SIERRA CLUB
MONTGOMERY COUNTY, MD

RECOMMENDATIONS FOR ACHIEVING ZERO WASTE IN MONTGOMERY COUNTY

APRIL 2020

Introduction

Montgomery County is Maryland's most populous county, with more than one million residents, 386,500 housing units, 118,964 private companies, and more than 585,000 workers. In 2017, collectively, we produced over 1 million tons of waste: 35 percent came from single-family homes, 9.5 percent from multi-family homes, and 54.8 percent from the non-residential sector.

Every ten years, the county is required by the State of Maryland to submit a solid waste management plan and to update it every 3 years as conditions change.[1] Former County Executive Ike Leggett appointed a "Aiming for Zero Waste" task force made up of local citizens and hired a consulting firm, HDR, to help inform the planning process. The Solid Waste Advisory Council (SWAC) must also by law be consulted when updating solid waste plans.

Sierra Club MC's Zero Waste Committee volunteers spent more than a year researching and analyzing our current waste management system as well as best practices from around the country. As Montgomery County updates its waste management plan beyond 2020, we are pleased to provide our recommendations for achieving "zero waste."

Aggressively reducing waste has multiple benefits: diverting trash from our rivers and streams, protecting public health and wildlife, and reducing greenhouse gases and other air pollution. Yet, the amount of waste generated in our county remains unacceptably high and will continue to be a serious problem unless major changes are made to our current system and in the approach our residents, workers, and businesses adopt toward waste. The waste problem has been exacerbated in recent years as consumers find it easier to purchase products through delivery services, more items are sold in single-use plastic packages and increasing amounts of inexpensive pre-packaged food are purchased and consumed for our growing population. At the same time, farms which used to provide much of our food supply are rapidly disappearing from our 93,000-acre Agricultural Reserve.

The existing methods for dealing with leftover waste for every jurisdiction in the nation are the same: either incineration or landfill, either within the boundaries or shipping it somewhere else. Both alternatives are challenging because of the amount of pollution they cause. Having a workable plan for *reducing* waste significantly is thus the first step to protecting public health. As the most populous county in Maryland, Montgomery County should set an example for other counties by adopting innovative and sustainable zero waste practices.

Montgomery County has a statewide recycling mandate of at least 35 percent and has been able to reach this goal, although toxic ash from incineration is still mistakenly counted toward the recycling rate. Since the 1980s, recycling has been a major component of the county's curbside residential waste collection program, with paper, plastic, glass, and aluminum markets continuing to be available, despite the crash of these markets in neighboring jurisdictions and around the

[1] *Comprehensive Solid Waste Management 10 Year Plan,* Montgomery County, Maryland, Division of Solid Waste Services, March 2015. https://www.montgomerycountymd.gov/SWS/Resources/Files/swp/complete-plan.pdf

country. Our county is fortunate to own its own waste and recycling infrastructure, although much of it is outdated. Also, county policies are not adequately focused on waste *reduction* but, rather, continuing to send to the incinerator whatever waste our residents produce.

As long as recycling will be a centerpiece of our waste system, we need to get it right. Consumer understanding about what kinds of materials are recyclable is a large problem throughout the county and poses a unique challenge at some multi-family properties. Even a simple consumer behavior modification like using reusable bags at grocery stores has not fully taken hold after eight years of practice. (*See Recommendation 3*). Moreover, while owners of multi-family properties and commercial businesses are required to sort their recycling, private waste haulers often commingle recycling and waste together even after it has been carefully sorted by dedicated residents or employees. Potentially recoverable materials are trucked to out-of-county and out-of-state landfills. County grocery stores, restaurants, health care facilities, and institutions that use large amounts of food routinely throw away tremendous amounts of food waste that could otherwise be donated or composted, not to mention tremendous amounts of plastic waste and single-use packaging that is not recycled.

We hope that our recommendations are useful in helping County officials implement strategies to achieve aggressive zero waste and recycling goals that will also help the County achieve its parallel goals of significantly and quickly reducing greenhouse gas (GHG) emissions, protecting water quality, and maintaining open spaces and agricultural areas for future generations. We know these goals will require imagination and perseverance. If you have any questions about these recommendations, please don't hesitate to contact us.

This report was co-written by volunteer Sierra Club Zero Waste committee members Amy Maron and Deborah Cohn. Valuable comments were provided by Brian Ditzler, Susan Eisendrath, Michal Friedman, Bill Kirwan, and Tina Slater. The recommendations on plastic bag waste reduction were co-written with Martha Ainsworth, Zero Waste Chair for Sierra Club's Maryland Chapter. For questions or comments, please contact Amy Maron at amy.maron@mdsierra.org.

All photos, unless otherwise cited, by Amy Maron.

Executive Summary

Focus Should be on Zero Waste Instead over Incineration

Montgomery County needs to move beyond the practice of incineration of waste at the Covanta incinerator located in the environmentally fragile Agricultural Reserve in Dickerson and adopt a zero waste hierarchy that prioritizes the principles of "rethink/redesign," followed by reduction of waste, then reuse, recycling and composting, material recovery, and, finally, residuals management. What materials are left to manage after our waste system is transformed should be sent to highly regulated, state-of-the-art landfills, located in appropriate areas that use gas capture technology ensuring the lowest possible greenhouse gas emissions and other environmental impacts.

Consolidating a Fragmented Waste Collection System

The County currently only manages and collects trash and recycling from a limited number of households – leaving out most multi-family housing and businesses altogether – and needs to further study how to create a more consolidated, efficient, and less-polluting system that minimizes excessive waste-hauling and truck traffic throughout the region. Any transition needs to allow small businesses to participate in waste collection, including food scrap collection and ensure workers are paid a living wage. We recommend that the County establish a workgroup with a variety of stakeholders to review best waste collection practices and recommend a new system that takes trucks off the road, produces less waste, and reduces our carbon footprint.

Further Reducing Plastic Bag Waste

Single-use, disposable plastic bags continue to be a serious source of litter in Montgomery County, and many residents continue to mistakenly place them in recycling bins where they get sent to the Shady Grove Materials Recovery Facility (MRF) and ultimately damage recycling equipment. The 5-cent fee for plastic and paper bags the county adopted in 2012, spurred many shoppers to switch over to reusable bags or use no bags at all; however, the percentage of these shoppers has not even reached 60 percent, and has in fact decreased since its introduction. A countywide ban on these bags along with a 10-cent fee on paper bags would help us make even more progress toward zero waste goals.

Encouraging Composting of Food Waste and Organics

In April 2018, Montgomery County adopted a strategic plan to advance composting but has made little progress in its implementation. Sierra Club MC calls on the County to establish a commercial-scale combined food waste/yard waste composting facility, collect food scraps at the curbside along with trash and recycling, allow residents to do their own backyard composting, and assist restaurants and food service institutions to transition toward composting both food scraps and compostable food service ware.

Unit-Priced Waste Collection Reduces What People Throw Away

The County should enable single-family residences to transition to a "save-as-you-throw," system in which households pay only for the trash they produce, rather than paying through a single charge on their property taxes which does nothing to discourage waste creation. Combined with curbside food scrap collection, such a system would immediately result in reduced waste, as homeowners realize that they will only pay for what they throw away. Unit-priced waste collection works well in comparable sized places like Austin, Minneapolis, San Francisco, and Toronto, as well as in dozens of smaller cities and towns in the United States.

New Life for Construction and Demolition Debris

Reducing or reusing construction and demolition debris (C&D), which accounts for 20 percent of total waste in our economy can provide Montgomery County with an opportunity to recycle valuable materials, reduce greenhouse gas emissions and create jobs. The county should adopt the 2018 International Green Construction Code which would require diversion of 50 percent of C&D waste from landfills as well as adopt ordnances that would divert even more C&D waste from offices and apartment buildings. Creating a county-sponsored C&D website so builders can share information, and specialized eco-parks would spark a regional marketplace for salvageable materials.

Using Purchasing Power on Sustainable Products

Montgomery County government could use its purchasing power to adopt many more "green procurement" policies than those that are already in place, including: reducing or eliminating single-use or disposable items, particularly those made from non-recyclable plastic; and requiring manufacturers to either have their packaging contain a large percentage of recycled material or to take products back at the end of their useful life.

Expanding Opportunities for Hard-to-Recycle Materials

The County's plans for a redesigned Materials Recovery Facility should include a Center for Hard-to-Recycle Materials (CHaRM) either on the existing Shady Grove site or at another location where residents and businesses can drop off a variety of materials, including those that can be restored and resold by organizations such as Second Chance, Community Forklift, Habitat for Humanity and A Wider Circle. Businesses that recover and market a range of products including mattress components, carpets, textiles, and solar panels could co-locate at the CHaRM center.

