FACILITIES MASTER PLAN
FOR THE
SOLID WASTE OPERATIONS
IN THE
DICKERSON AREA

PREPARED FOR

Montgomery County, Maryland
In consultation with

THE FACILITIES IMPLEMENTATION GROUP
REVISION

August 2013

PROJECT CONSULTANTS

HARRIS, SMARIGA AND ASSOCIATES, INC.
Civil Engineers, Planners and Project Managers

SCHNABEL ENGINEERING ASSOCIATES, INC.
Groundwater

GOROVE/SLADE ASSOCIATES, INC.
Transportation

ENVIRONMENTAL QUALITY RESOURCES, INC.
Forest, Wetlands and Surface Water

MARTHA DONNELLY AND ASSOCIATES
Visual Landscaping Master Plan

R CHRISTOPHER GOODWIN & ASSOCIATES, INC.
Cultural Resources

CUSTER ENVIRONMENTAL, INC.
Air and Odor

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

LIST OF FIGURES AND TABLES. (CONT.)

LIST OF FIGURES AND TABLES (CONT.)

CHAPTER 1: EXECUTIVE SUMMARY

This *Facilities Master Plan for the Solid Waste Operations in the Dickerson Area* was developed in a three-year effort by a consultant team led by Harris, Smariga, and Associates, with information supplied by Montgomery County's Department of Facilities and Services (DFS), and the Department of Transportation's Division of Solid Waste Services (DSWS), and in consultation with a citizens' advisory committee - - the Dickerson Facilities Oversight Group. This draft plan was updated in 2002 by SCS Engineers with information supplied by Montgomery County and in consultation with the citizens' advisory committee (FIG). The 2002 update was never approved by The Dickerson Area Facilities Implementation Group (DAFIG). The Division of Solid Waste Services is now part of The Department of Environmental Protection, not the Department of Public Works and Transportation.

This document identifies potential impacts associated with the development and operation of three solid waste facilities in the Dickerson vicinity - - the Yard Trim Composting Facility, the Resource Recovery Facility, and the proposed Site 2 Landfill - - and defines the policies and actions the County will implement to mitigate these impacts to the community and the environment. The Yard Trim Composting Facility and Resource Recovery Facility are currently operating. The landfill development is postponed; the landfill development will be considered only if conditions for out-of-County landfilling change

When work commenced on this document, the Site 2 Landfill was estimated to be constructed in 1997. Delays in permitting and a shift in policy to seriously pursue out of county disposal options changed the status of this project to a more distant option. The County postponed further decisions concerning the Site 2 Landfill until proposals to transport waste to an out-of-County facility for disposal were evaluated. Since contracts to execute out-of-county disposal have been successfully negotiated, development of the Site 2 landfill is postponed further pending a final determination on the ultimate need to construct a landfill at this site, the property will remain in agricultural use. The out-of-county contract extends to the year 2012 and may be renewed for 5 additional years. Further outsourcing options will also be pursued. However, for the purpose of this document, the Site 2 Landfill is included to identify potential impacts from this proposed facility. Should the Site 2 Landfill be developed, this document will be updated to reflect conditions at the time construction is to occur. A primary focus now as reflected in this document, is for the ongoing management of properties owned by the County for future Site 2 development.

Because the impacts identified are specific to the solid waste facilities, this document is being referred to as a "facilities plan," implying that it is germane only to the impacts of the County's facilities, and is not intended to establish land use policies for areas other than the properties owned by the County.

During the public review process in May 1996, comments were received that this document falls short of scientific impact analysis as performed in classic "environmental impact assessment"

documents. It was never intended for this document to be an Environmental Impact Statement (EIS), but rather a review of existing studies already performed by the County and concerns expressed by area residents. Impact assessment will be performed, as appropriate, in subsequent studies required by either permits, or as defined by community concerns and identified in this document.

Montgomery County is committed to working cooperatively with DAFIG and the residents of the Dickerson area and to addressing issues of concern to the community about the County's solid waste facilities located in Dickerson. This facilities plan represents this effort: to examine and mitigate the impacts on the community and the environment. It will become the plan of action for implementing policies and strategies to address community concerns and will serve as a framework for a continuing working relationship with the citizens of the Dickerson area.

The policy recommendations and strategies to implement the policies are summarized here in *Table 1-1* with comments on the status of implementation of each. These recommendations were made following extensive discussions with the Dickerson Facilities Oversight Group after its review of the initial recommendations from the consultant team and DAFIG.

These recommendations are endorsed and supported by the County's Department of Environmental Protection . The Department's Division of Solid Waste Services will continue to implement the recommendations. . Montgomery County is committed to implementing these actions in continuing consultation with a DAFIG , as defined in Chapter 15.

Table 1-1:

CHAPTER 3: LAND USE
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS By March 2013
1	Propose no further development of industrial-type activities by Montgomery County through the construction of new solid waste facilities.	Adopt the Facilities Master Plan for the Solid Waste Operations at Dickerson and incorporate into the agency and County policies pertaining to the facilities.	Mater Plan adopted by Executive & Council in Spring 1997. Plan was updated in 2002 without approval Plan is being updated in 2012	Complete
2	Protect historic sites and features as identified in Chapter 4: Cultural Resources	Follow the guidelines established by Federal, state, and local mandates for the preservation of historic properties and features.	Gothic Barn , Mathews Farm and properties listed have been stabilized Chiswell renovation complete & leasing	Complete Ongoing
3	Prevent the further deterioration of real estate owned and managed by Montgomery County in the vicinity of the solid waste facilities.	Develop and implement real estate management plans as prepared by the Department of Public Works	10 Real Estate Management Plans developed	Complete Ongoing

		and Transportation (see Appendix 3-A).	Annual maintenance	
4	Consider recommendations for planting of visual screening as presented in Chapter 6: The Visual Landscape Master Plan prepared by the community and Martha Donnelly and Associates, and consult the Forest Stand Delineation Plan and Borrow Study conducted by EQR and Woodward-Clyde Associates for reforestation recommendations. Coordinate landscaping plans at Matthews Farm with Sugarloaf Citizens Association in compliance with the negotiated settlement.	Charge a community citizens group with the responsibility of identifying areas of preferred land use and developing and implementing a landscaping and re-forestation program using the "Visual Landscape Master Plan" and the Forest Stand Delineation" as planning tools.	Berm and Planting	Complete
5	Maintain comprehensive citizen input concerning land use issues for the life of the solid waste facilities.	Create a Dickerson Facilities Advisory Group that would combine the other functional groups addressing solid waste facility issues in Dickerson. This group would meet at least quarterly to review progress on implementing strategies defined in the facilities plan, and would address issues related to all County solid waste operations.	DAFIG chartered by County Council Resolution No. 13-1498, adopted 12/1/98 DAFIG meets quarterly, accordingly.	Complete Ongoing

CHAPTER 4: CULTURAL RESOURCES
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Develop a standard real estate management plan for buildings acquired in association with the County's solid waste facilities.	Develop a standard real estate management plan, including a property assessment and management strategy for each building acquired in association with the County's facilities (Appendix 3-A). The plan should be developed upon the transfer of the property and identify: • Current condition of the building. • Commitment of funds and responsibility for maintenance of the property while under County ownership; • Proposed uses of the building; and • Recommendations for short-term actions on the property.	Ten Management Plans Developed. Maintenance	Complete Ongoing
2	Adopt recognized professional standards for work on all historic buildings within the County's solid waste facilities.	Adopt the Secretary of the Interior's *Standards for Historic Rehabilitation* as the standards for work on all historic buildings within the County's solid waste facilities. These buildings are the Chiswell Farm, the Jones Farm, and the Gothic Dairy Barn. It is anticipated that all work on the Chiswell Farm and the Jones Farm will be required to use these standards as a condition of Federal permits which are necessary for the construction of the landfill. The	Standard followed for Gothic Barn Renovation. incorporated in Chiswell Project	Complete Complete

		adoption of unified standards for work on historic buildings will insure consistency in the work at the solid waste facilities. The *Standards for Rehabilitation* were developed to assist in the preservation of historic materials and building features while providing for efficient contemporary use.		
3	Stabilize the Gothic Dairy Barn at the Matthews Farm.	Implement the 1991 stabilization plan by Ward Bucher, Architect for the Gothic Dairy Barn at the Matthew's Farm, to retain the resource. Implement the restoration of the Gothic Dairy Barn as offices for the Sugarloaf Citizens Association. Restoration will be done the preserve the historic character of the barn.	Implementation done	Complete
4	Restore the Gothic Dairy Barn at the Mathews Farm.	Implement the restoration of the Gothic Dairy Barn at the Matthew's Farm as offices for the Sugarloaf Citizens Association (*Appendix 2-F*). Restoration will be done to preserve the historic character of the barn.	Done	Complete
5	Screen views to the County's solid waste facilities from Martinsburg Road.	Install and maintain landscape buffers, contouring, and vegetation concurrently with the development and operations of the solid waste facilities (*Appendix 2-F):* • As specified in the negotiated agreement with the Sugarloaf Citizens Association, plant mixed deciduous and conifer trees between the Dairy Barn and the compost facility. • Particular attention should be paid to the installation of buffers along South Martinsburg Road.	Plantings done	Complete

		• Plans for the improvements should be developed in coordination with the Landscape Committee recommendations, and as plans pertain to the Matthew's Farm, with the Sugarloaf Association.		
6	Preserve the historic section of Martinsburg Road.	Coordinate with appropriate the County road agency to enforce existing preservation standards for the maintenance of the historic section of the Martinsburg Road. Repair and maintain stone fences located along Martinsburg Road and Wasche Road, as specified in the negotiated agreement with the Sugarloaf Citizens Association (Appendix 2-F).	Repaired stone fences. Road surface Stone fence maintenance	Complete Needs Ongoing Coordination Ongoing
7	Retain and reuse the historic structures at the Chiswell and Jones Farm.	Develop Real Estate Management Plans for the Chiswell and Jones Farms in advance of construction of the landfill: • To document the current condition of the complexes; • To identify conditions affecting the structural integrity of the component buildings and to identify appropriate treatments; • To identify character defining elements to retain in the re-use of the complexes; and • To identify and develop plans for the continued use of the structures as Administrative offices, etc.	Plans developed. Maintenance	Complete Ongoing

		This program should be coordinated with Section 106 compliance under NHPA to mitigate any adverse effects to historic properties posed by the construction of the landfill.		
8	Include pubic interpretation as part of cultural resource work required at the proposed landfill site.	Facilitate public involvement in the cultural resources of the area during future archeological and architectural investigations at the proposed landfill site. The public interpretation program may include: • An open house of in-progress work; • Opportunities for local school participation; and • Preparation and distribution of flyers on site and its context.	Archeological investigation catalogued by Woodward & Clyde. Architectural work ongoing at Chiswell.	Suspended Complete
9	Coordinate local, state, and Federal cultural resource activities.	A cultural resources coordinator should be assigned to the solid waste facilities to avoid duplication of work and to coordinate cultural resource mitigation effects required under Section 106 of NHPA, the Annotated Code of Maryland, and the *Master Plan for Historic Preservation in Montgomery County, Maryland.*	Suspended due to suspension of landfill.	Suspended

