

Plastic Waste & Litter Reduction

Municipality of Dysart et al

FINAL REPORT

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May 1, 2020

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1 - Introduction

1.1 - Municipal Information

Dysart et al

Located within the County of Haliburton, Dysart et al was incorporated in 1867 and includes multiple geographic townships located on the Canadian Shield. The Municipality of Dysart et al boasts freshwater lakes, rivers, wetlands and forests which serve as a permanent home to nearly 6,500 permanent residents. During the summer months the population of Dysart et al swells considerably with seasonal residents and visitors as cottages and vacation homes are opened to enjoy the natural scenery. The Municipality has no residential curbside waste or recycling collection and relies on five landfills/transfer stations for disposal.

Total Dwellings: 7,083 (Primary: 2,891, Seasonal: 4,192)

Permanent population: 6,280

Seasonal population: Over 20,000 (estimated)

Blue Box Tonnage

Dysart et al diverts over 1000 tonnes of Blue Box materials annually from its landfill sites located at: Haliburton, Haliburton Lake (West Bay), Harcourt, Kennisis Lake and West Guilford (Municipality of Dysart et al, 2018). The municipality has 3 recycling streams within the Blue Box which are: mixed fibers, commingled containers and old corrugated cardboard only or OCC (Municipality of Dysart et al, 2016).

1.2 - Project Overview

Background

In 2019, the Sustainable Waste Management class from Fleming College undertook a collaborative project with the Municipality of Dysart et al. This work resulted in the development of The Plastic Reduction Challenge Report. The report provided Dysart with information on how to properly execute a ban on the sale of single-use plastic water bottles in municipality-owned buildings and spaces. The class researched suitable alternatives to bottled water and recommended effective communication, education and engagement tools to increase public awareness of such alternatives. With the help of this project, Dysart has passed a resolution banning the sale and distribution of single-use plastic water bottles in public buildings and spaces, and installed two public water refill stations in the community.

Current Project

In light of last year's successful project, Dysart et al and Fleming College have agreed to continue working on the Plastic Waste Reduction Challenge. This year's project will

shift the focus away from material bans and instead focus on building an understanding of the current cultural mindset of both residents and businesses with regards to waste and environmental/sustainability issues. This information can inform the adoption of future initiatives, campaigns, and bylaws. This year's class applied various survey best practices to design and develop surveys to obtain specific information about resident and business consumption habits and perceptions of environmental initiatives regarding single-use plastics. The data gathered from the surveys will provide valuable information regarding which demographics and businesses would be most responsive to future promotion and education campaigns. In addition to the survey work undertaken this year, the Sustainable Waste Management class has provided a wide selection of potential promotion and education strategies to aid in Dysart's objective of fostering a shift in environmental consciousness.

1.3 - Objectives

Scope

The objective of this collaborative project between Fleming College and Dysart et al is to begin a conversation regarding the use of single-use plastics and their impacts on the environment. By opening discussion around behaviours, there is an opportunity to challenge the way that things have always been done and to initiate a deeper conversation around how to implement any changes. These discussions regarding altering the attitudes and behaviours in Dysart et al should focus on: minimizing a reliance on single-use plastics, reducing litter, and shifting the community mindset around the disposability and impact of the products we choose to use. To begin the conversation, there will be two surveys created. Targeting residents and businesses individually, in order to establish an understanding of what environmental choices are currently being made, to determine which initiatives are most important to implement first, and to gather data on how much information is currently known regarding these environmental changes. As part of the survey strategy, there will be a focus on education and promotion of reducing single-use plastics and eliminating litter. The aim will be to establish a baseline of understanding around current environmental initiatives, generating a conversation around current behaviours, and promoting a cultural shift towards environmentally sustainable choices.

Survey Development

The target demographic for the surveys are the community members of Dysart et al including both permanent and seasonal residents, as well as business-owners. The intention of surveys is to collect information from the sample groups through various questions (Check & Schutt, 2012). Once information is gathered, one will be able to clarify the objective and identify key barriers and benefits in existing behaviours. The information received is highly dependent on the type of questions being asked, for example, questions that require numeric ratings provide quantitative research whereas open ended questions provide more qualitative research findings (Ponto,

2015). For this campaign we are seeking to understand the public's perspective on their personal waste habits and consumption, willingness to participate in environment initiatives, as well as their view of litter levels in the area.

Community E-Based Social Marketing Tools

The responses and information gathered from the two surveys will help identify specific barriers to the desired behaviours Dysart et al hopes to encourage. Community-based social marketing (CBSM) utilizes several unique tools and techniques based on social psychology to promote healthy and sustainable behaviours at the community level (UPenn, n.d.). The survey results will inform which CBSM tools would be most effectively applied to the community of Dysart et al. Achieving a successful program or change in behaviour requires identifying the barriers to the behaviour, developing a program to overcome these barriers, implementing the program in the community and evaluating the effectiveness long term (McKenzie-Mohr, 2020).

Deliverables

Upon completion of this project, Dysart et al will be provided with:

- Ready-to-execute surveys for both residents and businesses of Dysart.
- Comprehensive survey execution strategies.
- A collection of customized Promotion & Education (P&E) strategies.

Once the survey results have been collected and analyzed, staff at Dysart et al will be able to select and execute P&E strategies from the collection presented in this report.

