Best Practices for a Business Sector Campaign to Reduce Wasted Food: Encouraging Behaviour Change and Sustainable Practices

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Executive Summary

The problem of food waste continues to be one of the conundrums facing Canada and the world amid the COVID-19 pandemic. Studies published in 2019 reveal that 58.1% of all food entering the Canadian food system is lost or wasted annually; that figure is likely higher today due to the pandemic's drastic impact on the food value chain. The social, environmental and economic implications of food waste necessitate actions to bring needed change.

Food waste is a systemic issue, which requires shared effort from all stakeholders along the food value chain to address the pressing need for change. Grocery retailers play an indispensable role in connecting upstream stakeholders - such as farmers, manufacturers and distributors - with downstream consumers. Avoiding and reducing wasted food is essential to achieving the City of Vancouver's Zero Waste 2040 goal and to becoming a leading city in food waste prevention. Recognizing the grocery retail sector as the key entry point for fostering systemic change in the food value chain, the City seeks to uncover functional ways to inspire actions toward food waste prevention and reduction. This report integrates approaches to behaviour change with insights from existing food waste prevention and reduction campaigns and programs in order to identify best practices for a future campaign to promote and to encourage the voluntary adoption of operational changes to reduce wasted food by the grocery retail sector. This report starts with a literature review and continues with best practices recommendations. Finally, it examines recommended best practices through case study analysis and primary qualitative research.

The literature review gathers theories and practices that can facilitate behaviour change and support the City with developing a campaign to encourage food waste reduction in the grocery retail sector. Behaviour change focused methods and approaches from change management, social marketing and social practice perspectives, as well as fifteen existing campaigns and programs that are focused on encouraging food waste prevention and reduction, are examined. Findings from the literature review reveal that encouraging behaviour change is a

complex process and that there are a broad range of approaches and practices strive to foster positive change. The literature review also highlights that various elements incorporated into a campaign can contribute to a campaign's effectiveness in encouraging food waste prevention and reduction; however, there is not enough evidence to conclude that any of the approaches or practices from the review are specifically suited for a grocery retail sector campaign in Vancouver and can guarantee success.

To adequately support the City's goal to encourage food waste reduction in the grocery retail sector, this report proposes a framework derived from the different approaches identified in the literature review. By combining essential elements sequentially, the proposed framework can guide the City to develop and implement a future campaign, maximizing the potential of a campaign to effectively promote and encourage the voluntary adoption of operational changes that will reduce wasted food in the grocery retail sector. The proposed framework, as outlined in Figure 1 and Table 1, consists of six steps divided into three major phases.

Figure 1. Six Steps to Develop and Implement a Food Waste Reduction Campaign

Phase 1.
Strategic Planning

Step 1. Identify the Target Audience

Step 2. Choose a Target Behaviour

Note: Strategic planning phase guides the City construct campaign strategies.

Phase 2.
Implementation

Step 3. Raise the Awareness of Change

Step 4. Guide through the Change Process

Step 5. Allow Space to Change and Recognize Progress

Note: Implementation phase directs the City through campaign execution.

Phase 3.
Reinforcement

Step 6. Maintain Institutional Change

Note: Reinforcement phase encourages the City to continue campaign efforts until the changes are institutionalized in organizations.

Table 1. Recommended Actions in the Proposed Framework

Phases	Steps	Actions
Strategic-planning Phase	**Step 1** Identify the target audience	Work with industry experts to identify which stakeholder group within the grocery retail sector should be encouraged to lead the change.
	Step 2 Choose a target behaviour	Collaborate with the target audience to determine which operational change should be the current campaign focus.
Implementation Phase	**Step 3** Raise the awareness of change	Start with campaigns to raise awareness about the food waste issue and the operational changes the grocery stores can make to reduced wasted food.
	Step 4 Guide through the Change Process	Support the target audience's efforts to implement the change by providing resources and expertise and by encouraging conversations among peers to exchange success stories and valuable experience.
	Step 5 Allow Space to Change and Recognize Progress	Provide the target audience time and space to carry out the change in their organizations and encourage the target audience to celebrate success along the process.
Reinforcement Phase	**Step 6** Maintain Institutional Change	Encourage the target audience to maintain successful changes in their organizations.

The proposed framework has been examined using case study analysis and expert interviews. Findings from these examinations demonstrate that the proposed framework has the potential to provide the City with concrete, sensible and pertinent guidance to reach its campaign goals. Nevertheless, it is difficult to foresee whether a campaign developed with the proposed framework will be effective, as the variation of essential campaign components - such as campaign objectives, stakeholders' resource availability, campaign messages and prospective partnerships - may produce different outcomes.

This report concludes that the complexities of the food waste issue and diverse internal and external factors influencing grocery retail operations make it

challenging to define best practices for a city campaign to encourage operational changes to reduce wasted food. Additional research is required to assist the City in identifying the right target audience, setting clear campaign objectives and creating impactful campaign content. Furthermore, it is important to recognize that best practices to encourage food waste reduction in the grocery retail sector should include collaboration. The City needs to uncover practical ways to work in partnership with industry associations, grocery retailers and/or NGOs to identify exemplary practices that can help foster change towards creating a zero-waste community and a sustainable urban food system.

SECTION 1 Introduction

The problem of food loss and waste costs the Canadian economy over $100 billion per year (Gooch and Felfel, 2014). While approximately 12 percent[1] of Canadians face some level of food insecurity, 58.1% (or 35.54 million metric tonnes) of all food entering the Canadian food system is lost or wasted annually, of which 11.17 metric tonnes is avoidable. Moreover, 4% of Canada's greenhouse gas emissions are attributed to organic waste in landfills (National Zero Waste Council, 2018).

Canada does not stand alone in dealing with the problem of food waste. Worldwide, the combined social, environmental and economic cost of food waste is estimated at $2.5 trillion every year (Gilchrist, 2019). Recognizing the urgency of dealing with the issue, the United Nations implemented Target 12.3 as part of its 2030 Agenda of Sustainable Development. Target 12.3 aims to "By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" (United Nations, 2015).

Food waste is a systemic issue in the food value chain (Gooch et al., 2019). The social, environmental and economic implications of food waste necessitate actions to bring system-level changes. Systemic changes require shared efforts from all stakeholders involved in the food value chain. This report identifies the grocery retail sector in Vancouver as a pivotal intervention point considering its indispensable role in connecting upstream farmers, manufacturers and distributors with downstream consumers along the food value chain. In Canada, many major grocery retailers have food waste reduction targets in place; however, this is less observed among small and medium-sized businesses (Environment and Climate Change Canada, 2019). Recent studies on the food waste issue have presented grocery retailers with tangible solutions to reduce in-store food waste (Gooch et al., 2019; National Zero Waste Council, 2018; ReFED, 2018), but a limited number of grocery retailers in Vancouver have substantially embraced these solutions in their operations. Therefore, the aim of this report is to identify methods and approaches that can support the City of Vancouver (hereafter referred to as the "City") with promoting

and encouraging grocery retailers to change their operational behaviours and adopt these solutions.

One of the main motivations for reducing wasted food is to increase the sustainability of food systems, which is fundamental to protecting the health and well-being of communities. As part of the Greenest City Action Plan, the City has persevered with building a healthy, equitable and sustainable urban food system in the past decade. By working collaboratively with the Vancouver Food Policy Council and numerous community organizations, the City has made significant progress in reducing food waste by working collaboratively with grocery retailers, governments and consumers. Nevertheless, a lot of work still needs to be done to achieve the City of Vancouver's Zero Waste 2040 goal and to become a leading city in food waste prevention, especially during times of uncertainties. The public health crisis related to COVID-19 reminded people of a shared sense of togetherness and the importance of a resilient community through turbulent times. Now more than ever, the City needs to demonstrate robust municipal leadership to inspire future actions in the course of recovery and rebuilding, bridging differences across values, perspectives and cultures, and energizing grocery retailers and other food businesses toward joint actions to support Vancouver to become a zero-waste community and a global leader in the battle against the climate crisis.

