

CHAPTER 4 ASSESSMENT OF SOLID WASTE MANAGEMENT SYSTEMS AND POTENTIAL ALTERNATIVES

INTRODUCTION

This Chapter assesses the existing solid waste management system in Garrett County and addresses the County's needs to alter, extend, modify, or add to the existing solid waste management recycling systems and facilities. This assessment evaluates how well the goals and objectives stated in *Chapter 1* of this Plan are being met. Program and facility alternatives are discussed to aid in establishing an integrated solid waste management system.

COLLECTION

Currently, refuse is collected in the County through a combination of public and private operations and self-hauling to County-operated Refuse & Recycling Sites.

Organization of Waste Collection

Two incorporated municipalities (Deer Park and Kitzmiller) use municipal crews to collect waste curbside from residents and select businesses. The remaining six incorporated municipalities contract with a private waste hauler for curbside collection of waste. County residents that do not live within a municipality and most commercial businesses are responsible for disposal of their own waste, either by contracting with a private hauler or self-hauling their waste to one of the Refuse & Recycling Sites or the County Landfill.

Alternatives to this system include licensing, contracting, franchising, and public operation. Advantages of these alternatives are the County's increased control of waste collection standards and the ability to implement curbside recycling services. Disadvantages include increased cost and administrative support by the County. Each of these alternatives is described below.

Licensing--

Garrett County's solid waste regulations (County Code, Title V. Public Works: Chapter 50) address refuse collection, disposal, and recycling. The County does not require special licensure or permitting of waste collection vehicles operated within the County. The only license required to operate waste collection vehicles in the County is issued by the Maryland Department of Transportation.

Under a licensing system, private waste haulers would continue to operate under the free enterprise system; however, the County would require haulers to obtain a special license. Issuance of a license would be contingent on the hauler meeting standards imposed by the County. These standards could include conditions such as mandatory recyclable collection,

standardization of waste collection containers, waste collection frequency, and performance standards.

Contracting--

Under a contract system, refuse collection would be administered by the County. The County would contract with private refuse haulers to collect refuse using their own trucks and personnel in designated areas for a pre-determined fee paid by the County. The County would be responsible for billing customers and providing customer service. The County would be able to include specific collection goals, such as mandatory curbside collection of recyclables. A fee for service would be negotiated based on tonnage of refuse and recyclables collected, a fee per household served, or a combination of the two. Such contracts usually result from a public bidding process.

Franchising--

Under the franchise system, the County would be classified as a district or would be subdivided into several collection districts. The County would then grant private haulers a franchise based on competitive bidding. The haulers would be responsible for billing customers and providing customer service. However, the County would regulate the hauler's rates and performance standards, in essence acting as a representative of the customers (i.e., the residents and businesses).

Public Operation--

Under public operation, waste and recyclable collection would be provided by County employees using equipment owned or leased by the County.

Reporting

Because the County Landfill's tipping fee is competitive and the distance to alternative waste disposal sites is considerable, it is believed that most of the waste generated within the County is managed through existing County programs. However, to verify this belief and to gain knowledge of surrounding waste disposal facilities so as to maintain a competitive tipping fee, the County could require private waste haulers to report quantities of waste collected from the County and final disposal location. This would allow the County to more easily track where the waste is being disposed.

In contrast to waste reporting, the County does require that private waste haulers report quantities of materials collected for recycling. This aids in compiling a recycling rate estimate to report to MDE annually.

Refuse & Recycling Sites

Six Refuse & Recycling Sites and the drop-off location at the County Landfill are situated throughout Garrett County for the acceptance of solid waste and recyclables. Materials accepted include municipal solid waste, aluminum cans, cardboard, brown, clear, & green glass, electronics (at select locations) fluorescent bulbs & lamps (at select locations), used oil, transmission and oil filters & antifreeze (at select locations), office paper (at select location), magazines (at select locations), newspaper, #1 and #2 plastic (at select locations), scrap metal, telephone books and white goods, as well as certain types of bulk and other solid waste. Emptying and servicing of the containers at the sites is conducted as needed.

Alternatives to the current system include expanding the number and/or placement of sites, expanding the hours of operation, implementing consistency for types of materials collected at each site, payment methods, and creating a clear & concise guide for disposal and recycling practices in Garrett County. Each of these alternatives is described below.

Number and Placement of Refuse & Recycling Sites--

The current system of Refuse & Recycling Sites appears to target higher population centers in the County. While some Sites experience higher volumes of traffic than others, each Site is able to adequately manage the flow of traffic and the disposal of refuse and recyclables. Field observations conducted during the spring and summer of 2012 found the sites to be exceptionally clean and the recyclable material to be in a condition to fetch good market value.

The majority of customers using the Refuse & Recycling Sites are full-time primary residents; however, increasing numbers of visitors and secondary homeowners are using the sites each year. A large majority of visitors stay at properties that contract waste collection services. These services rarely include the collection of recyclables, leaving visitors the task of transporting recyclables themselves, to an existing Refuse & Recycling Site.

In April, 2012, the Maryland General Assembly passed House Bill 1, Environmental-Recycling – Apartment Buildings and Condominiums requiring recycling in all apartment buildings and condominiums that contain 10 or more dwelling units. Pursuant to House Bill 1 (HB1), Owners or Managers of Apartment Buildings and Owners/Managers or Councils for the Unit Owners of Condominiums will be responsible for providing recycling to the residents of each apartment building or condominium by October 1, 2014. Additionally, these Owners or Managers will secure and manage recycling contracts with the contractor for providing material collection and recycling services from the building locations. Material collection bins and containers for transporting the materials from the buildings to the markets will be provided. Owners or Managers will perform record keeping and report to the County on an annual basis.

It is believed the current network of Refuse & Recycling sites will be adequate to handle the volume of recyclable materials generated by HB1, for the succeeding ten-year planning period. However, it will be prudent to observe and evaluate the materials, tonnages and traffic entering the current system on a continual basis to determine whether a change will be necessary or warranted. House Bill 1 will be further discussed in this Chapter.

Hours of Operation--

The Refuse & Recycling Sites operate seven days per week: Monday through Friday from 7:00 am to 6:00 pm, Saturday from 9:00 am to 6:00 pm, and Sunday from 12:00 pm to 6:00 pm. Current operational hours appear to adequately serve the needs of residents and visitors.

During the next ten years, as the visitor population is expected to increase, there could be a need to extend operational hours to accommodate the growth. Most residents and visitors self-haul their waste during weekends and there is increased home improvement activity and visitor activity during summer months. Therefore, alternatives that accommodate residents and visitors include:

- ***Extended Sunday Operation at Select Sites*** - Since many visitors and secondary homeowners leave the County on a Sunday, it may be convenient for select Refuse & Recycling Sites to be open later on Sunday to accept waste and recyclables. Advantages may be increased recycling collection and decreased litter. Disadvantages are cost and accessibility of the County Landfill should the Refuse & Recycling sites fill their capacity.
- ***Elongated Summer Hours*** - Expanding the hours of operation until 8:00 pm during the summer months at select sites may be adequate to accommodate residents and visitors.

If either of these options is implemented, it should be first done on a temporary basis and monitored in terms of additional customers and additional waste quantities received.

Material Consistency--

While all Refuse & Recycling Sites accept aluminum cans, cardboard, newspaper, brown, clear and green glass bottles/jars, mixed metal and telephone books, only select sites accept electronics, fluorescent bulbs & lamps, magazines, #1 and #2 plastic bottles, oil, transmission and oil filters & antifreeze, and office paper. Advantages for consistency among sites include increased recycling material and facilitating public information and education. Disadvantages include costs associated with additional containers to hold recyclable material and additional pick-ups.

Payment Methods--

Patrons of the Refuse & Recycling Sites pay for disposal of bagged refuse either through purchase of a sticker for each bag of refuse, purchase of a refuse site permit that covers unlimited bagged refuse for a calendar year or by utilizing the County Landfill and paying for the weight of the bagged trash at the tipping scales. The disposal of bulk items requires purchase of a special sticker for each item or by paying for the weight of the item at the tipping scales at the County Landfill.

