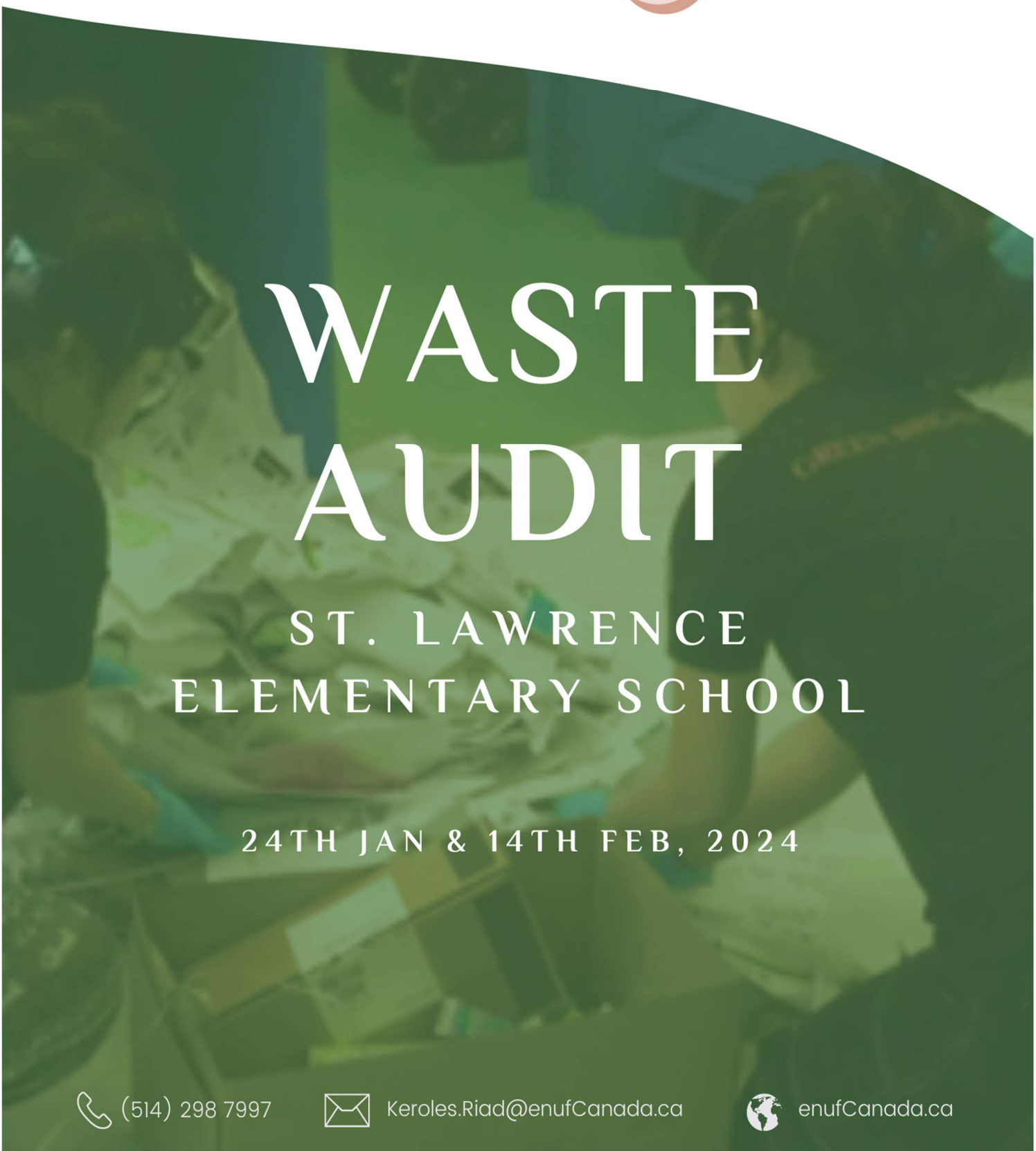
Certified B Corporation

enuf



WASTE AUDIT

ST. LAWRENCE ELEMENTARY SCHOOL

24TH JAN & 14TH FEB, 2024

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About *enuf*

enuf is a B-Corp whose mission is to do whatever it takes to solve the waste crisis. We work for cultural change in two interrelated ways: by helping to build better infrastructure for waste sorting and organics collection, and by running education and awareness campaigns in institutions and with the public. We work with cities, businesses and schools at all levels, and are involved in social mobilization in partnership with community organizations.

