

WHITEPAPER REVIEWING OPPORTUNITIES FOR ORGANIC COMPOSTING IN ISLAND COUNTY'S SOLID WASTE SERVICES

TITLE: Island County's Wasted Opportunity

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Whidbey Climate Action – Whidbey Zero Waste Initiative Targeting Organics

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HISTORICAL REFERENCE:

In order to understand the logic of Island County Solid Waste Services, it is instructive to review why we have the system we have today. Why is it organized the way it is?

As a primary frame of reference, look back one hundred years when most Island County residents simply burned their trash and/or dumped their garbage into a hole in the ground at the back of the farm. In the early decades of the 1900s the garbage was organic and what did not simply rust away was inert glass. That too was in the day when appliances were few in number and were made to last and long before toxic chemicals and plastic pollution became ubiquitous. Nevertheless, back then people burning and throwing garbage away willy-nilly did **pose a health threat**. That is why counties around the country referred to garbage collection and disposal services as "Sanitary Services."

Waste disposal systems were mandated to follow Department of Public Health regulations. Waste Services were designed by local government through the lens of public health. To comply with regulations the simple "*One-Bin*" collection and "*Community-based Dump*" were the only community infrastructure needed.

As far as disease prevention, the One-Bin / Community Dump duo was successful --- diseases were prevented and unsightly garbage did not litter the natural landscape. The old county dumps of the 1940s & 1950s were places where fathers took their children to look for treasures – following the old adage that one man's treasure is another man's garbage. ¹ Quite literally, they were an informal community material exchange center.

In the latter half of the 1900s that all changed. The Community dump aka Sanitary Landfills turned out to be anything BUT sanitary and what was created was neither land nor fill. The rapid increase in the quantity of industrial toxic waste mixed with agricultural pesticides brought an end to family fossicking. The advent of the "consumer driven economy" resulted in an exponential increase in the quantity and quality of materials in the municipal solid waste

¹ I will never forget finding a box of old "Classic Comic Books" at a local dump with my dad (circa 1954)

stream. The old community dumps became hazardous waste sites. County operators were charged with the new duties of mitigating the impacts of toxic materials and management of the resultant toxic leachate.²

TRANSFORMATION OF PERSPECTIVE

The 20th Century Design Lens of Public Health is now superseded by the 21st Century's Design Lens of Environmental and Resource Sustainability.

The old 20th Century paradigm that morphed the word “waste” from a verb into a noun is now being transformed. The outdated “Waste Management Infrastructure” is being redesigned to become a 21st Century “Resource Management Infrastructure.”

The outdated 20th Century “Waste Management” infrastructure with its *single bin mentality* where discarded resources were co-mingled to become garbage consisting of *big compactor garbage trucks* and *140,000,000 ton refuse dumps situated 400 miles* away from the waste generation source are now sad relics of a way of life that we *belatedly realized is driving our economy and way of life into ecological oblivion*. And what is more, as we will read below, this style of waste management with its big companies, big overhead and huge environmental liabilities have become *extraordinarily expensive and wasteful* (pardon the pun) to operate. Island County residents spend between \$11-12,000,000 per year to keep all in motion.

MAKING CHANGE

Local County Landfills were closed everywhere as they were never designed to deal with the new load of toxic contamination. Here in Island County, the community landfill at Coupeville has been closed for years, yet every year hundreds of thousands of dollars (including County staff time) are spent managing and monitoring the old site to mitigate the toxic contaminants to ensure they do not poison island drinking water. Everywhere in America (and around the world) the small community dump morphed into “Community Transfer Stations” where materials were collected, sorted, and compacted for transport to larger regional landfills.

Island County's Regional Dump, the Roosevelt Landfill owned by Republic Industries, is located four hundred miles away and 1,800 feet up from its railhead switching yards situated on the banks of the Columbia River. Roosevelt is one of the largest solid waste landfills in the Americas. It is designed to take upwards of 140,000,000 TONS of mixed garbage over the next 40 years. The Roosevelt site was chosen because the location historically only receives nine” of rain a year; thus, lowering potential problems with containing leachate.³ Leachate at Roosevelt is not

² **Landfill leachate** is a liquid that forms when organic wastes along with precipitation (like rainwater) percolates through waste deposited in a landfill. As the liquid moves through the waste, it becomes contaminated by various chemicals and substances. [This contaminated liquid, known as leachate, seeps out of the landfill and pollutes ground water, standing water and land.](#)

³ Rain patterns in the age of climate change are unpredictable. Climate science understand that places like Roosevelt Landfill, just as what happened in August 2022 in Death Valley, California where 75% of its annual rain fall fell in 24 hours, is now probable anywhere in the Northwest.

treated, it is collected at the bottom and pumped up to be re-circulated on to the compacted pile of rubbish – concentrating toxicity over time.