Recycling Education Must be Increased

Montgomery County's Department of Environmental Protection, Recycling and Resource Management Division has an educational and user-friendly website to assist residents and businesses to properly recycle a variety of materials. Even with strong county recycling educational programs, however, residents continue to dispose of significant quantities of potentially recyclable material as trash. The entire website should be modernized and improved to drive home the message that the items residents recycle will actually become something of value. The County should organize periodic local reuse, repair, and recycling fairs at schools,

combined with its popular paper shredding events or in conjunction with the popular police drug take-back programs, to distribute educational materials, provide demonstrations regarding composting and recycling, feature reuse/repair clinics, provide booths and dumpsters for various non-profit or for-profit organizations that accept and sell reusable items, and co-locate dumpsters for textiles, salvageable or recyclable construction and demolition material, as well as hard to recycle items.

State and Federal Actions Needed to Reduce Plastic Waste

Montgomery County can make great strides by implementing zero waste programs, but state and federal actions are also needed, especially those that reduce plastic waste, which derive from greenhouse-gas emitting fossil fuels. The State of Maryland should start by following the lead of 11 other states and adopt a container deposit or "bottle bill" which would ensure that beverage containers are returned to their manufacturers who should foot the bill for recycling, not local governments and taxpayers. Congress should enact the "Break Free from Plastic Act," to require the producers of plastics to phase out single-use plastic items and take responsibility for designing, managing and financing waste recycling programs, establish a nation-wide container deposit/recycling program, and place a pause on major plastic production to allow the U.S. Environmental Protection Agency to develop appropriate regulations that protect public health and the environment from the dangers of plastic.

Recommendations Table of Contents

Recommendation 1: Ending Waste Incineration and Adopting a Zero Waste Hierarchy

Despite having a high recycling rate relative to the rest of the nation, Montgomery County continues to follow an outdated model of waste management. The County decided in the 1990s to adopt incineration as its primary waste management tool, accepting the misguided argument that through incineration, garbage can be a renewable fuel. When the landfill capacity of the county became too great, the County established an incinerator in the agricultural reserve in Dickerson to handle residential waste that was not be recycled. Because of this system, many residents, especially down-county and many miles away from the incinerator, have an "out of sight, out of mind," approach to the waste they produce. The incinerator, operated by a private company, Covanta, processed 575,162 tons of household waste in 2017, which is about 1,080 pounds of waste per person per year.

The Covanta incinerator is now the second largest point source air polluter in the County, annually releasing more than 500,000 tons of carbon dioxide and about 740 tons of health-damaging air pollutants, including small particulate matter[2] while sending about 180,000 tons of toxic ash to cover landfills in Virginia. Past problems include six significant fires -- more than any other incinerator in Covanta's 40-plant fleet in a five-year span.

The Covanta Incinerator in Dickerson should be shut down as the County adopts a zero waste hierarchy.

As a national policy, Sierra Club opposes the incineration of waste and our group calls on Montgomery County leaders to adopt a long-term zero waste plan that includes ending incineration. Sierra Club recognizes the internationally peer-reviewed definition of zero waste, which is the conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning, and with no discharges to land, water, or air that threaten the environment or human health.[3]

Sierra Club MC prefers landfill over incineration, but only after all waste reduction strategies have been employed. We discourage significant reliance on landfills with waste-to-energy methane recapture as a waste management technique. While both incineration and methane recapture generate electricity, the energy conserved by waste avoidance, recycling, repairing or re-using existing materials, and taking out food and other organic waste with composting, exceeds the energy produced by incineration and methane capture by three-to-five times.

<u>To eliminate incineration, reduce reliance on methane recapture, and minimize the amount of waste sent to landfills, Sierra Club MC calls on Montgomery County leaders to formally adopt the Zero</u>

[2] Mingle, Jonathan, *Our Lethal Air,* https://www.nybooks.com/articles/2019/09/26/our-lethal-air-pollution/

[3] Sierra Club Zero Waste Policy, Approved by the Board of Directors, December 19, 2019. https://www.sierraclub.org/sites/www.sierraclub.org/files/Sierra%20Club%20Zero%20Waste%20Policy%20December%202019.pdf

Waste Hierarchy, pictured below, which was recently approved by the Zero Waste International Alliance (ZWIA). By adopting this hierarchy, the county would be in a position to shift waste management policies and programs toward those that encourage upstream waste reduction, reuse, repair, and finally, recycling.

After adopting and implementing the policies and programs under a Zero Waste hierarchy, the county must decide what to do with "what's left."

What waste remains after these strategies are employed should, we believe, be sent to highly regulated, state-of-the-art landfills, located in appropriate areas, that use gas capture technology, which ensures that greenhouse gas emissions and other environmental impacts are far lower than those currently experienced by individuals living near incinerators.

Recommendation 2: Consolidating Our Fragmented Waste Collection System

Single Family Residences

The county's single-family residential waste collection system is an uneven, bifurcated system of waste collection, with most down-county residents (Subdistrict A) paying an annual property tax surcharge for weekly trash and recycling collection by county contractors and most upper county residents (Subdistrict B) receiving only county recycling collection, having to contract privately for the rest of their waste collection or bring it directly to the Shady Grove Processing Facility and Transfer Station (aka "Shady Grove"). Some of the residents of Subdistrict B receive twice-weekly trash collection.

Waste and recycling collection in Subdistrict A are handled by three separate contractors and only for single-family homes and townhomes and dwellings of six or fewer units. These contracts are renewed in staggered years and have proven largely successful with few traffic incidents and excellent collection track-records.

Sierra Club MC believes that the Subdistrict B collection system, which involves 20-plus private haulers, is not an environmentally sustainable model and should be merged with Subdistrict A and include recycling, once-weekly trash collection and food waste collection. The county's Office of Legislative Oversight observed in a November 2019 report that "in Subdistrict B, multiple haulers have overlapping collection routes in the same neighborhood and collect trash from many homes two times per week." This model of higher truck miles, the report notes, results in "higher fuel consumption and vehicle emissions per home as compared to the Subdistrict A." Reducing the frequency of trash collection from twice- to once-per-week could encourage residents to generate less trash and/or divert more materials for recycling, stated the report's authors.[4]

Municipalities and Multi-Family and Residential Properties

Three incorporated cities (Gaithersburg, Rockville, and Takoma Park) and 19 incorporated municipalities[5] representing more than 200,000 residents, have separate waste management systems. Some of this waste is sent for processing to the Shady Grove facility and the rest is processed out of the county or out-of-state.

Multi-family properties with seven or more dwelling units and non-residential properties, including all commercial buildings, are responsible for contracting with their own haulers to provide services. Executive Regulation 1-15 requires businesses to recycle many of the same types of materials that residents recycle. Property management companies hire waste management businesses to pick up and dispose of the waste and recycling, which is taken out of the county and disposed of in landfills located in either Maryland, Pennsylvania or Virginia. In many cases, the recycling is then commingled with the trash and never recycled at all and many business owners are not even aware of where their trash goes.[6]

Because multi-family, business, municipal or city waste is not handled at all by the county, it is not addressed in the 10-year solid waste management plan or by the zero waste task force appointed by former County Executive Ike Leggett.

Sierra Club MC believes that the county needs to have a unified waste management system, one where *all* residents receive trash and recycling collection, perhaps every two weeks if less trash can be produced, as well as focused, consistent education on waste reduction and diversion. Consolidating sub-districts and working with interested municipalities and cities to coordinate and centralize services would improve county management and flexibility, take greenhouse-gas emitting trucks off the road, as well as increase overall recycling and waste collection. It would also reduce vehicle-miles-traveled and increase roadway safety. We recognize that there could be economic effects on small haulers who would compete with larger companies that could offer the

[4] Aron Trombka and Victoria Hall, *Trash and Recycling Collection: An Evaluation of Current Policies,* Office of Legislative Services, Montgomery County, (Report Number 2019-17, November 12, 2019).

[5] Town of Barnesville; Town of Brookeville; Town of Chevy Chase; Village of Chevy Chase; Village of Chevy Chase, Section 3; Village of Chevy Chase Section 5; Chevy Chase View; North Chevy Chase Village; Village of Drummond; Village of Friendship Heights; Town of Garrett Park; Town of Glen Echo, Town of Kensington; Town of Laytonsville; Village of Martin's Additions; Town of Poolesville; Town of Somerset; Town of Washington Grove.

[6] Based on confidential conversations with county businesses.

same services for cheaper rates. That is why we recommend that any new system include small-business set-asides and assistance to businesses and workers affected by loss of routes, as well as assurance that waste workers are paid a living wage.

Consolidating such a multi-faceted and complicated waste system requires further data collection and analysis. Sierra Club MC recommends creation of a waste management consolidation workgroup led by DEP and consisting of interested citizens of single- and multi-family housing; representatives of small, medium and large waste management companies; the environmental and food recovery communities; incorporated municipalities and cities; property management companies; homeowner associations; and other stakeholders. This workgroup should review best practices in cities and counties around the country that have successfully transformed their waste management systems including the recently redesigned New York City system, in which the City government now collects all residential waste and contracts with small and women-owned businesses for curbside food scrap collection. New York City also adopted a new streamlined system for private haulers to compete for commercial routes.[7]

Recommendation 3: Further Reducing Plastic Bag Waste

Single-use plastic bags are a serious source of litter and, when blown or swept into water bodies, threaten marine organisms and wildlife. Plastic bags are not recyclable through the County waste management collection program; they can be deposited for recycling in dedicated receptacles at grocery and other retail stores. Yet, many residents mistakenly place them in the blue recycling bins. If not removed, they can become wrapped around the recycling equipment, requiring costly and time-consuming repairs. Tax dollars that are spent to operate the recycling facility are unnecessarily diverted toward repairing equipment damaged by plastic bags. Moreover, only a small percentage of plastic bags are actually recycled via the receptacles at grocery stores: most are landfilled, incinerated, or littered.

