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	<b>AGENCY NAME &amp; ADDRESS</b>	Department of Public Works 600 Abel Wolman Municipal Building		
	<b>SUBJECT</b>	City Council Resolution 17-0022R		

DATE: May 15, 2017

**TO**

The Honorable President and Members  
of the Baltimore City Council  
c/o Natawna Austin  
Room 400 – City Hall

I am herein reporting on City Council Resolution 17-0022R introduced by Council Members Clarke, Middleton, Costello, Dorsey, Pinkett, Henry, Scott, Bullock, Reisinger, Sneed, Cohen, Schleifer, Burnett, and President Young.

The purpose of this resolution is to request that representatives from the Department of Public Works, the Health Department, Baltimore City Public Schools, and other City agencies involved with waste reduction efforts in Baltimore appear before the City Council, along with experts on Zero Waste efforts nationwide, to discuss the development of a Zero Waste plan for Baltimore that will advance sustainability, public health, and job creation.

Zero Waste includes source reduction and reuse, recycling, composting, digestion, and energy recovery. Zero Waste is defined by the Zero Waste Maryland plan as the following:

“Zero waste is an ambitious, long-term goal to nearly eliminate the need for disposal and to maximize the amount of treated wastewater that is beneficially reused. It involves rethinking the ways products are designed in order to prevent or reduce waste before it occurs. Discards that cannot be avoided should be designed for optimal recovery through recycling. Materials should be used and managed in ways that preserve their value, minimize their environmental impacts, and conserve natural resources. Products that cannot be redesigned or recycled should be replaced with alternatives. Zero waste goals are intended to be challenging and to require comprehensive action. Because achieving zero waste requires significant legislative and behavioral changes, zero waste objectives are usually mid- or long-range goals. As a result, existing zero waste plans in other jurisdictions tend to cover 10 to 40 year periods. Zero waste calls for recasting issues of solid waste management and recycling more broadly, taking into account the entire lifecycle of each product. It requires decision-makers to prioritize methods of materials management in order to maximize the value recovered from each material<sup>1</sup>.”

As noted above, a successful plan needs to examine the opportunities for source reduction, diversion and reuse that may be possible for a community’s waste profile, and project a path forward to work toward zero waste over time. Zero waste goals require changing how each of us and the public and private sector manage waste.

<sup>1</sup> [http://www.mde.state.md.us/programs/Marylander/Documents/Zero\\_Waste\\_Plan\\_Draft\\_12.15.14.pdf](http://www.mde.state.md.us/programs/Marylander/Documents/Zero_Waste_Plan_Draft_12.15.14.pdf) page 27

There are efforts at the State and local level, some successful, some not yet successful, which contribute toward many of the components of zero waste. The following is a brief summary of some of those efforts:

### **Waste Diversion**

*Yard Waste and Food Residuals Diversion and Infrastructure – Study (SB99/HB171)* – The Maryland Department of the Environment (MDE) is to study how best to divert yard waste and food residuals from refuse disposal facilities and to make recommendations in a final report due to the Legislature by July 1, 2019. Prior attempts in the Legislature to address this issue by banning yard waste from waste disposal facilities or requiring organic materials to be taken to composting facilities if within a certain radii of a disposal facility, were not successful. It is hoped that the MDE study recommendations will help resolve the timing issue of developing composting facilities and ready markets for the resulting products.

The diversion of food waste and other organics is occurring in Baltimore on a small scale as residents learn how to compost and as the burgeoning urban farming community helps educate their customers by example. On a larger scale, Johns Hopkins and other institutions with food service facilities are having their food scraps collected separately from their mixed refuse. These individual and private efforts are laying a foundation for broader acceptance for waste sorting in the City.

The Department of Public Works is one of the City agencies that joined the Save the Food Campaign. The Campaign is a partnership of the National Resources Defense Council and the Ad Council to raise awareness of the economic and environmental impact of wasted food and how to change behaviors to reduce this waste. From educating consumers on how to shop, preserve and use leftovers, to making more connections with organizations who are getting food into the hands of families who are in need, this Campaign can help prevent food from becoming waste. On average, 21% of the food each person buys goes to waste, and that wasted food goes into the trash.

The Department of Public Works is testing Green Resources and Outreach for Watersheds (GROW) Centers. These centers will provide resources for community greening efforts by providing access to free and low cost materials and technical expertise around stormwater management, tree planting, vacant lot restoration, and more. The centers will provide a way to find new, beneficial uses for materials that would otherwise be discarded, such as crushed brick, wood, stones, and more. In Spring of 2016, the Office of Sustainability organized a series of “pop-up” GROW Centers which included material giveaways and workshops. The Department of Public Works plans to continue exploring the best model for the GROW Centers. The Department has applied for a grant through the U.S. Forest Service to (1) fund a consultant to conduct a feasibility study/business plan for the GROW Centers and (2) organize and host a second GROW Center Pop-up. In addition, the Department will have a part-time graduate student working on the GROW Centers in a two-year fellowship position, beginning in August of 2017.

