Growing Sustainability: Proposing an Enhanced Community Composting Initiative for College Place, WA

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Executive Summary

This research paper explores the current landscape of composting and waste management in the Walla Walla region, with a particular focus on College Place, Washington. Through a comprehensive site visit to the Sudbury Landfill and detailed interviews with key figures in its operations, this study reveals significant insights into the challenges and opportunities associated with community composting in the area.

The Sudbury Landfill has successfully developed a composting program that produces approximately 8,000 cubic yards of high-quality compost annually. However, the facility faces critical challenges in scaling up operations due to financial constraints, infrastructure limitations, and legislative requirements. Additionally, community members in College Place encounter significant barriers to accessing compost, including financial costs and the absence of a curbside collection service.

To address these issues, securing funding is essential for expanding the composting infrastructure, potentially through a dedicated employee or a cost-effective student internship or fellowship position to identify and apply for grants, in collaboration with local higher education institutions or city hall. Expanding the composting infrastructure will be easiest via partnerships with local farmers and schools to integrate composting facilities within school gardens and provide educational opportunities, with local school districts possibly contributing financially for free access to compost. Community education and engagement efforts should be intensified through various outreach methods to increase participation in composting programs. Lastly, implementing a comprehensive curbside collection service across the entire cities of Walla Walla and College Place will significantly enhance convenience for residents and encourage greater participation, with a revisit of a compost delivery service to further reduce barriers.

Background

College Place, Washington, a small yet vibrant city located in the southeastern corner of the state, has a rich and multifaceted history that reflects both its indigenous heritage and its growth over time. Originally home to the Umatilla, Cayuse, and Walla Walla peoples, the region was a part of the Columbia Plateau, a fertile area known for its abundant resources and vibrant trade culture. These Indigenous communities lived in harmony with the land long before Euro-American explorers and settlers arrived.

In 1805 and 1806, the Lewis and Clark Expedition traversed the Walla Walla Valley, bringing greater awareness to the area's natural wealth. The subsequent influx of settlers, spurred by the Donation Land Claim Act of 1850, led to significant changes. By 1855, treaties negotiated by Washington Territorial Governor Isaac Stevens resulted in the cession of over six million acres of land, opening it up for colonization.

The arrival of Seventh-day Adventists in the late 19th century played another role in shaping College Place. In 1891, local physician Dr. N. G. Blalock donated 40 acres of his orchard for the establishment of a new college. This donation, coupled with the formation of the Seventh-day Adventist-supported Walla Walla College (now Walla Walla University), catalyzed the development of the area. The name “College Place” emerged from this educational endeavor, and by May 1892, a post office was established, marking the formal beginning of the community.

The early 20th century saw modest growth, with College Place evolving from a small cluster of homes and farms around the college to a more connected community thanks to the Walla Walla Valley Traction Company’s interurban streetcar line. However, the Great Depression brought economic challenges, including the devastation of a flood in 1931 and a fire in 1945 that threatened the community’s fabric.

The incorporation of College Place as a city in 1946 marked a turning point. The post-World War II era brought a surge in population, driven by returning veterans and expanding municipal services. The city began many infrastructure developments, including new subdivisions, parks, and expanded educational facilities at Walla Walla University. By 1979, College Place had grown to a population of over 5,000, reflecting its burgeoning status as a college town (Howard & Pratt, 2022).

Today, College Place is a dynamic community of nearly 10,000 residents. Its historical ties to Walla Walla University continue to define its character, blending a rich heritage with modern growth. With a median property value of approximately $294,700 and a strong sense of local identity, College Place remains a testament to its deep roots and ongoing evolution.

The city’s demographic profile shows a predominantly White population, with a growing Hispanic presence. The local economy is supported by key sectors such as healthcare, education, and retail, with residents enjoying a relatively short average commute time and a strong sense of community (*College Place, WA* | *Data USA*, n.d.).

As College Place has grown, certain challenges within its waste management practices and infrastructure have become more obvious. Like many small communities, College Place faces the pressing issues of how to handle larger amounts of organic waste, heightened awareness of organic waste's contributions to climate change and community desire to reduce that footprint, and the ever increasing costs associated with waste management.

While College Place itself is home to only one higher education institution (Walla Walla University), there are two others in neighboring city Walla Walla: Whitman College and Walla Walla Community College. Together they make an unofficial tri-college community that is a bustling hub, blending academic life with a diverse array of cultural, social, and economic activities.

The presence of a college or university infuses a town with a unique energy, drawing students, faculty, and staff from around the world. This creates a rich tapestry of cultural experiences and ideas, making college towns dynamic places to live and work. Additionally, college towns often have well-developed infrastructure, including housing, transportation, dining, and entertainment options, which cater not only to the campus community but also to local residents. This symbiotic relationship fosters a strong sense of community and offers a wide range of opportunities for engagement, innovation, and growth .

The Walla Walla Valley in which College Place sits is deeply entrenched in wine culture. In the 1850s, Italian immigrants to the area planted the first set of wine grapes. Later, in the 1920s, wine making was wiped out due to prohibition laws, until the next set of wine grapes was planted in 1974. Today there are over 135 wineries in the Walla Walla Valley with nearly three thousand acres of planted vineyards (Walla Walla Valley Wine, 2024). This bounty of wineries makes the Valley a tourist hot-spot, and boasts nearly 573,000 winery visits and $522 million in revenue in 2023 (High Peak Strategy, 2024). Given this, College Place stands out as a prime candidate for leveraging its organic waste for community composting. The abundance of grape marc and other vineyard residues represents a substantial resource that, if properly managed, could bolster local composting efforts.

This study highlights a critical gap in community composting initiatives in College Place, where access to compost is limited to commercial options at the Sudbury Landfill and a local plant nursery. Unlike other towns that might struggle with a lack of awareness or resources, College Place faces a different challenge: the absence of city-supported programs. This lack of municipal backing hinders local waste diversion efforts and reduces opportunities for residents to engage in sustainable practices. Without greater support and viable alternatives, effectively managing organic waste becomes increasingly difficult, leading to greater reliance on landfills and slowing progress toward environmental sustainability goals. To overcome this barrier, College Place must capitalize on its potential to drive sustainability initiatives with strong community involvement, supported by the necessary municipal funding and commitment.