The Montgomery County Bag Tax

Montgomery County was one of the first jurisdictions in the nation to adopt a tax on single-use plastic and paper bags at all retail stores to incentivize shoppers to bring their own bag or to skip a bag altogether. The five-cent fee has been in place since January 2012. Revenues are used for water quality protection programs.

The fee has been highly effective in discouraging customers from using single-use plastic bags, and ultimately in reducing plastic bag waste. A 2014 Sierra Club MC observational survey of more than 9,000 shoppers in Montgomery County at 56 grocery stores from five large chains[8] revealed that 47 percent of shoppers were using reusable bags, compared with only 8 percent of shoppers in neighboring Prince George's County, which continues to have no bag fee.[9] In these

[7] Office of the Mayor, City of New York, Press Release, *Mayor DeBlasio Signs Landmark Legislation to Reform Commercial Waste Collection Industry,* https://www1.nyc.gov/office-of-the-mayor/news/556-19/mayor-de-blasio-signs-landmark-legislation-reform-commercial-waste-collection-industry

[8] Food Lion, Giant, Safeway, Shoppers, and Wegmans.

[9] The 2014 Prince George's Shopper Survey observed 7,726 shoppers at all 46 stores from the same chains as the Montgomery Shopper Survey.

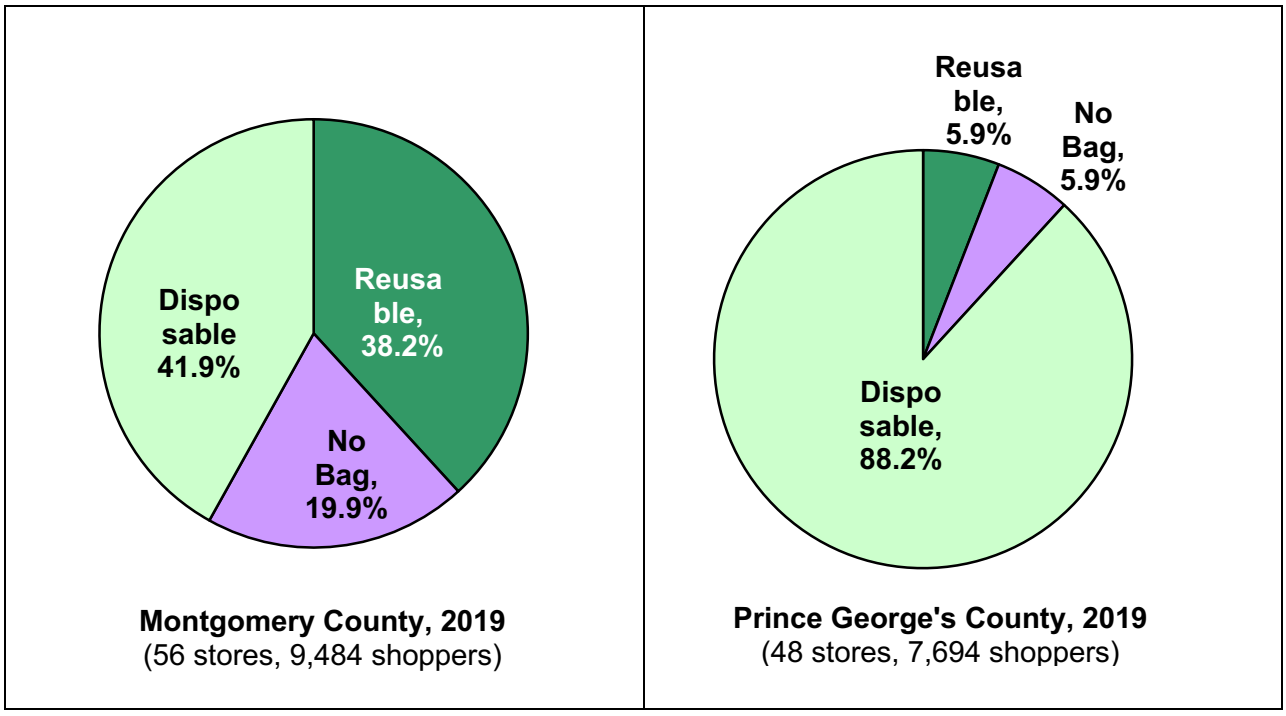
same surveys, we found that 18 percent of Montgomery County shoppers opted to use no bag at all, compared with 4 percent in Prince George's County.

The Bag Tax Remains Effective Relative to Counties with no Tax . . .

The Sierra Club conducted a follow-up survey in 2019 of 56 grocery stores in six chains;[10] three stores from the Weis Markets chain that don't offer single-use carryout bags; and six stores from two international chains (Lotte Plaza and Megamart). Altogether, more than 10,500 shoppers were observed.

The bag tax continued to incentivize shoppers in Montgomery County in the six chains that continue to offer single-use plastic bags, compared with neighboring Prince George's County, which still has no bag tax. In Montgomery County, 58 percent of shoppers at these stores were using either reusable shopping bags or no bag at all, compared with only 12 percent in Prince George's. Thirty-eight percent of these shoppers in Montgomery County were using reusable bags, compared with only 6 percent in Prince George's. (See Figure 1.)

Figure 1: The Montgomery Bag tax remains effective



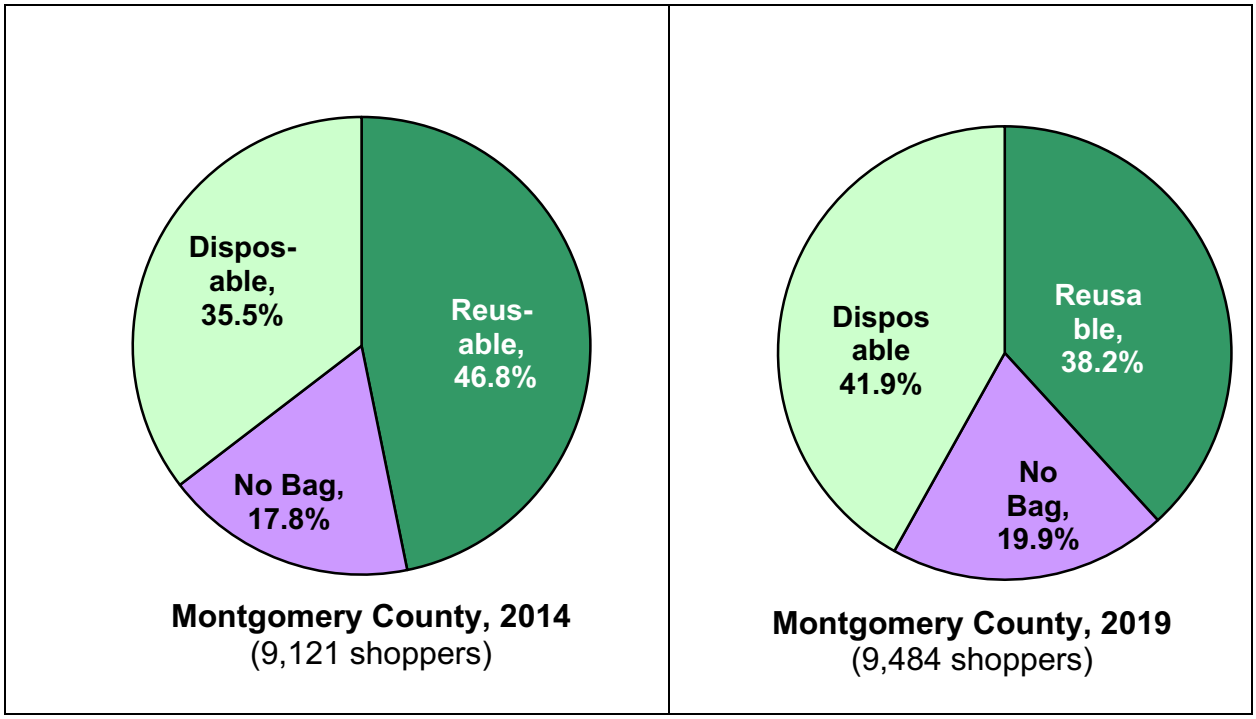
But the Share of Shoppers Using Single-use Plastic Bags in Montgomery County has Increased

While the bag tax is still serving its purpose, there has been some slippage in the past five years. Specifically, the share of shoppers using single-use bags (mainly plastic) has increased from 36

[10]The Harris Teeter chain was added to the five chains observed in 2014.

percent in 2014 to 42 percent. (See Figure 2.) This is the result of a reduction from 47 to 38 percent in reusable bag use (a 9 percentage-point drop) partly offset by a slight increase in shoppers with un-bagged merchandise, from 18 to 20 percent. The share of disposable bags in 2014 that were plastic (versus paper) was not measured; in 2019, ninety-seven percent of shoppers with single-use bags had the thin, disposable plastic bags provided by the stores.