2 - Barrier Research

2.1 - Preliminary Research

Barriers to Reducing Single Use Plastics

The main impediment to reducing single-use plastics (SUP) may well be the very nature of plastics themselves. Though the emergence of plastics in the marketplace occurred a relatively short time ago, plastics have become ubiquitous in our modern society; their very nature renders them cheap and easy. The proliferation of plastics in our everyday lives leads to the illusion that their presence is okay. Though an individual may have the desire to limit their consumption, single-use plastics in our everyday life are almost unavoidable (Smith, 2018).

A variety of resources were examined in order to better understand the general barriers to the reduction of single-use plastics in any given society/community. Several communities across Canada have examined this issue and have implemented measures to reduce consumption. It was discovered that the methodologies of the various studies are very similar to what we would recommend for Dysart et al. Invariably, a series of stakeholder meetings were conducted, and surveys were

employed to better understand the specific concerns/viewpoints of community members in order to use the information gathered to develop promotion and education plans in their respective communities.

Drawing information from the experiences and survey results of the other municipalities across Canada we have identified a number of barriers and common beliefs pertaining to the reduction of single-use plastics:

- Forgetfulness – consumers forget containers or reusable bags at home or in the car
- A belief that re-using some products is unsanitary
- They want to understand that the single action matters
- People want to be part of the “in group,” and need to feel socially acceptable
- People think that going eco-friendly or being more mindful of the environment involves a higher cost
- Inconvenience – consumers want establishments to offer acceptable alternatives.
- Behaviour change/education insufficient – governments must provide regulations

From April 22 to September 21, 2018, the Government of Canada invited Canadians to share their thoughts on the single-use plastics issue and moving the country towards zero plastic waste. They received approximately 14,000 replies. Overwhelmingly Canadians suggested that:

- Organizations run educational campaigns on the plastics lifecycle, recycling and its impacts to encourage collective responsibility over plastic waste
- A sharing-based economy be supported where infrequently used items like tools, camping equipment or kitchen items can be shared
- Individuals can encourage each other to take steps such as purchasing in bulk with reusable containers and refusing single-use plastics
- Restrictions or fees to discourage the use of single-use plastics

3 - Survey

3.1 - Preliminary Research

In order to better understand and provide the Municipality of Dysart et al with suggestions on improving their waste management practices, known behaviour barriers first need to be discussed. An initial kick-off meeting with Mallory Bishop, the Environmental Manager for the Municipality of Dysart et al and Amanda Duncombe-Lee, Program Coordinator from the U-Links Centre for Community Based Research was arranged. Barriers to positive waste behaviours that had already been identified in Dysart and the expectations were discussed. Students gathered

subsequent information through follow-up correspondence with Mallory, as well as through online community and single-use plastics research.

To further inform the Municipality and to receive direct responses from community members, the developed surveys will be distributed to residents and businesses in the area by a future Fleming Sustainable Waste Management class. The surveys for residents and businesses specifically focus on gaining more insight into the consumption habits, environmental concerns, engagement, what the residents and businesses want, as well as the current knowledge of their waste issues.

From initial research conducted, the specific barriers regarding the move to reduce the use of single-use plastics include: convenience, lack of resources on promotion and education, smaller local businesses who do not have a large capacity to supply reusable options, and different views on waste management from the local population and seasonal population.

3.2 - Survey Purpose

The purpose of conducting surveys of residents is to find out what barriers are keeping them from making the switch from single-use plastics to more sustainable alternatives.

The purpose of conducting surveys of businesses is to find out what the local businesses are currently doing in regards to lowering their waste generation and/or increasing their diversion rates.

Along with preliminary research into the community, there also had to be research done on conducting surveys, and the best strategies to conduct surveys in the Dysart community. Researching and using baseline information is important because it provides direction on what types of survey strategies to use and how best to distribute them. Strategies when designing surveys include what factors to consider, delivery, framing the questions, and incorporating different modes.

Methods in which to distribute surveys have to be kept up to date in order to reach a large population base. With changing technology there can be problems as well as opportunities, such as the Internet becoming more popular than mail and phone delivery methods. This leads to utilizing different methods of distributing surveys, and also the opportunity to tailor the surveys to the specific demographic you want to address (Dillman, 2016). Opportunities to increase response rates is also important to consider, and one strategy is the drop-off/pick-up method, which has shown to increase the response rate due to the more personal interaction between the survey distributor and responder (Trentelman, Irwin, Petersen, Ruiz & Szalay, 2016). The types of questions, and opportunities to answer, are also important to study, as there can be options to select answers or complete open-ended questions which allow for more detail (Chaudhary & Israel, 2016). Also, in order to reach a large population, it is beneficial to have different types of surveys where different demographics and populations can be reached that would help to increase response

rates as well (Lesser, Newton, Yang & Sifneos, 2016). For the Dysart surveys, a combination of the above survey methods were chosen to meet the criteria for accessibility, ease of use, and low cost to the municipality.

3.3 - Survey Execution

The purpose of the surveys is to better understand the attitudes and opinions of residents and business owners respecting consumption habits, level of environmental concern, engagement with current marketing and outreach around waste and to determine what they want and/or recommend. To encourage a higher completion rate and potentially more considered responses, the length of the surveys has been limited to 22 resident-targeted and 15 business-targeted questions. Surveys tend to be better received when treated like a conversation, therefore personal questions have been left to the end in the form of demographic questions.

