Report of Concerned Citizens of the Mulch/Composting Task Force

Submitted by the following Task Force members:

Rick Lober – Representing the County Executive
John Tegeris, PhD – Representing the Dayton Rural Preservation Society (DRPS)
Stu Kohn – Representing the Howard County Citizens Association (HCCA)
Brent Loveless – Representing Council District 3
Ted Mariani – President of Concerned Citizens of Western Howard County

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Introduction

The Howard County concerned citizens groups noted above appreciate the County Councils efforts in setting up a task force to discuss the evolving issues concerning composting, mulching and natural wood waste within the community. In particular, we thank both Mary-Kay Sigaty and Greg Fox who realized the importance of residential groups meeting with members of the farming community to better understand their needs and how composting plays an important role in their future. During the 24 meetings held from July 2014 to March 2015, the concerned citizens groups noted above also gained a better appreciation of the needs of the County with regard to sustainability and how composting and natural wood waste recycling (NWWR) plays an important role.

The concerned citizens groups, which will be referred herein collectively as the citizen groups, were often in the minority when various recommendations were voted on; however, the reasons for a "no" vote primarily concerned differences in opinion on the specifics (i.e. setbacks, pile heights, etc.). There is little question that the entire Task Force, including those in citizen groups, were in support of the overall need for composting and mulching by the farming community and the County. In fact, during the 24 meetings held during the July 2014 to March 2015 timeframe, the citizen groups gained a better appreciation of the needs of the County with regard to sustainability and how composting and natural wood waste recycling (NWWR) plays an important role. However, the citizen groups preparing this report felt very strongly that the Task Force turned a blind eye to serious concerns for communities that would adjoin the proposed NWWR facilities, namely:

- The health, safety and environmental concerns regarding large mulching and composting operations near residential properties and
- The potential placement of large, industrial based mulching and composting operations on land parcels in the Howard County and State of Maryland Agricultural Preserve Programs (ALPP and MALPF) that import the vast majority of their raw materials and sell the vast majority of their end product as a business not related to farming.

We are respectively submitting this report as part of the final report by the task force in order to better show where common ground was reached – in particular in support of the farming community – and to more fully outline the rationale for the concerns noted above.

In summary, while sustainability through composting, fertilizer-free farming which uses compost, and natural wood waste recycling which results in a product both needed on farms and for commercial sale all are excellent initiatives for a forward-looking County, there are numerous issues with these apparently benign processes that need to be closely considered before broad endorsement occurs.

The concerned citizens groups do support composting and NWWR for farming uses and do understand the importance of sustainability initiatives within the County. However, if Howard County is committed to growing these go green sustainability initiatives, it is incumbent on the County to incentivize large composting and NWWR operators to locate the industrial sized facilities required for these initiatives on suitable parcels of land that are appropriately located in M1/M2 zoned areas. In addition, the health and safety concerns of residents near such facilities on M1/M2 lands need to be considered. The rationale for these recommendations, and appropriate measures that can be taken to protect residents near such facilities, are covered in this report. Not only is this a common sense approach, but is specifically mandated by the Howard County Zoning Ordinance[1].

Background

We believe that the Task Force majority report does not fully consider the history of NWWR and composting regulations in the County and the strong opposition to placing large scale NWWR facilities in rural neighborhoods that led to the Task Force's creation. A brief review of that history will help set the stage for the citizen groups' recommendations and is given below:

- Changes promoted by the farming community and developers during the comprehensive rezoning process conducted in late 2013. These included both valid needs for composting by farmers and desires by commercial industry to place non-farming related businesses on agricultural preserve land. These changes also began to treat State of Maryland Agricultural Preserve lands differently than those in the County program – these programs fell under the same zoning guidelines up until the 2013 revision. The changes also removed a long standing restriction on the acceptance of wood waste as a farming activity within the County's definition of farming.

- Pre-submission meetings by commercial industry to place a 16 acre industrial mulching operation (all raw product brought in and all finished product sold) on a farm parcel in the Howard County Agricultural Preserve program within a community that was transitioning from rural conservation to rural residential in nature (Appendix M). This resulted in four community and County meetings

[1] Howard County Zoning Ordinance, 2013, Section 100. Legislative Intent, p.5
"1. To provide adequate light, air and privacy; to secure safety from fire and other danger…;
2. To protect the character, the social and economic stability of all parts of the County… and to protect and conserve the value of land and
3. To promote the most beneficial relationship between the uses of land and structures, and the road system which serves these uses, having particular regard for the potential amount and intensity of such land and structure uses in relationship to the traffic capacity of the road system, so as to avoid congestion in the streets and roadways, and to promote safe and convenient vehicular and pedestrian traffic movements appropriate to the various uses of land and structures throughout the County;…
7. To ensure that all development and land uses protect or enhance the natural, environmental, historic, architectural and other landscape resources of the County, especially highly fragile and environmentally important features such as floodplains, wetlands or steep slopes.
8. To preserve agricultural land."

where over 600 very concerned residents attended to voice their concerns regarding health, safety and quality of life issues if such an enterprise were to become a reality.

- A request for a zoning amendment (CB-20-2014), with the vocal support of many Howard County residents, was passed unanimously by the County Council which reversed many of the changes and "unintended consequences," made concerning composting/mulching in the 2013 rezoning process (Appendix O). In order to ensure that this amendment did not unduly restrict farming operations and new sustainability standards, the Task Force was created to examine these issues. In addition, during discussions leading up to these events, it became apparent that the definitions of composting and mulching along with the zoning regulations concerning these operations were often intermixed for what are two very different processes and needed a much more detailed treatment within the regulations. DPZ was also aware of evolving State guidelines that had not been incorporated into the zoning regulations along with new definitions such as NWWR. In summary, it was clear that a much more detailed review of these evolving processes and farming community needs was required.