Introduction

It is estimated that one-third of all food produced for consumption in the U.S. is tossed into landfills annually, making food waste one of the most common materials to be landfilled or incinerated (EPA, 2023). Many attempts to reduce this figure and develop more sustainable food systems have been tried, with the EPA creating a flood of educational materials and funding to support such an endeavor since launching the WasteWise program in 1994 (EPA, 2019 a). A most recent update to the EPA's messaging is the "Wasted Food Scale", a new take on the "Food Recovery Hierarchy" from the '90s. This new messaging promotes prevention of food waste as the most preferred course of action. "This is then followed by donation or upcycling, using as animal feed or leaving unharvested, and then composting or anaerobic digestion (EPA, 2023). Anaerobic digestion is a process in which microorganisms break down organic material in the absence of oxygen, producing biogas (a mixture of methane and carbon dioxide) and nutrient-rich digestate, which can be used as fertilizer. With more than 85% of greenhouse gas emissions of wasted food coming from activities that occur before consumer disposal, the prevention method focuses on producing, buying, and serving only what is needed (EPA, 2024)."

When discussing the different types of composting frameworks, it's important to recognize the wide spectrum that exists within the industry. At one end, we find large-scale industrial operations capable of handling significant volumes of organic waste, often processing over 25 tons per week (Libertelli et al., 2023). These facilities are typically managed by municipalities or commercial entities and are equipped with advanced technologies for waste diversion and compost production. On the other end of the spectrum, there are small, home-based systems that utilize backyard bins or buckets, often managed by individuals or households to handle their food scraps. These systems, while modest in scale, play a key role in reducing waste at the source and fostering a culture of sustainability within communities.

The Institute of Local Self-Reliance (ILSR) conducted their first census of community composters across North America in 2022. The participants represented a wide variety of composting operations, with two-thirds being private entities, around a quarter classified as nonprofits, and the remaining tenth identified as public or a combination of public and private organizations. The composting systems varied significantly, from small home-based hubs using backyard bins to larger facilities handling over 25 tons of food scraps per week. A majority of respondents identified as off-site composters and food scrap drop-off programs, with around 70% fitting into both of these categories. Additionally, three-quarters of the organizations provided both composting and collection services, highlighting the diverse approaches and structures within the community composting landscape (Libertelli et al., 2023). Despite the widespread availability of food scrap composting across the continent, it is worth noting that in Walla Walla and College Place, commercial composting facilities do not currently accept food waste, creating a significant barrier to achieving comprehensive organic waste management in the region.

In 2015, The Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA) announced the goal of reducing food loss and waste in the U.S. by 50% by 2030 (EPA, 2015). Nestled in the heart of the Pacific Northwest wine country, Walla Walla has made strides towards this goal with its GroWW composting program, demonstrating the transformative potential of community-driven environmental initiatives. However, just across the city line lies College Place, a smaller (but continuously growing) community sharing not only geographic proximity but also a commitment to sustainability without yet having its own composting facility. This gap presents an opportunity for College Place to pioneer a community-driven composting initiative. This initiative holds promise not only for addressing local waste management challenges but also for fostering community resilience and sustainability practices among its residents and businesses. By establishing a composting facility tailored to the needs of College Place, residents can actively participate in reducing their ecological footprint while enhancing local soil quality and supporting regional environmental goals. The restriction on food waste composting at commercial facilities in the area highlights the need for a localized solution that can bridge the gap in organic waste management.

This study explores the feasibility of the implementation of a robust community composting initiative in College Place, aiming to build upon the initial successes of neighboring Walla Walla's efforts and adapt them to the unique socio-economic and environmental context of College Place. Through collaboration with local stakeholders and leveraging shared resources with Walla Walla, this initiative seeks to establish a sustainable, accessible, and inclusive composting program that empowers College Place residents to contribute actively to environmental stewardship.

The decision to explore and evaluate the feasibility of initiating a community composting initiative in College Place is informed by several key factors.

In 2017, College Place drafted and approved a 2017-2026 Strategic Plan as a guide map for how it envisions its future. This plan conceptualizes a vibrant downtown with a mix of businesses and housing, strong community engagement, and efficient financial management, fostering a safe, small-town atmosphere with seamless transportation and regular community events. The city aims to attract large-scale commercial development, eliminate deferred maintenance, and maintain high levels of volunteerism and cooperation among residents, staff, and local institutions.

A Comprehensive Plan was also adopted in 2018 to house the goals and policies for how the city will achieve its aspirations laid out in the strategic plan. Additionally it includes maps that signify land use, infrastructure growth, and public facilities that will be needed to support such growth. The Comprehensive Plan sets a goal to “encourage a sustainable community by supporting preservation efforts”, (p 19) and notes that the “City fosters respect between its Council and … natural resources,” (p 15). Additionally, it emphasizes community involvement through collaboration with local institutions, volunteer groups, and the promotion of unique community events (p 56). These goals align well with the objective of this study, particularly in fostering community composting efforts. By integrating these principles, the plan supports initiatives that enhance environmental stewardship, such as promoting recycling, managing

invasive species, and using eco-friendly materials, which directly contribute to the development of a robust community composting system.

If the city is truly interested in reducing its ecological footprint and advancing local sustainability goals, it must address organic waste management on a comprehensive level. Composting offers a sustainable alternative to landfill disposal, aligning with global efforts to achieve carbon neutrality and enhance ecosystem health. By involving diverse sectors such as educational institutions, agricultural enterprises, food service providers, charitable organizations, businesses, and residents, the initiative seeks to cultivate a culture of environmental stewardship and community collaboration. This inclusive approach aims to empower local stakeholders to actively participate in and benefit from sustainable waste management practices.

Beyond environmental benefits, establishing a community composting program in College Place holds potential economic advantages. From creating local job opportunities in waste management and compost production to reducing municipal waste disposal costs, the initiative can contribute positively to the city's economic landscape. The initiative also aims to address social equity by ensuring equitable access to composting services and benefits across diverse demographic groups. By promoting education and outreach on composting practices, the initiative can empower residents to make informed environmental choices and contribute to community well-being.

Literature Review

Given the niche focus on composting initiatives in small towns, previous research on this topic is understandably limited. However, examining broader studies on community composting, waste management practices, and sustainability efforts provides valuable insights into how these concepts can be adapted and implemented in smaller communities like College Place.

Organic Waste and Its Management

Organic waste, such as food scraps and yard clippings, typically constitutes a large percentage of landfill content. In 2019, the EPA estimated that over 66 million tons of food waste was created via food retail (20%), food service (40%), and residential sectors (40%), and another 40 million tons was created within food and beverage manufacturing and processing. Of the 66 million tons, approximately 60% was landfilled. On the other hand, just over 40% of the 40 million tons was handled via anaerobic digestion (EPA, 2019 b).

When these materials decompose anaerobically (without oxygen) in landfills, they produce methane, a greenhouse gas approximately 25 times more potent than carbon dioxide over a 100-year period. By composting organic waste instead, methane emissions can be dramatically reduced and contribute to mitigating climate change. This reduction not only helps lower the overall greenhouse gas emissions but also extends the lifespan of existing landfill sites, delaying the need for new landfill spaces and the environmental disruption they cause.

