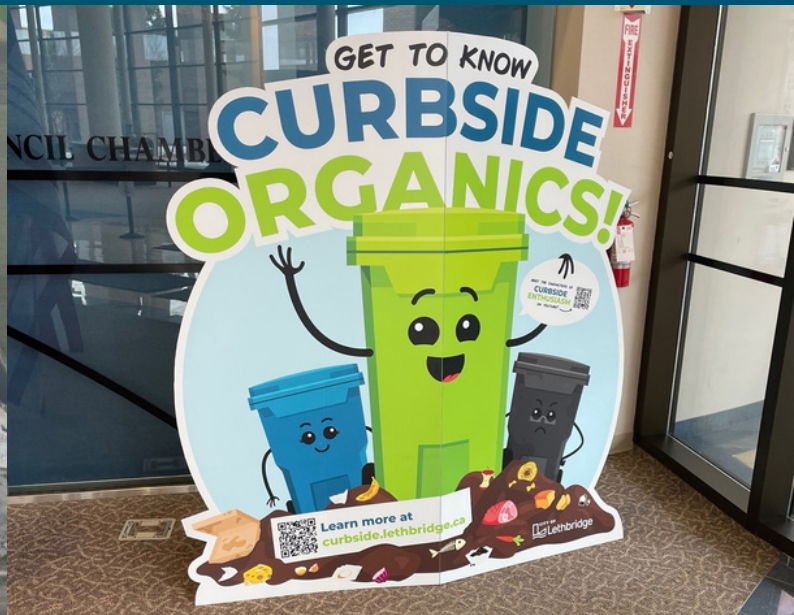


WASTE & ENVIRONMENT

2023 Annual Report



TERRITORY ACKNOWLEDGEMENT



For many generations, the place we now call Lethbridge had another name given to it by the Siksikaitsitapi, the Blackfoot Peoples. This name, Sikóóhkotok, is a reference to the black rocks found in the area.



The City of Lethbridge acknowledges that we are gathered on the lands of the Blackfoot people of the Canadian Plains and pays respect to the Blackfoot people past, present and future while recognizing and respecting their cultural heritage, beliefs and relationship to the land. The City of Lethbridge is also home to the Metis Nation of Alberta, Region III.

Sikóóhkotok

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CITY OF

Lethbridge

2023

YEAR IN REVIEW

The Waste & Environment (W&E) department remains dedicated to advancing sustainability and environmental stewardship. This commitment is evident in the successful launch of Phase 2 of the Curbside Organics Program, which provided green cart service to over 34,000 households citywide. This program reflects our community's dedication to reducing organic waste sent to the landfill, thus lowering greenhouse gas emissions. Furthermore, the full implementation of the Mandatory Organics and Recycling program for industrial, commercial, and institutional sectors underscores our efforts to divert valuable resources from the landfill. These essential waste management programs align with the targets outlined in the Waste Diversion Policy (CC54), guiding our community toward more sustainable practices. W&E will continue to support and expand outreach efforts to maximize material collection and diversion in the community.

In spring 2023, the opening of the Organics Processing Facility at the Waste and Recycling Centre (WRC) marked a significant milestone for Lethbridge's ability to compost organic materials locally. Since then, the facility has processed more than 7,300 metric tons of organic material, resulting in the production of Category A status compost, which is now available for purchase on-site. Additionally, W&E held multiple compost giveaway events in 2023, distributing over 42,500 kgs of compost back to the community.

In the area of the Environment and Engineering, engagement efforts for the Climate Adaptation Action Plan and Strategy, along with the Water Conservation Plan, demonstrate proactive steps towards addressing climate change and ensuring responsible water usage now and into the future. As part of our commitment to climate resilience, we've established supporting infrastructure, including the installation of 22 charging stations across various locations to encourage the use of electric vehicles. Additionally, the completion of the Solar Carport project, located at the LSCO parking lot and connected to City Hall, further demonstrates our dedication to renewable energy solutions. Lastly, the successful operation of the Landfill Gas collection system through its first year highlights our ongoing efforts to minimize environmental impacts and reduce greenhouse gas.

The Waste & Environment department will continue to provide environmentally-safe, timely, and cost-effective waste collection, diversion, recycling, organics and disposal, while also providing guidance on sustainability and the environment for more than 100,000 residents and other commercial customers in Lethbridge.

SERVICE LEVEL AREAS



OUR SERVICE PROGRAMS

RESIDENTIAL GARBAGE

- Bi-weekly garbage collection
- Two cart size choices - 240 L + 360L
- Includes two large item service pick ups/year and up to 250 kg/load free on Saturdays at the landfill
- Multi-family serviced through common collection

RESIDENTIAL RECYCLING

- Bi-weekly recycling collection
- Two cart size choices - 240L + 360L
- Multi-family serviced through common collection

RESIDENTIAL ORGANICS

- Weekly (Summer), bi-weekly (Winter) organics collection
- One cart size - 240 L
- Multi-family serviced through common collection

RECYCLING STATIONS & YARD WASTE SITES

- Three recycling stations North, South, and West locations for residential use only
- Includes yard waste sites drop-off available from April until November
- Includes fall leaf and Christmas tree collection

DIVERSION PROGRAMS & EDUCATION PROGRAMMING

- Waste Wizard and Loop collection reminders
- Blue Sky Centre and Waste & Recycling Centre tours
- Community surveys and What We Heard reports
- Outreach events and communication
- Oops tagging and collection outreach

LANDFILL & HYDROVAC WASTE FACILITY

- The landfill receives mixed solid waste and industrial soil and waste.
- The Hydrovac Waste Facility receives hydrovac waste from businesses.

MATERIAL RECOVERY FACILITY

- Opened in 2019, the MRF receives mixed recycling from residential and commercial sectors

ORGANICS PROCESSING FACILITY

- Opened in 2023, the OPF receives residential source separated organics and commercial organics included packaged organics.

PUBLIC & CONSTRUCTION DROP-OFF

- PDO for residents includes household hazardous, electronics, tires, paint and more
- CDO for businesses includes wood, concrete, shingles, drywall and more

BUSINESS RECYCLING & PROGRAMMING

- Industrial, commercial and institutional and construction and demolition waste diversion support.
- Mandatory recycling and organics program for businesses

ENGINEERING & ENVIRONMENT

- Engineering includes any construction or Capital Improvement projects
- Environment includes the City's Sustainability work that includes focus areas of land, air, water, energy and waste.

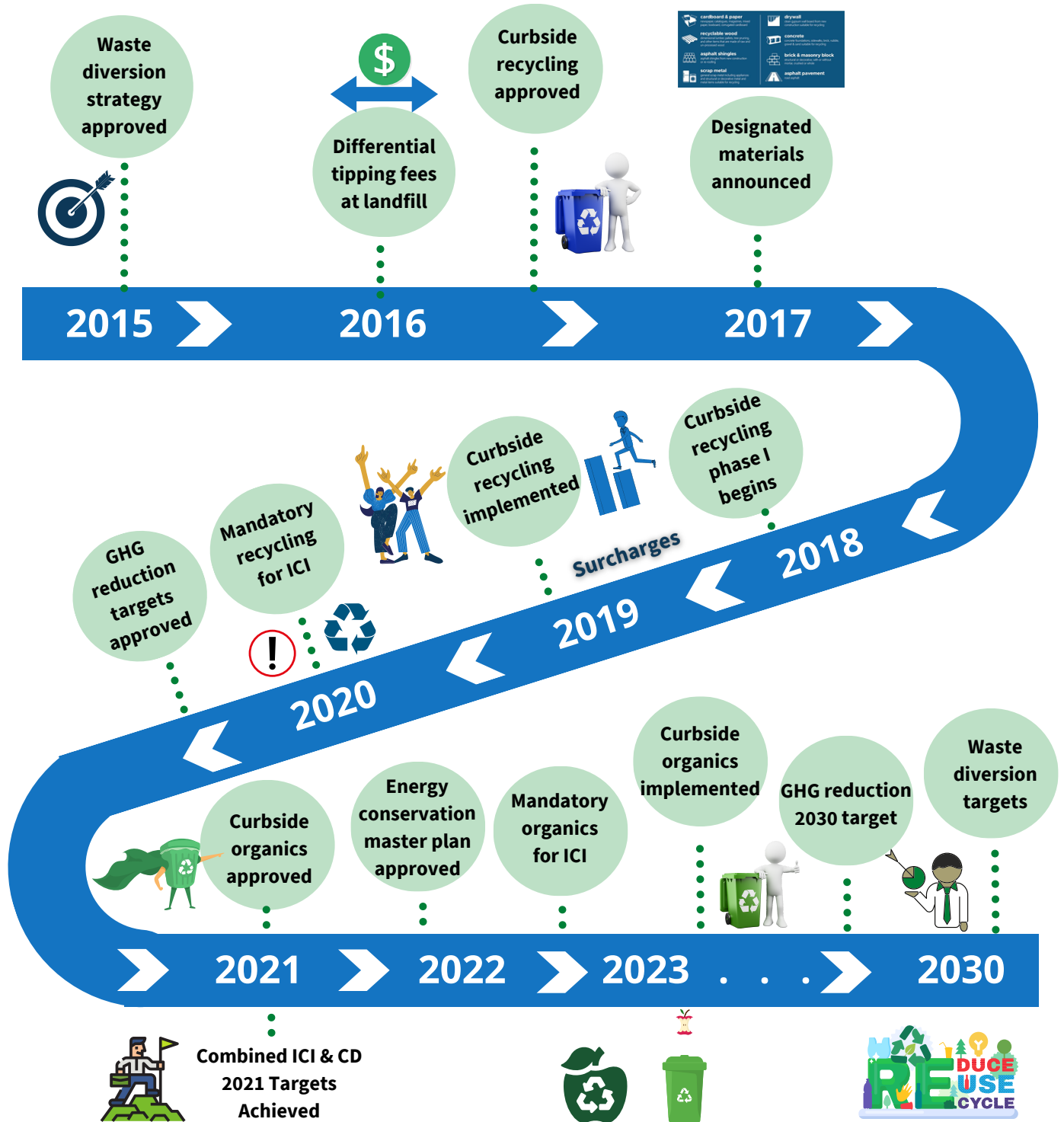


LETHBRIDGE WASTE GENERATION

	2013 Baseline	2021 Target	2023 Actuals	2030 Target
Residential kg/capita	330	180	236	140
Residential Waste Diversion %	20%	50%	36%	65%
Residential Waste Reduction %	0%	30%	30%	45%
Industrial, Commercial & Institutional (ICI) + Construction & Demolition (C&D) kg/capita	860	640	602	470
ICI + C&D Waste Reduction %	0	25%	30%	45%
Total Lethbridge kg/capita	1,190	820	838	610
Total Lethbridge Waste Reduction Since Baseline	0%	30%	30%	50%

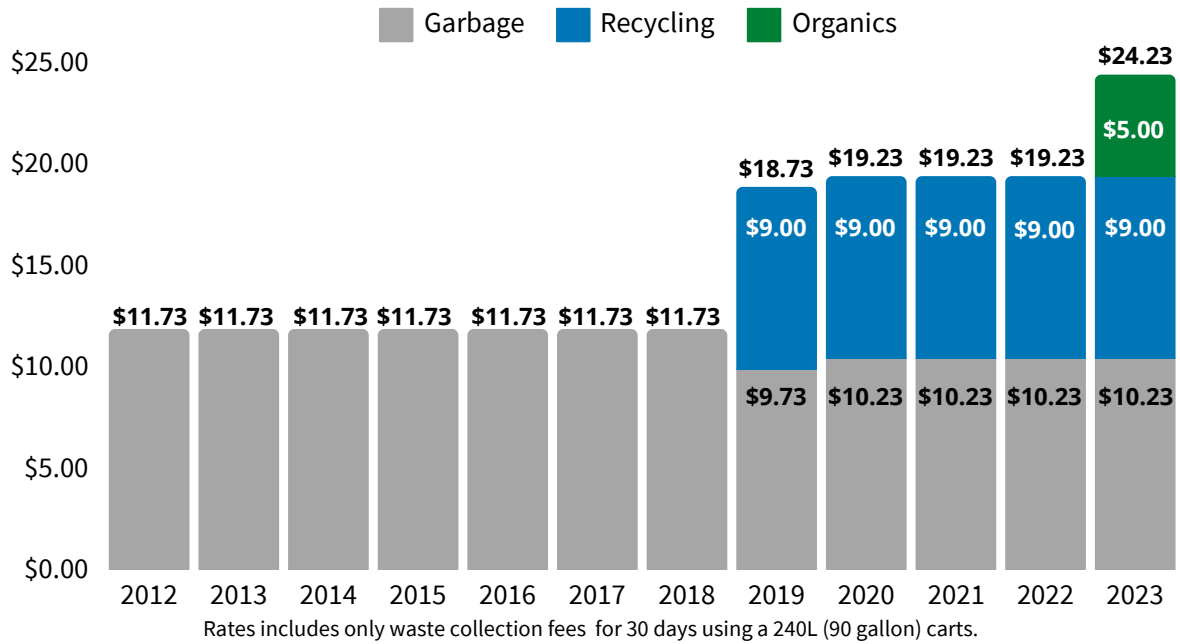
**2030 Waste Disposal and Waste Reduction % targets
based on Waste Diversion Policy CC54**

