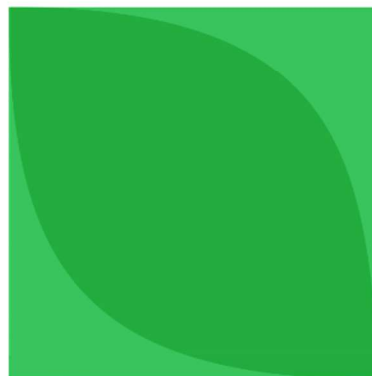


Waste Generation Trends and Management Practices Across Canada's K-12 Public Sector Education Facilities

Prepared for Environment and Climate Change Canada



Waste Generation Trends and Management Practices Across Canada's K-12 Public Sector Education Facilities

Final Report

Prepared for:

Environment and Climate Change Canada

Prepared by:

EcoSchools Canada

EcoSchools Canada is a registered charity that aims to nurture environmental leadership, reduce the ecological impact of schools, and build environmentally responsible school communities.

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April, 29, 2022

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Acknowledgement

The authors of this study would like to thank all the school staff members who responded to the Exploring Waste Practices in Schools survey. The detailed survey responses helped to meaningfully inform this study.

We would also like to thank the following organizations for assisting in providing information during this study:

- EcoSchools Program Advisory Committee
- Toronto Region Conservation Authority
- Peel District School Board
- Calgary Board of Education
- Strathcona County Utilities
- The Gaia Project
- Carton Council of Canada
- Recycle Everywhere
- Island Waste Management Corporation
- SARCAN Recycling
- Multi-Materials Stewardship Board
- Divert NS
- Enviro Éduc-Action
- Mouvement ACTES

Executive Summary

This report provides detailed waste information from Canadian public schools to broaden the understanding of waste generation trends and management practices across K-12 public sector education facilities. For this study, waste audit data from key material categories including plastic and paper packaging and containers, food waste, and other organics was analyzed alongside information on waste management practices collected via survey responses from schools across Canada. Additional input was provided by regional, provincial, and national organizations supporting schools in waste management.

The main objectives of this study were to:

1. Source and compile waste audit data from elementary and secondary schools across Canada to produce waste generation, diversion, disposal, and other program performance metrics for the identified key material categories.
2. Survey a broad section of schools, boards/districts and regional partners across Canada to collect data and insights into waste generation trends, management practices and details of the types of waste diversion collection programs and service structures available to schools across the country.
3. Identify barriers to increasing waste diversion in schools.
4. Identify and compile policy and program best practices, along with any other influential factors, in place at schools or school boards demonstrating leadership in waste diversion into a user friendly guide for implementing and maintaining reduction and diversion programs in schools.

Characterization of waste generated by schools

Similar to the previous Environment and Climate Change Canada (ECCC) commissioned study, *Overview of Organics Diversion Requirements and Practices for the Canadian Industrial, Commercial and Institutional Sector* (2021), this study also used waste audit data predominantly from schools located in Ontario. However, as noted in the previous IC&I report, it is reasonable to assume that waste generated in Ontario schools is similar to waste generated throughout Canada. This assumption was further supported by a comparison to waste audit data compiled using similar methods from schools in New Brunswick, with near-identical results to Ontario findings.

Waste audit and programming data from 2016, 2019, 2020, and 2021 were used to investigate waste generation trends across K-12 schools, with findings showing that elementary schools produce more waste per student, but perform better in waste diversion than secondary schools. This finding is likely due to the noted differences in the ways student-led audits are conducted in school settings; in secondary schools it is likely more difficult to collect a fulsome sample of the total waste produced in a typical day within the school, leading to lower waste per student values. In general, it has been determined through this study that, although waste audits are an important and necessary educational tool to allow schools to analyze and review the types of waste generated in a typical school day, student-led (often visual) waste audits conducted by schools themselves do not tend to provide accurate total kg amounts for each waste category, and should be used more generally to indicate types of waste produced and provide insights into broader waste management trends, areas for improvement, and provide data to allow schools to consider their overall diversion rate as a baseline for improvement.

Table ES-1 Kilograms of landfill and recycling waste per student based on a 190 day school year, from the 2020 dataset.

	<u>All Schools</u>	<u>Elementary Schools</u>	<u>Secondary Schools</u>
Kg of waste/student (190 days per year)	11.680	14.090	8.443

In addition, there are significant differences in the composition of waste generated in elementary versus secondary schools. Analysis showed that while elementary schools generate a greater proportion of milk cartons, drink boxes, plastics, and mixed paper, secondary schools generate a greater proportion of cans, glass, and cardboard. As waste audit data provides insights into disposal behaviour, findings can help school boards and schools tailor waste initiatives, programs, goals, and education messaging accordingly.

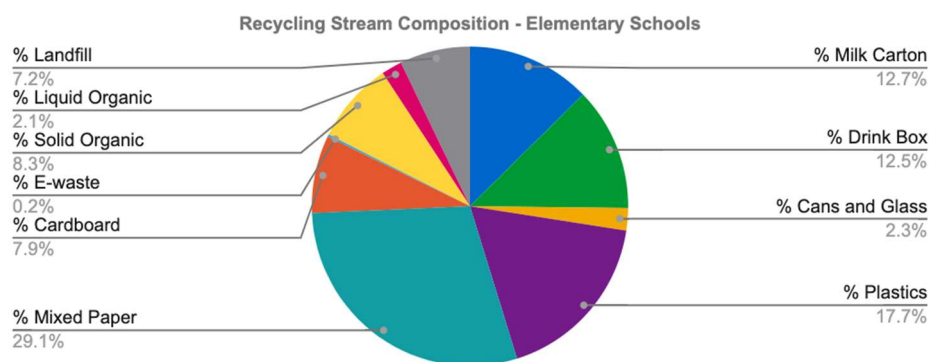


Figure ES-2: Composition of elementary school recycling streams from visual waste audits in Ontario during the 2019-20 school year.

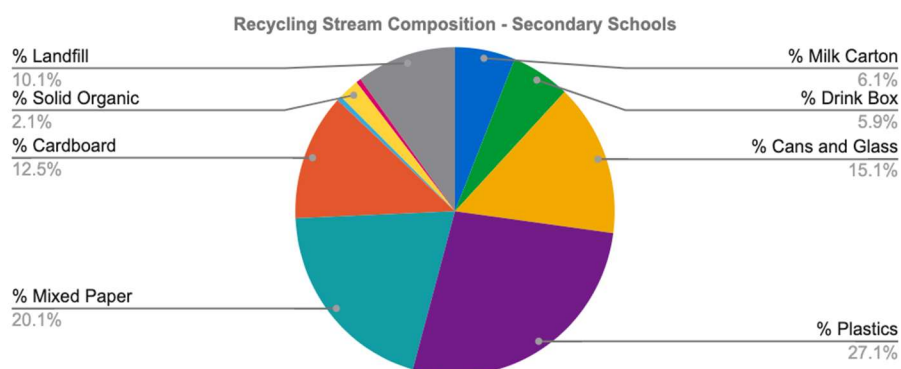


Figure ES-3: Composition of secondary school recycling streams from visual waste audits in Ontario during the 2019-20 school year.

Comparing waste audit data alongside complementary waste programming in schools, such as waste-free lunches, on-site composting and extended lunch programs, showed that strong

waste programming has a positive correlation with increased school diversion rates for all school types. In all programming scenarios elementary schools performed better than secondary schools, and had the most consistent correlation between strong programming and a high diversion rate. It should be noted that there are significant differences in the ways that waste is managed in elementary schools. Students are more likely to eat their lunch in classroom settings where proper waste diversion and management can be controlled and implemented more easily than in a typical cafeteria environment, as seen often in secondary schools.

Waste programming results from the middle of the COVID-19 pandemic in 2021 showed a significant decrease in practices such as conducting waste audits, sorting waste, and reducing food related waste, with only activities related to reducing paper waste, and promoting waste-free lunches and behaviours remaining popular during the 2020-2021 school year.

Waste diversion collection programs and service structure

Data on the culture, supports, goals, programs, and services related to waste management in Canadian schools were collected via survey responses from school representatives from 33% of all school boards/districts in Canada. The caveat being that the majority (86%) of school responses were located in Ontario, and were involved in some form of sustainability programming through their connection to the EcoSchools Canada program. Interviews were conducted with waste organizations working with K-12 schools in Canadian provinces to better understand the landscape of waste management at the provincial level and provide context to the school survey response findings.

All respondents surveyed stated that their school had curbside garbage pickup, whereas 94% had recycling and 56% had organic waste pickup. As a result of limited access to curbside organics collection services, material subcategories of food waste and paper towels are disposed of in garbage and organic waste streams at near-even rates, and school yard waste is 28% more likely to be disposed of in garbage streams.

There is variation across schools on how pizza boxes are managed. Results showed that 22% of schools landfill pizza boxes, 54% recycle them, and 14% dispose of them as organic waste. This variability is likely a result of different regional waste management practices in combination with the availability of curbside recycling services and education on proper disposal.

Table ES-3 provides an overview of the service providers for garbage, recycling, and organics, as reported by survey respondents. The majority of curbside services were provided by municipalities, which is an important finding in conjunction with the case studies included further on in this report. The findings of this report suggest that the rationale for municipalities providing collection services to schools tends to be as a result of the municipality conducting a review of the success of other local municipalities in implementing similar programs, and that they are seeking to achieve broader waste diversion goals or targets.

Notably, roughly 25% of respondents did not know who provided their curbside services. Respondents were even less likely to be aware of who funded curbside collection services, with over 50% of respondents reporting “unknown”. Of the schools surveyed with organics collection services, municipalities provided the service to schools in 48% of cases.

Table ES-3: Service provider for landfill, recycling, and organic curbside waste pickup.

Service Provider	Landfill	Recycling	Organics
Municipality	47%	49%	48%
Private Sector	19%	12%	9%
School Board	14%	14%	11%
Unknown/Other	21%	24%	29%

Almost 75% of schools voluntarily participate in complementary waste programming; such as waste-free lunches, on-site composting and extended lunch programs, and the majority of programs are run on an individual school basis. Of the schools with on-site composting programming, 36% did not have curbside organics service, and were therefore finding alternative ways to divert organics waste within their school grounds, and 63% used on-site composting in addition to organics collection services. Over half (54%) of schools surveyed participate in some form of waste diversion or reduction program, with the most popular program being waste-free lunches. As noted in the waste audit section, this was determined to be one of the popular waste programs which has continued despite the impact of COVID-19. The survey data showed a clear drop-off in schools conducting school waste audits post-2019.

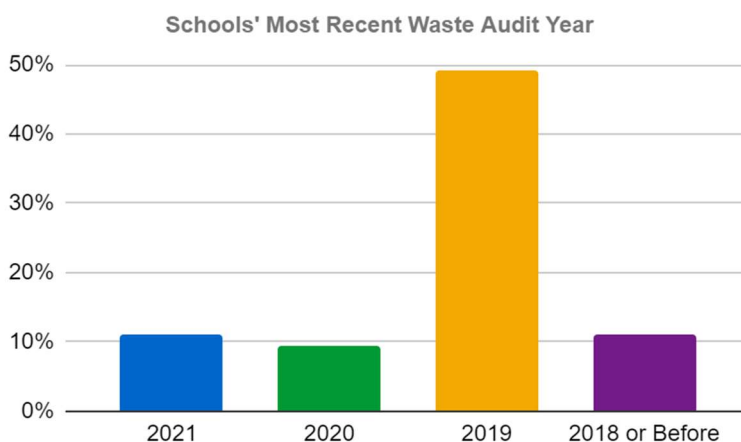


Figure ES-4: Distribution of schools' most recent waste audit.

Support from school-level administrators and school-wide buy-in were both revealed to be critical factors influencing waste diversion practices in schools. 68% of schools with very strong or strong support featured complementary waste programming at their school, and actively ensured that their recycling (92%) and organic waste (89%) was properly sorted.

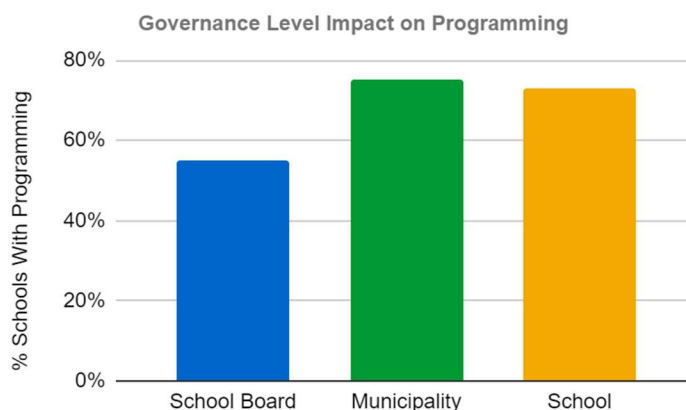


Figure ES-5: Relationship between governance level informing waste goals and the presence of waste programming in schools.

Survey results also showed that goal-setting was an important factor contributing to waste programming and waste management at schools. Schools with waste reduction or diversion goals were 35% more likely to feature complementary waste programming at their school, and 27% more likely to actively ensure that their recycling was properly sorted. The level of governance, whether this be at the municipal government, school board, or individual school level, that informed a school's waste goals also had an impact on the availability of waste programming, suggesting that goals set at the municipal or school level were more impactful than goals set by the school board.

Interviews with school board staff and regional waste organizations conducted throughout this study highlighted the importance of provincial and municipal regulations and policies on the availability of coordinated recycling and organics collection services in schools. The existence of such regulations as provincial landfill bans and municipal waste reduction goals resulted in cascading impacts to school communities, where as a result, schools have access to dedicated waste coordinators either at the school board or regional level. Waste coordinators work with schools to track waste data and provide education and resources to complement the available collection services, leading to improved diversion rates. In provinces or regions where there is a lack of clear waste targets or prioritization, it is more likely that access to recycling and organics collection services is dependent on individual school boards or districts.

In provinces with deposit-return programs for beverage containers, this resulted in extensive uptake in all schools with access to this service, due to the incentivization in fundraising for participation at the individual school level, resulting in high diversion rates for these materials.

Best practices for increasing school waste diversion

Focus groups, interviews and survey results were analyzed to summarize the best practices and barriers for increasing waste diversion in schools, with additional case studies included to illustrate examples of how these practices are being implemented at the regional, school board and individual school level. Below is a summary of the best practices and barriers found in this

report. An overview of these findings is available in the accompanying hand-out guide, *Best Practices for Waste Management - A Guide for School Communities in Canada*.

Communication

Implementing tailored communication strategies in schools is crucial for informing correct disposal decisions that lead to less contamination in recycling streams and maximize diversion opportunities. Placing signage and images near bin areas, school-wide announcements, video demonstrations, and digital hand-outs for students and parents staff can all help to encourage proper diversion.

Education and Training

Education and training provide interactive and engaging learning opportunities on proper waste management practices for all members of the school community. Waste education and training can be provided by schools, school boards/regions or by utilizing third party programming, for example through national or regional sustainability programs.

Incentivization

Providing incentives can be an effective strategy for getting students involved with waste management. This could mean offering a prize or reward for proper management practices in the classroom or recognizing whole-school achievement through a certification program.

Administrative Engagement

Administrative engagement can help to ensure programs and policies are embedded into school culture. Examples of ways administrators can support their schools include providing opportunities for student and staff workshops, presentations, and field trips to waste facilities.

Reducing Net-Increase in Workload for School Staff

Integrating waste education into curriculum-based learning limits the net increase in workload for both staff and students, and results in more resilient programming that will remain in the event that a teacher champion moves on to another school. Waste education resources provided by school boards should include curriculum linked resources to help to facilitate this.

In addition, it is beneficial to communicate with custodial staff when implementing waste initiatives. This promotes opportunities for collaboration, while acknowledging limitations and issues with contractual obligations.

School Board Sustainability Department / Staff

A dedicated sustainability department or staff member means that schools have access to a primary waste management contact, who can provide resources and data to inform school decision making. Typically, these roles are also key to developing board-level strategic plans and goals around sustainability.

Key Infrastructure

Presence of three-stream waste management with proper bins and liners, strategic bin placement, and regular curbside pick-up is important to support the long-term success of waste

diversion efforts in schools. Without this key infrastructure, schools are limited to educational programming and sending waste home via “boomerang” or waste-free lunch programs.

Regional Alignment

Regional alignment and consistency in messaging between school and home life for staff and students results in greater buy-in, and brings forward new collaborative opportunities between boards and municipalities.

Introduction

Environment and Climate Change Canada (ECCC) commissioned a recent study, *Overview of Organics Diversion Requirements and Practices for the Canadian Industrial, Commercial and Institutional Sector*, to fill the information gap surrounding organic waste generation and management practices in Canada's industrial, commercial and institutional (IC&I) waste sector. The IC&I sector comprises a wide range of businesses, industries, public institutions, and commercial operations, each with varied types and quantities of waste. Of the 24 elementary and secondary schools that contributed to the study, 27% of elementary schools and 38% of high schools indicated they have an organic waste diversion program in place. Based on waste characterization data provided by these schools, on average food and other organic waste accounted for 60% of waste generated at elementary schools and 51% at secondary schools.