The Refuse Site Permit Program runs smoothly. The refuse site permit allows an unlimited disposal quantity of household bagged refuse for \$50 per year/per vehicle. Households that generate two (13-gallon) bags of refuse per week, pay almost the same cost for disposal using bag stickers, as a household purchasing the yearly sticker, without the benefit of unlimited disposal.

In 2012, approximately 6,320 tons of refuse were disposed of at the Refuse & Recycling Sites, for which the County received approximately \$285,406 through the purchase of bag & bulk item stickers and refuse site permits. This equates to a cost of \$45.16 per ton (just slightly more than the tipping fee at the County Landfill).

Alternatives to create equity in payment methods include:

- **Limit Number of Bags** - The Refuse Site Permit fee could cover up to five bags per visit and require purchase of bag stickers for each additional bag. This would require additional surveillance by the attendant.
- **Implement a Coupon System** - The coupon system could take the form of a book of coupons, each coupon allowing disposal of a certain number of bags. This would limit the number of trips to a Refuse & Recycling Site. This would require additional surveillance by the attendant.
- **Increase Refuse Site Permit Fee** - By increasing the Refuse Site Permit Fee to cover the tipping fee at the County Landfill, expansion and improvements, service would be more equitable.
- **Increase Bulk Sticker Fee** - Since bulk items are much more difficult to manage at Refuse & Recycling Sites, the Bulk Item Sticker fee could be increased to cover cost of additional handling and transporting to the County Landfill.
- **Add a Recycling Program Fee to Tipping Fee** – By adding \$.50 - \$1.00 per ton, the Refuse & Recycling Sites could benefit by receiving needed equipment and containers, material consistency could reach its' maximum and the recycling program could utilize funds for educating residents, businesses, visitors and institutions on the ongoing and upcoming recycling programs available in the County.

Currently, patrons that deposit recycling materials at the Refuse & Recycling Sites do not pay to leave the materials. This practice should continue to provide incentive for recycling and therefore boost the recycling rate.

Refuse & Recycling Guide--

Full-time residents are more likely to know about the location and operation of the Refuse & Recycling Sites than visitors. Therefore, the number of patrons (visitors) to the Refuse & Recycling Sites could be increased with improved literature and education. Additionally, guides indicating prices, accepted recyclables, site locations and notice that the materials can be dropped off free of charge, will attract more patrons and recyclables.

The County is in the process of developing the new 2014 *Guide to Responsible Disposal & Free Recycling in Garrett County* brochure. The literature is a good reference of the services offered at the County Landfill and at the Refuse & Recycling Sites. The Guide includes information on disposal rates, a map of site locations and a list of the recycling programs offered in the County. *Guides* are available at the Refuse & Recycling Sites, County Landfill, Chamber of Commerce and select locations throughout the county.

Litter Collection

The Problem--

While the growth of Garrett County is making a positive economic impact in the area, litter has become an increasing problem. Many of the homes built today, especially in the Deep Creek Lake area, are either second homes (occupied mainly on weekends and holidays) or vacation rentals. Upon vacating the property, the homeowner or renter will leave the waste containers curbside for collection by a private waste hauler. However, many times the waste is collected several days after the homeowner or renter has left, making the waste vulnerable to vectors and scavenging animals. Of particular concern is the bear population, which can open almost all types of waste collection containers and leave trash strewn about.

At times, the waste hauler will collect the debris left from a bear, or the homeowner will clean up the litter; however, more often the litter is left on the ground or not completely cleaned up. Rental companies receive complaints weekly regarding trash scattered on the rental property.

Various community associations in Garrett County have bylaws regarding litter and have taken measures to prevent litter by using a central location for a trash dumpster instead of individual containers set out by residents.

Garrett County's solid waste regulations (County Code, Title V. **Public Works**: Chapter 50. **Solid Waste**) deals with the collection, placement and disposal of solid waste. Section 50.03 **Placement of Solid Wastes; Collection; Disposal** subsection (11) states that it is unlawful to place or deposit solid waste, hazardous waste or unacceptable waste in a strip mine, along a public road or stream bank or at any other location that is not permitted to receive solid waste by the Garrett County Office of Solid Waste and Recycling or the Maryland Department of the Environment. Additionally, Section 50.03(12) states that it is unlawful to allow solid waste to become a nuisance to an adjacent property owner by allowing solid waste to be blown onto an adjacent property or allowing solid waste to accumulate to such an extent as to create a rodent attraction and harborage. These solid waste regulations are enforced by the Garrett County

Department of Solid Waste and Recycling, the Garrett County Sheriff and all other law enforcement officers along with the State's Attorney for Garrett County, as stated in Section 50.04 **Enforcement**.

Potential Solutions--

- ***Bear-Proof Containers*** - Bear-proof containers are typically constructed of wood or steel and allow the user to lock waste containers securely inside, thus making it difficult, if not impossible, for bears to recover waste materials. Some residences are already using bear-proof containers. Disadvantages of bear-proof containers are the aesthetics of waste collection containers remaining curbside year-round, high cost of the container (up to \$1000 per container), additional labor requirements by the waste hauler to manually unlock the containers to retrieve waste, and bear-proof containers still do not work 100 percent of the time. Other vacation areas in the country that experienced bear problems were researched. Their bear-proof waste container ordinances are presented in Appendix C. Ordinances requiring bear-proof containers can vary by applicability, material and construction of the container, and exceptions for hardship.
- ***Placement of Waste Collection Containers*** - Secondary and rental homes are more likely to have continual placement of waste collection containers curbside. By requiring that waste collection containers be brought back from the curb to the house soon after waste collection has occurred, they are less prone to attack from bears.

Many community associations and some municipalities prohibit the continual placement of waste collection containers curbside. Reasons for this include improved aesthetics of the community, reduction of blocked roads and/or sidewalks from tipped or misplaced waste collection containers, and reduced attraction of vectors and scavenging animals (such as bears). Hence, a reduction in bear-induced litter may result by requiring that waste collection containers be returned to the home soon after waste has been collected.

By increasing involvement with the local associations and rental companies, it could be suggested that permanent waste collection containers or containers that have separate compartments for recyclable materials be made available to renters at the rental office itself. Owners & visitors checking-in and checking-out would be able to utilize the containers prior to leaving the County or going to the rental. This is an amenity and a service to the community.

- ***Change Waste Collection Day*** - Most second homeowners and vacationers begin and end their stay in the County on a Saturday or Sunday. In contrast, most private haulers collect waste during the week, Monday through Friday. By collecting waste on a Saturday or Sunday, the time that waste is accessible to bears will be limited.

- ***Increase Public Education Efforts*** - Improved public education to inform residents and visitors of the fines and penalties for violating the litter ordinances, as well as the more positive issues such as the beneficial effects to the environment, should reduce the quantity of litter. This information can be disseminated through brochures, pamphlets, signs, County newspapers, etc. Signs can be posted along roads, recreational areas, and other public areas to remind people that there are penalties for littering and that they will be enforced.
- ***Enforcement of Litter Ordinances***

SOURCE REDUCTION

Source reduction involves the design, manufacture, purchase, or use (including re-use) of materials or products to reduce the amount of refuse or potential toxicity of materials disposed of in the waste stream. The measurement of source reduction is difficult in that one must quantify waste which has not been generated. A typical approach to measure the effectiveness of source reduction is to estimate impacts on generation rates. Greater source reduction efforts may yield reduced waste generation rates with time.

In 2002, MDE established a source reduction credit system which allows jurisdictions to count waste reduction efforts towards their overall recycling and waste reduction diversion rate goals. In 2012, Garrett County was able to add an additional one percent to its reported MRA recycling rate through documented waste reduction activities. Alternatives that could increase source reduction are discussed below.