This report begins with a literature review on behaviour change focused on theoretical methods and approaches from change management, social marketing and social practice perspectives. Fifteen current food waste reduction campaigns and programs are then examined. Based on the literature review findings, this report proposes a framework to support the City to guide outreach and develop campaign strategies to stimulate operational changes in the grocery retail sector to reduce wasted food. The primary research results from interviews with two behaviour change experts, two waste management experts and four food industry experts are then presented and analyzed. Finally, the report summarizes best practices according to the findings from the literature review and primary research and presents recommendations for the City's future work to encourage and support grocery retailers to make operational changes to reduce wasted food.

SECTION 2 Literature Review

This section of the report reviews the literature on methods and approaches that can provide the City with insights to develop and implement a food waste reduction campaign to encourage behaviour change in the grocery retail sector. Combining theory and practice, the section begins with exploring behaviour change focused methods and approaches from change management, social marketing and social practice perspectives. Then, it continues with providing an overview of fifteen existing programs and campaigns in different countries and cities that are focused on encouraging food waste prevention and reduction using various approaches.

2.1 Theoretical Approaches to Encourage Behaviour Change

Most common methods and approaches to promote and encourage food waste prevention and reduction are focused on raising awareness. Awareness focused methods and approaches solicit actions by providing information to educate individuals about the importance of an issue or a cause. (TAP Network, n.d.). While raising awareness can contribute to behaviour change in food waste prevention and reduction, methods and approaches that shape people's attitudes, beliefs and values are often criticized for having limited effect on creating long-lasting behaviour changes (Goworek et al., 2012; Ölander & Thøgersen, 2014; Welch, 2017), as these awareness raising methods and approaches are often based on theories that assume behaviour change is a linear and rational process (Hargreaves, 2011) and ignore the gap between attitude and behaviour (Shove, 2010). This gap, often referred to as "value-action gap" or "attitude-behaviour gap" in a number of studies surrounding sustainable behaviour (Barr, 2006; Claudy et al., 2013; Park & Lin, 2018), suggests that raising awareness does not always change actions (Christiano & Neimand, 2017) and sustainable attitudes do not necessarily translate into sustainable behaviour (Oates & McDonald, 2014). Therefore, the City needs to identify ways to bridge the gap between attitude and behaviour in order to produce long-lasting behaviour change in the grocery retail sector.

While there is a wide range of literature on the topic of behaviour change, the methods and approaches included here were selected for their applicability by the

City to guide outreach and develop campaign strategies to stimulate operational changes. Many existing approaches to encourage behaviour change are focused on individuals. However, some can be effective in facilitating changes in business settings, as the organizational change process inherently involves changes in decision-makers' and employees' individual behaviour (Whelan-Berry & Somerville, 2010).

Change management approaches recognize the human side of change within organizations. Existing concepts and methods of change management can be traced to Lewin's 3-stage model developed more than half a century ago (Cameron & Green, 2009). The model places its emphasis on the three critical stages in the change process, Unfreezing, Movement, and Refreezing. The first stage drives people within the organizations to understand that the need for change is critical, and their current behaviour must be destabilized. The second stage provides people time and space to act toward the "more acceptable set of behaviours" and diligently participate in the change. The third stage ensures the change is stabilized and internalized by the organization (Burnes, 2004). Lewin, who dedicated most of his life to resolving social conflicts via behaviour change, believed the Refreezing stage to be essential for a successful transformation as changes in individual behaviour cannot be sustained unless they become the new norms and routines within groups and organizations, indicating that businesses need to be encouraged to internalize the changes. Though Lewin's model has been criticized for overly simplifying the behaviour change process (McEachern et al., 2020) and may seem outdated, some argue that the three-stage approach builds a theoretical base for developing behaviour change practices and is still relevant today (Burnes, 2004).

Based on Lewin's model, Kotter's 8-Step Model of Change, introduced in 1996, is a cornerstone in the change management discipline. The first step of Kotter's theory is to (1) create a sense of urgency for change, (2) form a coalition to lead the change, (3) develop a strategic vision for the change, (4) motivate others to participate the change, (5) remove barriers for achieving change, (6) celebrate milestones and short-term wins, (7) consolidate improvements, and finally (8) internalize the successful changes (Kotter, 2007). Kotter's model identifies the

barriers for change, recognizes the emotional drivers to change and provides a coherent description of the change process. However, similar to Lewin's model, some criticize that the model exclusively relies on leadership to bring change in organizations without considering other influential factors in the process (Bucciarelli, 2015).

Another prominent model in the change management discipline is the Prosci ADKAR® Model, introduced and integrated in the 2000s with the aim to create organizational change. Developed by the founder of Prosci Jeffery Hiatt, the model is a people-focused method to facilitate change from bottom-up. It complements Lewin's 3-Stage Model and Kotter's 8-Step Model, which focus on initiating changes from the leadership downwards. The five components included in the model with respect to change are "(1) awareness of the need for change, (2) desire to support the change, (3) knowledge of how to change, (4) ability to demonstrate skills and behaviours, and finally (5) reinforcement to make the change stick" (Hiatt, 2006). The model highlights that organizational change strategies will not be effective without a cohort of individuals who have successfully integrated the behaviour change. This suggests that the governments should not only engage with the leadership teams but also facilitate discussions with people throughout the businesses at a variety of levels.

Alternatively, governments, NGOs and businesses aspiring to influence positive change in the world have utilized the theory of social marketing (iSMA et al., 2013). Integrating commercial marketing methods with a variety of disciplines, such as psychology, sociology and behavioural science, social marketing was developed over several decades. Though the early ages of social marketing prioritized altering people's beliefs and attitudes instead of changing behaviour (Soraghan et al., 2016), the essence of social marketing today is to change people's behaviour for the greater social good rather than informing them about the social issues (Donovan & Henley, 2010).

Social marketers adopt and adapt theories and techniques from commercial marketing. As an example, social marketing, much like commercial marketing, emphasizes the importance of identifying the target audience and considers the 4Ps

(product, price, place and promotion) when developing marketing strategies. However, what distinguishes social marketing from commercial marketing is that the primary objective of social marketing is to benefit society as a whole rather than the marketer (Smith & Strand, 2008). Social marketing has been widely adopted as an effective approach to create social changes in the field of public health and safety, environment and politics (Smith, 2006) .

Nudge theory, rooted in behavioural economics, is often used by social marketers to promote responsible behaviour (Soraghan et al., 2016). In contrast to the underlying assumption in economics that people make rational decisions, nudge theory considers the emotional, social and psychological factors that affect people's choices and behaviour. The concept, credited to Thaler & Sunstein (2008), argues that rather than fully engaging cognitively, people often make "mindless" decisions and sometimes omit acting in their own best interest. Therefore, instead of taking the policy or informational measures to force or persuade people to change their behaviour, nudge theory makes small changes in the surrounding environment to trigger people to act towards a desired direction without taking away their other options (Saghai, 2013). A classic example of applying nudge theory to encourage behaviour change is the OPower case. OPower believed that delivering messages infused with elements of "social pressure" was a more effective way to motivate people to consume less energy than traditional moral persuasion and monetary incentives (Laskey & Kavazovic, 2011). The company worked together with utility companies to produce personalized energy consumption reports for each household to show people how efficient they were at energy use compared to their neighbours in similar-sized houses. OPower's approach has been successful at influencing people's energy consumption behaviour and inspired many other projects to utilize nudge theory to unravel climate issues.