Survey questions were developed while keeping a clear vision of the survey purpose. The majority of survey questions were developed using simple, concise language and are closed-ended in order to provide predetermined responses. The inclusion of open-ended questions at the end of the surveys serve to allow the respondent to share more information if they so choose. To this end, many of the questions also include a response scale to enable a more in-depth understanding of the respondent's position. Special attention was given to careful word selection so as not to be leading or to imply a bias on the part of the municipality.

Given the large geographical area, demographics and internet availability in Dysart et al, it is recommended to adopt a 'mixed-mode' delivery method. Offering both online and hardcopy surveys will increase response rates without significant cost increase. For both online and hardcopy surveys, an incentive to be entered into a \$100 cash prize draw is recommended to incentivize the completion and submission of surveys. (Cobanglu & Cobanglu, 2003).

Online Distribution

Online distribution of surveys in the community of Dysart et al is best executed with the use of Google Forms to host and analyze the surveys, and then utilizing social media platforms such as Facebook, Instagram, and Twitter to distribute the survey to followers, lake associations, and other Dysart et al community groups. A quick breakdown of these relevant online distribution tools are as follows:

- Google Forms – free online development of surveys; allows the tracking and analysis of responses
- Facebook – Free/low cost online advertising, promotion and education
- Instagram – Free advertising/outreach/education
- Twitter – Free advertising/outreach/education

Hard Copy Distribution

It is recommended that Dysart et al execute the online surveys through Google Forms. It is a user-friendly platform that utilizes a step-by-step development tool, it has an unlimited reach capacity and offers real-time monitoring and analysis capabilities. Dysart et al already has a Facebook page and we recommend using it to advertise the surveys as well as providing a link.

Hard copy surveys should be provided to residents, with access made available at both the library and community centre. Having them dropped off and picked up by a municipal employee would entail a minimal time investment and mitigate being perceived as a nuisance by facility employees. Having the surveys offered by the attendants at the landfill may provide the best opportunity to ensure that all residents are offered the opportunity to participate as all residents must dispose of their waste at these locations. Residents of Dysart et al are required to go to their nearest landfill in order to dispose of their garbage and recycling. To incentivize the landfill operators to distribute the surveys and to keep track of the responses received, the residential surveys will be colour-coded to correspond with the colour assigned to every landfill. By collaborating with the landfill through a colour-coded association, the landfill operators can ensure that they are handing out and receiving the appropriate surveys without requiring any additional steps impeding their daily activities. Due to the \$100.00 incentive for the returned surveys to be entered into a draw, it is anticipated that there will be a high volume of surveys completed and returned to be entered in the draw. It is also recommended to provide a \$100.00 draw incentive for the local landfill attendants to ensure that the surveys are actively distributed.

4 - Promotion & Education

4.1 - Community Based Social Marketing

The CBSM method uses social psychology and aims to achieve sustainable behaviour changes to promote healthier lifestyles for communities globally (University of Pennsylvania, n.d.). Identifying the most beneficial and useful behaviour change tools will result in a successful program. Some of these eight tools include: commitments, social norms, social diffusion, prompts, goal setting, incentives, feedback and convenience.

4.2 - CBSM Tools

Commitment

Commitment is the first CBSM tool and its intention is to use self-perception to drive certain behaviour. For example, by asking someone over the telephone: "Can we count on seeing you?", the person will be more likely to participate in said action. The theory of self-perception states that our actions are often socially influenced and not produced by free will, and therefore "*we are what we do*" (Bem, 1972). Using commitment will be effective in cases where the individual is motivated to act but has

not engaged yet (McKenzie-Mohr, 2012). When asking someone if they would commit to an action or behaviour, it is important to avoid coercing or making individuals feel coerced into making the commitment. The most effective type of commitment, according to a study by Pardini & Katzev (1983-84), is written, public and/or “durable” commitments. Durable commitments include actions such as placing a sticker for energy efficiency on a business window (McKenzie-Mohr, 2012).

Social Norms

Social norms “refer to common and accepted behaviours within a group” (McKenzie-Mohr, 2012). Although there are those who deviate from common practices or behaviours, most individuals conform to the perceived norms. Unfortunately, many behavior changing campaigns tend to highlight the problem and how we need a “hero” which dramatizes the severity of the problem without structuring a normative message about what we should be doing. A better approach to developing a desired behaviour through social norms would be to emphasize the number of people already participating in the approved behaviour (McKenzie-Mohr, 2012). Social norm development can be applied to a large range of desired behaviours and are most effective to people who are not already motivated to engage in the behaviour (McKenzie-Mohr, 2012).

Social Diffusion

Social Diffusion is the most common method and reason for people to adopt new sustainable actions in their daily lives. Social diffusion tactics can be applied to a large range of culture and behaviour change goals but is still under-utilized in the sustainability field (McKenzie-Mohr, 2012). It is most effective in communities where the desired behaviour is already visible. For example, in communities with curbside pickup, recycling participants show that they believe recycling is important and establish a normative culture for other community members to partake (McKenzie-Mohr, 2012). To take this strategy even further, the municipality might ask residents to visibly commit to curbside recycling by putting a sticker on their containers and thus, engage in the desired behaviour.

Prompts

Prompts are another tool that is very effective as forgetfulness is a common and avoidable barrier for individuals to engage in desired behaviours. In short, prompts are memory aids, either visual or auditory, used in close proximity to the repetitive behaviour (McKenzie-Mohr, 2012). The key to using prompts successfully and efficiently, is to make them noticeable, self-explanatory and promote positive behaviours as opposed to avoiding negative behaviours (McKenzie-Mohr, 2012).