CHAPTER 5: TRANSPORTATON
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Heavy vehicle traffic is to be restricted to specific roadways in the vicinity of the site, namely: • MD Route 28; • Martinsburg Road between MD Route 28 and the SWF/NRG (previously GenOn/Mirant/PEPCO) entrance; • Internal roadways at the facilities	Contractors are to be instructed that heavy vehicle traffic is restricted in vicinity of the site to the previously listed roadways.	Instructional slide presentation developed. Use & updating	Complete Ongoing
2	Encourage the use of major roadways by employees. The use of local roads as a shortcut is to be discouraged. Measures to prevent this practice by means of traffic control are to be investigated for recommendation.	Montgomery County Department of Environmental Protection (DEP) will develop enforceable road movement restrictions. Maintain existing signage installed by DEP to restrict truck traffic.	Included in presentation. All contractors and customers use main roads.	Ongoing
3	Awareness of the presence of agricultural vehicles and school buses on area roadways is to be promoted to employees and contractors.	Safety training programs are to be established for county workers and contract personnel to address the presence of agricultural vehicles and school buses on area roadways.	Included in slide presentation	Ongoing
4	Intersections and roadways serving the solid waste facilities are to be upgraded and maintained to safely accommodate traffic to and from facilities.	Measures have been taken to improve the intersections at Martinsburg Road and Mirant and Rt. 28 and Martinsburg Road. The proper public agencies are to be made aware of maintenance problems that develop on	Improvement at 28 & Martinsburg complete. Stoplight	Ongoing

		public roadways in the vicinity of the County's facilities due to truck traffic in order to develop a proper plan of maintenance consistent with the Rustic Roads Plan as described in Chapter 4: Cultural Resources. A traffic light will be requested from the State by DPWT for the intersection of Rt. 28 and Martinsburg Road per the Sugarloaf Citizens Association negotiated settlement.	not warranted at this time - SHA	
5	Rail is to be used for the shipping of all waste to the RRF and, except during peak periods and extenuating circumstances, to the Yard Trim Composting Facility. Alternative transportation mechanisms would only be employed in extenuating circumstances.	Montgomery County is to develop enforceable policies to ensure that rail is used for the shipping of all waste to the RRF and, to the maximum extent possible, the Yard Trim Composting Facility.	All waste to RRF via rail; currently over 50% of yard trim comes by rail.	Ongoing
6	A risk management contingency plan is to be developed to address situations in which one or more of the elements of the transportation system break down.	A transportation demand management program is to be established to mitigate the impacts of situation in which one or more elements of the transportation network break down.	Report submitted to FIG in August 2002 meeting.	Completed
7	Monitoring of Dickerson facilities traffic will be continued.	Traffic to and from the solid waste facilities is to be monitored with review of facility records to establish traffic counts for operating facilities. A traffic count at the intersection of Martinsburg Road and Rt. 28 will be conducted once every 2 years to review the needs of the traffic control light at the intersections.	Traffic count every 2 years Traffic County is suspended based on results.	Completed

8	Materials for the landfill construction will be moved by rail, if feasible.	Montgomery County is to investigate the feasibility of moving materials for the landfill construction by rail.	Landfill suspended	Suspended
9	Management alternatives to minimize leachate truck hauling will be pursued by the county. If leachate is trucked, a spill containment strategy will be developed.	During detailed design of Site 2 landfill, the County will propose leachate management systems that will minimize truck hauling of leachate. Plans will be discussed with the community prior to implementation.	Landfill suspended	Suspended

CHAPTER 6: THE VISUAL LANDSCAPE MASTER PLAN
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Propose the implementation of the Visual Landscape Master Plan as developed for the mitigation of noise, lighting, and visual impacts as set forth in the following design objectives. a. Maintain the farm vernacular/natural appearing topography in all manipulated landforms. b. Long-term design solutions for the landscape should be sustainable and require minimal maintenance.	In keeping with the objectives of the Visual Landscape Master Plan, conduct the following tasks immediately: a. Modify the final contour of the landfill from an angular shape to a softer, more natural form. Stockpiles of borrow material should be graded and stored in a visually sensitive manner appropriate to the rural setting. Final contours of the borrow areas should also be soft natural landforms. Also modify the final cover of the landfill to support revegetation of a substantial percentage of the covered landfill by wood plants characteristic of the region. Incorporate these modifications into the engineering documents for the Site 2 Landfill. Develop and implement appropriate management plans for the newly planted areas. These plans should be coordinated with the forest management plans developed for the forest stands, and should address proper cultural conditions for the plants, irrigation, control of excessive	Landfill suspended	Suspended

	c. All landscape solutions should include: wetlands management, wildlife habitat, reforestation; d. Maintain sense of broad vistas; e. Design required screening so that vegetation blends with surrounding areas; f. Screen for noise generated by facility operations; g. Reduce lighting and screen where possible; h. Traffic volumes should not be increased in order to reduce the need for additional landscaping necessary to maintain safety and minimize noise; i. Design solutions should blend with existing features and rhythms of the landscape; j. j. Protect historic sites by providing an appropriate setting. Adaptive re-use should not destroy the visual character of the historic buildings; k. Design building clusters to conform with farmstead character.	animal damage, elimination of noxious weeds, and replacement of plantings where needed. Such management plans should continue for the life of the facilities and post-closure as needed. c. Coordinate development of the landscaping plan with potential competing land uses for agriculture and reforestation, and habitat improvement, or other appropriate uses as defined by the community. Post-closure land use should be limited to agriculture, forest, landscaping, recreation, or other community sanctioned uses.		
2	Target tasks immediately for the Yard Trim Composting Facility and the Site 2 Landfill, two areas of immediate concerns of the Landscape Committee. Specific target areas are: <u>Yard Trim Composting Facility:</u>	Develop plan of action for the implementation of specific tasks targeted for the Yard Trim Composting Facility and the Site 2 Landfill as listed in Policy Recommendation #2.		Complete

	a. Improvement of the existing woods (Poplar forest) from the Mirant entrance to the Matthew's farm buildings, as agreed to in the negotiated settlement with the Sugarloaf Citizens Association; b. Restoration and reuse of Matthews farm buildings for Sugarloaf Citizen Association offices as described in the negotiated settlement with the Sugarloaf Citizens Association. c. Design and implementation of additional screening to link the existing woods to the planting on the new berm recently constructed along Martinsburg Road; d. Return the land around the Matthews farm buildings and the area behind the berm to agricultural use; e. Examine the opportunities for further reforestation and activities compatible with agricultural use and ongoing operations; f. Develop and implement a real estate management plan, consistent with the negotiated agreement with the Sugarloaf Citizens Association, for the facility with specific recommendations made about litter and noxious weeds. <u>Site 2 Landfill:</u> a. Design and implement screening and aesthetic improvements in the		Done Original Done	

	buffer along Wasche Road immediately; b. Develop and implement a real estate management plan for the Jones/Antonelli farm immediately. Manage buildings presently held by Montgomery County as land purchases continue; c. When landfill construction begins, immediately develop excavation and reclamation borrow areas; d. Develop and implement a real estate management plan for land not utilized in the initial stages of construction of the landfill.			
3	Maintain a comprehensive design process for the life of the facilities and maintain a community-based advisory committee to provide a forum for community input into landscaping and environmental restoration. The community must have the right to initiate modifications in procedures or plans. The community will be represented in the decision-making process throughout all phases of design and implementation of landscaping plans.	Create a citizen-based Dickerson Facilities Advisory Group with appropriate sub-committees to oversee the implementation of the Visual Landscape Master Plan and to plan and to coordinate other activities with the landscaping objectives and the Sugarloaf Citizens Association on the Matthews Farm property.	FIG created and meetings are in progress	Done; Ongoing
4	Implementation of landscaping will be contemporaneous with any new construction or development of the County's solid waste facilities. Screening, reforestation, and aesthetic mitigation will be implemented at the	Link the timing of the implementation of the landscaping for mitigation of specific facilities to the beginning of that facility; e.g. screening along Wasche Road should be implemented before work on the landfill. Major activities,	Landfill suspended	Suspended

	earliest opportunities so to minimize facility impacts on the community.	e.g. excavation of borrow areas, should be timed to minimize the interval between disturbance and final planting with due consideration given to the seasonality of the planting.		
5	Real estate management plans should be developed and implemented for all land under Montgomery County control in order to prevent the degradation of properties. The plans will assess the existing properties, define what should be done with the property and how they will be managed. Designated responsibilities for executing the plan will be defined.	Develop a program or procedure for the reuse, sale, and removal of buildings either existing on County owned land or acquired by Montgomery County as also recommended in Chapter 4: Cultural Resources.	Plan developed	Done
6	Coordination with NRGt on landscaping issues should continue. It should be noted that Mirant has embarked on reforestation and visual mitigation plans in cooperation with the community with the first phase of planting begun in April 1995.	Establish a procedure for the coordination between Montgomery County and NRG on landscaping and reforestation issues as needed.		Upcoming

CHAPTER 7: NOISE
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Implement the directives as stated in Section VII, Final Decision and Order, by the Director of the Department of Environmental Protection.	Continue the 24-hour noise monitoring of the RRF and implement noise mitigation strategies as required and directed by the Director of Public Works and Transportation. Review the noise monitoring results periodically and make modifications to the program.	Twenty-four hour monitoring conducted. Discontinued based on results.	Complete
2	Implement a noise monitoring program of the solid waste facilities and select noise mitigation strategies that employ the best reasonably available control technologies (BRACT) necessary to comply with the Montgomery County Noise Ordinance.	Establish a program of noise testing that analyzes the site during different phases of operational activities at the boundary locations and implement mitigation strategies as necessary for compliance with the Montgomery County Noise Ordinance or as reasonably requested by the community. Establish regular reporting to the community on the results of the noise testing.	DEP	Complete
3	Make a request of NRG to explore mitigation strategies proposed by	Explore with NRG the retrofitting of their mobile equipment with noise reducing devices. Also explore the equipping of contractors	Done	Complete

	Montgomery County on mobile equipment.	accessing NRG and the solid waste facilities on a regular basis with noise reducing devices.		
4	Reduce impacts from noise at landfill by limiting operating hours during the day on weekdays to the maximum extent practical.	Operated under permitted operational hours only, unless extenuating circumstances require additional hours.	Suspended	Suspended

CHAPTER 8: LIGHTING
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Re-evaluate current conditions to further minimize lighting impacts off-site from RRF. Include (NRG) Mirant facilities in all evaluations.	Initiate an on-site evaluation of the lighting conditions at RRF and Mirant to determine if adjustments can be made for the reduction of off-site impacts. Refer to the letter of August 19, 1994 by R.W. Beck for review of further recommendations. April 2004, Off-Site Lighting Impact Study was done by EDR	Study conducted and improvement implemented. Further darkening at the facilities ant night may not be possible due to safety concerns	Complete Complete
2	Once nighttime operations stop, extinguish all non-essential lighting at each facility.	Include as part of operation procedures for all solid waste facilities, the extinguishing of all non-essential lighting.	Study conducted and improvement implemented.	Complete
3	Have all lights equipped with measures to control illumination patterns and direction. Prevent the angle of lighting to exceed 90° angle to the horizon.	Begin to immediately implement a program for monitoring of all light sources for compliance with desired light angles, illumination patterns and direction, and off-site glare. Adjust any lighting as needed at each facility.	Periodic Review	Ongoing

CHAPTER 9: FOREST AND WILDLIFE HABITAT
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Follow recommendations outlined in Forest Stand Delineation report, 1994: • evaluate priority natural areas and expand or enhance them for the benefit of wildlife; • thicken riparian buffers to make them more functional as interior woodlands and connecting otherwise adjunct woodlots to avoid genetic isolation; • allow 'non-committed' agricultural fields to revert to forest in order to provide self-sustaining forest interior; • allow a few fields that abut priority retention forests to succeed in order to expand habitat preferences for wildlife; • maintain woodlands greater than 60 acres; • maintain natural vegetation shrub layer;	Montgomery County and citizen advisory group establish the prioritization of recommendations and establish a time frame for their implementation.	May need further discussion to identify which elements are still applicable.	Essentially complete.