Thaler and Sunstein's point of view on human behaviour has dramatically shifted the thinking around social marketing campaigns (Soraghan et al., 2016). One attractive feature of nudge strategies is that they are usually cost-effective to implement. Many governments, NGOs and businesses have employed nudge theory to advance their policy and initiatives (Blanding, 2017). Nudge theory also

established the basis for many Behavioural Insight Teams or Units in countries such as the USA, UK, Canada, Australia and New Zealand (Linder et al., 2018). Notably, the UK prime minister, Boris Johnson, relied on nudge tactics in response to COVID-19 (Costello, 2020). Regardless of the theory's popularity in the world, there have been questions about the ethics and effectiveness of nudge methods to create lasting behaviour change (Goodwin, 2012; Leggett, 2014). Similar to other social marketing approaches, nudging was also criticized for failing at creating social norm changes (Mols et al., 2015).

Another broadly applied social marketing tool is community-based social marketing (CBSM). Most conventional social marketing programs and campaigns have been criticized for being information-heavy, expensive and having a limited impact on changing behaviour (McEachern et al., 2020; McKenzie-Mohr, 2000; Ölander & Thøgersen, 2014). Dr. Meckenzie-Mohr (2011) emphasizes that a systematic approach that employs direct contact with people at the community level is most effective when fostering sustainable behaviour change. CBSM incorporates the knowledge of psychology, behaviour science and social marketing. It consists of five steps that can help social marketers design and deliver programs to achieve desirable sustainable goals. The process starts with (1) selecting behaviour that is non-divisible and can directly affect the desired outcome. It continues by (2) uncovering the barriers and benefits to change the behaviour, (3) developing programs and strategies that can help change the behaviour, and (4) piloting and testing the programs and strategies. The final step is (5) to carry out the programs and strategies to a broad-scale implementation and evaluation. The hallmarks of the CBSM are that it promotes peer-to-peer engagement and invites individuals to connect as a community. Furthermore, it underscores the need for identifying barriers and motivators that impede or facilitate a behaviour.

Social marketing methods for behaviour change have been criticized for ignoring the social relations embedded in behaviour (Hargreaves, 2011; Nye & Hargreaves, 2010). As a result, interventions targeting behaviour alone often have limited success (Spotswood, 2016). The social practice approach, however, suggests that the transforming social practices that normalize behaviour should be the

primary focus to encourage behaviour change, instead of altering observed individuals' behaviour, because such "behaviour" is just the mere "expression of social phenomenon (Spurling et al., 2013)." Spurling et al. argue that there are many socially shared factors that can influence how an individual acts and often the observed behaviour only demonstrates commonly believed and accepted social practices. Therefore, according to this approach, an individual's attitudes, beliefs and values are not the leading causes of behaviour and as a result, educating or persuading an individual is less amenable to creating social patterns. Instead, targeting the social practices as an entity underneath the visible or obvious "iceberg" of factors causing the behaviour, is a more suitable approach to bring about behaviour and social change. Furthermore, Spurling et al. suggest Re-crafting, Substituting and Changing how practices interlock, as three ways to frame interventions and policies that focus on behaviour and sustainable challenges. Re-crafting advocates for improving the elements of existing practices to create sustainable changes; Substituting seeks an alternative, more sustainable set of practices to replace current practices; and Changing the interlock of practices. inspects the intricate network of practices and decodes the interconnection between the practices.

Summary of Reviewed Theoretical Approaches

The literature review revealed that changing a behaviour is rarely a simple process. Though psychologists, sociologists, economists and experts in many other fields have developed effective ways to support the change process, there is not a one-size-fits-all approach that can guarantee successful change. Each approach mentioned in this section can provide elements to create campaign strategies that are suitable for encouraging the grocery retail sector in Vancouver to change wasteful behaviour. A summary that highlights each approach's hallmarks is shown in Table 1.

Table 1. Hallmarks of Reviewed Theoretical Approaches

Approach	Hallmarks
Lewin's 3-Stage Model of Change	• Emphasizes change happens in stages • Suggests starting the change with management level (Top-down approach)
Kotter's 8-Step Change Model	• Emphasizes change happens in stages • Suggests starting the change with management level (Top-down approach) • Recognizes barriers to change • Considers emotional drivers that can influence change • Celebrates success in change
Prosci ADKAR® Model	• Emphasizes change happens in stages • Suggests starting the change at the individual employee level (Bottom-up approach) • Recognizes the need to educate people about how to make the change
Social Marketing	• Emphasizes targeting behaviour rather than attitude • Adopts commercial marketing principles and techniques • Highlights changing behaviour for the social good
Nudge Theory	• Suggests targeting one behaviour to change • Considers the emotional, social and psychological factors • Is cost-effective • Has been widely adopted by governments
Community-Based Social Marketing	• Suggests targeting one behaviour to change • Recognizes barriers to change • Acknowledges the benefits to change • Recommends piloting a campaign before broad implementation • Emphasizes peer-to-peer engagement
Social Practice	• Recognizes the social practices that inform a behaviour • Suggests the need to target the social practice instead of individuals' attitudes, beliefs and values • Emphasizes community and the interlocking of social practices

2.2 Current Practices to Encourage Food Waste Reduction

While the above approaches provide the City with a theoretical foundation to construct behaviour change campaign strategies, exploring existing practices that encourage food waste reduction will demonstrate pragmatic tactics and tools for the City to achieve its campaign goal.

A total of fifteen examples from different countries, cities and NGOs are examined in this section, of which eight aim to create changes in the commercial sector, and seven are in the residential sector. Examples targeting the commercial sector present a number of practices to prompt businesses to reduce wasted food, whereas, examples targeting the residential sector shed light on compelling campaign content and innovative behaviour change practices. Overall, they exemplify the key components to include in food waste reduction campaigns and how different activities are performed to produce positive changes.

<u>Commercial Sector</u>

1. Program	Food Waste Stops With Me
Organization	City of Portland
Objective	By partnering with local authorities, associations and businesses, Food Waste Stops With Me aims to raise awareness about reducing food waste and share resources about sustainable business practices.
Target Group	Food Businesses
Region	City of Portland, United States
Activities	The program offers green business advisors to assess on-site waste in businesses and provide online educational videos, workshops, webinars and other materials to guide businesses to identify, track and reduce food waste. Resources and templates include Waste Logbook, DIY waste-sort kit, food waste reduction and diversion tips and best practices. A city hotline and online assistance form allow businesses to directly reach out to the City of Portland to

	request services such as strategy sessions, sustainability assessment and employee training. The program also connects with the industry and share resources via local events.
Results	More than 1000 businesses have received the free on-site waste assessment service and advice on food waste prevention and diversion. The partnership was introduced in 2018 and considered a success in its first two years. (Metro News, 2019)
Website	https://beta.portland.gov/sustainabilityatwork/reduce-food-waste-your-business

2. Program	donateNYC
Organization	City of New York
Objective	donateNYC redirects excess edible food from businesses to those groups that provide food to hungry people in New York City. The program helps businesses reduce food waste and supports food rescue in the community.
Target Group	Businesses
Region	New York City, United States
Activities	Partnered with several nonprofit organizations, donateNYC offers an online platform that matches businesses who are seeking to donate extra food and those who need donations. donateNYC supports their partners by creating publicity for their programs and activities through the donateNYC website, newsletters, campaigns, events and annual reports. Partners can use the "Proud Partner of donateNYC" logo for marketing purposes. To maintain a robust relationship with their partners, donateNYC collaborates with their partners through many different channels, including communication channels, annual convenings, NYCxResue conference and reuse sector events exclusive for their partners.