Baltimore will be undergoing some significant demolition of vacant buildings over the next several years. One business deserving mention is Humanim’s Brick + Board, a deconstruction program that has grown into a salvage business for bricks, wood, and unique architectural pieces. In addition to providing meaningful jobs with benefits, this operation has repurposed tons of Baltimore brick, wood beams, wood flooring, fireplace surrounds, and even boulders, keeping all of these materials out of the City’s waste stream.

### **Composting**

While the practice of home and community composting efforts are growing in Baltimore, the challenge of establishing a larger scale, commercial composting facility in the city, or establishing a regional facility, has yet to be met. In 2011 a preliminary study estimated the cost to construct a public composting facility at Quarantine Road Landfill to be approximately \$4 million, assuming enough acceptable land area could be set aside for such a facility. Establishing a successful composting facility requires: land areas of sufficient size and appropriate zoning; buffers for adjacent communities; good analyses of the types and quantities of organic material available to support and size a compost facility; the best method to produce compost for the available waste stream; the desired quality of the composted product; and the markets that may be available for the composted product. This depth of study could certainly become part of a citywide Zero Waste plan.

The Department of Public Works processes the wet biosolids that result from wastewater treatment into compost and soil amendments. About 70% of the biosolids are processed at the City's wastewater treatment plants by the Baltimore Pelletech Facility (Synagro). The biosolids are heat dried into a pelletized product for use as a fertilizer and soil amendment. The remaining biosolids are sent to the Baltimore City Composting Facility (located at the Quarantine Road Landfill) to produce mature compost which is used on golf courses, athletic fields, and lawns. In 2016, the composting facility received 31,319 tons of wet biosolids and produced 33,739 cubic yards of compost.

### **Anaerobic Digestion**

The Back River Wastewater Treatment Plant utilizes an anaerobic digestion process to manage and reduce the volume of solids, called biosolids, removed from the liquid stream. A byproduct of anaerobic digestion is methane gas. There has been growing interest in co-digestion of wastewater treatment plant biosolids with organic wastes in existing treatment plant anaerobic digesters. The concept is to take advantage of the digester process by incorporating organic wastes, thus diverting the wastes from other disposal options and using them to boost methane gas production. Co-digestion is being used successfully at several wastewater treatment plants around the country. The content of and manner in which these wastes are introduced must be done in such a way that it does not interfere with the digestion process or the quality of the biosolids.

The Department of Public Works is conducting a Comprehensive Biosolids Plan for both the Back River and Patapsco Wastewater Treatment Plants. Co-digestion will be examined as part of the Plan, as follows:

- Evaluate: Ability of co-digestion of biosolids with organic wastes to increase methane production at the Back River plant; value of adding anaerobic digestion to the Patapsco plant processes; what organic wastes that may be suitable to co-digest, such as high-strength industrial wastes, fats, oils and grease (FOG) from food processing, grease trap clean-outs, sewer interceptor cleaning, and food wastes.
- Investigate: Industrial waste currently delivered to Back River and Patapsco by truck or in the collection system; hauling records and the City's pretreatment program to identify waste streams that could be diverted to anaerobic digestion without negatively impacting plant operations and maintenance or digestion performance.

- **Guidance:** The pre-processing requirements and suitable physical and chemical characteristics that are needed for fats, oils and grease (FOG)<sup>2</sup>; assess digester capacity that could be available for co-digestion of FOG and food wastes; use guidance to evaluate specific co-digestion opportunities as they arise, and as more data on waste sources are developed; assess the impacts to plant operations and maintenance and digester performance before accepting the waste.

Should co-digestion appear to be feasible, recommendations and solids handling improvements will be incorporated into the Plan.

The Department was recently approached by a company called Grind2Energy interested in entering into a pilot with the City to test the introduction of food waste into the Back River digesters. The company collects food waste, grinds it into a slurry, and would deliver the slurry to the treatment plant. The purpose of a pilot would be to monitor the consistency of the slurry composition delivered to the plant, determine the best way to introduce it into the digesters, and monitor the impact on the quality of the biosolids and on gas production. While the amount of waste that Grind2Energy would deliver would be an extremely small percentage of the digesters' capacity, the value of the pilot will be in the testing of the consistency of the slurry's characteristics and its compatibility with Back River's biosolids.

Producing more methane at the wastewater treatment plants is of interest to Public Works because this byproduct of treating wastewater is being put to use. The Department received approximately \$3.5 million in grants from the Maryland Department of the Environment to help fund a Combined Heat and Power system at the Back River plant. The grant is administered by the Maryland Water Quality Financing Administration FY 2017 Energy Water Infrastructure Program and is funding the installation of a 2,000 kW Combined Heat and Power system at Back River. The system will consist of natural gas fired combustion turbines with waste heat recovery from the treatment plant processes. The project completion date is February 1, 2018. This project will supplement an existing combined heat and power plant already in operation at the Back River plant. It is also worthy to note that the methane produced from the buried waste at the Quarantine Road landfill is being captured and used as an alternative power source by the U.S. Coast Guard.