Compost enriches the soil with essential nutrients, reducing the need for chemical fertilizers Hoornweg et al, 1999). This not only lowers agricultural costs but also diminishes the environmental impact associated with the production and use of synthetic fertilizers (Munk, 2024). By promoting healthy microbial activity and suppressing plant diseases, compost also reduces the need for chemical pesticides, fostering a more sustainable and eco-friendly approach to agriculture (Kovacs et al, 2020).

Yard waste collection site in Walla Walla, WA near Whitman College.

Benefits and Impacts

Research underscores that composting programs offer significant social benefits beyond their environmental impacts. Studies have shown that composting initiatives serve as effective tools for community engagement and education (Kovacs et al., 2020; Morrow & Davies, 2022). By involving local residents, schools, and organizations, these programs can foster a sense of shared responsibility and collective action towards environmental sustainability (Longhi et al., 2021). Educational efforts centered on composting not only teach individuals of all ages about waste reduction, resource conservation, and sustainable practices but also enhance community cohesion. They bring people together to work towards a common goal, thereby strengthening local networks and relationships (Goldstein et al., 2023). This body of research highlights the importance of addressing the social dimensions of composting alongside its environmental benefits.

Economically, implementing composting programs can lead to significant cost savings for municipalities by reducing the volume of waste that needs to be collected, transported, and processed in landfills or incineration facilities. According to Farhidi et al, these savings can be redirected towards other essential services or infrastructure improvements (2022). Additionally,

municipalities can generate revenue by selling high-quality compost to farmers, landscapers, and gardeners, creating a potential new stream of income. Farhidi continues by pointing out that the establishment and maintenance of composting facilities can create new job opportunities in communities, from collection and transportation to processing and marketing of compost products. The use of locally produced compost can support local agriculture, fostering economic development and resilience within the community. By investing in composting infrastructure and programs, communities can stimulate local economies and create sustainable job growth.

Food Waste and Recovery Infrastructure

In 2023, BioCycle released a three part report on the status of composting in the United States through a nationwide survey. Part I is an analysis of full-scale food waste composting infrastructure in the U.S. that revealed key insights into this sector of the organics recycling industry. Since BioCycle's last national survey in 2018, the number of food waste composting facilities has grown modestly by 8%, from 185 to 200. This period saw several developments, including the pandemic, the adoption of food waste disposal bans or mandates by more states, and notable investment and merger activity within the sector. Community and captive composting sites have seen marked growth, reflecting a trend towards a diverse range of facility sizes, from micro to macro. Despite these advancements, the majority of facilities still process less than 5,000 tons of food waste annually, and the U.S. composting infrastructure processes up to 4% of the 66 million tons of food waste generated each year. Challenges include increasing amounts of food waste being processed at anaerobic digestion facilities, reluctance from yard trimmings composting operations to accept food waste due to odor and contamination concerns, and limitations faced by lower permitting tier facilities on the annual tons they can process (Goldstein et al, 2023).

The BioCycle results indicate that smaller-scale, independent operations remain integral in expanding food waste processing capacity across the country, necessitating funding for both mega-facilities and smaller-scale operations. Additionally, the acceptance of compostable packaging has grown, to 71% of facilities in 2023 from 58% in 2018, and a significant increase in facilities accepting certified compostable food-contact bioplastics. This trend indicates growing trust in compostable products, supported by certification bodies and field-testing services. However, there is ongoing reluctance among commercially operated facilities, particularly large solid waste companies, to share data, posing challenges in creating a comprehensive national picture. Legislative support through the bipartisan Recycling and Composting Accountability Act aims to address this by mandating the U.S. Environmental Protection Agency (EPA) to collect and publish recycling and composting data, significantly aiding the availability and accuracy of information on the composting sector (Goldstein et al., 2023).

Utilizing a coordinated municipal effort and armed with proper investment, infrastructure, and support, ReFED estimates 9.5 million tons of waste could be reduced annually through compost techniques and waste diversion. Meanwhile prevention and recovery solutions only amount to between 2.6 million and 1.1 million (ReFED, n.d). Another ReFED estimation is that for every 10,000 tons of composting capacity, four to six jobs will be created. Similarly, facilities in

Maryland found that for every $10 million invested in composting leads to twice as many jobs as landfills provide (Kunze, 2020).

Goldstein et al points out from the BioCycle survey that curbside program performance varies, with participation rates and tons of food waste collected differing widely. Out of 85 programs surveyed, 45 reported on household participation rates, with only 16 measuring participation. The reported participation rates range from less than 30% to 100%. Regarding the amount of food waste collected, responses varied, with some programs collecting less than 100 tons annually and others exceeding 10,000 tons.

Many consumers claim their food waste is a result of competing household and personal goals. These goals are generally centered around food safety, enjoying food, economic feasibility, and healthy diets (van Geffen et al., 2020). 80% of Americans discard food because they misunderstand expiration labels (Recycle Track Systems, n.d.).

To boost the use of composting and environmentally-friendly waste practices, ease and convenience are crucial. Studies have shown that making compost receptacles and collection points more accessible significantly enhances participation (Domina & Koch, 2002; DiGiacomo et al., 2018). For example, DiGiacomo et al. demonstrated that placing compost buckets on every floor of a multi-family home, rather than just in the lobby, led to a 70% increase in composting rates (2018). This highlights that improving accessibility can substantially drive up participation in composting programs.

Food waste is a complex behavior influenced by various factors, including decisions made earlier in the food supply chain, structural contexts like access to transportation, and sociocultural perceptions of food quality. Identifying upstream interventions, such as changes in packaging or retailing, requires a deeper understanding of these leverage points that the general layperson is not likely equipped to consider (McDermott, 2019).

According to the U.S. Composting Infrastructure Coalition (USCIC), more than 80% of Americans lack access to food scrap composting (n.d). Advancing compost activity in the country can better and more quickly succeed if proper investment into composting infrastructure is provided.

There have been many strides to aid U.S. municipalities in ensuring they have efficient infrastructure through government funding. In 2022, the Solid Waste Infrastructure for Recycling Grant Program and Recycling Education and Outreach Grant Program provided a total of $350 million in grants for upgrades across the country, with nearly $12 million awarded to PNW organizations and Tribes (EPA, 2022).

Legislation

ReFED Policy Fellow Samantha Goerger reported that in 2021, half of the states in the U.S. introduced legislation relating to food waste. Of the 99 bills brought to the legislative floor, only 28 passed. These include policies such as bans on what can go in landfills, food date labeling, and donation guidelines. These efforts by various stakeholders across the food system sector

reflect a growing movement to prevent food waste from being landfilled, aligning with broader environmental goals outlined by the EPA (Goerger, 2022).