Results	donateNYC 2018 annual report indicates that more than 57,254 tons of goods were kept from landfills through the program in the year of 2018, of which 52 percent consisted of food (donateNYC, 2019).
Website	https://www1.nyc.gov/assets/donate/site/

3. Program	NYC Mayor's Food Waste Challenge
Organization	City of New York
Objective	The program encourages restaurants in New York City to participate in a challenge to reduce food waste sent to landfills. Each participating restaurant is required to measure and monitor their food waste and commit to the goal of reducing the amount sent to landfill by 50 percent.
Target Group	Restaurants
Region	New York City, United States
Activities	The program consists of regular partner meetings, forums and working groups for the partners and participants to network with peers and industry experts. Each participant can share their knowledge and experiences about waste reduction practices, including waste measuring, composting and staff training. It also provides resource and technical assistance to help participants optimize their strategies to reach the 50 percent diversion target. The program recognizes the participants' efforts by featuring their name, logo, or success story on the PlaNYC website and in official NYC documents. Official participants can use the Mayor's Carbon Challenge logo in their business' promotional materials and display the participation recognition decal in their restaurant window (Vorgna & Passalacqua, 2013).
Results	Mayor Bloomberg announced the program in 2013 as part of the New York City government's 2030 waste diversion goal. More than

100 restaurants participated in the program in year of 2013. (Vorgna & Passalacqua, 2013).

Website	http://www.nyc.gov/html/sbs/downloads/pdf/neighborhood_development/nddblog/FWC_overview.pdf

4. Program	Food Recovery Challenge (FRC)
Organization	United States Environmental Protection Agency (EPA)
Objective	The program challenges its participants to improve their food management practices to reduce food waste in their operations.
Target Group	Organizations and businesses
Region	United States
Activities	Food Recovery Challenge incentivizes businesses and organizations to take voluntary actions to reduce wasted food by emphasizing associated environmental, social and economic benefits. In addition, participants gain visibility and public recognition through awards, social media and EPA websites. The program also offers free technical assistance to help organizations and businesses reach their food waste reduction goals. Participants are required to submit baseline data of wasted food in their business or organization and report their progress annually. Organizations can also join the program as an endorser, which helps the EPA promote the benefits and the actions one can take to reduce wasted food in communities.
Results	EPA reported that over 1,000 businesses and organizations participated in the program and more than 815,000 tons of wasted food was kept away from landfills or incinerators in the year of 2018. (United States Environmental Protection Agency, n.d.)
Website	https://www.epa.gov/sustainable-management-food/food-recovery-challenge-frc

5. Campaign	Love Food Hate Waste Business
Organization	Victoria State Government, Sustainability Victoria
Objective	To raise awareness and provide information about sustainable business practices to reduce food waste.
Target Group	Hospitality businesses
Region	City of Victoria, Australia
Activities	A free three-step program to help hospitality venues reduce food waste. Through its website and email, the program offers businesses who sign up, a Participant Kit that provides owners, managers and head chefs with instructions on how to track food waste and make preventive changes in their business.
Results	The Victorian Government made an announcement to invest $500,000 in the pilot program in 2019 (Waste Management Review, 2019). No evaluation of the effectiveness of the campaign has been made public.
Website	https://www.sustainability.vic.gov.au/Campaigns/Love-Food-Hate-Waste/Business

6. Program	Surplus Food Redistribution Working Group
Organization	WRAP
Objective	Established in 2016, the working group seeks collaboration from businesses across the food system in the UK to address the challenges of food waste prevention and surplus food diversion.
Target Group	Businesses
Region	United Kingdom
Activities	Courtauld Commitment 2025 signatories can apply to become a member of the working group, where they can share knowledge and experiences and develop long-term strategies via a discussion

	forum. The members work together to improve the surplus food redistribution system in the UK.
Results	The program was included in the Commitment 2025 Milestone Progress Report published in 2020. WRAP reported that the total tonnages of surplus food redistributed had increased 96 percent from 2015 to 2018. In 2018, £166 million worth of surplus food was redistributed in the UK, which is equivalent to 133 million meals (WRAP, n.d.).
Website	https://www.wrap.org.uk/content/uk-food-redistribution-continues-increase

7. Campaign	Guardians of Grub
Organization	WRAP
Objective	The campaign, launched in 2019, aims to inspire actions among professionals in the hospitality and foodservice sector that reduce food waste. It empowers everyone in the industry to incorporate practical food waste reduction strategies in their businesses.
Target Group	Everyone in the hospitality and food service sector
Region	United Kingdom
Activities	Developed based on behavioural change strategies, Guardians of Grub emphasizes involving everyone in the businesses to make a change. The campaign shares free campaign and operational materials that the businesses can apply in their establishments to reduce food waste, such as food waste reduction guide, information posters, food waste tracking calculator, measurement tools and case studies. Additionally, educational videos about the relationship between food and the environment are used as a resource to raise awareness of the food waste issue. WRAP collaborates with high-profile business figures, prominent food waste experts and senior influencers in the sector to promote the campaign messages

	(WRAP, 2019). Stand Up For Food month is a September-long call-to-action month within the campaign. It is designed to unite businesses in the sector to take action on food waste measuring and monitoring. The campaign provides a "business partner pack" to help businesses prepare for the Stand Up For Food month (Guardians of Grub, n.d.).
Results	Participants in the campaign have reported significant results in food waste reduction. It is estimated that Crieff Hydro Hotel in Perthshire has decreased its cost relating to food thrown away by approximately 43 percent, equivalent to saving 11.5 tonnes of food or £51,750. It has also reported that the Dragon Hotel in Swansea saw a 25 percent decrease in its perishable food purchasing costs (Benson, 2019).
Website	https://www.guardiansofgrub.com/

8. Campaign	Supermarket Food Waste Scorecard
Organization	Feedback
Objective	The campaign urges supermarkets in the UK to take action to prevent and reduce food waste.
Target Group	Supermarket
Region	United Kingdom
Activities	The campaign conducted an assessment of UK supermarkets' actions on tackling the food waste issue based on publicly available information. Using a scoring system developed by Feedback, the campaign is a research project that examines supermarkets' business models and ranks the top ten supermarkets based on their current food waste prevention and redistribution practices. The campaign also calls for action from the public to write to the CEO of the supermarket that ranked in the last place. An email template is

	provided for anyone who wants to encourage the CEO to make sustainable business choices (Feedback, 2018).
Results	No evaluation of the effectiveness of the campaign has been made public.
Website	https://feedbackglobal.org/campaigns/supermarket-food-waste-scorecard/

Residential Sector

9. Campaign	Love Food Hate Waste Canada
Organization	National Zero Waste Council, an initiative of Metro Vancouver
Objective	Together with nine partners, the National Zero Waste Council coordinates a national approach to "change Canadians' behaviours around food and dramatically reduce the significant amount of food wasted across the country every day." (Love Food Hate Waste Canada, 2018). The Love Food Hate Waste campaign contributes to the National Zero Waste Council's food loss and waste strategy, aiming to reduce food waste in Canada by 50 percent by 2030. The partners include RECYC-QUÉBEC, City of Toronto, Walmart Canada, Sobeys, City of Vancouver, City of Victoria, Capital Regional District, Government of British Columbia and Guelph-Wellington.
Target Group	Household
Region	Canada
Activities	The campaign uses an online platform to raise the public awareness of the food waste issue and shares knowledge, recipes and tips with Canadians on how to store food, best utilize ingredients at home and prevent over-purchasing.
Results	The campaign has initiated a Canada-wide conversation about food waste. A number of cities have joined the campaign.
Website	https://lovefoodhatewaste.ca/