WASTE & ENVIRONMENT ROADMAP

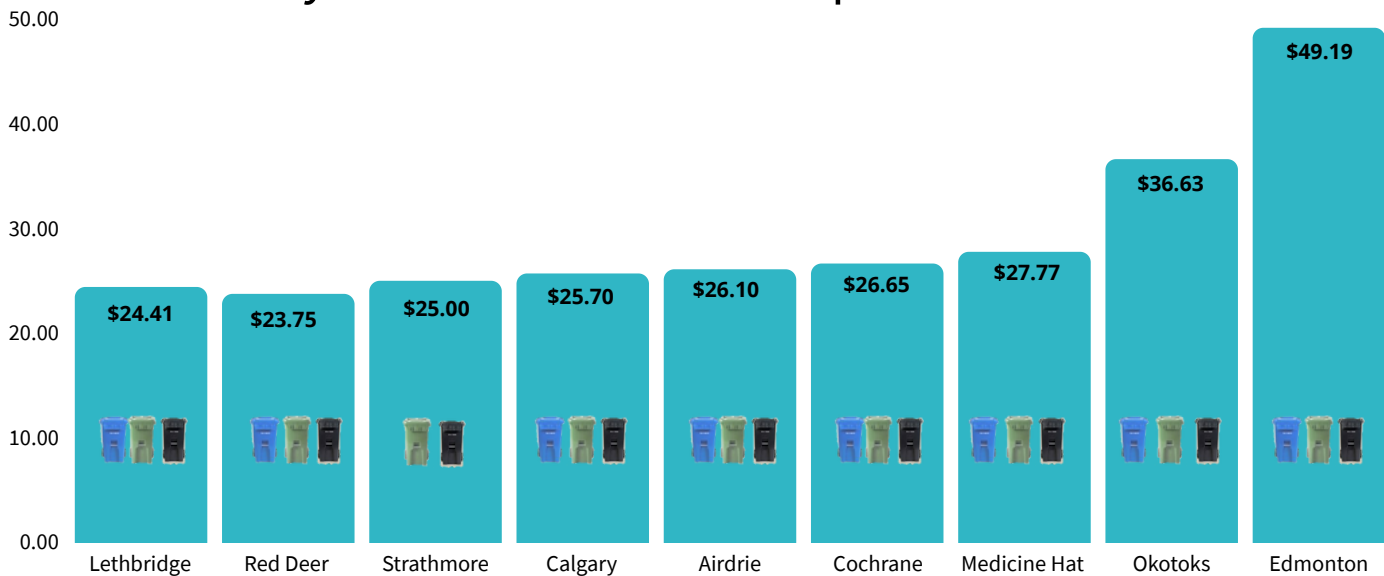


UTILITY RATES

Utility Rates History in Lethbridge



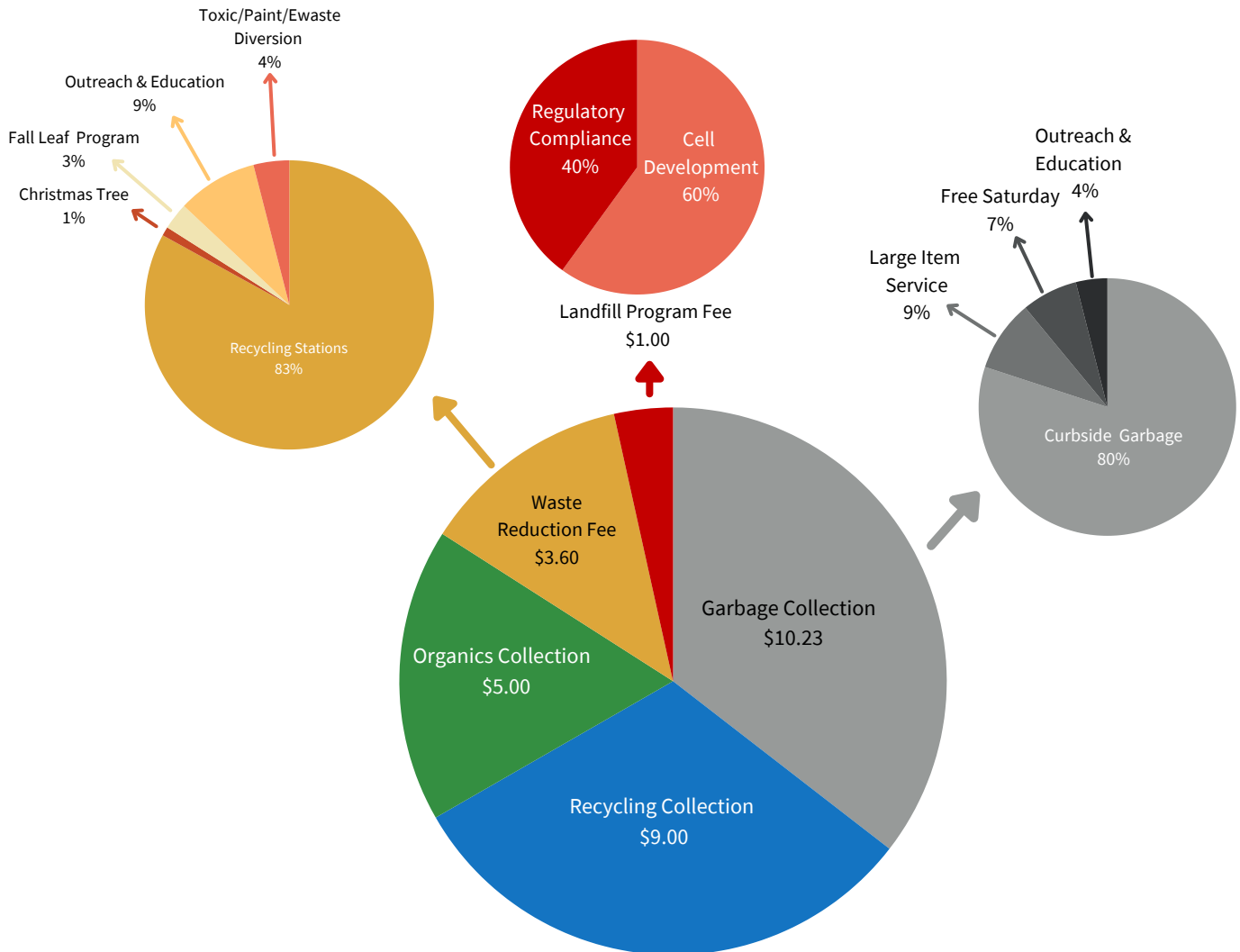
Utility Collection Rates Comparison in Alberta



1- Rates comparison includes only waste collection fees for 30 days using a 240L (90 gallon) carts.
 2- All rates are as February 2024

UTILITY RATES BREAKDOWN

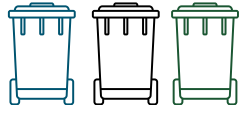
Monthly Residential Rate for all Services



Service Program	240L Monthly Rate *	360L Monthly Rate *
Garbage Collection	\$10.23	\$11.94
Recycling Collection	\$9.00	\$9.00
Organics Collection	\$5.00	\$5.00
Waste Reduction Fee	\$3.60	\$3.60
Landfill Fee	\$1.00	\$1.00
Total Utility Fee	\$28.83	\$30.54

* Rates calculated for 30 days

WASTE FACTS 2023



Waste Operations
picked up over
1.87 MILLION
recycling, organics, and garbage
carts from Lethbridge households



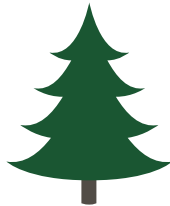
The MRF has shipped over
36,997
Tonnes of recyclables to
market since opening



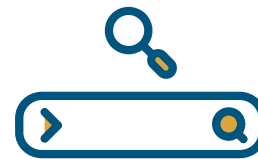
21%
of waste delivered to the
Waste & Recycling Centre was
diverted from the landfill



Corporate Greenhouse Gas
emissions were reduced
17%
from 2018 baseline levels



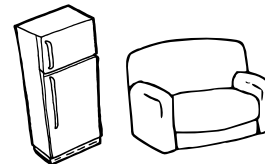
1,138
Christmas Tree
Pick-ups



43,313
WASTE WIZARD
searches



The Waste & Recycling Centre
processed
133,942
tonnes of waste



3,515
Large Item Service
pick-ups

WASTE COLLECTION

2023



3,429

tonnes of
Curbside Recycling collected



18,371

tonnes of
Curbside Garbage collected



5,401

tonnes of
Curbside Organics collected



436

Fall Leaf
service requests



199

Demolition bins service requests

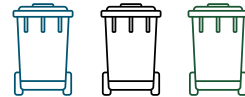
879

Tonnes of recycling hauled to the
Recycling Stations



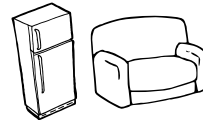
1.87 MILLION

recycling, organics, and garbage carts
collected from Lethbridge households



31,646

new carts delivered



3,515

Large Item Service
pick-ups



11,129

Service Requests



44,878

of Yard Waste Visits

1,376

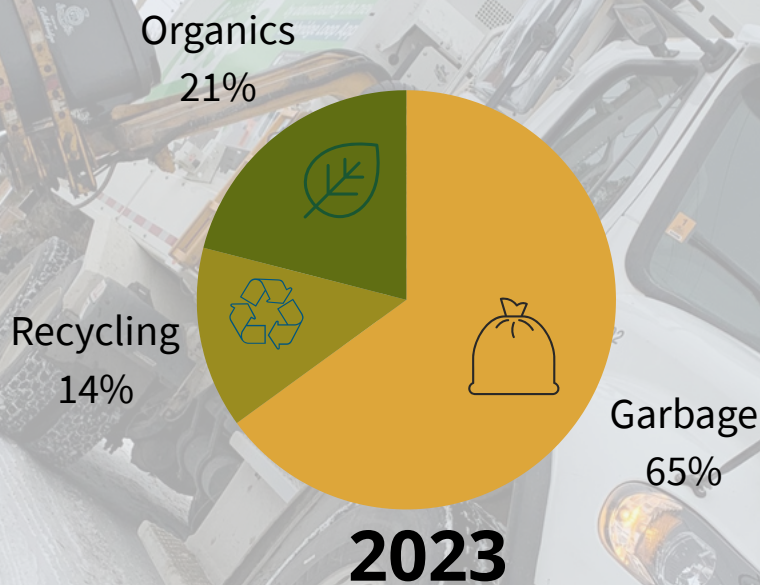
Tonnes of yard waste hauled to the Yard
Waste Sites

WASTE COLLECTION

Services & Programs

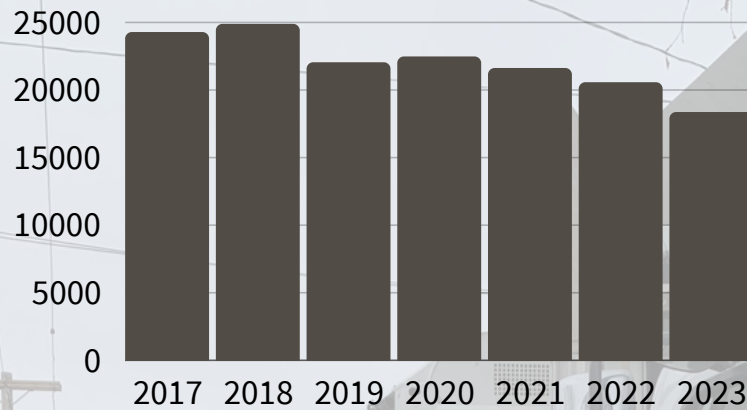
- Residential bi-weekly garbage collection
- Residential bi-weekly recycling collection
- Residential organics collection
- Multi-family recycling collection
- Corporate waste diversion program
- Commercial garbage collection
- Recycling Stations
- Seasonal fall leaf collection
- Seasonal yard waste sites
- Large item service
- Clean community program
- Christmas tree recycling
- Assisted collection program