Figure 2: <u>The share of shoppers taking single-use bags has increased!</u>



Other Findings

- *Low compliance charging the fee.* While the 2019 survey did not attempt to systematically measure compliance in all of the stores, several of the enumerators independently went through the checkout line with groceries and asked for a bag. Out of 20 stores where the enumerator went through the checkout line, the fee was charged only about a third of the time. The failure to impose the fee could be due to inadequate training, frequent turnover of checkout cashiers, lack of signage, or inadequate incentives to collect the fee. Moreover, at two of the international stores, cashiers provided double bags without doubling the bag fee, even though there were signs indicating that the fee would be charged by Montgomery County law.

- *Low availability of paper bags and, in international stores, reusable bags.* Paper bags were not consistently offered or visible at large chain grocery stores and were entirely missing at the international stores. Cashiers automatically placed grocery items in plastic bags unless shoppers specifically requested paper bags. Reusable bags were not offered for sale at checkout at any of the international stores.

- *Scarce signage about the bag fee at checkout.* We saw almost no signs at cash registers at the major chains that there was a bag fee, even though all self-checkouts automated systems ask customers how many store-provided bags they used.

- *Relatively thin, 10-cent "reusable" bags are being offered at many stores, displacing thicker, more robust reusable bags***.** Three Weis Markets grocery stores, a chain that did not exist in the County during our 2014 survey, were also surveyed. According to a representative from Weis Markets office of consumer affairs, the three stores in Montgomery County are the focus of a pilot project, at which the stores will no longer provide free paper or plastic bags to shoppers, but will only provide 2.25 mil plastic "reusable" bags for 10-cents apiece.[11] These thin reusable bags were also observed at Giant grocery stores, and can be found at Aldi, a chain not surveyed in Montgomery County. (See Figure 3)

- *When no bags are offered, most shoppers use reusable bags or go without*. At two of the Weis stores, where the new "no free bag" policy was in effect, more than one-third of shoppers exited the stores only with un-bagged merchandise. In neighboring Prince George's County, 1,550 shoppers in 13 stores in the Aldi and Lidl chains were observed. In these two chains, thin plastic bags are not offered but shoppers have a choice of paper bags or other reusable bags to purchase at checkout. At those stores with no free bags, only 6 percent of shoppers were observed leaving the store with a single-use bag, nearly all of them paper. Forty-eight percent exited with reusable bags and 46 percent left with no bag at all--only un-bagged merchandise.

Figure 3: **Cheap, thin reusable bags are replacing robust ones**

Example of 4 mil plastic bags

Examples of 2.25 mil plastic bags

[11] This experiment is apparently confined to Montgomery County. In the other jurisdictions surveyed (Howard, Frederick, and Prince George's Counties) the Weis Markets stores provided free single-use plastic and paper bags.

In light of these findings, we recommend that Montgomery County consider the following actions to reduce plastic bag use:

Lidl grocery store in Virginia charges for all bags.

Improve compliance with the bag fee**.** As an immediate action, the county should work with managers to ensure that grocery stores post signs at checkout informing shoppers that a 5-cent fee will be charged for all bags and encouraging shoppers to bring their own bags to reduce plastic waste. More generally, there needs to be a continuous public education campaign to reinforce the fee among shoppers and store personnel.

Ban plastic bags and raise the fee on paper bags**.** To make a major dent in the remaining share of shoppers who continue to use single-use plastic bags, we recommend that the county council ban plastic bags less than 4 mils thick and raise the fee on paper bags to 10 cents. The current law does not include specific bag thickness limits. Plastic bags less than 4 mils are not designed for repeated use and are rarely re-used as grocery bags. An increase in the fee on paper bags will serve as an additional incentive to those currently using single-use bags to switch to reusable or no bag. A campaign of greater consumer, as well as store management and staff, awareness and education should be ongoing even after the county implements an overall ban on thin, disposable plastic bags.

At this writing, legislation is pending to enact a statewide ban on providing thin disposable plastic bags at point-of-purchase, which Sierra Club Maryland strongly supports. The recommended actions for the county are based on the assumption that the statewide legislation may take several years to be enacted.

Additional opportunities to reduce plastic bags and packaging

(a) Reduce consumption of produce bags**.** The county should work with grocery store chains to develop policies to discourage consumers from selecting clear, thin plastic bags in produce aisles, another large source of plastic bag waste. Grocery stores could be encouraged or required to place signs next to the produce bags to discourage bag use for single items and offer reusable cloth produce bags for sale in a prominent place such as next to the produce bag dispensers. Additionally, stores could be encouraged to provide compostable produce bags after the county has implemented a curbside food scrap collection program.

(b) Create incentives to reduce plastic packaging. The county could educate local businesses at major shopping malls that receive shipments of clothing in plastic bags to reduce or recycle this waste. Washington Radiology, a major health care provider in the county, for example, recently stopped receiving its supply of medical gowns in plastic bags. Another excellent model is a plastic bag reduction program in place at South Park Mall in Charlotte, North Carolina.[12]

[12] http://wastesleuth.com/videos/#/lightbox&slide=18.

(c) Develop incentives to reduce dry cleaning bags**.** County targeted mailings and additional education could be sent to dry cleaning businesses, another source of plastic bag waste, advocating that customer use of plastic covers for cleaning could be optional. These cleaners could also be encouraged to offer reusable dry-cleaning bags for sale or to allow customers to bring their own. These bags can be made of durable materials and are reusable many times over.

Recommendation 4: Encouraging Composting of Food Waste and Organics

In 2015, county residents and businesses disposed of more than 147,000 tons of food scraps. Food waste and soiled food paper comprise 20 percent -- the largest component -- of the county's waste stream. Yet, only a small portion of this waste is turned into valuable compost which could be used for agriculture and landscaping.

Food waste awaiting composting at the Prince George's County Composting Facility.

More than two years ago, the county identified opportunities to remove large quantities of food waste from incineration and commissioned a panel to study ways to advance composting. The panel came up with multiple recommendations for moving forward in its report, *Strategic Plan to Advance Composting, Compost Use, and Foods Scraps Diversion in Montgomery County.*[13] Sierra Club MC supports the recommendations put forward in this report.

In response to this report as well as to advocacy by the Montgomery County Food Council's Environmental Impact Working Group (EIWG), the County Council provided $489,000 in the Fiscal Year 2020 budget to fund a full-time position to coordinate food waste recycling programs and to conduct related activities to reduce food waste. In addition, the county signed a contract with Prince George's County to receive food waste from large commercial producers. These are good first steps, but more actions are needed to get food waste permanently out of the waste stream.

Sierra Club MC recommends:

- Establishing a commercial-scale combined food waste/yard waste composting facility within the county with initial funding in the DEP budget. The County should also consider

[13] Montgomery County, Maryland, Department of Environmental Protection, Division of Solid Waste Services, *Strategic Plan to Advance Composting, Compost Use, and Foods Scraps Diversion in Montgomery County,* April 2018.

regional sites that already accept food scraps as recommended by the EIWG including at the Dickerson yard waste facility.[14]

- Beginning a countywide curbside collection program for food scraps and other organics, starting with a pilot in Subdistrict A, where the county already provides waste collection service.

- Amending the zoning code to allow for food scraps and food-soiled paper composting in backyards and in community composting facilities.

- Providing technical assistance to large-scale producers of food waste such as restaurants to participate in composting programs.

- Providing opportunities for small businesses like Compost Crew and Veterans Compost to participate in food scrap collection on a larger scale.

- Better implementing the law banning single use plastic service ware at food establishments. The law requires the use of either reusable or compostable service ware instead.[15] Food establishments need support to find suitable composting facilities for the service ware.

- Recognizing businesses that are adopting food scrap collection and food waste reduction programs.

Recommendation 5: Phasing in Unit-pricing for Trash Collection

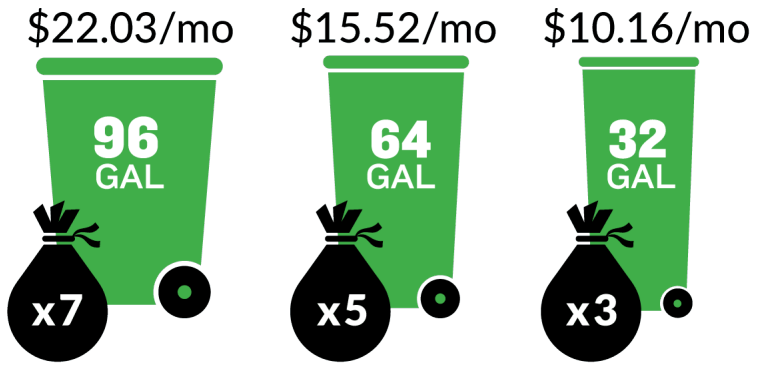
Financial incentives can quickly change behavior. To incentivize waste reduction, Sierra Club MC recommends that in all single-family residential collection areas the county transition from a tax financed waste collection system to a unit pricing, or "pay-as-you-throw" system, as has been done in Austin, Minneapolis, San Francisco and Toronto -- cities with comparable population size. Studies conducted by Skumatz Economic Research Associates found that recycling rates were doubled and that trash output decreased by one-fifth to one-sixth in cities and towns that adopted PAYT systems.[16] Similarly, separate unit-pricing programs implemented by Waste Zero, Inc. saw 50 percent reductions in municipal solid waste.[17]

[14] Environmental Impact Working Group, Montgomery County Food Council, *Recycling Food Waste in Montgomery County: A Summary of Potential Food Waste Composting and Anaerobic Treatment Facilities,* June 6, 2019.