10. Program	Good Food Program
Organization	York Region, Ontario
Objective	The program aims to encourage people to adopt behaviours that can reduce food waste at home.
Target Group	Household
Region	York Region, Canada
Activities	The program educates people about ways to avoid wasteful behaviour and healthy eating via website, social media, events and contests. Its website includes tips on meal planning, cooking leftovers, food storage, food safety and best before dates. #PlanPrepareEnjoy is used for people to share tips for wasting less food on social media platforms.
Results	No evaluation of the effectiveness of the campaign has been made public.
Website	https://www.york.ca/wps/portal/yorkhome/health/yr/nutrition/goodfood/

11. Campaign	Small Change Big Difference - TRiFOCAL London
Organization	Resource London & Groundwork London
Objective	A city-wide project run from 2016 to 2019, Small Change Big Difference served as the communication campaign for the TRiFOCAL (Transform City Food Habits for Life) project, and was designed to encourage sustainable behaviours to create healthy eating habits, reduce food waste and recycle food waste.
Target Group	Londoners
Region	London, United Kingdom
Activities	The campaign promotes small changes that people can make at home, from eating ingredients with less environmental impact to using counter-top compost containers to recycle food waste.

	Articles, blog posts, cooking recipes and educational videos send messages about healthy eating habits and food waste reduction. Many call-to-action tips on changing targeted unhealthy or wasteful behaviour are shared on the campaign website and across social media platforms. Examples of the tips include "Recycle Your Teabag" and "Freeze Your Eggs!"
Results	TRiFOCAL received financial support of €3.2 million from the European Union's LIFE programme. The campaign was successful at meeting its objectives and spreading TRiFOCAL messages about healthy eating habits and changing wasteful behaviour, especially among 18 to 34-year-olds Londoners. TRiFOCAL London helped to reduce the amount of avoidable food waste by 9 percent in six London boroughs from 2017 to 2019 (TriFOCAL, 2020).
Website	http://smallchangebigdifference.london/

12. Campaign	Love Food Hate Waste (LFHW)
Organization	Waste & Resources Action Programme (WRAP)
Objective	To raise awareness about food reduction solutions.
Target Group	Household
Region	United Kingdom
Activities	Through LFHW's online platform, partners' websites and community events, the campaign offers free videos, recipes, templates and other educational resources to promote food reduction. The campaign focuses on improving behaviours related to planning, portions, date labels, leftovers and forgotten foods and storage. LFHW supports the Courtauld Commitment and Courtauld Commitment 2025, voluntary agreements with UK grocery retailers to work together and reduce food waste.
Results	Countries, including Canada, Australia, and New Zealand, have adopted the successful LFHW campaign model to tackle avoidable

food waste at the household level. The campaign model was reported to have helped decrease 21 percent of the avoidable household food waste in its first five years in the United Kingdom. (Canadian Press, 2018)

Website	https://www.lovefoodhatewaste.com/

13. Campaign	Make Toast Not Waste
Organization	LFHW
Objective	The campaign spreads the awareness of storing bread in the freezer and making toast straight from frozen.
Target Group	Household
Region	United Kingdom
Activities	#maketoastnotwaste was promoted through Facebook, Twitter, and Instagram to encourage people to share recipes to make toast toppers.
Results	The campaign reached 690,000 citizens in the United Kingdom and was highlighted in the BBC Radio 2 program (WRAP, 2020)
Website	https://www.lovefoodhatewaste.com/toast

14. Campaign	Chill the Fridge Out
Organization	LFHW
Objective	The campaign aims to reduce wasted milk at home by raising the awareness of the correct fridge temperature and the necessity to reduce food waste.
Target Group	Household
Region	United Kingdom

Activities	The campaign's website offers an online tool to teach people how to adjust their particular brand of the fridge to below 5 Celsius, so milk and other food items do not perish quickly.
Results	The "Chill the Fridge Out" saw a 4.6 percent increase of followers across social media platforms and more than 1.2 million pageviews in 2019 (WRAP, 2020).
Website	https://www.lovefoodhatewaste.com/article/chill-fridge-out

15. Project	Eat Me, Freeze Me
Organization	Behaviour Change Interventions (BCI) programme, WRAP
Objective	"Eat Me, Freeze Me" is an experimental project to examine whether packaging design will change people's behaviour patterns and reduce bread waste at home.
Target Group	Household
Region	United Kingdom
Activities	The project experiments with a re-designed bread packaging to encourage consumers to freeze the last few slices of bread instead of throwing it out. The packaging is divisible and has visual cues to instruct consumer when to freeze the bread.
Results	Though the project observed less meaningful insights with regards to behaviour changes, it did suggest that using packaging to demonstrate ways to reduce food waste was beneficial. The findings in the project provided valuable information to improve WRAP's best practice labelling guidance (WRAP, 2020), which aims to help consumer to make better use of their food and reduce waste (WRAP, 2017).
Source	Courtauld Commitment 2025 Milestone Progress Report

Summary of Reviewed Current Practices

Campaigns and programs reviewed and evaluated in this section highlight various approaches to encourage food waste reduction. It is important to note that many aspects of these campaigns and programs may influence their effectiveness and efficiency and that it is difficult to identify and evaluate specific factors that can contribute to a campaign or program's success. Some common practices may serve as a preliminary guide for the City to plan a future campaign, most of which can be categorized into eight variables. Details of the eight common practices and whether reviewed campaigns and programs have utilized these practices are presented in Table 2 and Table 3.

Table 2. Food Waste Reduction Campaign/Program Common Practices – Commercial Sector

Commercial Sector Campaign/Program								
Practices	Food Waste Stops with Me	donate NYC	NYC Mayor's Food Waste Challenge	Food Recovery Challenge	Love Food Hate Waste Business	Surplus Food Redistribution Working Group	Guardians of Grub	Supermarket Food Waste Scorecard
Partnership/ Coalition	✓	✓		✓		✓		
Educational Resources	✓	✓	✓	✓	✓		✓	✓
Action Guides & Tools	✓	✓	✓	✓	✓		✓	✓
Expert Assistance	✓		✓	✓			✓	
Peer-to-Peer Engagement Opportunities	✓	✓	✓	✓		✓	✓	
Public Recognition	✓	✓	✓	✓			✓	✓
High-Profile Advocates			✓				✓	
Community Events		✓					✓	

Table 3. Food Waste Reduction Campaign/Program Common Practices – Residential Sector

Residential Campaign/Program							
Practices	Love Food Hate Waste Canada	Good Food Program	Small Change Big Difference	Love Food Hate Waste (LFHW, UK)	Make Toast Not Waste (LFHW, UK)	Chill the Fridge Out (LFHW, UK)	Eat Me, Freeze Me
Partnership/ Coalition	✓		✓	✓	✓	✓	✓
Educational Resources	✓	✓	✓	✓	✓	✓	
Action Guides & Tools	✓	✓	✓	✓	✓	✓	✓
Expert Assistance	✓		✓	✓			
Peer-to-Peer Engagement Opportunities	✓		✓	✓	✓		
Public Recognition	✓			✓			
High-Profile Advocates	✓			✓			
Community Events		✓	✓	✓			