- In parallel with Task Force activities, the Maryland Department of the Environment (MDE) issued draft guidelines on composting. Unfortunately, the MDE refused to participate or even meet with the Task Force even though the Director of DPZ invited them. This would have been an excellent forum for the Task Force to learn more about MDEs intent and the overall processes involved and an excellent opportunity for the MDE to consider concerns by the residential community. It should also be noted than the MDE has not yet updated its policies on Natural Wood Waste Recycling (NWWR) which were recommended as the base for minimum guidelines.

- In parallel with Task Force activities, further needs and programs that promote sustainability within the County have arisen as have the continued pressures on the farming community to move to organic farming or decreased use of chemical fertilizers in order to better protect the environment. At the same time residential homes continue to be built in Howard County, many near farms and industrial areas. These residents would be put at risk if large scale industrial composting and mulching facilities are allowed to operate in close proximity to these communities.

- During the last two years, the County also pushed forward the conversion of existing Solid Waste zones to residential development, and combined with the underutilization and decommissioning of existing County NWWR facilities, this has led to justifying the consideration of large scale commercial mulching/composting requests in residential transitional areas countywide.

Task Force Purpose

Given the events above, the Task Force was created to act as a forum between the farming community, industrial NWWR operators and residential groups to make recommendations to the Howard County Council concerning composting and mulching operations. The citizens groups feel that there were very good reasons for setting up the Task Force and welcomed the opportunity to discuss issues with the farming community. There is no question that a better understanding of the issues and

concerns of all participants has resulted from this process. We should note the concerned citizens on the Task Force offered potential compromises on a variety of issues but the majority of these propositions were rejected by the farming community. Therefore, key differences in opinion on important issues addressed in the majority report remain.

Definitions

During the lead up to the Task Force and over the 9 months of discussion, it became very clear that the definitions of the mulching (NWWR) and composting processes were not well understood and the terms themselves were often used interchangeably. Using some of the MDE documents as guidance, the following is an attempt at a simplified definition of the terms, processes and uses of the end product.

Composting

The Task Force spent about 80% of its time discussing composting as this area was of particular concern to the farming community. Composting is a process that takes materials relatively high in carbon called "browns" (wood chips or leaves for example) and mixes them with materials relatively high in nitrogen called "greens" (grass clippings or manure and food waste). The end product acts as a natural fertilizer for farming needs and is often used by residents and nurseries for plantings or vegetable gardens. The MDE defines composting in three broad categories:

Type 1 – uses materials such as grass clippings and leaves
Type 2 – uses materials such as manure, animal mortality, and food waste
Type 3 – uses sewage sludge (not addressed by the Task Force or this report)

The MDE further defines composting facilities by size and material (feedstock) used:

Tier 1 – uses only type 1 materials
Tier 2 small – uses type 1 and 2 materials - produces less than 10,000 cubic yards per year
Tier 2 large – uses type 1 and 2 materials - produces over 10,000 cubic yards per year
Tier 3 – uses type 3 materials

Compost is produced by the aerobic (oxygen-requiring) decomposition of these products *and when done properly*, results in a safe mixture that can be used for soil conditioning. Normal decomposition usually requires a 30 to 1 carbon to nitrogen (C: N) ratio – this can be produced for example by mixing a small amount of wood chips (400:1 ratio) with a large amount of grass clippings (20:1 ratio). Decomposition slows when C: N is too high and the mixture may smell when C: N is too low. The overall process consists of mixing the products above, placing the mixed product in windrows (long rows of material 3-9 feet high), and periodically turning the resulting product to promote aeration and decomposition.

The MDE requires permits for certain size operations and specifies practices to reduce run-off of both storm water and "contact water" for all operations through the use of pads. In some cases, for example the county landfill, the piles are covered and aerated through a closed system that controls emissions.

Given that a relatively small amount of wood chips are required, there are limited "grinding operations" in the production of compost. Since the mulch is moist, the turning operations produce little if any dust.

While great care must be taken to ensure that decomposition does take place – in particular when animal mortality, manure or food waste is used for the high nitrogen source, the MDE has done a good job in defining proper procedures and controls and this group supports and sees the value in the end result – in particular for the farming community.

However, in the case of facilities requiring no permit (MDE or County) and which area placed near homes, wells, and streams, there can be negative impacts to the environment and health of residents if run-off and contact water is not controlled thus resulting in high microbial activity downstream of these operations, and pathogens that are carried through the air during the turning operations (or are not fully decomposed in the end product). Proposals on "home and community" composting at sizes up to 5000 square feet will be an area of concern for many residents and care should be taken by the Council and DPZ in adopting these regulations while promoting County sustainability initiatives.

Natural Wood Waste Recycling (NWWR) or "Mulching"

The Task Force spent less time on discussion of this topic as it results in an end product that can be used by farmers, but often to a much lesser degree than compost. The process involves the transport of trees, limbs, stumps and bark – sometimes as cut (when from the farm) or often in the form of large wood chips (4-6 inches) that are pre-ground at the site of demolition/land clearing - to a facility for further processing.

To create an end product (mulch, wood chips, etc.) the raw materials are ground once or twice more by large grinding apparatus usually in the open (versus a covered facility). In some cases, water mist can be sprayed during the grinding operation to control dust. The resulting piles are then placed in windrows and periodically turned to control temperature during decomposition – which requires less time for the desired end product than composting. Unlike composting, high nitrogen based materials such as grass clipping or manure are not added to the mix. Given the material is relatively dry (as compared to compost); spontaneous combustion can result if temperatures are not well controlled.

