



ZERO WASTE AMBASSADORS PROGRAM

2020-2021 ANNUAL REPORT

Energy, Utilities, & Sustainability

California Polytechnic State University, San Luis Obispo

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INTRODUCTION

What is Zero Waste?

Zero waste is an approach to waste management that conserves, repurposes, and recycles what otherwise would have been sent to a landfill, into products that contribute to environmental, economic, and social well-being. The aim is to avoid all waste to landfill by first refusing, reducing, reusing, and then composting or recycling as a last resort. While the Zero Waste Ambassador program's ultimate goal is to produce *zero waste* at events, our goal at Cal Poly has evolved to provide zero waste educational outreach to promote responsible waste reduction and disposal practices across campus.

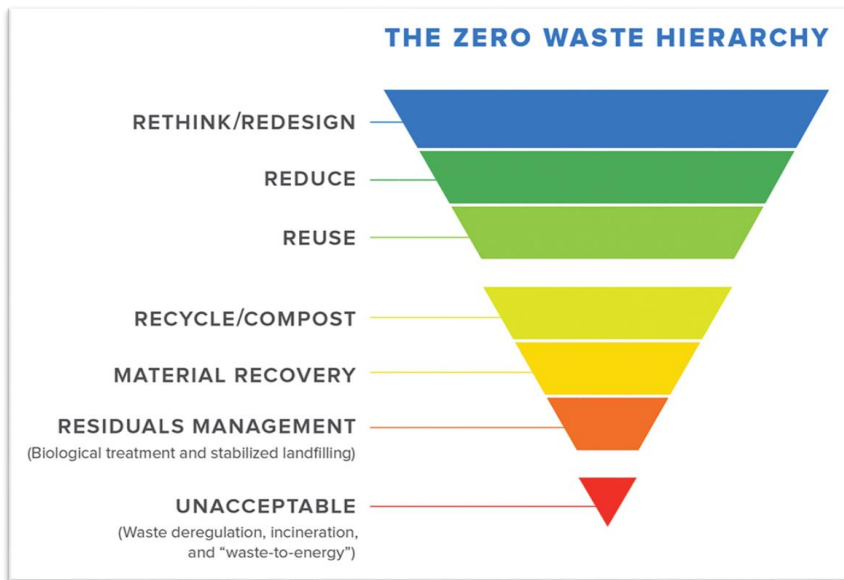


Figure 1. The Zero Waste Hierarchy.

Zero Waste Ambassador Program

In 2017, Cal Poly inaugurated the Zero Waste Ambassadors (ZWA) program, a student-led program with the goal of educating the campus community about sustainable waste disposal. The program is centered around campus events, where volunteers help instruct attendees of how to properly dispose of their waste. The program successfully manages the consumer waste stream at select Cal Poly events to divert nearly 90% of waste from landfill through collaboration, education, outreach, and community service.

During the 2018-2019 school year, ZWA attended 39 campus events with a total of 25,000 attendees. With the help of volunteers, the program diverted 7,350 pounds of recyclable and compostable material from the landfill. 125 volunteers joined forces with ZWA to serve a total of 305 hours.

SCOPE

The role of Zero Waste Ambassadors has expanded over the years and adapted to challenges to continue zero waste efforts at Cal Poly. The Zero Waste Ambassadors program is led by a dedicated team of student assistants hired under EU&S who manage zero waste events and develop new projects. The team was originally hired in April 2020 to support event waste diversion by managing zero waste event diversion and training volunteers. However, when the COVID-19 pandemic forced Cal Poly to restrict in-person events in early 2020, the ZWA team had to adapt. In response to the elimination of on-campus events during the past year, the Zero Waste Ambassadors team has adapted the program to virtual and limited in-person efforts. This flexibility has allowed the program to evolve in ways that it may have otherwise been missed had the program remained solely dedicated to event waste diversion. Despite being a young program, the ZWA team has successfully maintained the program and expanded its outreach to make it stronger than ever before.