Goal Setting

Although everyone associates goal setting with our often-unsuccessful annual New Year's Resolutions, research shows that we are more likely to achieve our goals if we associate them with implementation (McKenzie-Mohr, 2012). Implementation intentions and plans are fairly simple; the first step is to ask individuals that seem

interested in changing their behaviour or engage in a particular activity *when* and/or *where* they plan to partake in the action.

Incentives

Research on providing a reward for certain actions or behaviours shows it will increase the incentivized behaviour frequency (McKenzie-Mohr, 2012). Incentives can produce a wide variety of behavioural changes, but there are limitations to this method (McKenzie-Mohr, 2012). Schultz and Kaiser (2012) state that incentivized behaviours often revert back to the origin state once the incentive is removed. In addition, offering incentives for one type of behavioural change may not result in any improvement in awareness or understanding of the broader issue and therefore it is not as beneficial if you seek a cultural shift. Understanding the side effects of using incentives, they should be used sparingly and in instances where cost stands as a barrier (McKenzie-Mohr, 2012).

Convenience

McKenzie-Mohr (2012) states that convenience is the hallmark of a CBSM campaign as its whole focus is to reduce or remove barriers that prevent participation in the desired behaviour. With target behaviours that are challenging to accomplish, it is important to make changes experienced by the participant easy so they will want to act in that way. Addressing barriers is also crucial (i.e. making even minimally motivated individuals interested in choosing the desired behaviour), and adding incentive along with convenience may increase the participation. For example, adding a cycling lane on the road will increase the number of people biking to work.

Feedback

The last CBSM tool is feedback which is absolutely essential to reach your set goal. Feedback provides updated information about the desired behavior and gives individuals measures, such as consumption of energy or number of plastic bag purchases, to drive this change (McKenzie-Mohr, 2012). As an independent tool, feedback is not sufficient to create behavioural change, however it is essential to reach the goal alongside other CBSM tools. Feedback can also be used in reference to cost and financial savings that would be experienced if participants were to engage in the desired behavior. For example, shopping more efficiently at a grocery store will both reduce your food waste and save you money.

4.3 - Promotion and Education Strategies

Resident/Community Strategies:

1. Signage

The use of signage around the community will increase the awareness that a waste initiative is occurring and will incorporate the *prompts* and *social diffusion* concepts of CBSM. Road signs and/or billboards give the community a prompt or reminder about issues being tackled and present a visual perspective that connects the problem

to something in their daily lives. For example, the sign might include a picture of children diving into the lake but the water is filled with plastic water bottles. This serves as a reminder of what their actions are doing to their environment in a way that words often cannot. Using imagery that the community can connect to, such as lakes, wildlife, and families, is an easy way to bring attention to the sign and evoke an emotional response. A sign on Dysart's busiest street that states "Keep Dysart Beautiful" and incorporates the previous imagery would help diffuse the positive message as residents frequently encounter the sign.

2. Cleanup Events

Cleanup events such as litter collection, beach cleanups, or helping people properly segregate their waste at events, uses a variety of CBSM tools such as developing *social norms*, *social diffusion*, *convenience*, and *public commitments*. The cleanups draw attention to the number of people participating in the desired behaviour of litter awareness and shows people taking action to combat litter. Being a smaller community, the communication and advertising of the cleanups via radio, social media, community groups, mobile signs and subsequent discussion among residents will aid in social diffusion of this desired behaviour. The suggested cleanup event would take place along the busiest road in Dysart with an appropriately low speed limit (40-60km/h) so it is convenient and safe for residents to participate. Residents who participate are publicly showing their commitment to the cause by physically attending. The impact of this commitment can be increased by incentivizing participants to share their experiences through social media using appropriate "tags" and "hashtags". Cleanup events can be a great opportunity to help achieve behaviour goals and a broader cultural shift in the community, but also help with educating the volunteers further about waste issues and what they can do after the event to help.

3. Social Media

Social media is an incredibly useful tool to bring awareness to a community issue by sharing content, information, news and updates. Facebook is the leader in all social media platforms and has one of the largest reaches utilizing individual posts, pages and events. It is recommended that Dysart utilize social media to expand on the survey results by posting polls for the community on waste and consumption habits. This provides Dysart et al with more feedback and data to analyze. It is also recommended that Dysart utilize social media to spread news and updates about cleanup events, special deals or discounts with local businesses, or just interesting and relevant stories or news.

The CBSM tools used in this strategy include *feedback*, *social diffusion*, *convenience* and *commitment*. Feedback data is collected from the 'like', 'comment' or 'share' data that can be analyzed to better understand what specific topics or initiatives are received more favourably by the online Dysart community. Social media as a whole is a form of social diffusion because it consistently informs your social network about your personal opinions, likes and dislikes. Every person with a cellphone or laptop

has access to social media, making the behaviour very convenient. Lastly, social media provides a platform for people to digitally commit to their interests by sharing and commenting on various topics.

4. Published Article

Publishing sustainability and waste-related articles by influential people in the community would be a useful strategy to highlight the importance of these initiatives. To make this strategy as effective as possible, it is recommended to utilize the following CBSM tools: *goal setting*, *social norms*, *social diffusion* and *commitment*. To integrate goal setting, the article would need to highlight a particular challenge or objective for readers and easy or fun ideas for implementation. Due to the influential status of the individual writing the article, the message would be normalized and would foster a higher level of acceptance that the issue is actually an issue. This causes a shift in the conversation from “it doesn’t impact us” to “it does impact us, and this is what we can do”. Articles, in the modern age, are important because people who read them share them with friends and family if they are captivating enough; thus, it is important to make it a powerful piece that people feel the need to share with their community. To strengthen the impact of the article, the influential person writing the article should also visually show their commitment to the message in the article, by providing photos or including their own social media information so that readers can follow their progress.