Island County residents’ annual waste disposal weights going to Roosevelt Dump are in-line with the average American – slightly less than a *Ton per year per person*. Island County Waste managers identified around 70,000 tons of mixed garbage annually gets collected, compacted, trucked the 40 miles to Burlington Rail head, loaded onto the daily garbage train for the 300 miles trip to the Columbia River, offloaded onto 28 wheeler trucks for the last 1,800 foot climb to be dumped, compacted and covered every day, 365 days a year.

The “One Bin” system designed in the 1900s to solve a sanitation problem is now:

A> **VERY EXPENSIVE TO OPERATE**

- Island County Solid Waste Division has FY/2023-24 budget of **\$10M** + Island County residents pay on average \$48/month for the ONE-BIN collection. Included in the County budget is \$1M for recovery/recycling of materials. **Less than 1% of this budget is allocated for waste minimizing community education.**

B> **A HUGE CONTRIBUTOR TO GREENHOUSE GAS (GHG) POLLUTION**

- Side Loading Compactor Garbage Trucks get on average 2.53 MPG on their weekly route over most of the 600 miles of roads on Whidbey, 52 weeks per year.
- Eight 24-Ton Compacted-rubbish Trucks drive eighty miles RT daily Coupeville to Burlington Railhead
- The Garbage Train consumes [3 to 5 gallons of diesel fuel per mile](#). Therefore, for its 300-mile trip, it consumes **900 to 1,500 gallons of diesel fuel**. Estimated CO2 emissions would range between 20,115 lbs. to 33,525 lbs. of GHG emissions *each way per day!*⁴
- Organic Waste in a landfill turns into methane, a GHG that is eighty to eighty-six times more potent than CO2 over its first 20 years in the atmosphere.⁵

C> **UNSUSTAINABLE AND OUT OF COMPLIANCE WITH STATE LEGISLATION**

- In 2022 The State of Washington passed “HB 1799” requiring diversion of organics from landfills. Additional legislation passed in 2024 targeting reduction of food scraps to landfills by 75% by 2030.

⁴ When a gallon of diesel is burned it emits 22.5 lbs. of GHG Pollution

⁵ Methane (CH₄) is significantly more potent as a greenhouse gas compared to carbon dioxide (CO₂). [Over a 100-year period, methane is approximately 28 to 36 times more effective at trapping heat in the atmosphere than CO₂. Over a shorter 20-year period, methane’s potency increases to about 80 to 86 times that of CO](#)

Limited Scope of Inquiry:

The goal of this Whitepaper is to help our Island County community identify new, less expensive and more ecological means of handling our divergent types of discarded materials.

However, this Whitepaper's scope does not try to address all the challenges of transforming all of Island County Solid Waste System. Obviously, the redesign of the receiving environment at the Coupeville Transfer Station will undoubtedly be a major topic for community consultation. At present the transfer station's design and operation funnels maximum materials towards landfill disposal.

Elsewhere, more modern transfer stations are designed to require customers to deposit *source separated*⁶ resources into specially designated receiving areas. Any residual co-mingled waste loads are then directed to a wide open concrete floor where staff with the space and proper equipment are able to further source separate targeted items – be they salvaged for reuse or repurposing or recycling e.g. steel, aluminum, cardboard, glass, and/or plastic items. Transfer stations should invariably have appointed space provided solely for construction materials, e.g., wood, concrete and glass. Obviously, hazardous materials, which are often disguised in the ever present “black bag” as at the Coupeville style transfer stations, can be separated out for approved treatment.

As it says in the opening paragraph of this section, this Whitepaper does not seek to address the totality of Island County's Waste Services at this time. It is prudent now to start taking the discard streams apart and finding better ways to reduce - reuse – recycle and compost specific elements. If we can start on the *Journey to Zero Waste* together, we will be that much closer to serving the much needed 21st Century Environmental and Sustainability mandates to conserve resources and reduce the amount of toxic materials as a part of a greater sustainable Zero Waste to Landfill Strategy.