[15] See, Berkeley, CA Municipal Code Banning Single Use Foodware, https://www.codepublishing.com/CA/Berkeley/html/Berkeley11/Berkeley1164/Berkeley1164110.html

[16] https://www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/pay-as-you-throw-sera.pdf

[17] https://www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/pay-as-you-throw-waste-zero.pdf



The City of Fayetteville, Arkansas' Pay-as-You-Throw Trash Cart Program

The county should start a unit-based transition with a pilot in one or more willing communities. As part of the pilot (and any larger roll-out) the county should include additional efforts to educate residents on how to reduce waste. The county should analyze and experiment with different approaches that use variable cans and bags to arrive at an approach that results in the greatest waste reduction.

Sierra Club MC believes that the county should simultaneously introduce curbside composting as part of any unit-pricing pilot and ultimately, any county-wide unit pricing waste program. Once the county phases in curbside pick-up of compostable food waste and organics -- an option we strongly support -- the county should also consider every-other-week or even monthly trash collecti to offset costs and further incentivize residents to reduce waste production and participate in composting.

Recommendation 6: Achieving Higher Rates of Construction & Demolition Waste Diversion

Construction and demolition (C&D) waste consists of waste generated by the construction and demolition of buildings, roads and similar structures. The amount of C&D waste generated far exceeds the amount of municipal solid waste.[18] EPA estimates that the U.S. generated 548 million tons of C&D waste in 2015, more than twice the amount of municipal solid waste.[19] Demolition accounts for more than 90 percent of total C&D waste while construction waste is less than 10 percent.[20] In Montgomery County, approximately 275,000 tons of C&D waste generated in the County was recycled and disposed at landfills outside of the County.

Although the Maryland Recycling Act does not count construction and building materials when determining a county's

[18] EPA's Advancing Sustainable Materials Management 2017 Fact Sheet indicates that municipal solid waste, or trash, is comprised of items that consumers, including residences, businesses, schools, hospitals and other commercial and institutional locations throw away. Examples include packaging, food, yard trimmings, furniture, electronics, tires and appliances. It excludes industrial, hazardous and C&D waste. https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/advancing-sustainable-materials-management.

[19] https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials#America.

[20] Ibid.

recycling rate, C&D waste represents 20 percent (by weight) of the waste generated by Montgomery County's economy.[21] Reducing C&D waste thus needs to be an important component of the county's effort to move toward zero waste. This can be achieved by (a) preventing waste from being generated in the first place (source reduction), (b) reuse and (c) recycling.[22] To significantly reduce the amount of C&D waste generated by the local economy in a manner consistent with the Zero Waste Hierarchy and EPA's recommendations, the County should give first priority to source reduction, then salvage and reuse, and finally, recycling.

C&D materials separated at the source can achieve reuse and recycling rates as high as 75-97 percent.[23] Among items that can be reused are doors, cabinets, windows, architectural items, fencing, lighting and plumbing fixtures, kitchen appliances, roofing, carpets, tile, insulation, drywall, lumber, marble, and bricks. Additional items that can be recycled include rock, sand and rubble.

C&D reuse and recycling can provide many benefits: (a) reduced greenhouse gases (GhG) and other environmental hazards resulting from production of virgin materials; (b) lower overall project expenses; (c) preserved landfill space; and (d) additional jobs.[24] In 2007, recycling of C&D materials created 230,000 jobs in the United States, mainly at large regional and national waste management firms. Deconstruction, salvage and reuse of C&D material is typically more labor intensive than demolition and, thus, has greater potential for local job growth. Reuse industries frequently work with 501(c)(3) charities which often provide both training and job opportunities for hard to employ individuals. Deconstruction and salvage can also spur related local economic activities in reprocessing or manufacturing new products from salvaged materials.[25]

Source Reduction of C&D Waste

Source reduction includes, for example, in some cases preserving existing buildings rather than constructing new ones, designing buildings that can periodically be modified to prolong their useful lives, prefabricating materials to fit site dimensions, and reducing delivery of excess materials to the work site.[26] Sierra Club MC recommends that the county:

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[21] HDR's Technical Memorandum #1, Baseline Review and Current State Assessment, Table 3-7: Tons of Materials Generated in Montgomery County (CY 2017) (December 2018); *See* link to report at https://www.montgomerycountymd.gov/sws/master-plan.html under Current State Assessment.
[22] https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials#America
[23] https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials#America; According to the "Sustainable Waste Management by Design: Designing Buildings to Optimize Environmental Performance During Construction and During Occupancy," Waste Management webinar at http: www.wm.com/octwebinar.pdf, the Terrence Donnelly Center for Cellular and Biomolecular Research at the University of Toronto diverted 75 percent of its C&D waste during construction and the Bill and Melinda Gates Foundation Campus achieved a 97 percent diversion rate of C&D waste. This webinar provides excellent information on strategies used effectively by other communities and government entities.
[24] https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials#America; https://www.epa.gov/smm/recycling-economic-information-rei-report.
[25] https://www.epa.gov/smm/recycling-economic-information-rei-report
[26] Ibid.

- encourage reduction of C&D waste at the building site through adoption of appropriate source reduction strategies included in the 2018 International Green Construction Code (IgCC).
- use the commercial construction permitting process to encourage careful design, planning and execution of public and private construction projects of at least 5,000 square feet of gross floor area.
- encourage source reduction through its own Requests for Proposals (RFPs) for commercial construction and through coordination with the Montgomery County Public School system with respect to all new school construction and major renovations.

Reuse and Recycling

Substantial amounts of C&D waste will, of course, still be generated, but significant amounts can be diverted from the waste stream through reuse and recycling. In 2017, the county adopted as mandatory provisions the waste reduction standards of the 2012 IgCC. Accordingly, the current building code requires that new commercial construction projects divert at least 50 percent of C&D waste from landfills. Sierra Club MC supports updating the commercial building code to make mandatory at a minimum the more stringent C&D waste reduction and diversion provisions of the 2018 IgCC standards.

To reduce C&D waste even further, Sierra Club MC urges the county to consider several additional ordinances relating to construction, demolition, deconstruction, reuse and recycling of building materials**.** Several cities and counties have already adopted these types of ordinances.[27] Given the high demonstrated levels of diversion achieved in projects noted previously, and the much higher diversion requirements in Berkeley, San Francisco, and King County, Washington, Sierra Club MC recommends:

- adoption of a Montgomery County ordinance requiring higher diversion rates of certain materials in IgCC-applicable commercial projects and multi-family dwellings, than the general rate of diversion set forth in the 2018 IgCC. These higher diversion rates applicable to specified materials could be increased in future years as more robust recycling, salvage and reuse markets develop.
- In consultation with smaller construction companies and developers, waste reduction green building code standards for new single-family dwellings, townhomes, duplexes and significant renovations and additions to existing residential structures. The ordinance

[27] The City of Berkeley, California requires that newly constructed nonresidential buildings, and additions, alternations and demolition of existing buildings divert 100 percent of asphalt, concrete, excavated soil and land-clearing debris and a minimum of 65 percent of other nonhazardous construction and demolition waste. *https://www.cityofberkeley.info/wastediversion/*. San Francisco requires that all C&D debris be recycled or reused. https://sfenvironment.org/construction-demolition-requirements. King County, Washington requires that readily recyclable materials from construction and demolition projects be recycled. Clean wood, cardboard, metal, gypsum scrap, asphalt paving, bricks and concrete are all banned from landfill disposal. https://kingcounty.gov/depts/dnrp/solid-waste/programs/green-building/construction-demolition.aspx

should set an overall diversion target[28] and a separate, lower salvage/reuse target that addresses both supply of and demand for salvaged C&D materials.[29] Financial incentives should also be included.[30] The new requirements should be phased in to give smaller home improvement and remodeling contractors, individual households and owners of smaller residences time to adjust. A residential diversion ordinance should be designed to be supportive of county efforts to increase the stock of affordable housing units, with other requirements included as needed to promote this other important goal that Sierra Club MC strongly supports.[31]

- An ordinance including a mandatory maximum waste generation standard (measured by weight or volume),[32] and pairing a mandatory minimum waste diversion standard (measured by weight or volume)[33] with requirements for reuse or recycling of specific materials which would ensure that wood, metals, shingles and other lighter but valuable materials are also diverted.[34] Similarly, separate minimum waste diversion requirements for particularly heavy materials such as concrete could be used to address the problems with a general weight-based ordinance. Weight-based ordinances favor diverting heavier materials (concrete) rather than more valuable but less dense materials such as lumber or

[28] EPA's Analysis of the Life Cycle Impacts and Potential for Avoided Impacts Associated with Single-Family Homes (PDF) (239 pp, 6 MB, July 2016, EPA 530-R-13-004) provides useful information for understanding the importance of including C&D diversion requirements for single family homes (detached or row houses).