Waste Collection Material Type Breakdown







Residential Bi-Weekly Garbage Collection

ANNUAL CURBSIDE GARBAGE COLLECTION TONNES



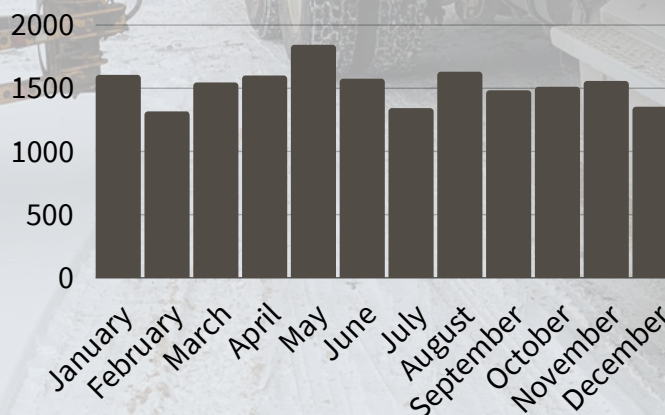
2023 Black cart waste audit results

	Organics	37%
	Garbage	42%
	Recycling	14%
	Product Stewardship	7%

In 2023, there was a 14% drop in total organics found in garbage carts from the previous years (2019-2022)

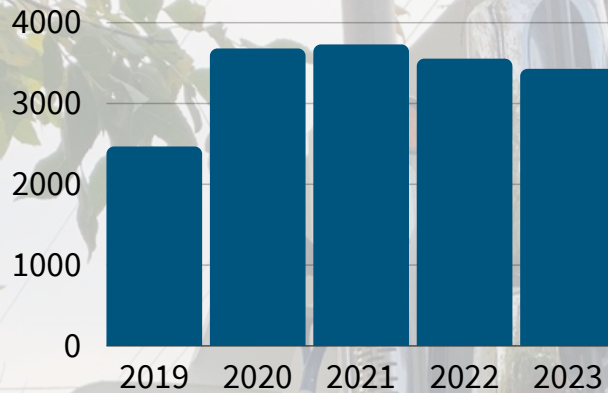
↓ **14%**

2023 MONTHLY CURBSIDE GARBAGE COLLECTION TONNES







Residential Bi-Weekly Recycling Collection

ANNUAL CURBSIDE RECYCLING COLLECTION TONNES



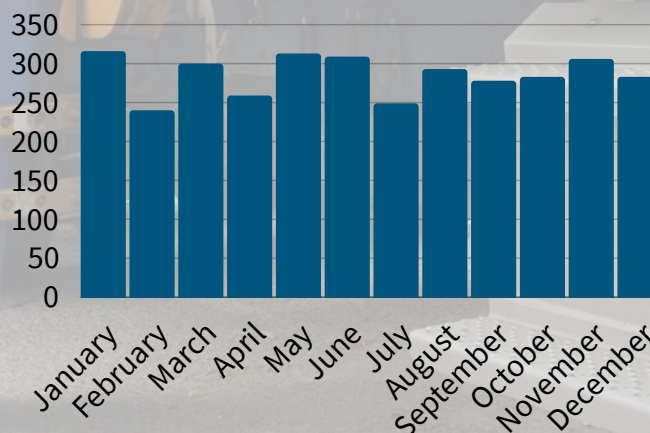
2023 Blue cart waste audit results

	Recycling	87%
	Garbage	6%
	Organics	5%
	Product Stewardship	2%

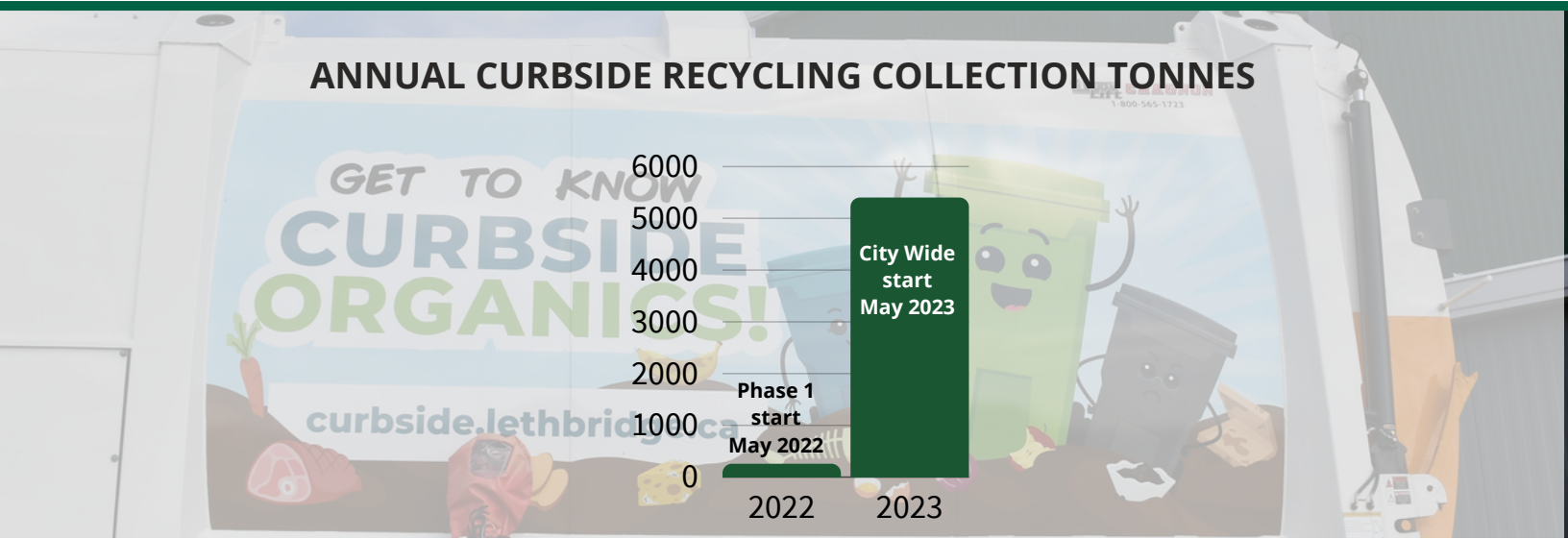
87%

of materials in the
blue carts is
recyclable material

2023 MONTHLY CURBSIDE RECYCLING COLLECTION TONNES



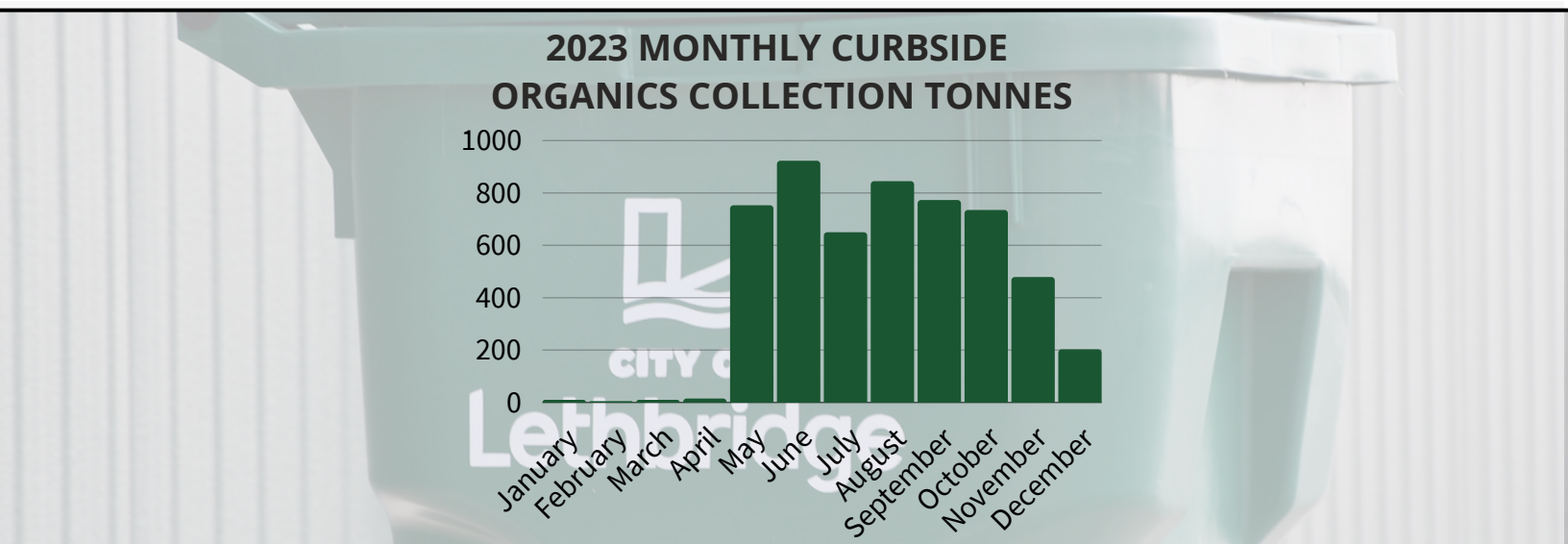
Residential Weekly (Summer) + Biweekly (Winter) Organics Collection



2023 Green cart waste audit results

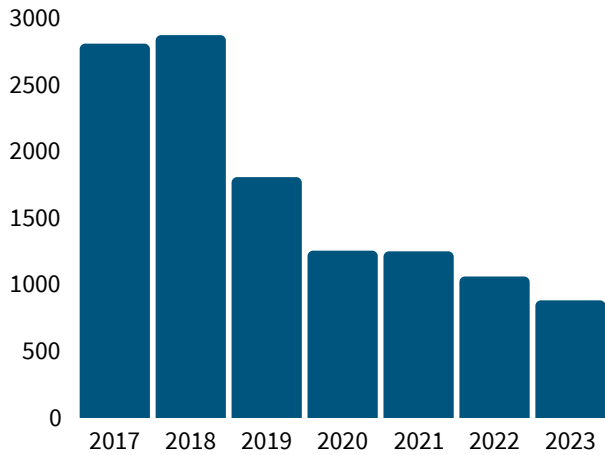
	Organics	96%
	Recycling	3%
	Garbage	1%
	Product Stewardship	0%

96%
of materials in the
green carts is
compostable
material

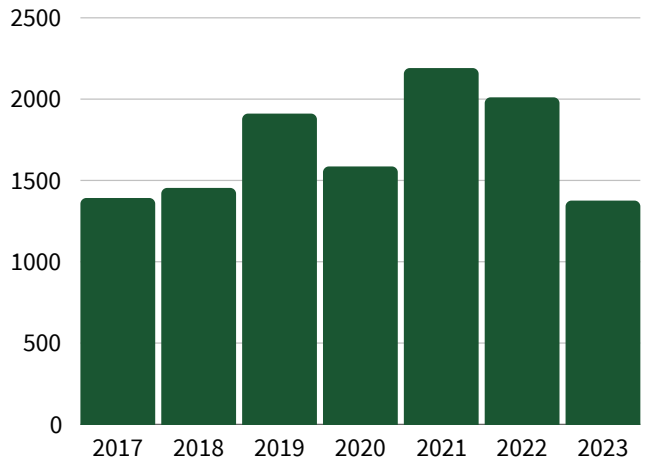


Recycling Station & Yard Waste Drop-Off

RECYCLING STATION TONNAGE



YARD WASTE SITES TONNAGE



Waste Collection 2023 Projects

Activity

Description

Single-Family Curbside Organics (Rollout and First 6 Months of Collection)

From April 11 to May 12, 2023, our team, in conjunction with our cart supplier and a third-party rollout contractor, delivered 30,936 240 L green carts and pails to residential customers. This project required significant collaboration between external and internal stakeholders, involving countless meetings to create and hone communication, supply, and distribution plans before the start of deliveries to homes. This planning was a success, allowing the team to overcome supply chain issues early in the delivery phase and complete the project on time and on budget. Collection of the newly delivered green carts began on May 16, 2023, starting with once-per-week collection for each single-residence household. In the first 6 months, over 4,000 tonnes of organic waste was collected, with a low contamination rate of 2%, from the 85% of households that are using their green cart.

Implementation of Optimized Residential Routes

In 2022, collection data was used to complete an assessment of existing collection routes. Working with the City's Asset Management team, routes were adjusted to maximize the number of households per route based on specific material being collected. These new routes were implemented in March 2023, increasing the number of households serviced by an average route by 9.7%, putting us above the industry average.