Over the past year, the ZWA team has worked on the following projects:

- Growing the Zero Waste Ambassadors' social media presence and outreach capability
- Creating instructional materials, short videos, and virtual trainings to disseminate information on recycling, composting, and zero waste to a campus stakeholders
- Collaborating with Green Campus to put on educational events
- Developing a Zero Waste Plan for campus with ideas of how to improve campus diversion rates
- Conducted waste audits to evaluate current recycling trends and contamination levels

REVISED GOALS

Throughout the 2020-2021 academic year, Zero Waste Ambassadors has adapted to the challenges of virtual outreach and engagement to continue progressing the program. Original program goals, such as increasing event waste diversion, were re-evaluated to fit campus needs and abilities of the student team under COVID-19 restrictions. With in-person events being severely limited, the team shifted its focus to

virtual outreach efforts to promote zero waste practices, supporting EU&S needs, and conducting waste audits when possible.

Zero Waste Educational Outreach

Promoting zero waste practices at Cal Poly has been a tenet of the ZWA program since 2017. During 2020, COVID-19 restrictions presented challenges for in-person outreach and waste diversion conducted at major campus events such as SLO Days and Week of Welcome. In response to limited in-person outreach, the team focused on expanded the virtual opportunities for program outreach to fulfill its zero waste awareness goal. This led to establishing the program's social media presence, executing virtual events, and providing virtual zero waste training. These outreach platforms have made the program more flexible in terms of how zero waste outreach can be conducted by the ZWA team.

Social Media Outreach

The goal of the ZWA Instagram page is to engage with students and community members about zero waste updates, events, and tips surrounding campus life. As of May 30th, the ZWA Instagram reaches an audience of 368 followers, mostly Cal Poly students and organizations, with a total of 41 posts. Social media has proved especially important in advertising for specific ZWA events and fellow sustainability club events, such as Earth Week in the spring or Sustainability Month in the fall. For example, we created posts for our "Is Zero Waste for Everyone?" event, tie dye craft event, zero waste cooking class, and the movie discussion for *There's Something in the Water*. Instagram provided was an additional resource to further spread the word and create engagement for these events. Additional post topics include proper recycling methods on campus, how to limit waste while grocery shopping, and other low waste tips pertaining to campus life. Social media also serves as a space to connect with other sustainability clubs on campus, where we can create a sense of community through an online medium. Using social media, we can share other sustainability group's events and foster a sense of connection. Establishing social media outreach for ZWA has proved to be a successful tool to enhance engagement and gain interest from students.

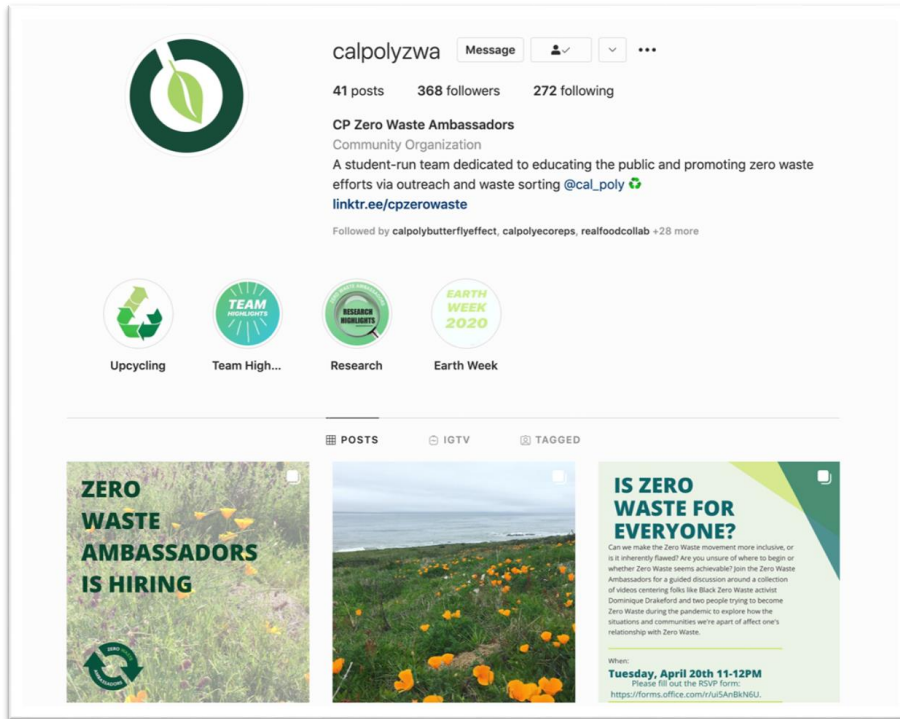


Figure 2. Image of the Zero Waste Ambassadors Instagram page.