enuf is co-founded by three equal partners: one woman and two immigrant people of colour. We benefit greatly from a broad range of diverse perspectives within our team. We have recently become a "Benefit Corporation" (B Corp), which we pursued to ensure that we are anchoring our organization in sustainability best practices from the get-go. For example, our legal incorporation articles include the following text to ensure that executive officers can make decisions for social good, even if such decisions do not maximize profit, without being liable to shareholders:

"The purpose of the Company shall include, but is not in any way limited to or restricted by, the creation of a positive impact on society and the environment, taken as a whole, from the business and operations of the Company, which impact is material in view of the size and nature of the Company's business".

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Introduction:

We conducted a preliminary waste audit for ***St. Lawrence Elementary School*** on Wednesday 24th January 2024, and a follow-up audit on 14th February 2024. Preceding this, we conducted the following educational activities:

- January 8th: Provided a presentation and waste sorting training to the school's staff and teacher meeting.
- January 16th, 18th and 19th, 2024: Provided school-wide educational workshops on waste sorting.
- January 19th, 2024: Conducted specialised training for lunch monitors, reviewed logistics of compost collection on pizza days.

These school-wide educational waste-sorting workshops detailed the categories of the recycling waste stream and demonstrated how to check for recyclability and sort accordingly. Similarly, the qualifications for composability were discussed throughout the workshops in efforts to increase the capture rate of organic materials. Typically, the preliminary waste audit takes place before the educational activities in order to provide a snapshot of the waste-sorting capabilities pre-workshops. However, due to scheduling conflicts and the recent strikes, the preliminary audit had to be postponed to the week after the educational workshops. This means that the January audit was not a "before" audit. In fact, the January audit captures the immediate impact spike of the educational workshops, while the February audit captures the equilibrium state and what the community retained after a more significant amount of time.

The objectives of the work conducted by ***enuf*** are:

- Identify opportunities to improve waste reduction and diversion.
- Identify non-compliance in waste disposal to inform educational efforts.

Waste audit process summary:

The ***enuf*** auditors, kindly helped by student volunteers, separated items into containers for each of the following waste streams:

1) Cardboard/paper,
2) Plastics,
3) Metals,
4) Organic waste,
5) Trash.

Waste audit parameters:

enuf is committed to providing the best quality of waste audit for the best price. Our processes adhere to general waste audit guidelines. The amount of waste generated allowed ***enuf*** to conduct a full waste audit of the recycling and compost waste streams. However, for the landfill

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trash bins, a sample size was used to represent the audit data. These parameters give us a high confidence in the representativeness of our data and analysis.

We were able to conduct a thorough and deep assessment of the waste sorting conditions, where we went through **7** days' worth of recycling, **5** days of trash and **6** days of compost, totalling **287 kg** of waste in the preliminary audit in January and **271 kg** of waste in the follow-up audit in February. On average, the waste generated by each person per day decreased by 7%, with **77 g** of waste generated per person per day in the preliminary audit and **72 g** per day in the follow-up audit in February, assuming a **619** population of students and staff at ***St. Lawrence Elementary School.***

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Current state:

In the preliminary audit conducted in late January, the total weight of waste captured in recycling bins in the audited seven days is **81.5 kg**. The total weight of waste captured in the single compost bin in the audited six days was **60.9 kg**. As for the total weight of waste captured in landfill bins, a sample size of 2 bags were audited to represent the total 13 bags in the cubic yard container. Thus, taking the 22.5 kg weight of the sample size, the total weight of trash in the audited five days was scaled, by volume, to be **144.7 kg**. The composition of the audited waste normalised per day is shown in **Figure 1**, alongside the overall waste composition of the follow-up audit in February.