ECCC commissioned EcoSchools Canada to expand on this recent IC&I research to provide detailed waste information on Canadian public schools. The study analyzed data from a large sample of K-12 public schools, school boards and organizations across Canada with the goals of broadening the understanding of key material category waste management and providing a deeper understanding of waste generation trends and management practices. The key material categories that this study focused on include plastic containers/packaging, printed paper and paper containers/packaging, and food and other organic waste. The study had four primary objectives and is divided into four main sections:

1. Waste audit data from elementary and secondary schools across Canada was analyzed to produce waste generation, diversion, disposal, and other program performance metrics to provide a characterization of waste generated by schools.
2. A broad section of schools, boards/districts and regional partners across Canada were surveyed to collect data and insights into waste generation trends, management practices and details of the types of waste diversion collection programs and service structures available to schools across the country.
3. Interviews were conducted with a variety of regional organizations, informing a regional overview of the relevant broader provincial or municipal waste strategies and regulations in place, in reference to their impact on waste management in schools.
4. Interviews, focus groups and survey responses are summarized as a detailed outline of best practices to increase waste diversion in schools, alongside case studies highlighting school boards demonstrating leadership in waste diversion.

This report was prepared as a resource to inform decision-making on approaches for improving waste diversion across Canada's K-12 public schools. A summary of the findings from this report is also available in a supplementary hand-out guide, titled *Best Practices for Waste Management - A Guide for School Communities in Canada*.

Characterization of Waste Generated by Schools

Methods

Waste characterization and programming data was gathered from four archival datasets. Below is a summary table of each. Note that the “year” column represents graduation year for the given school year (e.g. 2021 is the 2020-2021 school year), and school years generally run for 10 months, from September to June.

Table 1: Study datasets.

Year	Sample Size	Elementary	Secondary	Kindergarten to Grade 12	Scope
2021	641	485	144	11	Ontario & Canada
2020	41	33	7	1	Ontario
2019	1,296	1,064	224	8	Ontario
2016	49	40	9	0	Ontario

Note that the majority (96%) of schools in the 2021 dataset were based in Ontario. Overall, most of the data used in this report section is from Ontario. As per the 2021 IC&I report, though most waste audit data is from Ontario schools, it is reasonable to assume that waste generated in Ontario is similar to waste generated throughout Canada. In a comparison between the study's 2020 landfill and recycling data and audit data compiled using similar methods from schools in New Brunswick in 2021, results were near-identical.

Dataset Compositions

Each dataset used in this section was compiled using a distinct process. The 2021 dataset is from EcoSchools Canada's certification applications. In the current certification application process, schools are able to pick and choose from a wide selection of sustainability related actions throughout the school year. The selection of waste-related programs includes completing school-wide student-led waste audits, reusing paper, recycling e-waste, reducing single-use plastic, repurposing waste, reducing food waste, monitoring bins for contamination, textile recycling, reducing plastic bottle waste, waste-free student lunches, and waste-free meetings and events.

The 2020 dataset is from self-reported student-led waste audit data submitted to Ontario EcoSchools (now EcoSchools Canada) for schools to complete as part of their certification application. Milk cartons, drink boxes, cans and glass, plastics, mixed paper, cardboard, e-waste, solid organics, and liquid organics in school landfill and recycling streams were reported. As schools are instructed not to handle waste directly, visual waste audits were conducted.

Student-Led Waste Audits

Student-led waste audits are a useful education tool to help students understand how much waste is generated in a day and what types of recyclable materials end up in the garbage due to improper sorting. During a waste audit, waste is collected, visually assessed and/or weighed. Ideally, waste audits will cover all waste streams serviced, including garbage, recycling, and organics. Waste audit data is not only beneficial for individual schools, but also for the greater school community. School boards can use waste audit findings to inform strategic initiatives and programs for schools, measure progress towards goals, and help motivate and involve administrators, custodians, school staff, and students.

The 2019 dataset is from Ontario EcoSchools certification applications. In part of these applications, schools were previously required to report on their level of achievement on a variety of waste-related school programs and provided their waste diversion rate. Waste programming involved monitoring paper consumption, using electronic communications, reducing food waste, reusing paper, reusing dishes, hosting waste-free meetings and events, reusing or recycling office goods, school-wide paper recycling, school-wide container recycling, recycling printer cartridges, monitoring bins for contamination, setting waste minimization goals, and completing school-wide waste audits.

The 2016 dataset is from an independent waste study completed by Immacutec Systems Technologies Inc. for Ontario EcoSchools. Waste audits were completed by Immacutec, where both EcoSchools and non-EcoSchools underwent a comprehensive audit or general spot audit. The study reported on the mass of landfill, recycling, and organics streams in total for schools and per student, as well as the schools' overall waste diversion rates.

Data from the four primary datasets were used to build upon research completed within ECCC's 2021 IC&I study by providing greater granularity into waste composition and identifying key correlations to further the understanding of how waste is managed in Canadian schools. Below is an overview of all results from the analysis.

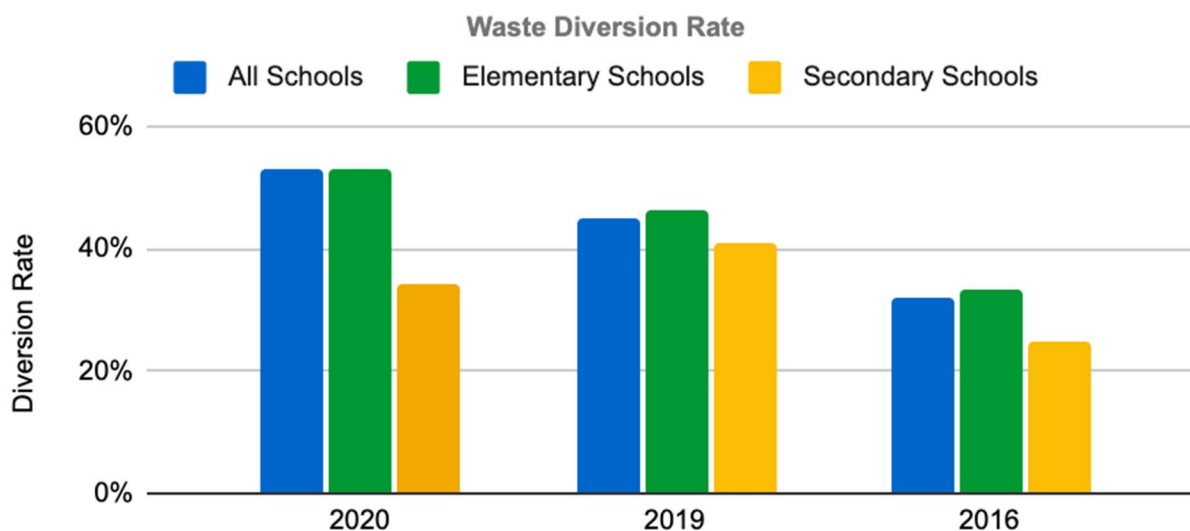
Results - Diversion Rate 2020, 2019, and 2016

Figure 1: Waste diversion rate for the 2020, 2019, and 2016 datasets.

Figure 1 shows a greater diversion rate for elementary schools in comparison to secondary schools in all three applicable datasets. The 2016 waste study data also shows a notable decrease in all diversion rates in comparison to the self-reported datasets.

Results - Proportion of Waste Streams from Schools 2016

Figure 2 provides context to Figure 1, showing that elementary schools have a greater proportion of recyclable and organic material being diverted in their buildings.

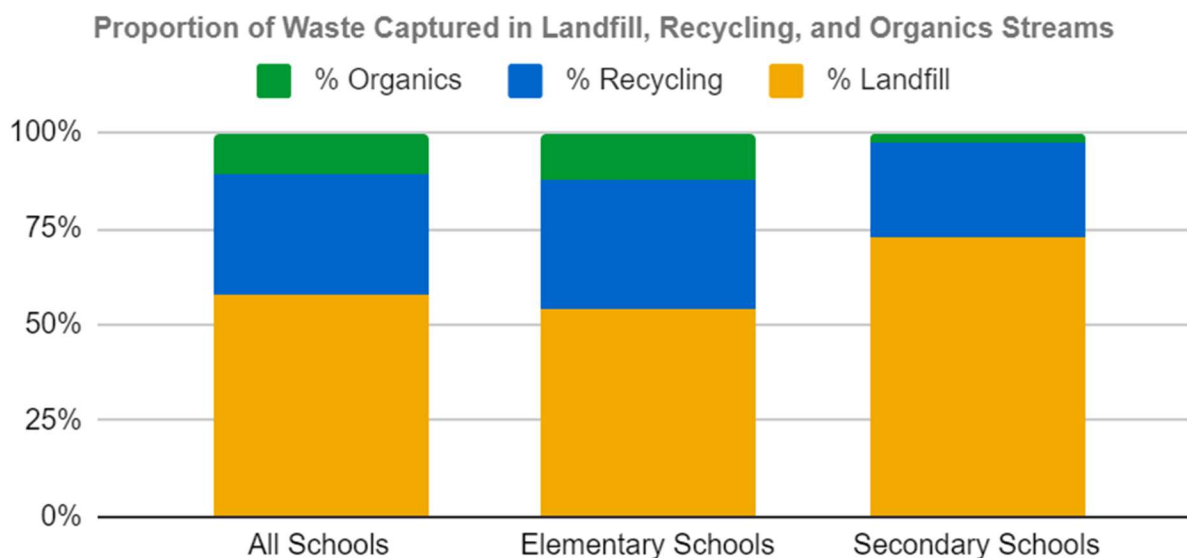


Figure 2: Proportion of landfill, recycling, and organics streams for all schools, elementary schools, and secondary schools from the 2016 dataset.

Results – Landfill and Recycling Stream Compositions 2020

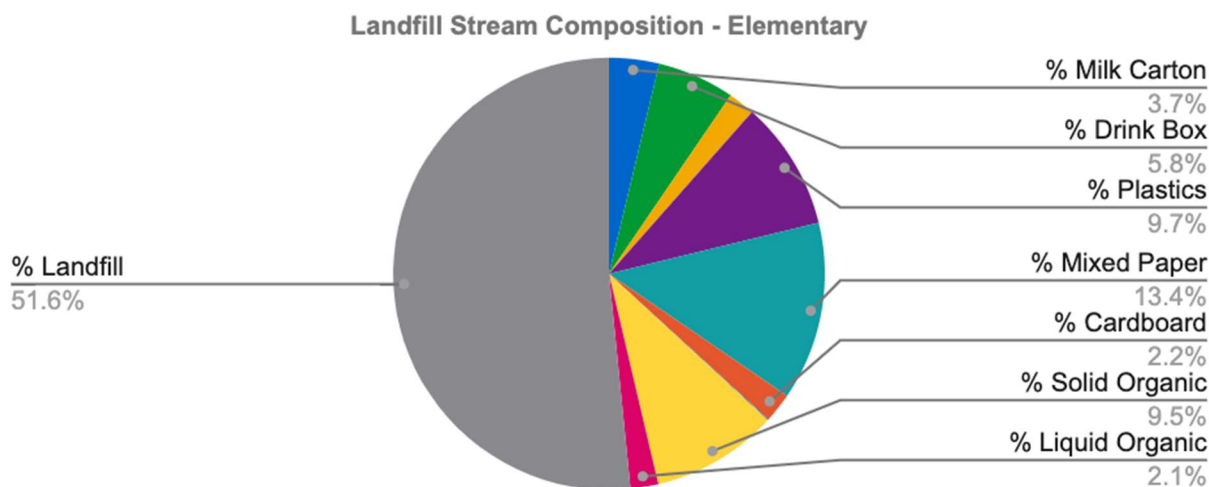


Figure 3: Composition of elementary schools' landfill streams from the 2020 dataset.

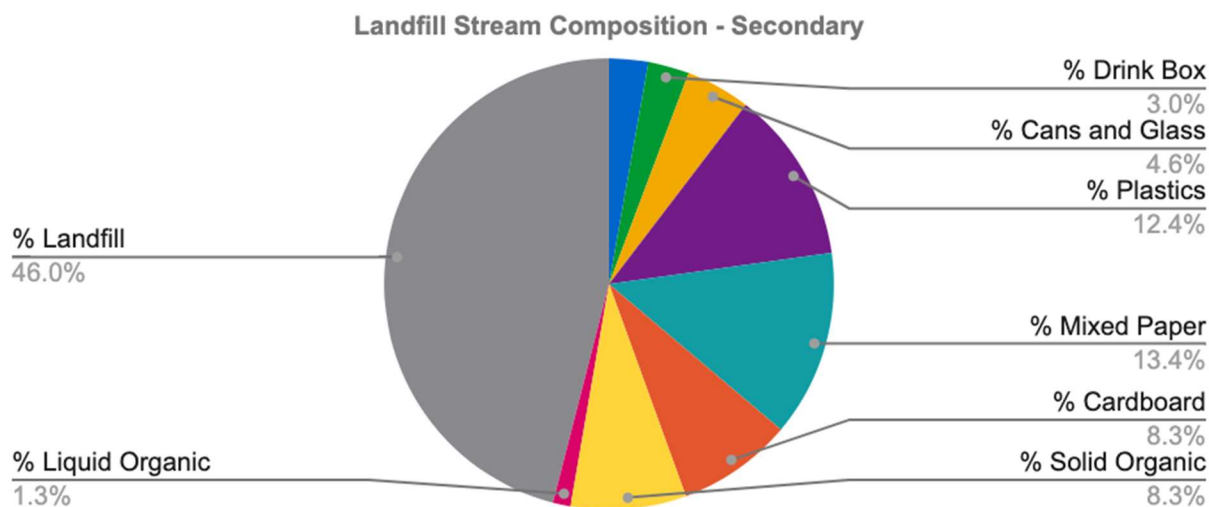


Figure 4: Composition of secondary schools' landfill streams from the 2020 dataset.

Figures 3 and 4 show that roughly 50% of landfill streams in schools audited have some form of recyclable or organic material. Consistent with Figures 1 and 2, elementary schools feature a greater proportion of landfill material in their landfill stream than secondary schools.

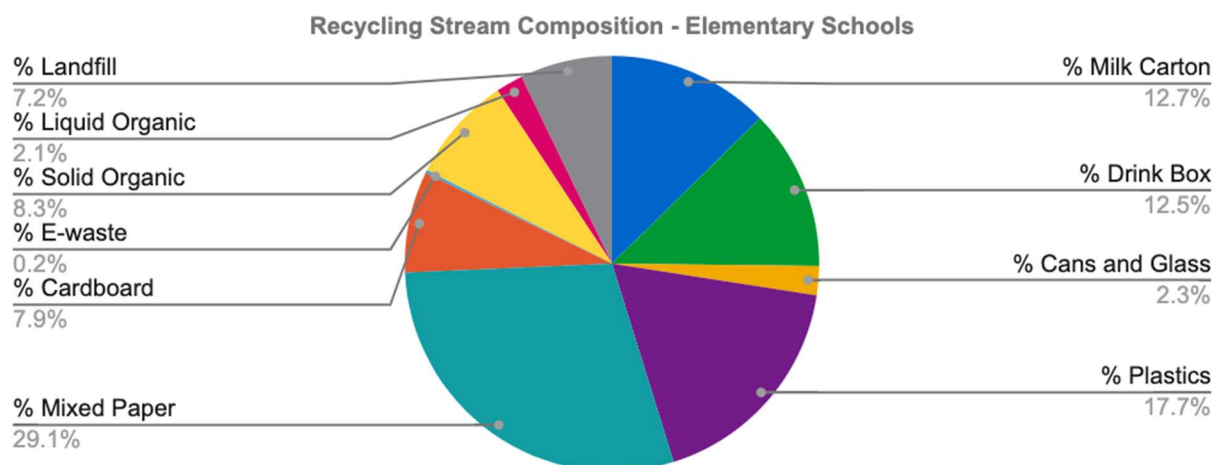


Figure 5: Composition of elementary schools' recycling streams from the 2020 dataset.

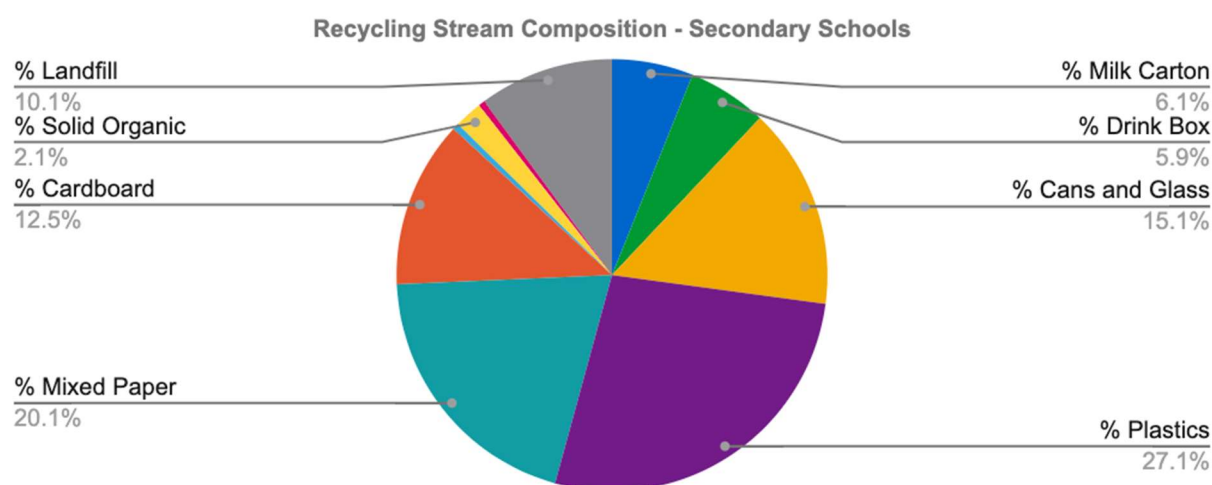


Figure 6: Composition of secondary schools' recycling streams from the 2020 dataset.