SECTION 3 Recommendations of Best Practices

In accordance with the findings from the literature review of theoretical approaches to encourage behaviour change and current practices to encourage food waste reduction, this report proposes a framework to support the City with developing and implementing a campaign that can encourage the grocery retail sector to make operational changes to reduce wasted food.
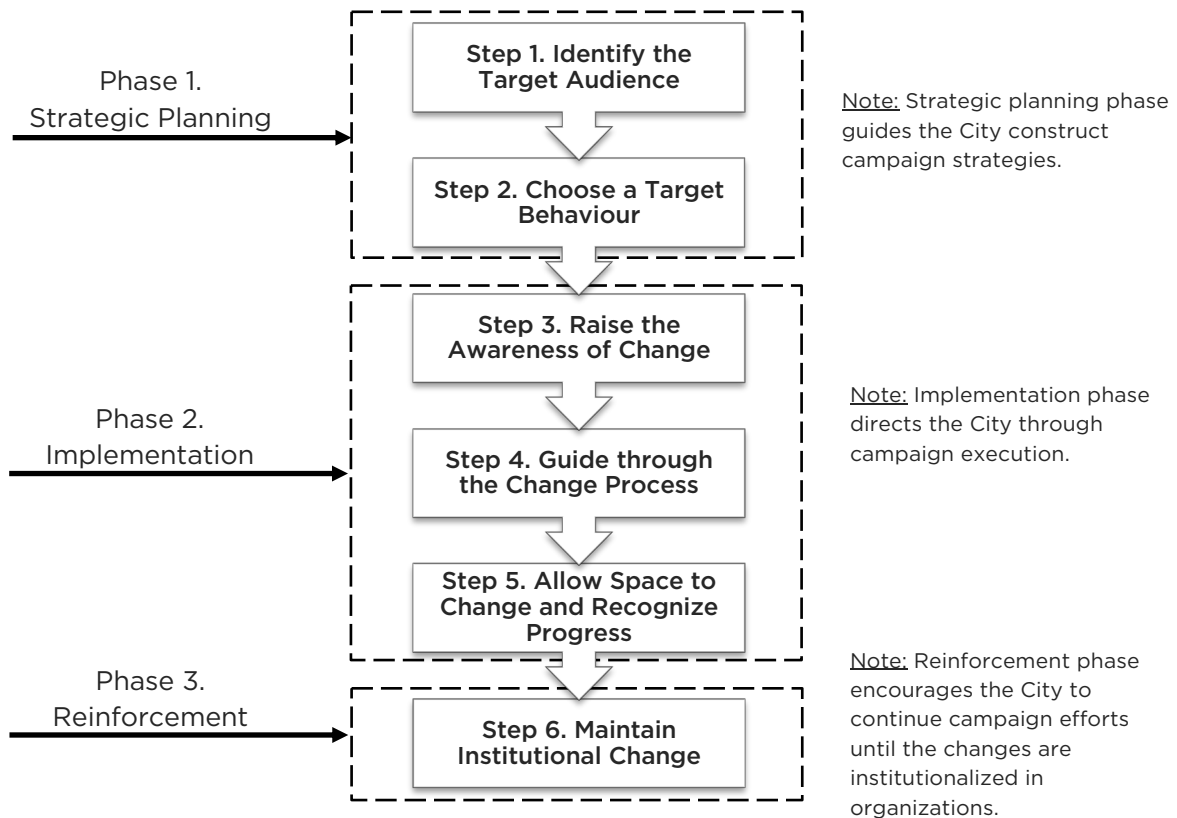
As discussed in Section 2, there is no one-size-fits-all approach that can guarantee a successful campaign to produce positive changes. The proposed framework is primarily based on the principles of social marketing and concepts from change management. It contains elements that may maximize the effectiveness of future campaigns and guide the City to reach its food waste reduction goals.

Section 3 begins with a diagram (Figure 1) of six steps that the City can follow to develop and implement a food waste reduction campaign and continues with the rationale and description of each step based on the literature review. Furthermore, drawing inspiration from Section 2.2, several marketing activities and communication approaches are identified and summarized under each step to improve the clarity of the campaign's strategic visions and execution capabilities.

3.1 A Proposed Framework

The proposed framework, as outlined in Figure 1, consists of six steps divided into three major phases.

Figure 1. Six steps to develop and implement a food waste reduction campaign

Phase 1.
Strategic Planning

Step 1. Identify the Target Audience

Step 2. Choose a Target Behaviour

Note: Strategic planning phase guides the City construct campaign strategies.

Phase 2.
Implementation

Step 3. Raise the Awareness of Change

Step 4. Guide through the Change Process

Step 5. Allow Space to Change and Recognize Progress

Note: Implementation phase directs the City through campaign execution.

Phase 3.
Reinforcement

Step 6. Maintain Institutional Change

Note: Reinforcement phase encourages the City to continue campaign efforts until the changes are institutionalized in organizations.

Step 1: Identify the Target Audience

The literature on change management reveals that individual behaviour is imperative to creating effective organizational changes. However, these change management models share different opinions about who should be involved in the changes. There are many grocery store stakeholders with different levels of influence and varying viewpoints regarding operational change. It is critical to consider which group of people should be encouraged to lead change from the beginning and at different stages in the change process. Spending time to understand how the target

group acts and makes decisions is incredibly beneficial to the campaign design and execution process.

Recommended Activities:

- Conduct market research to support the target audience identification process.
  - Utilize online research, expert interviews, roundtables or workshops to identify and learn about the grocery retail sector stakeholders in Vancouver.
- Prioritize and define relationships between identified stakeholders.
  - Perform stakeholder mapping and segmentation analysis to understand how each stakeholder group affects the outcome of the organizational changes differently and uncover the suitable ways to involve and communicate with each stakeholder group.
- Select the target audience.
  - Determine which stakeholder group(s) should be the current campaign focus.

Step 2: Choose a Target Behaviour

Social marketing approaches indicate that effective behaviour change campaigns or programs should select a target behaviour. The behaviour identified must have a direct effect on the desired outcome. Furthermore, the proposed new behaviour should be specific, actionable and achievable with time and effort. A message such as "Be mindful of food waste" is not as impactful as "Redistribute your surplus food" when addressing grocery stores' practices to prevent food waste from going to landfill in the grocery stores. Drawing on the thinking from behaviour change theories and the social practice approach, it is also vital to examine the socially shared factors that lead to a specific behaviour and the social practices interlocked with the behaviour. A starting point to choosing a target behaviour is to consider whether the social practices and common perceptions that normalize the behaviour should be the target instead of the individual behaviour itself.

Recommended Activities:

- Ascertain and understand the behaviours causing food waste.
  - Conduct online research or liaise with a subset of the target audience or experts in the related fields to recognize wasteful behaviours in the grocery retail sector and understand the personal, business and social reasons behind these behaviours.
- Identify the barriers and benefits of changing the wasteful behaviours.
  - Conduct in-depth interviews, roundtables, focus groups, workshops or surveys to understand the target audience's attitudes and values, decision-making factors, knowledge gaps, barriers to making changes and other reasons why they are not performing the desired behaviour.
  - Review benefits from changing behaviour and how to incentivize action.
- Determine the target behaviour and construct campaign strategies
  - Identify what can be changed and decide which behaviour or group of behaviours the campaign should aim to change.
  - Construct campaign strategies to promote the desired behaviour or group of behaviours with specific, measurable, actionable, relevant and time-bound campaign objectives (Poister, 2008).

Step 3: Raise the Awareness of Change

Based on the literature review, it is clear that the awareness-raising approach can influence people's attitudes, beliefs, and values but has a limited impact on changing behaviour; however, the first stages of attaining behaviour change require the target audience to realize that the change is necessary and feel motivated to take action. Therefore, campaigns promoting awareness are still an essential component in the behaviour change process. These campaigns can raise the target audience's attention to the urgency and the positive impact of changing the behaviour. Well-crafted messages showing how the target audience will benefit from changing the behaviour can increase their enthusiasm to start the change. Awareness campaigns also can serve the purpose of making the target audience aware of the measures they can take and boost their confidence to participate in the change.