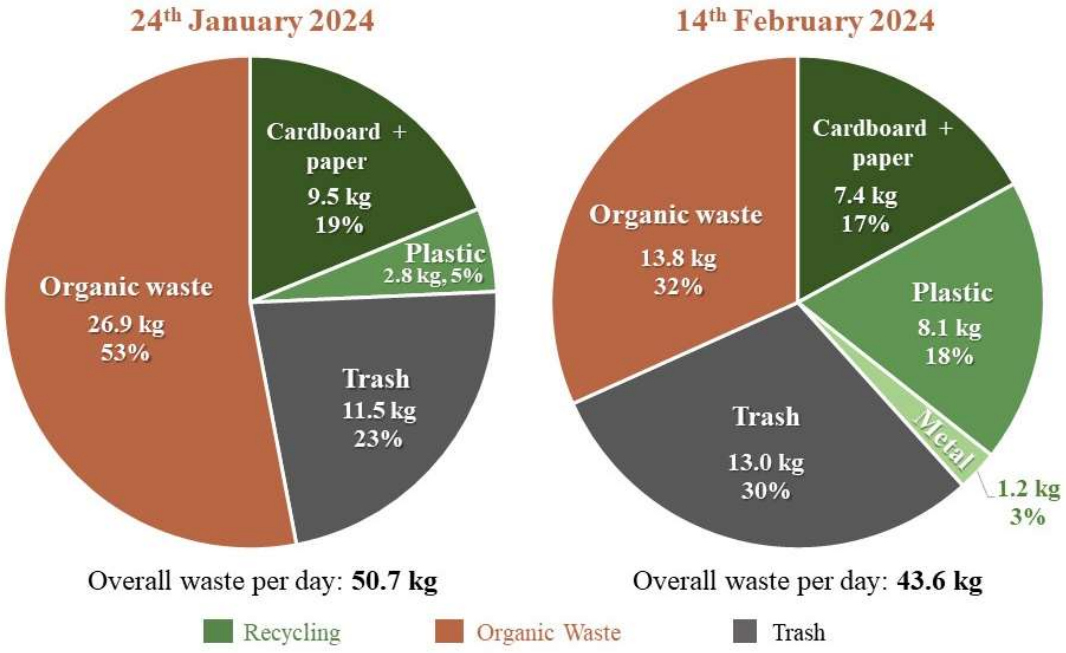

Figure 1: Overall waste composition, normalised per day.

Takeaways: The two largest components of the waste generated are 1) **organics** which can be **composted** and 2) **paper** and **plastic**, which can be **reduced.**

In the follow-up audit in February, the total weight of waste captured in recycling bins in the audited seven days is **130.7 kg**. The total weight of waste captured in the compost bin in the audited six days was **30.7 kg**. As for the total weight of waste captured in landfill bins, a sample size of 2 bags were audited to represent the total 14 bags in the cubic yard container. Thus, taking the 15.6 kg weight of the sample size, the total weight of trash in the audited five days was scaled by volume to be **109.2 kg**. As observed in both audits, up to 30% of daily waste produced is indivertible and headed for landfill. For both audits, organic waste makes up majority of the audited waste generated per day, followed by landfill trash. The correct sorting of these two categories can reduce the rate of contamination and improve the diversions rate at ***St. Lawrence Elementary School.***

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Contamination:

The contamination rate for each waste stream was assessed, as detailed in **Figure 2**. Whilst there was a reduction in contamination of the trash bins, there was an increase in contamination within the recycling stream.