Figures 5 and 6 show that the recycling streams for both school types are comprised of over 80% recyclable materials. Deviating from the previous three analyses, secondary schools had the best recycling material composition at 86%, in comparison to elementary schools at 82%. Further, when comparing figures 3 and 5 with 4 and 6, they show that elementary schools produce a greater proportion of milk cartons, drink boxes, plastics, mixed paper, solid organics, and liquid organics in their waste and recycling streams. Secondary schools produce a greater proportion of cans and glass, cardboard, and waste in their waste and recycling streams.

Results - Waste Generated per Student 2020

Table 2: Kilograms of landfill and recycling waste per student based on a 190 day school year, from the 2020 dataset.

	<u>All Schools</u>	<u>Elementary Schools</u>	<u>Secondary Schools</u>
Kg of waste/student (190 days per year)	11.680	14.090	8.443

For representation of the data on the basis of 250 school days per year for comparison with other IC&I sectors that report in FTEs (full-time employees) on a 250 workday schedule, see Appendix A, Table 11.

When analyzing the 2020 data on a per capita basis, it reveals that elementary schools generate more waste per student overall than secondary schools. Although elementary school waste diversion outperforms secondary schools, this data shows that secondary students produce nearly 2kg less landfill material, and 6kg less material overall per school year. This finding is likely due to the noted differences in the ways student-led audits are conducted in school settings. In secondary schools it is often more difficult to collect a fulsome sample of the total waste produced in a typical day within the school, leading to lower waste per student values. It is also noteworthy that although waste audits are an important and necessary educational tool to allow schools to analyze and review the types of waste generated in a typical school day, student-led (often visual) waste audits conducted by schools themselves do not tend to provide accurate masses for each waste category.

Results - Waste Reduction and Diversion Program Popularity 2019 and 2021

Table 3: Waste program guide to be used with Figure 7.

<u>Program Code</u>	<u>Waste Program</u>
1	Monitoring paper consumption with budget tracking, automated sheet tracking, or quotas
2	Using electronic communications to communicate with parents and guardians, or using a sibling list for printed forms
3	Reducing food waste through compost, waste-free lunch, or boomerang lunches
4	Reusing paper with Good On One Side (GOOS) or Reuse It boxes placed in strategic locations throughout the school
5	Hosting waste-free meetings & events

6	Reusing or recycling office and classroom goods, electronics, and/or craft supplies
7	School-wide paper recycling and strategically placed bins throughout the school with minimal contamination
8	School-wide container recycling and strategically placed bins throughout the school with minimal contamination
9	Recycling photocopier toner bottles and printer cartridges
10	Checking for garbage and recycling bin contamination using a monitoring system
11	Setting and sharing waste minimization goals, successes, and areas of improvement for recycling, sorting, reducing waste, or GOOS bins
12	Completing school-wide waste audits, which include a breakdown of materials in garbage and recycling streams and communications to the school community

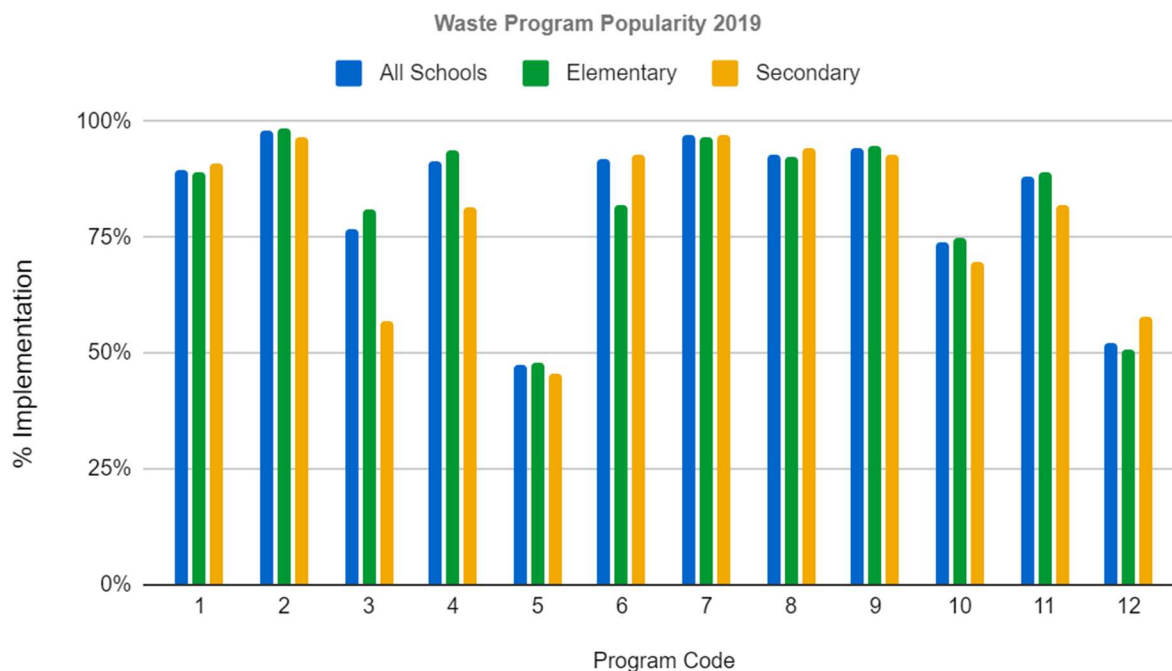


Figure 7: Popularity of waste programs in 2019 for all schools, elementary schools, and secondary schools by percent implementation

Table 4: Waste action guide to be used with Figure 8.

<u>Program Code</u>	<u>Waste Action</u>
1	Collecting, measuring, and assessing 24 hours of garbage, recycling, and organics generated at school
2	Reusing paper with Good On One Side (GOOS) or Reuse It boxes placed in strategic locations throughout the school
3	Collecting electronic waste (e-waste) from the school community and ensuring it is properly reused or recycled
4	Raising awareness and reducing the use of single-use plastics
5	Recycling, repurposing, or repairing items that are not recyclable through typical curbside services
6	Reducing food waste with an awareness campaign and school-wide pledge
7	Tracking and reducing contamination in waste bins
8	Reusing, repurposing, repairing, and recycling textile waste
9	Raising awareness about drinking water and the importance of reducing single-use plastic
10	Reducing waste through bringing a waste-free lunch
11	Hosting waste-free meetings and events

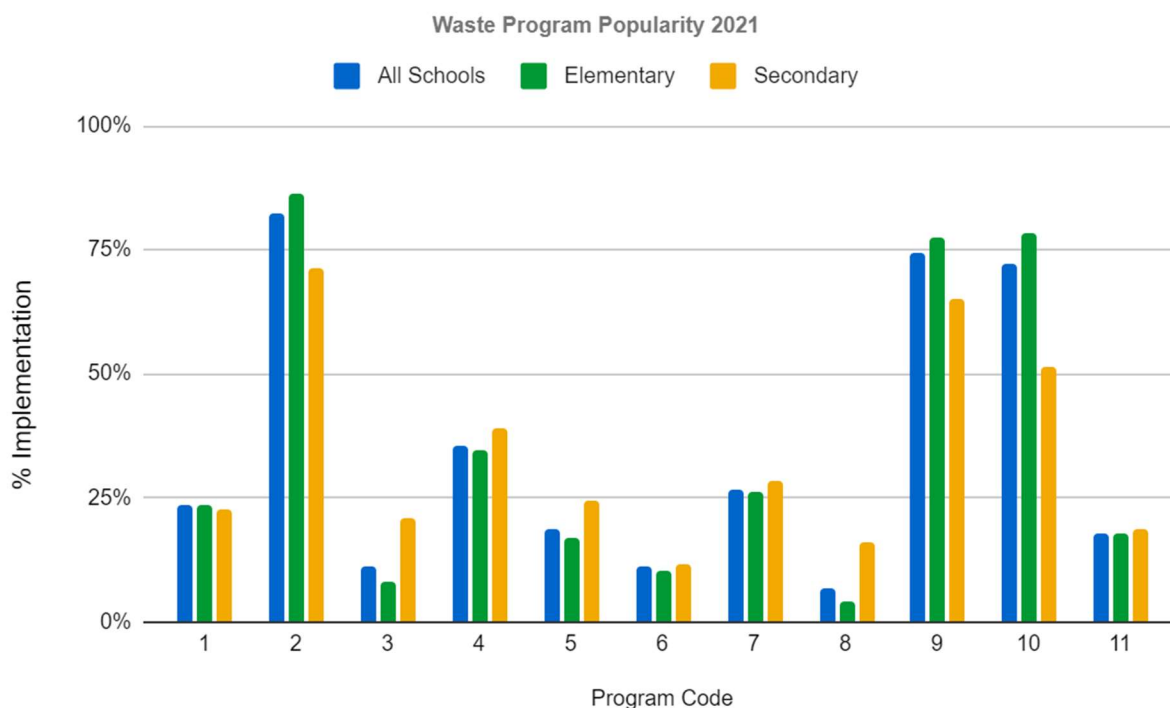


Figure 8: Popularity of waste programs in 2021 for all schools, elementary schools, and secondary schools by percent implementation

Figure 7 shows a majority of schools participating in some form of consistent or frequent school-wide waste programming. Outside of programming related to reducing food waste, elementary and secondary schools were participating in programming at a near-even rate. Figure 8 shows that only actions related to recycling paper, reducing the use of plastic water bottles, and waste-free lunches were implemented by a majority of schools. These three popular actions were also where a notably greater proportion of elementary schools were participating than secondary. In addition, secondary schools were in higher proportion for recycling personal electronic waste, repurposing recyclable material, and textile recycling initiatives.

When comparing Figures 7 and 8, it is clear that waste programming was completed by more schools in the 2019 school year than the 2021 school year. There was a significant change to the application process in 2021 which allowed schools greater flexibility when selecting actions to participate in. School waste management practices were significantly impacted by COVID-19. The combination of difficulty completing waste-related activities due to many schools pivoting to cohort and remote learning, in addition to all other extenuating factors impacting teachers and school communities, resulted in less waste programming being completed. However, it is noteworthy that the three most popular actions from 2021 (reusing paper, reducing the use of single-use water bottles, and waste-free lunches) were those that are most accessible for schools while operating within restricted conditions.

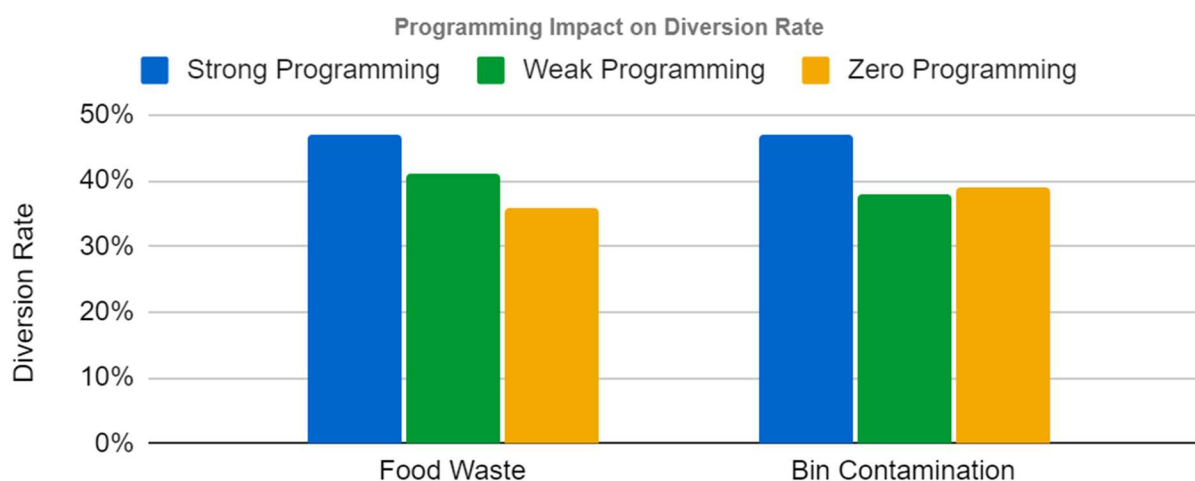
Results - Impact of Waste Programming on Diversion Rate 2019

Figure 9: The impact of food waste and bin contamination programming on school diversion rate, from the 2019 dataset.

Figure 9 shows that overall, strong waste programming has a positive correlation with increased school diversion rates for all school types. Strength of programming was determined in the 2019 dataset through certification applications, where schools reported and were assessed on their level of success in the questions “Do students and staff work towards reducing food-related waste through regular practices (e.g., cafeteria/lunchroom composting, waste-free lunch programs, boomerang lunches)?” and “Do students regularly check for contamination in the garbage and recycling bins using the Waste Minimization Walkabout Worksheet or equivalent monitoring system?”.

Waste Diversion Collection Programs and Service Structure

Methods

Data on the culture, supports, goals, programs, and services related to waste management in Canadian schools was collected through an online survey. Surveys were used to broaden the reach of the study and identify trends based on key sub-categories of interest, such as school type, location, and the level of administrative support around waste management. Surveys were sent out through an email that had an external link to a SurveyMonkey hosted survey on January 13, 2022. Survey responses were incentivized by allowing respondents to enter into a draw to win one of two tabletop food-waste management systems that recycle small quantities of food waste into a nutrient-rich soil amendment for their school. See Appendix B for the school survey questions. Surveys were sent to over 6,000 contacts from the EcoSchools Canada network of school staff members across Canada. In total, 209 full survey responses were received from schools representative of 69 different school boards/districts, which is approximately 33% of all school boards/districts in Canada.

Key Considerations

Due to COVID-19 OMICRON variant related school closures at the time of send-out, a reminder email was sent January 26, 2022 and the survey deadline was extended from January 25, 2022 to February 9, 2022. As shown in Table 5, the survey contact list had a disproportionate amount of schools from Ontario in comparison to the measured distribution of schools across Canada. With EcoSchools Canada's expansion from Ontario-based to a national scope in 2020, contacts are still expanding in other provinces and territories. To supplement distributive gaps, targeted survey request emails were sent to schools and school board staff across Canada. Unfortunately, the response rate was very poor for these "cold call" email requests, and they did not boost responses.

It should be noted that schools participating in the survey had a greater likelihood of having environmental values and high-level waste management practices when compared to all schools in Canada as schools receiving the survey were mostly part of the EcoSchools Canada network. Respondents stated that their school was a part of at least one environmental network in 92% of cases, 94% of which participated in the EcoSchools program. EcoSchools Canada provides a free environmental education program and certification for Canadian schools, which includes programming about waste diversion, reduction, and conducting student led waste audits. It is of note that with EcoSchools Canada's recent expansion to a national scale in 2020, schools contacted outside of Ontario are still relatively new to the program.

Table 5: Provincial distribution of the school survey.

<u>Province or Territory</u>	<u>Approx. Number of Schools</u>	<u>% Distribution of Schools</u>	<u>Individual School Responses</u>	<u>% Distribution of Responses</u>
Alberta	2562 ¹	27.33%	7	3.35%
British Columbia	1936 ²	20.65%	5	2.39%
Manitoba	914 ³	9.75%	1	0.48%
New Brunswick	320 ⁴	3.41%	5	2.39%

¹ Alberta Education, Alberta Schools and Authorities: <https://education.alberta.ca/alberta-education/school-authority-index/everyone/alberta-schools/>

² Government of British Columbia, Education by the numbers: <https://news.gov.bc.ca/releases/2021EDUC0059-001682#:~:text=There%20are%201%2C571%20public%20schools%20and%20365%20independent%20schools%20in%20B.C.>

³ State of the Nation: K-12 E-Learning in Canada: <https://k12sotn.ca/mb/>

⁴ New Brunswick, Education and Early Childhood Development: <https://www.nbed.nb.ca/schooldirectory/?strLang=E>

Newfoundland	250 ⁵	2.67%	0	0.00%
Nova Scotia	477 ⁶	5.09%	1	0.48%
Ontario	4,833 ⁷	51.55%	180	86.12%
Prince Edward Island	62 ⁸	0.66%	0	0.00%
Quebec	3,102 ⁹	33.08%	9	4.31%
Saskatchewan	780 ¹⁰	8.32%	1	0.48%
Yukon	28 ¹¹	0.30%	0	0.00%
Northwest Territories	45 ¹²	0.48%	0	0.00%
Nunavut	49 ¹³	0.52%	0	0.00%

Survey Question Overview

The school survey's primary goal was to gather data on the culture, supports, goals, programs, and services related to waste management in Canadian K-12 schools. By adding supplementary demographic information, results were able to be grouped by key sub-categories of interest, such as school type and location. See Appendix B for a copy of the survey that was distributed to schools. General topics covered in the survey questions included;

- School and respondent demographic information

⁵ Newfoundland and Labrador English School District, District Overview:

<https://www.nlesd.ca/about/districtoverview.jsp#:~:text=As%20of%20June%2C%202020%2C%20the,over%2011%2C000%20employees>

⁶ Nova Scotia, Director of Public Schools 2021-2022: <https://www.ednet.ns.ca/docs/2021-2022directorynspublicschools.pdf>

⁷ Ontario Ministry of Education, Education Facts, 2020-2021: <http://www.edu.gov.on.ca/eng/educationfacts.html>

⁸ Prince Edward Island, Public Schools: <https://www.princeedwardisland.ca/en/information/education-and-lifelong-learning/public-schools>

⁹ State of the Nation: K-12 E-Learning in Canada: <https://k12sotn.ca/qc/>

¹⁰ State of the Nation: K-12 E-Learning in Canada: <https://k12sotn.ca/sk/>

¹¹ Association of Yukon School Councils, Boards & Committees, Yukon Schools: <https://www.ayscbc.org/school-councils/yukon-schools#:~:text=There%20are%2028%20schools%20in,is%20unique%20to%20its%20community>

¹² State of the Nation: K-12 E-Learning in Canada: <https://k12sotn.ca/nv/>

¹³ Government of Northwest Territories, Northwest Territories Directory of Schools 2020-2021: https://www.ece.gov.nt.ca/sites/ece/files/resources/northwest_territories_directory_of_schools_2020-2021.pdf

- Level and types of administrative support received for waste management
- Level of established school culture for waste diversion and reduction
- The presence and type of waste-related goals
- The presence and type of complimentary waste diversion programming
- Participation in student-led waste audits
- Details on curbside landfill, recycling, and organic waste pickup providers and how this is funded
- Material categories accepted in landfill, recycling, and organic waste streams
- Level and types of school-wide participation in ensuring there is no recycling or organic bin contamination
- How COVID-19 impacted waste practices
- Barriers to, and best practices for, participating in waste diversion programs

Data Analysis

Mixed analytical methods were used by the primary researchers to analyze the school survey. Quantitative and close-ended qualitative questions were quantitatively analyzed to uncover percent representation of each answer for each question overall. Five specific sub-themes of school type, municipal population, level of administrative support, presence of waste-related goals, and who determined the goals for the school were analyzed further to identify the distribution of answers for specific categorizations featured within each. Open-ended qualitative questions were thematically coded so all themes could be organized and the strongest and most insightful data was easy to identify. The data revealed core themes, sub-themes, and the popularity of each among participants. After coding, open-ended questions were quantitatively analyzed to uncover the percent representation of each theme overall.