The source of the wood waste can be from a farm (usually for periodic clearing of fields or to create new fields) but is more often from commercial land clearing operations for new development. BGE tree trimming or County clean up after storms can be another periodic source of materials. The

end product can be used for farming operations (creation of compost which requires a relatively small amount of wood chips, tree farming, and as a stable bed in horse farms), however, in larger facilities, the majority of the end product is shipped for commercial use and sold by garden centers as "mulch" for use around homes, or as mulch for office centers and industrial complexes. In some cases, the mulch is dyed during the process using safe sources for the dye. In addition, pressure treated wood must be removed from any mix before grinding for health reasons.

The MDE requires all NWWR operations to have a State permit and specifies the conditions which required to receive a permit. These include control of run-off, fire safety, pile heights, noise, etc. It should be noted that the regulations are not as comprehensive as the proposed regulations on composting and the NWWR permit process and operating conditions will be further revised and defined by the MDE in the future.

The citizen groups view NWWR facilities quite differently than composting given the differences in process, end product, needs of farmers and risks to nearby communities when large operations are being considered.

Health, Safety and Environmental Concerns

As the citizen groups informed the County Council in the legislative sessions leading up to the Task Force creation, the primary concerns of citizen groups stem from proposals to place large NWWR operations in rural residential areas where serious health, safety and environmental risks are created by these facilities. In some cases, risks involving composting are also outlined but as stated previously, the group supports this activity for farming and sustainability purposes when conducted properly with proper set-backs and scaled to the needs of the community. *In addition, it should be noted that the MDE guidelines on composting have been recently updated (now in final draft form) and are much more extensive than those for NWWR facilities which MDE plans to update in the future.*

Reports prepared by experts in these fields (some of which live near proposed NWWR facilities) are included as an Appendix to this report. These experts include:

- a Geologist with experience in ground water contamination - who relies primarily on an independent State of New York study of NWWR health risks;
- a Licensed Professional Fire Protection Engineer;
- an independent Civil Engineer from the University of Maryland Center for Advanced Transportation Technology; and
- a cancer research Director (MD/PhD) from Johns Hopkins University who conducted a literature review of pier reviewed publications studying the health effects of NWWR and composting facilities.

It should also be noted that while much of the perspective here is from those concerned about large facilities operating on farms near homes, certain safety concerns (in particular, health due to air quality) equally apply to those facilities operating on M1/M2 zoned properties.

Ground Water Contamination (Appendix A)

While the MDE regulations on composting have been recently updated and require the use of impermeable pads under piles, regulations on NWWR are much less restrictive and only note that runoff should be controlled. NWWR Facilities accept wood waste material that includes trees, stumps, branches and leaves. This material is shredded and placed in windrows to naturally degrade through a composting process over a 6-8 month time period. The size of these windrows is typically 12 feet high by 25 feet wide by 100 feet long. These operations do not require placement of impermeable pads to collect runoff or groundwater monitoring to determine any potential issues. There have been cases both locally (near Dayton, MD) and in other parts of the country (New York, Connecticut) where NWWR operations have resulted in the severe and irreversible contamination of ground water through the process outlined below.

The discharge water or runoff from the windrows is high in organic content (carbohydrates, organic acids, lignin, humic material, carboxylic, hydroxides and amino acids). This material is high in chemical and biological oxygen demand. When the discharge water infiltrates the ground it has the potential to create a low Eh or negative Oxidation Reduction Potential (ORP) or reducing environment. This reaction allows mobilization of existing metals from the soil (i.e. metal oxides such as iron and manganese oxides (Fe_2O_3 and MnO_2), allowing the cations to become mobile in a low valence soluble ionic form). Therefore, changes in the redox potential from the introduction of organic material dictate the leachability of these metals.

MnO_2 can be reduced easier under aerobic conditions in the presence of organic acids (e.g., phenolic compounds) in wood or soil organic matter.

$$MnO_2 + \tfrac{1}{2}\ CH_2O + 2\ H^+ = Mn^{2+} + \tfrac{1}{2}\ CO_2 + 3/2\ H_2O$$

Manganese (Mn) concentrations have been observed at a concentration of 43,000 ppb from wood compost facilities in New York and 13,000 ppb from one wood compost facility in Howard County, MD. Furthermore, background levels of Mn in groundwater from the same area of Howard County only average 20 ppb. Observed Mn contamination associated with wood waste composting facilities is two orders of magnitude greater than the allowable risk levels identified.

If these facilities can be located in agricultural preservation lands they will abut private domestic groundwater wells. In areas such as in Dayton, MD there exists a shallow water table perched above fractured rock aquifers. Metals such as Mn are released from the soil and they need only travel a short distance vertically to enter the water table before they are migrating in unimpeded fractures. These fracture conduits will feed adjacent drinking water wells.

Health risk due to Mn ingestion from drinking water has recently received a lot of research attention due to the identification of being a neurotoxicant. Mn exposure is associated with neurological disorders such as dyslexia, autism and has been linked to low birth weight. Long-

term exposure of elevated Mn causes symptoms similar to Parkinson's disease. A list of published medical studies can be provided.

The FDA allows 50 ppb Mn in bottled water. The EPA has a regional screening level for Mn of 430 ppb. This means that drinking water with elevated levels of manganese above 430 ppb is a health risk. State of Connecticut has an action level for Mn at 500 ppb. The US Agency for Toxic Substances and Disease Registry has a health advisory for Mn that states children should not drink water with Mn concentrations exceeding 1,000 ppb **for even one single day**.