Waste Collection 2024 Projects

Activity

Description

Multi-Family Organics Collection Implementation

After the implementation of single-residence organics collection, the department will now be working with multi-residence property managers and condominium boards to implement communal organics collection. This will start with properties under 45 dwelling units, scheduled to be completed by spring 2024. Larger properties over 45 dwelling units will begin implementation in the Spring of 2024, with completion scheduled for early 2025.

Full Internalization of Roll-Off Truck Service

Historically the recycling station and yard waste site bins have been serviced by an external contractor. Starting in December 2023, the bins has been serviced by City of Lethbridge roll-off trucks. Data has shown that the service can be provided in-house for a lower yearly operating cost than the per-bin rates previously charged. 2024 will be the first full operating year with this new service.



WASTE PROCESSING

2023



Waste & Recycling Centre received



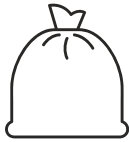
ratings on Google



The Waste & Recycling Centre
processed

133,942

tonnes of waste



105,445

total tonnes of
garbage



15,272

total tonnes of
recycling



13,226

total tonnes of
organics



The Materials Recovery Facility
processed

8,493

tonnes of recyclables

813,663

litres of leachate
managed



31,658

Free Saturday hauls



21%

of waste delivered to the Waste & Recycling
Centre was diverted from the landfill



42

wind closures (>70km/h)

WASTE PROCESSING

Services & Programs

Waste Processing

- Mixed solid waste landfill disposal
- Industrial soil landfill disposal
- Hydro-vac waste disposal
- Organics Processing Facility composting
- Materials Recovery Facility recycling
- Construction material recycling
- Landfill gas plant

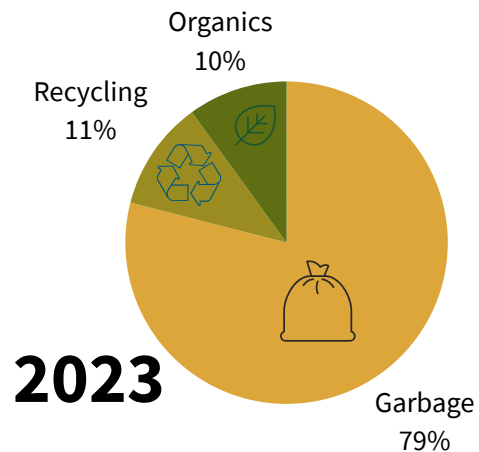
Hazardous & Special Product Recycling

- Electronic waste
- Tires
- Used & cooking oil
- Household hazardous waste
- Paint

Special Disposal Programs

- Free Saturday Subsidy Program
- Coaldale Landfill Subsidy Program
- Lethbridge County Neighbours Disposal Program

Waste Processing Breakdown



Waste Processing 2023 Highlights



Organics Processing Facility

In the spring of 2023, the Organics Processing Facility (OPF) commenced operations, coinciding with the seasonal tonnage surge of spring and yard waste material. In the first month, the OPF processed over 2,000 tonnes of organic material. The compost produced from this facility has attained Category A status and is now available for purchase at the Waste and Recycling Centre. The compost was named “Coulee Compost” through a staff contest. Several community compost giveaway events were hosted in 2023, distributing over 42,500 kg of compost back to the community.

Litter Control Improvements

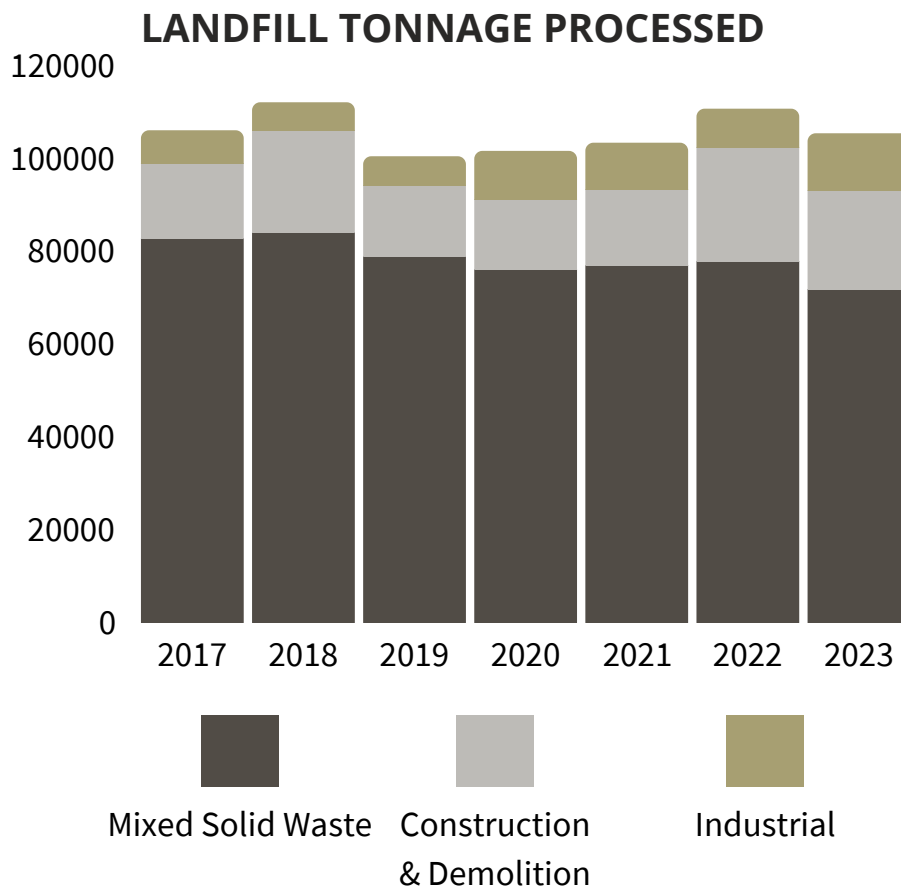
In 2023, various strategies were taken to mitigate litter at the Waste & Recycling Centre. This included the re-deployment of staff to enhance litter control and collection as well as the installation of two additional 20-foot tall litter fences, positioned along the southern perimeter of the landfill and the western edge of the commercial drop-off site. Additional enhancements were implemented at the tipping face to confine litter produced during processing. Lastly, the expanded waste transfer station was re-opened to receive waste during periods of exceptionally high winds.

Data Based Decision and the Operational Level

In 2023 the Waste & Recycling Centre team began using new platforms to collect data on landfill operations productivity and efficiency. Components included implementation of new software, drones, and data management on equipment hours, fuel consumption, and density tracking. Equipment hours are being reviewed against work completed on a regular basis to assess productivity and plan resources to efficiently carry out additional duties on the site as our suite of services offered and facilities expands.

In the past, one or two surveys were completed per year using contracted surveyors. This approach provided good quality data but it was infrequent and on a limited number of calculations due to the costs associated with the surveyors time and software. Civil Tracker is a powerful new software that has been implemented in conjunction with a drone for aerial surveys. Staff collect data and make AUF (Airspace Utilization Factor) measurements on a weekly basis. This is discussed in weekly meetings with operators empowering them to make and monitor changes that have resulted in improved in place density, reduced primary equipment hours, and increased capacity for additional tasks

Waste & Recycling Centre Landfill



105,445
tonnes of garbage in 2023

=

the weight of
79,641
passenger vehicles

assumes each vehicle is 1,324 kgs

Waste & Recycling Centre Diversion

CONSTRUCTION & PUBLIC DROP-OFF - 2023

Material	Tonnes	Material	Tonnes
Recyclable shingles	2,596	Metal	344
Lumber & pallets	1,993	Glass	129
Concrete	2,261	Electronic waste	86
Drywall	382	Tires	84
Asphalt pavement	350	Mixed recyclables	62
Brick & block	135	Used oil	66
Sand & gravel	248	Household hazardous waste	40
Porcelain & stone	25	Paint	26

12,915

**Total loads at the
Construction Drop-Off (CDO)**



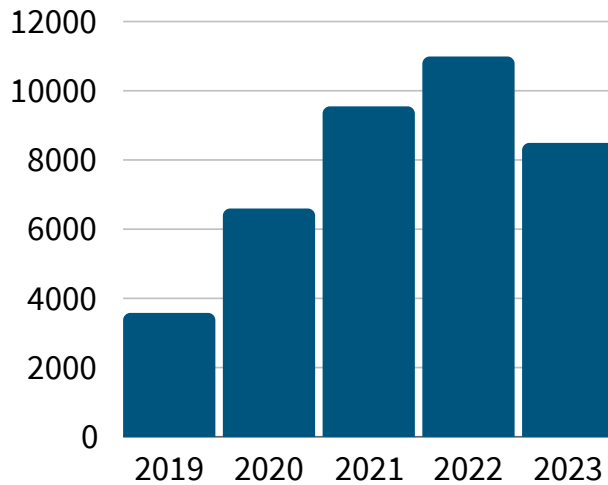
4,988

**Total loads at the
Public Drop-Off (PDO)**

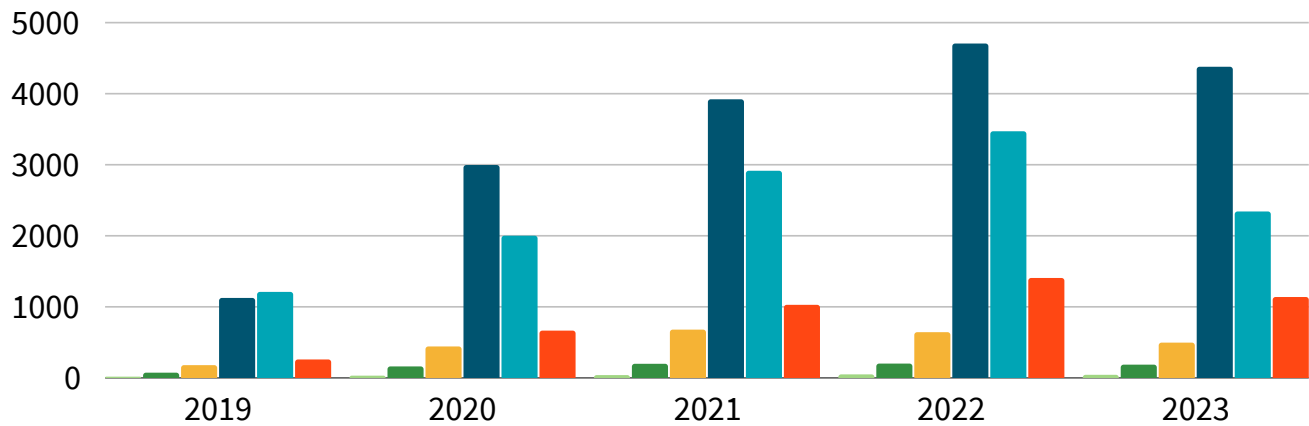
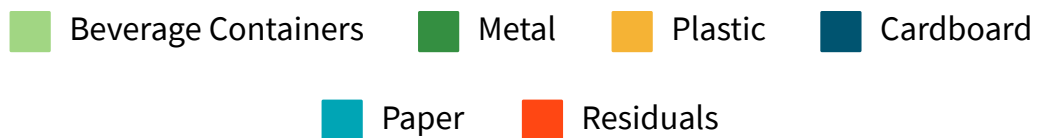


Materials Recovery Facility (MRF) Processing

ANNUAL MRF RECYCLING PROCESSING TONNES



ANNUAL MRF OUTBOUND MATERIAL TONNES



CAPITAL PROJECTS

Completed in 2023

Organics Processing Facility (OPF):

The OPF is an award-winning facility located at the Waste and Recycling Center. It processes green cart material collected from both residential and commercial organic waste collection programs. Organic waste processing reduces greenhouse gases and lowers lifetime waste acceptance costs. This facility includes an indoor processing floor where material is shredded and mixed. It also includes an outdoor aerated static pile composting system which turns raw material into finished compost in under 50 days. The OPF was completed on time and on budget.

Sanitation Parking Garage Expansion

The sanitation parking garage expansion is a 570m² addition to the existing building. This expansion provided heated parking and storage for 8 waste collection vehicles. This expansion was needed to accommodate the department's growing fleet of collection vehicles which serve residential and business customers. The project was constructed in 2023 and was completed in early 2024.

Capital Projects 2024 Plans

Industrial Contaminated Soils (ICS) Waste Cell

The current industrial contaminated soil cell is reaching max capacity. To provide more ICS storage capacity, design of a new ICS cell will be underway in 2024.