	• maintain water sources in or adjacent to the woods; and • crop thin the poplar woods to allow enough light gap to promote a transition to a more indigenous forest type.			
2	Write and adopt a forest maintenance plan for the existing forest stands and for the upgrading of existing forest edges and wildlife corridors.	Initiate implementation of forest maintenance plan immediately after adoption of Dickerson Facilities Plan.	May need further discussion. Property Management Plan complete.	Essentially complete
3	Employ management techniques as outlined in August 24, 1994 letter from MD-DNR Natural Heritage Program for the protection of *Krigia dandelion* populations.	Put *Krigia dandelion* management techniques into place immediately and continue to monitor and maintain for the life of the project.	Done	Complete
4	Follow recommendation of final reports on landfill borrow and reforestation studies prepared by Woodward-Clyde Consultants and Environmental Quality Resources.	Integrate borrow/reclamation option into final engineering documents for Site 2 Landfill. Develop borrow areas immediately and begin site restoration and reforestation.	Landfill suspended	Suspended
5	Avoid blasting during development of landfill.	Do not use blasting in exploitation of borrow areas. Avoid using blasting in construction of the landfill footprint. Minimize any blasting necessary for construction of structures, utilities, or roads.	Landfill suspended	Suspended

CHAPTER 10: SURFACE WATER AND WETLANDS
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Protect and preserve existing woodland tracts because of their inherent relationship to water resources.	Follow recommendations set forth in Forest Stand Delineation report and Wetland Study, 1994 (Appendix 9-A and 10-A)	Ongoing	Ongoing
2	Honor the 25-foot mandatory wetland protection buffers.	Follow proper permitting procedures with the Maryland Department of the Environment (MDE) if any impacts are proposed to jurisdictional wetlands, their buffers or "Waters of the United States".	Ongoing	Ongoing
3	Develop a prioritization afforestation schedule for entire area of solid waste facilities.	Initiate plantings of priority afforestation areas associated with wetland buffers as identified in Forest Stand Delineation report. Land associated with the Matthews Farm will remain in agricultural use or will remain as forest, continuing existing usage.	Significantly complete, may need further discussion. Current forestation complies with current wishes.	Complete (Excluding landfill)
4	Monitor stormwater ponds at all facilities to insure they are functioning properly, and maintain and retrofit as necessary.	Develop stream monitoring protocol and seasonal monitoring program for the life of the solid waste facilities.	Protocol complete.	Complete
5	Implement the vegetated pre-treatment forebay design as	Continue water quality monitoring of the stormwater	Forebays installed	Complete

	proposed for the Composting Facility stormwater ponds by A. Morton Thomas, 1994. Insure that the ponds are functioning as designed and nutrient burden within the open water of the ponds and receiving streams is reduced for the life of the facility.	management facilities and their receiving streams at Yard Trim Composting Facility to determine if any additional modifications or enhancements are needed to improve water quality. Discharge will continue to be monitored as needed for qualitative and quantitative information until levels within the Use Class I requirements are met for the streams. In the event water quality parameters are exceeded, appropriate retrofit technologies will be installed. Add pesticides to the parameters tested for stormwater pond discharge.		
6	Establish monitoring stations at five locations shown on *Figure 10-2*.	Install monitoring stations as shown on *Figure 10-2*. On a monthly basis, from March to October, measure: 1) dissolved oxygen, 2) pH, 3) specific conductance, and 4) turbidity. Water temperature should be measured continuously at all stations. Ambient air temperature should also be recorded continuously at the site to coincide with water temperature.	Pond outfall monitored by MES by permit. Additional sampling by DEP	Ongoing
7	Minimize changes to existing hydrological support of existing wetlands.	Utilize "stacked" best management practices for sediment erosion control,	Suspended	Suspended

		stormwater management and recharge of pre-construction flow paths in the design engineering of Site 2 Landfill.		

CHAPTER 11: GROUNDWATER
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Site 2 Landfill a. Follow the procedures and guidelines presented in the Sampling and Analysis Plan (SAP) of the Refuse Disposal Permit Application. Adjust and modify the SAP to reflect unique characteristics of the Site 2 Landfill's design, hydrogeology, and the area's domestic water supplies requiring protection. b. Provide a pro-active approach to insure the water quality of domestic water supply wells of residences near the site are not negatively impacted by site activities. c. Develop protocols to follow if elevated concentrations are identified during implementation of the SAP.	Site 2 Landfill a. Review results of sampling and analysis plan (SAP) with independent consultant on a quarterly basis to evaluate the impact of the facility on the hydrogeologic conditions of the site. b. Provide domestic well testing both before and after landfill operations begin. Residents within one-half mile downgradient and one-quarter mile upgradient of the site will be offered the opportunity to have their domestic water supply wells sampled. c. If elevated parameter concentrations are identified during the SAP, a hydrogeologic study, in accordance with the Maryland Department of Environment (MDE) regulations, should be conducted to identify the source of elevated parameters and recommendations made for corrective action. d. No blasting will be employed for the borrow areas; landfill and leachate collection systems will be designed to avoid blasting wherever possible; only use blasting where other engineering alternatives are not feasible.	Landfill development Suspended	Suspended

	d. Avoid blasting e. Establish means to immediately communicate the sampling results of groundwater monitoring to the community.	Provide advance notice to community in the event blasting is required. e. Place groundwater sampling results in an information repository at the libraries at Poolesville and Upcounty Services Center. If analysis of groundwater sampling data indicates a potential problem may exist, notify potentially affected property owners within 24 hours and issue a press release on the findings. f. Expand monitoring program as appropriate, to include domestic wells further from the site if it is found that the water table aquifer elevations or quality as changed. Should groundwater monitoring detect contamination levels above drinking water standards from contamination originating from any solid waste facility, Montgomery County shall contain and mitigate the problem and provide domestic water supplies as described in the Alternative Water Supply Study (*Appendix 11-E).* Measures that are being evaluated in detail and would be implemented depending on the nature of the contamination problem, include individual treatment systems, installation of replacement deep wells, development of a Community Groundwater System (a new well field outside the area affected by contamination to serve affected residents), extending the Poolesville water supply system, and extending the WSSC water supply system.	Sampling results are placed at Poolesville library. Domestic wells tested by DEP	Ongoing Ongoing
2	<u>Yard Trim Composting Facility</u> a. Conduct a hydrogeologic investigation to determine the	<u>Yard Trim Composting Facility</u> a. Install three groundwater monitoring wells at the site which penetrate the water table	Sampling by DEP	Ongoing Complete

	hydrogeologic characteristics of the water table aquifer. b. Monitor the effect of the relatively impervious asphalt surface on the water table aquifer. c. Monitor the effect of the Composting Facility on the water quality of the water table aquifer. d. As with the landfill, provide a pro-active approach to monitor and protect the water quality of domestic water supply wells of residences near the facility. e. Verify compliance with state and Federal regulations for all Underground Storage Tanks (USTs) at the site.	aquifer (See *Figure 11-1* for proposed well locations. b. On a quarterly basis, update the groundwater contour map based on data obtained in order to evaluate the effect of the Composting Facility on the hydrostatic water table level. c. Obtain water samples from each shallow well on a quarterly basis and submit for chemical analysis of the following: Copper, Zinc, Nitrate, Cadmium, Nickel, Lead, Mercury, Arsenic, Dioxin, pH and pesticides. Assess conditions of any existing (abandoned) wells on Matthews Farm. If appropriate for re-use, keep the wells open; otherwise, follow appropriate guidelines established by the Department of Health for closing and capping. d. Offer option for well testing for residents living within 1/2 mile of facility. If there proves to be a problem with well contamination, expand area of well testing. e. Review Underground Storage Tank (UST) records and status to verify compliance with state and Federal regulations for all USTs present at the site. If a UST is out of compliance, provide necessary modifications to bring into compliance.	Three wells installed. Groundwater contour mapped. Sampling by DEP UST in compliance with regulations.	Complete Ongoing Complete
3	<u>Resource Recovery Facility</u> a. Follow existing procedures and policies identified in Refuse	<u>Resource Recovery Facility</u> a. Periodically review existing procedures and policies as identified in Refuse Permit Disposal	Procedures reviewed periodically	Ongoing

	Disposal Permit Application (Application 11-D).	Application to identify any necessary modifications.		

CHAPTER 12: AIR AND ODOR
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Best management practices, as described in Section 12.4, must be employed to minimize impacts to the community from air emissions and odor from the County's facilities. These practices are to be reviewed and updated in consultation with concerned citizens	The Vendor, Covanta, should institute a policy for visual inspection of the activities on the site, including management practices to minimize community impacts. Update the all pollutants, pathways human health risk assessment (HRA) for the RRF at least once every 10 years or sooner if USEPA guidance for air dispersion modeling and/or health risk protocols materially change. Confirm or update the locations of dry and wet deposition zones. Use actual operations of the RRF, and make necessary modifications to the ambient monitoring program to address health risks from other sources. Update both air and non-air environmental media monitoring every five years.	In progress	Ongoing Ongoing

2	Establish a mechanism for the dissemination of the monitoring data to the public. The forums for such public dissemination could include public briefings and citizen advisory committee meetings such as the Dickerson Facilities Advisory Group and the Solid Waste Advisory Committee (SWAC).	Make available to the public through public libraries, materials relating to the solid waste facilities. These materials include the facility plan, technical reports, permits, monitoring protocols and monitoring data from stack tests, CEM equipment and the environmental monitoring program-	In progress	Ongoing
3	Establish a Citizen Response Program with clearly defined points of contact for citizens to use to report concerns; program will monitor and respond to concerns voiced by the community.	Prepare and implement a citizen response program and create an advisory committee consisting of representatives from the County, the Northeast Authority (NEA), and NRG to periodically review the monitoring data and citizen comments related to the County's facilities and make recommendations for preventive and corrective actions.	DAFIG Created	Ongoing

CHAPTER 14: IDENTIFICATION OF LONG-TERM RECLAMATION AND POST-CLOSURE STRATEGIES
Executive Summary

	POLICY RECOMMENDATIONS	IMPLEMENTATION STRATEGIES	COMMENTS	STATUS
1	Following the adoption of the Dickerson Facilities Plan, begin the process of identifying and evaluating the solid waste facilities for future land uses following their closure.	Charge a technical advisory group and a citizens' committee with the responsibility of identifying evaluating, and recommending future uses for the solid waste facilities. The Dickerson Facilities Plan should be employed as a planning tool when pursuing this process.	Need to pursue	Upcoming

CHAPTER 2: PROJECT OVERVIEW

2.1.0 INTRODUCTION

This *Facilities Master Plan for Solid Waste Operations in the Dickerson Area* was prepared as a cooperative effort between Montgomery County and Dickerson area citizens in an effort to identify and mitigate short and long-term impacts of Montgomery County's solid waste management facilities located in Dickerson. During the summer of 1993, members of the community proposed to form the Dickerson Solid Waste Facilities Master Plan Oversight Group (the Oversight Group) for the purpose of advising Montgomery County's Department of Environmental Protection and the Department of Facilities and Services in the study of impacts associated with the County's facilities. This group was later recognized under Executive Order 246-93, signed by then County Executive, Neal Potter, on December 23, 1993 (*Appendix 2-A*). After the Department of Facilities and Services procured technical services from the consultant team led by Harris, Smariga and Associates, work commenced in May 1994.