According to Pai et al, residential organic waste diversion has only grown in the last decade, prompting municipalities to create policies and plans to which they have none to little community support or awareness (2019). Some of this legislation is actually harmful to a circular food system and promotes food waste. In Washington, certain regulations limit or outright prohibit food sale and donation after the label date. Laws surrounding utilizing food scraps for animal feed in Washington are moderate and while vegetable scraps are not restricted, animal-derived food scraps require a state permit to utilize as feed, and can be a struggle to obtain (ReFED, 2024).

While these regulations don't quite support the first three preferred methods of food waste reduction laid out in the EPA's Food Waste Reduction Scale (prevention, donation, and animal feed), there are newer rules for Washington that will require municipalities to have composting infrastructure. In 2025, any business that creates over 4 cubic yards of organic waste weekly must either have organics collection in place or composting on-site. Municipalities with more than 25,000 residents must have compost procurement ordinances, and by 2027, they must provide biweekly curbside composting (ReFED, 2024). These regulations indicate an increasing focus on waste management, but the attention still largely bypasses smaller communities like College Place, highlighting a gap that needs to be addressed for broader environmental impact.

Innovation

The field of composting is witnessing significant advancements, driven by technological innovations that aim to make the process more accessible, efficient, and user-friendly for both households and businesses. Companies are addressing the limitations of traditional composting methods through the development of advanced composting bins, public space solutions, and smart technologies, all contributing to the broader adoption of sustainable waste management practices.

One prominent example of technological innovation in composting is the development of advanced composting bins by companies such as Mill. These high-tech bins are designed to dry and grind food scraps, thereby reducing the volume of waste and accelerating the composting process. The resultant product is a nutrient-rich compost that consumers can easily use or drop at a collection bin. This technology caters to those seeking efficient and user-friendly solutions, making it simpler to incorporate composting into daily routines (Munk, 2024).

Co-founded by the Washington State Department of Corrections, the Sustainability in Prisons Project (SPP) aims to increase positive personal and collective sustainability responsibility in local communities across the state. This is done by creating educational and hand-on activities and programs within the institutions that extend beyond the walls and into the community. Gardens, cooking classes, and compost techniques are all included in this program. Last year, the program composted 1.3 millions pounds of food across 9 facilities in Washington state (Sustainability in Prisons Project, 2023). The funding that allows for SPP to operate is primarily through legislative grants and citizen donations.

Challenges and Gaps in Data/Research

Looking at California's organic waste diversion initiative, launched two years ago, College Place can anticipate certain pain points in trying to modify citizen behavior. Despite California's ambitious goal of 75% diversion, city implementations have faced hurdles including changing residents' waste sorting behaviors and delays in establishing necessary infrastructure. As of the end of 2022, California had diverted 11.2 million tons of organics from landfills, an increase from the previous year but still short of its targets (Taxin, 2024). Communities reported difficulties in educating residents on proper waste sorting and managing the surplus compost produced. For instance, Chula Vista struggles to utilize its mandated compost allotment due to space and cost issues. Additionally, large-scale facilities like the one in Rialto face financial difficulties because of insufficient organic waste collection, exacerbated by cities' delays in enforcing regulations (Taxin, 2024).

Understanding the underlying factors and causes of food waste at the household level remains limited. Research often focuses on consumer behavior and its impacts, but less attention is given to the root causes (McDermott, 2019). There is, however, a growing call to examine larger food and consumption systems to address household food waste more effectively. It is important to recognize that food waste is not solely the responsibility of individuals within households.

In general, food waste recovery efforts are typically focused on commercial and industrial sectors, with the residential sector feeling the lack of support and research. In particular, rural areas with limited funding in the United States lack representation in these types of studies.

Methodology

The study has three objectives: to understand the municipal support and/or challenges for community composting in College Place; to gauge the community's desire for community composting and its perceived benefits; and to identify the municipal, community, infrastructure, economic, and federal support and changes needed for College Place to successfully implement a comprehensive, community-wide composting program beneficial for all.

Research Design

To achieve these objectives, a mixed-methods approach was employed. This approach combines quantitative data from surveys and qualitative data from interviews and literature reviews to offer a holistic understanding of the composting program's impacts and challenges.

Data Collection

1. Site Visit and Interviews

To understand the landscape and scope of the composting program at the Sudbury Landfill, I conducted an on-site visit where I interviewed key employees. The interview covered the history of the composting program, operational challenges, and future plans. Following the interview, I toured the facility in a work truck, observing compost piles, yard waste piles, landfill cells, leach pads, and the machinery used in the composting process. The tour also included observing citizens utilizing the drop-off services, providing insights into community engagement with the landfill’s services.

2. Literature Review

A thorough literature review was conducted to contextualize the findings from the Sudbury Landfill and compare them with broader trends in rural and municipal composting programs. Resources were gathered using Arizona State University’s online library, Google Scholar, ScienceDirect, and ProQuest. The selection criteria for sources included a focus on compost, yard and food waste, community bonding, and municipal support.

3. Community Surveys

Surveys were administered in person at community events in College Place, targeting a randomly gathered group of participants over a period of two days, with two survey sessions conducted each day. Participants were initially screened with two preliminary questions: 1) "Do you live in College Place?" and 2) "Have you taken this survey before?" Only individuals who answered "yes" to the first question and "no" to the second were allowed to participate in the survey.

On the first day, the morning session included 22 participants, while the afternoon session had 17 participants. On the second day, the morning session comprised 26 participants, and the afternoon session included 16 participants. A total of 81 responses were collected.

During the survey, participants were asked questions and indicated their responses by raising their hands for affirmative answers. Those who did not raise their hands were counted as negative responses. Participants were also given the opportunity to elaborate on their responses to the question: "Are you aware that Sudbury Landfill offers compost for purchase? If yes, how did you learn about it?"

No identifying information was collected from any participant, ensuring anonymity throughout the survey process.

Sampling Strategy

1. Interview Participants

Purposive sampling was used to select two employees at the Sudbury Landfill who have extensive knowledge and experience with the composting program. This ensured that the information gathered was both detailed and relevant to the research objectives.

2. Survey Participants

Community members were selected using a combination of random and purposive sampling to ensure representation from different demographic groups and residential areas in College Place. This approach aimed to capture a broad range of perspectives and experiences with the composting program.

Discussion and Results

Interview

To gain a comprehensive understanding of the current landscape of composting and waste management in the Walla Walla region, I visited Sudbury Landfill. During this visit, I engaged in detailed discussions with two key figures in the facility's operations. This tour provided valuable insights into the workings of the landfill, its role in managing waste for the city, and its effectiveness (or lack thereof) of promoting community composting within College Place.