Virtual Events

During the 2020-2021 academic year, the ZWA team hosted events focused on promoting discussion and education about zero waste principles. Beyond aiding the Zero Waste Coordinator during Earth Week and SLO Days presentations, events were also held during October Sustainability Month and Earth Week. These occasions present key opportunities for student engagement in environmental and social issue awareness. In October 2020, ZWA hosted three events for Sustainability Month, two of which were workshop-style events focused on encouraging students to implement zero waste practices as it pertains to food waste and clothing consumption. The last Sustainability Month event was a movie discussion event centered around zero waste and its interconnections to social and environmental justice. 46 participants, including Cal Poly students, professors, and staff, responded to ZWA's event signup form for these events. Participants were also able to sign up via Green Campus's event form, making the collaboration between ZWA and Green Campus crucial to event outreach. The ZWA

Sustainability Month events had a total of 32 attendees, with the movie discussion event drawing the most attendance of the three events. This presented a valuable learning opportunity for the team to understand what virtual outreach efforts resonate with students. Discussion-based events appeared to draw more attendance and engagement from those who signed up to participate in events.

Based on the insights gained from Sustainability Month, the team hosted a discussion event for Earth Week 2021. This event, “Is Zero Waste for Everyone?”, sought to provide a space for students to discuss issues of representation within zero waste contexts and how to make zero waste more accessible. The structure of the event was based on sharing videos that highlighted BIPOC zero waste advocates and the issues of practicing zero waste during COVID-19 restrictions. 13 students signed up for this event, with 9 attendees participating in the discussion event. Although virtual events presented their own unique challenges in terms of ensuring attendance and engagement, the ZWA team was able to successfully execute events that, prior to 2020, the program had never attempted. This opened the door for new zero waste outreach opportunities as Cal Poly gradually shifts back to in-person events in the upcoming academic year.

Virtual Zero Waste Training Sessions

A virtual zero waste training presentation were also developed as part of remote educational outreach for Cal Poly students and staff. Prior to the creation of this presentation, the Zero Waste Coordinator would attend student organization and staff meetings upon request to provide campus recycling and composting training. Over the course of Fall Quarter 2020, the ZWA team took on more responsibility for these training sessions and developed a comprehensive presentation that could appeal to different campus stakeholders. Shortly after final revisions of the presentation, the new training was presented during an EcoReps meeting to an estimated 15 students who were interested in campus environmental action. The presentation not only provided valuable information about proper campus recycling and composting practices, but also encouraged students to ask questions about waste management and reduction procedures at Cal Poly. Prompting these discussions and gaining student insights is integral to promoting transparency about waste at Cal Poly and achieving campus zero waste goals.

EU&S Support

The ZWA team aided in the Zero Waste Coordinator during the academic year, chiefly in efforts that were constrained by time and coordinator availability. With the coordinator taking on more work over the past year due to organizational changes, as well as being on medical leave for the latter half of

Winter Quarter, the support that ZWA provided was invaluable to continuing campus zero waste efforts. Two key projects that ZWA team members contributed over the year were the SARC Report and the Zero Waste Strategic Plan.

SARC Report Data Collection & Input

The State Agency Reporting Center (SARC) requires that every state agency in California prepare and submit a Waste Management & Recycling Report by May 1st of each year, tracking information on waste generated per capita as well as verbal descriptions of all the recycling and waste education efforts undertaken at that institution over the previous year. Cal Poly collects waste data from multiple sources, including construction and demolition projects, all waste and recycling vendors, auxiliaries, and Campus Fact Book. With the Zero Waste Coordinator on leave for a portion of Winter Quarter, a ZWA team member worked on aggregating and organizing the data needed to complete the report for the calendar year 2020. This waste and recycling data is also used for other tracking and metrics, including AASHE STARS and all queries for student waste-related projects.

Zero Waste Strategic Plan

Team members began creating a Zero Waste Strategic Plan for campus, a formal document that will be pitched to the Zero Waste Collaborative in the Fall to provide a starting point for a campus-wide strategic plan to reach our Zero Waste goals. This document will include an overview of campus' waste diversion history, a description of unresolved waste issues by auxiliary and campus departments, and strategies for how to reduce the amount of waste generated and sent to landfill. Currently, the drafted document is almost complete. A team member spent most of Spring quarter contacting various campus departments to inquire about the waste they generate and strategies they already have implemented. This complex task has revealed just how diverse campus' waste stream is and how many levels of administration we will need to have buy-in from for our strategies to succeed. The idea is to place waste-reducing strategies under 4 "strategic initiatives" including 1) Education, 2) Green Procurement, 3) Expanded Reuse Infrastructure, and 4) Expanded Recycling / Composting Infrastructure. At the beginning of Fall Quarter, the draft will be presented to the Zero Waste Collaborative to get feedback, work on deepening the discussion with our auxiliaries on creating solutions and gain wider buy-in for the plan.