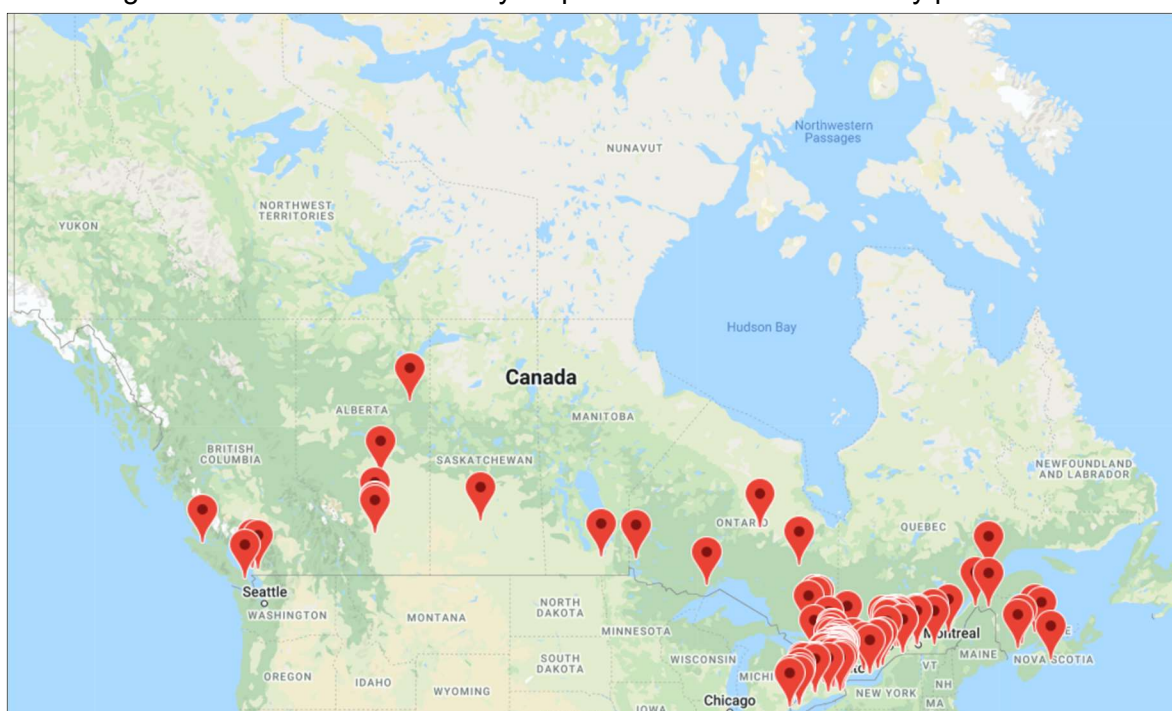
Survey Findings

Respondent Demographics

A total of 209 complete responses were received from the school survey. Over half (58%) of respondents were from elementary schools and 25% were from secondary schools. The remaining 16% of respondents fell into the “other” category, which was for schools who had elementary and secondary students (i.e. K-12, 7-9, or 7-12) and alternative schools. It is noteworthy that 82% of schools surveyed featured a food preparation area or kitchen on-site. The majority of responses came from areas with large populations, with 61% coming from a population greater than 100,000, 12% were from between 99,999 and 30,000, 21% were from between 29,999 and 1,000, and 5% were from a population of less than 1,000. The respondents from populations less than 1,000 are considered “rural” populations¹⁴. Below is a distributive map of all schools who participated, represented by the postal code submitted in the survey.

¹⁴ Statistics Canada, Definitions of Rural - ARCHIVED: <https://www150.statcan.gc.ca/n1/pub/21-006-x/21-006-x2001003-eng.pdf>

Figure 10: Distribution of survey respondents across Canada by postal code.



School Administration Support

Support from school-level administrators was revealed to be a critical factor influencing waste practices in schools. School-level administrators are typically principals or vice principals, and they offer support by being actively involved in organizing and participating in waste goal-setting, encouraging programs and activities, reporting, and communications.

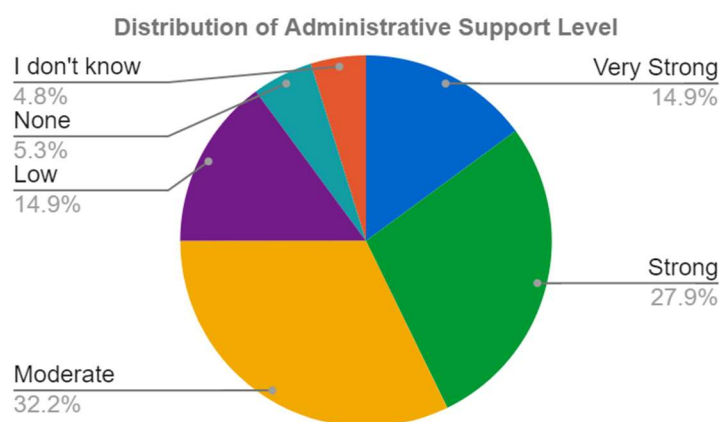


Figure 11: Administrative support levels reported.

The most popular ways administrators supported their schools was through waste-related student workshops (31% of respondents), in-class presentations (27%), external webinars and resources (27%), student trips to waste facilities (17%), and staff workshops (16%). Schools

had at least one of these supports in 81% of respondents and 35% had at least two. Only 7% of schools had four or more. These types of administrative support can lead to a deeper understanding of the importance of waste management practices in schools and help to establish a culture of waste reduction and diversion across school communities.

Respondents stated the administrative support at their school was “very strong” or “strong” in 43% of cases, whereas 32% was “moderate”, 15% was “low” and 10% had none or did not know. Administrative support correlated with these schools having a culture of waste reduction and diversion. Schools with very strong or strong administrative support also had “comprehensive” or “implemented” cultures of waste reduction and diversion in 69% of participants. By comparison, only 30% of schools with low administrative support had comprehensive or implemented cultures.

Administrative support also correlated with goal-setting. Schools with very strong or strong support also had waste-related goals at their school in 71% of cases. Further, there were also correlations with waste programming and active participation in proper waste diversion. Schools with very strong or strong support also had complementary waste programming in 68% of cases, and actively ensured that their recycling (92%) and organic waste (89%) was properly sorted.

The study showed that school type and municipal population size impacted the level of administrative support schools received. Elementary school respondents stated that they had strong or very strong administrative support at a 45% rate, in comparison to secondary schools who were at 31%. Secondary schools also had indicated that they received “low” administrative support in 23% of cases, in comparison to elementary schools who were at 14%. Schools identified as “rural” had the strongest administrative support, at 64% very strong or strong. All other population sizes were at roughly 40%.

School Culture: Waste Reduction Behaviours

School-wide buy-in to create a strong culture around reduction is a vital factor in establishing sustainable waste management practices. In this study, the term “culture”, within the context of this report and as communicated to survey participants, is described as an established culture of waste reduction behaviours and action, with the following definitions; comprehensive (frequent and consistent, school-wide), implemented (consistent/considerable participation), implementing (inconsistent, some participation), emerging (awareness but no active participation), no evidence (not attempted or addressed).

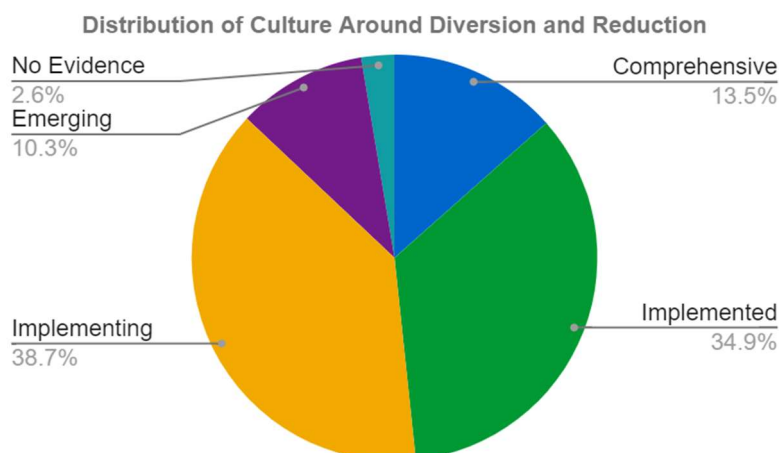


Figure 12: Level of school-wide culture around waste diversion and reduction reported.

Respondents described the culture of waste reduction and diversion at their school as “comprehensive” or “implemented” in 48% of cases, whereas 39% was “implementing”, 10% was “emerging”, and 3% had “no evidence”. Similar to themes in administrative support, elementary schools on average had a greater culture of waste reduction and diversion. Elementary school respondents stated that they had comprehensive or implemented cultures of waste management reduction and diversion in 51% of cases. By comparison, 38% of secondary schools stated that they had the same level of waste management culture. This finding is in line with feedback received from the study’s interviews and focus group, suggesting that it is easier to get younger students involved and enthusiastic about waste practices in schools. The waste programming offered was often described as more accessible to elementary school students.

“One of the interesting problems about waste reduction and diversion attitudes is that most elementary schools have done a fairly good job of training students in blue bins, green bins (if existing) and garbage separation. When they get to high school they seem to forget, lose interest, or don’t care anymore.” - Survey respondent, secondary school

An explanation for stronger waste reduction cultures at elementary schools may be that elementary students are more likely to eat their lunch in their classroom where waste reduction and diversion practices are monitored and supported more easily than in a typical cafeteria environment, as seen often in secondary schools.

Waste-related Goals

Waste-related goals were present in 56% of respondents’ schools. Of these goals, 76% were voluntary. Generally, 39% of goals were established by individual schools, whereas 25% were from the school board level and 11% were from their local municipality.

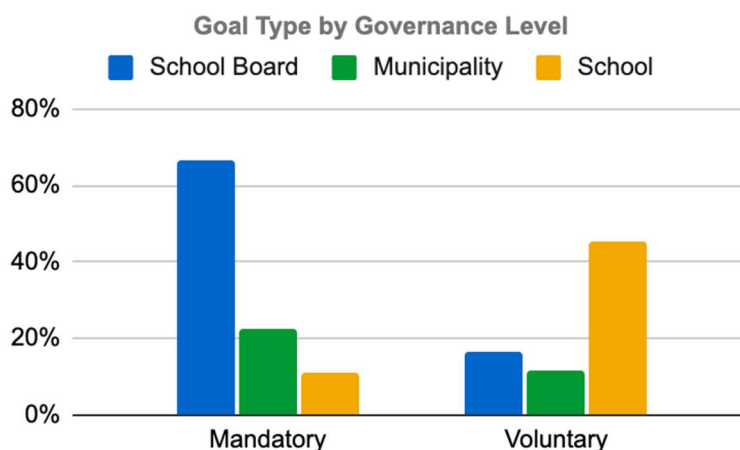


Figure 13: Relationship between the level of school governance informing goals and their voluntary or mandatory status

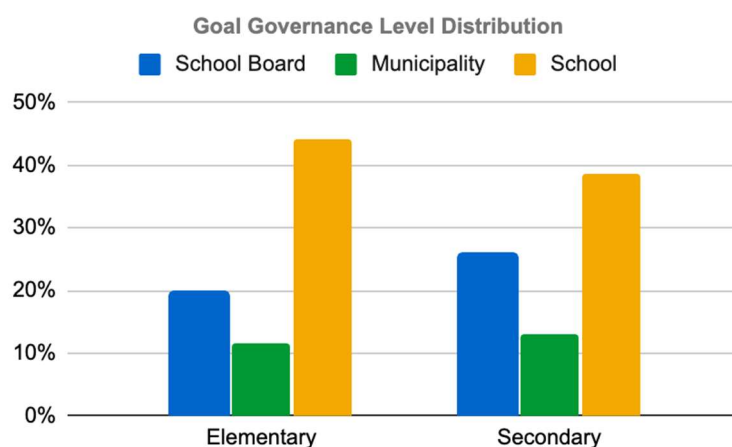


Figure 14: Distribution of the level of school governance level informing goals by school type.

Voluntary goals were set by schools in 45% of cases, followed by 16% being informed by a school board, and 12% from municipalities. Conversely, 67% of mandatory goals were set by school boards, then 22% municipality, and 11% school. Secondary schools were more likely to establish waste-related goals, with 63% in comparison to elementary schools at 50%. Further, elementary schools had more school-informed waste goals at 44% than secondary schools at 39%, showing a slightly greater likelihood of adding goals to predetermined school board or municipal goals, or creating goals despite them not existing at higher levels of governance.

Goals were varied among participants. Goals focused around the theme of school-wide waste reduction in 43% of cases, and 24% were initiatives to add additional diversion streams to their school, such as expansion to a three-stream (landfill, recycling, organics) service system, or adding specific waste recycling for e-waste or batteries. Further, 17% of schools targeted waste

contamination through sorting and monitoring, and 9% focused on increasing education and awareness around waste practices for staff and students.

“We conduct [two] waste audits per year. Our goal is for 90% accuracy in our waste diversion into the proper recycling/garbage streams.” - Survey respondent, elementary school

Interestingly, it was rare for a school to describe a specific goal with a rate of reduction or diversion and a timeline, as is consistent with government and industry targets, with only 10% of schools reporting this type of goal. Most goal descriptions involved broad aims to reduce waste, improve diversion or target specific types of waste.

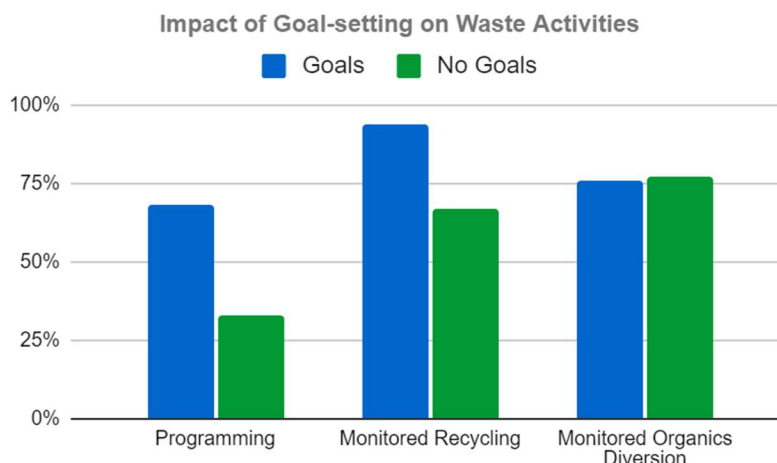


Figure 15: Comparison of school participation in waste programming and diversion activities based on the presence of goals.

Survey results indicate that the setting of goals contributes to better sorting practices and an increased likelihood that a school will introduce complementary waste diversion programming. Schools with goals featured complementary waste programming at their school 35% more, and actively ensured that their recycling was properly sorted 27% more. It is noteworthy that goal-setting had no impact on the active management of proper organic waste sorting; this could be attributed to schools tackling organics waste management after successful recycling practices have already been established, which seems to be the typical trend noted from interview feedback.