[29] In 2017 the District of Columbia adopted a 5 percent reuse requirement for new construction, additions to, razing of or Level 3 alterations to single family dwellings. The requirement could be satisfied through use of building materials sourced from other projects or vendors on the building project, transfer of materials salvaged on site to an approved building reuse facility, use of building materials salvaged on site in construction elsewhere on the project site or transferred to a different project, or sale or donation of building materials salvaged on site for reuse. Importantly, the ordinance addressed both the supply of and demand for reusable building materials, both of which are needed to foster a robust reuse market. See: Section R327 of the D.C. Residential Code. The County should consider a larger but similarly structured requirement for non-residential and multi-family residential construction. Given the 50 percent diversion requirement in the IgCC, and the additional experience with diversion requirements in the construction industry since the District of Columbia law was enacted, a higher diversion requirement, perhaps 10 percent to 15 percent, could be appropriate.

[30] Financial incentives might include a partially refundable construction or demolition permit if higher than required diversion targets are met, with reduced rebates for lower levels of diversion and higher rebates if diversion requirements are met through deconstruction, salvage and reuse of some or all of the C&D debris. The county could consider expediting demolition permits or reducing fees for projects involving a minimum level of deconstruction or reuse of salvaged materials.

[31] These comments deal primarily with the net cost impact of diversion and waste generation requirements. The net impact of the full range of county construction code requirements, *e.g.*, energy performance standards, indoor air quality, water conservation, abatement of heat islands, rooftop solar or green roof construction, and mechanical operating costs, should also be taken into account in assessing whether these requirements are supportive of increasing affordable housing stock. In short, both construction and operating costs need to be considered in county efforts to support additional affordable housing units.

[32] IgCC Section 903.1.2 (9.3.1.2) Total Waste.

[33] IgCC Section 901.3.1.1 (9.3.1.1) Diversion.

[34] HDR's Technical Memorandum #3 Summary Report, ES Table 15, Estimates of Net GHG Emissions estimated the low- and high-end of annual tons of waste diverted by different waste reduction efforts. The estimated low end tonnage reduction of all other options it considered were less than the low end estimates of a commercial food waste ban (31,200) and C&D material recycling (26,000). No option had a high end tonnage reduction that came even close to the high end option for C&D tonnage reduction (130,000 compared with 46,800 for commercial food the second ranked high end option). *See* link to report at https://www.montgomerycountymd.gov/sws/master-plan.html under Proposed Enhancements/Expansions to the Current Diversion/Recycling System.

architectural structures. Volume-based ordinances favor diverting larger but possibly less easily salvageable and reusable materials.

Funding for Staff Positions and Education About Waste Diversion

- Sierra Club MC supports providing funding for adequate staff to develop, promote and enforce both existing and new regulatory requirements, to develop creative mechanisms to educate impacted residents, companies and organizations, and to create a robust C&D reuse and recycling market.[35]

The county should support growth of a C&D salvage and reuse market[36] by:

- Promoting awareness by homeowners and the construction industry, including smaller remodelers, of the existence of local deconstruction and reuse firms and facilities, building into the permitting process, as well as into the county's website and other educational materials, information about local non-profits that promote C&D reuse. Short videos could be uploaded to the DEP website highlighting how these groups.
- Encouraging development of small local companies that cater to the building industry and facilitate compliance with the new requirements. Barriers to entry in the demolition industry are lower than for deconstruction contractors since deconstruction requires additional training. To increase the number of private deconstruction companies and skilled workers, and garner wider support from the demolition industry, the county should make this training available, convenient and inexpensive.[37] The county should also facilitate development of a co-operative or similar arrangement among demolition and deconstruction contractors to allow them to aggregate enough salvaged material to permit competitive resale.
- Using its RFP process to promote the supply and demand for salvaged and recycled materials, applying higher diversion and specific salvage/reuse requirements to its own construction, demolition and deconstruction projects to provide a demonstration effect for the private sector.
- Working with the construction industry and non-profits to create or support a regional, publicly available C&D salvage and reuse website to allow the industry to identify quickly the supply, demand and location of salvageable materials.[38] Since storage and transportation of salvaged

[35] HDR's Technical Memorandum #3 Summary Report, "Considered Enhancements/Expansions to the Current Diversion/Recycling System," estimated the three-year staffing costs of outreach, enforcement and promotional and education materials for its recommended C&D materials diversion policy approach at $787,500. *See* link to report at https://www.montgomerycountymd.gov/sws/master-plan.html under Proposed Enhancements/Expansions to the Current Diversion/Recycling System.

[36] "Deconstruction & Building Material Reuse: A Tool for Local Governments & Economic Development Practitioners" (May 2018) sets out a range of government actions that can promote a deconstruction and building material reuse market. https://delta-institute.org › uploads › FINAL-Decon-Go-Guide-Refresh

[37] https://reusemn.org/general/custom.asp?page=JuneWebinar

[38] https://usbcsd.org/materials provides information about the Materials Marketplace software platform developed by Pathway21, a B Corporation started by the U.S. Business Council for Sustainable Development. Austin, Texas, and Ohio, Tennessee and Michigan have also developed city or statewide marketplaces which are supported and managed by government agencies. See, Austin Materials Marketplace. https://austinmaterialsmarketplace.org/; Ohio Materials Marketplace, https://ohio.materialsmarketplace.org/; Tennessee Materials Marketplace,

materials is costly, this website should include features designed to assist smaller companies, like home improvement firms, in aggregating their salvaged materials for daily pick-up and delivery to a construction site, a local reuse materials marketplace or a warehouse in a non-profit facility or C&D eco-park.

C&D Eco-Parks

Sierra Club MC recommends creation of specialized regional C&D eco-parks to facilitate salvage and re-use of C&D debris. These specialized eco-parks should be developed in close consultation with adjacent county and municipal governments, builders, developers, large construction firms, smaller home improvement contractors, sub-contractors, demolition firms, deconstruction firms, C&D recyclers and re-use stores. Local jurisdictions could promote these C&D eco-parks by supporting the conversion of underutilized industrial parks or other properties into C&D eco-parks, providing loan guarantees using a revolving loan fund, reducing taxes on energy and equipment purchases, supporting computerized systems to facilitate accessing information as to the location and available quantities of particular types of building materials, or providing promotional and educational efforts through the local jurisdiction's website and recycling/reuse fairs.[39] *(See also Recommendation 8 regarding other potential eco-park tenants.)*

State of Maryland Recycling Markets Center

- Sierra Club MC recommends creation of a Maryland recycling markets center which could promote research at state universities and colleges to develop new building materials with recycled content. Such a center would also ensure that regional governments and businesses remain current regarding materials research and new technologies that could improve resiliency in county construction projects, expand markets for hard to recycle building materials, and possibly bring new business opportunities to the participating counties.

Recommendation 7: Using the County's Purchasing Power on Sustainable Products

The highest priority of the Zero Waste Hierarchy described in Recommendation 1, is "Rethink, Redesign." This concept should apply to any purchases made by Montgomery County that could potentially create more unnecessary waste. The County has already adopted several important changes to its procurement practices to reduce waste, including purchasing recycled paper for its county office supplies, and purchasing compostable food ware for and pilot testing a food waste composting program in cafeterias located in county buildings. These are good first steps. Sierra Club MC recommends that the county also adopt these additional "green procurement" policies:

http://tennessee.materialsmarketplace.org/; and Michigan Materials Marketplace. https://michigan.materialsmarketplace.org/.

[39] The Institute for Local Self Reliance in Washington, D.C., has a considerable track record in assisting jurisdictions in developing C&D reuse industries and infrastructure and likely could assist local jurisdictions within a state in promoting small business development to support C&D reuse.

- reduce or eliminate purchase of single use disposable items;
- eliminate purchases of Numbers 3, 6 and 7 and "black" plastics, which have little to no recycling value;
- reduce or eliminate purchase of plastic products;
- give procurement preference to companies that deliver products in reusable packaging (e.g., pallets, ice packs and shipping crates) and use little or no plastic packaging);
- require manufacturers to take back their products at end of life;
- purchase equipment from companies that guarantee repairs or assistance with repairs;
- ask how much post-consumer recycled content is used in durable goods, choosing the highest amount available and then asking companies to add more;
- give procurement preference to durable and modular products such as carpet tiles; and
- work with neighboring jurisdictions on additional green procurement bulk purchasing approaches.