County Policy Development

Garrett County should continue to seek further means of source reduction and promote it. The County is currently in the process of creating a *Waste & Source Reduction, Recycling, and Green Purchasing Policy*. Garrett County encourages businesses, offices, and residents to practice source reduction and recycling in their activities. Common ways to reduce wastes are described below.

- Using supplies and materials more efficiently. Double-sided photocopying can cut paper costs by 10 to 40 percent, compared to single-sided copying. Printing only the number of copies necessary or routing one copy to several readers reduces paper waste. Use of removable stick-on labels instead of cover sheets when sending faxes and reducing distribution list size reduces waste quantities.
- Reuse products and supplies. Using durable, reusable products rather than single-use materials is one of the more effective waste prevention strategies. Examples include using ceramic mugs rather than disposable cups, reusing envelopes for interoffice mail, and reusing file folders and report binders. Posting notices in common areas and using email and electronic bulletin boards are means of communication with virtually no waste generated.

- Prepare final versions of large documents in Portable Document File (PDF) format on CD as an alternative to the hard paper copy version. Implementation of this strategy for reports can reduce storage requirements and paper reports that are ultimately discarded.
- Minimize the number of documents that are printed - use electronic versions when practical. When writing letters or other documents, review the first proof on the computer screen.
- Use minimal or reusable packaging. Work with suppliers to minimize the amount of packaging used and to return shipping materials such as crates, cartons, and pallets for reuse; alternatively, save the packaging and reuse it for outgoing shipments. Promote the purchase of items in bulk to reduce packaging.
- Use and maintain durable equipment and supplies. High quality, long-lasting supplies and equipment that can be easily repaired result in fewer discards. In addition, higher initial costs are often justified by lower maintenance and longer life. If items are disposed less frequently, cost savings can be realized.
- Encourage acceptance of reused materials on construction contracts where the material will serve the intended purpose; e.g., using crushed concrete or asphalt as road base or chipped wood as mulch.

County agencies that adopt source reduction measures can further serve as examples to businesses and citizens.

Public Education

The County makes the public aware of waste management activities through the County website, the online magazine *Deep Creek Times*, the new *Guide to Responsible Disposal & Free Recycling in Garrett County* brochure, newspapers, flyers, special events, public speaking engagements, and school curricula. These are used to disseminate source reduction information.

Household Hazardous Waste Program

To reduce hazardous chemicals being disposed of in the County Landfill, the County may wish to implement a Household Hazardous Waste (HHW) Program. Materials typically included in a HHW Program are paints, solvents, corrosives, insecticides/pesticides/herbicides, fuels, photographic chemicals, and oxidizers.

A HHW Program can be managed either through County personnel or contracted services. Drawbacks of a HHW Program are the increased administrative support by County personnel and the cost of transport and disposal. Costs could be decreased through partnering with others using volunteer firefighters to assist with collection and packaging activity.

Fluorescent and Compact Fluorescent Light Recycling County Plan

The Garrett County fluorescent and compact fluorescent light recycling plan must be completed no later than October 1, 2011. To date, Garrett County is participating in a fluorescent, compact fluorescent and Non-PCB ballast recycling program and has a recycling plan in place approved by the Maryland Department of the Environment (5/18/10).

Garrett County shall collect, but not be limited to, compact fluorescent bulbs (CFL's), 4' lamps, 8' lamps, U-tubes and Non-PCB ballasts, however this may or may not change based on market conditions or requirements.

Garrett County Solid Waste and Recycling Division plans to utilize funds through the Solid Waste & Recycling Enterprise Fund Budget to operate a collection program for Garrett County residents. The recycling program is free to Garrett County residents, however this may or may not change based on market conditions.

The fluorescent materials will only be accepted at the landfill location at 3118 Oakland Sang Run Road, Oakland, Maryland 21550, during the business hours of 8:00 a.m. – 3:30 p.m., Monday – Friday. A 10' x 10' storage shed will be purchased for the fluorescent materials; the building will be provided with the proper signage and ventilation. Trained personnel should be prepared daily to accept the bulbs, lamps and Non-PCB ballasts for recycling at the storage shed practicing standard safety procedures.

Immediately upon collection, all fluorescent bulbs, tubes and Non-PCB ballasts will be placed directly into pre-paid mailing containers provided by an independent recycling contractor; this method of storage will eliminate breakage. When the containers are full, they will be sent to the recycling contractor for processing and recycling.

In the event that breakage should occur, employees will follow the guidelines set forth in the Mercury Spill Emergency Response Manual (approved by the Maryland Department of the Environment 5/18/10) kept in the Main Office at the Garrett County Landfill and call The Emergency Response Division (ERD) at the Maryland Department of the Environment at 866-633-4686 for immediate guidance and instructions.

As the fluorescent and compact fluorescent light recycling program is planned for Garrett County residents only, a list of fluorescent and compact fluorescent light recycling processors is available in the landfill office for commercial businesses interested in contacting an independent processor for recycling fluorescent materials.

It is the responsibility of the independent recycling processor to report, by February 15th of each year, to the Garrett County Recycling Coordinator, Garrett County Department of Solid Waste & Recycling, the amount and type of fluorescent light, compact fluorescent light and Non-PCB ballast materials collected by Garrett County, for the previous calendar year.

It is the responsibility of the Garrett County Recycling Coordinator to report the tonnage of fluorescent light, compact fluorescent light and Non-PCB ballast materials recycled in Garrett

County each year on the MRA Recycling Report to the Maryland Department of the Environment.

RECYCLING

Recycling is considered an integral component of solid waste management and is required by Maryland law. The State has established mandated recycling goals: 20 percent for Garrett County since the population is fewer than 150,000. Population projections for the next ten years indicate that the County's population will not exceed 150,000; therefore, the recycling goal will remain at 20 percent.

Curbside Recycling

As discussed in *Chapter 3*, curbside recycling is offered in only a few incorporated towns and includes few material types. Due to the rural nature of Garrett County, curbside recycling is relatively expensive to implement. However, curbside recycling has significantly increased recycling quantities in communities across the country. Methods to increase quantities include:

- ***Cooperative Agreement Between Incorporated Towns*** - Instead of each municipality having a separate contract for recycling services, they could join together to get a "bulk discount." Expanding the number of homes served could decrease the cost per household thus making it more affordable for each municipality.
- ***Coordination with County Recycling Program*** - The cost for curbside collection could be decreased if the waste collection contractor is allowed to drop off all or part of the collected recyclable material at the County Landfill or at the County's established market. Therefore, the contractor could collect recyclable materials for which he hasn't established a market.
- ***Encourage Cooperation among Community Associations*** - Similar to incorporated towns, community associations can join together in the solicitation for curbside collection services.
- ***Increase Public Education*** - By promoting the curbside collection program and informing residents of proper methods to prepare recyclable materials, the quantity and quality of materials collected will be improved.

Recycling of Computers, Electronics, Covered Electronic Devices and Video Display Devices

There is a growing concern regarding the disposal of computers, electronics, covered electronic devices and video display devices in landfills. These devices (electronics) can contain hazardous materials such as lead, mercury and hexavalent chromium in circuit boards, batteries and cathode ray tubes (CRTs).

A program for the separate collection from citizens, municipalities and businesses of electronics is needed to reduce the quantity of these materials being landfilled. A program may include, but may not be limited to, computers, computer monitors, laptops computers, TVs, PDAs, peripherals, telephones, printers, fax machines, copiers, VCRs, camcorders, DVD players, CD players, calculators, typewriters, cell phones, etc.

Garrett County plans to utilize funding for this program obtained through grants or the Solid Waste & Recycling Enterprise Fund budget to operate a permanent collection program. A permanent program should be initiated at one refuse & recycling collection site in Garrett County. If funding is not available for a permanent program it is planned to conduct annual one-day events to collect electronics for recycling if economically feasible.