Waste Audits & Diversion

Due to COVID-19 concerns and the inability to host public gatherings, public waste audits had to be suspended during the 2020-21 academic year. However, there were two burning needs for data from waste audits. First, the CalRecycle Grant requires baseline waste data and periodic audits to show any improvement in recycling over the course of the grant. Second, Dining purchased two different types of waste and recycling receptacles and wanted to determine if one set had an advantage in reducing recycling contamination. Members of the ZWA were interested in performing the audits but were not allowed to until a COVID-19 safety protocol for performing waste audits was developed and approved by Environmental Health & Safety (EH&S). Working with the Zero Waste Coordinator, ZWA's drafted an initial protocol. After responding to EH&S suggestions, successfully editing, and receiving approval on the protocol over Winter quarter, 2021, it was utilized for Spring waste audits. A key safety feature of this COVID protocol was social distancing, meaning that waste audits needed to be performed by 4 or fewer people, limiting the size and scope of what could reasonably be accomplished. ZWA members worked with the Zero Waste Technician, Cindy Lowe, to strategically plan audits of representative waste streams.

Departmental Outreach

A key objective for conducting waste audits was to partner with specific campus departments to help with waste diversion efforts. During Spring quarter, Campus Dining was the primary campus department that ZWA collaborated with for waste audits. Kelsey McCourt, the Campus Dining Sustainability Coordinator, requested waste audits be conducted with the waste from the Vista Grande dining facility. New five-stream waste bins (landfill, compost, and separated recycling of glass, metal, and plastic) were installed during Spring quarter. The goal of the Vista Grande waste audits was to compare the contamination rate of the recycling between the new five-stream bins and the older three-stream (landfill, compost, mixed recycling) bins. Ultimately, the data from the Vista Grande waste audits indicated that there was little difference in the contamination rates between the new bins (40.7%) and the old bins (40.5%). Sharing this data with Dining allows the department to make informed decisions moving forward as to how to promote effective waste diversion.

Data Collection

Over the course of Spring quarter, 2021, ZWA team members performed four waste audits. The audited waste came from various campus locations to gain insights on waste streams of dining halls and campus

housing. By conducting waste audits, the ZWA team was able to collect qualitative and quantitative data on the state of waste at Cal Poly. The focus of the audits was to discern the contamination rate in waste streams (ex. Landfill waste in recycling bins, recyclables in composting bins, etc.). Team members made note of “items of concern” while conducting audits, such as bio-plastic Shake Smart cups that cannot be composted on campus. Observations were used to inform educational materials like signs and social media posts on what can and cannot be recycled or composted on campus.

Quantitative data collected during waste audits proved to be a challenging but valuable aspect of the audit procedure. Prior to the 2020-2021 academic year, the student organization CCARG regularly attended waste audits to collect and analyze waste data. When waste audits were conducted by ZWA in Spring 2021, ZWA team members independently collected and evaluated waste audit data. Several iterations of data collection procedures were necessary to develop effective audit data collection. Variables such as discrepancies in bagged waste weights contributed to the challenge of reliable data collection. Due to these discrepancies, determining accurate contamination rates from the bagged waste proved difficult. Under the guidance of the Zero Waste Coordinator, ZWA team members revised data collection procedures and contamination rate analysis to make data analysis more effective for future audits.

Although the team encountered challenges with waste audit data, the audits allowed the team to reconnect with the original waste diversion efforts of the program and contribute to CalRecycle Grant data. To support CalRecycle efforts, the amount and type of CRV (California Refund Value) recyclable materials were documented during the audit of Campus Market waste. Over 170 pounds of campus waste was sorted during the four waste audits. By conducting waste audits, the ZWA team was able to contribute to waste diversion at Cal Poly and prepare team members without previous diversion experience for event waste diversion and future waste audits.

PERFORMANCE METRICS

Number of people reached

As more events focus on zero waste education like effective recycling and composting practices, more people are exposed to the movement, impact of landfill waste, and the goals of the program. By recording the type of event and the number of volunteers and attendees at each event, an up-to-date number of people reached can provide data as to what communities within Cal Poly we are currently reaching, and which we should focus on more.