PRIME FOCUS: ORGANIC RESOURCE RECOVERY

This Whitepaper focuses on the challenge of “lowest-hanging fruit” -- the one item that can be recovered and reprocessed here on Whidbey by the community and for the community's benefit: organic material.

At present, no one has found the exact amount of organic material sent to Roosevelt. It is estimated that organic materials may range between 40 to 50% of all the material transported to Roosevelt Landfill. This organic fraction consists mostly of commercial and residential food waste, landscape trimmings along with an undetermined amount of wood/forestry waste.

⁶ The understanding source separation is key to defining effective and less expensive ways of managing discard material streams. Garbage is made when “discarded materials” are co-mingled – mixed up together - making everything worthless dirty and potentially toxic. There are diverse ways to “source separate” – taking food waste out of the garbage bin means nothing can rot and instead of weekly collection for “sanitary concerns” twice or once a month may be simply fine depending on volume.

COMMUNITY COMPOSTING ON SOUTH WHIDBEY FOCUS

Initially, this whitepaper discussion document hopes to put a fine focus on organic discards recovery options and opportunities in the South Whidbey area.

This is not to discount the urgency and efficacy of a potential Island County wide investigation. But the reality of this county, it has three distinct areas of operation and to get a clear view of the “organic discard conundrum” we need to break it down into three areas.

The first area is Camano Island. Camano residents are aligned and receive compost products from Snohomish County commercial compost makers. Singling out Camano by itself does not prevent further investigations that could look at incorporating a greater community level of participation in developing more robust composting solutions.⁷

The second being Oak Harbor. Oak Harbor’s local government directly provides a THREE-BIN Collection service – collecting both recycling and green waste/food in separate bins along with the landfill bin. The ways and means of their THREE-Bin collection service need to be investigated for its costs and benefits when compared to potential “community based” composting solutions. To date, no analysis has been executed; but it is on the agenda. It needs to be made explicit that the City of Oak Harbor provides its own Resource Collection services -- local government owns its own trucks and employs the drivers. This contrasts with Island County’s Unincorporated area – including the City of Langley – where a direct franchise agreement between Island County and Island Disposal Inc. performs the ONE BIN collection service for a direct user-pays fee. It needs to be noted that Oak Harbor delivers organic materials to a local commercial composter / landscape contracting company where it is treated and offered to the retail public.

In the waste industry world, there have been long and involved discussions about the pros and cons of public vs private waste collection services. Comparing the level of customer appreciation for the two distinct types of service will inform our investigation as to what works best here on Whidbey / Camano Island.

Finally, there is South Whidbey. A community known for its collective ability to work as a community. If ever there was an ideal community to internally solve its management of organics, South Whidbey is a wonderful place to start.

CRITICAL DESIGN FACTOR: keep the cost down and the product quality high.

⁷ The author has to confess to his low level of community experience with Camano folks. His short discussions with County waste managers identified that Camano residents have options for depositing organic material and buying compost. However, the level of multiple level bin collection that includes green waste / food the author simply has no knowledge now – as this project evolves no doubt that will change. Apologies for now.

Challenge: CENTRALIZED BIG TRUCK SYSTEM VS DECENTRALIZED LOCAL BASED SOLUTIONS

Challenges with Big Truck Centralized Approach

High Transport Costs: In more urban densely populated areas, with the larger waste companies like Waste Management Inc or Republic Inc, there is a critical mass where driving large side loading compactor trucks makes economic sense. However, on South Whidbey Island, with hundreds of miles of road, the weekly collection for the single bin is already an expensive activity. Adding an organic bin adds another collection truck. There is no economy of scale – all collection costs using this mode of operation are additive. Island Disposal’s average charge for the One Rubbish Bin collection this year is around \$48/Month. If the County were to authorize a second bin for “Green Waste” it would merely double the collection charge – too expensive - not wanted and thus not sustainable.

High Processing Costs: There is another problem with mixed “Green Bin” collection. When one combines garden trimmings and food wastes it adds an added level of complexity for processors due to the level of contamination from both sources – e.g. plastic label of fruit – plastic bio bags - pesticides. This “Big Truck Centralized” mixed refuse Green Collection simply adds extra cost along every step.