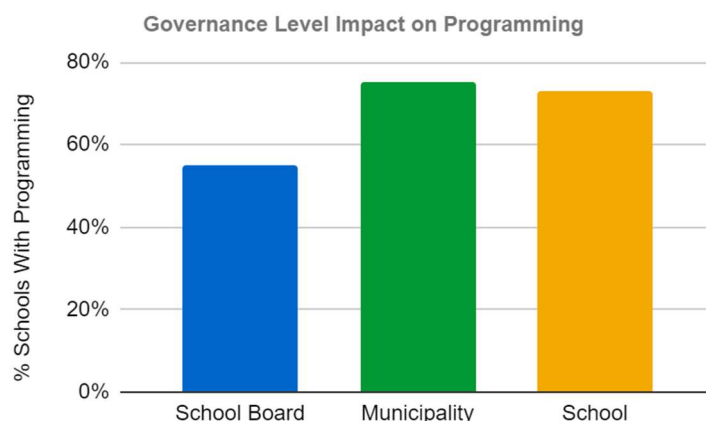


Figure 16: Waste goal influence on the presence of waste programming in schools by governance level

The governance level informing waste goals appears to influence the availability of waste diversion programming in schools. Schools with goals informed by their municipality in 75% of cases, and 73% of schools with goals informed at the school level featured some form of waste-related programming. To a lesser degree, 56% of schools with goals from their school board had waste programming, suggesting that goals set at the school or municipal level have more of an impact on the availability of waste-related programming in schools.

Waste-related Programming and Waste Audits

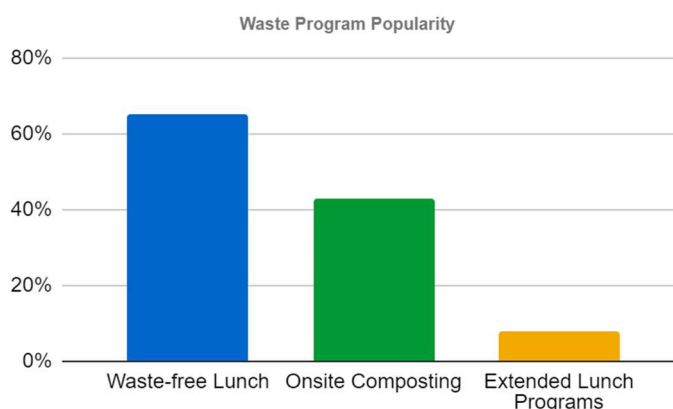


Figure 17: The popularity of programs among schools that feature waste programming.

Of the schools surveyed, 54% participate in some form of complementary waste programs outside of curbside pickup. Waste-free lunches are the most common complementary waste program implemented in schools, at 65%, with onsite composting second at 43%. Only 8% of schools had extended lunch programs, which allow students longer seated lunch times to promote reduction in food waste. Almost all schools with programming had at least one of these

two programs. At 75%, the majority of these complementary waste programs are voluntary, and are run on an individual school basis. It is noteworthy that of the schools with onsite composting programming, 36% of them do not have curbside organics service and 63% used it in addition to their organics services. However, curbside organic pickup can typically accommodate more organic material categories and greater quantities than what can be placed in an onsite composter.

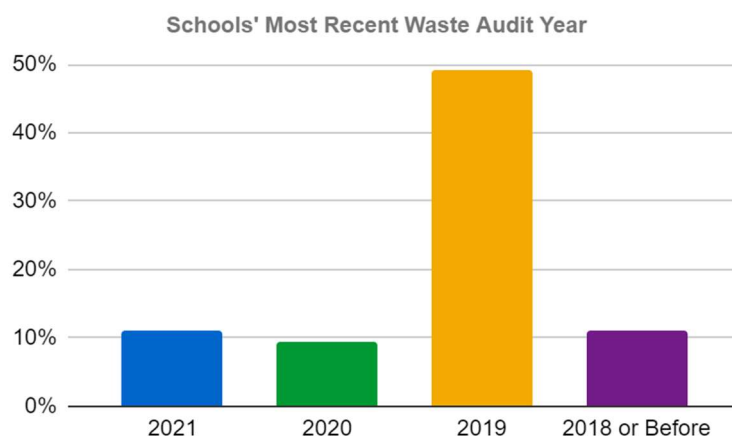


Figure 18: Yearly distribution of schools' most recent waste audit.

In addition, waste audits are an important tool in effective waste management practices that respondents were asked specifically about in the survey. Respondents stated that they completed a waste audit in 60% of their schools. Of this group, 60% completed audits in 2019 or before, due to the disruptions caused by COVID-19.

"We haven't been able to conduct a waste audit or educational campaigns, or really get anything significant started due to so many disruptions in "normal" school schedules." - Survey respondent

Outside of COVID-19's influence, the other primary factor influencing participation in school waste audits are waste-related goals. Schools are 5% more likely to complete a waste audit if they already have waste-related goals, and 11% greater likelihood if those goals are initialized on a school level. Secondary schools had a greater proportion of waste audits completed (67%) than waste programs engaged in (34%). Elementary schools were the contrary, with 57% completing audits, and 63% engaging in programming. This suggests that a takeaway for secondary schools could be to expand learning around waste audits by implementing complementary waste programming alongside this practice.

Landfill, Recycling, and Organic Waste Curbside Collection Services

Respondents provided details about their waste diversion practices and access to regular curbside waste management services for garbage, recycling, and organic waste. Below is an overview of the disposal trends for key material subcategories at schools.

Table 6: Proportion of waste streams used for key material categories in schools.

	Plastic Container	Paper Container	Printed Paper	Food Waste	Paper Towel	Pizza Boxes	School Yard Waste
Landfill	12%	3%	1%	42%	41%	22%	46%
Recycling	85%	93%	97%	2%	14%	54%	4%
Organics	0%	3%	1%	46%	38%	14%	18%

All respondents surveyed stated that their school had curbside garbage pickup, 94% have recycling and 56% have organic waste pickup. It is noteworthy that 78% of schools with an organics service had collection available school-wide, and 18% of schools have the service specific to an area, such as a cafeteria.

The result of schools lacking access to curbside organic waste services is shown in Table 6, where material subcategories of food waste and paper towels are disposed of in landfill and organic waste streams at near-even rates, and school yard waste is disposed of in landfill streams 28% more than organics. Inconsistent diversion practices among schools is shown through the distribution of how pizza boxes are managed. Results show that 22% of schools send pizza boxes to landfill, 54% recycle them, and 14% dispose of them as organic waste. Pizza boxes are often present in schools as a result of regular “Pizza Friday” type events. This variability is caused by different regional waste management practices in combination with the availability of curbside services and education on proper disposal of key materials. Below is an overview of the service provider for the garbage, recycling, and organics services provided to schools surveyed.

Table 7: Service provider for garbage, recycling, and organic curbside waste pickup.

Service Provider	Garbage	Recycling	Organics
Municipality	47%	49%	48%
Private Sector	19%	12%	9%
School Board	14%	14%	11%
Unknown/Other	21%	24%	29%

The majority of curbside services were provided by municipalities for those surveyed. This finding aligns with the information provided in the best practices and case studies outlined

further on in this report, which suggest that municipal collection is a key factor in the success of waste management within schools, with suggestions for the rationale as to why municipalities may be encouraged to provide these services to schools. Private sector and school boards provided services to schools at near-even levels. Notably, roughly 25% of respondents did not know who provided their curbside services. The proportion of respondents not knowing is roughly 50% for all curbside services in questions about who funds these services (See Appendix A, Table 12 for these results). These results suggest that school staff do not have a strong understanding of who provides their school waste services or how they are funded.

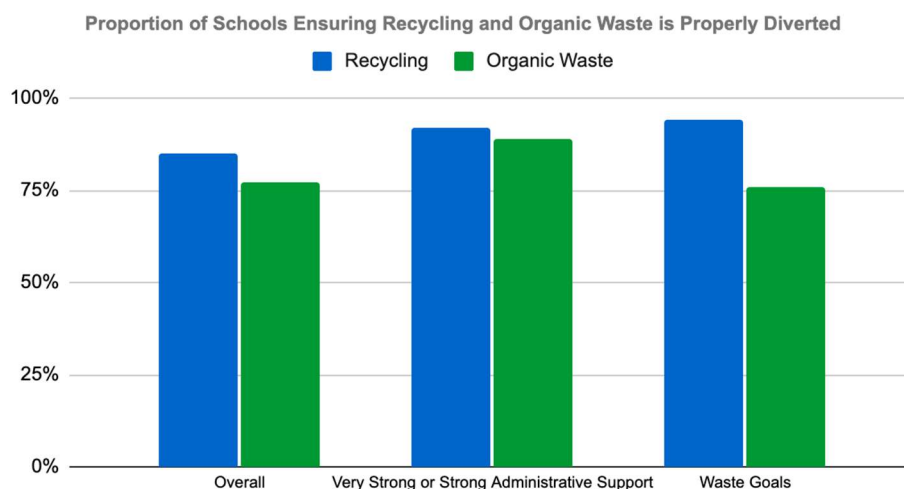


Figure 19: The impact of administrative support and waste goals on the proportion of schools actively engaging in correct recycling and organic waste diversion.

To get the most out of curbside services, schools need to actively participate in ensuring waste is being properly diverted. Overall, 85% of schools with diversion services participated in proper recycling, and 77% similarly ensured proper sorting of their organic waste. These values were increased for schools with very strong or strong administrative support (92% recycling, 89% organics) and if schools had waste management goals (94% recycling, 76% organics).

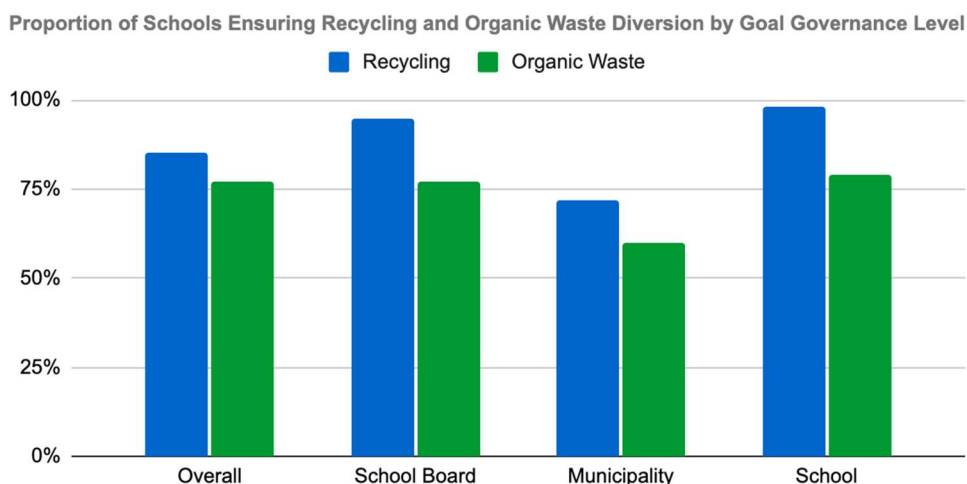


Figure 20: The impact of the level of governance informing waste goals on the proportion of schools actively engaging in correct recycling and organic waste diversion.

If goals were informed by school boards or schools, values were higher (95% or 98% for recycling, 77% or 79% for organics respectively) than municipally-generated goals (72% for recycling, 60% for organics). Further, elementary and secondary schools were near-even for recycling participation (86% and 84%), but were significantly different (80% and 63%) in organics participation. These findings suggest that both strong administrative support and goal setting at the school board or individual school level are important factors in ensuring that schools are making effective use of recycling and organics collection services. Further, there is a need to focus on secondary schools in particular when looking at ways to support schools to actively participate in proper organics diversion, where curbside collections are available.

For schools with recycling and organic waste curbside pickup services, there were a number of initiatives taken on by schools to encourage proper diversion. Below is an overview of the school-run activities that impacted recycling and organic waste diversion and reduction. Schools had at least two of the recycling initiatives in 92% of circumstances, and 38% had six or more. For organic waste, 79% had at least two, and 27% had six or more. In this context, field trips refer to student or class trips to waste facilities, which provide opportunities for students to learn more about where waste ends up, and the importance of correct waste sorting. While such trips are impactful, they are more difficult to organize and so are less popular at 12% and 7%.

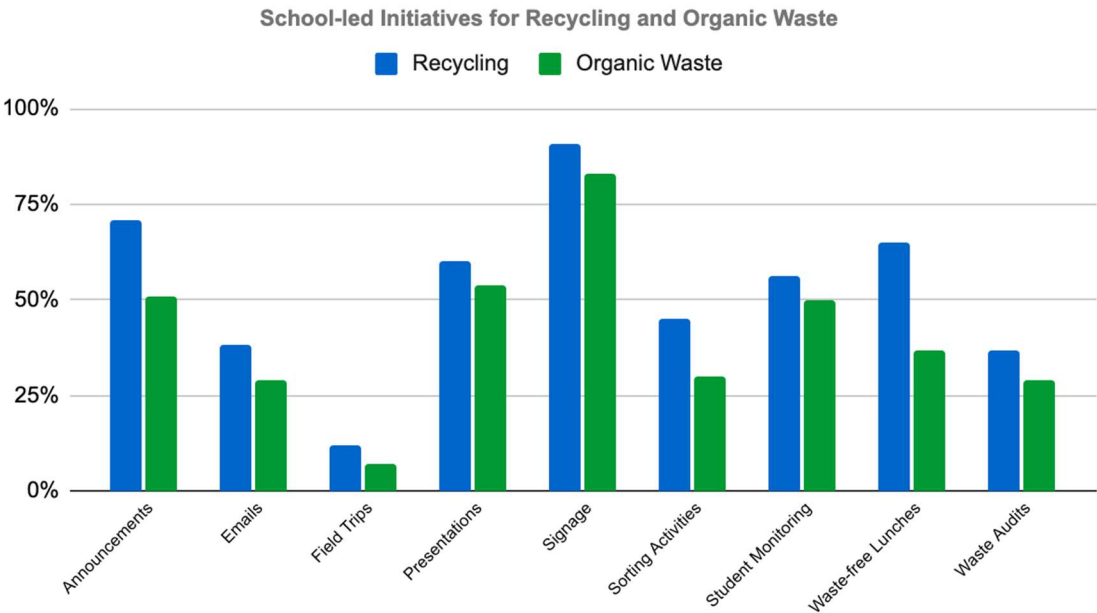


Figure 21: Popularity of different school-led waste activities for recycling and organic waste.

Regional Overview

Methods

In speaking to board representatives and regional organizations across the provinces, it became apparent that school access to recycling and organics collection services was influenced by the broader provincial or municipal waste strategy and regulations in place. Therefore, it was important to develop a broad understanding of general waste management trends and policies in each province, to see how this influenced waste management practices at the school level. In order to gather this information, outreach attempts were made to organizations working with schools in each province. The following organizations responded to outreach requests and participated in interviews:

- Carton Council of Canada (National)
- SARCAN (Saskatchewan)
- Recycle Everywhere (Manitoba)
- Enviro Éduc-Action (Quebec) - *response via email*
- Mouvement ACTES (Quebec) - *response via email*
- The Gaia Project (New Brunswick)
- Divert NS (Nova Scotia)
- Island Waste Management Corporation (Prince Edward Island)
- Multi-Materials Stewardship Board (Newfoundland and Labrador)

A summary of the feedback provided during these interviews, including references to relevant regulations or policies affecting K-12 schools, is included in the table below.

Provincial waste management policies and regulations

Table 8: Examples of provincial waste management policies and regulations referenced in regards to their impact on K-12 schools

Province/Territory	Regulations and/or Policies
Alberta	<p>City of Calgary is working towards zero waste, with a council approved target of 70 percent diversion across all sectors by 2025¹⁵.</p> <p>Through the setting of this target, a business case was developed to secure funding for the Calgary Board of Education to hire a dedicated waste coordinator, and since 2008 the school board has aligned with this target in order to go above and beyond in achieving 80% diversion.</p> <p>The Alberta Depot School Recycling Program was referenced as being a strong motivator for excellent beverage container recycling rates in schools, due to the incentivization of deposit refunds, with the majority of schools participating.</p>

¹⁵ City of Calgary waste and recycling service description: https://www.calgary.ca/ca/city-manager/about-us/our_services/service-waste-and-recycling.html

Manitoba	<p>The Government of Manitoba enacted the Packaging and Printed Paper Regulation in December 2008, requiring beverage producers to recover 75% of all beverage containers sold in Manitoba.</p> <p>As a result, the CBCRA, a not-for-profit, industry-funded organization whose membership includes beverage brand owners and distributors, and its program, Recycle Everywhere 101¹⁶, partner with 92% of K-12 schools in Manitoba to encourage beverage container recycling, by providing bins and in-school programming.</p> <p>The Recycle Everywhere program is funded by the Container Recycling Fee (CRF) charged to all beverage producers supplying into Manitoba.</p>
Ontario	<p>The Region of Peel currently provides recycling collection service to the public school system in Peel and offers waste education programs in the form of curriculum-connected lessons that support the Region's Roadmap to a Circular Economy to help achieve 75 percent waste diversion by 2034¹⁷.</p> <p>In addition, the Region of Peel is expanding this commitment by piloting organics waste collection services to schools starting in 2022. This is in alignment with the Provincial government's 2018 "Food and Organic Waste Policy Statement", which commits educational institutions (with more than 350 students enrolled) to a 70 percent waste reduction and resource recovery target of food and organic waste by 2025. This target must be achieved through the prevention or reduction of food and organic waste; the donation of surplus food before it becomes waste; and/or the recovery of food and organic waste to develop a beneficial use product such as compost.</p>
Quebec	<p>A survey was conducted by the Ministry of Education in Quebec as part of their sustainable development declaration¹⁸. This report shows that 99.3% of schools in Quebec recycle and 44.8% of schools compost organic materials, which is broadly similar to the survey results of this study, (94% have recycling and 56% have organic waste pickup).</p>
Nova Scotia	<p>Nova Scotia has had a landfill ban¹⁹ on material categories such as redeemable beverage containers, corrugated cardboard, newsprint, steel/tin or glass food containers and compostable organics material,</p>