EDUCATION & OUTREACH

2023



43,313

WASTE WIZARD
Searches



245,145

Collection schedule reminders



435

Fall leaf
service requests



1,104

Christmas tree pick-ups



134,330

Total website visits



1,764

Participants in school tours,
engagements, etc



234

Calls responded to

Services & Programs:

- Waste prevention programs
- Diversion education activities
- Waste Wizard
- Landfill tours
- Community surveys
- What We Heard reports
- Outreach events
- Christmas tree diversion program
- Fall leaf collection communication
- Oops tagging
- Customer service

Education & Outreach Updates

Activity

Description

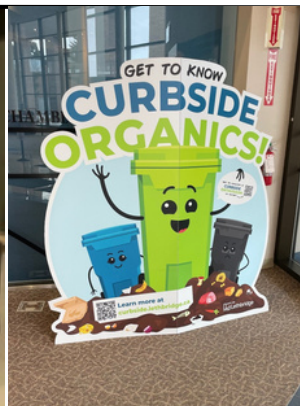
Curbside Organics Program City Wide Implementation

Education, Outreach & Communication

Feedback received during Phase 1 was reviewed and used to inform the education, outreach, and communication for the implementation of the city-wide program for approximately 34,500 single-residence households. The content of the printed material was condensed to a single page, new and improved, User Guide. This eliminated the need for the additional Erase Waste Tips & Tricks brochure and the letter that was originally included in the Phase 1 roll-out.

The program was promoted using community-based social marketing at a variety of pop-up booths. These include Farmer's Markets, Springfest, Community Conversations, a large retailer (Costco), information sessions at City Hall, Seedy Sunday, Live Well Seniors Showcase, Equipment Petting Zoo, and a Lethbridge Senior Citizens Organization pop-up table.

Feedback was also provided at the curbside where Oops Taggers performed cart checks on all households receiving the service at least once. This provided feedback in the form of Oops Tags, to households about what's in and out of the green cart.



Electronics Waste Drop Off

Waste Reduction Week

W&E organized an electronics drop-off event at the ENMAX Centre parking lot, on Wednesday, October 18, from 10 am to 2 pm. The event aligned with the national Waste Reduction Week and Circular Economy Month (October), as the theme for Wednesday was electronics recycling. Within four hours of the event, a steady stream of visitors dropped off and diverted from landfill, 31 totes or 5,296 kg of qualified electronics. The event was a huge success, appreciated by the community and recommended to be repeated in the future, specifically during Environment Week in June and again in the fall of 2024.

Education & Outreach Updates

Activity	Description
<p>Customer Appreciation Program</p> <p>Waste & Recycling Centre October 14, 2023</p> 	<p>This event was held to build community connections, by attracting new visitors to come to the WRC and to appreciate existing customers. It provided an opportunity to engage with the community, in a fun environment and to educate about the W & E facilities and services. Extensive planning resulted in a successful event, that was well attended and enjoyed by the community.</p> <p>Activities included:</p> <ul style="list-style-type: none"> • a free BBQ lunch for attendees • a monster truck ride and bus tours of the facilities • a MRF walk up tour and Blue Sky Centre tour • heavy equipment on display with the opportunity to engage with Collections staff • an opportunity to operate the arm of a collection truck and take a ride to the landfill in a Collection truck • Attendance by other City departments including the Helen Schuler Nature Centre and Water & Waste Water <p>Approximately 300 visitors attended the event, with 340 BBQ lunches served. The seating capacity for the monster truck was 135, which was booked up the second day of advertising.</p>
<p>Too Good to Waste Tours</p> <p>WRC Fall 2023</p>	 <p>Another successful year of providing tours of the WRC to grade 4 students. All available tour dates in October were filled, which included the Blue Sky Centre and the Organics Processing Facility. Approximately 400 students along with teachers and chaperones visited the Centre.</p>

Education & Outreach 2024 Plans

Activity	Description
Education and Outreach for Multi-residence Organics implementation	Continue to develop education tools for multi-residences and condo complexes, and provide outreach information sessions at multi-residence complexes as required.
Increase Organics diversion	The education and outreach team plan to build on existing social marketing efforts by developing a Community Based Social Marketing Plan. This plan will be implemented, evaluated, and reported out with continual adjustments and improvements to change behaviours and attitudes towards food scraps and waste generated at the home.
Community Compost Give Away Events	In the spring of 2023, compost produced from the OPF was offered to the public free of charge at three separate community events, resulting in the distribution of over 42,500 kg of compost to the community. Looking ahead to 2024, we intend to replicate these events with larger volumes and enhanced advertising.



BUSINESS WASTE DIVERSION

2023



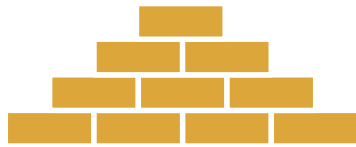
3,665

loads inspected at the
Waste & Recycling Centre



614

1:1 waste diversion interactions with
stakeholders



5,083

tonnes of
construction and demolition material
diverted from the landfill



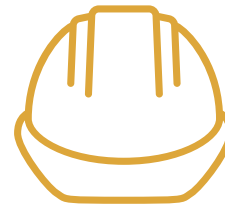
288

tonnes of asphalt shingles repurposed
for a pilot gravel road dust suppression
application



18%

decrease of ICI kilograms per capita from
the 2013 baseline level



56%

decrease of C&D kilograms per capita
from the 2013 baseline level

Services & Programs:

- Industrial, commercial and institutional (ICI) and construction & demolition (C&D) diversion programs focused on diverting waste from the landfill
- Provide education and outreach to support the business community
- Mandatory recycling and organics programs
- Designated material and inspection program design and monitoring

BUSINESS WASTE DIVERSION

2023 Highlights

2023 marked the full implementation of the ICI and C&D Waste Diversion Strategy with the launch of the mandatory organics and re-launch of the mandatory recycling programs. W&E heavily worked to engage with the non-residential community to inform them about the new regulations and to provide support. Assistants visited 614 businesses and organizations throughout the summer, collecting information about their waste diversion strategies and educating them about the City's mandatory recycling and organics programs. Additionally, letters were sent to businesses with important information about the programs and an open house was delivered in January. W&E had a booth exclusively to discuss the non-residential waste diversion programs at the Community Conversation events in January and October at the ENMAX Centre and a communications and engagement strategy was rolled out starting in October with several public service announcements, social media promotion, internal and external e-mails, digital billboards, newspaper ad, and radio ad campaigns.

**Big, small,
private or public.**

We're all *b-in* this together.

Annual business waste reports
due Jan. 31, 2024.

lethbridge.ca/BusinessWaste



On the innovation and new construction materials recycling side, W&E started a pilot project to repurpose tear-off (recycled) asphalt shingles (RAS) as a dust suppressant material for gravel roads. Over 1 km of gravel road at the WRC was resurfaced with a mix of RAS and gravel with sessions with different RAS content. In 2023, 288 tonnes of shingles were repurposed in this way. The preliminary results were very satisfactory, and W&E is in advanced negotiation with the City's transportation operation department to continue the pilot project on some of the City's gravel roads during the summer of 2024. Furthermore, the WRC continues to ship drywall to a partner farm that repurposes it as a cattle bed and then, composts the mix of drywall and manure to be utilized as a fertilizer to grow crops.

BUSINESS WASTE DIVERSION

2023 Highlights

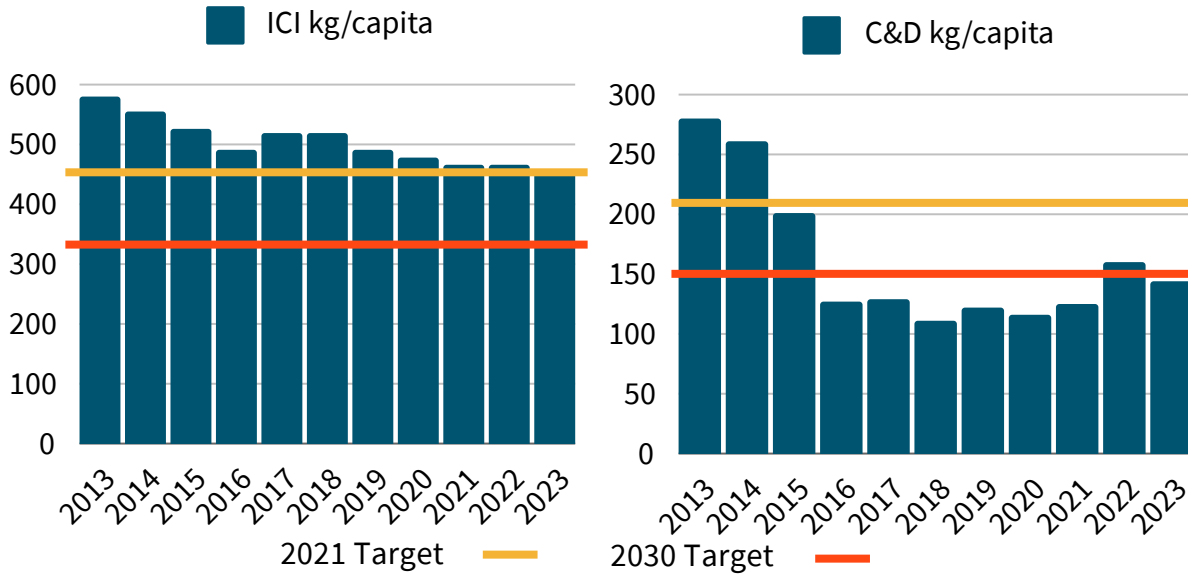


Finally, in preparation for the first self-compliance annual report that the non-residential sector will be required to submit in 2024, W&E heard early feedback from the community and made adjustments to the Waste Bylaw and report requirements. Many businesses and organizations have already made all adjustments and are compliant with all the Waste Bylaw recycling and organics diversion regulations. Among those institutions, Lethbridge School Division has implemented source-separated recycling and organics bins in all their schools, and launched their “Re3 Program”, to promote Reduce, Reuse and Recycle in the school community.