Recommendation 8: Expanding Opportunities for Hard-to-Recycle Materials

Sierra Club MC was pleased to learn of the county's release of a Request for Proposals in August 2019 to redesign the Shady Grove MRF. Opened in 1991, the initial facility was designed to handle 80 tons per day of commingled recyclables but is currently receiving between 130 and 170 tons per day. Much of the equipment has outlived its useful life. Safety, environmental and traffic concerns continue to be problems at the facility. We recommend that the facility be completely overhauled to expand capacity, include improved worker safety features and state-of-the art technologies, and create the capacity to accept, repair, and recycle a variety of hard to recycle materials.

Besides processing the materials that go into residential blue bins, the Shady Grove MRF currently recycles a variety of hard to recycle materials, including light bulbs, bulky plastics, paint, batteries, scrap metal, bicycles, cooking oil, clothes, household hazardous waste, and electronics. Many residents use the Shady Grove drop-off facility, but better signage and customer support are needed when first entering the facility. The public entrance to Shady Grove receives between 1,000 and 2,000 vehicles per day carrying less than 500 pounds. According to the county's consultant, HDR, early in the week trucks at the commercial unloading entrance become backed up onto Shady Grove Road due to inadequate queueing space.

In addition, with only two county drop-off locations, many residents and small haulers are either unaware of, or are located too far away from, drop-off spots to maximize recycling of hard-to-recycle materials. Residents without motor vehicles find it too difficult to drop off hard-to-recycle items. Accordingly, the county should establish multiple geographically distributed drop-off depots for hard to recycle materials.

Sierra Club MC recommends that a revitalized MRF should include a Center for Hard-to-Recycle Materials ("CHaRM"). CHaRMs are government operated centers that promote repair and recycling of hard to recycle items, typically by supporting small businesses and non-profits that repair, reuse and recycle hard to recycle materials or prepare them to be sent to businesses that use the inputs to develop new products. CHaRM centers may also be designed to provide additional government revenue. Kent County, Michigan, Boulder, Colorado (Eco-Cycle) and Berkeley, California (Urban Ore, Inc.) are good models of CHaRMs.

Boulder, Colorado's successful Center for Hard-to-Recycle Materials. Photo: http://www.ecocycle.org/charm

CHaRMs can be used to promote repair of hard to recycle appliances. Eco-Cycle, for example, sponsors "U-Fix-it" Clinics, where volunteer coaches train others to fix broken small appliances. Examples of items that could be sold at CHaRMs to provide revenue for the county or local non-profits include windows, plastic bags, wrap and foam packing sheets, and building materials.

A revitalized MRF could also include non-profit re-use and recycling organizations such as Second Chance, Community Forklift, Habitat for Humanity and a Wider Circle which re-sell salvaged building materials, housewares and textiles and often hire hard-to-employ individuals.

Sierra Club MC recommends the following actions to address additional hard-to-recycle materials:

- Partnering with companies to recycle snack bags, energy bar wrappers, and toothpaste tubes and other plastics. Terracycle's facility in Trenton, New Jersey, turns huge sources of waste -- plastic snack bags, energy bar wrappers, toothpaste tubes and other hard-to-recycle items -- into new materials. The county could set up a partnership with Terracycle to support additional drop-off locations, process these to create commercial size bales and perhaps work together to establish a regional processing facility for these materials.

Ban on #6 Polystyrene

There is currently no recycling market for #6 polystyrene, yet single-use polystyrene cups and containers continue to be sold throughout the county and, according to a Maryland Environmental Services representative who briefed Sierra Club MC volunteers on their tour of the MRF, #6 single-use cups for yogurt and drinks are the largest source of contamination of recyclable materials. Substitute containers made from #1 and #2 PET are available.

EPS Foam Drop-Off Locations

Many companies continue to use expanded polystyrene foam (aka "styrofoam") in their packaging, even though EPS foam containers have been banned statewide. Anne Arundel, Carroll, Cecil, Harford, and Howard counties, as well as Baltimore City, have EPS foam drop-off facilities. Sierra Club MC recommends that the county establish an EPS foam drop-off facility at an expanded MRF or CHaRM center. The county should promote EPS drop-off on the "I want to recycle . . . " website while discouraging residents from purchasing items packed in foam. (*See our additional recommendations regarding compostable foodware.*)

Carpet Recycling

Carpet recycling businesses should be encouraged

The Carpet America Recovery Effort (CARE) estimates that in 2017, 3.3 billion pounds, or 10 pounds per capita of carpeting were discarded in the United States.[40] In 2017, 2.9 percent of commercial waste consisted of carpets, rugs, and carpet padding. Yet, carpets are highly recyclable, and can be turned into carpet backing, new carpets, resins, and other products.[41] The Shady Grove MRF currently does not accept used carpets for recycling. Also, the "I want to recycle" search engine does not provide separate tabs for residents to search for how to recycle carpets, rugs, carpet foam and carpet padding. Rather, some relevant information is hidden under the tab "clothing, shoes and other textiles." Sierra Club MC recommends that the "I want to recycle" search engine should include new tabs to facilitate recycling of carpets, rugs, carpet foam and padding. Additionally, the county should encourage carpeting and padding recycling businesses to locate in the county at the revitalized MRF or a separate resource recovery park. The county's consultant, HDR estimates that by collecting carpets and rugs for recycling, the county could divert an estimated 2,100 to 3,100 tons per year.

[40] Carpet America Recovery Effort (CARE) Annual Report, 2017. https://carpetrecovery.org/resources/annual-reports/

[41] http://wastesleuth.com/videos/#/lightbox&slide=4; http://wastesleuth.com/videos/#/lightbox&slide=19; SF Carpet Recycling; Chamlian Enterprises, Fresno, CA.

Mattress Recycling

According to the Mattress Recycling Council, more than 80 percent of a mattress' components—including the metal springs, wood frames, and foam padding--can be recycled. Sierra Club MC recommends that the county consider the feasibility of developing a mattress recycling program, potentially through a non-profit organization or current vendor in the state. The county would need to identify a partner for recycling collected mattresses. St. Vincent de Paul is a non-profit organization with a proven track record, recycling more than 300,000 mattresses at recycling centers in California and Oregon.[42]

Solar Panel Recycling

Solar panel installations are increasing rapidly in Montgomery County as the price of solar energy decreases. But older panels are reaching the end of their roughly 25-year useful life and the infrastructure to aggregate and transport used panels for recycling is not well developed. Recycle PV Solar (RPVS) is a company trying to make it easier and less expensive to remove and deconstruct panels for local resale of certain components, and aggregate and transport remaining components to a recycling facility in Tucson. Beginning in 2021, only solar module manufacturers participating in a recycling plan can sell modules in Washington State. Officials in Arizona, New York, New Jersey and Colorado are all looking at legislation to address end-of-life modules. California imposed hazardous waste disposal regulations on end-of-life panels. Sierra Club MC recommends that the county monitor developments in other states and develop a plan to promote safe and environmentally sound disposal of older solar panels.

Textile Recycling

Textiles compose more than 4 percent of waste disposed in the county. With the growth of fast fashion marketers and on-line retailing, however, people are purchasing new garments more frequently and wearing them less often before discarding them. While purchasing used garments at second-hand shops is becoming more popular, still, according to the U.S. EPA, textiles in American landfills jumped 67.7 percent by weight from 2000 to 2015. Laudably, the county's recycling search engine provides detailed information on donation and recycling textiles, clarifying that even items no longer suitable for use may be donated provided there is no mildew. Still, many people simply lack the time to take their recyclable or reusable textiles here and there for reuse or recycling. The county needs to make this easier. Sierra Club MC recommends that the county incorporate periodic (perhaps monthly) curbside collection of textiles and expand the number of regional drop-off sites.

Attracting Innovative Companies that Transform Hard-to-Recycle Items

Many other companies have developed novel technologies to deal with hard to recycle items. For example, a Mountain Valley Recycling facility in Morristown, Tennessee (headquarters in Delray Beach, Florida) recycles plastic retail and clothing store hangers, turning the plastic into resin and recycling the metal. ARC International in City of Industry, California, recycles cathode ray tube

[42] http://wastesleuth.com/videos/#/lightbox&slide=12

televisions. Chamlian Recycling Enterprises in Fresno, California, recycles synthetic clothing. Each of these is highlighted in separate Waste Sleuth videos.[43]

Sierra Club MC recommends that the county facilitate local companies to take advantage of these ways to reduce trash, developing directories of recycling companies, providing financial incentives to reduce trash and encouraging novel recycling companies to build facilities in county supported eco-parks.

Recommendation 9: Providing More Recycling Education to Residents

Montgomery County's Department of Environmental Protection, Recycling and Resource Management Division has an educational and user-friendly website to assist residents and businesses to properly recycle a variety of materials. The search engine "I Want to Recycle or Dispose of . . " includes a list of more than 60 types of materials with links describing how they can be recycled or disposed of safely. The search engine includes helpful information and additional links about where to donate materials that the county itself does not recycle. The link on DEP's home page, "Let's keep our recyclables clean," answers many common questions about what items can be recycled.