The Sudbury Landfill is a modest waste management hub that manages landfilled items, recyclables, and green and brown waste. It serves primarily the city of Walla Walla, but sees farmers from all over the region (including from Oregon and Idaho) coming through just to purchase compost.

In the early 2000s, Sudbury Landfill and the Washington State Penitentiary worked together to create compost in small batches. Due to difficulties between the two entities, the partnership discontinued and the Penitentiary later became a part of the Sustainability in Prisons Project (SPP). In 2007, the Landfill started its own compost program for the local community and now produces approximately 8,000 cubic yards of compost annually. Of this, around 1,200 cubic yards are made available for public purchase, while the remainder is sold to regional farmers and used in city projects. The compost produced at Sudbury is highly regarded, with low contamination levels and positive feedback from other facilities. The landfill employs a combination of windrow and Aerated Static Pile (ASP) composting methods, using large blowers in a makeshift setup to maintain the composting process. Despite not being officially certified, the compost is tested to meet the US Composting Council's Seal of Testing Assurance (STA) standards, ensuring high quality.

One of the compost piles at the Sudbury Landfill.

Despite its successes, the Sudbury Landfill faces several challenges in scaling up its composting operations. One hurdle is the need to expand the infrastructure to accommodate increased organic waste processing. The facility collects only yard waste and animal manure for composting, but is looking to add food waste in the near future to increase the city's waste diversion rates even further.

To effectively expand its composting program, the facility needs additional asphalt pads to prevent groundwater contamination. Sudbury is currently operating at full capacity and is facing rising demand for its compost. Employees are frustrated as the local community increasingly requests these upgrades, and state legislation, such as HB 1799 and HB 2301, mandates new regulations that do not account for the economic challenges faced by the area. This combination of increased demand and regulatory pressure intensifies the need for improvements while complicating the facility's ability to address these challenges.

Passed in 2022, House Bill 1799 establishes comprehensive state goals for organic materials management in Washington, aiming to reduce landfill disposal of organic materials by 75% from 2015 levels by 2030 and recover 20% of edible food waste for human consumption by 2025. The bill defines organic materials to include manure, yard waste, food waste, food processing

wastes, wood wastes, and garden waste, excluding materials contaminated in a manner that renders them unsuitable for composting or similar processes. From July 1, 2023, the Department of Ecology must identify counties and cities with solid waste plans that accommodate food and organic waste collection. Businesses in these areas will be required to source-separate organic waste and utilize organic materials management services. Additionally, local governments must provide organic waste collection services by January 1, 2027, with certain exemptions based on population and waste disposal metrics. HB 1799 also mandates local governments to adopt compost procurement ordinances by January 1, 2023, to promote the use of compost in local projects. The bill further establishes the Washington Center for Sustainable Food Management to coordinate statewide efforts in food waste reduction, develop model ordinances, and fund organic materials management facilities (HB 1799, 2022).

House Bill 2301, passed in 2024, establishes the Washington Center for Sustainable Food Management (Center) within the Department of Ecology to oversee the implementation of food waste reduction and food waste management programs. The Center is tasked with achieving the state's goal of reducing food waste by 50% by 2030, as outlined in the 2019 State Food Waste Reduction Plan. To achieve this, the bill mandates the Center to work with state agencies, local governments, and other stakeholders to develop and promote best practices, provide technical assistance, and support education and outreach initiatives. Additionally, HB 2301 requires the Center to track and report progress, manage grants to support food waste reduction projects, and foster partnerships to recover edible food for human consumption and manage inedible food waste through composting and other methods. The establishment of the Center aims to enhance the effectiveness of the state's existing food waste reduction goals by providing a centralized entity to lead and coordinate these efforts, ensuring a comprehensive approach to managing food waste and promoting sustainability (HB 2301, 2024).

Even though increased demand is a positive for the facility, community members in College Place still face significant challenges in accessing compost. The Sudbury Landfill charges for both the compost it sells and a tipping fee for dropping off yard waste, resulting in financial barriers for residents. In contrast to Seattle, where a curbside compost pickup service is mandatory for food and yard waste at a monthly charge of at least $0.07 per pound (Seattle.Gov, 2024), College Place lacks such an option. Residents there must transport their yard waste—without any food waste— to the Sudbury Landfill, which charges $0.05 per pound per visit (City of Walla Walla, 2024). This disparity is exacerbated by the fact that the 2022 average annual income for residents in College Place is 47% lower than that of Seattle residents (City Data, n.d.; Data USA, 2022). The lack of a curbside pickup option and the additional costs of waste disposal contribute to the financial strain on College Place residents, making it challenging for them to participate in and benefit from composting programs. Another sore spot is the lack of any kind of delivery service. One was considered in 2009, but the concept never made it to fruition due to fears of potential damage claims via city vehicles making the deliveries.

Perhaps the biggest concern for Sudbury Landfill is funding. While Landfill management intends to tap employees to search for grants and other avenues of funding to support expansions and infrastructure upgrades, there are few labor hours available to effectively do this. Investments

the Landfill is considering include anaerobic digesters and larger filtering machinery. Coupling this with the necessities laid out in HB 1799 and HB 2301, it is clear that the Landfill is in no way prepared financially to undertake the required improvements.

Advertising and community engagement also present challenges. While the compost program initially relied on word-of-mouth, more effective advertising strategies have been employed in recent years to increase awareness and participation. However these still fall short of effectively bringing community support to the compost program, as is evidenced by the community surveys discussed later in this paper. The more successful municipal composting programs in Washington focus on outreach and education, utilizing flyers, door-to-door campaigns, in-person training, social media, and digital ads (Goldstein et al, 2023). Some programs also employ paid media, such as TV and radio ads, billboards, and posters on city buses, to increase awareness and engagement.

Community members offload self-hauled yard waste at the Sudbury Landfill.

Surveys

To gain a better understanding of the community's awareness and utilization of the compost available from Sudbury Landfill, I conducted several interviews with residents of College Place, maintaining their anonymity. The data revealed that 64% of the community has a vague

awareness of compost being available somewhere in the Walla Walla Valley—whether through nurseries, neighbors, or the Landfill itself. However, only 38% of this group is aware that compost can specifically be purchased at the Landfill. The data also shows that approximately 35% of the community engages in home composting for personal use. It could be suggested that because of this, only about 20% of respondents indicated they would consider purchasing compost from the Landfill. This suggests that while there is a general awareness of compost, there is a notable gap in specific knowledge about the purchasing options at Sudbury, coupled with a limited inclination to buy compost despite its availability. When asked if they utilize the Landfill to offload their own yard waste, 33% said yes.