Recommended Activities:

- Define and pilot key campaign messages to be communicated with the target audience.
    - Craft clear, explicit and actionable campaign messages about the desired behaviour. The messages should be tailored to the target audience based on their attitude and knowledge about reducing food waste practices. A message aimed at a target audience who is unaware of the food waste issue will be very different from the one aimed at a target audience who is familiar with the issue but reluctant to change.
    - Examine the elements used to create the campaign messages. Visually appealing messages are often easier to understand and remember. Relatable stories that can touch emotions may be more effective than information-heavy campaign messages as a way to catch the target audience's attention, generate interest and inspire actions to make changes.
    - Offer awareness-raising resources, such as educational videos, infographics, campaign templates and webinars, to educate the target group about why and how they can make the changes and the benefits of participating in the change.
    - Prototype the campaign messages through interviews and focus groups in order to receive feedback from the target audience before implementation.
- Mapping a communications plan and strategy to deliver the campaign messages.
    - Select the right messengers to represent and spread the messaging. The messengers should be reputable in order to influence and gain the confidence of the target group. Some of the ideal messengers are credible industry leaders, campaign partners, business associations and inspirational influencers.
    - Choose the appropriate channels to deliver messaging to the target group and adjust the format of the messaging according to the channel. The campaign messages can be communicated via traditional media channels, digital media channels and in-person contacts, such as workshops and community events. Examples of traditional media channels include

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television, radio, newspapers, posters, brochures, banners, displays, tent cards and flyers. Examples of digital media channels include campaign websites, newsletters, industry-specific forums, videoconferences and social media.

- o Consider incorporating contests or challenges in the campaign to motivate and incentivize the target audience to take action. A healthy peer-to-peer competition may speed up the change process.
- Monitor the performance of the campaign and refine campaign strategies.
  - o Evaluate which campaign messages and activities resonate with the target audience and adjust the campaign strategies accordingly.

Step 4: Guide through the Change Process

Perspectives from change management and community-based social marketing show that behaviour change happens in stages. Awareness campaigns unlock the target audience's desire to change. However, moving the target audience from awareness to action can be a long and complicated process. Lack of expertise and resource, fear of failure and financial constraints are only a few of the many factors that could stop the target audience from proceeding with the change. Thus, it is crucial to guide the target audience through the change process by providing resources and expertise for creating change strategies, breaking down the barriers and learning to monitor and evaluate the change process. Additionally, initiating conversations among peers and encouraging them to exchange success stories and valuable experience can also help close the gap between awareness and behaviour.

Recommended Activities:

- Support the target audience to facilitate the change.
  - o Create opportunities for the target audience to communicate and work with experts and other businesses in the industry. Through an advisor hotline, online chatbot, discussion forums, working groups, partner meetings, conferences or events, the target audience can acquire advice from experts and exchange knowledge and experience with their peers in the industry.

- o Share online resources, such as participation guides, educational videos, self-assessment tools, templates and other operational material to help the target audience learn ways to overcome the barriers and detect, track, measure and reduce food waste.
    - o Provide training session materials to guide the target audience to encourage others in the organization to participate in the change.
- Gain insights from the target audience to improve the performance of the campaign.
    - o Conduct focus groups or surveys to obtain the target audience's opinion on what resources or activities are the most effective to guide them through the change process. Acknowledge criticisms and negative comments and make adjustments to the resources and activities accordingly.

Step 5: Allow Space to Change and Recognize Progress

The basis for Step 5 is the theoretical understanding that between awareness and behaviour change a series of transitions need to occur and be recognized. Furthermore, the psychological and social factors of human behaviour imply that the change process is often non-linear, complex and irrational. Consequently, the target audience needs time and space to carry out the change in their organization and persuade others to embrace the new behaviour. The fact that change does not take place instantaneously brings insights into when to reach out to the target audience and push the change to the next level. Messaging that presses for change too early or too frequently will likely be ineffectual and may induce emotional resistance. Contrarily, a message that recognizes progress at this stage can be a great motivator for everyone to continue the change. Encouraging celebration of successes, however small, can make people feel satisfied in their accomplishments and strengthen their reputation among peers and in the community, incentivizing people to sustain the changed behaviour.

Recommended Activities:

- Strike a balance between effective and "pushy" messaging.
  - Communicate with the target audience proactively to ensure optimal campaign performance. Check the frequency of the campaign messages and activities to ensure the target audience has the time to adapt to the changes and propagate the new practices in their organizations.
  - Continue campaign efforts that have contributed to bringing positive changes. However, avoid repetitive and static campaign messaging and activities as they must evolve with the change progress to keep the target audience interested and engaged.
- Motivate the target audience to continue the change through recognition and appreciation.
  - Deliver messages or provide a platform for the target audience where they are encouraged to showcase their success stories and celebrate the people who participated in the change.
  - Increase public visibility and recognition of businesses or partners by sending out press releases, newsletters, social media posts or awards. Offer the businesses "City-Approved" logos, stickers, and email templates for their marketing purposes.

Step 6: Maintain Institutional Change

The consensus indicated by the literature review is that making changed behaviour 'stick' can be challenging. The approaches in change management and community-based social marketing highlight that the new behaviour should become a norm in organizations or communities in order to have a long-lasting effect. The new behaviour needs to be internalized by the target audience and widely accepted by other people in the organization. Hence, the final step of a behaviour change focused campaign is to encourage the target audience to maintain their changed behaviour and ensure the successful changes are retained in their organizations in the long run.

Recommended Activities:

- Inspire the target audience to integrate the change within their organizational culture.
  - Share case studies to inspire the target audience to connect the changes with their business values.
  - Evaluate and rank on the progress to reduce food waste to motivate further action from everyone in the organizations.
- Continue to guide the target audience to institutionalize the change in their organizations.
  - Provide training materials to help the target audience communicate the values with others in the participating organizations.
  - Encourage the target audience to report institutionalization failures or roadblocks through online forms or surveys. Offer resources that can help the target audience overcome the difficulties and commit to the change.

SECTION 4 Examinations of Best Practices

This section aims to evaluate the relevancy and viability of the proposed framework. Methods used for the examination process include case study analysis and semi-structured qualitative interviews. The case study analysis reappraises the reviewed campaigns and programs from Section 2 by inserting them into the proposed framework to determine the structure's relevance to current practices that encourage food waste reduction. Qualitative interviews continue the examination of the framework's potential to support the City's development and implementation of an effective campaign to encourage reducing and preventing wasted food within the grocery retail sector.

4.1 Summary of Findings from Case Study Analysis

Table 4 and Table 5 present how reviewed campaigns and programs fit in the proposed framework. Each "✓" indicates that the campaign or program includes activities or elements that meet the objectives in the proposed step.