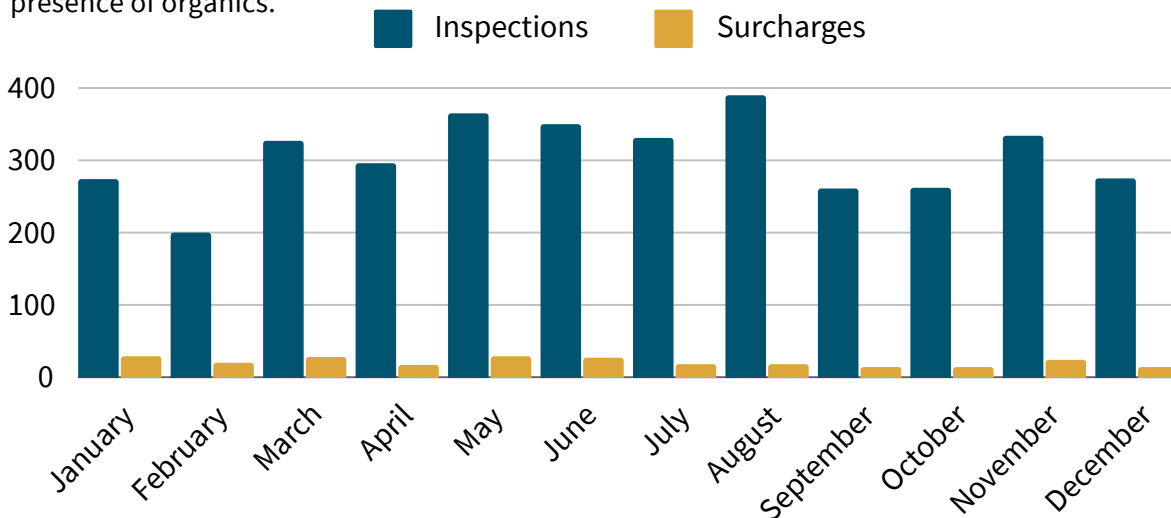


Business Sector Waste Generation

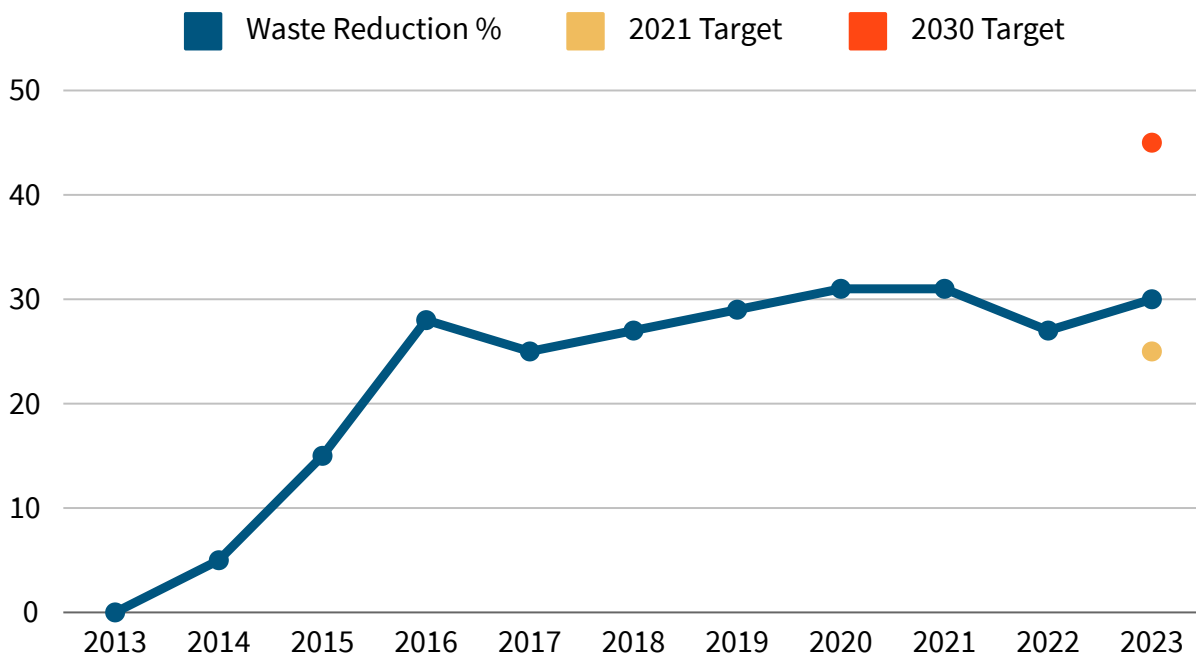
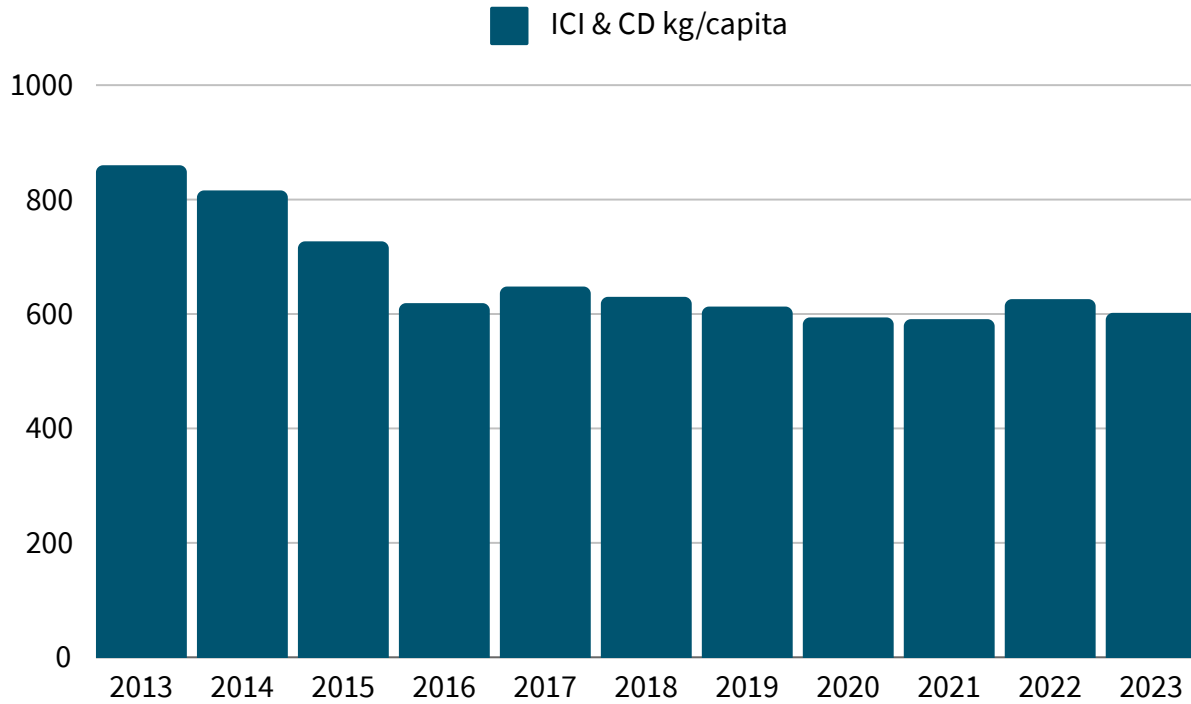
Overall, 48,785 tonnes and 15,383 tonnes of garbage were received at the landfill during 2023 from Lethbridge ICI and C&D sources, respectively. In 2023, ICI Waste was 458 kg/capita, while C&D was 144 kg/capita. Waste shingles tonnage in 2022 decreased by 42% from 2021 levels and 98% from 2013 baseline levels. Please note, as of 2023, asbestos tracking was moved from ICI to C&D reporting to represent demolition waste.



A total of 3,665 loads were inspected for designated materials at the WRC in 2023 for an average of 305 inspections per month. The number of loads over the acceptable tolerance (25% designated materials present in the load) was 258 for a rate of just under 7% surcharges per month. In 2023, organics were added to the designated material list. From February to September, 7 notifications (surcharge waived) were issued. Twelve loads were surcharged due to the presence of organics after September. It's important to note that most of the organics waste comes to the landfill in black garbage bags. This can make it difficult for the inspectors to identify, which may reflect the small number of loads surcharged due to the presence of organics.



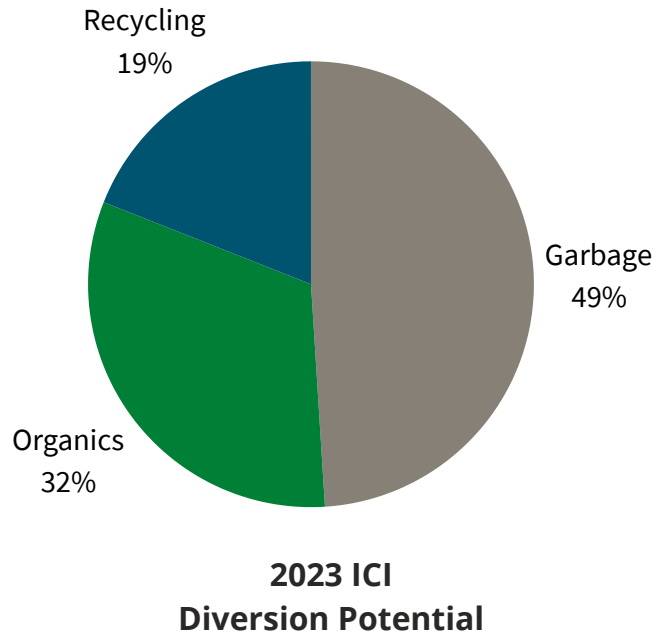
Business Waste Generation



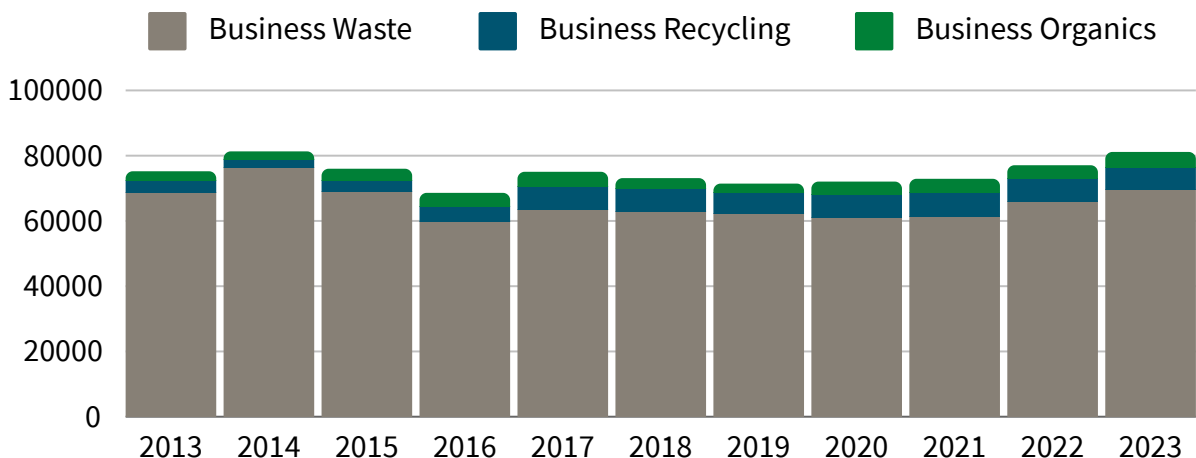
Business Waste Generation

Waste from the C&D and ICI sectors combined is 30% below the 2013 baseline. Non-residential waste still increased in 2022.

More than 6,617 tonnes of recyclables and 4,774 tonnes of organics were received in 2023, which is similar to business diversion in previous years. This demonstrates an endurance of the businesses' behaviour change throughout the last years. It should be noted that this is only a portion of the potential diversion found in the community as there are several outlets for diversion that are not received at the WRC. The recent updates in the Waste Bylaw requiring all businesses to provide access for their staff and visitors to recycling and organics containers should contribute to further reduction of garbage and increased diversion from businesses in the coming years.



The graph below illustrates the tonnes of waste received at the WRC in 2023 as garbage, recycling and organics. As we can easily note, landfilled waste represented the majority of the volume received. On the other hand, audits completed in 2023 on commercial routes (graph above) indicated that 19% of what is sent to be landfilled by the non-residential sector as garbage could be diverted to recycling and 32% is organics. This indicates that from the 69,000 tonnes of commercial waste landfilled in 2023, more than 30,000 tonnes could be potentially diverted. Those numbers heavily contribute to the need for the continuation of the City's efforts in promoting non-residential waste diversion programs.



ENGINEERING & ENVIRONMENT

2023



SUSTAINABILITY

Projects and programs within this focus area address multiple environmental sustainability aspects and thus are not specific to one focus area.



ENERGY

Goal: Reduce corporate fuel and energy consumption and increase renewable energy generation.

Energy projects and programs focus on energy conservation, fuel efficiency, and alternative energy technologies.



AIR

Goal: Reduce corporate greenhouse gas emissions by 40% from 2018 baseline levels.

Projects and programs within this focus area cover air quality and greenhouse gas (GHG) emissions.



LAND

Goal: Increase biodiversity and environmental stewardship while sustaining, restoring, and enhancing the natural ecosystem.

Projects and programs within this area cover biodiversity, land stewardship, and contaminated sites.



WATER

Goal: Reduce corporate water consumption and protect the local watershed.

Water projects focus on how the City uses its water resources efficiently and protects the local watershed.



WASTE

Goal: Reduce waste generation and increase waste diversion.

Waste projects and programs focus on corporate waste diversion and the City's adherence to its own Business Waste Diversion Strategy.



ENGINEERING

Engineering projects includes any construction or Capital Improvement projects and programs.