This data indicates a general awareness of compost but highlights a significant gap in specific knowledge about the purchasing options at Sudbury. The general recognition of compost as a resource is promising, but it suggests that more targeted educational efforts are needed. There is an opportunity to build on this broad awareness by clarifying where and how compost can be accessed, especially at Sudbury Landfill, where fewer residents are aware of its availability (fig. 1, fig. 2). Additionally, 33% of respondents reported using the Landfill to offload their yard waste, indicating some engagement with the facility beyond compost purchase.

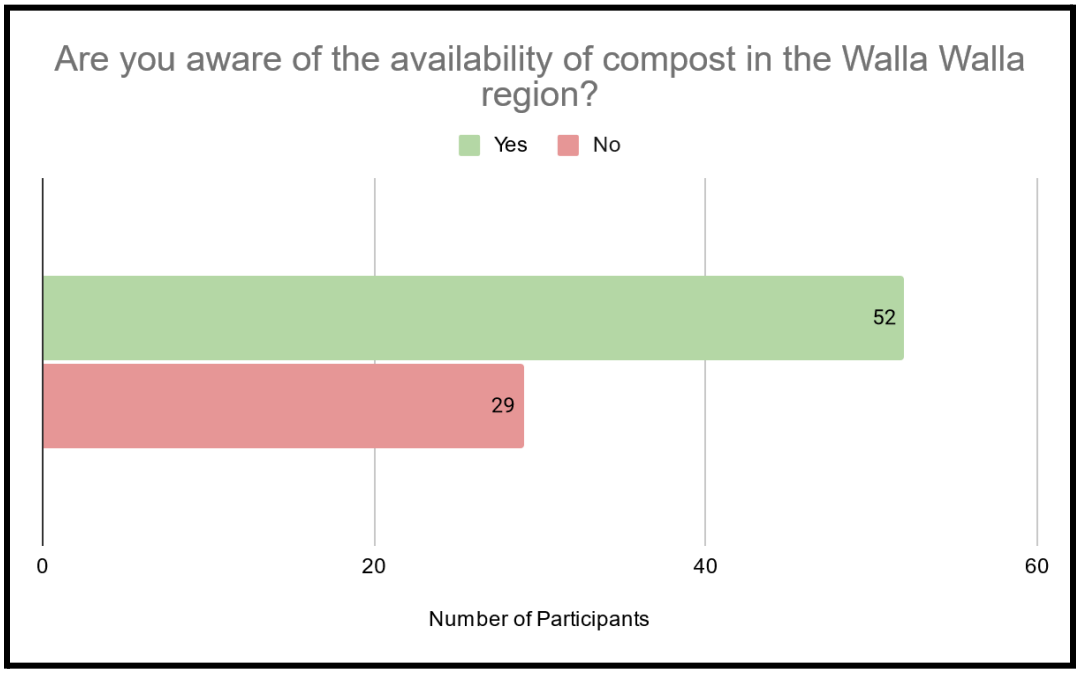

Figure 1

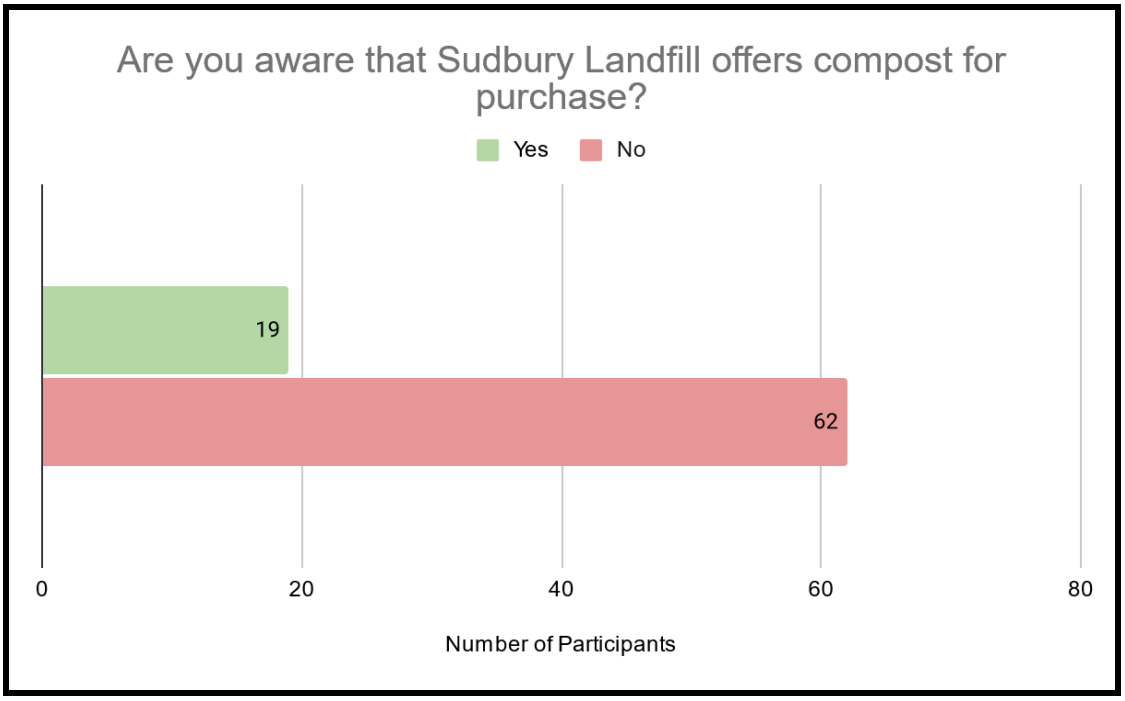

Figure 2.

The data also shows that approximately 35% of the community engages in home composting for personal use (fig. 3). This indicates a decent-sized portion of the population is actively participating in composting practices, which is encouraging for promoting environmental sustainability at the local level; however, only about 20% of respondents indicated they would consider purchasing compost from the Landfill (fig. 4).

