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MEMORANDUM

TO: Board of Commissioners
FROM: Sarah Reeves, Executive Director
Josh Tyler, Director of Operations
Dan Goossen, Director of Compost Operations
DATE: June 7, 2020
RE: Depackaging Facility Risk/Benefit Review

Vermont's Universal Recycling Law (Act 148) takes a phased-in approach to reducing landfilled organics. On July 1, 2020 the final phase becomes effective, which is when all food scraps generated in the state of Vermont will be banned from landfill disposal. In order to accommodate expected growth in the amount of material managed at CSWD's compost facility, District staff has worked diligently to identify operational efficiencies and prioritize economic optimization for long term stability. As determined at the Board/Staff compost operations retreat, the key decision points that have guided each step since are:

- Continue to operate a food scrap compost operation
- Continue to produce a soil amendment product available for sale
- Continue to use the current Redmond Road location
- Reduce the District's subsidized support of the compost operation
- Increase operational efficiencies and reduce overall expenses
- Utilize best industry practices

CSWD's Phased Approach

While the projected tons of incoming food scraps in FY 2021 has been reduced to 5,300 annual tons, we expect that when Chittenden County recovers from the current COVID-19 crisis, annual landfill diverted food scrap tonnage may increase to between 10,000-12,000 tons per year. Staff has determined that the optimal amount of food scraps to manage at the Organics Diversion Facility is approximately 5,000 tons. Managing tons in excess of the optimal for the composting program required staff to identify additional options. Multiple options were explored, with two being deemed reasonable: 1) transfer excess material to an out of state facility able to accept the District's excess food scraps, and 2) develop an onsite depackaging facility.

Staff proposed a three-year phased approach to the reconfiguration of the District's approach to managing organics and preparing for the July 1 landfill ban. FY20 was Year One, and has proceeded according to, and exceeding the expectations of, the plan. FY21 is Year Two and FY22 is Year Three. Success in Year Three will mean that CSWD's compost operation is producing high quality soil amendments for local Vermont use in a manner that fulfills the environmental and economic goals of the District. The chart below describes the phased approach:

<p align="center"><u>Phase one:</u> <u>Implemented FY 2020</u></p>	<p align="center"><u>Phase Two:</u> <u>Implementation FY 2020 and 2021</u></p>	<p align="center"><u>Phase Three:</u> <u>Completion FY 2022</u></p>
<ul style="list-style-type: none"> • Eliminated bagging operation • Reduce the number of sales products from 13 to 3 • Reduced staff by two FTEs and removed seasonal hires from the budget • Identified optimal food scrap tonnage to match the steady supply of leaf and yard waste • Secured an ANR grant of \$500,000 	<p>Site Expansion:</p> <ul style="list-style-type: none"> • Expand curing area to allow for windrow turning • Develop usable and accessible screening and mixing area • Construct year-round dump truck access to all operational areas <p>Capital Equipment Purchase:</p> <ul style="list-style-type: none"> • Windrow turner: \$380,000 • Dump truck: \$120,000 • Stacking Conveyor: \$85,000 <p>Operational Optimization:</p> <ul style="list-style-type: none"> • Eliminate material screening before curing • Eliminate site material transport via loader • Decommission all equipment past usable life <p>BoC presentation February 2020</p> <ul style="list-style-type: none"> • Cost Benefit Analysis • Third Party Operation – Depackaging operation 	<p>Manage Food Scraps in excess of 5,000 tons and further reduce subsidized support of operations.</p> <ul style="list-style-type: none"> • Transfer excess food scraps out of state; Or • Depackage excess food scraps in VT

While transporting excess food scraps out of state is a readily available option, it does not further the District’s environmental goals. Transfer out of state is costly and completely reliant on the availability of an outlet available to receive the tons. It also significantly adds to the carbon footprint of CSWD, Chittenden County, and Vermont. For these, and other, reasons staff strongly believes that this option should not be considered further.