The facilities, located adjacent to the NRG electric generating plant near the intersection of Wasche Road and Martinsburg Road, include the Yard Trim Composting Facility, the Resource Recovery Facility and the proposed Site 2 Landfill (*Figure 2-1*). The Yard Trim Composting Facility and Resource Recovery Facility are currently operating. The Site 2 Landfill was initially estimated to be constructed by 1997. However, the County postponed development of the Site 2 Landfill until proposals to transport waste out-of-county for disposal were evaluated. In 1997 the

County began disposing of non-combustibles at a waste management facility in Brunswick, Virginia. In 1999 the County began an ash recycling pilot program at a recycling facility in York, Pennsylvania; however, the pilot ash recycling program ended in July 2000 because of State procurement regulations, which would not allow the pilot program to continue. Currently, the ash and non-combustibles go to Brunswick, Virginia. As such development of the Site 2 Landfill is further postponed.

These current solid waste facilities are under County control and operated by private contractors under contract to the Department of Environmental Protection. The proposed Site 2 Landfill would also be owned by the County and operated by private contractor. These facilities are located approximately 1 mile southwest of Dickerson, east of Route 28 (*Figure 2-2*). The community of Barnesville is located 3 miles east of the sites; Beallsville is located 3.5 miles southeast of the facilities at the intersection of Route 28 and Route 109. The Town of Poolesville is the largest nearby community, with approximately 5,100 residents, located approximately 5 miles south of the facilities.

This completed facilities plan serves as the plan of action for the future design and implementation of monitoring and mitigation programs aimed at minimizing the impacts of the County's solid waste management facilities. It sets forth how to maintain the integrity of the natural resources and protect the environment and the health and safety of the County's residents. It addresses issues of concern to the community on the construction and operational impacts of the sites including traffic, light, noise and visual appearance.

Montgomery County will revise and update this Facilities Plan every five years, or whenever major changes in the County's solid waste programs involve a significant change in the

County's solid waste facilities operations. The first draft updated Facilities Plan, dated 2002, was never approved by DAFIG. This is the second revision since the original publication.

2.1.1 ORGANIZATION OF FACILITIES PLAN

To successfully obtain the desired results outlined in this document, the plan's objectives and the means of achieving them have been identified: each chapter of the facilities plan has set forth **GENERAL OBJECTIVES, POLICY RECOMMENDATIONS** and **IMPLEMENTATION STRATEGIES**. These are specified for each topical area and are summarized in the tables included in the Executive Summary. These objectives, recommendations and strategies will serve to guide Montgomery County in the preparation and implementation of all future programs associated with operations at the County's solid waste management facilities.

One chapter, Chapter 6, Visual Landscaping Master Plan, deviates from this organizational structure. The Visual Landscaping Master Plan was developed separately by the Oversight Group Subcommittee, the Trees and Shrubs Committee. This chapter incorporates the committee's work directly into the plan as requested by the Oversight Group.

The overall **GOAL** of the Dickerson Facilities Plan is to maintain the quality of living environment and preserve the integrity of the rural setting. It is, therefore, the overall **OBJECTIVE** of the County to minimize the construction and operational impacts of the facilities on the community. Through **POLICY RECOMMENDATIONS**, endorsed by County officials, further guidance is given to the operating agencies in carrying out mitigation and monitoring programs aimed at minimizing these impacts.

The document concludes with **IMPLEMENTATION AND ENFORCEMENT STRATEGIES** which provide the guidelines for assuring that monitoring and mitigation programs will be implemented and information disseminated to the public, while ongoing input from the affected community is continually considered.

During review meetings with the Oversight Group, several issues of concern were raised that the County's implementing agencies could not agree to incorporate into the text of this document. The Department of Environmental Protection accepts, endorses, and is committed to implementing the policies and actions identified in this plan. Some of the concerns and requested actions from citizens cannot or will not be incorporated into this plan; such concerns and requested actions are included in *Appendix A* of this document with an explanation from the County as to its rationale for excluding the item from the text of Dickerson Facilities Plan. The County hopes that in this way, all reviewers of this document will at least understand the County's position in considering these issues of controversy.

Meeting the needs of the County's entire resident population is the foremost responsibility of the Department of Environmental Protection and its Division of Solid Waste Services. It is the intent that the Dickerson Facilities Plan will provide guidance for the planning, construction and operation of the facilities and become a valuable working document for both the Dickerson community and Montgomery County.

2.2.0 TEN YEAR SOLID WASTE PLAN

Montgomery County's solid waste programs, including the three facilities at Dickerson, are presented and approved in the Ten-Year Solid Waste Management Plan. The purpose of this

comprehensive plan is to provide sufficient solid waste acceptance and management systems for County residents for at least the next ten years. The plan is periodically updated and amended for present and future solid waste management strategies. The Montgomery County Comprehensive Solid Waste Management Plan was prepared in accordance with the provisions of Article 9, Subtitle 9-5, of the Annotated Code of the Public General Laws of Maryland as amended and the guidance set forth in proposed Environmental Health Administration regulation COMAR 10.17.08 of August 21, 1981. Solid wastes, as defined by the plan, include any garbage, refuse, sludge or liquid from industrial, commercial, mining or agricultural operations and from community activities, but does not include solid or dissolved material in domestic sewage or in irrigation return flows. A solid waste acceptance facility is defined as any sanitary landfill, incinerator, transfer station or any other type of plant used for disposal, treatment or processing of solid wastes. Also, a solid waste disposal system is defined as any system for regular collection of solid wastes, their transportation, treatment and deposition.

In accordance with County Resolution No. 2132, dated July 5, 1990, waste reduction is the most preferred solid waste management technique, followed by reuse and recycling and incineration with energy recovery. The least preferred method is surface landfilling. Montgomery County Resolution No. 12-945 further states that the County will expand its recycling program to reduce the amount of the County's solid waste. The goals of the recycling program were to achieve 35 % recycling of the solid waste stream by 1995 and 50% by the year 2000. The County's current goal set by Executive Regulation 7-12 is to achieve, maintain or exceed recycling 70% of the solid waste stream generated in the County by the end of 2020.

In 1978, the trenching and land spreading of raw sludge was determined to be an inappropriate method of disposal and was replaced by sludge composting. An interim composting site was approved for a Dickerson site in 1980 until a permanent, east County facility could open for the composting of sludge from the Blue Plains Treatment Plant. In 1981, the Interim Dickerson Sludge Composting Facility began operations. In 1983, when the permanent sludge composting operation opened in Calverton, the Dickerson facility was converted into a leaf composting operation as specified under a Reuse Plan for the facility.

In 1985, by Montgomery County Council Resolution No. 10-1446, an amendment to the Solid Waste Management Plan, the County was charged with the responsibility of identifying long-term alternatives for the management of the County's solid waste. The options explored in this Comprehensive Solid Waste Management Study were the coburning of refuse with coal in the Dickerson NRG generating plant, the development of a refuse derived fuel burning facility adjacent to the Shady Grove Transfer Station and the expansion of the Oaks Landfill to receive the ash from the burn facilities.

In 1986, NRG presented their findings to the County Council that the incineration of refuse in their boilers was not acceptable. NRG stated that the viability of locating a separate mass-burn facility adjacent to their generating plant could be explored, however. Based on the findings of the management study, Resolution No. 11-382 outlined the implementation of a Resource Recovery Facility (RRF), a waste-to-energy facility located adjacent to the NRG generating plant. The Oaks Landfill would be expanded to accommodate the waste until the RRF was constructed and a search, land acquisition and site development program for a new landfill would be undertaken.

The proposed landfill would handle ash, bypass and non-processible waste and full stream solid waste on a contingency basis if the flow of waste to the RRF was interrupted. Sixteen candidate sites were evaluated utilizing specific search criteria. These criteria included examining the specific site, environmental and cost characteristics of the proposed sites. In April 1990, Site 2 Landfill in Dickerson was selected as the preferred site for further analysis, and application was made for a State refuse disposal permit (Resolution No. 111947, *Appendix 2-B*).

2.3.0 YARD TRIM COMPOSTING FACILITY

Built on the former Matthews Farm, a 275-acre parcel of land at the intersection of Martinsburg Road and Wasche Road, the Yard Trim Composting Facility functions as a leaf and yard trim recycling operation for the County. Leaves and grass collected in a countywide recycling collection program are transported to the facility by truck and rail, processed into organic humus, a soil amendment, and sold in bulk and bags as the product *Leaf-Gro*.

The facility was originally constructed in the Fall of 1980 for use as a sludge composting facility for sewage sludge from the Washington Sanitary Commission's (WSSC) Blue Plains Sewage Treatment Facility. This was an interim facility that operated until February 1983 when Site 2, the permanent sludge facility on the east side of the County, in Calverton, was able to receive the sludge previously sent to Dickerson.

In November 1983, the facility began operations as the Composting Facility to compost leaves collected curbside by the Department of Transportation (DOT). This reuse of the sludge facility was one of several recommendations in a reuse study for the site undertaken by County and citizens committees (*Appendix 2-C*). The reuse planning process was agreed to by the

Sugarloaf Citizens Association, Montgomery County and State agencies, and is documented in a Hearing Examiners Report (*Appendix 2-D*).

In 1989, as a result of a successful yard trim recycling pilot study, the Department of Environmental Protection (DEP) found that, by mixing leaves and grass together at a ratio of 2 parts leaves to 1 part grass, the length of time required for decomposition was reduced from 8 months for leaves alone to 6 months for the combination. The quality of the nitrogen-rich compost also improved. DEP began collecting residential leaves and grass for voluntary recycling in 1990. Resolution No. 11-2132, which required the mandatory recycling of yard trim by January 1993, was enacted by the County Council in July 1990 and was reaffirmed in December 1992 for implementation in 1994 (*Appendix 2-E*). By April 1994, more than 200,000 single-family residential homes were served by the curbside collection of leaves, grass, and brush. In 2002 all single family residences in the County received curbside collection. Commercial properties and landscapers were also required to deliver leaves, grass and brush for recycling.