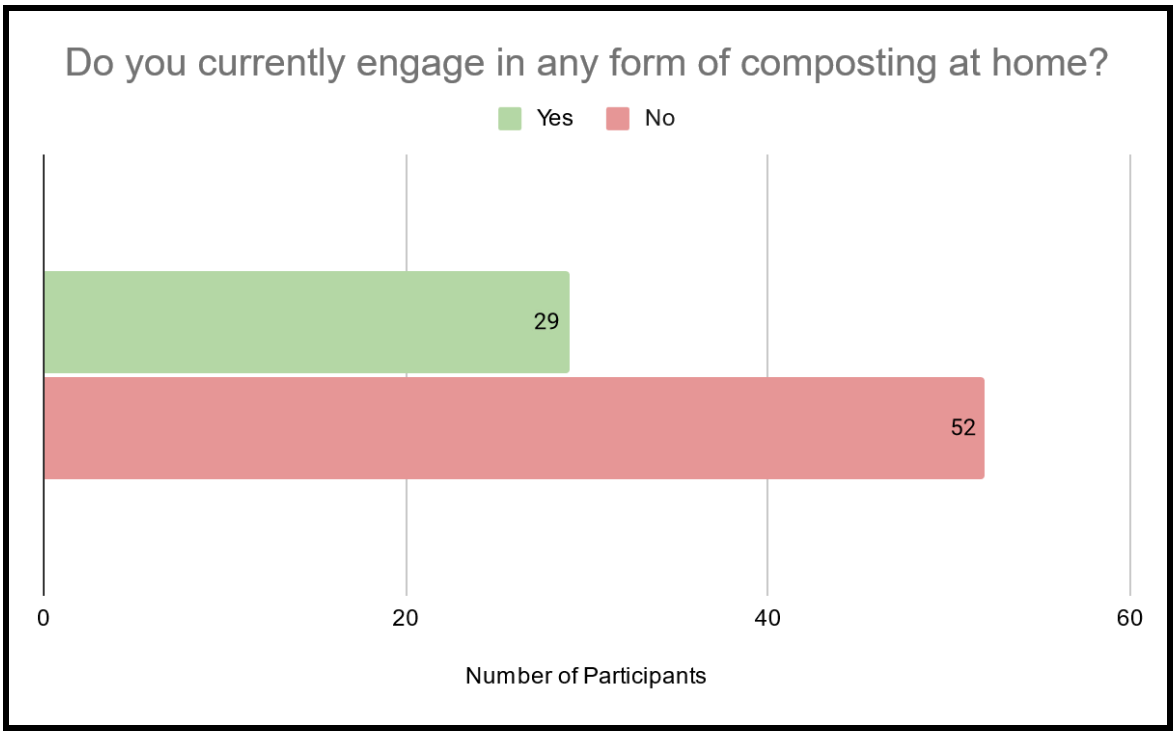

Figure 3.

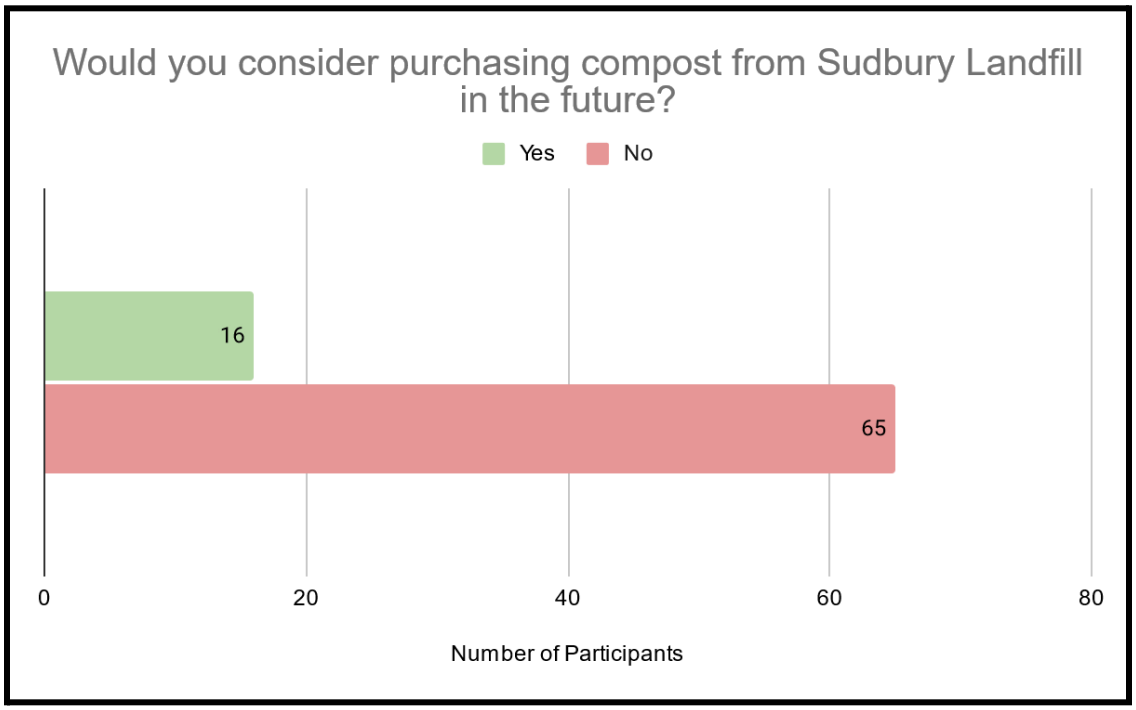

Figure 4.

When asked if they utilize the Landfill to offload their own yard waste, 33% said yes (fig. 5). This figure demonstrates that a portion of the community is engaging with the Landfill for yard waste management, which is a positive indicator of the facility's role in local waste practices. However, there remains a significant percentage of residents who do not use the Landfill for this purpose, possibly due to a lack of awareness, convenience issues, or alternative waste management practices. Understanding the reasons behind this low usage rate could provide insights into how to better promote the Landfill's services or improve its accessibility and appeal.