In summary, while all compost and wood waste appears to be a "natural substance" that should decay without concern (such as a tree falling in a forest), the repeated transport of large amounts of feedstock onto small areas over many years can cause uncontrolled leachate to seep into underlying soils and rock and free-up chemicals that can pollute our wells and streams. Therefore, for the reasons stated above, the citizens groups recommended much larger set-backs to wells and streams for both composting and NWWR operations and the location of industrial sized operations only in areas where wells where not in use (those areas receiving water from County sources).

<u>Health Risks and Air Quality (Appendix B)</u>

There is ample evidence that industrial sized NWWR and composting facilities can result in increased health risks due to a variety of factors. These include i) infectious agents such as fungi and bacteria, ii) wood dust which has allergic, mucosal, and cancer promoting effects and iii) volatile organic compounds and endotoxins that have toxic and carcinogenic effects. A review of the medical literature indicates dozens of examples of scientific articles throughout the world related to infectious agents in mulch, primarily leading to acute fungal pneumonia. Fungal spores can travel large distances - on the order of miles - and are of particular risk to immune comprised individuals, including children and the elderly. Many such infections can be lethal: one recent study found that of patients with fulminant mulch pneumonitis, half died due to infection and underlying kidney disease.

The second clear health risk is from exposure to wood dust. The Centers for Disease Control (CDC) and many studies have documented that wood dust particles are associated with a variety of health effects including allergic respiratory diseases, such as asthma, mucosal and nonallergic respiratory effects, including bronchitis, irritation, bleeding, obstruction, coughing, wheezing, sinusitis, and prolonged colds, as well as dermatologic effects such as dermatitis.

Composting sites generate endotoxins from fungi and bacteria and volatile organic compounds (hundreds of chemicals) in addition to other infectious, allergenic, toxic and carcinogenic agents. All of these are a result of the inherent aerobic, biological process of degradation of organic matter. These processes can lead to increases of hazardous substances in the air and in contaminated groundwater containing elevated levels of bacteria, potential pathogens and

excessive organic pollutants downstream of the facility, as well as increasing soil and sediment pollution.

Composting that includes animal mortality and/or food waste can greatly increase the health risks (risk of disease) to the surrounding communities/residents due to significant contamination of soil and groundwater – due to leachate - with higher pathogen content and microbial activity than seen with normal composting (i.e., yard waste composting) in the absence of these components.

Perhaps of greatest concern is that wood dust, a variety of volatile organic compounds, and endotoxins from NWWR sites have been categorized as carcinogens. The CDC states: "The association between exposure to wood dust and various forms of cancer has been explored in many studies and in many countries." The World Health Organization (WHO) indicates "Wood dust causes cancer of the nasal cavity and paranasal sinuses, and of the nasopharynx. It is carcinogenic to humans." There are hundreds of papers in the medical literature that document the increased risk from wood dust for nasal cancers, lung cancers, Hodgkin's lymphoma, and potentially other kinds of cancers. Similarly, organic compounds are risk factors for leukemias and nasal carcinoma, and endotoxins, produced by bacteria and fungi, are known to be associated with liver cancer.

A variety of studies have documented the association of the above health risks to individuals living near waste facilities. These have shown that emissions of dust, bacteria, fungi and other microorganisms as well as organic compounds can be measured at significant distances from waste processing areas and have significant long-term effects on nearby residents (see specific details in expert testimony). These analyses have important implications for residents of Howard County, especially given the large number of children and many residents that spend a significant amount of time outdoors and that would be directly exposed to the health risks described above. Overall, these studies suggest that large, industrial mulching and composting facilities pose clear hazards to human health and suggest that such facilities be restricted to industrial areas and be prevented from occurring in farming, agricultural, conservation, and residential areas.

Given composting sites are better controlled by the MDE and are less prone to dust generation during the turning process (some are covered), the citizens group feels that with proper controls, set-backs and feedstock choices, the risks can be controlled as the end result can be of great benefit to the community. However, the same cannot be said for NWWR facilities – in particular those that are larger than a few acres. In this case, even though this group feels these facilities should be located in M1/M2 areas for fire safety (hydrants available), water quality (no wells), traffic/roads (larger roads) considerations, the fact that these facilities can emit harmful dust as described above should mandate that they be covered when located near residential homes or the general public regardless of the zoning district. In addition to health concerns, dust from operations adjacent to high density commercial-residential areas such as TOD and M1/M2 zones can have a negative economic impact on redevelopment initiatives.

Location of large facilities on rural lands results in the extensive trucking in of material to be processed and then trucked out for commercial sale and will result in significant health, safety and environmental risks to the surrounding communities. Use of the final product for commercial sale rather than use to support farming operations creates a process of limitless size and scope that will place significant health and safety risks on rural and residential communities in proximity to proposed industrial operations of this nature.

Fire Safety (Appendix C)

An inherent fire safety risk presented by NWWR operations is the potential for mulch fires caused by spontaneous combustion of piles of mulch. These fires can require extremely large amounts of water to contain, and therefore, present a particularly serious risk if the NWWR facility is placed in a rural residential neighborhood in Howard County's western areas which are not supported by municipal fire hydrant systems. Composting, on the other hand, if properly maintained, has relatively high moisture content with controlled temperatures of 140-160 degrees F. This combination makes composting windrows less susceptible to spontaneous combustion when compared with an NWWR - mulch manufacturing facility.