### **Product Packaging**

*Polystyrene Food Service Products and Polystyrene Loose Fill Packing – Prohibition on Sale (HB229/SB186)* – These bill did not survive the State legislative process this Session. There have been multiple efforts to ban the use of polystyrene products for food service purposes in the State Legislature and in Baltimore's City Council. Persistence, and cheaper alternatives to polystyrene, may eventually lead to success.

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<sup>2</sup> DPW's FOG (Fats Oil and Grease) Program promotes the proper disposal of spent oils and grease. Yellow grease is collected by private haulers and renderers for use as biofuels or processed for use as a raw product in manufacturing. In addition, brown grease (grease that is taken from grease control devices) is collected by waste haulers and disposed at the Back River plant's Septage Receiving Station. The grease boosts energy production in the digesters and keeps the grease out of landfills.

While the Department of Public Works' curbside collection of single stream recyclables cannot accommodate polystyrene, the Department is able to accept polystyrene at its Northwest Citizen Convenience Center located on Sisson Street.

### **Life Cycle of Products**

*End of Life Management of Mattresses – Study (HB1070)* – Had this bill been successful, it would have required MDE to study, identify, and make recommendations regarding the end-of-life management of mattresses in the State.

Mattresses are a major component of what our Solid Waste crews collect during alley and street cleaning, and can interfere with and damage equipment at our Quarantine Road Landfill. The Department is in the process of developing an RFP for managing and recycling the estimated 3,600 to 5,000 mattresses we collect annually.

*Maryland Paint Stewardship Program (HB674/SB168)* – This was the second year that the Legislature chose not to approve a program that would have required producers of architectural paint sold at retail to submit a plan for statewide collection of post-consumer paints sold in containers of five gallons or less.

The Department of Public Works provides Household Hazardous Waste collections the first Fridays and Saturdays of April to October at the Citizen Convenience Center on Sisson Street. These collections involve mostly post-consumer paints which are expensive to dispose of properly.

### **Recycling**

*Solid Waste and Recycling Facilities (HB124)* – MDE is required to adopt recycling facility regulations that are to include conditions for permit exemptions and enforcement provisions. Facilities which accept recyclables usually have refuse that must be separated out and disposed of. The regulations are to distinguish between facilities that produce small amounts of this refuse and facilities that produce large quantities and thus should be covered by a permitting process. Permitting clarity may stimulate the development of more recycling facilities.

*Recycling – Special Events (HB1309/SB885)* – State law already exists to provide recycling at certain sized special events. These bills require local governments to provide a written statement to an event organizer describing their responsibility to provide for recycling and the penalties that could be incurred if the requirements are not followed. The Department does provide written statements to the Special Events office of the Department of Transportation to give to event organizers and provides recycling receptacles and collection services for special events.

Baltimore City has offered curbside collection of single stream recyclables since 2008 and, since One PLUS ONE, collected these materials every week. The Solid Waste Recycling Office and the Department's Communications Office have ongoing outreach and communication to encourage recycling through the Re-News E-Newsletter, the DPW calendar, social media, direct mail, presentations at schools, information tables at special events, recycling bin sales, and sharing information at community meetings and events. While unlimited amounts of recyclables may be set out for collection in old trash cans, cardboard boxes or paper

bags, the magic of the yellow bins seems to encourage recycling. The Department sells these bins at cost, but is also investigating whether grant money may be found to fund recycling receptacles.

The following are some additional recycling efforts the Department provides:

- Solid Waste offers recycling collection to small businesses, up to three times a week. Continued efforts are made to encourage businesses to recycle by participating in this free service.
- Due to a change in State law, multi-family dwelling owners or managers are required to provide recycling for their tenants. Solid Waste personnel used this requirement as an opportunity to reach out to landlords and property managers to offer assistance in establishing recycling in their buildings as well as providing educational materials to share with their tenants.
- The Department is hoping to re-energize recycling activities in the Baltimore City Public School System by working with their sustainability coordinators and establishing a school recycling competition to encourage friendly school rivalries for this good cause.
- In addition to the aforementioned polystyrene recycling and Household Hazardous Waste collections, the City's five Citizen Convenience Centers offer collection of electronic waste, including televisions, computers, cellphones, printers, and power cords; used motor oil; tires; as well as (fun fact) oyster shell collection for the Oyster Recovery Partnership (Sisson Street Convenience Center only).

The Department of Public Works will have representatives present at the hearing for City Council Resolution 17-0022R to listen to all presentations and to assist with any questions the Committee may have.



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