5. Connections with Haliburton School of Art and Design: Fleming College

The last residential strategy P&E strategy proposed is to form a collaborative relationship with the Haliburton Fleming Campus of Art and Design. This partnership could be used to bring beauty and aesthetic appeal to the recently installed water refill stations. Adding colour, design and patterns to the unit and surrounding area, similar to utility box paintings used in cities worldwide, will draw more attention to them increasing awareness and use. Students from the Fleming Haliburton Campus can be encouraged to submit designs for their vision of the water refill stations with a competition. The winner of the competition would be granted access to create the agreed upon design. Once completed, relevant signage should be posted crediting the partnership with the school and the artist(s) in question. To increase the effectiveness of this strategy, it is recommended to showcase the art in local news, Dysart’s social media, and in alignment with a public event, if possible. This will bring increased awareness to the art and the refill stations in the community.

Businesses Strategies:

1. Information Pack

The first strategy for businesses to get involved in Dysart’s waste initiative is to create an information pack to support businesses interested in the first few steps of how to become more environmentally friendly and reduce waste. It is important to note that

this information pack is not a step-by-step manual to transition, rather an introductory overview with some benefits that the business may experience by transitioning to have more environmentally-forward operations. For example, the pack might include facts like how \$128.5 billion (USD) was spent in 2018 in sustainably branded organizations (Ward, 2020). This pack would be delivered to all businesses that indicated their interest in more sustainable business practices via the business survey. The CBSM tool utilized in this strategy is *convenient* due to the ease of receiving the information pack.

2. Restaurant Tool Kit

The restaurant tool kit is a step-by-step manual with various tiers of commitment to help restaurants transition to becoming less wasteful and more sustainable. Restaurants could request a tool kit once they had received and read through the information pack about the benefits and ease of this transition. The first tier would include the first few steps a business could take to start their new path of operating sustainably. These steps would include initiating an 'asking out' policy to steer restaurants away from automatically including single use plastic products (such as cutlery, straws, and bags) and only providing these items upon request. The asking out policy has seen success in both the City of Guelph and the Vancouver Region. Other changes may include having new labels made with clear instructions on segregating waste, recycling and organics in the restaurant. The second-tier actions are going to be more progressive in providing information regarding alternatives to single-use plastic products, for example: switching from single-use cups to reusable cups in the restaurant, moving away from polystyrene take-out containers to plastic recyclable alternatives, and switching to paper straws.

The CBSM tools used in this strategy are *commitment*, *incentive*, *convenience*, and *goal setting*. Commitment is necessary for the business to succeed in their transition and has already been shown by their request for the tool kit to begin their transition to a more sustainable enterprise. The information pack received by these restaurants prior to the toolkit outlined the incentives associated with transitioning to more sustainable practices. The tool kit in itself is a convenient and easy guideline for the company to reference along its transition. Lastly, the toolkit will recommend the restaurants set sustainability goals they wish to achieve and track their progress to those goals. Monitoring their developments towards their goals will provide positive feedback for the company to adjust any issue areas and showcase their journey.

3. "Dysart On Tap" Sticker

The last business strategy is to develop a simple program focused on providing access to clean drinking water in the community. Building on the momentum created by the installation of the refill stations in the community, this program would simply ask restaurants and businesses in the more populated areas of the municipality if they would be willing to provide patrons with a free refill of their reusable water bottles and indicate this free service by placing a sticker on display either in their window or

within the establishment. After brainstorming several designs and names for this simple program, it is recommended that a blue water droplet sticker with the words “Dysart on Tap” be designed for this purpose. Alternatively, as previously cited in Dysart’s initial announcement of their refill station installations, “Haliburton H2O” could be used. This strategy strongly supports the refill water stations and increases the awareness of Dysart’s waste initiative to reduce single-use plastic water bottles and promote Dysart’s clean drinking water. This program can be rolled out with messaging that speaks to reduced waste and clean water, but also to the importance of staying hydrated during the summer. If properly adopted, showcasing businesses that offer free water refills in the community further helps in reducing the consumption and purchasing of plastic water bottles. CBSM tools involved in this strategy include *commitment, social diffusion, social norms, convenience, incentive* and *prompts*. By agreeing to participate in the program and installing a “Dysart on Tap” sticker in a public location, the business is publicly committing to the program. The success of this strategy relies on its simplicity (provide free tap water) and convenience (place a sticker in the window). To ensure success, Dysart et al would need to commit to showcasing the program and its participants in the local news, social media, and any other appropriate channels. The purpose of drawing residents away from single-use plastic water bottles, towards reusable alternatives should be made clear.

5 - Evaluation

5.1 - Survey Results Tracking & Analysis

The results from the hardcopy and online surveys will be compiled differently. It is important to organize the data in a coherent and organized way in order to gain useful information and draw conclusions about the results. If the survey results are well-organized, they will provide extremely helpful information about consumption habits and waste generation trends in Dysart. It will be considerably easier to perform data analysis with online surveys, but the hardcopy surveys will be a crucial part of the survey process due to the fact that Dysart is rural and many residents will not be able to access online surveys.