Diversion of Waste

Performance can be measured by the diversion of waste by weight. Previously, waste diversion metrics were recorded for in-person events, while waste audit data was analyzed by CCARG to evaluate contamination rates on campus. Due to COVID-19 restrictions, waste diversion data collection only took place during waste audits during Spring Quarter 2021.

RECOMMENDATIONS & NEXT STEPS

- **Onboarding new hires** - As current team members transition out of Cal Poly, the end of this academic year was in part dedicated to recruiting new team members for the next academic year. The new 2021-22 Team Leader was successful in recruiting three new members to our team. Onboarding and training will continue over the summer in preparation for Fall.
- **Refocusing on original mission of event waste diversion & recruiting volunteers** – while the university’s policies for on-campus events post-Covid is still unclear, there is some evidence that there will be a few functions (SLO Days, WOW, etc.) that will occur on campus to which we hope to re-invest our efforts in one of our original goals of peer-to-peer Zero Waste training and event waste diversion.
- **Potentially extend reach of program with partnerships with other departments** - to further progress this year’s efforts in expanding our involvement in campus initiatives and opportunities, we hope to contact other student-oriented organizations to partner with and educate students through. Some potential groups include:
 - Campus housing; Inter Housing Council (IHC)
 - Instructionally Related Activities (IRA)
- **Continue Zero Waste trainings and integrate more environmental justice elements** - over the course of this year, we have significantly increased our recognition, knowledge, and awareness of the intersectionality of the Zero Waste movement to broader social and environmental justice movements. Moreover, we hope to continue prioritizing Zero Waste’s relationship to equity and inclusion through all our efforts and projects.

- **Increasing social media presence** - While we were able to establish and significantly increase our social media and digital presence, we recognize that, more than ever, maintaining efforts to increase digital communication with the students and communities we serve is integral to our mission. We hope to increase our following on platforms including Instagram and Facebook; and continue to update the Zero Waste webpage.
- **Strategic plan & Zero Waste Collaborative** - Over the course of this academic year, we were able to begin the discussion and formulation of a draft comprehensive Zero Waste Strategic Plan which includes a multitude of recommendations across multiple campus groups and affiliations regarding improving their Zero Waste efforts. We hope to progress in the formation and implementation of this plan this coming year, potentially through reinvigorating the Zero Waste Collaborative in early Fall.

APPENDIX

Copy of Waste Audit Protocol

Waste Audit Protocol - Zero Waste Ambassadors

Facilities Contacts

- Cindy Lowe – Zero Waste Technician (clove@calpoly.edu work: (805)458-2248 personal: (805)458-2602)
- Anastasia Nicole – Zero Waste Coordinator (anicole@calpoly.edu personal:
- Ron Roach – Transportation (rroach@calpoly.edu)
- Cal Poly Pier contact

Audit Locations & Participants

Audit will take place on the concrete clean-out pad in the Transportation lot (Building 71). Audit time will be coordinated between participating department and audit participants via the zerowaste@calpoly.edu email or Zero Waste Coordinator (Anastasia Nicole). A Zero Waste Ambassador designated as team lead for the audit will:

- Ensure the pad is available by contacting Ron Roach, as well as coordinating with the Cal Poly Pier to ensure that the audit doesn't conflict with boat cleaning.
- Coordinate with the Zero Waste Technician to ensure availability in order to gather materials for and pick-up materials after the waste audit.
- Bring team materials (gloves, tarp, scale, hand sanitizer)

An audit should take approx. 1-2 hours to complete. Per COVID-19 guidelines, participants will be limited to 5 Zero Waste Ambassadors (ZWAs) with at least 1-2 ZWAs per audit.

PPE

Commented [AN1]: For the Appendix, a copy of the Audit protocol, and links to the various resources developed - the compost video, the training presentations, any other materials saved from Sustainability Month & Earth Day, and any other materials created during the year.