As reflected in its proposal sent to the County Council in September 1993, DEP revised its program to send as little yard trim to Dickerson as possible. In November 1993, the County Council approved a yard trim recycling program that discouraged residents from placing grass clippings for County pick-up and encouraged them to recycle their yard trim at home. While the original projections indicated 110,000tons of yard trim would require processing at Dickerson, the revised program projected no more than 70,000 tons would require processing by the County. To accomplish this, an aggressive public education program was mounted to teach residents how to grasscycle and home compost, incentives were provided through retailers and manufacturers to encourage residents to acquire equipment to aid them in managing yard trim at home, and chipped

brush was diverted to drop off sites throughout the County, known as neighborhood mulch preserves. In 1994, the first year of the mandatory yard trim recycling program, 52,000 tons of material were collected by the County, and 43,000 tons of this was sent to Dickerson for processing. In Fiscal Year 2012, 71,531 tons of leaves and grass were sent to the composting facility for processing.

The composting facility began bagging operations after the First Amendment to the Agreement of Settlement and Compromise was signed between Sugarloaf Citizens Association (SCA) and the County on August 1, 2000. The maximum production of the operation is limited to 500,000 bags per fiscal year and the maximum allowed on-site storage is limited to 300,000 bags.

Because of the nature of the open air composting operation, the built site is comprised primarily of bituminous paving. The piles of yard trim are laid in windrows on approximately 49 acres of the pavement and turned with a mobile turners to promote aeration and decomposition. Following the composting process, the material is cured , screened and sold for distribution as *Leaf-Gro*.

The composting operations take place within a 116-acre site fenced by a 6 foot chain link fence (*Figure 2-3*). Drainage of the site is directed towards three stormwater ponds on site.

Existing buildings include a scale house with platform scale; a 3,200 SF metal maintenance building; an auxiliary storage shed; a 500 SF maintenance building housing a compressor and electrical equipment; a fenced equipment area; and underground storage tanks for diesel fuel .

A covered pavilion, 80,000 square feet in size, provides protection for the composting material from inclement weather during the screening operations. The pavilion is lighted by

skylights. There are also interior and building mounted lights shielded in such a manner to prevent offsite glare.

Several structures remain from the original Matthews Farm and are located on Martinsburg Road, immediately outside of the fenced compost operations. The Gothic dairy barn, bank barn, and corn crib are used by Sugarloaf Citizens Association. The remaining buildings, including a stone residence and a board and batten house are currently used. Two tenant buildings located on the east side of the farm were demolished. An additional ninety acres of the Matthews Farm is located south of Martinsburg Road at the intersection of Wasche Road. This land has been conveyed to the Sugarloaf Citizens Association and is now in active agricultural use. An approximate additional 51 acres of land west of the compost facility is also leased for cultivation.

In May 1994, the Sugarloaf Citizens Association filed legal action against the County, claiming the modifications to the composting facility violated the 1981 Stipulation Agreement, an agreement signed by members of the community and the agencies that built the compost facility. The County and the Sugarloaf Citizens Association agreed to settle the lawsuit out-of-court, and entered into a negotiated agreement on April 19, 1996 (*Appendix 2-F*). This agreement specifies that the County will limit the maximum capacity of total tons of yard trim composted at Dickerson to 77,000 tons. Tons in excess of the 77,000 could be accommodated in the event of a pilot program, with prior written consent of the Sugarloaf Citizens Association. Impervious surface at the facility is not to be increased and no additional buildings constructed.

In addition, properties associated with the original Matthews Farm - - outside the 116-acre fenced composting facility - - were turned over to the Sugarloaf Citizens Association. Under the Agreement of Settlement and Compromise signed on April 19, 1996 the County restored the

original Gothic Dairy Barn for use as offices for the association. In addition, the Stone House near the service entrance of NRG on Martinsburg Road was restored as a residence. Landscape screening and alterations behind the Gothic Dairy Barn and at the area between the NRG entrance gate and the Stone House have been completed. The Sugarloaf Citizens Association will lease the property from the County; they may sublease these properties and retain the revenues. Revenues are to be used solely for charitable, educational, civic purposes or to maintain and improve the premises. The County will pay all maintenance costs, as well as utilities costs associated with the Gothic Dairy Barn.

In addition, the Sugarloaf Citizens Association will be briefed twice each year on the operations and status of the composting facility and the yard trim recycling program. Any changes in composting operation will be reviewed with and approved by the Association before they are implemented. If the Association fails to approve proposed changes, a Hearing Examiner will be appointed and a public hearing will be held before a decision to implement changes is made.

2.4.0 RESOURCE RECOVERY FACILITY (RRF)

2.4.1 GENERAL DESCRIPTION

In 1990 Montgomery County contracted with the Northeast Maryland Waste Disposal Authority (the Authority) to implement the Resource Recovery Facility (RRF) on behalf of the County. The RRF is a technologically advanced waste-to-energy facility that is a key component in the County's integrated waste management system.

Through a competitive procurement process that was qualified and monitored by the County, the Authority selected and contracted with Covanta,Montgomery, Inc. (Covanta) to design, build and operate the RRF through a twenty-year Service Agreement. Covanta officially began construction of the RRF on April 4, 1993, initiated first fire of waste on May 9, 1995, and started its commercial operations on August 7, 1995.

The RRF is located on approximately 34.9 acres adjacent to NRG's Dickerson generating stations. The land was purchased by the County from NRG for the express purpose of constructing and operating the RRF. The site features are illustrated on *Figure 2-4*, and include enclosed areas for waste and residue handling, a water treatment building, an administration building, a rail yard for transport of waste and residue, and various ancillary facilities needed for the operations.

The RRF utilizes mass-burn technology for combusting municipal solid waste and generating electric power for sale to NRG. The Facility consists of three independent combustion units designed with the capacity to burn an average total of 1800 tons of waste per day having a higher heating value of 5500 Btu per pound. In fiscal year 2001, the Facility burned an average of 1,414 tpd. The Facility burns waste and generates electricity 24 hours per day, seven days per

week. Waste however, is received at the RRF only six days per week. To help minimize truck traffic at the Facility, all of the waste delivered to the Facility is transported through a dedicated Rail Transportation System.

2.4.2 RAIL TRANSPORTATION SYSTEM

The primary elements of the Rail Transportation System include a rail yard at both the RRF and the Shady Grove Transfer Station; two overhead gantry cranes at each yard; 215 intermodal containers with specially designed water-tight doors were purchased for transportation of municipal solid waste and ash residue; and 63 railcars in which to transport the containers.

Approximately 30 tons of waste is loaded into each container at the Transfer Station. The containers are sealed and then loaded onto railcars, each specially designed to hold two containers for transport. CSX Transportation, Inc. has contracted with the Authority to assemble the railcars into a single train and transport them to and from the RRF and Transfer Station. One train of waste is pulled to the RRF, and one train of empty containers and ash residue is pulled back each day, Monday through Saturday. CSX controls the rail traffic on the 18-mile main rail line between the two facilities, and adjusts train movement as needed. However, the train usually leaves the Transfer Station by midmorning and returns by early afternoon. The ash and non-combustibles are also transported via rail to Brunswick, Virginia.

Each container is tracked by a computerized system that records the date it was loaded; the type of material in it (waste or ash); its weight; and the date it was transported by train (including empties). In addition, maintenance of each container is recorded by date and category. This tracking mechanism allows Covanta to know where each container is in the system and provides

them with a comparison of maintenance efforts and container usage. Containers containing yard trim material are transported to the composting facility, emptied, and returned to the railyard for loading onto the train.

2.4.3 WASTE COMBUSTION OPERATIONS

Upon arrival at the RRF rail yard, refuse-filled containers are lifted by the gantry cranes and placed onto hydraulic-lift trailers. The trailers are shuttled to the enclosed tipping floor where the containers are tipped and waste is off-loaded into the refuse storage pit. From the pit, waste is fed into the operating combustion units by an overhead crane.

Two overhead traveling bridge cranes with orange-peel grapples are used to mix the waste to provide a more consistent fuel and to make one more visual check of the material that will be burned. At both ends of the refuse pit, non-processible items retrieved from the pit can be lowered to floor level of an enclosed garage area and placed into containers or dumpsters for removal from the Facility and proper disposal.

Each crane has 100% of the capacity needed to operate the RRF. Waste is lifted to the charging hopper of the unit that requires fuel based on the operating conditions of the Facility, which are displayed for the crane operator. Before being deposited into the charging hopper of a unit, the weight of each grapple is recorded automatically by using load cells mounted on each crane. Computerized records are kept and reviewed each day for tracking the feed rate and operational history of each unit.

Under-fire combustion air for each unit is drawn from above the refuse storage pit. This is designed to create a slight negative pressure in the refuse pit and tipping floor area, confining any

dust to that area. The pressure differential also helps to prevent the escape of dust and odors from the Facility.

The combustion system consists of three identical steam generating units designed to generate a maximum of 513,3001b/hour of superheated steam at 830°F and 865 psig. The steam generated from each unit is piped directly through a common header to a single turbine/generator

where electric power is produced. As steam is forced through the turbine, it is condensed and collected to be recirculated as boiler feed water.

The RRF is designed to generate up to 63 MW of electricity (gross), depending on the waste volumes. In Fiscal Year 2012, the Facility generated an average of 41.3 MW, processing 544,859 tons of waste. During that period, the Facility used 6.3 MW of that electricity generated to provide all of its internal electrical needs (termed "in-plant use" or "station power") , for a net export to the electrical grid of 34.9 MW (net). The net generation is competitively sold to the electricity market.

2.4.4 ASH/RESIDUE HANDLING SYSTEM

The combusted waste is reduced to a bottom ash as the air emission system collects fly ash. The bottom and fly ashes are combined in the ash quench discharger at the rear of the furnace before being conveyed to an enclosed residue storage pit. The total weight of residue is equal to approximately 30 % of the original weight of waste processed.

The residue is removed from the pit by overhead bridge cranes and conveyed to a building where iron and steel is removed by a rotating permanent magnet. The recovered metal is cleaned through a trommel and deposited into an enclosed trailer in the building. Full trailers are delivered

to a scrap metal dealer where the metal is sold for recycling. The recovered metal accounts for approximately 3 % of the incoming waste stream.

Currently, under a County multi-year contract with Republic Services, Inc. (the "Out-of-County Haul" Contract), all remaining residue, is being beneficially used for alternate daily cover, and/or road building, both inside the Old Dominion Landfill in Virginia. Also at that location, Republic performs additional metals recovery, including non-ferrous (e.g. brass, copper and coins) but also some additional ferrous that the RRF magnet could not recover.

If the County's Site 2 landfill is used in the future, the residue will not be loaded onto the train for transport to the Transfer Station. Instead, the residue will be hauled by covered trucks via NRG's existing ash haul road to the Site 2 Landfill.

2.4.5 AIR EMISSIONS CONTROL SYSTEM

The RRF employs the most technically advanced waste combustion and air emission control equipment in the industry today. The equipment includes a semi-dry scrubber for control of acid gases, a fabric filter baghouse for particulate control, selective non-catalytic reduction (SNCR) technology for control of nitrogen oxides, and activated carbon injection for mercury control. In addition, a hydrated lime injection system is available at the furnace to prevent the formation of acid gases and augment their control by the scrubber.

The combustion units operate at temperatures over 2100°F to minimize the formation of dioxin related compounds. Two natural gas burners are installed on each unit and are utilized to maintain minimum combustion temperatures when bringing the unit off line and during start-up.