As awareness and interest regarding recycling of electronics grows, the need for a permanent program and/or expanded program will also grow. Additional locations should be added to a permanent electronics recycling program to provide a convenient method of disposal for citizens, municipalities and businesses. Several one-day events could also take place each year to minimize landfilling and maximize recycling of electronics. As the computer and electronics industry evolves, programs should be developed to address changes and continue to reduce landfilling of these materials.

Management of White Goods

White goods containing refrigerants are accepted only at the County Landfill, where personnel remove refrigerants and aggregate the white goods until sufficient quantity is accumulated for transport to a recycling market. Other white goods that do not contain refrigerants, such as dishwashers and stoves, are accepted at Kings Run, Grantsville, 135 (Backbone Mountain), Bumble Bee and Garrett Highway Refuse & Recycling Site and then transported directly to market.

Recycling Coordinator

The Recycling Coordinator performs the duties and manages the responsibilities of a successful recycling program, including marketing of material, coordination of processing activities, recycling training for staff and County personnel, residents, municipalities, civic groups, and commercial businesses, identification and establishment of partnerships that will increase recycling quantities, public education, monitoring the budget, prepare State mandatory reporting, and application for grants toward the recycling program.

Education and Publicity

Garrett County is committed to recycling. To insure program success, the County has invested in public education and outreach initiatives. Efforts focus on a diversified series of media, community outreach, and volunteer programs. The Department has taken a lead role with respect to public education and promotion of recyclables and source reduction.

Public awareness and support are keys to the success of waste reduction and recycling programs. The public can be reached through a variety of educational and publicity programs. The County is very much aware of the value of education and publicity tools. In 2011 the budget for education was \$9,200. In 2012 the budget allowed for \$12,000 to be spent on education and publicity programs, including: newsletters, posters, brochures, and flyers, displays at fairs, advertising, and new program development. In keeping with anticipated waste reduction and recycling program growth, the FY 2014 budget was increased to \$12,500 for allocation of education and publicity.

Establish a Garrett County Public School Recycling Plan

Garrett County Public Schools' recycling plans must be completed no later than October 1, 2010. To date, all Garrett County Public Schools have recycling plans in place and are participating in a recycling program.

It is the responsibility of the Garrett County Board of Education to schedule the pick-up of all recycling materials from each school in the Garrett County public school system. To date, the Board of Education has determined that a bi-weekly pick up of recyclable materials at each school must be scheduled; however this schedule may change due to the volume of materials collected at each location or by the sole discretion of the Garrett County Board of Education.

The Garrett County Schools shall collect, but not be limited to, #1 plastic, #2 plastic, cardboard, mixed paper, tin cans, aluminum cans, magazines, glass and newspaper.

Garrett County Board of Education, 40 South 2nd Street, Oakland, Maryland 21550, has the responsibility of picking up recyclable materials at the following schools:

Elementary Schools

Accident Elementary School	534 Accident Bittinger Road Accident, Maryland 21520	301 746 8863
Broad Ford Elementary School	607 Harvey Winters Road Oakland, Maryland 21550	301 334 9445
Crellin Elementary School	115 Kendall Drive Oakland, Maryland 21550	301 334 4704
Friendsville Elementary School	1 st Avenue Friendsville, Maryland 21531	301 746 5100
Grantsville Elementary School	P.O. Box 9 Grantsville, Maryland 21536	301 746 8662

Route 40 Elementary School 301 689 6132
17764 National Pike
Frostburg, Maryland 21532

Swan Meadow School 301 334 2059
6709 Garrett Highway
Oakland, Maryland 21550

Yough Glades Elementary School 301 334 3334
70 Wolf Acre Drive
Oakland, Maryland 21550

Middle Schools

Northern Middle School 301 746 8165
86 Pride Parkway
Accident, Maryland 21520

Southern Middle School 301 334 8881
903 Broadford Road
Oakland, Maryland 21550

High Schools

Northern High School 301 746 8668
371 Pride Parkway
Accident, Maryland 21520

Southern High School 301 334 9447
345 Oakland Drive
Oakland, Maryland 21550

Educational Cntr.

Hickory Environmental Educational Center 301 746 7038
604 Pride Highway
Accident, Maryland 21520

Garrett County Board of Education, 40 South 2nd Street, Oakland, Maryland 21550, has the responsibility of picking up recyclable materials at any/all newly constructed public schools or educational centers in Garrett County. Newly opened schools will begin participating in a recycling program within two (2) months of the new school year session.

An employee from the Garrett County Board of Education has the responsibility of delivering #1 plastic, #2 plastic, mixed paper, aluminum cans, magazines, glass and newspaper to the Garrett

County Refuse & Recycling Sites located throughout Garrett County (open Monday – Friday, 7:00 a.m. – 6:00 p.m.; Saturday, 9:00 a.m. – 6:00 p.m.; Sunday 12:00 p.m. – 6:00 p.m.) at the following locations: Bumble Bee Site, 1367 Bumble Bee Road, Accident, Maryland 21520; Friendsville Site, 8397 Friendsville Road, Friendsville, Maryland 21531; Grantsville Site, 13168 National Pike, Grantsville, Maryland 21536; 135 Site, 12091 Maryland Highway, Swanton, Maryland 21561; Kings Run Site, 1631 Kings Run Road, Oakland, Maryland 21550; Garrett Highway Site, 10180 Garrett Highway, Oakland, Maryland 21550.

The Garrett County Board Of Education has the responsibility of delivering tin cans to Sunrise Sanitation Services, Inc., to 4007 Underwood Road, Oakland, Maryland 21550. Upon delivery of recyclable materials to the Garrett County refuse & recycling sites, Sunrise Sanitation Services, Inc., and/or any recycling processor chosen by the Board of Education to handle and process the recyclables collected in the schools, each entity will be held individually responsible for the final marketing and disposition of the materials. In the event that one or more of the listed recycling processors are no longer available to accept materials from the schools located in Garrett County, the Garrett County Board of Education has the responsibility of delivering the materials to one of the Garrett County refuse & recycling sites and/or the responsibility of securing a new recycling processor for the final destination of the recyclable materials collected in the public schools and educational centers.

It is the responsibility of the recycling processor to report, by February 15th of each year, to the Garrett County Recycling Coordinator, Garrett County Department of Solid Waste & Recycling, the amount and type of recyclables collected by the Board of Education, for the previous calendar year.

It is the responsibility of the Garrett County Board of Education to select a staff member to coordinate recycling efforts and schedule pick-ups with each school in the Garrett County school district. It is also the responsibility of the selected staff member to report the recycling efforts of each school to the Garrett County Recycling Coordinator. The Garrett County Recycling Coordinator will monitor the Garrett County School Recycling Program to identify areas of improvement, provide guidance and support, and ensure the continuous participation by public, trade schools and educational centers.

It is the responsibility of the selected Board of Education staff member to advise the Garrett County Recycling Coordinator of any recycling issues or non-compliance of any school within 30 days of the issue arising. The Garrett County Recycling Coordinator has 30 days to respond to the issue(s) identified with corrective actions.

Garrett College Recycling Plan

Garrett Colleges' recycling plan must be completed no later than October 1, 2010. To date, Garrett College has a recycling plan in place and is participating in a recycling program.

It is the responsibility of Garrett College, to direct College personnel to maintain a regular schedule for the pick-up of recyclable materials at each building on campus and in the facilities offices, located at 687 Mosser Road, McHenry, Maryland 21541.

The program shall include, but not be limited to, office paper, #1 plastic, aluminum cans, toner cartridges, light bulbs, motor oil, tires and batteries.

It is the responsibility of Garrett College to select College personnel to handle the emptying of recycling receptacles in each building on campus and in each of the facilities offices and to deliver the recyclable materials to the nearest refuse & recycling site or designated recycling processor or mail to the designated vendor/processor.

Garrett College has the responsibility of delivering #1 plastic, office paper, motor oil and aluminum cans to the Garrett County Refuse & Recycling Sites (open seven days per weeks) located in Garrett County at the following locations: Bumble Bee Site, 1367 Bumble Bee Road, Accident, Maryland 21520; Grantsville Site, 13168 National Pike, Grantsville, Maryland 21536; and Garrett Highway Site, 10180 Garrett Highway, Oakland, Maryland 21550.