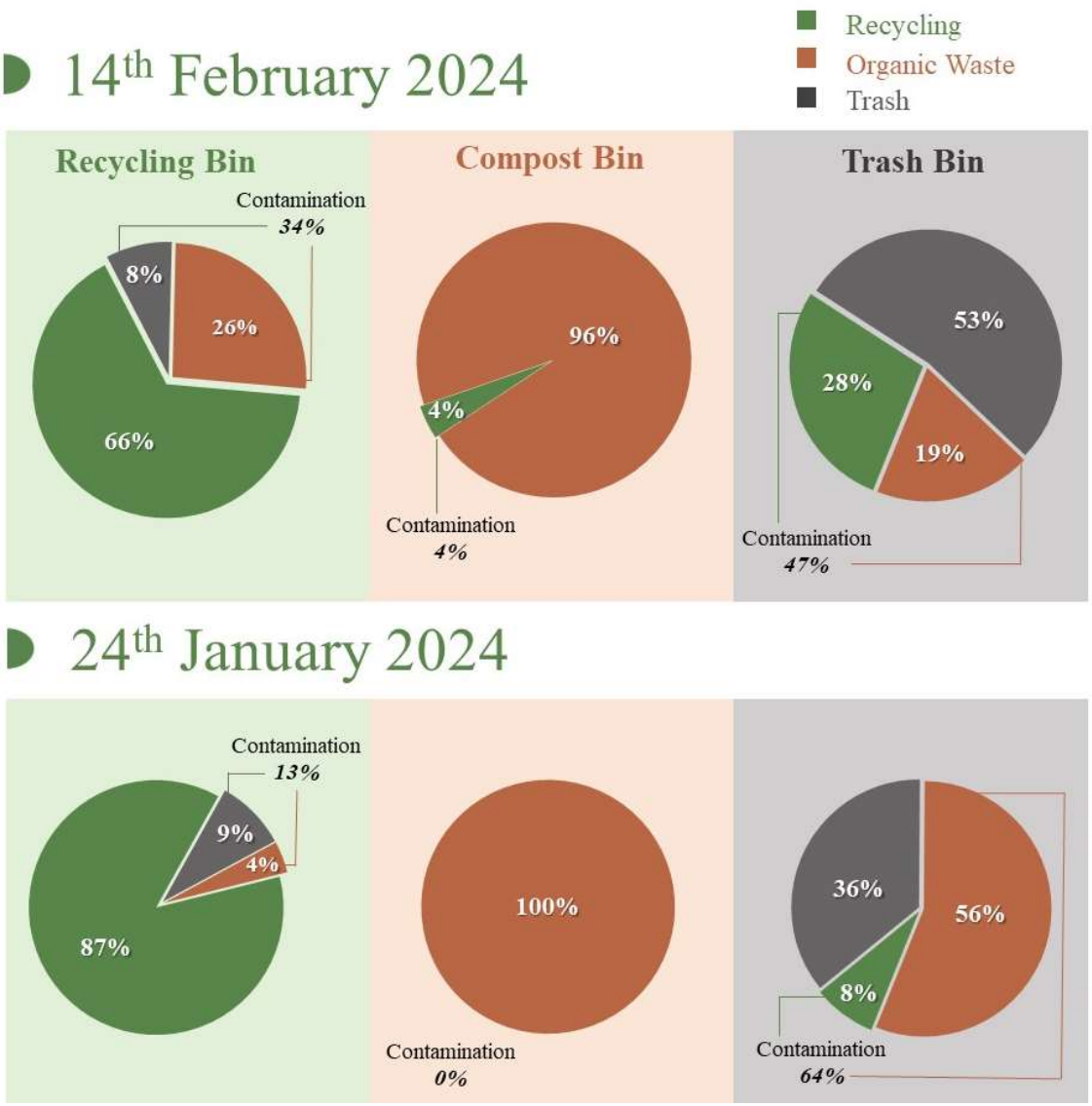

Figure 2: Composition of the recycling, compost and landfill bins.

Takeaway: Significant decrease of organic contamination in trash bins, but increased in recycling bins.