Depackaging Option

The Board was presented with a cost benefit analysis of Phase Two options at the February 2020 meeting. The outcome of the analysis indicated that onsite depackaging offered the most favorable outcome regarding operational efficiencies and economic optimization. Depackaging is a process where pre-consumer packaged food that has been determined to be unsuitable for human or animal consumption is placed in a machine, the machine separates the food from its packaging, creating two streams of material. The food material is made into a slurry product that is suitable for composting and for anaerobic digestion. The packaging is either recycled or disposed. There are no depackaging facilities in Vermont, and currently packaged food destined for disposal is either landfilled or incinerated. The 2018 waste characterization study commissioned by the VT Agency of Natural Resources shows that 24.4% of material landfilled (103,127 tons) are organics. Of these tons, 50,974 are “Food Waste-Loose” and 30,653 tons are “Food Waste-Contained in Packaging”. The study did not calculate the amount of packaged food products that are currently shipped out of Vermont for disposal or incineration.

The CSWD cost benefit analysis was developed with the assumption that CSWD would own and operate a very basic depackaging operation. However, in executive session, staff presented a potential third-party partnership

with Vanguard Renewables for the development of a high-tech onsite depackaging facility. Vanguard presented preliminary information as an introductory discussion.

Vanguard Renewables is a well-capitalized and well-respected anaerobic digester operator based in Massachusetts and with facilities located mostly in the Northeast. They are currently building a farm-based digester in Salisbury, VT which will begin accepting food waste in the fall. Vanguard is investing in Vermont because of the mandatory food scrap landfill ban, and they are interested in partnering with CSWD because of the District's long history of innovation, excellent operational management, and fiscal responsibility. In addition, as the state's largest food scrap composter, CSWD's investment in organics management has given us a depth of experience and expertise that is appealing to Vanguard as a potential partner. Vanguard is proposing constructing a high-tech, state-of-the-art depackaging facility to be collocated with the District's compost operation. The Board presented questions and concerns regarding a third-party partnership, and asked staff to come back with an exploration of the risk factors to a potential partnership. Staff believes a deeper discussion regarding the benefits of a partnership also needs to be had, as well as a conversation regarding the intersection of the risks/benefits with the District's mission.

Risks/Benefits—Mission, Vision, Values Intersection

Risk factors to consider should not be solely internal economic risks to CSWD. Other risks to consider are environmental, external economic, and future opportunity. Additionally, any new function or operation should be considered through the lens of CSWD's Mission, Vision, and Values.

Our Mission:

The Chittenden Solid Waste District's mission is to reduce and manage the solid waste generated within Chittenden County in an environmentally sound, efficient, effective and economical manner.

Our Vision:

Products are designed to be reused or recycled and our community fully participates in minimizing disposal and maximizing reuse and recycling.

Our Values:

- *Work Safely*
- *Encourage Innovation*
- *Support & Inspire*
- *Communicate Openly & Effectively*
- *Be Transparent with Activities & Policies*
- *Demonstrate Integrity*
- *Deliver Results*
- *Be Respectful*

Internal Economic Risk

- Operational
Contamination:

-The purpose of a depackaging system is to remove the food from its package. Packaging is a major source of contamination for commercial composters and is a reason that packaged foods are currently landfilled or incinerated. Without a depackaging system in Vermont, it will be extremely difficult for certain generators to comply with the law. CSWD struggles with contamination and spends considerable time, effort, and money to remove contaminants from our composting process. A depackager will remove that concern and will save those expenses. **CSWD BENEFIT**

-Significant time, effort, and money has been expended over the past ten years by District outreach, communications, and policy staff to educate the public about the need to keep contaminants out of food scraps sent or brought to us for composting. The existence of a depackager could be interpreted by some to mean that their efforts to reduce or eliminate contamination in food scraps are no longer needed. This assumption would be incorrect, as it would still be critical to keep the inbound stream as contaminant-free as possible, particularly keeping glass jars and bottles out of the stream.