Poor Quality Product: If Garden trimmings are mixed with food scraps, the end-product after composting is not necessarily a quality product. Local organic farmers on Whidbey complain that they not only pay a high price for trucked in compost but the product they do buy is frequently contaminated. Copious amounts of plastic in its many forms are coming through. Furthermore, it is now documented⁸ that municipal compost mixes contain “forever chemical” that are leaching out of food containers and bio-solids (dried sewage) and the application of these commercial compost mixes made from municipal collections etc. are now viewed with suspicion for universal farm uses.⁹ The City of Langley has a well-established yard waste composting process, whereby they mix yard trimmings with their Class A biosolids to produce compost. While this may present a path to local processing of yard waste, it would require more rigorous testing of the compost product before farmers are willing to use it on crops.

WHAT ARE THE OPTIONS FOR DECENTRALIZED ORGANIC COLLECTION & PROCESSING?

This is the nub of the challenge – we do not know.

⁸ Regarding their presence in municipal compost products, PFAS have indeed been discovered in compost. [This contamination often occurs when compostable food containers and other products containing PFAS are included in the composting process. Studies have shown that PFAS can leach out of these items and accumulate in the compost, posing potential risks to human health and the environment.](#)

⁹ **FAS** (Per- and Polyfluoroalkyl Substances) are a large group of man-made chemicals that have been used in various industrial and consumer products since the 1940s. [These chemicals are known for their resistance to water, oil, and heat, which makes them useful in products like non-stick cookware, water-repellent clothing, stain-resistant fabrics, and firefighting foams.](#)

The primary challenge in designing an organics recovery program **is to find the right scale so as to get the optimum results for the least investment/effort.**

This new decentralized approach requires more research in order to identify key financial and investment data points, so the best decisions are made.

SUGGESTED RESEARCH PROJECT GOALS AND OBJECTIVES

1. What are the existing costs for current Island County Solid Waste Activities by activity output?

How much is collection – how much is compaction – how much is transport – what are the overheads – what are the financial reserves? What are the costs of existing legal contracts and what are their durations?

The goal of this project is to find cost effective programs consistent with material conservation and environmental mandates. *All the short and mid-term expenses associated with the existing Island County solid waste disposal services need to become transparent by specific activity to enable accurate comparisons.*

2. Analysis of the current commercial compost market in Island County and surrounding counties,

What are the market dynamics for compost and soil amendments in Island County. What companies now produce compost? Who are their customers? Do these producers have capacity to expand the collection and production? What processes do they employ?

This market includes the complete range of commercial nurseries: landscapers; farmers; local hardware stores for compost deliveries, institutional, commercial and residential markets. What are the prices? Where does the market not meet demand?

3. Identification and quantification of compost resources in Island County.

This investigation has its challenges, as the information is not easily obtained. It will be necessary to first simply identify resources and make best guess estimates of volume available. Key traditional resources within this investigation are: 1) residential food waste now going to landfill 2) residential landscape green material now going to landfill 3) commercial food wastes 4) commercial / industrial green waste e.g. landscapers etc. 5) organic materials on animal farmers 6) forestry 7) fishing.

4. Identification of appropriate scale decentralized composting technologies and programs.

The composting world is now an amazing collection of solutions able to be applied across a range of applications. In Washington State, listed on Dept. Ecology databases name over one hundred distinct types of commercial and or municipal composting operations. Neighboring Vashon. Island recently installed an In-vessel anaerobic composting system. It is critical that the best technologies — operating from within individual home, neighborhood and on larger community scales are examined for potential inclusion.

This is also time to introduce innovative ideas – A community in the Netherlands gave every household who wanted to take part three chickens. Within two months the community had saved 20,000 lbs. of food waste from being landfill -- and families got home grown eggs!

LEARNING WHAT WE NEED TO KNOW

5. Where are the financial support programs for this investigation?

It needs to be underscored that the management and recovery of organic materials in Island County and for that matter around the world has an array of divergent beneficiaries. Just as we have introduced, “polluters pay carbon markets” where those who generate external costs on society must be held to account; we also need to assign costs with those who benefit. In the environmental world we have long talked about asymmetrical benefits.

For example, if children are taught to enjoy eating fresh fruits and vegetables and reduce their consumption of sugar and fats, these groups of children will not develop diabetes and be less costly for the health sector. Therefore, it makes economic sense for public health program providers to pay for early childcare healthy garden projects.

In terms of organic, the benefits to climate protection are profoundly beneficial and thus programs to mitigate carbon pollution should pay for new organic programs. Likewise, recovery of eatable food should be supported by those agencies charged with feeding the needy. **We need to find beneficiaries and bring them to the table financially – both directly and with in-kind donations contribute to our community wide organic waste solutions. The question for our research is who these organizations are and how much do they have to spend in support of Island County Organic recovery.**

NEED FOR LOCAL DECENTRALIZED PILOT PROGRAMS

6. Pilot Projects

The old adage, we learn by doing, is relevant here. In transforming the old 20th Century “One-Bin Mentality” wasting system that now serves Island County; we need to be creative and explore what we all can do as an individual and as a community. The only true way to do this is via well-defined and monitored PILOT PROJECTS.