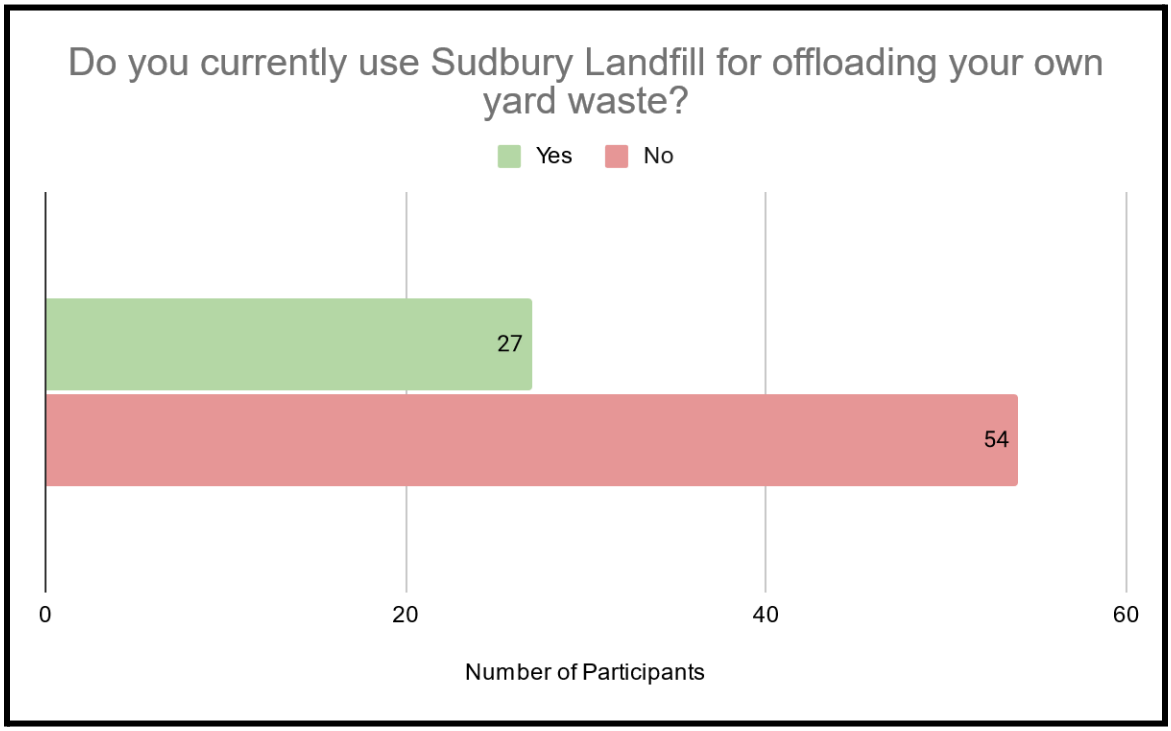

Figure 5.

Because food waste and paper pulp are excluded from Sudbury's collection for composting, locals in College Place have turned to each other to create small, neighborhood-based composting solutions. This community-driven approach reflects a proactive attitude towards managing organic waste, despite the limitations of local facilities. Residents have formed informal networks to handle composting needs, often utilizing front yard gardens where they leave signs for neighbors to pick up produce as it's ready. Additionally, organic gardens at local colleges and public schools contribute to this effort. These neighborhood composting practices not only address the gaps left by Sudbury's program but also foster a sense of local collaboration and sustainability. This grassroots approach highlights the community's commitment to reducing waste and could be leveraged to support broader initiatives, such as advocating for expanded composting services or encouraging more comprehensive waste management practices.

A compost collection site is located at the Organic Garden at Whitman College for the college community to utilize.

Recommendations for College Place

Based on the findings from the site visit to Sudbury Landfill and the interviews conducted, several strategic recommendations can be made to enhance community composting in College Place.

First and foremost, College Place and the Sudbury Landfill need to address the financial constraints that hinder the expansion and improvement of composting initiatives. Devoting an employee or creating a student internship or fellowship position focused on securing grants and funding is a cost-effective solution that also provides hands-on learning opportunities for students entering the larger job market. Local higher education institutions could provide students for these roles, or the City could contribute resources to this effort.

Expanding the infrastructure at Sudbury Landfill is the key to accommodate the growing demand for compost and to include food waste in the composting program. College Place should consider partnerships with local farmers and schools to extend composting facilities throughout the city. Many schools in the region have organic gardens, and integrating composting infrastructure here could provide educational opportunities and practical composting sites. Additionally, local school districts might be willing to contribute financially to these projects in exchange for free access to the compost produced. This initiative could also serve as a valuable internship opportunity for college students, providing hands-on experience in sustainability and environmental management.

Given the prominence of the wine industry in the Walla Walla Valley, College Place is well-positioned to capitalize on the region's abundant organic waste for community composting initiatives. With over 135 wineries and nearly 3,000 acres of vineyards, the area generates substantial amounts of grape marc and other vineyard residues. Leveraging this organic material for composting could significantly enhance local sustainability efforts. It is recommended that College Place develop a comprehensive composting program that incorporates these vineyard by-products. This approach would not only bolster local composting efforts and support regional agriculture but also reduce reliance on external compost sources. By effectively managing and utilizing this organic waste, College Place can create a more circular and resilient waste management system, aligning with the community's sustainability goals and reinforcing its commitment to environmental stewardship.

Enhancing education and community engagement is encouraged for increasing participation in composting programs. Efforts should be intensified to inform residents about the benefits and processes of composting. This can be achieved through distributing informative flyers, conducting door-to-door campaigns, organizing workshops and training sessions, and leveraging social media platforms for broader outreach. However, budgetary limitations in small towns like College Place mean that more expensive options, such as TV and radio ads, billboards, and posters on public transportation, may not be feasible. Instead, focusing on cost-effective methods and community-driven initiatives will be crucial to effectively promoting the composting program within available resources.

The last recommended component is the implementation of a comprehensive curbside collection service. Currently, curbside collection for organic waste is only offered in select neighborhoods in Walla Walla, but this service should be expanded across the entire cities of Walla Walla and College Place. Implementing a widespread curbside collection program would significantly increase convenience for residents, encouraging greater participation in composting. Additionally, revisiting the idea of a compost delivery service could further alleviate barriers. Concerns about potential damage claims can be mitigated by establishing robust delivery protocols and utilizing smaller vehicles suited for residential areas.

By focusing on securing funding through dedicated personnel, expanding infrastructure with strategic partnerships, enhancing community education and engagement, and implementing comprehensive curbside collection, the Sudbury Landfill can significantly improve its composting program and the City of College Place can join its neighbors in progressive and accessible organic management. These steps will help meet state legislative requirements and foster a more sustainable waste management system, benefiting the community and the environment.

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Appendix A

Community Survey Questions

1. **Awareness of Compost Availability**:
    - Are you aware of the availability of compost in the Walla Walla Valley, including sources such as nurseries, neighbors, or Sudbury Landfill?
2. **Knowledge of Sudbury Landfill's Compost Program**:
    - Are you aware that Sudbury Landfill offers compost for purchase? If yes, how did you learn about it?
3. **Personal Composting Practices**:
    - Do you currently engage in any form of composting at home?
4. **Consideration of Purchasing Compost**:
    - Would you consider purchasing compost from Sudbury Landfill in the future?
5. **Utilization of Landfill for Yard Waste:**
    - Do you currently use Sudbury Landfill for offloading your own yard waste?

Appendix B

Interview Guide

The interview with key employees at the Sudbury Landfill aimed to understand the scope and challenges of their composting program. Initially, we discussed the history and current status of the program, focusing on its inception, development, and operational details. Key aspects included the methods used for composting, the annual production capacity, and the quality control measures in place.

We then addressed the primary challenges faced by the program, such as issues with space, equipment limitations, and adapting to legislative changes and community demands. The discussion also covered how the program manages these challenges and any constraints related to infrastructure and funding.

Finally, we explored future plans for the composting program, including potential improvements, new technologies, and funding opportunities. The interview concluded with an open-ended question to capture any additional insights or contacts for further information.

Guiding Questions Included:

- What is the history and current status of the composting program?
    - When did it start, and what led to its development?
- How is the compost produced and managed?
    - Describe the methods, capacity, and quality control.
- What are the main challenges faced by the program?
    - Include issues with space, equipment, and regulations.
- How does the program handle legislative changes and community demands?