¹⁶ CBCRA Recycle Everywhere 101 K-12 school program:

<https://recycleeverywhere.ca/programs/school/>

¹⁷ Region of Peel Waste Management Strategic Advisory Committee (WMSAC) REVISED agenda:

<https://peelregion.ca/council/agendas/2020s/2020/2020-01-16-revised-wmsac-agenda.pdf>

¹⁸ Ministry of Education in Quebec, Portrait de la Déclaration en matière de développement durable 2021:

http://www.education.gouv.qc.ca/fileadmin/site_web/documents/portrait-declaration-2021-developpement-durable.pdf

¹⁹ Materials banned from disposal sites in Nova Scotia: <https://novascotia.ca/nse/waste/banned.asp>

	<p>in place since 1996²⁰.</p> <p>Divert NS is a not-for-profit corporation championing recycling in the province, and is funded through the environmental fees collected through their beverage container deposit refund program and used tire management program, and the sale of recyclable materials. Divert NS has a network of regional coordinators and educators that work with schools to encourage waste diversion, including conducting regular waste audits.</p> <p>All K-12 schools in Nova Scotia have access to both recycling and organics collection services.</p>
Prince Edward Island	<p>Prince Edward Island has a mandatory source separation program (organics, landfill, recycling and specialized recycling) under the PEI Environmental Protections Act²¹.</p> <p>Island Waste Management Corporation (IWMC), a provincial crown corporation, provides waste management services for all residential and IC&I facilities. Carts are provided to IC&I facilities, with contractors hired for pickup or self-haul to transfer stations. Regulations are enforced through contractors who monitor for contamination and reject contaminated loads, where there is an increased charge for incineration.</p> <p>IWMC provides educational training to schools via in-school presentations and waste audits. All K-12 schools in PEI have access to both recycling and organics collection services.</p>
Newfoundland and Labrador	<p>Certain regions in Newfoundland and Labrador have mandatory recycling programs for the IC&I sector, which has resulted in around 50% of schools within the province participating in the Recycle at School program²².</p>

Beverage container recycling programs

In provinces where beverage deposit systems are in place, such programs were often referenced as being widely popular programs in schools with high levels of participation due to the fundraising incentive for participation, resulting in excellent capture rates for acceptable items. In provinces where there are environmental fees charged to beverage producers, such as

²⁰ Nova Scotia solid waste-resource management regulations made under Section 102 of the Environment Act:

https://novascotia.ca/just/regulations/REGS/envsolid.htm#TOC2_1

²¹ Prince Edward Island Environmental Protection Act Waste Resource Management Regulations:

<https://www.princeedwardisland.ca/sites/default/files/legislation/E%2609-15-Environmental%20Protection%20Act%20Waste%20Resource%20Management%20Regulations.pdf>

²² Government of Newfoundland and Labrador News Release, 'Recycle at School' Program Launches in Western Region of the Island: <https://www.gov.nl.ca/releases/2021/exec/1203n06/>

in Manitoba and Nova Scotia, this funding is used to run programs such as providing recycling containers, educational materials and signage in schools.

Table 9: Beverage container recycling school programs offering free bins and other support to K-12 schools

<u>Province/Territory</u>	<u>Beverage container recycling school programs offering free bins and other support to K-12 schools</u>
British Columbia	ReturnIt School https://www.returnitschool.ca/
Alberta	Alberta Depot School Recycling Program https://albertadepot.ca/programs/school-recycling-program
Saskatchewan	SARCAN Schools https://www.sarcanschool.ca/
Manitoba	Recycle Everywhere 101 https://recycleeverywhere.ca/programs/school/
Nova Scotia	Divert NS https://divertns.ca/sorting-signage
Newfoundland and Labrador	Multi-Materials Stewardship Board https://mmsb.nl.ca/funding-programs/get-matched/

Best Practices for and Barriers to Increasing School Waste Diversion

Methods

School board and perspectives on barriers and best practices for waste management in schools were collected through three qualitative methods: a focus group, an online survey, and interviews. Below is an overview of each.

Focus Group

Focus groups were used to provide perspectives and anecdotal evidence about school waste programming barriers and best practices in Canada. The cohort used for the focus group was the EcoSchools Canada Program Advisory Committee (EPAC). The committee is composed of ten school board representatives from across Canada and two university professors, and is chaired by the EcoSchools Canada Program Director. Attendees from the following school boards and institutions participated in the focus group session:

- Calgary Board of Education
- Calgary Catholic School District
- Durham District School Board
- Halton Catholic District School Board
- Halton District School Board
- Toronto District School Board
- York Region District School Board
- Toronto Region Conservation Authority
- Brock University
- York University

The virtual focus group ran for one hour on December 9th, 2021. The focus group was conducted by the primary researchers, and answers were recorded by hand and copied from the meeting's instant message chat.

Survey

Surveys were used to broaden the reach of the study and identify trends in board-level best practices and barriers. Surveys were initially sent out to 115 school board and board-adjacent staff from the EcoSchools Canada network on January 13, 2022. They were sent through an email that had an external link to the survey on SurveyMonkey. The provincial distribution of the survey was 89% Ontario, 5% Alberta, 5% New Brunswick, and 1% British Columbia. Five complete responses were received for the board survey. Surveys had a poor response rate due to a surge in COVID-19 cases at the time of send-out. As a result of the poor overall survey response rate, interviews with board representatives who support high-level waste practices were completed as a supplementary method.

Interviews

As in the focus groups, interviews were used to provide perspectives and anecdotal evidence about school waste programming barriers and best practices in Canada and supplemented the low response rate of the board-level surveys. The participants chosen for open-ended qualitative interviews were board, municipal, and independent third party staff who directly

interact with schools and school board waste management initiatives. Participants were recruited through the focus group and the school survey. Interviews were conducted between January 18, 2022 and January 27, 2022 and lasted roughly one hour. See Table 10 below for an overview of the participants. The interviews were conducted by the primary researchers, and answers were recorded by hand.

Table 10: Overview of interview participants.

Organization	Location	Board(s) Engaged With	Participant Title(s)
Calgary Board of Education	Calgary, Alberta	Calgary Board of Education	Waste & Recycling Coordinator Sustainability Coordinator
Peel District School Board	Mississauga, Ontario	Peel District School Board	Sustainability Specialist
Toronto Region Conservation Authority	Toronto, Ontario	Peel District School Board Dufferin-Peel Catholic District School Board	Peel EcoSchools Coordinator
Strathcona County	Sherwood Park, Alberta	Elk Island Public Schools Elk Island Catholic Schools	Waste Diversion Program Liaison
The Gaia Project	Fredericton, New Brunswick	Anglophone North Anglophone South Anglophone East Anglophone West	Interim Executive Director Program Delivery Officer

Data Analysis

Focus group, survey, and interview data was combined and underwent a thematic coding analysis by the primary researchers, so all themes could be organized and the strongest and most insightful data was easy to identify. The data revealed core themes, sub-themes, and the popularity of each among participants. This structure was used as the basis of organization for the board-level perspectives on best practices and noted barriers.

Best Practices

There were five primary waste management best practices identified from the qualitative analyses: whole school engagement, strong programming, access to quality data, regional alignment and support, and incentivization. Below is a detailed overview of each.

Whole School Engagement

From a board-level perspective, generating buy-in from the whole school community was the most critical best practice in driving quality waste management. Below is an explanation of key staff members, their roles, and strategies to support them.

Board-level Sustainability Staff

Having a dedicated position or positions responsible for managing and overseeing all waste-related services, data, and communications at the board level was noted as a best practice. These individuals provide a central point of contact for individual schools for waste management related issues, and they develop strategic plans and goals for all schools within the board ensuring a consistent approach and service level for all schools. Maximizing communication channels between these individuals and principals is key for successful waste management in schools. In case studies referenced in this report, the sustainability coordinator position was established in response to waste reduction targets set at the municipal level, once a business case for the role had been established.

Principals

Buy-in from school principals and administrators is important in ensuring programs and policies are enforced at schools. As a result of their position of influence, principals are regarded as the leading contributing factor to successful waste reduction and diversion practices in schools. Consistent communication and reporting, along with providing waste-related education opportunities were mentioned as ways principals were kept engaged in waste management.

Custodians

With waste collection and disposal part of their key responsibilities, school custodians play an integral role in achieving quality waste management in schools. Due to contractual obligations, custodians may be limited in their participation in new waste initiatives. To work within existing contract structures, new waste initiatives need to be implemented strategically and in consultation with custodial staff to ensure there is no net increase to workload.

Communications

Communications between board to school administration, and school administration to their school community is critical for success. Communications must be consistent, and feature reminders, resources, and progress updates. Translated signage and images of where to dispose of materials commonly found in schools are great supplementary communication practices to ensure accessibility.

In addition, at the beginning of each school year, it is important to revitalize communications about waste practices early on to continue momentum from the previous year and to engage new school community members.

“Our student population turns over something like 60% year over year, so constant messaging is important.” - Survey respondent, secondary school

Strong Programming and Services

Below are four waste programming and service best practices as noted by respondents.

Availability of Municipal Collection Services

There appears to be a clear benefit to municipalities including schools in their recycling and/or organic waste pick-up services, as municipalities tend to look to success in other local municipalities when making the decision to include schools in this service. The rationale for why municipalities work with school boards to establish regular collection services is referenced in the IC&I report, *Overview of Organics Diversion Requirements and Practices for the Canadian Industrial, Commercial and Institutional Sector* (2021), although is not well understood; the findings of this report suggest that the rationale typically involves municipalities seeking to achieve broader waste diversion goals or targets, and involving schools in these collections helps to improve economies of scale. In addition, the location of schools within residential areas can result in a lack of cost effective servicing alternatives, and increasing the likelihood of incorrectly sorted waste from non-residential facilities can impact the region's broader waste diversion goals.

Typically, municipalities begin by piloting these services to a group of schools within a school district, before rolling out the services to all schools within the school board. There appears to be a general trend of starting with recycling collection services and then moving onto organics (in regions where organics collection is included in residential pick-up), once established school recycling targets are achieved or the program has been deemed successful.

Modeling waste services after the school board's municipality and/or region is an important best practice. Boards who were able to model their own goals and waste management practices based on municipal goals and messaging had a higher degree of success. Regional alignment added consistency between school and home life for staff and students, allowed for greater buy-in from schools, and brought forward new collaborative opportunities between boards and municipalities. In addition, regional alignment enables schools to use similar signage, colour coding, and bin types that match what is used at home.

In areas where waste pickup is not available from municipalities, school boards are responsible for sourcing these services for their schools. Some boards will also provide vendors for specific waste types, including shredded paper, light bulbs, e-waste, ink cartridges, and scrap metal.

Education and Training

It is important to provide sustained educational resources and training opportunities for the school community when introducing new waste practices or initiatives, such as an organics recycling program or conducting a waste audit. To supplement these practices, offering waste programming such as in-class presentations, workshops, staff professional development opportunities or trips to waste processing facilities, is critical to establish fun, motivational, and curriculum connected waste initiatives within schools. Most high-achieving boards provide some form of waste training and programming, and will also leverage third party programming where available. Examples of additional funded supports boards provide their schools with include waste equipment, including recycling and organics bins, and waste audit kits.

Program Flexibility

Even within boards, schools can differ in municipality, socio-economic factors, and access to services. Boards stressed that in favour of mandating programs, offering flexible options toward

a common goal was more effective. This allows schools to have a sense of ownership over their waste practices, which ultimately leads to greater success.

Popular Programs

Despite flexibility being a central theme, many boards mentioned their schools implement similar garbage, recycling, and organics programming in their schools. Nearly all boards interviewed had a waste-free lunch program, usually in the form of a “boomerang” lunch where staff and students bring any waste from lunches back to their homes at the end of the day. Recycling programs included staff paperless days, paper reuse programs, and various take-back programs with specific vendors (e.g. e-waste and ink cartridges). For boards that did not have organics pickup, onsite composting was a very popular practice.

Access to Quality Data

The ability to baseline and track waste data with regularity is critical for success. Quality data informs impactful reporting and communications, helps tailor strategic initiatives and programs to schools, and measures progress toward goals.

Baselining

Before the launch of a new initiative (e.g. piloting an organics pickup program), baselining is an important process to complete. This could be in the form of a professional waste audit to assess current diversion, or recording the weight of waste being hauled. A popular method of baselining and continued monitoring is via contracted waste haulers who report back on the weight and contamination of waste collected for each stream picked up.

Monitoring

Tracking progress through a data-informed lens is a very important practice. Ideally, waste generation data is regularly reported and presented in a “per capita” format, such as kilograms per student or yards per student, in order to evenly assess the progress of large and small schools. Regular school waste audits to track contamination of all waste streams is also a key monitoring practice.

Reporting

High-achieving boards used waste data as a way to motivate and involve administrators, custodians, staff, and students. Data was often shared in school atriums on televisions or over announcements. In scenarios where boards have sustainability staff, formal reports were shared with schools, showing the contamination levels of the waste they were creating. Individual classroom audit findings can be shared on a poster in each room, highlighting specific classroom-level material categories of focus and progress towards goals.

Incentivization

Most boards were keen to provide incentivization opportunities, such as through offering a prize or reward for successful waste reduction and/or diversion practices in the classroom, or through a certification program to recognise whole-school achievement.

Certification

All participants interviewed recommended the use of a third-party sustainability certification program, such as the EcoSchools Canada program. Certification programs typically allow for flexible, curriculum-connected programming on waste and other topical sustainability initiatives. At the end of each school year, schools are assessed and given a certification level for their achievement.

Operational Cost Savings

Centralizing waste pickup between schools, boards, municipalities, or a combination of each creates cost savings and increased accessibility to waste services through economies of scale. In some cases, municipalities require school boards to apply for services, or participate in a pilot program, in order to establish the benefits of schools within the district receiving municipal collection services. Participation in waste services or programming can also result in significant waste hauling cost savings for schools and boards. For example, fees for landfill tips are reduced by correct waste sorting practices.

Barriers

There were eight core barriers to successful school waste management identified from the qualitative analyses: COVID-19, regional inconsistencies, curriculum disconnect, food services, custodian participation, third party building use, disclosure of waste information, and organics service adoption. Below is a detailed overview of each.

COVID-19

The COVID-19 pandemic had a significant impact on waste practices in schools, primarily in the amount of waste created and the availability of waste programming.

Waste Creation

COVID-19 created a general increase in landfill materials. Personal protective equipment (PPE) such as masks and gloves are a major new addition to landfill streams. In some boards, all soft furnishings needed to be removed, and disposed of, from classrooms for health and safety. In other circumstances, school recycling was paused, and all waste was going to the landfill stream. Further, when food was being provided for administration, staff, and/or students, it had to be packaged individually. The most common individual packaging option is single-use plastic.

Waste Programming

Waste program coordinators were unable to reach schools and classrooms in person due to COVID-19. Most waste programs were able to pivot to online education, but in the case of waste management this is a less effective delivery method than in person. Schools with regular waste auditing or volunteer-run programming were unable to run these programs due to health and safety constraints.

Inconsistent Programs and Services Across Schools

When there are inconsistent services and practices within schools in a board, it is very difficult for boards to build consistent buy-in from schools, as there is a lack of coordinated approach towards a common goal or target. For example, in school districts where there are significant barriers to access recycling services due to schools located in remote areas, it is difficult for the

school board to establish waste diversion targets as not all schools are able to actively participate. For example, in areas where only some schools have recycling pickup, education efforts focus on waste reduction messaging only. Similarly, some boards have rural schools that are so remote that their haulers will not serve the area. These schools either receive less frequent service, or are included in residential pickups. This lack of collective action towards a common waste goal across a region or school district results in less incentivization and the absence of oversight into waste collection data across schools within a board, with waste programming being offered to individual schools on a voluntary basis, with mixed results.

"We desperately need these directives to come at the school board and provincial level. Currently we are working as isolated schools as islands unto ourselves. There are some really amazing programs out there, but there is no support from the ministry or school boards (financial, resources, policy) to keep these programs running." - Survey respondent, elementary school

Curriculum Disconnect

Across Canada, some form of environmental learning is embedded in most school curriculums. Implementing waste programming becomes more streamlined when it is incorporated into in-class learning and curriculum content. Feedback from educators suggested that it was easier to work environmental education, such as waste education, into elementary curriculum. Where programming is not embedded into in-class learning, it has to be done outside of classroom activities, relying on volunteer led activities often ran by individual teacher champions and eco-teams, resulting in less buy-in from the whole-school community.

Food Services

There are additional challenges to managing waste from schools with cafeterias because many sell food items with single-use packaging. The capacity to use reusable cutlery and plates in cafeterias can be limited due to cafeteria staffing and the equipment needed, such as industrial dishwashers and three sink systems. Similarly, meal delivery services are very popular among secondary school students. Students' ability to get take-out from a wide range of restaurants creates a lot of single-use waste. Hot lunch programs and special event catering are common in elementary and secondary schools, and are sometimes used as a fundraiser. Many of these programs and events use single-use paper and plastic for delivering the hot foods, which creates significant amounts of waste. In some boards, schools differ greatly in their meal services. For example, one focus group participant mentioned that their board has schools breakfast programs, others with food vendors who use difficult to recycle single-use plastics, such as Styrofoam containers, and other programs provide hot lunches using reusable plates and cutlery. Implementation of programs becomes difficult when nothing is one-size-fits-all.

Motivating Older Students

Participants in the study noted that secondary schools had overall lower success and engagement in waste practices. In some boards, they are not focusing at all on secondary schools in favor of more receptive elementary school situations.