The location and size of NWWR manufacturing facilities have a direct impact on community fire safety. Seventy-five (75%) of mulch fires are due to spontaneous combustion[2], as a byproduct of naturally occurring biological processes that occur within mulch storage and curing piles. Probability of fire occurrences can be minimized by proper best practices. However regardless of the level of care exercised by a typical mulch manufacturing facility, fires can and do occur naturally. The distinguishing characteristics that determines whether such a fire becomes a significant threat to public safety is whether it is in an easily accessible location for prompt emergency fire response, has close proximity to a reliable and continuous water supply (municipal fire hydrants), and is remote from homes, woodlands, and grassland exposures. Hence, the typical municipal zoning classification of mulch manufacturing as an Industrial use, and its placement in suitable industrial areas that provide all of the above safeguards.

In consideration of proper community fire safety planning, zoning ordinances overwhelmingly place such hazards in a localized setting (Industrial Parks) so that they might be best served by emergency response resources and be separated from the general public. Attempting to locate hazardous large industrial NWWR processes in more remote rural areas increases emergency response times on narrow rural roads, limits emergency firefighting access, limits water supplies for firefighting and provides exposure threats to other combustible vegetation and neighboring residents. Such poor planning presents a greater opportunity for an otherwise incipient fire to grow into a massive firefighting challenge that robs the community and surrounding jurisdictions of emergency response staffing and apparatus that would otherwise

[2] Source: ''Fires in Mulch Piles – Advice and Experience from the Industry – Findings of a Preliminary Survey'' - July 7, 2009, Robert Rynk, Agricultural Engineering, State University of New York (SUNY) Cobleskill and Richard Buggeln, Center for Industrial Services, University of Tennessee

be available to serve other community needs (house fires, auto accidents, medical responses, fire and police staffing, etc.) for extended periods (sometimes days). In order to minimize unnecessary endangerment to the community at large, known fire hazards such as mulch manufacturing should be properly located in industrial park settings which are designed to best accommodate the hazards they present.

While the majority report does include recommendations by the Fire Marshal regarding NWWR operations, given the size and water requirements of recent mulch fires the citizens group does not feel these recommendations go far enough. For example, in rural areas, the Fire Marshal seems to suggest that the 30,000 gallon cisterns being place in rural Howard County residential areas are adequate to fight small incipient mulch fires if they are within 5 miles of the operation. In contrast, given the amount of water needed to fight recent large mulch fires (3 of which have occurred locally in the past 2 years), a municipal fire hydrant or a 400,000 gallon minimum static water supply, located much closer to the facility, were recommended by a Licensed Professional Fire Protection Engineer in a presentation provided to the Task Force.

In summary, the citizens groups have recommended that adequate water supplies be near any NWWR operation and that industrial sized operations only be located in areas with nearby municipal fire hydrants, adequate access from major highways for quick emergency fire response, and adequate separation from homes and woods to limit fire exposures.

Traffic, Traffic Related Safety Risks, Transportation and Road Infrastructure Concerns (App. D)

Industrial, large scale NWWR and composting facilities can involve massive importing of bulk feedstock and exporting of finished product, thereby causing very heavy transportation impacts. One privately owned NWWR facility in Howard County has processed 43,000 tons of materials annually for example. Vehicles accessing these facilities range from landscaper nursery pickup trucks with landscaping trailers to triple-axle dump trucks and large tractor trailers. Proper transportation planning locates such facilities in close proximity to major highways and away from smaller rural roads. Locating these facilities on rural roads would increase traffic congestion and result in roadway deterioration due to large, heavy triple axle trucks and tractor-trailers using the roads, and would also result in significant concerns regarding safety hazards associated with narrow and winding roads with limited sight distances.

A primary concern with the placement of large scale NWWR facilities is potential road deterioration, otherwise known as pavement distress. The access roads leading to the facility need to be of suitable construction for the axle weights and traffic counts involved in these high traffic facilities. Research conducted by the American Association of State Highway Officials and the Oregon Department of transportation indicates that one fully loaded tractor trailer, such as those used to haul NWWR feed and end-product, causes the same amount of road damage as, at a minimum, 750 automobiles (in some studies the damage was estimated to be as high as equivalent to 9,000 automobiles). Thus, a road that is constructed without

anticipating heavy truck traffic would deteriorate quickly and pose significant hazards to rural residential users of the roads.

To add perspective and seriousness to both safety and roadway deterioration concerns, per the community pre-filing meeting held by the operator, the 16 acre industrial mulch operation proposed in Dayton is projected to result in 25-50 dump trucks and tractor trailers bringing material in and trucking out end product daily (Appendix M). This translates into a minimum of 50 round trips daily, and an astounding 15,000 industrial scale trucks on these small rural roads each year from this one proposed facility alone.

From a road deterioration perspective, the base minimum figure of 50 trucks is equivalent to an additional 37,500 cars on rural roads every day – a figure that will cost the County in significant road maintenance funds and significantly congest local rural roads and intersections. From the perspective of safety risks associated with this volume and scale of commercial truck traffic, major concerns exist primarily given that children each school day throughout the year wait at the edge of these small rural roads to get on school buses all morning and are let off again all afternoon. Significant similar concerns also exist for cyclists, joggers and all pedestrians who utilize these same rural roads for recreational related activities. The associated risks are unacceptable to the groups on the Task Force that represent the interests of the residents and rural communities.