In the January waste audit, about **13%** of the waste in the recycling bins wasn't actually recyclable, with unrecyclable plastics contributing **9%** of contamination, complemented by **4%** of organic waste in the form of used tissues. As seen in **Figure 2**, this contamination increased nearly 3 times in the follow-up audit, with **26%** of contamination coming from organic waste. This was evidently a result of misplacement of pizza boxes with leftover food

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into the recycling bin. When inquired about, it came to light that these pizza boxes were from a separate day with adults/staff, as opposed to the regular Wednesday pizza days for students, which are typically sorted by the Earth Saviours group between compost and recycling. If the misplaced pizza boxes (22.5 kg total) were correctly composted, the contamination rate of the recycling would have dropped to **21%**.

Strikingly, only **36%** of waste in the landfill bins in the January audit was trash, with **56%** of the audited waste in the sample size being compostable organic materials. However, this was significantly improved in the February follow-up audit, with organic contamination decreasing from **56%** to **19%**. However, the presence of recyclable plastics and metals in the trash bin increased from **8%** to **28%**, counteracting the overall contamination rate decrease to **47%**.

Impressively, the compost bins had no visual contamination and majorly consisted of pizza boxes and food scraps. However, the follow-up audit revealed non-recyclable plastics mixed in or left wrapped around food in the compost bins, as well as pet faeces, adding up to **4%** of contamination. Although, this could be due to the public contribution to the compost bins, as they are left outside.

Pizza day

Each Wednesday, pizza day is held and the waste from two pizza days were analysed. On average, **8.8 kg** of waste is generated from pizza day, which is then correctly sorted by the Earth Saviours group lead by Cindy- a great initiative! This proved important when comparing the contamination from the previously mentioned staff pizza day with that of the students.

Capture rate:

Figure 3 shows the capture rate of each material in the preliminary and the follow-up waste audits. The overall capture rate for the recyclable waste decreased from **81%** in January to **65%** in February. Whilst the capture rate of cardboard + paper and plastics increased, the capture rate for metal in the follow-up audit was strikingly low at **11%**, with food cans and aluminium foil being misplaced in the trash stream instead. Furthermore, a significantly higher number of recyclable plastics in the form of drink bottles (e.g. Yop's, water bottles) and juice boxes were left unfinished and in the trash. Instead, these drink bottles should be emptied of any remaining liquid, rinsed, and placed in the recycling bins to increase the diversion rate.

The capture rate of compostable materials slightly decreased by 4%, to a relatively low value of **34%**. This arises from the misplacement of organics, mainly leftover food, in the trash bin, as well as contribution from the previously mentioned atypically misplaced pizza boxes. If these staff pizza boxes were correctly composted, the capture rate for organics would have been 59%.

Lastly, the capture rate for the trash stream, whilst relatively high, also slightly decreased by 3% to **88%**, solely from the misplacement of non-recyclable plastics, in the form of food wrappers and containers, in the recycling bins.