The hardcopy surveys will require someone to input the data manually into a computer program that can compile the data in a logical format. The completed surveys would be returned to the main office, put into boxes for ease of delivery and transferred to an office where someone can input the results. Excel would be the best option for this. Dysart can look into hiring a summer student or intern to enter the data into a spreadsheet. Although this would be an expense for Dysart, it would be a good investment into its long-term sustainable waste management goals. Additionally, the fact that a summer student or short-term hire can be negotiated on a four-month term means that this would be a temporary rather than ongoing expense. There would be an added benefit in hiring a summer or temporary student interested in waste management as this student could work on other waste

management initiatives in Dysart in addition to compiling survey data into spreadsheet format. Ideally, this student would have a driver's license so that they could pick up the surveys at the main office and do other waste management work (e.g. site visits) requiring transportation.

The online survey results can be compiled using Google Sheets. This data can be transferred to Excel and combined with the data from the hardcopy surveys. There are tutorials on YouTube demonstrating how to input data from Google Forms onto Sheets.

- Use Google Forms to autofill Google Sheets with data:
<https://www.youtube.com/watch?v=jxqlkxR05Aw>
- Have multiple forms feed information to a single sheet:
<https://www.youtube.com/watch?v=AvspvRszM7Y>

Once the data is inputted into Excel, graphs can be created, which will highlight trends in the survey results. These graphs can also be used for promotion and education purposes. Statistics about waste trends in Dysart coupled with pie charts will easily grab peoples' attention. For example, if the survey results find that 80% of people think that litter is a significant problem in Dysart, a pie chart showing that 80% of people indicated yes while only 20% of people indicated no would send a strong message that the majority of residents believe that littering is an unacceptable behaviour.

5.2 - P&E Effectiveness Tracking

It is important to analyze and track the effectiveness of your ad campaigns. Tracking and monitoring the P&E program will help to identify how the residents (seasonal and permanent) respond to the different types of promotion and education initiatives provided by the Municipality. Using this data after each phase of the P&E campaign will provide a better understanding of the overall response by the residents such as an increase or decrease in the awareness, alteration in behavior, message recognition and/or retention, difficulty with sector-specific terminology used by the Municipality and the skepticism of the residents towards the Municipality. This information can highlight the need for the Municipality to rethink existing P&E approaches if the campaign has been ineffective (Lakhand, 2015).

Radio Advertisements

Radio advertising provides several benefits. Radio stations target specific demographics and market segments. A radio ad campaign can be designed to target the geographical area deemed relevant by the Municipality and the frequency of the ads can be predetermined to maximize the effectiveness of the P&E campaign. Increasing the frequency of ads serves to expose the audience repeatedly to content formulated to build awareness. Radio can be a cost-effective delivery method compared to other types of media. Finally, the results are measurable. The results

can be tracked quickly and accurately with “radio impressions”, which are a measure used by advertisers to determine how many people are affected (Hetherington, 2018).

Canoe FM is a local radio station that broadcasts in Dysart et al which has several advertising packages available. For example, the spring promotion is a package that offers 18 spots (2 spots a day for 9 dates 4+ bonus spots on bookending weekends) for \$270 (Canoe FM, 2020). This radio station offers 30 second spots to non-profit organizations for \$15.

Canoe FM reaches an estimated 16,345 people and this number increases to more than 60,000 during the summer months with the return of the seasonal residents. They claim that the results of a 2018 survey indicated that 75% of the residents that listen to radio listen every day.

Social Media

Nearly all social media platforms such as Facebook, Instagram, Twitter, etc. come with helpful dashboards that lay out all the information you need in one place. These platforms come with data that needs to be broken down. Some of the data provided is as follows (Siu, 2019):

- A. Likes & Shares: Metric that helps to track how your post is doing and to widen your reach exponentially as people share posts with their circles of followers. *Appendix E*
- B. Audience Growth/Rate of Followers: Metric that helps you track the number of followers you have gained over a specific period of time. This metric can provide information around what is being posted and how your audience is responding, and thus question whether you need to adjust your strategy.
- C. Audience Demographics: With this metric the user can collect important data about their followers, like age, gender, geographic location, and even their likes and interests. *Appendix F*

Table 3.1: P&E tracking methodologies, collection points, and general comments

Tracking Methodology	Collection Point	Comment	Quantified by
Incoming calls/inquiries	Office staff	Easy to obtain & implement/address Number of calls tracked Comments logged?	Recorded number of calls per week
Follow-up survey (google forms)	Website	Year-end questionnaire about interaction with P&E	Survey results export (google forms)

There are a number of ways with which the municipality can track the effectiveness of various P&E efforts in respect to single-use plastics reduction. The most obvious and perhaps most telling would be regular waste audits; however, audits can be expensive and time consuming. Social media platforms provide comprehensive data analysis as a basic feature of their programs. In his article “8 Essential Content Promotion Metrics to Track”, Daniel Kosir identified the following metrics to be mindful of in examining the effectiveness of your campaigns. Please note that the metrics that were determined to be of no use to Dysart et al have been omitted:

- Impressions: How many times your content was viewed/heard by your audience. Impressions will allow you to analyze the effectiveness of the ad itself, giving you an idea whether your tactic was interesting or ‘catchy’ enough. In a social media setting it will be easy to change up the message and methodology in order to determine what attracts the most attention.
- Engagement Rate: The percentage of users that saw your content and responded to it in some way. Similarly, this metric will give you an idea of the relevance of your message to your audience.
- Clicks: The number of people who ‘clicked’ on your link or ad. Knowing the number of clicks will enable you to know if your content is enticing the viewer to explore your content further.
- CPC: The cost per click. This metric will enable you to understand your budget and if you are reaching a sufficient base for the money that you have invested.
- Conversion Rate: The percentage of readers who followed through on a requested action. i.e., completing the survey. This is an important metric for creating benchmarks and understanding the relevance of your content to your target audience.