Custodian Participation

Depending on contractual obligations, custodians may or may not participate in waste practices outside of garbage and recycling collection. This poses a barrier to schools who are implementing organics services, as this component is often not yet included within custodian contracts. As a result, new programming and services rely on individual teacher champions or eco-team activities, which can be hard to maintain year-over-year.

Third Party Building Use

An identified barrier for schools and boards is the use of school buildings by third parties before, during, and/or after school. This is primarily an issue for secondary schools, because they are usually located in large buildings which accommodate additional programs. Examples of programs are continuing education, daycares, lab work, or general facility rentals. These programs are generally run by individuals who are unaffiliated with the school, so managing their buy-in for school or board waste practices is often a major challenge.

Availability of Information on Waste Collected

Not all waste haulers will be in a position to provide regular reporting back to schools and school boards on waste collection services as they do not collect or track information from individual collection points. In this circumstance, boards will need to rely solely on waste audit studies to baseline or monitor their waste disposal trends.

Organics Service Adoption

Based on findings from the IC&I study, *Overview of Organics Diversion Requirements and Practices for the Canadian Industrial, Commercial and Institutional Sector* (2021), food waste is the most prominent waste type in Canadian schools; food waste makes up 42% of the total waste disposed of in elementary schools and 40% of secondary school waste. The greatest barrier in the management of organic waste is a lack of access to curb-side organics services at schools. With the absence of these services, schools with champion students and teachers are relied on for onsite management of organic waste, which is a challenge to organize and maintain. The primary barriers board-level staff cited for implementing curb-side organics services were the cost of the service if this was not provided by the municipality, the smell of the waste and presence of fruit flies, and the unappealing look of the waste containers.

School Level

Best Practices

There were a variety of best practices shared from school staff in their survey responses. Best practices were shared in the form of initiatives presently in effect, or as suggestions for their school, board, or municipality. Best practices were organized into four predominant themes: key infrastructure, education, whole-school engagement, and equipment. Below is an overview of each.

Key Infrastructure

Access to three stream waste management (garbage, recycling, and organics) curbside pickup is essential for maximizing waste diversion. Depending on location, where available, services are coordinated by the school, board, or local municipality.

Education and Training

The need for proper waste education for all school staff and students was the most predominant best practice highlighted in the school survey results. The school community needs to be included in education on the proper management of the different types of waste at their school so they can make correct disposal decisions. Providing schools with educational resources and workshops, and running school-wide campaigns is a best practice. Educational resources may be provided by the school board, the municipality, or a third party organization. Initiatives that were most popular among respondents were participation in EcoSchools programming, on-site composting if there was no organics service, and waste-free or “boomerang” lunches where staff and students were required to take their lunch waste home with them.

“My team has implemented many ideas that I learned at a workshop, so I think providing more professional development and resources for teachers would be useful. Funding is also key.” -

Survey respondent, intermediate school

A best practice is to integrate waste education into curriculum-based learning so there is a limited net increase in workload for staff and students, which also creates more resilient programming that will remain in the event that a teacher champion moves on to another school.

Communications

Effective communication strategies are an important part of the development and maintenance of waste programming. High-achieving schools utilized school-wide announcements, video demonstrations, and virtual hand-outs for students and staff to complement the education and programming being provided at their school.

Whole-school Engagement

The second most popular best practice from the school survey was generating buy-in from all members of the school community. Whole-school engagement is critical for long-term waste management success in school communities. Engagement from school administration, custodians, teachers, students, and parents were all mentioned regularly in best practice questions.

In schools where there is low administrative support towards waste diversion or reduction, the onus falls onto teachers and students if there are to be any established waste practices. Teachers coordinate and supervise waste collection and disposal initiatives. Some student and teacher-led best practices include collecting waste to drop off at waste facilities after school hours, implementing small-scale onsite organics programs such as vermicomposting or outdoor composting, coordinating or monitoring waste sorting, promoting waste-free or boomerang lunches, and connecting with environmental programs for additional resources and support. External funding could be leveraged to assist schools in implementing projects, such as a school garden or a bin system, however, there were very few examples of this type of funding mentioned in the survey responses.

For any of these initiatives to be successful, it requires staff commitment on top of their usual workload, which poses a major challenge for engagement and consistency. Whole school buy-in is critical for waste activities to remain present within school communities that do not have strong regional or board support. In cases where there is an individual champion teacher leading projects, the practices are likely to leave with the teacher in the case that the staff member moves on.

Support from School Boards and Regional Government

For most educators in schools without board level or regional support, there is limited time and energy remaining for waste initiatives. Teachers that introduce waste initiatives to their school and/or support students in doing so have reported that they are using personal time to coordinate and run these activities. While these initiatives can be successful in limited cases with committed students and teachers, for longevity and wide-spread participation in these initiatives, it is critical that schools receive financial, resource, and/or policy support from their school board and/or regional government.

Administrators and Custodians

The most influential position for school-wide buy-in is the school principal or administrative staff. Support and enforcement of waste management at the administrative level in schools sets the precedent for success. In addition, high-achieving schools work alongside custodians, who are actively involved in their waste practices. Plans for new waste initiatives need to be communicated well in advance with custodial staff to find opportunities for collaboration, while acknowledging limitations, and to avoid net increase to workload and issues with contractual obligations. Working in collaboration with facilities staff is a critical final step in managing waste collection and contamination at schools before it is sent for final disposal.

Staff, Students, and Parents/Guardians

Support from parents and guardians can also be an important factor in school waste management, because they are often providing the lunches for their children, and ultimately determine what waste is brought into a school. A popular program in schools is waste-free or “boomerang” lunches. These types of programs engage parents and guardians in school waste practices, and incentivize waste-free lunch options in order to limit the waste coming back to them at the end of the school day. “Boomerang” lunches, where students bring home their waste at the end of each day, can be educational for parents and guardians to learn more about their child’s eating habits, in an effort to reduce food waste.

Equipment

Providing schools with the proper waste management equipment is a critical best practice. All waste types need proper bins and liners, they need to be placed in appropriate and strategic locations, with regular pickup. For organic waste in particular, it is especially important to place bins in strategic locations where smell and potential pest issues are less bothersome. These types of issues are typically mitigated with regular disposal. If organic waste services are not provided to schools, using indoor (vermicomposting) or outdoor composting as an alternative is a best practice for many schools. This practice still requires proper equipment, bin placement, and regular pickup, along with the requirement of an area on the school grounds where the compost material can be effectively used.

Communications

The use of posters and signage wherever bins are located in a school is an important practice to ensure the proper disposal of waste. In schools where there are differences in what is accepted at school in comparison to what is typically accepted in residential waste streams, this should be clearly highlighted in posters and communications. A helpful practice is to create customized posters showing pictures or 3D examples of common waste items found in schools, with clear instructions on where each item should be correctly disposed of.

Barriers

School staff shared a number of barriers impacting their school's ability to properly divert or reduce waste. The most common barriers were COVID-19, poor school engagement, and lack of key infrastructure including support from school boards or districts and/or municipalities.

COVID-19

The COVID-19 pandemic had a significant effect on schools' ability to reduce and properly divert waste. The most common barrier associated with COVID-19 was the overall inability for staff and students to participate in waste management programming and services. Due to COVID-19 measures in schools, mixed-classroom initiatives were stopped, in-person presentations were postponed, and the switch from in-person to virtual learning disrupted momentum and multi-year continuity.

"Prior to COVID I would have put us in the top category but COVID has made some of our practices challenging." - Survey respondent, elementary school

Waste collection was also severely impacted by COVID-19. In some schools, recycling and organic waste services were paused to maximize the efficiency of waste disposal. Further, the addition of personal protective equipment and sanitation products to waste streams made for increased amounts of waste entering the landfill stream during COVID-19 during in-person learning.

Poor School Engagement

Buy-in from all members of the school community is critical to proper waste management. Outside of COVID-19, a lack of participation from all members of the school community was the most commonly mentioned barrier to better waste management at respondents' schools. From a school staff perspective, poor engagement is caused by three primary drivers: workload,

equipment, and facilities. Staff often mentioned the time needed to engage in better waste management practices was outside of their or their colleagues' available time and priorities. An inappropriate amount of bins, areas to keep bins, or areas to sort waste were also mentioned as a core reason for lack of improvement in waste management practices in schools. Finally, some teachers shared that their school experienced issues working with facilities staff, with all separated streams ultimately ending up in the landfill stream for curbside disposal.

Key Infrastructure

Key infrastructure, such as access to regular collection services and board level supports, is critical to high quality waste practices in schools. When infrastructure is limited or non-existent, schools are left to organize waste management programming and services on their own, which becomes difficult to organize and maintain. The availability of quality infrastructure and supports in schools also typically corresponds to the availability of external services, programming, and necessary equipment provided to schools to improve waste management in the school community.

Case Studies

Calgary Board of Education: Success in Waste Diversion

Calgary School District No. 19 or the Calgary Board of Education (CBE hereafter) is an Alberta school district that serves approximately 125,000 students from kindergarten through grade 12 in 250 schools across the City of Calgary. In 2021, they achieved their goal of reducing waste going to landfill by 80% from 2007-2008 levels. They are currently pursuing their goal of a 90% reduction of waste from landfill by 2030 from 2007-2008 levels. Below is an overview of some of the challenges that were overcome and best practices that led to this significant waste management achievement.

Board-level Sustainability Staff

In 2008, CBE hired a Waste and Recycling Coordinator. The Waste and Recycling Coordinator manages all waste-related practices, data, and communications for the CBE and its schools. Part of this role includes sending waste management reports to every school that provides waste data twice per year. Information from the reports is often repurposed by principals and staff from the schools to share with their community. Schools are ranked by diversion rate and the 20 lowest performing schools in the CBE are a key focus of the Waste and Recycling Coordinator. During the CBE's pursuit of an 80% reduction from 2007-2008 levels, their superintendent would present waste data from the highest and lowest performing schools at principal and education director meetings. From there, the Waste and Recycling Coordinator would offer the lowest performing schools insights as to why their diversion was low, and give one-on-one support to help improve their practices.

School Buy-in

School community, principal, and facility operator (responsible for custodial and facility management services) buy-in was critical to the CBE's success. The CBE does not mandate specific programming or services for their schools, instead choosing to offer resources and support. Convincing schools to take on new waste initiatives is often a challenge, so the CBE allows schools to decide what whole-school programming they want to participate in, as long as City of Calgary bylaws are adhered to. Environmental education programs help schools in CBE learn about and implement new waste practices. EcoSchools Canada and Green Calgary were both mentioned as popular programs.

Alignment with the City of Calgary

The CBE's waste services and equipment match those provided by the City of Calgary. Waste signage, colour coding, and bin types are consistent with the City. In 2009, the City of Calgary introduced a municipal recycling program. A few schools had arranged their own recycling services, but through expanded economies of scale the CBE was able to provide one centralized recycling contract for schools that created substantial cost savings. As an incentive, if schools were able to show the CBE that they were improving their waste practices, the CBE would subsidize their recycling and organics pickup. In 2012, the City of Calgary introduced a municipal organics program and in 2017 a local by-law was put in place that requires organics diversion programs be implemented in the IC&I sector. The CBE is covering the cost of the organics service for schools that choose to participate. Organics was regarded as the most challenging program to implement. Smell, fruit flies, and the expense of compostable liners were

the primary barriers. To address these issues, a revised bin placement method was used to limit the amount of bins, and pick-ups were done with more regularity.

Data Collection

The CBE has conducted visual waste audits using clear bags. They also receive the weights of the garbage, recycling, and organics streams collected using technology that allows for site specific weight information from every site and every lift. Audit and weight information is used to track progress and customize individual strategies, inform waste reports, and communicate with schools and administration. To standardize comparison between schools of different sizes, waste data is represented as kilograms per student or yards per student.

Region of Peel: Organics Recycling Pilot

Peel District School Board (PDSB hereafter) is an Ontario school district that serves approximately 150,000 kindergarten to grade 12 students at more than 250 schools in the Region of Peel (municipalities of Brampton, Caledon, and Mississauga). It is the second largest school district in Canada. Its geographical location is shared (with the addition of Dufferin County) with the Dufferin-Peel Catholic District School Board (DPCDSB hereafter), which serves 90,000 kindergarten to grade 12 students at roughly 150 schools.

The Region of Peel provides recycling services to its schools, but garbage services are the responsibility of either school board. In April 2018, the Ontario government issued the Food and Organic Waste Policy Statement, which commits schools with greater than 350 students to a 70% waste reduction and resource recovery target of food and organic waste by 2025. In response to the policy, the Region of Peel proposed an organics pilot involving the two coterminous school boards in the region, PDSB and DPCDSB. This pilot follows on from the Region of Peel providing recycling collection services to the public school system in Peel, and offers waste education programs in the form of curriculum-connected lessons that support the Region's Roadmap to a Circular Economy to help achieve 75 percent waste diversion by 2034.

In the Roadmap to a Circular Economy, under Action 4: Increase resource recovery in Peel's Agencies, Boards, Commissions and Departments, Region of Peel staff identified the opportunity to expand the collection of organic waste into the public school system. The program would join the nearby Niagara Region, Halton Region, and Cities of Hamilton, Toronto, and Waterloo who currently offer their schools organics collection services. In PDSB, school audit information showed that 56% of garbage and 12% of recycling was organic waste, offering the potential to divert 4,900 tonnes of organic waste per year with a region-wide organics program.

In January 2020, a 100-school organics collection pilot program was greenlit by the Region of Peel. PDSB and DPCDSB both have sustainability staff who will be managing the pilot alongside facility managers, who are responsible for custodial and facility management services as part of their role. Due to delays related to the COVID-19 pandemic, at the time of writing, the pilot was scheduled to commence in March 2022 with 40 schools participating. PDSB and DPCDSB have addressed many challenges through the use of a variety of best practices leading to the launch of the organics program.

Whole School Engagement

Especially in the time of COVID-19, adapting to new waste systems and adopting new waste programming is not a top priority for most teachers. The sustainability staff at PDSB and DPCDSB have been steadily communicating with principals, administrators, teachers, and students with reminders and resources to smooth the transition to the new program. They have provided materials, workshops, drop-in sessions, and lunch hour sessions, and have conducted full training sessions with custodians and teachers leading to the pilot launch. They are also hoping to leverage free EcoSchools Canada programming to help incentivize involvement and easily embed waste management into curricula. Ultimately, PDSB and DPCDSB are supporting schools with choice, flexibility, and educational resources to encourage staff and students to take ownership of their waste.

Custodian Involvement

At both school boards, the organics pilot program is required to work within the boundaries of the respective custodial staff contracts. At PDSB, the impact on custodial duties is limited to only changing the type of bin and time of pickup. At DPCDSB, custodial staff are not required to participate in the organics service. Students and teachers are the primary participants in bin disposal and pickup.

Data Collection

Gathering data is a priority of the pilot, so tracking forms are being given to those managing waste in their school. The tracking forms are designed to be easy to complete, requiring a weekly visual assessment of fullness, weight, and the relative contamination of bins.

Leading into their program launch, PDSB and DPCDSB baselined the effectiveness of their current waste diversion practices with a professional waste audit. In addition, they will collect the visual assessment reports provided by the respective organics collectors at the schools, and monthly reports from their waste haulers on the weight of the three waste streams collected. Data will be monitored by sustainability staff, and communicated to schools via principal announcements, information sheets for parents, and through televisions in their school atriums.

Board Level Sustainability Staff

The Peel EcoSchools Program (a program of Toronto and Region Conservation Authority) supports DPCDSB and PDSB schools in EcoSchools certification through educator professional development, the Peel EcoSchools Grant, various student opportunities, and certification recognition. For the School Organics Pilot Program, the Peel EcoSchools Coordinator is involved with program development, educator drop-in sessions, and is hosting a virtual student assembly to supplement student education. In addition, PDSB has a board level Sustainability Specialist on staff who is working closely overseeing the PDSB organics pilot.

Conclusions and Key Learnings

This study has presented strong results to build understanding on waste management practices in Canada's K-12 public sector education facilities. Key trends and considerations are highlighted in this section.

Elementary vs Secondary schools

In general, elementary schools outperformed secondary schools in their waste management practices and results. This relates to the finding that elementary schools typically have a higher level of school administration support, which is the greatest influencer in creating a culture of waste management buy-in. However, there are clear differences in how waste is managed in elementary and secondary school settings. In elementary schools, lunches are typically eaten in a classroom setting, where waste diversion can be more easily controlled with teacher supervision, and waste education and diversion activities are more readily taken on by younger students. In secondary schools, cafeteria settings provide more challenges to waste diversion, and benefit from clear signage, consistent messaging and optimized bin placement. A focus on general waste reduction strategies, alongside waste diversion programming may be of particular benefit to secondary schools.

The role of individuals at the school level in establishing successful waste practices

A strong culture of waste reduction and diversion practices was identified to be the most critical factor influencing overall waste practices in schools. It increases the likelihood of goal-setting, waste programming, and active participation in proper diversion, which are all important components for quality waste diversion and reduction in schools. Specifically, strong waste-related programming correlated with increased diversion rates in schools. A strong culture of waste management, however, can be viewed as the end result of other influential factors present in schools, such as strong administrative support, waste reduction goals and effective programming in place. A strong culture of waste management and diversion practices in schools is also synonymous with whole-school 'buy-in', which was determined as a best practice for establishing lasting and effective waste management programming in schools. This ensures that all members of the school community, from students to educators, administration and custodial staff, are informed of waste management communications and involved in management practices, with strategies in place to ensure cooperation, such as limiting net increase to workload. The Peel Region Organics Waste Pilot is a good example of how both the Region of Peel and its two coterminous school boards are consulting with, and working alongside, principals, teaching, and facilities staff to ensure buy-in prior to implementation, in addition to providing a range of waste educational resources, workshops and other engagement opportunities for schools in the region.