Garrett College has the responsibility of delivering automotive batteries to Garrett Automotive, Oakland, Maryland 21550 and tires to Glotfelty Tires, Oakland, Maryland 21550. In the event that one or more of the listed recycling processors are no longer available to accept materials, Garrett College has the responsibility of securing a new recycling processor within sixty (60) days, for the final destination of the recyclable materials collected in the facilities offices and at each building on campus.

Furthermore, Garrett College has the responsibility of mailing light bulbs and toner cartridges to Individual vendors/processors that handle, process and recycle materials in a responsible, ecologically sound and dependable manner.

It is the responsibility of the recycling processor to report, by February 15th of each year, to the Garrett County Recycling Coordinator, Garrett County Department of Solid Waste & Recycling, the amount and type of recyclables collected by Garrett College, for the previous calendar year.

It is the responsibility of Garrett College to select a “Campus Green Committee. One task of this committee should be to create a “Green Plan.” This plan will outline steps to be taken that will aide in developing and implementing actions that will foster environmental awareness.

It will also be the responsibility of the Campus Green Committee to report the recycling efforts of Garrett College to the Garrett County Recycling Coordinator, Garrett County Department of Solid Waste & Recycling. The Garrett County Recycling Coordinator will monitor the Garrett College recycling program to identify areas of improvement, provide guidance and support, and ensure the continuous participation by students, educators and personnel.

It is the responsibility of the Garrett College Campus Green Committee to advise the Garrett County Recycling Coordinator of any recycling issues or non-compliance within 30 days of the issue arising. The Garrett County Recycling Coordinator has 30 days to respond to the issue(s) identified with corrective actions.

The Garrett County Landfill can be utilized as a collection site during the following business hours:

Summer Season: April 15th through November 15th; Mon-Sat 8:00 a.m. – 3:30 p.m.

Winter Season: November 16th through April 14th; Mon – Fri 8:00 a.m. – 3:30 p.m.

Saturdays 8:00 a.m. – 12:00 p.m.; No Scales Available.

Establish an Apartment Building and Condominium Recycling Program

Pursuant to House Bill 1 adopted in April, 2012 all owners or councils of owners of Garrett County Apartment Buildings and Condominiums that contain 10 or more dwelling units are required to provide recycling to their tenants. The law requires the program to be in place by October 1st, 2014.

A. Apartment Building and Condominium Recycling Program

In cooperation with the Garrett County Department of Solid Waste & Recycling the owners or managers of apartment buildings or councils of unit owners of condominiums (“apartment and condominium officials”), have identified the apartment buildings and condominiums that fall under the scope of the law.

Apartment and condominium officials must report to the Garrett County Department of Solid Waste & Recycling annually, with details of the required recycling activities.

Other program requirements include:

1. Materials Included in Program

Recyclables must include: plastic, aluminum cans, glass jars and beverage containers, as well as paper.

2. Collection of Materials

Apartment and condominium officials are responsible for providing all containers, labor, and equipment necessary to fulfill recycling requirements throughout their buildings. Distinctive colors and/or markings of recycling containers should be provided to avoid cross contamination. The apartment and condominium officials must ensure collection and transportation of recyclable materials from apartment and condominium locations to markets or the established County collection centers. Containers are to be of sufficient size and emptied frequently enough to provide residents with at least weekly access for recycling. Residents will be responsible for placing recyclables in recycling bins prior to their removal on the scheduled pick up day.

3. Marketing of Materials

Apartment and condominium officials are responsible for the marketing of their recyclables. The apartment and condominium officials shall submit annual reports detailing the recycling tonnage removed from the apartment and condominium and the markets for the materials.

B. Stakeholders

Stakeholders that will be involved in implementing the law are:

1. County Council or Commissioners

Responsible for adopting the MDE approved language of ABCR Program into the 10 year Solid Waste Management Plan

2. County Department of Solid Waste & Recycling

Responsible for overseeing the County Office of Recycling activities and assuring that all apartment buildings and condominiums that fall under the requirements are included in the ABCR Program.

Communicate the requirements of the law to the apartment and condominium officials. Assist apartment and condominium officials in developing a recycling program. Monitor the progress and performance of the ABCR Program. Develop the requirements of an ABCR Program in conjunction with input from apartment and condominium officials.

Update the County Solid Waste Management Plan to include the ABCR program

Develop a recycling reporting survey to be used by apartment and condominium officials in reporting recycling activities.

3. Owner or Manager of the Apartment Building or Councils of the Unit Owners of Condominiums

Responsible for providing recycling to the residents of each apartment building or condominium by October 1, 2014. Secure and manage recycling contracts with the contractor for providing material collection and recycling services from the building locations. Provide material collection bins and containers for transporting the materials from the buildings to the markets. Perform record keeping and may report to the County on annual basis.

C. Participating Apartment Buildings or Condominiums () in ABCR Program

Accident Community Housing PO Box 485

Accident MD 21520

Corp – (20)					
Backbone Housing Inc – (18)	320 Cathedral St		Baltimore	MD	21201
Bergstrom Properties, Llc. – (24)	202 N North St	PO Box 228	Accident	MD	21520
Cassel Ridge East Limited Part- (31)	104 East Center St		Oakland	MD	21550
Casselman, Inc. The – (40)	113 Main St 1000 Thayer Center		Grantsville	MD	21536
E H P Associates – (29)	Center		Oakland	MD	21550
Friendsville Associates, Ltd. Part – (29)	15825 Shady Grove Rd., Suite 25		Rockville	MD	20850
Grantsville Associates Limited Pt. – (36)	C/o Meadowview Apts.	PO Box 298	Grantsville	MD	21536
Guardian Associates Limited Part – (26)	S 112 Tull Dr.		Seaford	DE	19973
Liberty Square Limited Part – (30)	104 E Center St		Oakland	MD	21550
Maryjane Zorzit, Llc. – (12)	8100 Harford Rd		Baltimore	MD	21234
Mattingly Frank R – (10)	225 Sunset Lane 612 Stockslager Rd		Oakland	MD	21550
McHenry Cove, Llc. – (21)	944 Fish Hatchery Rd		Oakland	MD	21550
Merkel Karen L- (10)	Hatchery Rd		Accident	MD	21520
Mountain Village West, Ltd. Part – (30)	104 E Center St		Oakland	MD	21550
Nine Donald L & Rachel A – (14)	53 High View Dr		Oakland	MD	21550
Oakvue Mobileminium Assoc., Inc. – (10)	C/o Joanne Papania	603 Calais Dr., Apt 2102	Pittsburgh	PA	15237
Oakwood East Associates Ltd Part – (32)	104 East Center St		Oakland	MD	21550
Overlook North, Limited Partnership – (60)	104 E Center St		Oakland	MD	21550
Parkwood Village Assoc., Ltd. Part – (32)	C/o Garrettland	1000 Thayer Center	Oakland	MD	21550
Pysell Ridge Limited Part – (30)	104 E Center St		Oakland	MD	21550
Rjt Rentals Llc – (12)	19403 Dans Rock Rd 1600 Mount	Po Box 46	Midland	MD	21542
Russell-dreisbach, Llc. – (19)	Aetna Rd		Frostburg	MD	21532
Thomas Ricky L- (12)	938 Teets Rd		Friendsville	MD	21531
Village View, Limited Partnership – (28)	104 E Center St		Oakland	MD	21550

Warnick Julie A- (13)	2463 Lower New Germany Rd 1000 Thayer	Frostburg	MD	21532
Garrettland – (100+)	Center	Oakland	MD	21550

Note: New apartment buildings or condominiums that will fall under the requirements of the law will begin participating in the ABCR program within 3 months of being notified by the County.