Tracking these metrics over the course of your promotion and education campaign can give you near immediate feedback on your actions. It will enable you to measure growth or decline in engagement, and through monitoring social media comments, the thoughts and attitudes of your residents may be accurately gauged. These metrics will help you to understand what works and what doesn’t in your area, it will help you to always know if you are getting a good return on your investment, and will provide you with solid data for reporting the effectiveness of your campaign to Council and to the public. Lastly, they will enable you to continually improve and alter your message in real time (Kosir, 2015).

In addition to the tracking data provided from social media platforms and radio impression reports it may be necessary to perform periodic follow-up surveys. Engaging with the public, hosting information meetings and asking questions are important components to any education campaign. It may also be necessary to perform follow-up phone calls to garner more clarified responses.

Having residents or business owners sign a commitment form in front of their peers at public events has been identified by the class as a fun activity that may have powerful results. For example, “Fashion Takes Action” is a non-profit organization that has incorporated a pledge into their awareness campaign. It requires the participant to pledge to Reduce, Reuse, Research, Repurpose, Repair, Rent or Recycle their textiles. While signing an online pledge may hold some people to their commitment, logic dictates that signing a similar document in public would enhance the depth of the commitment.

6 - Recommendations

Fleming College’s Sustainable Waste Management Graduate Program students developed two surveys targeting residents and businesses which are designed to gauge the awareness around environmental initiatives undertaken by the Municipality of Dysart et al. The responses gathered within the content of the surveys will attempt to provide a framework around the level of present awareness surrounding the current environmental strategies, as well as any additional information or resources requested for future initiatives. In order to generate the largest data collection, it is recommended that the survey campaign is promoted throughout the cottage season. By analyzing the responses received, Dysart et al can determine which environmental and educational strategies to promote and launch within their municipality to reach their sustainability goals.

Analyzing the responses received from the surveys will allow Dysart et al to strategically select which initiatives to design and develop, and in what order. Once specific targets are chosen, there exists the possibility for future collaboration between the municipality and next year’s Sustainable Waste Management class to develop a comprehensive sustainability action plan. This plan would provide Dysart et al with actionable steps, milestones and a timeline that can be enacted to achieve reasonable and formally agreed upon 5-year and 10-year objectives. The initiatives chosen can aid in the eventual adoption of a polystyrene and single-use plastic ban.

Appendix

Appendix A. Resident Survey

1. How often do you use the local landfills to dispose of your waste and recyclables?
2. What do you feel is the most effective way to reduce your waste at home and in your daily life?
 - a. Avoiding purchasing single use plastic products whenever possible
 - b. Minimizing food waste
 - c. Avoiding paper waste
3. Select the products that are regularly used in your household
 - a. Reusable water bottles
 - b. Reusable grocery bags
 - c. Reusable mugs (when purchasing beverages)
 - d. None of the above
4. Litter is a significant problem in Dysart et al. Do you...
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. disagree
 - e. Strongly disagree
5. Reducing single use plastic such as water bottles, cutlery, straws, and plastic bags is important. Do you...
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
6. Dysart et al has implemented a ban against selling plastic water bottles in public spaces and made water refill stations available to reduce plastic waste. I am...
 - a. Strongly supportive
 - b. Supportive
 - c. Indifferent
 - d. Against
 - e. Strongly against
7. Banning plastic bags in Dysart et al is a necessary step in reducing waste. Do you...
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree

8. How much do you know about the local by-laws in Dysart et al regarding waste?
 - a. Highly knowledgeable
 - b. Knowledgeable
 - c. Little knowledge
 - d. No knowledge
9. Would you like more information about the local waste by-laws?
 - a. Yes
 - b. No
10. Would you consider using a backyard composter to dispose of your organic waste?
 - a. Yes
 - b. No
 - c. I already do
11. How likely are you to reduce your purchasing of single use plastic water bottles?
 - a. Very likely
 - b. Likely
 - c. Unlikely
 - d. Very unlikely
 - e. I don't purchase plastic water bottles
12. Would you be willing to participate in a litter clean up event in your neighborhood?
 - a. Yes
 - b. No
 - c. I already participate in litter clean up events
13. If a business in your community takes the steps necessary to be more environmentally friendly, would you be more willing to shop there?
 - a. Yes
 - b. No
 - c. Indifferent
14. How do you find out about Dysart et al's waste initiatives and news?
15. If you don't already, how would you like to hear about waste initiatives and programs?
16. Do you have any recommendations to decrease waste and litter, and improve environmental quality in Dysart et al?
17. Do you have any recommendations to increase awareness around waste in Dysart et al?
18. What are the first three digits of your postal code?
19. How many people live in your household?
20. Choose the option that most accurately describes your situation
 - a. Full time resident
 - b. Seasonal resident
 - c. Visitor
21. To be entered into Dysart waste awareness sweepstakes, please provide your email (if applicable) and/or your telephone number

22. Can the Municipality of Dysart et al send you waste updates and newsletters to the above email address (if applicable)?