Large arterial roads and highways are designed for such loads and frequency of use, whereas rural and secondary roads are typically not designed to withstand the heavy loaded vehicles on a continual basis. Road deterioration creates safety hazards for smaller vehicles, bicyclists, and other non-industrial vehicles using damaged roadways. Furthermore, maintenance costs by improperly located industrial NWWR facilities can result in an unnecessary increase in taxpayer funded maintenance. Rural intersections are not designed typically to support long wheelbase vehicles (tractor trailers and pulled trailers), resulting in traffic congestion and reduced safety to other users. In summary, there are very good reasons that industrial processing facilities having significant truck traffic are typically located in industrial zones that are designed to safely accommodate their facilities.

In the case of mulch manufacturing and composting, this group found that CB-20-2014 (Appendix O) eliminated the requirement of a traffic study. It is inconceivable why the most traffic burdensome use (of all conditional uses permitted on Agricultural Preserve properties) would not be subjected to a traffic study, but instead only requires that the roads and bridges be structurally adequate[3]. This limited requirement completely ignores the significant risks to residents in rural residential communities presented by road deterioration, limited traffic capacities of roads and intersections, narrow turning radii and road widths, shoulders, line of sight, bridge and culvert capacities, road speeds, road slopes, stopping distances, school bus

[3] CB-20-2014, Para. k, "The structural elements of the roads serving the site shall be adequate for the truck traffic to be generated by the composting facility. The petition shall include a road condition study to allow the Hearing Authority to make this determination."

stop location safety, and many other factors that comprise an engineered traffic study. The incredible result of CB-20-2014 is that a hair salon on Agricultural Preserve property would require a traffic study, while an industrial facility importing 43, 000 tons of material in large heavy vehicles would not.

Clearly, a full engineered traffic study, that includes a study of roadway capacity and potential increased deterioration, is needed for such a facility to ensure that safety and quality of life are not compromised by placing inappropriate uses in areas that are not of similar character and suitable infrastructure. Because of the potential increase in the type, as opposed to just the volume, of traffic, the independent University of Maryland transportation engineer recommended that a traffic study for such a facility include, in addition to standard traffic analysis:

- Roadway core samples for impacted roads;
- Asphalt profiles for impacted roads;
- Water collection and drainage system analysis;
- Sight distance analysis;
- Soil sampling of base pavement and age of the road; and
- Shoulder and turning radius analysis.

Finally, Howard County initiatives on improved pedestrian access and increased biking routes are in conflict with tractor trailer sized trucks on our local, rural roads. Opposing arguments that state that farming also requires trucks are over-stated and are making an "apples and oranges" comparison given the typical size and quantity of vehicles entering and leaving farms. In addition, the County should consider the liability issues related to accidents caused by these proposed industrial facilities.

It should also be noted, that the noise produced by trucks loading and unloading material and the grinding machines used in NWWR operations can be significant. Complaints have been noted by residents near these facilities concerning the above with "beeping trucks" (in reverse) heard very far away (Appendix K).

In summary, the citizens groups have recommended that industrial sized NWWR and composting facilities be located in areas with roads that are adequate for handling the increased truck traffic (up to 25 trucks per day for larger facilities) generated by such operations.

The net result of these health and safety concerns is two-fold. First, permitting virtually unfettered industrial NWWR development near rural residential land, as some in the Task Force propose, would ignore the health and safety of a large segment of Howard County's citizens and voters to enrich a very small segment of the residents. Second, creation of industrial NWWR facilities in Howard County's rural West, the most likely and currently proposed location for these facilities, would severely depress property values in these areas. Thus, in the long run, these facilities could hurt not only County

residents' health (a concern that alone should call into question the wisdom of allowing virtually unchecked industrial NWWR operations), but the value of land that farmers exiting the farming business could receive for their land, the recovery in property values experienced since the recession of 2008, and, thereby, significantly lower County property tax revenues from both farms and homes alike in the rural West.

Concerns Over Large Industrial Facilities on Parcels in Agricultural Preserve

As noted in the introduction, this group is strongly opposed to the placement of large, industrial NWWR or composting operations on farms that have been made part of either the State of Maryland or the Howard County agricultural preserve program. Along these lines, we believe that CB-20-2014, which passed unanimously by the County Council on June 2, 2014 to reverse the unintended consequences of Comprehensive Rezoning, namely to prohibit industrial NWWR or industrial composting facilities to operate on Howard County and State of MD Ag Preserve farmland for all the right reasons given inherent health, safety and environmental risks for the surrounding rural communities. We observed on Nov 25, 2014 that CB-20-2014 was upheld in the case of Howard County/DPZ vs. Oak Ridge Farms given the Consent Order entered that resulted in the immediate shutdown of the industrial mulch facility operating in violation. This property, on MD Ag Preserve farmland in Woodbine within Howard County, also had previous citations (Appendix K).

Industrial operations are defined as those that sell the vast majority of the resulting product for commercial sale versus for use on the farm or other farms farmed by the land owner. In addition, in the case of NWWR operations, these industrial facilities bring in the vast majority of their material from outside of the farm. This group supports composting and NWWR for the farming needs of the farmer owning the land – regardless of whether it is part of an agricultural preserve program. However, there is a clear distinction between the two types of operations, how the end product is used (farming or commercial sale), and therefore whether certain industrial operations should be allowed on farms in agricultural preserve.

The rationale for this opposition is outlined below and stems from the expectations of rural residents and communities surrounding these properties that they would remain going agricultural concerns and not be converted to "industrial" or "commercial" uses that are prohibited by the deeds entering these properties into the various Ag preserve programs (see appendix for added documents):

- The easements signed by the farm owners and the County or State prohibit the farm from being use for developmental, commercial or industrial uses (Appendix F and G). Residents near these farms were made aware of this program by signs sold by the County stating "Farmland Forever – thanks to this landowner and Howard County Government this farmland is permanently preserved". The County is a party to these easements and must enforce them to the greatest extent possible with only sensible exceptions being made.

