocarbons from soil remediation projects or environmental accident sites. Soil is considered contaminated when it is found to be above the required CCME Guidelines.

The material is treated on site with the use of a romo plow attached to a track type dozer and once the level of hydrocarbons meets the guidelines stated in Guideline 96-05, Treatment Disposal of Petroleum Contaminated Soil, June 1996 (revised April 2002) it becomes a beneficial product that can then be used as cover material in the cell. The Eastview Landfill Site received 2,643.31 tonnes of contaminated soil in 2021 – an increase of 2,550.38 tonnes delivered to the site in 2021.

The site at the landfill has been developed to ensure that any surface water runoff is captured in the retention pond at the north end of the landfill.



A. Soil Receiving and Placement

The main objective of the S.R.F. at the Eastview Landfill Site is to reduce hydrocarbon concentrations to acceptable levels such that the soils are suitable for appropriate re-use.

A permit is required for disposal of contaminated soils. Permits are sold and issued by the City of Brandon. Any loads of contaminated soil arriving at the landfill without a proper permit will not be accepted for remediation. The supervisor may also request lab analysis reports from the company doing the excavation.

- 1. Low Concentration Levels:** Contaminated soil which contains levels below Manitoba Level III criteria for soil will be used directly as landfill cover material upon approval by the Site Supervisor and the local regional office of Manitoba Environment.
- 2. Permits:** Upon arrival of a load of contaminated soil with proper permits, the Scale Operator shall record the permit number and attach it to any weigh tickets relating to the permit for documentation and invoicing.
- 3. Location:** The S.R.F. is clearly marked by signs and marker posts to prevent unauthorized access onto the treatment area and possible disturbance or compaction. When the driver is unfamiliar with location and placement procedures for the soil remediation facility, the scale operator shall radio the site supervisor or any available site personnel to escort the driver to the S.R.F. area and place the load accordingly depending on the particular type of contaminate.
- 4. Load Placement:** All loads placed in the treatment area should be spread in an even layer in a manner that avoids compaction and inter-mixing of different soil shipments. Occasionally (depending on placement area available), soil may be placed in windrows which should not exceed 1 m in height. The windrows will require periodic mixing in a similar fashion to a treatment layer.

B. Soil Remediation Procedures

- 1. Treatment Layer:** The final thickness of the treatment layer normally should not exceed 300 mm or the effective mixing depth of on-site equipment (rome plow), whichever is less.
- 2. Debris:** Boulders and other large debris should be removed from the treatment layer to avoid potential damage to the tilling/aeration equipment, and to provide for optimum soil tillage.
- 3. Aeration:** Handling of material will be done by employees that have read and understands the proper handling techniques that have been put forward in the GOG's and SOP's . The material is to be aerated by our rome plow which will be pulled with a track type dozer. Depending on the stability of soil, more than 1 pass may be required to turn and fully aerate the impacted soil.

- 4. Irrigation:** The treatment layer shall be thoroughly aerated (mixed) on a regular basis. In most cases, a tillage frequency of 1 to 2 weeks should provide optimum soil aeration. Periodic irrigation of the treatment layer may be necessary to avoid desiccation or prevent excessive windblown dust. However, saturation of the soil should be avoided to prevent run off from occurring and potential migration of contaminants outside S.R.F. facility.
- 5. Equipment Contamination:** After material has been aerated, the same plow is to be placed in an area that will not interfere with ongoing work, but must remain in the soil remediation facility. The track type dozer must be cleaned off so no contaminants leave the area and have the chance of falling off and contaminating other areas.

C. Inspections and Maintenance

Regular inspections shall be made by the operator at the time of aeration. They will report to the site supervisor any:

- Erosion, slope increase or damage to the berms surrounding the S.R.F. area.
- Excessive “ponding” of surface water.
- Improper placement of contaminated loads.
- Visible signs of migration or leaching of surface water and/or contaminants.

Once reported to the supervisor, they shall take corrective actions to insure the proper maintenance of the S.R.F.



Household Hazardous Waste (HHW)

In 1999, the City of Brandon, in partnership with the Rotary Club of Brandon, implemented a pilot HHW collection depot, which was open to the public two times each year at the Civic Service Complex on Richmond Avenue East. Residents were encouraged to drop off any unwanted Household Hazardous Waste at the pilot depot so that the product could be disposed of in an environmentally responsible manner.