They are also used during operations if the furnace temperature drops below a set point that maintains at least 1800°F.

The semi-dry scrubber and baghouse combination control acid gases and particulates that are emitted from the boiler. A lime slurry is sprayed into the gas stream in the scrubber to neutralize acids and cool the gas temperature. The gases then flow into the reverse-air baghouse where particulates are collected on the bags before the gas is exhausted through a 275-foot stack.

The Facility incorporates a Selective Non-Catalytic Reduction process that uses ammonia to reduce nitrogen oxides. The ammonia reacts with nitrogen oxides to form nitrogen and water, which is then exhausted from the stack. In 2009, the County modified the Facility to include the patent-pending LN^{TM} system which reduced NOx emissions by about 50 percent.

Removal of mercury and other trace metals is achieved by injecting activated carbon into the gas stream after the boiler. Mercury in the vapor state is absorbed onto the carbon particle and together they are collected in the baghouse.

A highly advanced continuous emissions monitoring (CEM) system is employed at the RRF. Air emissions are automatically sampled and analyzed every six seconds. Dedicated analyzers for each unit test for: CO, O_2, SO_2, HCl, NO_2, and CO_2. (NOx is measured as NO_2.) Opacity is continuously monitored as well. The data is averaged over certain time periods according to permit requirements. All data is stored for use by the Maryland Department of the Environment through a dedicated phone line, and the County monitors the data continuously via the internet and posts CEM data, updating hourly, on its website for public access.

The monitoring data is used to adjust operations on a real-time basis, maintaining the Facility at its best operating conditions. As the computers read trends in any emission parameter,

correlations are made with other parameters and adjustments are made to the operations of the Facility. In addition, computer controls throughout the Facility read operating parameters and relay information to actuators that automatically make changes in the operations. In all such changes, the operators are notified through printouts and records of the activity are stored for operational reviews. In addition to the CEM data, readings are continuously taken of water and steam conditions, temperatures, flow rates, and various equipment conditions throughout the Facility.

2.5.0 SITE 2 LANDFILL

The final component of the Montgomery County solid waste facilities in Dickerson involves the construction of the Site 2 Landfill. Development of the Site 2 Landfill was suspended while the County evaluated the feasibility of transporting waste to an out-of-county facility. The County has entered into a contractual agreement to transport the ash and non-combustibles to a private landfill located in Brunswick, Virginia until 2017. Well prior to the 2017 termination of the current contract, the County plans to procure a replacement out-of-County haul contract for those services. Therefore, Site 2 remains a proposed facility that is currently in the suspended permitting process. The County has a 5-year permit for the Site 2 Landfill, which is due for renewal in May 2014. For the purpose of assessing potential impacts and mitigation measures to employ, this document assumes the facility will be built.

The Site 2 Landfill is planned to be constructed south of the Resource Recovery Facility (RRF) between Wasche Road and Martinsburg Road (*Figure 2-5*). The landfill would be located on 650-acres and have a footprint (waste disposal area) approximately 125 acres in size. It will

have an active life of 40-50 years and would be used to landfill both solid waste and ash material from the RRF. Ash residue, bypass, and non-processible waste materials would be transported to the site via the existing Mirant haul road and at grade crossing at Martinsburg Road, by covered or closed trucks loaded at the RRF. Ash from the RRF has been tested several times since RRF operations began and has always been determined to be non-hazardous following applicable USEPA testing procedures. However, if the ash is ever determined to be hazardous, it will be disposed at a licensed hazardous waste landfill in accordance with applicable Federal regulations.

The landfill is designed to handle the ash separately from the bypass and nonprocessible waste by utilizing separate disposal cells. Non-processible waste includes construction debris and rubble and other wastes not suitable for incineration. Wastes not accepted at the landfill would include:

- controlled hazardous substances as defined in COMAR 26.13.02, unless specifically authorized by a valid permit issued under COMAR 26.13.07.;
- liquid waste or any waste containing free liquids, as determined by the EPA method 9095 paint filter liquids test, as outlined in the EPA Publication SW846 "Test Methods for Evaluating Solid Waste, Volume One, Section C: Laboratory Manual Physical/Chemical Methods", Third Edition, dated November 1986. This prohibition does not apply to de minimis quantities of household liquid waste such as partially full food containers, or household products which may occur in waste disposed of at municipal waste landfills;
- special medical waste as defined in COMAR 26.13.11.02.B(10);
- radioactive materials, as defined in COMAR 26.15.02;
- automobiles;

- drums or tanks, unless empty and flattened or crushed with the ends removed; drums or tanks that have held hazardous waste shall be emptied properly in accordance with COMAR 26.13.02.07;
- animal carcasses;
- untreated septage or sewage scavenger waste;
- chemical or petroleum cleanup material, unless:
    a. the nature of the spilled substance is known;
    b. the spilled material is not a controlled hazardous substance as defined in COMAR 26.13.02;
    c. the spilled material is not likely to adversely affect the landfill liner;
    d. the spilled substance is contained in an absorbent material of sufficient excess volume that the material deposited at the landfill does not exhibit free liquids.
- truckloads of separately collected yard waste for final disposal unless the permittee provides for the composting or mulching of the yard waste; and
- scrap tires, unless a scrap-tire collection facility license has been issued as required in Code of Maryland Regulations COMAR 26.04.08.

Drainage divides within the landfill will allow the leachate from the different disposal areas to drain separately into drain pipes located above the liners of the landfill and released into storage tanks. The leachate will be managed in accordance with applicable laws and regulations. Options being considered include: on-site pre-treatment and trucking to the Washington Suburban Sanitary

Commission (WSSC), and use of raw or treated leachate at the Resource Recovery Facility as ash quench water and for other suitable applications.

The liner system for the landfill facility would be comprised of two feet of compacted clay liner and 2 synthetic liners with rounded stone leachate collection layers. The design of this particular liner system exceeds all applicable Federal and State landfill regulations. Two cells of the landfill will serve as the initial disposal areas(*Figure 2-6*).

Each cell would be constructed individually using the double liner system (*Figure 2-7*). The lower liner will be 60-mil High Density Polyethylene (HDPE) and be covered with a 1-foot drainage layer of rounded stone. The upper liner would be constructed of 80-mil HDPE and covered with 1 or 2 feet of rounded stone, depending upon the cell type (1 foot in ash cells and 2 feet in solid waste cells). Geotextile layers are also incorporated into the construction to protect the liner from contact with any rough surfaces in the stone. Cells range in size from 5 to 22 acres.

There would be cut areas and fill areas as appropriate to grade each cell area. However, in all cases the cells would comply with the Maryland Department of Environment (MDE) requirements (COMAR 26.04.07.07) for the liner system to be a minimum of 3 feet above the composite high water table and bedrock. Most of the design achieves a 5-foot separation. In addition, the base would be graded with a minimum 2 percent slope to facilitate the movement of leachate to the leachate collection system.

The final elevation of the landfill would be about 115 to 120 feet above existing grades at its highest point. Cells would be filled to close to final grade before filling begins in the next cells except in the areas along the perimeter of the adjacent new cell. These areas would be filled in

after landfilling in the new cells reaches a high enough elevation to make working in these areas feasible.

The phasing of the landfill project has been carefully considered so as little of the site is developed as possible. The landfill footprint was sited so as to allow a minimum 100 foot buffer from the wetlands and perennial streams. The wetlands will continue to enhance natural water quality. Several existing ponds on site will be improved to engineering specifications suitable for use as stormwater management ponds. The landfill footprint is designed to be a minimum of 900 feet from any property line. The footprint would cover approximately 125 acres of the 650-acre site, with the remaining 525 acres serving largely as buffer, although disturbance and restoration of selected portions of this area would occur from the collection of soils from borrow areas. There would be a zone of no disturbance along the property perimeter boundaries in which collection of soil will not occur. The boundaries of this no disturb zone are shown in *Figure 2-8*. Areas of the site outside of the landfill footprint would either remain in their natural state or be modified as follows: selected areas will be landscaped to reduce landfill visibility; some areas will be used for borrow-soil and then reforested as noted below; designated areas will be modified to increase wetlands and protect other wildlife habitat.

Currently, 75 % of the site is being cultivated with the remainder in woodlands and wetlands. The continued agricultural employment of the land is being considered as a viable option in order to maintain the original agrarian function of the site. As with any construction site, the borrow sites will be regraded and restored in compliance with County sediment and erosion control requirements. Where soils would be removed for use in landfill construction and as cover material, each area will be graded, seeded, and, as appropriate, afforested at the end of their use.

Maryland Department of the Environment (MDE) has issued a refuse disposal permit for the site. The County suspended the permit process such that it may be resumed without repeating any of the completed stages. The County may likewise suspend other permit and governmental approval process at convenient points in the processes to minimize repeating completed work and phases in the event the processes need to be resumed. A group of citizens filed an appeal regarding the issuance of the permit. The County agreed to join the citizens group to defer the appeal process until the County decides to proceed with construction. The County has a 5-year permit, which is due for renewal in May 2014.

Citizen participation in the design process of the landfill has been represented by members of the Landfill Working Group authorized by the County Council in 1990, Resolution No. 11-1947 (*Appendix 2-B*). Their responsibility has been to act as a forum for the community and provide input during the planning stages. A separate citizens group, the Tree and Shrub Committee, has been advising the County on landscaping issues. Their task has been to address the potential visual impacts of the Site 2 Landfill as well as to identify comprehensive visual and landscaping issues for all solid waste facilities at Dickerson.

The landfill would be covered with soil or other state-approved cover methods on a daily basis, or when necessary, in accordance with final permit conditions. The Maryland Department of Environment's proposed permit identifies the hours of operation, including placement of cover, when required, to be from 7:30 a.m. to 5:30 p.m., Monday through Friday and from 7:30 a.m. to 1:00 p.m. on Saturday. The Saturday hours could be implemented if the RRF operates at more than 1,500 tons-per-day. As specified in the proposed permit, where required to protect the public

health and comfort, emergency conditions or unusual circumstances could result in the landfill operating at times other than the posted hours.

2.6.0 NRG

The power generating facility referred to in this document at the Mirant facility (later known as GenON and then NRG facility, and previously PEPCO) is not one of the County's solid waste facilities in Dickerson. Nonetheless, because it was a large adjoining industrial facility, the Oversight Group requested that it be described in the document and that impacts that result from that facility's operations be identified in the facilities plan. Then-Mirant officials participated in the development of this plan, and where appropriate, suggested actions Mirant could take to help mitigate such impacts.

The Mirant (now NRG) generating station is situated on 1,001 acres adjacent to the Potomac River, south of the Monocacy River in Dickerson. Construction of the plant began in July 1957 with completion and plant start-up in June 1959. Plant expansions have occurred throughout the years with the most recent addition of two gas combustion turbines in 1992 and 1993. This facility generates electricity for homes and businesses in Montgomery and Prince George's Counties, and the District of Columbia. Mirant generates their electricity through the use of three steam turbines and two gas combustion turbines. A third gas turbine is only used for black start capabilities (in case of a blackout, etc.).

The three steam turbines are each capable of producing 191 mega watts (Mw) of electricity. The steam units are located in station D of the plant. The first of these units went on line in June 1959 with the other units following in April 1960 and March 1962. The steam turbines produce electricity from the burning of coal. Coal is delivered to the site by train via a 2-mile spur off a main CSX rail line. Each train typically consists of 70 to 100 cars, each holding 100 tons of coal.