CSWD RISK

Material Metering:

-If all food scraps are processed through the depack, the resulting steady flow of processed material would increase composting efficiency by allowing the compost operation to systematically introduce inputs to the composting system. This would reduce batch timing variability and provide greater control over purchasing, introducing to the mix, and storing of additional product inputs, such as woodchips, sand, peat moss, etc. as the different recipes demand. **CSWD BENEFIT**

-If all food scraps are not processed by the depackager first, its availability would still allow the compost operation to determine an optimal daily level of material to process/manage for compost purposes and divert anything over the daily optimum to the depackager. **CSWD BENEFIT**

Overflow Material:

-The depack system would always be able to receive food scraps in excess of daily needs for compost. There would be no need to turn customers away. **CSWD BENEFIT**

Feedstock Sourcing:

-Vanguard would be responsible for securing the feedstocks they need to ensure operational efficiency of the depack facility. Any contract with Vanguard would contain language to ensure that the feedstock needs of the compost operation are met on a schedule determined by CSWD. **CSWD BENEFIT**

- Capital

-The capital investment of the facility would be Vanguard's, which would free up District capital dollars for use elsewhere in the system. **CSWD BENEFIT**

-Potential capital investment would be needed regarding shared onsite traffic control and configuration, shared water supply, and scale replacement. **CSWD RISK**

- Revenue

Tip Fee:

-CSWD could see a decrease in tip fee revenue if revenue is to be shared with Vanguard. A two-tiered tip fee system could be established to incentivize uncontaminated food scrap loads at a reduced tip fee and which could be handled directly by the compost operation. **CSWD RISK**

Material Sales:

-A depackaging system would eliminate contaminants from the compost inbound feedstock, if all inbound is processed through the system. Being able to guarantee zero contaminants would allow CSWD to market the resulting compost products as Organic, potentially fetching a higher price per cubic yard. **CSWD BENEFIT**

Other:

-Annual rent revenue could be negotiated as part of the land lease. **CSWD BENEFIT**

Environmental Risk

- Permit Conditions

Odor Control:

-The high-tech facility envisioned by Vanguard would be similar to their facility in Agawam, Massachusetts. That facility uses state-of-the-art odor control technologies and operational efficiencies designed to control odors. Food scraps are processed completely inside the building. **CSWD BENEFIT**

Site Control:

-As the property owner, CSWD would need to manage the permitting needs of site reconfiguration and manage the permit and public process. **CSWD RISK**

- Carbon Footprint

Transportation:

-In the absence of a depackager in Vermont, food scraps in excess of 5,000-5,500 tons per year could be transported out of state to digesters, either in Maine or Massachusetts. This option (construct a small transfer station) needs low capital investment but is costly and subject to transportation service interruptions. **CSWD RISK**

External Economic

- Chittenden County commercial food scrap generators

Availability of hauling services:

-Local haulers would be guaranteed an outlet for food scraps, providing stability for that part of the business. Local generators would have access to a local outlet for self-haul. **CSWD NEUTRAL**

Service interruption:

-Service disruptions for food scrap collection and processing are expensive and potentially a health hazard. Because a depack operation would supply the anaerobic digester which produces energy, the depack could be viewed as essential infrastructure, ensuring continual access to food scrap generators and haulers. **CSWD BENEFIT**

Compostable products:

-Over the past 3-5 years, we've seen larger food scrap generators switch to compostable foodservice products, particularly large cafeterias and event organizers. Considerable effort has been expended in educating program participants, securing compostable products, and working with haulers to ensure clean loads of material. **CSWD RISK**

Future Opportunity

- Use of land

-Vanguard has suggested a 40-year land lease for the site on which a depackaging facility would be built. The term is to coincide with the 40-year land lease they've secured at the Goodrich Farm in Salisbury, VT. **CSWD BENEFIT**

-The size of the facility is relatively small; however a 40-year land lease would preclude CSWD from using the space if needed. **CSWD RISK**

- Reliance on Third Party Operator **CSWD RISK**

Given the opportunity so far presented, the benefits to CSWD outnumber the risks. It is staff and management's recommendation that the District proceed with developing a formal relationship with Vanguard Renewables and

include depackaging as part of the District's approach to managing Chittenden County's food scraps diverted from landfill disposal.

BE IT RESOLVED that the Board of Commissioners authorizes the Executive Director to enter into negotiation regarding a Memorandum of Understanding with Vanguard Renewables outlining a partnership for the construction and operation of a depackaging facility, to be brought to the Board of Directors for review and approval.