Services & Programs:

- Environment reports database
- Environmental property searches
- Corporate organics & recycling
- Partners for Climate Protection
- Compliance/due diligence monitoring
- Energy acquisition
- Policy implementation support
- Energy Conservation Masterplan & Strategy implementation
- Environmental program corporate support

Lethbridge Climate Projections

Climate data indicates that Lethbridge is experiencing an increase in mean annual temperature, fewer very cold days, and more very hot days per annum than in the past. These trends will continue into the future; for example, the number of days hotter than 30°C is estimated to increase by 16 days by 2050.¹ The following extreme weather and climate events occurred in 2023:



June

Tornadoes in Lethbridge area



August

Extreme heat and drought leads to water conservation



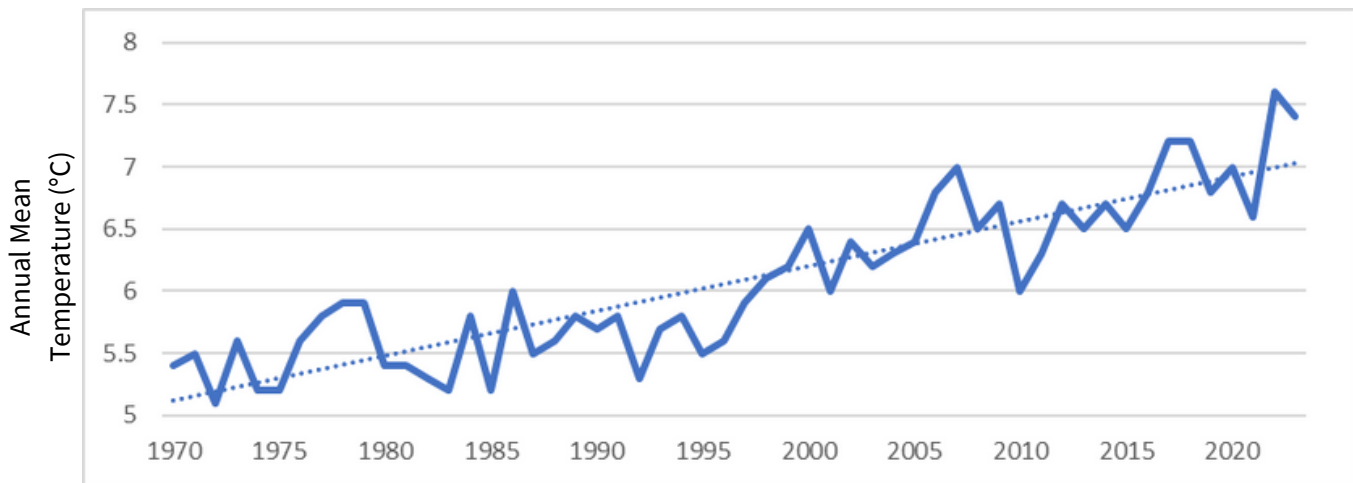
August

Extreme wind knocks down power poles

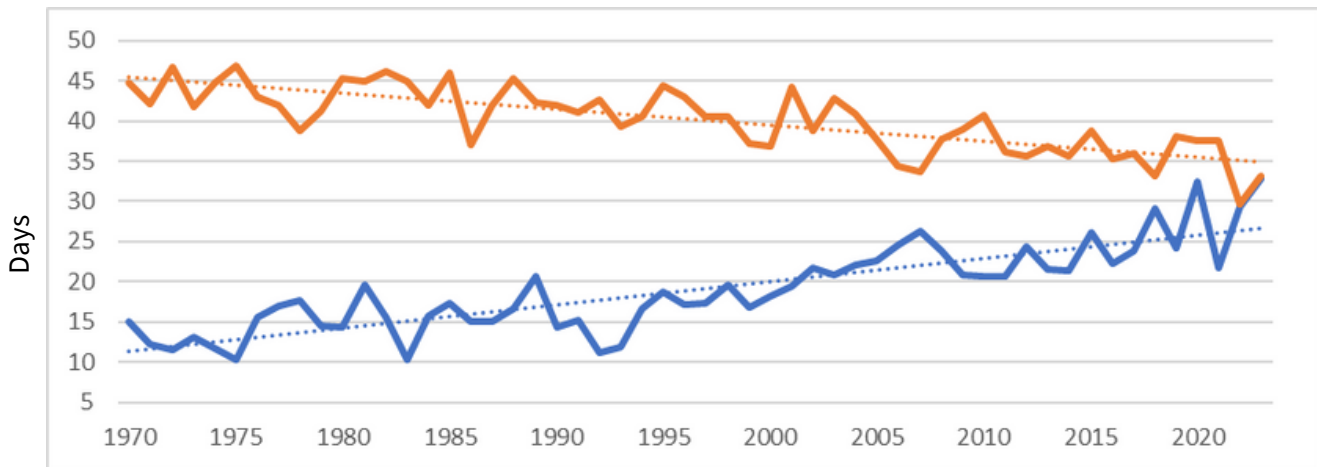


September

Special air quality statement for smoke



Annual Mean Temperature in Lethbridge (°C)³



Very Hot Days and Winter Days in Lethbridge³

— Very Hot Days (+30°C)

— Winter Days (-15°C)

¹ <https://albertaclimaterecords.com/#>

² City of Lethbridge Climate Change Vulnerability and Risk Assessment

³ <https://climateatlas.ca/>



Sustainability

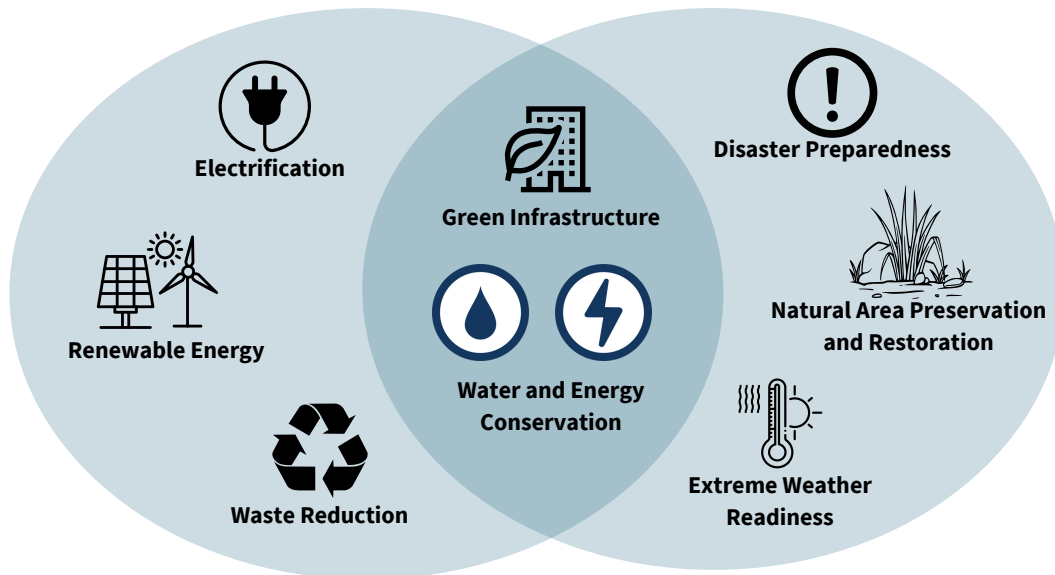
The impacts of climate change are becoming increasingly evident in our community. Climate change is a risk multiplier, so it increases the intensity of extreme weather events including precipitation, high winds, and very hot days. These extreme weather events can increase fire risks, increase property and infrastructure damage, and intensify public health challenges. The Waste & Environment group has a focus on climate mitigation, climate adaptation, and climate resilience, as illustrated below:

MITIGATION

Address and minimize the cause of climate change

ADAPTATION AND RESILIENCE

Respond to and prepare for climate impacts



Thriving in a Changing Climate Exhibit Helen Schuler Nature Centre



15,600
visitors



4,100
students



683

people voted in the Climate Change Planning in Lethbridge survey



637

emergency preparedness resources distributed



127

pollinator gardening brochures distributed



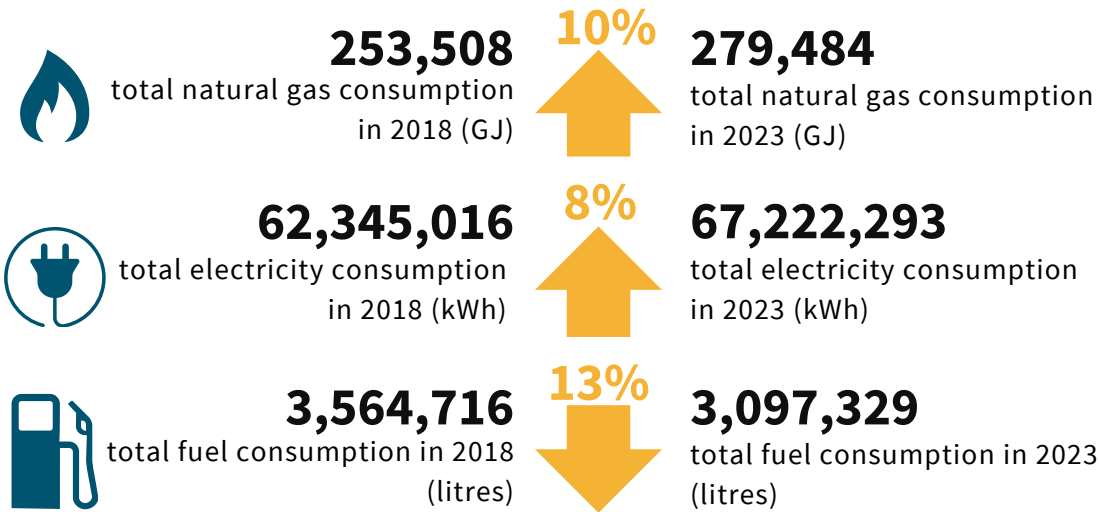
\$1,528,590
environmental grants awarded

Competitive grant funding from federal and provincial governments and other sources supports an assortment of corporate projects and programs. A number of different City departments - Waste & Environment, Fire and Emergency Services, Treasury and Financial Services, and the Helen Schuler Nature Centre - were awarded competitive grants in 2023 to further environmental initiatives throughout the organization and the community.



Energy






For corporate facilities and assets only.



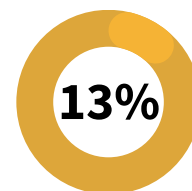
Compared to the 2018 baseline, there has been an increase in corporate facility energy consumption. These increases can be attributed to many factors including the addition of City-owned facilities since 2018. For example, the baseline values do not include facilities such as the Material Recovery Facility, the Airport, or Fire Hall #5. While natural gas consumption has increased from the baseline (2018), there has been a decrease when compared to the previous year (2022), likely due to a warmer winter. Similarly, while electricity consumption has increased 8% from the baseline, usage in 2023 was similar to the previous year (2022). Hopefully this is the start of a downward trend for both. We continue to see a reduction in fuel consumption at the City, which may be the result of new, fuel-efficient vehicles replacing older units, improvements to the preventative maintenance program, idling reductions, and the removal of school busses from the transit fleet in March, 2021.

Energy Efficiency Projects

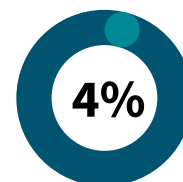
Several energy efficiency projects have been completed since 2020 based on energy audit recommendations, and as part of regular life cycle planning. Notable accomplishments in 2023 are as follows:

-  **LED lighting retrofit** at the Crossings Ice Complex
-  **LED lighting retrofit** at the ENMAX Centre
-  **LED lighting retrofit** at City Hall (nearing completion)
-  **Increased the amount of insulation** at the ENMAX Centre during roof replacement project
-  **Energy audits** in progress for the water treatment plant and wastewater treatment plan

17 Audited Facilities

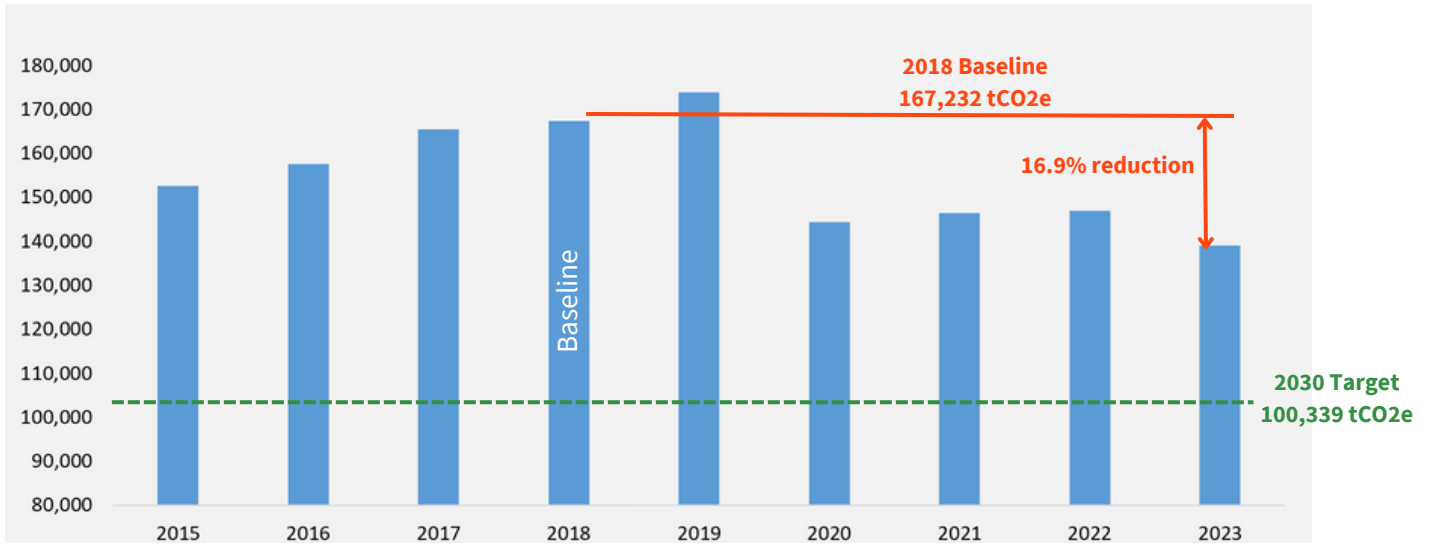


Energy Reduction
Since 2018 (ekWh/m²)⁴



Water Reduction
Since 2018 (m³/year)

⁴Excludes Police HQ due to natural gas metering issue.