Trains arrive, on average, every other day, and their delivery times vary throughout the day. Coal from each delivery is unloaded and is used immediately in the plant or stockpiled on site.

The NRG power plant has the capability of storing 900,000 tons of coal for the plant's use. However, normal inventory levels are 190,000 to 200,000 tons. The coal that is transferred inside the plant for immediate electricity demands is first ground by a pulverizer into a fine powder. The pulverized coal is then blown into the boiler where it is ignited. The walls of the boiler contain miles of tubing through which water is constantly circulated, heated and converted to steam. The steam is carried through piping to a turbine and generator that produces the electricity.

The electricity is increased in voltage by a step up transformer to 230,000 volts. Step down transformers at substations and in neighborhoods, reduce the voltage to 110-120 volts for use in homes. Local, low-voltage transmission lines carry the electricity to individual homes and businesses.

Cool water from the Potomac River is circulated through tubes in a condenser (285,000 gallons per minute is pumped from the river), condensing the steam back into water. This condensate is pumped back into the boiler tubes to be heated into steam again, or returned to the river. Some is recycled to the Montgomery County Resource Recovery Facility for its cooling needs. The river water in the condenser, which has picked up heat from the steam, is cooled in a discharge canal. The water returning to the Potomac River is monitored and is no more than 32º degrees Fahrenheit above river ambient temperature.

Annually, 450,000 tons of coal are burned for each unit. When coal is burned, 10% of it becomes a byproduct called ash. There are two kinds of ash, called flyash and bottom ash. Flyash is the lighter of the two byproducts and is removed from the flue gas by an electrostatic precipitator

or wet particulate scrubber. Mirant hauls flyash in covered trucks to its storage site across Martinsburg Road. The majority of hauling occurs Monday through Friday from 7 a.m. to 3 p.m.. The first of three areas at the flyash storage was completed and capped. Currently, flyash is being placed in the second area. This area is expected to serve the needs of Mirant for the life of the facilities. However, the final area should it be needed is planned adjacent to the now active area.

The flyash is loaded onto contractor covered 10-wheel dump trucks, weighed, and transported approximately 2 miles to the ash storage site. The ash is unloaded at the active area, spread out, and compacted using a vibratory roller to a one-foot thickness. Water from a nearby pond is used to obtain proper moisture content and control dust. Once completed, the ash storage area is covered with 2 feet of soil that is seeded for erosion control.

The bottom ash byproduct has beneficial uses. This ash is hauled to a controlled storage area on site where it is sold to Frederick and Montgomery Counties for use as cinders on the roads during inclement weather. The bottom ash sold for this purpose makes up 7,500 tons of the 135,000 tons of bottom ash produced per unit per year. Demand for this ash adds 750 trucks per year entering the Mirant property, concentrated during the early winter months.

The two main gas turbines, H1CT and H2CT, are located in the facilities station H. They utilize oil and natural gas as fuel and are capable of producing 140 Mw in the summer and 168 Mw in the winter. H1CT went on line in June 1992 and H2CT went on line in June 1993. Currently, the oil is delivered to the site by trucks and the gas is transported via a Consolidated Natural Gas pipeline. The gas turbines are made up of a compressor, a combustion chamber and a turbine. The turbine drives the compressor, which feeds high pressure air into the combustion chamber; there it is mixed with a fuel and burned providing high pressure gases to drive the turbine.

Both the coal and gas turbines have stacks that release the resultant steam and flue gas into the atmosphere. Each of the gas turbines is equipped with a 120-foot stack that accompanies it. Nitrogen oxide (NOx) emissions are controlled from these turbines by a water injection system. There are three stacks located on station D. A 700-foot stack was erected in 1978 to serve all three units. The two original 400-foot stacks are used when the 700-foot stack is not operational. The stacks for the steam turbines have Continuous +Emissions Monitoring (CEM) equipment for opacity, NOx, carbon monoxide (CO), and carbon dioxide (C02). Mirant has complied with the Environmental Protection Agency (EPA) air quality regulation for opacity and NOx as of the January 1, 1995, compliance date. They also met the 2000 regulations for EPA monitoring of CO, C02 and sulfur dioxide (S02). Mirant is currently installing a baghouse system to reduce visible emissions. The installation will be completed in the fall of 2003, at which time visible emissions will be below 10%.

Because of NRG's abundant use of water from the Potomac River, water quality is strictly monitored as required by EPA and in accordance with a National Pollutant Discharge Elimination System permit. Mirant utilizes a 1,200 gallon-per-minute private industrial waste water treatment plant on site that cleans the water runoff from coal piles, parking lots, and other on site sources. The effluent from the industrial wastewater treatment plant is discharged through the main discharge canal. Additionally, ponds are used for water management and solids removal. There is also a 15,000 gallon-per-day private wastewater sewage treatment plant for domestic wastewater treatment. Mirant has a pollution prevention plan to mitigate any possible pollutants from storm water contaminants. This plan is updated annually to make further improvements.

The NRG facility employs 178 people. Production is managed by three eight-hour shifts scheduled from 11 p.m. to 7 a.m., 7 a.m. to 3 p.m. and 3 p.m. to 11 p.m. There are employees on the property 7 days a week, 24 hours per day.

A 10-year master plan for the Mirant facility is used to guide plant expansions. According to the plan, additional construction would include a heat recovery steam generator and a steam turbine to the gas turbines in station H. This new turbine would be able to produce approximately 70 Mw of electricity. Future plans also describe a second combined cycle and the future addition of a coal gasification plant. There are no current plans to implement these additional facilities.

CHAPTER 3: LAND USE

3.1.0 OBJECTIVES

The Dickerson region is characterized by rural housing patterns and active farmland. The Montgomery County solid waste facilities represent industrial development in an agricultural setting. It is the objective of this plan to preserve as much as possible, the existing agricultural setting and land use patterns by:

- Preventing further degradation of the rural agricultural environment during construction and operation of the solid waste facilities.
- Mitigating, to the greatest extent possible, existing industrial use impacts in the Agricultural Reserve.

3.2.0 BACKGROUND

Montgomery County's solid waste facilities are located in Dickerson, Maryland, western Montgomery County, adjacent to Mirant's electric generating plant situated on the Potomac River (*Figure 2-1*). The solid waste facilities occupy a total of 960 acres consisting of the Yard Trim Composting Facility (116 acres fenced, 275 acres total), the Resource Recovery Facility (35 acres), and the permitted but undeveloped Site 2 Landfill property (124 acres landfill footprint, 526 acres buffer area). The Mirant facility is located on 1,001 acres. Sugarloaf Mountain is located approximately 2 miles to the north of the site in Frederick County. The towns of Dickerson,

Barnesville, Poolesville and Beallsville are found within a 5-mile radius from the site. Route 28, and Route 109 serve as major transportation routes between the towns (*Figure 2-2*).

Land use in this portion of Montgomery County is dominated by agricultural activity, interspersed with rural residential development, and woodland tracts as evidenced by the aerial photograph of the area (*Figure 3-1*). Approximately 43% of the existing land use within an 8 square mile study area is defined by agricultural land uses. Woodland tracts cover approximately 38% of this land area. Industrial development, represented by Mirant and the Montgomery County solid waste facilities comprises approximately 19% of the existing land use. The larger woodlands and stream valleys are contained within the C & O Canal, Dickerson Regional Park, Sugarloaf Mountain and Monocacy Natural Resources areas. These sites are reserves, with management dictates, for the preservation of natural areas in perpetuity. Significant historic sites and features found in the Dickerson region include farms, individual homes, and structures such as the stone walls lining Martinsburg Road. Commercial development in the region is represented primarily by neighborhood commercial services located in the towns surrounding the solid waste facilities.

3.2.1 GENERAL PLAN

The General Plan Refinement of the Goals and Objectives for Montgomery County, December 1993, serves as the planning framework for Montgomery County. The key planning concept in the plan by which Montgomery County has directed its growth since the 1960s, is the Wedges and Corridors Concept (*Figure 3-2*). Corridors radiate from Washington, D.C., the region's urban focus. Growth and development is directed towards the corridors and Urban Ring defined by major transportation routes. The wedges are the green open spaces between corridors

that provide the agricultural lands and a rural setting for low density residential housing. The Functional Master Plan for the Preservation of Agriculture and Open Space establishes a policy framework for the preservation of farmland and integrates the objectives of the wedges and corridors concept through land use and zoning designations.

The Dickerson area is located within the master plan's western sector, known as little Monocacy Basin, Dickerson, Barnesville (Planning Area 12). With the adoption of the Functional Master Plan, the land use in the region became defined as Agricultural Reserve and the zoning as Rural Density Transfer (RDT) (*Figure 3-3*). Prior to this change, the region was classified as a Rural Zone.

The Agricultural Reserve area identifies specific portions of the County as primary agricultural areas. It represents the County's critical mass of farmland with working farms. It is the County's intent to preserve the agricultural areas and provide incentives for the retention of farmland. The Rural Density Transfer Zone (RDT) achieves that goal through the Transfer of Development Rights (TDR) program. It allows for the shift of development rights from a transfer zone to a receiving zone within the County that is capable of absorbing further density. The individual landowners of farms within the RDT Zone also have the right to cluster one unit per 25 acres at a minimum 1-acre lot if transfer rights are not sold. This insures the preservation of the wedge or rural areas for agricultural use and low density residential development.

3.3.0 POTENTIAL IMPACTS OF CONCERN

The impact of land use changes are often significant to a rural community such as Dickerson that has come under increasing pressure from development. With the changed landscape comes the potential for an increase in traffic, noise, and air pollution and possible impacts to natural systems such as the groundwater, streams and water bodies, wetlands, woodlands and wildlife. When agricultural lands are taken out of production and the visual landscape becomes altered, a rural community's quality of life may be adversely affected.

One of the purposes of the Dickerson facilities plan is to explore the means of mitigating impacts from the solid waste facilities through the designation of land use surrounding the facilities. This must be balanced with the community's desire to also protect the rural setting and active agriculture. Screening to minimize the visual and noise impact of the solid waste facilities, re-establishment of forest cover for the enhancement of natural systems and the protection of cultural resources all represent efforts to achieve that goal.

The Dickerson Oversight Group, however, was reluctant to establish specific land uses to areas surrounding the solid waste facilities without the benefit of public consideration of each parcel and community input on preferred land uses. Therefore, this facilities plan will serve only as a guide for future decision-making. The Visual Landscape Master Plan (Chapter 6), the Forest Stand Delineation (*Appendix 9-C*) and a study compiled by EQR and Woodward-Clyde Consultants on landfill borrow areas vs. reclamation (*Appendix 9-B*), are tools that should be used by the community in making those decisions on appropriate land use.

The negotiated agreement with the Sugarloaf Citizens Association has established that the arable fields associated with the original Matthews Farm will remain in agricultural use. Also per

the agreement, the Gothic Dairy Barn and Stone House were restored and will be maintained for community use and residential occupancy, respectively.