Access to recycling collection services in K-12 schools

The majority of respondents' schools had recycling services. The positive influence of the service on waste diversion is shown in the waste audit results, where the majority of the recycling stream was correctly used for recyclables. For both streams, curbside services were more impactful if hauling data was collected and monitored, and policies within the school community were adopted from strong regional policies. Roughly half of schools surveyed have organic waste services (56%), which was much lower than access to recycling collection (94%).

Anecdotally, from interviewing board level staff, establishing the need for organics collection services typically comes after successful recycling collection has been implemented (as shown in the Region of Peel and Calgary Board of Education case studies).

Municipal support

The majority of curbside services were provided by municipalities, which is an important finding as there appears to be a clear benefit to municipalities including schools in their recycling and/or organic waste pick-up services. Municipalities tend to be encouraged by the success of other local municipalities when making the decision to include schools in these types of services. The findings of this report suggest that the rationale for offering school collection services typically involves municipalities seeking to achieve broader waste diversion goals or targets. One example of this is the case study in Calgary, where waste reduction goals set by the municipality resulted in the Calgary Board of Education (CBE) establishing the business case for a Waste and Recycling Coordinator, aligning with municipal targets, providing coordinated access to recycling collection to all schools in their school board, tracking and measuring waste collection data, and ultimately exceeding the original goal set out by the municipality. As such, the CBE was able to achieve cost savings by centralizing waste collection and through economies of scale, by extending services to all schools in the board.

For regions where there is a lack of coordinated access to recycling collection services, a focus on waste reduction activities, such as promoting waste-free or “boomerang” lunches, and providing educational programming, workshops and resources can still be effective at the individual school level. There are many local and national organizations who provide these types of paid and free supports for schools.

Board or district sustainability coordinators

In both case studies, the CBE and Peel school boards are supported by dedicated sustainability coordinators. Support from the school board in the form of funding, access to curriculum linked resources and opportunities for professional development offered to schools is an important factor in establishing success in waste management across schools within a board. In order to coordinate access to such supports and resources, and track progress and uptake, the establishment of a dedicated sustainability coordinator role is an important next step. In municipalities where there is already an established need to improve waste diversion or reduction, the business case for the establishment of such roles at the school board level appears to be effective, due to the success of such a role in improving waste diversion rates and achieving broader regional waste targets.

Provincial legislation

In the two jurisdictions with broad landfill bans in place, PEI and Nova Scotia, both provincial contacts reported that this has led to all K-12 schools across the provinces having access to both recycling and organics collection services. Going beyond providing access to services however, strong regional waste targets and regulations also lead to the establishment of sustainability coordinator roles at the school district level. For example, in Nova Scotia, the province is split into seven waste regions, each with a dedicated waste program coordinator who works with schools in their respective region to conduct twice-annual waste audits and provide school presentations, education, and support. The existence of school board or district

level sustainability staff is a key component of ensuring successful waste practices in schools. Case studies and interviews have shown that typically these roles are also key to developing board-level strategic plans, tracking waste data and metrics, providing education and support, and establishing goals around sustainability.

Beverage container recycling programs

In provinces with deposit-return programs for beverage containers, this resulted in extensive uptake in all schools with access to this service, due to the incentivization in fundraising for participation at the individual school level, resulting in excellent diversion rates for acceptable containers. In provinces where there are environmental fees charged to beverage producers, this funding is used to run programs such as providing recycling containers, educational materials and signage in schools.

Long term impacts of COVID-19 on waste management practices in schools

The COVID-19 pandemic has had a major impact on waste creation, programming, and results in schools. Pre-pandemic there was strong overall school participation in waste-related programming. Waste programming results from the middle of the pandemic in 2021 showed a major drop-off in popularity of practices such as conducting waste audits, sorting waste, and reducing food related waste, with only activities related to reducing paper waste, and promoting waste-free lunches and behaviours remaining popular during the 2020-2021 school year.

The importance of data collection and student-led waste audits

Effective data collection at the school board level is an important next step once a waste goal or target has been established. Going beyond educating schools in the importance of waste reduction and diversion, collecting data from waste haulers where available, or by encouraging schools to conduct regular waste audits, is imperative to track progress and provide relevant information to improve waste management processes at the individual school level. Identifying areas of improvement at the individual school level should correspond with the provision of additional supports from school boards, for example by providing opportunities for professional development, curriculum linked education resources, or by utilizing third-party programming.

COVID-19 had a significant impact on the practice of school waste audits, one of the most important educational and data-collecting waste management practices for schools. Although a majority of respondents' schools have completed waste audits, most have not participated in them since the pandemic began. For schools looking to re-establish effective waste programming and initiatives, conducting a waste audit is a good place to start to establish where to focus activities, and should be followed up with related programming and educational resources.

Appendix A: Supplementary Data Tables

Table 11: Kilograms of landfill and recycling streams per student based on a figurative 250 day school year for comparison with the IC&I sector, from the 2020 dataset.

	<u>All Schools</u>	<u>Elementary Schools</u>	<u>Secondary Schools</u>
Kg of waste/student (250 days per year)	15.369	18.540	11.110

Table 12: Service funder for landfill, recycling, and organic curbside waste pickup.

Service Funder	Landfill	Recycling	Organics
Municipality	12%	25%	30%
School Board	35%	23%	17%
Unknown/Other	53%	53%	52%

Table 13: Environmental Education Programs Mentioned in Survey Responses

	Environmental Education Program	Location	Survey Frequency
National Programs	EcoSchools Canada	Canada	181
	Learning for a Sustainable Future (LSF)	Canada	13
	UNESCO Associated Schools Network	Canada	2
	World Wildlife Fund for Nature (WWF-Canada)	Canada	2
	Breakfast Club of Canada	Canada	1
	The Classroom Energy Diet Challenge	Canada	1
	The Canadian Parks and Wilderness Society (CPAWS)	Canada	1
	Crayola ColorCycle	Canada	1
	Earth Rangers	Canada	1
	Fashion Takes Action	Canada	1
	Green Learning Canada	Canada	1
	Green Spaces Learning Network	Canada	1
	National Conservation Foundation (NCF) - Envirothon	Canada	1

	TakingITGlobal	Canada	1
	Terracycle	Canada	1
Provincial Programs	Mouvement ACTES	QC	3
	The Gaia Project	NB	2
	Enbridge Gas Energy School Challenge	ON	2
	Inside Education	AB	1
	FarmToSchoolNB	NB	1
	FoodForAllNB	NB	1
	Nature Trust of New Brunswick	NB	1
	New Brunswick Environmental Network	NB	1
	EcoSource	ON	1
	Ontario Schools Battery Recycling Challenge (OSBRC)	ON	1
	Ophea's Healthy Schools Certification	ON	1
	Matières Vertes	QC	1
	Vert-Brundtland	QC	1
	Bruce Peninsula Biosphere Association	Tobermory	1
	Credit Valley Conservation	Mississauga	1
	Green Calgary	Calgary	1
	Albion Hills Conservation Park	Caledon	1
	Albion Hills Community Farm	Caledon	1
	Bay Area Restoration Council (BARC)	Hamilton	1
	Environment Hamilton	Hamilton	1
	Green Ventures	Hamilton	1
	Halton Food for Thought	Burlington	1
	Social Enterprise Education (SEED)	Midland	1
	Petitcodiac Watershed Alliance (PWA)	Moncton	1
	ACAP Saint John	Saint John	1
	EcoSpark	Toronto	1
	Etobicoke Field Studies Centre	Brampton	1
	Evergreen Brick Works	Toronto	2
	FoodShare Toronto	Toronto	1

Regional Programs	The Stop Community Food Centre	Toronto	1
	Toronto and Region Conservation Authority (TRCA)	Toronto	1
	University of Toronto Trash Team	Toronto	1

Appendix B: Survey Questions

Introduction

Hello! Thank you for completing this survey.

Your participation will help us to identify current recycling practices and barriers to increasing recycling efforts within school communities. This survey should take no longer than 15 minutes to complete. Please note that your input will be considered as part of a larger data set. ECCC and EcoSchools Canada will keep all information provided confidential.

EcoSchools Canada is requesting your input by completing the following survey questions by **11:59pm EST on Tuesday, January 25, 2022**. If you have any questions regarding the survey or the EcoSchools program, please email us at programs@ecoschools.ca with your inquiry.

If you provide your email address at the end, you will be entered into a draw to win one of one of two [FoodCycler](#) systems for your school. Prizes will be provided by EcoSchools Canada. Terms and conditions apply [\[link to website TBD\]](#).

The email is used only to contact you if you win the draw. You will not be added to any mailing lists as a result of sharing your email address. If an email address is not provided, the survey will be submitted anonymously.

Respondent Information

- What is your primary role? (If you have multiple roles, select the option that best reflects your primary role).
 - Teacher
 - Principal
 - Vice Principal
 - Educational Assistant
 - Early Childhood Educator
 - Librarian or Teacher-Librarian
 - Secretary/Administrative staff
 - Custodian
 - Outdoor Education Facilitator
 - Child and Youth Worker
 - Other: _____
- What type of school do you work in?
 - Elementary (K-3, K-5, K-8, etc.)
 - Intermediate (Gr 6-8, 7-8, 7-9)
 - Secondary (Gr 9-12)
 - K-12
 - 7-12
 - Alternative

- Other (please specify): ____

School Information

- What is the full name of your school?
 - Text box
- What is your school's postal code?
 - Text box
- What is your school's total student enrollment number?
 - Text box
- Which school board/district are you part of? Please write out the full name of your board/district. If you are with a private school, write "Private/Independent".
 - Text box
- Which province or territory is your school located in?
 - Drop down list of provinces and territories
- What is the population of the municipality in which your school is located?
 - Rural (less than 1,000)
 - Between 1,000 and 29,000
 - Between 30,000 and 99,999
 - 100,000 or more
- Does your school have a food preparation area or kitchen onsite?
 - Yes
 - No
- Does your school participate in any environmental network, partnership, or certification programs (for example, EcoSchools certification)? If so, please include a list of programs.
 - Text box
- Does your school receive any of the following administrative supports around waste diversion or reduction? For example, from your principal or board/district. Please select all that apply.
 - In-school presentations
 - Workshops for school staff
 - Workshops for students
 - Student/class trips to waste facilities
 - External webinars/resources
 - N/A
 - Other (please specify)
- How would you describe the level of administrative support around waste diversion or reduction at your school?
 - Very strong support

- Strong support
 - Moderate support
 - Low level of support
 - No support
 - I don't know
- Please describe the administrative support provided around waste diversion or reduction at your school.
 - Text box
- How would you describe the culture of waste reduction at your school? For example, is there an established culture of waste reduction behaviours and action at your school.
 - Comprehensive (frequent and consistent, school-wide)
 - Implemented (consistent/considerable participation)
 - Implementing (inconsistent, some participation)
 - Emerging (awareness but no active participation)
 - No evidence (not attempted or addressed)
- How would you describe the culture of waste diversion practices at your school? For example, is there an established culture of behaviour and action towards ensuring waste items are sorted and placed in the correct waste stream.
 - Comprehensive (frequent and consistent, school-wide)
 - Implemented (consistent/considerable participation)
 - Implementing (inconsistent, some participation)
 - Emerging (awareness but no active participation)
 - No evidence (not attempted or addressed)

ALL RESPONDENTS

- Are you aware of any factors that affect your schools waste reduction and diversion attitudes and behaviours? Please describe.
 - Text box
- Additional comments:
 - Text

ALL RESPONDENTS

Waste Policies

- Does your school have any waste diversion or reduction goals that you are aware of?
 - Yes
 - No
 - I don't know

If YES

- Please describe your school's waste-related goals:
 - Text box
- Do you know at what level your waste-related goals or policies are informed by?

- School
 - Board/district
 - Municipal
 - Provincial
 - I don't know
 - Other (please specify):____
- Is your school's waste-related goal or policy voluntary or mandatory?
 - Mandatory
 - Voluntary
 - I'm not sure
 - Other (please explain):____
 - Additional comments:
Text box

Complementary Waste Diversion Programs

- Does your school participate in a complementary waste diversion program, such as boomerang lunches, on-site composting, or extended lunch programs?
 - Yes
 - No
 - I don't know

If YES

- Does your school participate in any of the following complementary waste diversion programs? Please select all that apply.
 - "Boomerang" or Waste-Free Lunches
 - Extended lunch programs
 - On-site composting
 - Other (Please specify):
- Please describe your school's complementary waste diversion program(s).
Text
- Is your complementary waste diversion program a board/district level initiative?
 - Yes
 - No
 - I don't know
- Is your school's participation in a complementary waste diversion program mandatory?
 - Yes
 - No
 - I don't know
 - Additional comments:

Waste Audit Information

- Has your school ever completed a waste audit?
 - Yes

- No

If YES

- What year did you last complete a waste audit?
Text box
- What was your approximate diversion rate?
Text box

ALL RESPONDENTS

Waste Collection

- Who provides the garbage collection service at your school?
 - Municipality
 - School board/district
 - Private sector
 - I don't know
 - Other (please specify):
- How is your school's garbage collection service paid for?
 - Provided by municipality at no cost
 - Provided by the school board/district
 - Funded by a grant
 - I don't know
 - Other (Please Specify):____
- If applicable, which of the following material categories are accepted in each of your school's waste streams?

	Recycling	Organics	Garbage	I don't know	NA
Plastic containers and/or packaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper containers and/or packaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Printed paper (e.g. photocopies, newspapers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper towels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Pizza boxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
School yard waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Additional comments
Text box

Recycling Collection

- Do you have a recycling collection service at your school?
 - Yes
 - No
 - I don't know

If YES

Recycling Information

- Who provides the recycling collection service at your school?
 - Municipality
 - School board/district
 - Private sector
 - I don't know
 - We don't have a recycling collection service
 - Other (please specify):
- How is your school's recycling collection service paid for?
 - Provided by municipality at no cost
 - Provided by the school board/district
 - Funded by a grant
 - I don't know
 - Other (Please Specify):
- Does your school actively participate in ensuring that waste is properly recycled?
 - Yes
 - No
 - I don't know
 - NA

If YES

- How does your school actively participate in ensuring that waste is recycled? Please select all that apply.
 - Providing signage around bins

- Field trips to recycling facilities
- School/classroom presentations
- Email communications
- Announcements
- Participation in school waste audits
- Student-led waste monitoring
- Participation in waste sorting activities
- Waste-free or “boomerang” lunches
- Other (please specify):

If NO

- Are you aware of any reasons why your school does not participate in ensuring that waste is recycled? Please describe.
 - Text box

ALL RESPONDENTS

Organics Collection

- Do you have an organics collection service at your school?
 - Yes
 - No
 - I don't know

If YES

Organics Information

- Is collection available school-wide, or exclusively in a food preparation area?
 - School-wide
 - Food preparation area only
 - I don't know
 - Other (please specify): ____
- Who provides the organics collection service at your school?
 - Municipality
 - School board/district
 - Private sector
 - I don't know
 - We don't have an organics collection service
 - Other (please specify):
- How is your school's organics collection service paid for?
 - Provided by municipality at no cost
 - Provided by the school board/district
 - Funded by a grant
 - I don't know
 - Other (Please Specify): ____
- Does your school actively participate in ensuring that organic waste is properly diverted?

- ☐ Yes
- ☐ No
- ☐ I don't know
- ☐ NA

If YES

- How does your school actively participate in ensuring that organic waste is diverted?
Please select all that apply.
 - ☐ Providing signage around bins
 - ☐ Field trips to recycling facilities
 - ☐ School/classroom presentations
 - ☐ Email communications
 - ☐ Announcements
 - ☐ Participation in school waste audits
 - ☐ Student-led waste monitoring
 - ☐ Participation in waste sorting activities
 - ☐ Waste-free or “boomerang” lunches
 - ☐ Other (please specify):

If NO

- Are you aware of any reasons why your school does not participate in ensuring that organic waste is diverted? Please describe.
 - ☐ Text box

All Respondents

Additional Feedback

- How has COVID-19 impacted waste practices within your school?
 - ☐ Text box
- We are interested to hear about any other barriers to participating in waste diversion programs (container/paper recycling and/or organics recycling) in your school that have not been covered so far. Please provide details here. For example, lack of interest, difficulties getting students to participate, container locations.
 - Text box
- In your experience, have you noticed any best practices or tips for how to better support successful container (e.g. plastic, paper) diversion programming in schools? For example, principal or board/district level supports, educational resources, workshops.
 - Text box
- In your experience, have you noticed any best practices or tips for how to better support successful organics (e.g. food waste, paper towel) diversion programming in schools? For example, principal or board/district level supports, educational resources, workshops.
 - Text box
- Any additional comments:

- Text box

Thank You

Thank you for participating in this survey. All your responses will remain confidential and will be used to inform a general report on the availability of, and access to, waste related programs in schools across Canada. **To enter our draw for one of two [FoodCycler](#) systems for your school, please enter your email address below. Prizes will be awarded by EcoSchools Canada. Terms and conditions apply [\[link to website TBD\]](#).**

The email is used only to contact you if you win the draw. You will not be added to any mailing lists as a result of sharing your email address. If an email address is not provided, the survey will be submitted anonymously.

Text field