- The intent of the agricultural preserve program as administered by the State or the County Agricultural Preserve Board is as stated above. However, exceptions have been made to the Ag

Preserve zoning restrictions in order to help farmers economically for operations related to farming or that use facilities on the farm for limited commercial purposes. See appendix H and L. In the past, these exceptions have resulted in commercial uses that are limited in size – for example, one acre or 2% of the farm. This limit was increased to 10% of the farm in the 2013 rezoning for wineries – which this group views as a farming activity - and for composting which was ill defined at the time and driven both by valid farming needs and by purely commercial and industrial interests. DPZ was well aware of proposed NWWR facilities that would benefit from this change.

- The majority report's characterization of farming as industrial ignores the plain meaning of the words. Industrial is defined as "of or relating to factories, the people who work in factories, or the things made in factories." Agriculture is defined as "the science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products." Agriculture is not industrial. An NWWR facility that produces mulch for commercial sale is a factory and is industrial. There should be no question after seeing a large scale composting or NWWR facility that it is industrial and is not farming, regardless of how some choose to classify true farming operations.

- Other states have ruled that NWWR does not fall under "right to farm" laws as it is not farming[4] (Appendix E). The State Agricultural Preserve program stipulates that for NWWR operations, more than 50% of the material used to produce mulch must come from the farm to be considered a farming operation – in a recent case (Oak Ridge Farm), we feel this requirement was mis-interpreted by County Agricultural Preservation Board members thus allowing a facility owner on State Agricultural lands to proceed with operations even though very little of the material came from the farm. See Appendix I and J.

- The County had previously included in the definition of farming a restriction on bringing in wood waste from land clearing operations. For some reason, this was removed from the definition during the comprehensive rezoning process in 2013; a process which we know was influenced by supporters of the NWWR industry in Howard County. The County had also treated farms in the State Agricultural Preserve program the same as those in the County Program, this was also changed in the rezoning process. Clearly, there are interested parties that are attempting to water down the true goals of the County and State's agricultural preserve programs.

- Given the restricted uses of farms in agricultural preserve programs, the resulting sale of those farms is often at a lower price than it would be for farms not in the program that are sold to

[4] Appendix E - Pennsylvania Commonwealth Court's determination in Tinicum Township v. Nowicki. Tinicum is a township in Montgomery County, Pa. where industrial mulching was taking place on ag preserve land under the guise of farming: *"The Commonwealth Court further held that the mulching operation was not protected as a "normal agricultural operation" under the Right to Farm Act.* ***The Court reasoned that mulching operations do not constitute "agricultural operations," especially where none of the raw materials for the operation are produced on the property and none of the resulting mulch is used for agricultural commodities on the property.*** *The Court clarified that the Right to Farm Act requires some connection between the use and employment of the land itself."*

developers. To compensate for this, the County pays the farm owner to keep the farm for farming purposes in perpetuity and give up all development rights along with any commercial and industrial uses. In 2010, the county paid over $2 million to a farm owner to place his farm in the program. Proposals that allow large industrial operations on farms in agricultural preserve will only entice industry to purchase these farms as the price will be much lower than farms not part of the program. This sets-up a situation that obviates the primary goals of the program – to keep farms for farming purposes. In fact, in 2014 an individual representing a commercial land clearing company attempted to purchase the farm that the County had paid $2 million to keep in agricultural preserve just four years earlier, and did purchase a farm in agricultural preserve with the intent of setting up a 16 acre industrial NWWR operation. To be clear, these are business owners, and not farmers, who are exploiting the Ag Preserve program for commercial gain and not in support of true farming operations that are the heart and soul of the intent of the Ag Preserve program.

- Given the above, any new owner operating what is now an industrial operation pays much less tax than would have been the case if the commercial industry was placed on M1/M2 lands or other parcels not in agricultural preserve (example: ~$8,000/year on a 160 acres ag preserve parcel vs. ~$45,000/year for ~8 acres in industrially zoned areas). Given the sale of our farms the County has paid to put in preserve, along with the lower resulting tax revenues, the County and its taxpayers are, in effect, subsidizing industries that will buy these farms should the conditions laid out in the easements and agricultural preserve program become further diluted. The end result is not "Farmland Forever" but commercial industry on our farms.

- The potential siting of known industrially hazardous processes onto Ag Preserve farmland is egregiously incompatible with the land use planning intent and mandated goals of the Howard County Zoning Ordinance in that it is an unsuitable use of agriculturally preserved farmland, is not in keeping with the surrounding rural character of the neighborhoods and infrastructure, it introduces well documented increased hazards to residents and roadway users, it lowers homeowner property values and decreases the resident's overall quality of life.

In summary, while many in the farming community want to see no restrictions on farms placed in agricultural preserve, there have been restrictions since the start of the program and the signing of the easements. These restrictions are well known to the farming community. Changes have been made to these restrictions to promote added economic benefit or new farming activities such as wineries; however, the changes made in 2013 that would have allowed large scale, industrial NWWR and composting operations on farms in the program have gone too far in diluting the intent of the program for the benefit of a very few.

The citizen groups that have signed on in support of this concerned citizens report have worked hard to find a solution that prevented uses of the farms in the program for industrial operations but allowed the farmer to meet farming needs. It should be noted that a proposal to not allow NWWR operations on farms in agricultural preserve that shipped a vast majority of their end product for commercial sales versus for use on the farm did pass by a majority vote.