Appendix B. Business Survey

1. Choose the option which most accurately describes your business operation
 - a. I operate a full-time business in Dysart et al
 - b. I operate a part-time business in Dysart et al
 - c. I operate a seasonal business in Dysart et al
2. What type of business do you operate?
3. Does your business currently offer free single-use plastic straws, cutlery, or plastic bags?
 - a. Yes
 - b. No
 - c. Yes, but only upon request
 - d. Not applicable
4. Does your business currently recycle?
 - a. Yes
 - b. No
5. Does your business currently partake in any environmentally sustainable initiatives? (i.e. selling reusable bags, participating in local clean-up events)
 - a. Yes
 - b. No
6. What environmental options does your business currently offer to customers? (i.e. having paper bags, reusable products, discounts on bringing your own containers)
7. As a business, reducing how much waste we produce is important. Do you...
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
8. Are you aware that Dysart et al has banned the sale of single-use plastic water bottles in public spaces?
 - a. Yes
 - b. No
9. As a business, I would support a ban on single-use plastics such as plastic water bottles, straws and bags. Do you...
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree

10. If Dysart et al were to ban single-use plastics, what assistance would you require most as a business?
 - a. Financial assistance
 - b. Information on alternatives
 - c. Time to implement internal operational changes
11. Would your business be willing to make a commitment to reduce its single-use plastic consumption?
 - a. Yes, I would have a sign or sticker in my establishment
 - b. Yes, I would sign a pledge in good faith
 - c. I would have to think about it
 - d. No, I would not
 - e. This is not applicable to my business
12. As a business, would you consider participating in a community litter cleanup event?
 - a. Yes
 - b. No
 - c. I already participate in community litter clean up events
 - d. Not applicable to my business
13. What would you consider to be the greatest obstacle to making your business more environmentally friendly?
14. What do you feel Dysart et al could do to help your business become more environmentally friendly?
15. If you would like to be entered to win our \$100 draw, please provide your business name and telephone number
16. Are you open to having Dysart et al staff contact you directly regarding additional environmental initiatives?
 - a. Yes
 - b. no

Appendix C. Survey Pricing

The cost of distributing surveys to homes in the area via mail would depend on the amount of homes the surveys would be distributed to. Using Canada Post (2020) rates, some options include:

- 1,000 homes = \$164.00
- 2,500 homes = \$410.00
- 5,000 homes = \$820.00

Online surveys will be sent through Google Forms, which has no cost attached. The cost of printing 2,000 copies of the surveys to distribute to residents would cost: \$390.00 using Vistaprint (Vistaprint, 2020).

Appendix D. Promotion Pricing Options & Alternatives

Using Facebook to Promote the Survey:

Facebook has made placing ads user-friendly and allows for demographic targeting as well as monitoring the reach and effectiveness of ads. The format allows the user to set their own budget limitations on either a daily, monthly or project basis. See the steps below illustrating how to set up an ad, which is accessible under the 'create' heading on a Facebook main page.

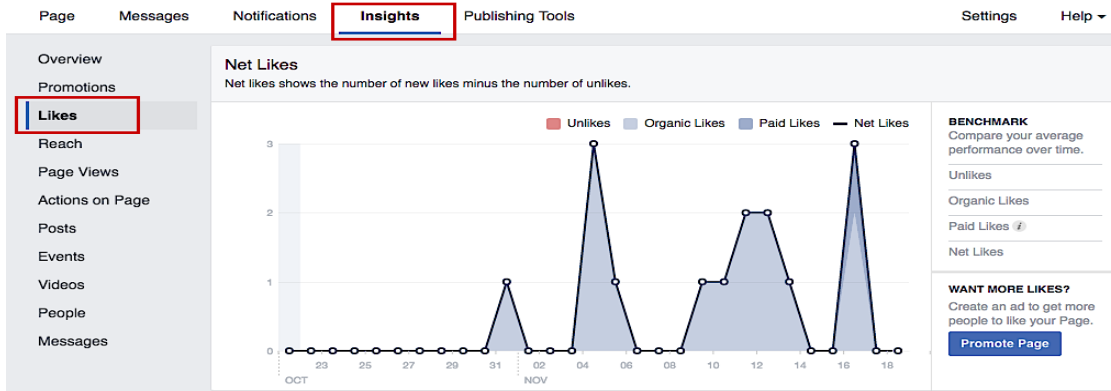
Add Account:

- **Message Destination:** Choose where you want to send people to message your business.
- **Audience:** Define who you want to see your ads. (Set Dysart's location here)
- **Placements:** Show your ads to the right people in the right places. (Use automatic placements to maximize your budget and help show your ads to more people. Facebook's delivery system will allocate your ad set's budget across multiple placements based on where they're likely to perform best)
- **Budget & Schedule:** Define how much you'd like to spend, and when you'd like your ads to appear.

Advertisement:

- **Identity:** Choose how you want your business to be represented in your ad.
- **Format:** Choose how you'd like to structure your ad.
- **Media:** Choose an image or video, or create a new video or slideshow using a template.
- **Ad Setup:** Create an ad that encourages people to start a conversation with your business.
- **Messenger Setup:** Encourage people to engage with your business in Messenger after they click on your ad. We'll show your ads to the right people to help you achieve your optimization goal.
- **Tracking:** Helps you to understand how effective your ads are.

Appendix E. Likes and Shares



Appendix F. Audience Demographics



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