4. Program Monitoring

The Garrett County Department of Solid Waste & Recycling shall oversee the progress and performance of the ABCR Program. However, the apartment and condominium officials will conduct inspections, review service levels, investigate reported or unreported pick-up and disposal complaints, meet with residents or recycling contractor staff to educate or review practices, and review contractor compliance with the recycling contract. Any issues which arise from these visits that are deemed deficiencies on the part of the residents or recycling contractor will be detailed in writing and reported to the violator. The apartment and condominium officials shall initiate actions to correct all deficiencies within 60 days of being notified.

The apartment and condominium officials will also be available to conduct educational seminars and/or tours regarding new materials, practices, and procedures for residents. Also, the owner, manager or council shall be responsible to keep the residents current on new regulations, laws, and mandates affecting recycling in the apartment buildings or condominiums.

5. Program Enforcement

The Garrett County Department of Solid Waste & Recycling will ensure that the recycling at apartment and condominiums will be implemented in accordance with the Sections 9- 1703 and 9-1711 of the Environment Article, Annotated Code of Maryland. The County Attorney’s Office will determine if a County should enforce the law and what level of enforcement actions should be used. The law allows for fines to a person that violates the recycling or reporting requirements of the law or a civil penalty not exceeding \$50 for each day on which the violation occurs. Further, any penalties collected under the law shall be paid to the county, municipality, or other local government that brought the enforcement action.

Education--

Educational materials should continue to target the business community and the general public. The County should continue to develop these educational materials as needed. The County is currently using the following approaches for disseminating information about recycling:

- Promotional and educational information is dispersed primarily through word-of-mouth. Materials are also sent out through the refuse site permit program;

- Articles and special announcements are printed in the local newspapers (*The Republican* and *The Weekender*) and disseminated using other media;
- Articles, releases and announcements are printed on the page dedicated for recycling in the online magazine *Deep Creek Times*;
- Municipalities also use media regarding recycling programs for their communities;
- The Garrett County Government website provides information about each Refuse & Recycling Site, ongoing recycling programs, materials accepted; instructions on handling materials; special programming & events and reporting forms;
- Recycling and waste reduction literature is displayed at information sites throughout the County, including the Court House and Visitor's Center; and
- Realty companies

The County also provides a reference and referral service for County businesses wishing to develop or expand recycling programs. County personnel are available to visit business locations to help identify recycling opportunities and assist in identifying material markets.

Publicity--

Publicity and promotional materials are required to introduce programs to the public and to maintain public support and participation. The County may wish to adopt an overall theme, logo, color scheme, or other tools that effectively unifies waste reduction efforts. Each waste reduction program should be accompanied by a publicity campaign that fits into the overall waste reduction program themes, yet targets the specific audience affected by each program. For example, yard waste programs should target only single-family residents, and Refuse & Recycling Site materials should reach every citizen. Regardless of the audience, publicity campaigns should seek to maximize participation and support for each program.

Visual materials such as posters, brochures, bumper stickers, and refrigerator magnets are effective ways of promoting programs. In addition, equipment that is used to maintain the program can also bear waste reduction program themes.

WASTE PROCESSING AND DISPOSAL ALTERNATIVES

Garrett County provides and will continue to provide processing and disposal capacity for the majority of waste generated in the County at the County Landfill. Disposal alternatives are discussed below.

Waste-To-Energy (WTE)

Waste-to-energy (WTE) facilities are the modern incarnation of the older municipal waste incinerators, as opposed to incinerator facilities, which operate primarily as furnaces for burning

waste. WTE facilities are designed to serve as a reliable disposal option while generating significant quantities of power.

As in any combustion process, a solid ash residue is produced. In order to determine disposal requirements for ash, a Toxic Characteristics Leaching Procedure (TCLP) analysis must be performed for representative composite ash samples. The purpose of the analysis is to simulate the concentrations of toxic substances in the ash which may be leached to water through the landfill waste mass. If the TCLP procedure indicates that contaminant concentrations in the leachate will be at hazardous levels, then the ash must be managed and disposed of as hazardous waste at an appropriately permitted facility. Otherwise, disposal at a MSW landfill and recycling are options.

Recycling and reuse of ash from MSW incinerators and WTE facilities are becoming common practice. Ash can be reused at landfills as daily cover or for drainage layers, used as road base material (aggregate for asphalt), or construction material.

WTE facilities are difficult to implement and the amount of time required for siting, permitting, and construction is greater than for other waste processing and disposal technologies. Additionally, the capital cost of a WTE facility is generally higher than for other waste disposal alternatives. Therefore, a WTE facility is not recommended at this time to manage MSW in Garrett County.

Anaerobic Digestion Option

Anaerobic Digestion (AD) in the simplest terms is the process to degrade organic material in the absence of oxygen. Therefore, Anaerobic Digestion breaks down the organic fraction of waste including: paper, yard waste, food and other organic wastes. The process can be accelerated in landfills by introducing a bioreactor.

Benefits to the use of this technology include: Reduction in landfill space that is used, production of a compost product that may be marketable, residual compost may be used as daily cover, and the generation of electricity. The latest research reveals that the separation of undesirable materials out of the anaerobic digester stream enhance the end products that are produced as well as minimizing the environmental impacts created by the digestion process.

Currently Garrett County has found that this technology is very appealing but cost prohibitive. It is hoped that with refinements in the systems and robust competition that cost will come down at the same time that Garrett County waste volumes reach a level that can support the operation of a state of the art anaerobic digestion system.

Mixed Waste Processing and Composting Facility

While composting of homogeneous waste streams such as yard waste has had success in the U.S., composting of mixed solid waste continues to struggle. Numerous problems have been experienced such as fires, odors, and product quality problems. The finished compost must meet regulatory requirements and aesthetic requirements of potential customers. High value markets

will only purchase compost that meets maturity standards, causing some projects to send their product to landfills for use as cover or for disposal.

Because of the potential problems associated with the poor operational history of facilities in the U.S. and the costs to develop and operate a facility, this option is not considered viable at this time.

GARRETT COUNTY LANDFILL

The County Landfill and the Refuse & Recycling Sites are the only solid waste disposal facilities in the County. All waste received by the Refuse & Recycling Sites is transported to the County Landfill for ultimate disposal; recyclables are transported directly to markets. The County Landfill accepts the following waste types generated in the County:

- Residential wastes;
- Commercial wastes;
- Industrial wastes;
- Institutional wastes from schools, hospitals, and government facilities;
- Construction, demolition, and land clearing debris (CDL);
- Dead animals;
- Litter;
- Bulky wastes and white goods;
- Asbestos;
- Sludges; and
- Tires.

Controlled hazardous substances (CHS) and automobiles are not accepted at the County Landfill. Disposal of these materials are managed by the generator and a private company.

Landfill Life

According to the 2012 Annual Solid Waste Tonnage Report submitted by MES to MDE, there are approximately 1,010,957 cubic yards available for Cells 1 through 4. **Exhibit 4-1** presents the remaining life expectancy calculations included in this report.

EXHIBIT 4-1: LANDFILL CAPACITY REPORTED BY MES

Landfill Information¹	Tonnage
Cumulative tonnage landfilled (January 2006-December 2012)	576,926
Tons landfilled in 2012 (1/1/12 - 12/31/12)	29,618
Total current tons landfilled	606,544
Estimated total disposal capacity of County Landfill (includes Cells 1-4)	1,222,763
Less current tons landfilled	606,544
Available remaining disposal capacity²	616,219
Percent of landfill space filled ³	50%
Remaining life of Cells 1-4 (by tons)³	20 years
Estimated closure of Cells 1-4	2/1/2034

¹ Information based on 2012 Annual Solid Waste Tonnage Report to MDE.

² Number may be off due to rounding errors.

³ Number may be off due to rounding errors.