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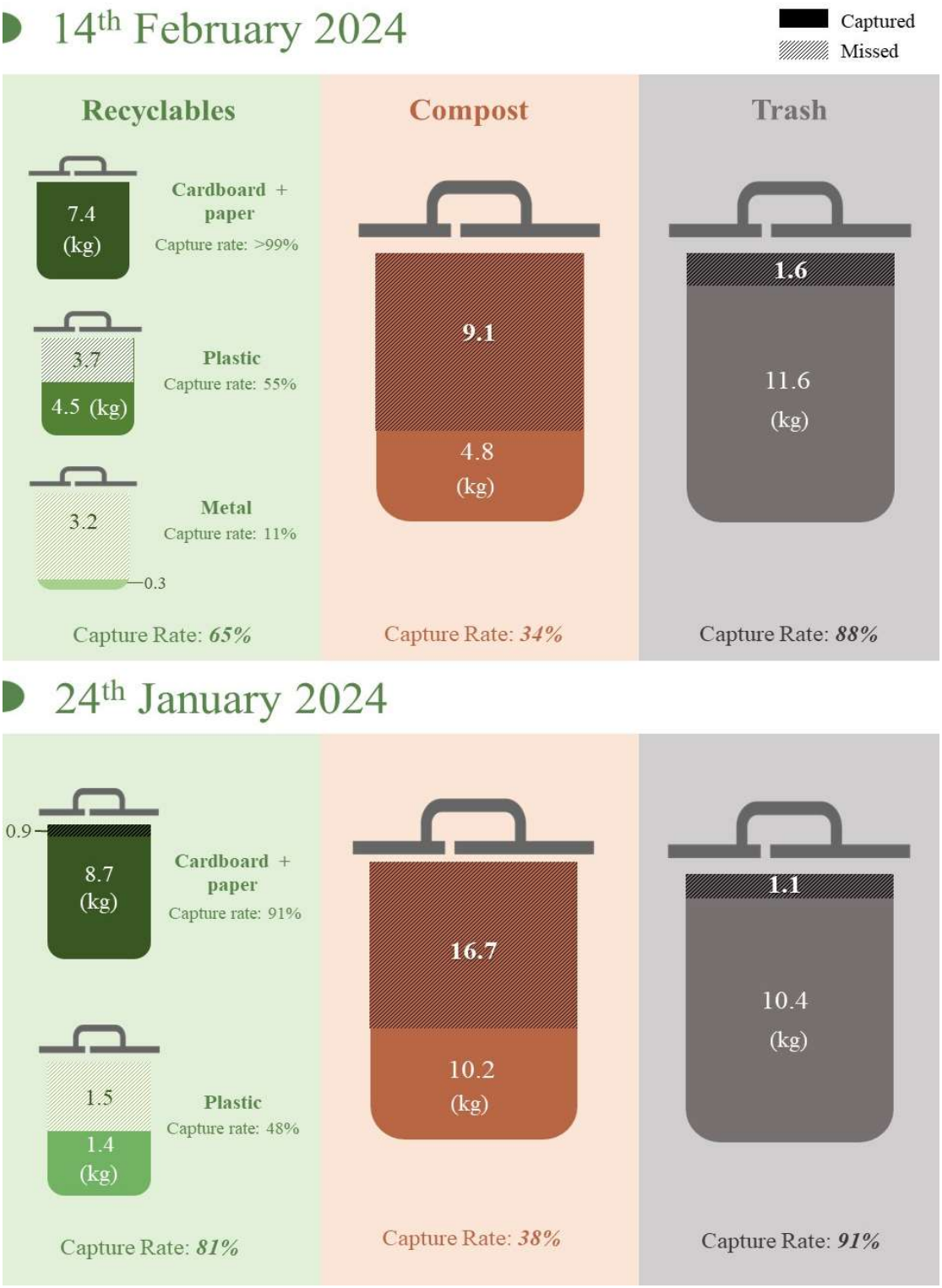

Figure 3: Capture rates of different waste streams, normalised per day.

Takeaway: Improving capture rates of plastics, metal and organic materials can increase the overall diversion rate of ***St. Lawrence Elementary School.***

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Recommendations:

1) Conduct a “true” before audit at the beginning of next year before the educational sorting workshop, and another one a few months after the workshops.
2) Conduct a waste sorting refresher to staff, especially those in charge of events such as the Pizza Day.
3) Reassess the placement of compost bins so that they are not accessible to the outside public.
4) Identify major sources of paper and target them with reduction efforts such as digitization and reuse initiative for school supplies.
5) Integrate green brigade training on the standard onboarding of lunch monitors.
6) Continue annual school-wide waste sorting education workshops.
7) Consider conducting 5-min refreshers on waste sorting in the winter semester after the return from Christmas holidays.
8) Communicate the progress reported in this report to BoG, staff, students and external community to sustain community engagement and buy-in.

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