6.1 . Identification of key stakeholders

Generate a summary of their individual stakeholders and their capacity to contribute to generating solutions for organic recovery. A primary concern in this analysis is finding how the divergent interests can be work collaboratively to optimize the efficient and effective recovery of our organic resources.

6.2 Identify the dynamics of “local decentralized uses/demand” on Whidbey Island,

It is all about figuring out how local programs can fill market demands for quality compost. Island County has an active and dynamic farmers market network. Compost is being compost is now being made and used. It is critical that this end market is integrated with any new future compost initiative.

RECOMMENDATION: SELECT SOUTH WHIDBEY AS THE PILOT PROJECT CENTER OF ACTION

Under the auspices of Sarah Bergquist from the Washington State Extension Office and David Haskell from the Whidbey Climate Action organization a new “Organics Task Force Team” has assembled with the goal of executing a series of organic pilot projects – all defined with the explicit intent to monitor projects for efficacy and cost ramification. The Task Force Team will meet regularly and will function as advisors to the project.

7.0 PARTNERSHIP WITH ISLAND COUNTY / LANGLEY CITY COUNCIL

Zero Waste Partnership starts a PILOT PROJECT / EDUCATIONAL CAMPAIGN with the goal to divert organic materials from landfills in the South Whidbey Area as a primary step.

Whidbey Climate Action Zero Waste Organics Team will seek to secure funding to ensure the campaign has the resources necessary to effect sustainable solutions for our Island County communities.

This new Zero Waste Partnership includes Whidbey Climate Action as the lead not-for-profit project manager working in collaboration with the WSU Extension office and Island County Commissioners. Together they will design and roll out several, as yet, to be determined organic composting pilot project options to help inform forward planning to eliminate organics from landfill throughout Island County.

NEXT STEP – DEFINING OUR ZERO WASTE COMPOST CHALLENGE PILOT PROJECT

Contact: David Haskell

www.whidbeyclimate.org/zerowaste for information

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THE PILOT PROJECT PROPOSAL IS A WORK IN PROGRESS

JOIN IN TO MAKE IT HAPPEN

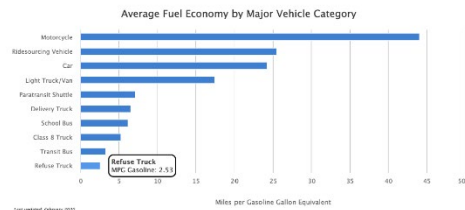
WE ARE THE PROBLEM AND WE HAVE THE SOLUTION

Appendix

- #1 MPG for Refuse Trucks
- #2 Compacted Waste from Coupeville to Burlington
- #3 Map “Waste Trail.”

#1.

Refuse Vehicles: The Lowest Fuel Economy

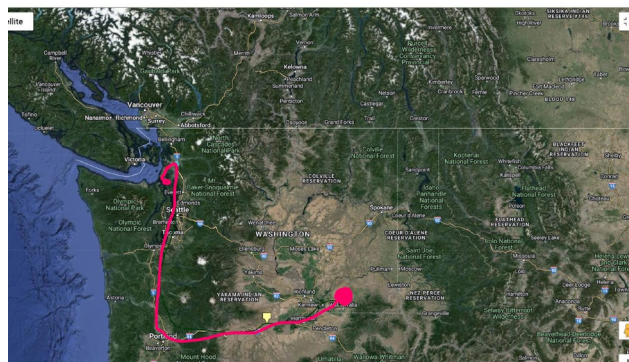


Of the major vehicle categories, Refuse vehicles boast the worst fuel economy, with approximately **2.5 MPG**.

Source: [US Dept. of Energy – Alternative Fuels Data Center](#)



3 - WASTE TRAIL



#2)

Green House Gas Transport to Burlington Math:

80 miles per trip X 8 trips per day = 640 miles X 5 days per week X 52 weeks per year = 166,400 miles per year. 166,400 mi. / 6.5 (MPG) = 25,600 gallons of diesel X 22.38 lbs. / gallons of diesel CO2 = **572,928 lbs. of GHG** (Green House Gas pollutant)