Exhibit 4-2 presents projected waste quantities generated, recycled, and landfilled. It is projected that the County Landfill has over 616,000 tons of capacity remaining and the total quantity of waste that will require landfilling in the next 10 years is approximately 420,625 tons. Therefore, it will be necessary for Garrett County to begin contemplation of alternate waste disposal methods, designs or strategies such as Waste-to-Energy (WTE) facilities, anaerobic digestion, or consider new acceptance facilities altogether in the near future.

EXHIBIT 4-2: GARRETT COUNTY WASTE PROJECTIONS

YEAR ¹	Waste Tonnage		
	Generated ² (Tons)	Recycled ³ (Tons)	Landfilled (Tons)
2010	54,454	18,242	36,212
2011	51,481	22,410	29,071
2012	51,750	19,724	29,618
2013	52,181	22,242	29,939
2014	52,730	22,477	30,253
2015	53,285	22,713	30,572
2016	53,834	22,672	31,162
2017	54,383	23,181	31,202
2018	54,933	23,112	31,821
2019	56,403	24,042	32,361
2020	76,962	23,950	33,012
2021	57,520	24,518	33,002
2022	58,079	24,396	33,683
2023	58,637	24,994	33,643
2024	60,356	25,337	35,019
2025	60,926	25,970	34,956
Total Waste Landfilled 2010 - 2025:			420,625

¹ Historical and projected timeframe.

² Total waste generated by residents, businesses, & visitors projected from Exhibit 3-1.

³ Based on projected recycling tonnages in Exhibit 3-1.

FACILITY SITING CONSTRAINTS

The siting of a new facility or expansion of an existing one must consider the following siting constraints prescribed by Maryland regulations:

- Topography;
- Geologic Conditions;
- Aquifers' Use and Depth;
- Surface Water (Sources, Flood Plains, Watersheds, Source Water Protection Areas);

- Soil Type and Characteristics;
- Location;
- Wetlands;
- Existing Water Quality;
- Land Use;
- Planned Long Term Growth; and
- Defined Critical Areas.

A number of these factors are oriented towards facilities that are highly land dependent, including solid waste and CDL landfills, while other facilities may have minimal impact. A brief description of these constraints imposed on solid waste acceptance facilities is listed below.

Topography

Garrett County is entirely within the Appalachian Plateau Province. Throughout Garrett County, the Allegheny Plateau is characterized by broad rolling uplands across which long ridges extend in southwest-northeast directions. As mentioned in Chapter 2, Garrett County is primarily a rural area dominated by woodlands and farms. Increases in recreational and other non-farm uses of the land, particularly in the areas around Deep Creek Lake will influence land use planning. (Maryland Geological Survey)

Landfill sites generally are located in broad valleys, flat plateau areas, and areas which do not have steep slopes. Land which has slopes greater than 15 percent generally is not considered acceptable for landfills due to excessive site grading required to develop landfill cells. While other waste management facilities are not as constrained by the slope of the land, cost factors associated with site work must be considered.

Areas within the 100-year floodplain are not acceptable for development as a land disposal facility due to state and federal regulations. Other waste management facilities must also avoid encroachment into floodplains. Low-lying areas along rivers and waterways may be regulated by federal, state, and local laws due to the presence of non-tidal wetlands.

Geologic Conditions/Aquifers

Garrett County is part of a distinct physiographic province called the Appalachian Plateau Province. The Appalachian Plateau Provinces are underlain mainly by folded and faulted sedimentary rocks. The bedrock of this region consists principally of gently folded shale, siltstone, and sandstone. Folding has produced elongated arches across the region which expose Devonian rocks at the surface. Most of the natural gas fields in Maryland are associated with

these folds in the Appalachian Plateau. Sedimentary rocks yield small-to-moderate supplies of groundwater (Maryland Geological Survey).

Groundwater resources supply over half of the water used in Garrett County. The last comprehensive study of groundwater (transient conditions) in the County was completed in 2007. The County's groundwater quality is generally considered good. It is, however, important to protect this natural resource for future use.

Ground water utilized in Garrett County is derived from the weathered zone and from the upper part of the hard consolidated rock. When saturated, the soil and subsoil supplies water to many of the springs and shallow dug wells. The hard rocks supply water to the drilled wells and some of the springs. In addition to this large reserve of usable surface water, there is, beneath the surface in the various aquifers, an unknown quantity of ground water which is presently supplying most of the requirements within Garrett County. (Department of Public Works, Garrett County Water & Sewerage Master Plan 2014 Revision).

Landfills can be designed to provide an engineered liner system which will protect ground water quality for most geologic conditions. However, it is prudent to avoid geologic areas where ground water contamination could spread rapidly if the liner system is breached by leachate flows. From a geological perspective, other solid waste facilities can be located in geologic areas where foundation design can accommodate site conditions.

Surface Waters

Garrett County has an abundance of water resources with nearly 1,200 miles of streams and rivers including three major recreational lakes: Jennings Randolph Lake, Youghiogheny River Lake, and Deep Creek Lake. All of these lakes have dams built for flood control and water quality and quantity.

Associated areas along streams and rivers are known as 100-year floodplains. These floodplains support natural resources areas such as wetlands and riparian forests that provide vital wildlife habitat, enhance water quality and lessen flood potential.

As adopted in the Garrett County Code of Ordinance, *Title XV, Chapter 151: Flood Hazard Area; Section 151.021 Flood Plain Zones*, floodplains are defined by the Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency.

New development is not allowed in defined areas unless the proposed development activity complies with stringent requirements. The same is required in the Garrett County Sensitive Areas Ordinance adopted June 1997 and amended on May 25, 2010. Section §156.09 Source Water Protection Areas (SWPA), subsection C, wherein it states that no building permit, zoning permit, site plan or subdivision plat shall be approved unless the proposed development activity complies with all of the requirements listed. Additionally, it is prohibited to develop a sanitary landfill or rubble fill in Source Water Protection Areas.

Soil Types and Characteristics

Almost all of the soils in Garrett County can be classified as residual soils since they were formed in place through the mechanical and chemical weathering of the underlying rock formations. The depth, composition and color of the soils are highly related to the composition of the parent rock. In addition to residual soils, some alluvial and colluvial soils are found in Garrett County. Alluvial deposits of well-stratified sand, gravel and clay occur as terrace deposits in the Casselman River Valley, a few miles south of Grantsville, and in the Youghiogheny River Valley north of Friendsville. Colluvial soils are found along any steep slopes and valley margins where they were gravity transported into place as slide rock and soil.

The *Soil Survey of Garrett County, Maryland* provides detailed information on the types and locations of soils within the County. **Exhibit 4-3** presents the various soil associations in Garrett County. The properties of the soils on which a landfill is sited should be considered in planning, design, construction, and closure. Soil characteristics such as texture, erodibility, load-bearing capacity, resistance to slide, permeability, water table elevation, and quantity should be addressed during the site selection process.

Location

The importance of location varies with the type of solid waste acceptance facility being considered. For Refuse & Recycling Sites and solid waste acceptance facilities, location near residential areas is critical. Facility siting requires consideration of technical, economic, legal, and political issues. The 2008 *Garrett County Comprehensive Plan* and Zoning Regulations will aid in allowable locations of solid waste management facilities. Applicable zoning regulations are described in **Chapter 2**.