Recommendations:

The task force and this group spent considerable time developing a matrix that followed the MDE categories with regard to type of materials used, setbacks, health and safety and size of facility. In cases where there was disagreement, the matrix included comments by various members of this group (Appendix N). The following gives broad recommendations concerning common areas of concern by this group. Detailed recommendations by group members can be found in the matrix attached to this report.

- Throughout the course of the task force, there has been a consistent dialogue about reducing safety regulations to incentivize, preserve the right to farm, and prevent a precedent of increased regulations. The concerned citizens group recommends that air, water, fire, personal safety, and health risks to the community should not be compromised regardless of location, and appropriately scaled controls need to be implemented for any operations for the benefit of all citizens.

- Farm-based Composting Facilities (operated in support of on-site farming operations) – this group fully supports composting for farming operations but felt that the farming requirements for maximum facility size were often overstated and suggested lower limits. Task Force restrictions on percentage of the farm to be used for these operations (usually 5-10%) were sometimes understated (in particular for smaller farms) and special exceptions for small, fertilizer free farms should be considered. There was also much debate over setbacks, with this group recommending higher limits for facilities near homes and wells. Finally, there was concern over animal mortality and food waste used in composting with regard to amount and setbacks.

- Farm-based NWWR Facilities (operated in support of on-site farming operations)for the benefit and use on the farm) – given that the uses of wood chips are generally limited to tree farms, horse farms and a small amount needed to generate a compost mix, this group suggested lower limits with regard to facility size and also recommended increased setbacks. Given MDE has not yet updated its regulations concerning NWWR and that there are increased health and safety concerns with these facilities as compared to composting facilities, this group recommends that all leachate be controlled through the use of pads and that misting operations are used when grinding occurs. Adequate water supplies as recommended by a Licensed Professional Fire Protection Engineer should also be in place.

- The group has significant concerns over composting and NWWR operations that are used for industrial/commercial versus farming reasons. In the recommendations section of the matrix, various member of this group suggested that in cases where more than 25% of the end product was being shipped for commercial sale versus for use on the farm, that the facility be considered an industrial operation that should be located on M1/M2 properties only (and not

appropriate to RC and RR zones)[5]. These facilities would be covered, require nearby fire hydrants, and would be only located in areas that do not use wells *as proximity to local residents concerns when on M1/M2 lands must also be considered.* In the spirit of cooperation with existing NWWR facilities, the concerned citizens group would suggest grandfathering of existing NWWR facilities (at current sizes up to 5 acres), operating on non-Ag Preserve farmland parcels in Howard County. This recommendation should only be considered provided such facilities were operating in accordance with all State and County permits, and without existing citations, violations and/or complaints, at the time of passage of CB-20-2014 (App O).

- Regardless of the outcome on specifics for NWWR and composting within the County, this group feels strongly that in no case should a facility producing mulch (NWWR) or compost as an industrial operation (selling the end product for use off the farm) be allowed on Howard County Agricultural or State of Maryland Agricultural Preserve Lands. It should be noted that the majority of the Task Force did vote in favor of a similar recommendation concerning industrial NWWR facilities on Ag Preserve lands. In addition, this group recommends that the change in zoning laws made during comprehensive rezoning in late 2013 which removed restrictions on State of Maryland Ag lands be reversed (i.e. Howard County and State of Maryland Ag lands should be treated under the same set of zoning rules as was the case pre-2013).

- While there was unanimous support for "home and community" composting within the County, given the breadth of this initiative (impacts almost all residences in the County) and health concerns that arose during discussions (such as limiting any type of meat in food waste used), the group recommends that the County Council carefully review this area with regard to maximum sizes, types of feedstock, and set back from homes. Given the risks involved, the County may want to consider training courses for the community to insure that proper and safe practices are being followed. While promoting sustainability within the County, new zoning regulations in this area allowing such composting very close to almost all homes will likely result in significant community push-back if the program is not rolled out properly.

- The concerned citizens wholeheartedly endorse the unanimous position taken by the Full Task Force to recommend that the County play a proactive role in creating viable solutions on tracts of land in M1/M2 industrial zoned areas appropriate for industrial NWWR and industrial composting facilities that are located far from residential communities to ensure health and safety risks are avoided. Additionally, the County should consider creating incentives for these types of go green sustainability initiatives in order to entice industrial NWWR operators to locate their facilities in these areas. The Task Force also recommends that the County provide greater resources for enforcement of its regulations, primarily to the Department of Planning and Zoning but also to the Department of Health and to the Department of Fire and Rescue Services.

- [5] Use on the farm is defined as the farm or other farms that the operator is farming and includes mulch and compost shipped as part of a normal farming crop such as trees.

In summary, the concerned citizen groups do support composting for farming and County sustainability reasons with sensible guidelines, but cannot endorse the Task Force report that allows virtually unfettered growth of industrial mulch (NWWR) operations in rural residential areas. The loss of farmland to these industrial operations would be a tragedy that would threaten the health and safety of County residents, drive down property values in Howard County's rural West (the most likely location of these facilities), and do serious damage to the Ag preserve programs in Howard County. In addition, location of these industrial NWWR facilities in M1/M2 areas should take into account the health and safety recommendations made in this report to fully protect those residents living near such operations.

The concerned citizens group trusts that the County Council will consider all of the issues identified in this report, especially the hard evidence of the myriad problems associated with industrial scale NWWR and composting. Upon such review, we believe the Council will conclude that the majority report failed to recognize or adequately address the significant negative impacts that large scale composting and mulching facilities pose to neighboring communities. It is our heartfelt belief that the Council will craft a more comprehensive and robust regime to regulate NWWR and composting in Howard County than has been spelled out in the majority report.

Appendices