When conducting an audit, participants must wear personal protection equipment (PPE) and appropriate clothing to protect themselves. This includes:

- Closed-toe shoes, long pants, and t-shirt/long-sleeve shirt
- [Nitrile latex disposable](#) gloves (provided by Facilities) replaced as necessary (soiled/torn)
- Face mask

COVID-19 Conduct

To reduce risk of COVID-19 exposure, participants must:

- Receive a negative COVID-19 test the week of the audit
- Pre-arrange access to campus facilities (Transportation clean-out pad)
- Provide proof of clearance to access campus facilities with a pass from the daily self-screener
- Wear a face mask at all times while on campus and during audit
- Practice social distancing (6< feet distance between participants)
- Wear gloves when handling waste
- Use hand sanitizer when necessary (such as between glove replacements)
- Avoid eating/snacking during the waste audit
- Wash hands with soap for at least 20 seconds after completing waste audit, especially before eating or touching face

Required Resources

- Large tarp
- Scale
- Gloves
- Hand sanitizer
- Landfill, recycling, compost bins (usually 55-gallon brutes)
- Bucket for liquid waste
- Bags to line bins (including compostable bags)
- Trash pickers
- Pre-collected waste to be sorted

Audit Procedure

Preparation–

The bagged waste to be audited will be collected in advance by Zero Waste Technician (Cindy) and brought to the Transportation clean-out pad. If waste from multiple locations is being audited, each group of bags will be labeled and kept separate. Three bag-lined bins (landfill, recycling, compost) and a bucket for liquid waste will also be delivered. A scale will be provided.

Should anyone on the team desire a key in order to access the Waste Audit supplies (orange buckets for liquids, gloves, hand sanitizer, etc.) there are pre-filled pink cards giving each team member key permission in my office. You can arrange with Cindy to get into Anastasia's office to pick up your card. Take the pink card to the Key Center near the Police station, and they will issue a key to access supplies.

Data Entry–

A waste audit spreadsheet will be created for each audit and saved in the Team Docs OneDrive folder under Data > Campus Waste Data > Waste Audits. If data was recorded on paper during the audit, it needs to be entered into the spreadsheet after completion. Note the audit date and location that the waste came from.

Tare weights -

One ZWA will be designated to weigh the sorted waste. Before sorting begins, they will determine the tare weight of each of the 4 streams. This Tare weight could be the empty containers (if scale allows

reader to see weight when loaded with a container) or the ZWA can weigh themselves and then weigh themselves with the liquid waste bucket using the scale to calculate a tare weight. These tare weights will be recorded in the spreadsheet.

Waste Sorting–

One bag of waste at a time will be weighed and then emptied out onto the tarp. ZWAs will begin sorting the trash by hand or with trash pickers into the 4 containers. Each bag of waste is sorted. Waste is sorted based on Cal Poly guidelines (<https://afd.calpoly.edu/sustainability/campus-action/zero-waste/what-goes-where>). **If in doubt of whether a material is recyclable/compostable, place it in landfill to avoid potential contamination.** Record items of concern in spreadsheet.

Auditing–

After each bag is sorted, the 4 respective containers will be re-weighed to determine the composition of each bag. Results from each bag will be tallied separately to preserve data on that location. Alternately, if multiple bags of one material (i.e. landfill) are collected from a single location, the bags can count as a single lot and may all be sorted together and the aggregate weights recorded. When all waste collected from a location has been sorted, waste will be weighed. The designated weigher will hold each bag or bucket and step on the scale. The tare weight will be subtracted from the total weight. The weight of waste in each category will be recorded on the spreadsheet.

*Sorted waste weights will be written down in separate categories, include the location waste was sourced from, the original category of waste collected (e.g. landfill) and the resulting sorted wastes in each category (landfill, recycling, compost, liquid).

Cleanup–

After all auditing is finished and all trash has been removed from the tarp, the tarp and wash pad will be hosed down on the clean out pad. Sorted waste will be left in tied-off bags to one side of the pad. ZWA team lead for the waste sort will contact Zero Waste Technician (Cindy Lowe) to request collection of bagged waste and sorting resources. ZWAs will be responsible for collecting scale, remaining gloves and hand sanitizer and returning to Green Campus loft/storage.

Participants will discard gloves and sanitize their hands with hand sanitizer at the site, as well as washing hands with soap for at least 20 seconds at their earliest opportunity.

OneDrive Resources

1. [Sustainability Month 2020 Event Folder](#)
2. [Earth Week 2021 Event Folder](#)
3. [Composting Education Video](#)
4. [Zero Waste Training Presentation](#)
5. [SARC Report Folder](#)
6. [Draft of Zero Waste Strategic Plan](#)
7. [Waste Audit Protocol](#)
8. [Waste Audit Data Folder](#)