*Table 4. Positioning Food Waste Reduction Campaign/Program Common Practices –
Commercial Sector*

Commercial Sector Campaign/Program	Steps in the Proposed Framework					
	1.Identify the Target Audience	2. Choose a Target Behaviour	3. Raise the Awareness of Change	4. Guide through the Change Process	5. Allow Space to Change and Recognize Progress	6. Maintain Institutional Change
Food Waste Stops with Me	✓		✓	✓	✓	
donateNYC		✓		✓	✓	
NYC Mayor's Food Waste Challenge	✓		✓	✓	✓	
Food Recovery Challenge	✓		✓	✓	✓	
Love Food Hate Waste Business	✓		✓	✓	✓	
Surplus Food Redistribution Working Group		✓	✓	✓		
Guardians of Grub	✓	✓	✓	✓	✓	✓
Supermarket Food Waste Scorecard	✓		✓	✓		

*Table 5. Positioning Food Waste Reduction Campaign/Program Common Practices –
Residential Sector*

Residential Sector Campaign/Program	Steps in the Proposed Framework					
	1. Identify the Target Audience	2. Choose a Target Behaviour	3. Raise the Awareness of Change	4. Guide through the Change Process	5. Allow Space to Change and Recognize Progress	6. Maintain Institutional Change
Love Food Hate Waste Canada	✓	✓	✓	✓		n/a
Good Food Program	✓	✓	✓	✓		n/a
Small Change Big Difference	✓	✓	✓	✓		n/a
Love Food Hate Waste UK	✓	✓	✓	✓	✓	n/a
Make Toast Not Waste	✓	✓	✓	✓		n/a
Chill the Fridge Out	✓	✓	✓	✓		n/a
Eat Me, Freeze Me	✓	✓	✓	✓		n/a

Table 4 and Table 5 show that nearly all reviewed campaigns and programs have an identified target audience (step 1) and practices established to raise change awareness (step 3). All the campaigns and programs provide their target audience with guidance during the change process (step 4). Though all residential sector campaigns and programs have their targeted behaviours (step 2), less than half of the commercial sector campaigns and programs have included strategies to influence specific behaviour. A majority of the commercial sector campaigns and programs contain elements to recognize businesses and organizations' progress in food waste reduction (step 5). However, it is less observed in campaigns and programs targeting households; only Love Food Hate Waste UK in the residential sector encourages its target audience to share and celebrate their success. Guardians of Grub is the only campaign featuring components that can contribute to maintaining institutional change (step 6).

4.2 Summary of Findings from Expert Interviews

In order to further examine the proposed framework, a total of eight semi-structured qualitative interviews with waste management, food industry and behaviour change experts were conducted. Interview respondents were asked to comment on the proposed framework's feasibility and potentiality in practice and its recommended methods and approaches to encourage operational change in the grocery retail sector to reduce wasted food. This section documents summarized findings from these interviews.

4.2.1 Overall Opinion

The consensus among respondents was that the proposed framework provides a logical structure to guide the City in developing a campaign to foster change. Several respondents commented that "the steps in the framework are solid for developing a campaign" and "a good framework to guide organizations to learn about that they can do and improve." However, there were mixed responses about whether a campaign developed on the proposed framework will be effective. A majority of the respondents indicated that the success of a campaign developed on the proposed framework is primarily dependent on Step 1 (Identifying Target Audience) and decisions made in this step will substantially influence the implementation of other steps. Several respondents stated that variations in other essential campaign components- such as campaign objectives and messaging, stakeholders' resource availability, and prospective partnerships - could additionally affect the effectiveness of a campaign developed on the proposed framework.

4.2.2 Key Findings

Focus on the Target Audience

Most of the respondents agreed that choosing the right target audience is a determinant factor for the success of a campaign and should be the first step in the proposed framework.

Some respondents pointed out that it can be challenging to determine the target audience as national grocery retailers with head offices outside of Vancouver often do not have the autonomy to make operational changes. A municipally focused campaign, therefore, will be unlikely to create changes in these Vancouver branch locations. Instead, a campaign developed to target Vancouver-based grocery retailers could overcome this barrier and increase the impact of the proposed framework. Furthermore, the interviews revealed that a variety of grocery retailers are at different stages of tackling in-store food waste issues, and some already have infrastructure and protocols to reduce wasted food. A campaign encouraging food waste reduction may seem redundant to them. Therefore, a better understanding of the current situation in the industry can help identify the target audience and construct effective campaign strategies.

A majority of the respondents suggested that working closely with grocery retailers can reveal whether these grocery retailers have the willingness and resources to make changes and understand what can motivate them to take action. All respondents indicated that conversations should start with the grocery retailers' management teams (or sustainability teams if applicable) as they most likely have the authority to carry out changes in organizations. Some respondents also suggested that floor staff should be involved as they can provide front-line insights into what can be changed. Overall, there is consensus among the respondents that defining and understanding the target audience should be the primary focus in the early stage of developing an effective campaign using the proposed framework.

Set Campaign Objectives

The interviews revealed that it is pivotal for the City to set clear campaign objectives in influencing changes in the grocery retail sector. One respondent mentioned that the City could consider encouraging changes in operation protocols. Another respondent stated that the City could act as a convener of key stakeholders and industry leaders to come up with suitable solutions for themselves to reduce wasted food. The effectiveness of a campaign developed on the framework may vary as a result of different campaign objectives.

Resource Availability

Several respondents stated that a considerable amount of work needs to be done in each step of the proposed framework; it is necessary to understand whether the City has enough time and resources to implement the proposed framework. Another respondent mentioned that some grocery retailers may not have the resources to make the changes in accordance with what a campaign promotes. Therefore, resource availability is another factor that is determinant for the success of a campaign developed on the proposed framework.

Share Positive Campaign Messages

The interviews revealed that understanding and integrating the target audience's needs and motivations is important for the success of a campaign developed on the proposed framework. Some respondents reported that the key motivation to reduce wasted food is to align with their corporate social responsibility objectives. Other respondents stated that reducing wasted food is "a good thing to do." Several respondents indicated that a positive campaign that emphasizes the benefits of reducing wasted food and offers public recognition to "make people feel good about the change they have made" is more impactful than a negative campaign. These statements denote that the motivation for change varies with the target audience and emphasizing positive outcomes from the introduced change may be more impactful than emphasizing the negative outcomes related to maintaining the status quo.

Building Robust Partnerships

Another insight from the interviews was that building robust relationships with the right partners is essential to the success of a campaign developed on the proposed framework. Some respondents emphasized that many partnerships are needed to achieve the campaign goal and that relationship building often requires significant amount of time and effort. It is vital to identify and work with trusted partners who can help deliver campaign messages and guide the change. Many grocery retailers are already working with industry associations and/or local NGOs. A campaign can benefit immensely by leveraging those existing relationships.

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One respondent highlighted that campaigns should be tested for their effectiveness before large-scale implementation. Therefore, securing commitments from one grocery retailer is a more realistic and cost-effective approach in the early stage of developing a campaign. The respondent added that building partnerships with one grocery retailer can also generate peer effect, which can motivate other grocery retailers to join the partnership and participate in the change.

SECTION 5 Conclusions and Future Work

The complexities of the food waste issue and diverse internal and external factors influencing grocery retail operations make it challenging to define best practices for a City campaign to encourage operational changes to reduce wasted food. The literature reveals a variety of theoretical approaches that aim to encourage behaviour change and practices that strive to address food waste reduction. However, there is not enough evidence to conclude that any particular approach or practice from the literature is suitable for the grocery retail sector in Vancouver and can guarantee success. Therefore, to adequately support the City's goal to encourage food waste reduction in the grocery retail sector, this report proposes a framework that can guide the City to develop and implement a campaign to promote sustainable solutions.

The proposed framework has been examined using case study analysis and expert interviews. Findings from these examinations suggest that the proposed framework has the potential to provide the City with concrete, sensible and pertinent guidance to reach its campaign goal. Nevertheless, it is difficult to foresee whether a campaign developed on the proposed framework will be effective, as the variation of essential campaign components may produce different outcomes. Additional research is required to assist the City in defining the right target audience, setting clear campaign objectives, and creating impactful campaign content.

Furthermore, it is important to recognize that best practices to encourage food waste prevention and reduction in the grocery retail sector should include collaboration. The City needs to uncover practical ways to work in partnerships with industry associations, grocery retailers and/or NGOs to identify exemplary practices that can help foster change toward creating a zero-waste community and a sustainable urban food system.

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