Corporate Greenhouse Gas Emissions (tCO2e)

Using the Partners for Climate Protection (PCP) methodology

There has been a 16.9% reduction in corporate greenhouse gas emissions compared to the 2018 baseline. Corporate greenhouse gas emissions were impacted by the COVID-19 pandemic from 2020-2022. 2023 emission values reflect the first year of “status quo” operations since the pandemic and it is great to see that the reduction of greenhouse gas emissions has been maintained.

Many City initiatives have contributed to these emission reductions including, but not limited to, the landfill gas capture and flaring system at the Waste & Recycling Centre; increased residential and business waste diversion through the green cart program; facility retrofits; and greening our corporate fleet. As Alberta continues to transition away from coal, the emission factor for electricity has also reduced. Therefore, even with corporate electricity consumption increasing, our emissions from electricity are decreasing.

Electric Vehicle Charging Stations



27

electric vehicle charging stations



22

more than 2022

Cavendish Farm Centre

Four level 2 chargers

Park’N’Ride

Ten level 2 chargers

City Hall

Four level 2 chargers

Nikka Yuko Japanese Gardens

Two DC fast chargers

ENMAX Centre

Six level 2 chargers

Helen Schuler Nature Centre

One level 2 charger

Corporate Fleet Emissions



7,993

tCO2e vehicle emissions from corporate fleet



20%

decrease from 2018 baseline

- 64
- 65
- 66
- 67
- 76
- 113
- 115
- 156
- 159
- 161
- 163
- 164
- 170



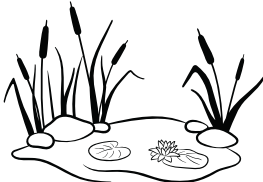
Land



175

**hectres of parkland
grazed by goats**

Goats grazed the entirety of Alexander Wilderness Park, Indian Battle Park, and Botterill Park twice in the summer of 2023. Parkside storm pond was grazed once as the location is unable to be mowed with machinery due to steep slopes and uneven terrain.



125

**one gallon native
wetland plants
installed**

Wetland plants were installed into Sunridge stormwater pond around the newly replaced boardwalk to improve water quality and biodiversity in the area. Since 2018, all stormwater and urban lakes have been sampled and monitored for water quality every other week from April through October. Pond data is compared to service request concerns as well as observations taken during those sampling sessions to determine treatment options to maintain or improve water quality.



6

floating islands

Environment Lethbridge donated 6 fully planted floating islands to the City of Lethbridge. These floating islands will be installed in the spring of 2024 at Paradise Canyon storm pond. The 6 floating islands equate to approximately 30 square meters of planting space. Floating islands help improve water quality in storm ponds.





Land



364
trees planted
in 2023

Over 350 trees were planted by the City of Lethbridge in 2023. 43 of these were cottonwoods planted in Indian Battle Park (harvested from local cuttings) as trial for Native Cottonwood Project. 29 of the trees were planted at community events such as Tree Day, Natural Leaders Project Tree Tour of Henderson, LCI environmental science class, and the HSNL Teen program.



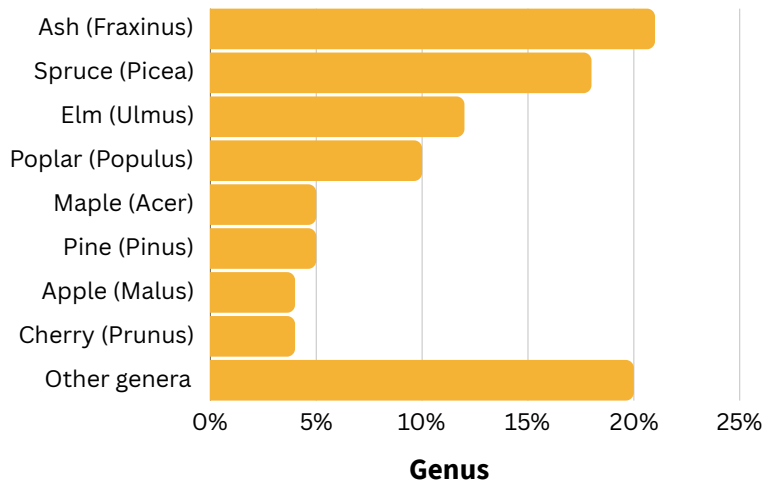
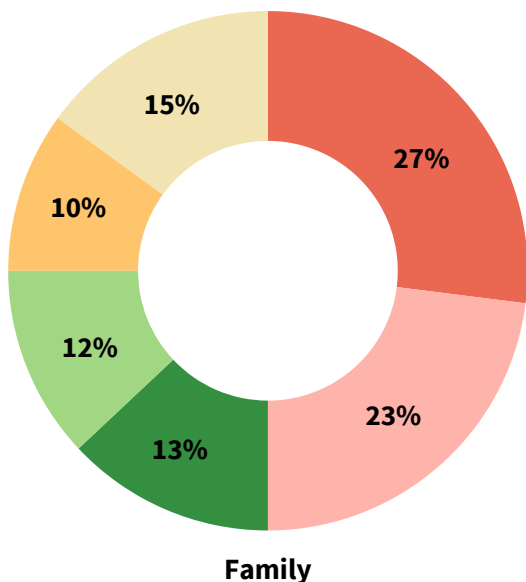
0
public trees
with Dutch Elm
Disease

In 2023, the City's Urban Forestry team completed **5694 Dutch Elm Disease inspections** on public trees and **no infected trees were found**. The team treated **305 elm trees for European Elm Scale** and continued other invasive species monitoring and management such as deploying Elm Bark Beetle traps, Emerald Ash Borer and Asian Longhorn Beetle traps, and collaborated in discussions on possible Russian Olive management strategies.

Santamour's Rule: Tree Diversity

Santamour's Rule is often referred to as the 10-20-30 rule or the 10% rule in the urban forestry vernacular. It is a guideline to diversify the urban tree population to reduce the risk of substantial tree loss due to disease or pests. Namely, the tree population should include no more than 10% of any one species, 20% of any one genus, or 30% of any family. The tree composition ratios for 2023 are illustrated. Since 2018, there have been positive steps toward urban forest diversity.

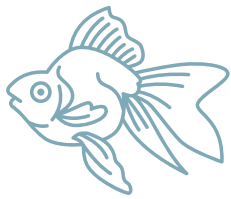
- Pinaceae (Pine Family)
- Oleaceae (Olive Family)
- Ulmaceae (Elm Family)
- Salicaceae (Willow Family)
- Rosaceae (Rose Family)
- Other Families





Water

MDP Policies

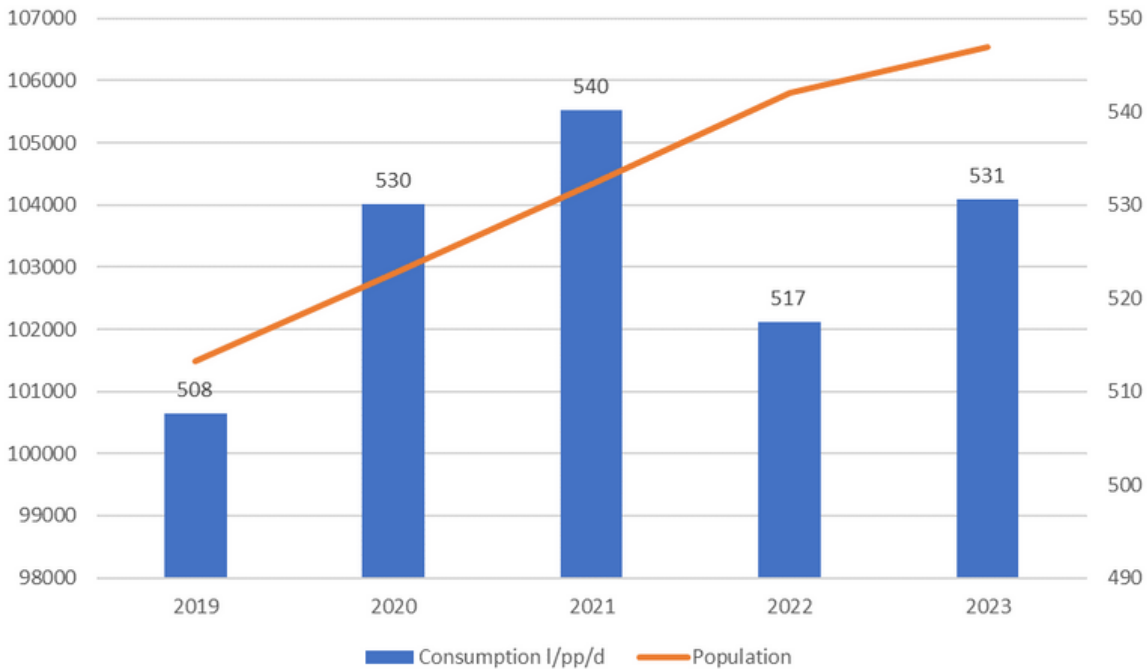


Invasive Species: 2023 Goldfish Derbys

1,507
goldfish removed from
Chinook Lake

192
goldfish removed from
Elma Groves

10
hours of outreach
over two derby days



Water Consumption

Average daily water consumption per capita (litres/per person/day)

The City of Lethbridge is developing Water Conservation Plan and Strategy and is updating the Water Rationing Action Plan, expected to be released in 2024. The Water Conservation Plan and Strategy will set reduction targets for residential and business water consumption. Reporting on water consumption will be completed annually as part of the Waste & Environment annual report beginning in 2024.



Waste

Toxic Roundup Events



46,200

kg of household hazardous waste and e-waste collected



1,500

vehicles served at the two roundup events



Waste Reduction Week



5,296

kg of e-waste collected

Battery Boxes



23

City facilities with battery collection boxes

Fleet Services Waste Reduction



Fleet Services and the City’s procurement department have worked together to reduce waste in the following ways:

- Bulk brake-clean has replaced individual aerosol cans. Fleet technicians now have re-fillable bottles which has significantly reduced the amount of aerosol cans used in prior years.
- Washable cloths are utilized through Fleet’s linen & uniform contract. Shop technicians previously used paper towel to wipe/clean items and would dispose of soiled towels in the garbage.
- Currently working with a vendor to source a hydraulic oil recycling system which will reduce the need to replace fleet oil every time a hydraulic filter is replaced.

Engineering & Environment Projects & Plans

Activity	Description
<p>2023 Projects</p>	<ul style="list-style-type: none"> • Electric vehicles and charging stations • Solar carport project • Partners for Climate Protection Corporate Milestone 3 - Implementation Plan (Greenhouse Gas Reduction Implementation Team) • Climate Adaptation Strategy and Action Plan • Toxic roundup pilot project
<p>2024 Plans & Projects</p>	<ul style="list-style-type: none"> • Water Conservation Plan and Strategy • Energy Conservation Masterplan & Strategy implementation • Partners for Climate Protection Community Milestone 2 and 3 – emission reduction target and implementation plan • Energy Strategy • Waste Management Master Plan • ICS Cell Design and Construction



ACKNOWLEDGEMENTS

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Sierra Dakin Kuiper, Corporate Grants Administrator

Waste & Environment collection operations team

Waste & Recycling Centre contractors & staff



FOR MORE INFORMATION

Waste & Environment:

- Please visit [our website](#)
- Read our [Waste Bylaw](#)
- [Waste & Recycling Centre webpage](#)

Curbside Collection:

- [Composting and Green Carts](#)
- [Recycling and Blue Carts](#)
- [Garbage and Black Carts](#)
- Ask the [Waste Wizard](#) what's In and Out and check your collection schedule
- Download the [Lethbridge Loop App](#) for collection reminders
- [Report a problem](#) like missed collection or mess in lane

Phone: 311 or **403-320-3111** (if outside Lethbridge)