Starting on May 1st, 2012 the first phase of the Product Care Manitoba program was implemented with the following locations being allowed to accept paint for disposal.

- Windsor Plywood
- J & G Rona
- Janzen's Paint & Decorating
- General Paint
- Brandon Home Hardware

Annual Trend of HHW Material Collected (Tonnes)

Materials (tonnes)	2018	2019	2020	2021
Annual Total	25.65	30.78	47.25	58.19

A year-round HHW depot was set up at the landfill site in the fall of 2012 and since that time, the depot has seen a steady flow of visitors to the facility. Landfill staff receive training from Product Care Manitoba and Miller Environmental during regular site visits to ensure the safe and proper handling of these potentially dangerous products takes place.

This program is facilitated by Product Care on behalf of product manufacturers and retailers in Manitoba in response to the provincial Household Hazardous Material and Prescribed Material Stewardship Regulation. The cost of the Manitoba HHW program is fully funded by Environmental Handling Fees that manufacturers and retailers pass onto the consumer.

The HHW depot at the landfill is equipped to accept the following items from residential sources:

1. Fluorescent lights
2. Flammables
3. Acids
4. Aerosols
5. Caustics
6. Corrosives
7. Oxidizers
8. Paint
9. Toxins
10. Physically hazardous materials such as non-refillable gas cylinders

2020 was the first full year of the new HHW depot since it was completed in the fall of 2019. With the new facility operational we continue to see an increase in activity at this location. With greater awareness we hope to continue this trend of disposing of these products in a more environmentally friendly manner.

Eco Centre

In 2021, a total of 11,500 litres of used oil, 72 kg of used oil filters and 221 kg of used oil and antifreeze jugs were collected at the ECO centre. All used oil, filters and containers are collected on a regular basis by Green For Life Environmental where they are taken to be processed and recycled into a valuable new product.

Operational Information

Contingency Plan Implementation

In December of 2021, the Sanitation department adopted its new Landfill Contingency/Emergency Response Plan in order to meet the requirements of its new operating permit. As required by the permit, it was developed and shall be maintained in accordance with the Industrial Emergency Response Planning Guide (MIAC September, 1996). In 2021, there were no major incidents that occurred at the Eastview Landfill Site.

Nuisance Control

All nuisance complaints reported to landfill staff are promptly investigated by the Manager of Solid Waste. Once the nature, location and quantity of the nuisance has been determined, management will then notify either animal control or the contractor to take the proper course of action in managing the situation.

In 2019, sightings of nuisances were within reasonable levels when compared to activity seen in prior years. The Material Recovery Facility continues to be monitored on a monthly basis by the Poulin's, the contractor responsible for this service and no areas of concern were brought to our attention in 2019.

Odour and Noise Control

The Eastview Landfill Site does not typically have any issue with noise control due to the location of the facility which is approximately 0.5 miles from the nearest residential dwelling. The use of daily cover has proven successful in mitigating the unpleasant odours that can originate from the site.



Training of new staff on weigh scale operations takes place with guidance from the scale operator to ensure that all procedures and tasks are completed in a consistent manner. Training includes, but is not limited to, proper opening procedures, account setup, weighing procedures, reporting standards, monitoring of loads, and proper closing procedures.

Weigh Scale Operations

The inbound and outbound scales for the Eastview Landfill site are monitored and managed by a scale operator who works out of the scale building located between the scales. The scale operator utilizes a weigh scale program called PC Scale (implemented in July 2014) to help expedite traffic flow into and out of the landfill site. The scale operator is responsible to both monitor and control the material accepted into the landfill. If the scale operator becomes suspicious of any incoming loads, they are able to communicate via two-way radios with the landfill equipment operators so that they can closely monitor the hauler as the load is tipped.

All vehicles entering the site are weighed on the inbound scale upon entry and are weighed again on the outbound scale prior to exiting the site to obtain a net weight and customers are then billed according to City of Brandon Fee Schedule. The scale operator is also responsible for setting up new customers and updating existing customer information as required. The scale operator advises customers on the location that drop off will occur depending on the type and amount of waste brought to site.

Based on information provided by the customer, the scale operator is able to segment loads by material type to help determine the amounts of each type of waste that are entering the site on any given day. The scale operator is also responsible for ensuring that the appropriate permits have been obtained by the haulers for special wastes such as asbestos and contaminated soil.

Eastview Landfill Site

900 Richmond Avenue East

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