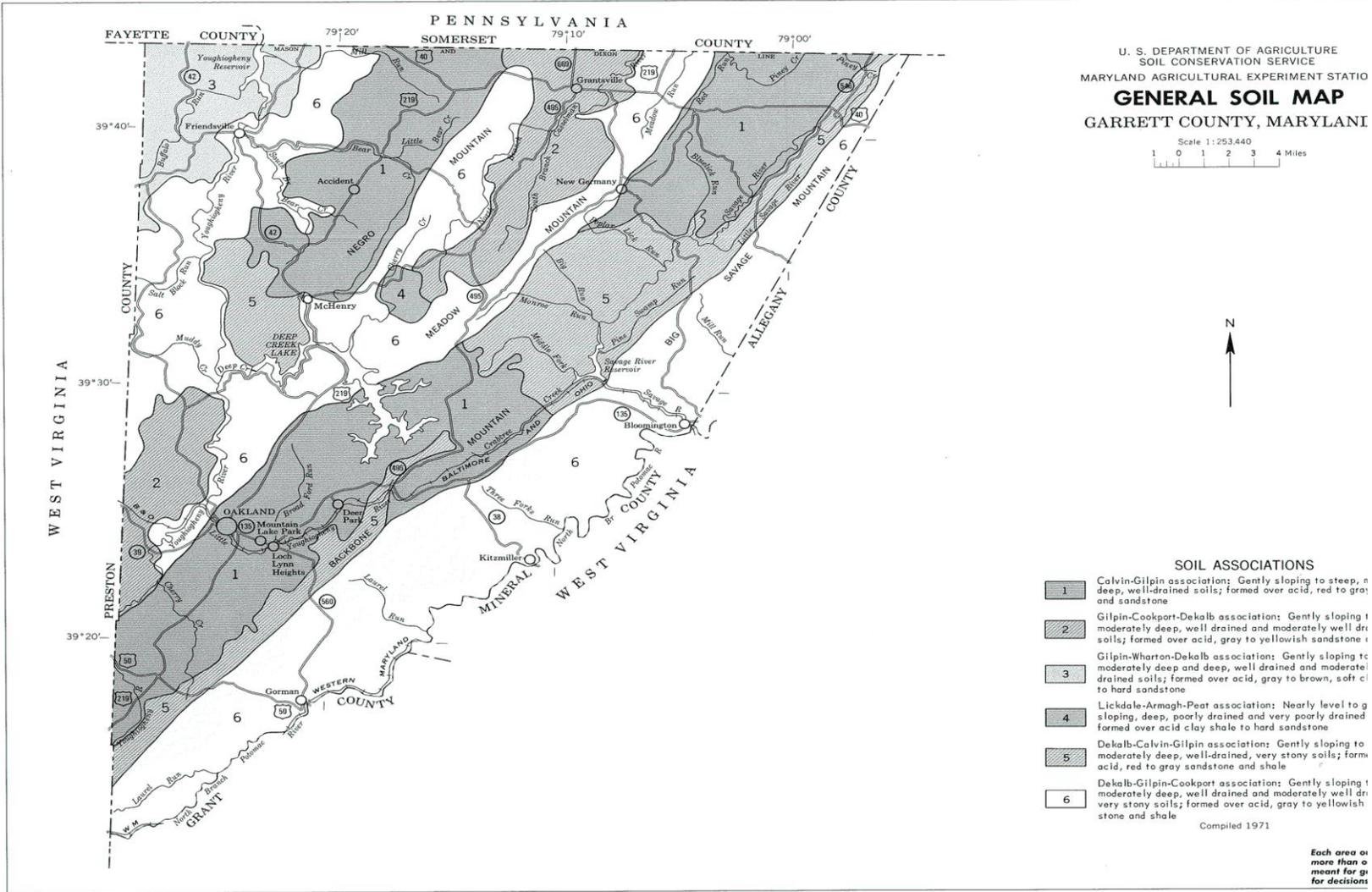
Wetlands

Areas of non-tidal wetlands exist in Garrett County. Non-tidal wetlands are commonly referred to as inland or upland wetlands and can include areas in Garrett County such as bogs and coniferous swamp forests. Because these environments are self-contained, they support many rare and unique species. The County relies on State laws for the protection of these wetlands.

Water Quality

Protection of Garrett County's streams and the land along the waterways (stream buffers) is a vital concern. Consequences of careless land development can degrade waterways by increasing pollutant loads, altering waterways, increasing flooding, and elimination of aquatic life. State regulations and criteria for solid waste management facilities require design features to minimize potential impacts on water quality, but care in the siting of a facility should be taken to aid in minimizing these impacts.

EXHIBIT 4-3: GENERALIZED SOILS MAP OF GARRETT COUNTY



Land Use

The *2008 Garrett County Comprehensive Plan* and the *Garrett County Water & Sewerage Master Plan 2014 Revision* contains regulations to ensure that development in the County will be located in suitable areas to avoid the adverse impacts on adjacent land use and to ensure compatibility with long term growth patterns. Zoning regulations and ordinances are becoming increasingly stringent around the Deep Creek Lake area. Impacts from solid waste facilities such as odor, noise, dust, and/or adverse traffic impacts for adjacent land users must be considered when siting a facility.

Planned Long Term Growth

As mentioned in *Chapter 1*, the *2008 Garrett County Comprehensive Plan* is the main planning document to manage development and growth within the County. As the population continues to grow at a steady rate in the County, it is important for State and County agencies to work together in the future planning of land use and the future needs associated with the demands of the population. The Department of Solid Waste and Recycling should consider the goals of the *2008 Garrett County Comprehensive Plan* as a basis for siting future solid waste management facilities.

Defined Critical Areas

Areas of special concern for Garrett County include sensitive natural areas that are important to respect and protect. These areas include:

- Steep slopes;
- Streams and their buffers;
- 100-year floodplains, Floodplain Buffers and Erosion Control;
- Habitats of rare, threatened and endangered species;
- Wetlands; and
- Source Water Protection Areas.

Policies for preserving and development of these areas can be found in the *2008 Garrett County New Development Plan*. Activities which involve any clearing of vegetation, filling, excavating, flooding, or draining are regulated within these wetland areas by MDE. Any proposed activity in these areas should have alternatives evaluated to avoid and minimize the impact to wetlands. Any facility proposed to be built in these areas, including a solid waste management facility, must apply for a permit. All permit applications undergo a stringent review, and if a feasible alternative exists, the permit will be denied.

EMERGENCY MATERIALS SPILL MANAGEMENT PROGRAM

This section describes the programs and procedures for responding to emergency spills or leakage of hazardous substances within the County. The Emergency Management Department for Garrett County is responsible for responding to emergency spills or releases of hazardous substances and disaster planning. Other agencies to assist the Emergency Management Department in the event of a response are:

- Fire and Rescue Services;
- County Health Officer;
- MDE Hazardous and Toxic Waste Management Administration;
- Center for Radiological Health (CRH/MDE);
- State Fire Marshal's Office;
- State Highway Administration/County Roads Department;
- Maryland State Police/Garrett County Sheriff's Office; and
- U.S. Army, Ft. Meade

A broad variety of hazardous materials are transported by rail and motor vehicle in and through Garrett County. Additionally, there are facilities that use, store or produce hazardous materials in their daily activities. In the event of an accident, these materials can present an immediate threat to life, property, and the environment.

Garrett County Hazardous Materials Plan

The County's *Hazardous Materials Plan* details the procedures to respond to an incident and the proper authorities to contact. The *Hazardous Materials Plan* describes procedures and actions to be taken in the event of a hazardous materials incident. It assigns responsibilities for notification of proper authorities and agencies, and it provides response and support to various departments and agencies within Garrett County.

The Plan is based on the concept that emergency functions for the various groups responsible for responding to hazardous materials incidents will generally parallel their normal day-to-day functions. All local emergency response vehicles have been issued *U.S. Department of Transportation Emergency Response Guidebooks* containing Federal and industry approved protective measures.

It is the responsibility of the Director of Emergency Management to maintain the *Hazardous Materials Plan* and to schedule and organize all exercises. The Plan is tested once a year and is revised and updated as required and as the County's needs change.

SYSTEM COSTS

The County intends that the Solid Waste Management program will be self-sufficient. To accomplish this, the County will finance the operations of the solid waste program through an enterprise fund based on tipping fees and refuse permits. Debt service and capital expenditures will continue to be funded through an ad valorem tax.

Solid waste management costs are kept separate from general revenue taxes. In this manner citizens are made aware of the financial impact of the program. Tipping fees, refuse permits, and the ad valorem tax rate are reviewed on an annual basis and adjusted as necessary to ensure the program generates adequate revenue to cover its operational cost as well as debt service and capital expenditures.