Many residents mistakenly place plastic bags in the recycling bins which can get caught in the sorting equipment, causing costly repairs.

Even with strong county recycling educational programs, however, residents continue to dispose of significant quantities of potentially recyclable material as trash. Many people, mistakenly believing that most of the items they recycle currently cannot be economically resold and made into other products, are instead discarding these as trash. We believe this mindset discourages people from recycling as borne out by looking at what we actually throw away.

According to the county's 2017 Waste Characterization Study, more than half of the waste generated is potentially recoverable materials such as paper, plastic, glass, aluminum, food waste, wood, yard waste and other organics.[44] Nearly 20 percent of the waste is paper, 14 percent is plastic containers and bottles, and 16 percent is food waste.

[43] http://wastesleuth.com/videos/

[44] *2017 Waste Characterization Study: Summary of Results, Table 6B: Summary of Waste Composition by Sector and Overall – Standardized,* SCS Engineers, January 29, 2018.

A study conducted at Boston College about how consumers view waste, showed that when they are delivered messages about the useful products produced from their recycled materials become, recycling increases. The study showed that consumers are inspired by the transformation of recyclables into new products, motivating them to recycle.[45]

Sierra Club MC recommends that the entire website be modernized and improved to drive home the message that the items residents recycle will actually become something of value. First, the county should include videos to educate residents about how waste is treated in the county, and the ranges of useful products that result from recycling material. For example, videos could show that bulk trash items like bicycles are donated to needy residents in other countries, yard waste is turned into compost, and paper is turned into cardboard packaging. The site could rotate through links to videos designed to excite residents about what happens with recycled materials, showcasing some typical or creative uses of recycled materials, and highlighting companies developing technologies to convert recycled materials into new products.[46] These videos would also show what jobs are created from recycled discards. The county could also highlight the work of A Wider Circle, Community Forklift, Second Chance, Habitat for Humanity ReStores and similar non-profits. This information would, we believe, encourage both salvage and resale of more items.

The site should constantly expand its list of items that can be recycled by other organizations. For example, the site could show that some items can be dropped off at MOMS Organic Markets; supermarkets accept wine bottle corks, plastic bags and rubber bands.

Sierra Club MC recommends that the county establish teams of trained neighborhood volunteers and "waste sentinels" in single- and multi-family housing to educate residents, distribute door-hangings and speak or hand out brochures at local community and school events and fairs. The Solid Waste Advisory Committee's website should also be updated to increase recycling awareness.

The county should provide additional DEP staff to target problematic recycling locations for additional education and more frequent mailings with graphics showing what kinds of materials can and cannot be recycled.

Sierra Club MC recommends that the county organize periodic local reuse, repair, and recycling fairs at high schools, combined with its popular paper shredding events or in conjunction with the popular police drug take-back programs, to distribute educational materials, provide demonstrations regarding composting and recycling, feature reuse/repair clinics, provide booths and dumpsters for various non-profit or for-profit organizations that accept and sell reusable items, and co-locate dumpsters for textiles, salvageable or recyclable construction and demolition material, hard to recycle items.

[45] Winterich, K.P., Nenkov, G.Y., and Gonzales, G..E., *Knowing What it Makes: How Product Transformation Salience Improves Recycling,* Journal of Marketing (Vol. 23, Issue 4, June 2019), https://journals.sagepub.com/doi/10.1177/0022242919842167

[46] http://wastesleuth.com/videos/#/lightbox&slide.

Recommendation #10: Requiring Producer Responsibility for Plastic Waste

According to the Center for International Environmental Law, if plastic production and use grow as currently planned, by 2030, greenhouse gas emissions could reach 1.34 gigatons per year – equivalent to the emissions released by more than 295 new 500-megawatt coal-fired power plants.[47] To reduce the environmental impact of current levels of greenhouse gas emissions, our addiction to plastics needs to be curbed. Manufacturers and users of plastics and plastic packaging seduce us into believing that plastics are endlessly recyclable, and that if state and local governments just have the right recycling infrastructure and residents somehow finally increase recycling rates, the plastics manufacturers and packagers can keep selling and using plastics without taking any responsibility.

Montgomery County has had a beverage container deposit law on the books since 1975, although it has never been implemented. The law requires that all non-reusable beverage containers sold or offered for sale in the county have a minimum cash value of five cents and that all businesses that sell such containers take them back and refund the deposit to purchasers. Since enactment of that law, however, the county has transitioned from landfill disposal of wastes to cheaper but equally environmentally problematic incineration and has built out a substantial recycling center that handles beverage containers. As stated earlier, recycling markets for glass and aluminum have remained strong and are important revenue producers for the County. That interim period, however, has also witnessed an explosion in the purchase and consumption of not only beverages in plastic bottles, but cleaning and household products as well as plastic packaging. As noted in Recommendation 8, the MRF cannot currently handle the large volume of plastic materials residents are throwing away, not to mention the enormous amounts of everyday plastic materials that "aspirational" recyclers mistakenly include in their blue bins like soccer balls, bubble wrap, clothes hangers, and #6 plastics.

While Sierra Club MC lauds the county's plans to upgrade and modernize the MRF, we believe that greater emphasis needs to be placed on reducing the amount of plastics *coming into the county*. Taxpayers and the environment, including marine organisms, ultimately bear the burden of dealing with the end of life of products like plastic containers which cannot be recycled more than a few times, #6 plastics (which we recommend be banned) and other plastics that have little or no recycling value. Plastics are just greenhouse gas-producing fossil fuels in another form. The installation and disposal of plastic-based products like artificial turf used throughout the county on athletic fields are also borne by taxpayers.

We believe that Montgomery County should model its approach to waste in line with other progressive jurisdictions across the country and think more broadly about "materials management" rather than "waste management." The Oregon Department of Environmental Quality is a leader in this movement. The underlying waste problem, as noted by senior policy analyst with the Oregon Department of Environmental Quality, David Allaway, is that recycling is focused on

[47]Center for International Environmental Law, *Plastic and Climate: The Hidden Costs of a Plastic Planet*, www.ciel.org/plasticandclimate.

solving the problem of garbage. A recent article in *Sierra Magazine* explains, "Big industry is very satisfied with the current arrangement: As long as everyone is focused on recycling and curbside collection, it's a consumer and government problem. If we shift focus to production, then it's a manufacturer and big-brand problem." Says Allaway, "Encouraging people to obsess on recyclability and compostability is a convenient red herring."[48]

To move away from this "red herring" thinking regarding plastics, Sierra Club MC recommends that the federal, state, and county governments begin to develop and ultimately adopt a range of policies and programs that place the burden for the full life-cycle of plastic containers and packaging back on those who manufacture these products in the first place. We described actions that the county can adopt fairly quickly by improving its purchasing program, in Recommendation #7. Building out a refundable beverage deposit system, perhaps in coordination with other Maryland counties would be another significant step forward by the county.

As a national policy, Sierra Club supports the concept of "producer responsibility" (or "product stewardship"), which means that whoever designs or produces a product takes responsibility for minimizing the product's environmental and social impacts throughout all stages of the product's life cycle. The greatest responsibility lies with producers (brand owners) because they make critical design and marketing decisions. Products and services put into commerce should be designed to make the return of discarded products for reuse, repair, refill, repair and at the end of its life recycling as easy as purchasing new products. This behavior needs to be guided by a system of government standards, enforcement and transparent management of costs and revenues of the system. There needs to be fiscal responsibility, but not necessarily physical responsibility. Producer responsibility needs to focus upstream on reducing and reuse, and the use of recycled content products. Producers should help finance, promote and incentivize collection, marketing, reuse, refill and recovery operations and infrastructure, be it direct return or local recovery operations.

The State of Maryland already has Extended Producer Responsibility requirements on manufacturers of tires and electronics. Sierra Club MC supports legislation introduced by Montgomery County Delegate Sara Love, H.B. 824, to require customers to be refunded for deposits on beverage containers everywhere in the state. Recycling rates for beverage containers are three times higher in the 10 states that already have a bottle deposit.[49]

[48] Edward Humes, "When Recycling Isn't Worth it," *Sierra Magazine*, July/August 2019.
[49] Source: Container Recycling Institute.

Extended Producer Responsibility is gaining traction across the nation. Indeed, the first comprehensive federal EPR bill for plastics (H.R 5845; S. 3263) was recently introduced in Congress on February 11, 2020, and co-sponsored by Montgomery County representatives Jamie Raskin and John Sarbanes. These bills would:

- Require producers of plastic products to design, manage, and finance waste and recycling programs.
- Spur innovation, incentivizing corporations to make reusable products and items that can actually be recycled.
- Create a nationwide beverage container refund program.
- Reduce and ban certain single-use plastic products that are not recyclable.
- Establish minimum recycled content requirements for beverage containers, packaging, and food-service products, while standardizing recycling and composting labeling.
- Spur massive investments in U.S. domestic recycling and composting infrastructure, while pressing pause on new plastic facilities until critical environment and health protections are put in place.

Sierra Club MC recommends that Montgomery County officials contact Senators Cardin and Van Hollen in support of this important plastic-reduction measure.