In order to demonstrate the change in land use that may occur over time, conditions of the immediate impact area prior to the development of the Montgomery County solid waste facilities and Mirant were examined. The aerial mapping available in the 1958 Montgomery County Soil Survey was reassembled into *Figure 3-4*: Pre-Condition Land Uses. In the 8 square mile study area, approximately 70% of the total area is in agricultural/residential use, with the remaining acreage in forested tracts of land and stream corridors. At the time of the soils mapping, there were no major industrial facilities in the Dickerson area. Compilation of a map indicating post-condition land use (*Figure 3-5*) demonstrates a significant increase in forest cover from the 1958 mapping. The post condition scenario, which could take place 40 - 50 years from the present, assumes the closure of the landfill. The Community remains vigilant and concerned for the long-term future of lands currently used for solid waste management purposes (or reserved for solid waste use, as in the case of the Site 2 parcels) and desires that the land uses of these parcels, if and when no longer needed for solid waste management, be consistent with those of the Agriculture Reserve Recommendations for planting and forest re-establishment were incorporated into the post-condition mapping from the Visual Landscape Master Plan and the Forest Delineation Plan. Forest cover represents 55% of the overall land use for the 8 square mile area. Agricultural use comprises 40% of the land coverage and industrial operations 5%. Areas to remain in agricultural use are found surrounding the historic farmsteads and buildings, the Yard Trim Composting Facility and other fields currently in agricultural use.

3.4.0 POLICY RECOMMENDATIONS

1. Propose no further development of industrial-type activities by Montgomery County involving the construction of new solid waste facilities **or** any other industrial type activities.
2. Protect historic sites and features as identified in Chapter 4: Cultural Resources.
3. Prevent the further deterioration of real estate owned and managed by Montgomery County in the vicinity of the solid waste facilities. This includes promoting low impact agricultural practices on County leased property that minimize soil erosion and runoff to local surface waters.
4. Consider recommendations for planting of visual screening as presented in Chapter 6, the Visual Landscape Master Plan prepared by the community and Martha Donnelly and Associates, and consult the Forest Stand Delineation Plan and Borrow Study conducted by EQR and Woodward-Clyde Associates for reforestation recommendations. Coordinate landscaping plans at Matthews Farm with Sugarloaf Citizens Association in compliance with the negotiated settlement.
5. Maintain comprehensive citizen input concerning land use issues for the life of the solid waste facilities.

3.5.0 IMPLEMENTATION STRATEGIES

1. Adopt the Facilities Master Plan for the Solid Waste Operations at Dickerson and incorporate into the agency and County policies pertaining to the facilities.

2. Follow the guidelines established by Federal, state and local mandates for the preservation of historic properties and features.

3. Develop, implement and monitor real estate management plans as prepared by the Department of Public Works and Transportation. (*see Appendix 3-A*).

4. Charge a community citizens group with the responsibility of identifying areas of preferred land use and developing and implementing a landscaping and reforestation program using "The Visual Landscape Master Plan" and the Forest Stand Delineation as planning tools.

5. Create a Dickerson **Area** Facilities Advisory Group that would combine the other functional groups addressing solid waste facility issues in Dickerson. This group would meet at least quarterly to review progress on implementing strategies defined in the facilities plan, and would address all issues related to solid waste operations located in **the** Dickerson **area**.

CHAPTER 4: CULTURAL RESOURCES

4.1.0 OBJECTIVES

Cultural resources are tangible evidence of the history of a region. These nonrenewable resources contribute to our understanding of the past and enhance the quality of life in a community. It is the plan's objective to:

 Develop a comprehensive plan for cultural resource mitigation and management that includes all components of the solid waste facilities;

 Comply with the spirit and intent of local, state, and Federal historic preservation legislation, regulations, and guidelines;

 Preserve historic properties on sites owned by the County, where feasible; and

 Minimize impacts to off-site cultural resources resulting from the construction and operation of the solid waste facilities located in Dickerson.

4.2.0 PRESERVATION FRAMEWORK

The following summary provides a brief overview of the major Federal, state, and county legislation, plans, and programs related to preservation activities at the County's solid waste facilities.

4.2.1 NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED

The National Historic Preservation Act (NHPA) established the current Federal policy on historic preservation and the structure of the nation's historic preservation program. The intent of NHPA is to provide preservation leadership, to encourage preservation activity and to assist state and local governments in their historic preservation programs. The Secretary of the Interior's *Standards for Historic Preservation1* were developed to guide identification, evaluation and management of cultural resources subject to NHPA.

The Act authorized the Secretary of the Interior to expand and to maintain the National Register of Historic Places. The National Register of Historic Places is the nation's official list of historic properties worthy of preservation. This list includes buildings, structures, sites, objects and districts that possess historic, architectural, engineering, archeological or cultural significance on a national, state or local level. Listing in the National Register of Historic Places offers properties limited Federal protection and certain benefits.

Under the Act, the Secretary of the Interior was directed to approve state preservation programs that provide for the designation of a State Historic Preservation Officer, a state historic preservation review board, and adequate public participation in the state program. The approved

(1 Documents cited throughout this chapter are made part of the plan by reference.)

state historic preservation program for Maryland is the Maryland Historical Trust, part of the State Department of Housing and Community Development.

The Advisory Council on Historic Preservation also was established through NHPA as an independent Federal agency. Implementation of Section 106 of the Act is among the responsibilities of the Advisory Council on Historic Preservation. Under Section 106, Federal agencies are required to take into consideration the effects of Federally-licensed, funded or permitted projects upon resources listed in, or eligible for listing in the National Register of Historic Places. Under Section 106 of NHPA, consultation with the Maryland Historical Trust regarding cultural resources activity is required for projects Federally licensed, funded, or permitted.

4.2.2 MARYLAND STATE CODE

Article 83B of the Annotated Code of Maryland defines the responsibilities of state agencies regarding historic properties and charges the Maryland Historical Trust with promoting interest in historic preservation as well as preserving, protecting and enhancing districts, sites and other significant resources in the state.

4.2.3 MASTER PLAN FOR HISTORIC PRESERVATION IN MONTGOMERY COUNTY

The *Master Plan for Historic Preservation in Montgomery County* was adopted in 1979 to provide a means for evaluating, protecting and enhancing the County's heritage as evidenced through its historic resources. The master plan is implemented through the Historic Preservation Ordinance, #9.4 of the Montgomery County Code, Chapter 24A, Preservation of Historic Resources. The Historic Preservation Ordinance provides guidelines for the identification, designation, protection, and preservation of resources deemed significant for their architectural or cultural value.

The County's historic properties were identified initially in the Maryland-National Capital Park and Planning Commission *Locational Atlas & Index of Historic Sites* (1976). Historic properties were selected for the inventory according to criteria that are similar to those adopted by the National Register of Historic Places. The County criteria for historic properties states that:

"... districts, sites, buildings, structures, and objects which possess integrity of location,

design, setting, materials, workmanship, feeling, and association, and:
a. that are associated with events that have made a significant contribution to the broad pattern of our history; or
b. that are associated with the lives of persons significant in our past; or
c. that embody the distinctive characteristics of a type, period, or method of construction, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d. that have yielded, or may be likely to yield, information important in prehistory or history."
The historic properties protected by the Master Plan for Historic Preservation in Montgomery County are approved by the Montgomery County Planning Board.

4.3.0 IDENTIFIED SITES

Numerous cultural resources have been documented on and in the immediate vicinity of the County's solid waste facilities. For the purposes of this document, data on cultural resources was compiled from the inventory files maintained by the Maryland Historical Trust. This inventory provides the most comprehensive record of cultural resources in Maryland and contains data on resources listed in the National Register of Historic Places and the Master Plan for Historic Preservation in Montgomery County.

Records related to 38 archeological sites are included in the inventory files maintained by the Maryland Historical Trust (*Appendix 4-A*). Of these thirty-eight sites, twenty are prehistoric. These resources range from short-term camps from the Early to Late Archaic and Late Woodland Periods to lithic scatters of undetermined age. Eighteen historic archeological sites also are located in the vicinity of the facilities. These sites include such diverse resources as early nineteenth-century stone walls and twentieth-century artifact scatters.

The most visible category of historic resources in the vicinity of the County's solid waste facilities are buildings associated with the nineteenth and early twentieth century development of the area (Table 4-1). Twenty-six historic properties and one historic district are documented in the inventory files of the Maryland Historical Trust. One property, the Ned Onley House Site (12-42-28)2, no longer exists.

2 The numbers following the name of each historic property is the Maryland Historical Trust file number.

MHT# Date Name Description

12-22 1833 Mount Carmel /
Gott Farm
Federal style stone farmhouse and
miller's house
12-23 n.d. Mercer Jones House Two-story wood frame residence
12-31 19th Century Lawrence White
Farm Farmstead
12-32 1931 Martinsburg Road One lane concrete road
approximately one mile long
12-33 19th Century Webster Mill/
Miller’s House
1 ½ story stone and frame
residence
12-34 1800s Woodstock Farmhouse
12-35 1818 Inverness 2 ½ story Federal Brick Structure
laid in a Flemish Bond
12-36 1858 Oak Ridge/
John Jones House 2 ½ story brick dwelling
12-37 1800s L. Jones House Residence
12-38 Mid 19th
Century Brewer House Farmstead including stone slave
quarters and spring house
12-40 19th Century Seneca Stone Barn Stone barn laid in coursed rubble,
English influence
16-1 19th Century Trundle Farm 1 ½ log/wood frame
farmhouse/farmstead
16-2 19th Century E. Chiswell Farm 21/2 story stone frame farmhouse
16-3 19th Century Camp Adventure Barn
16-4 19th Century Bittersweet Farm 2 ½ story wood frame Victorian
Farmhouse
Source: Maryland Historical Trust

TABLE 4.1:

ARCHITECTURAL RESOURCES IN THE VICINITY OF THE COUNTY'S SOLID WASTE FACILITIES IN DICKERSON

MHT# Date Name Description

16-11 19th Century John. L.T. Jones

House Doublehouse

16-12 1903 Warren M.E. Church Religious

16-12-1 Ca. 1890 Betters House

Dwelling Residence

16-13 1910-1915 Hallman House

Dwelling Residence

16-27 1869-1923 Marble Quarry

Schoolhouse Education

17-1 19th century Beallsville Historic

District Crossroads Community

17-2 Ca. 1800 Hanover Farm Residence

17-21 Mid 19th

Century W.T. Jones House Residence

17-23 1812 Kilmain II Plantation

17-24 1829 East Oaks Residence/Farmstead

12-42-25 1880-1890 James Henry Onley

House Residence

12-42-28 1870-1890 Ned Onley House

Site No longer standing

Source: Maryland Historical Trust

TABLE 4.1 (cont.):

ARCHITECTURAL RESOURCES IN THE VICINITY OF THE COUNTY'S SOLID WASTE FACILITIES IN DICKERSON

Of the twenty-five surviving historic resources, twenty-two are domestic and/or agricultural sites, one is an educational resource, one is a religious facility and one is an historic roadway associated with the development of transportation (*Appendix 4-B*). The Beallsville Historic District, (17-1), located southeast of the solid waste facilities, is significant as an historic

crossroads community, which provided goods and services to area residents and travelers. The district is made up of a cemetery, a store and a number of nineteenth and twentieth century houses. A list of the remaining historic properties appears as *Appendix 4-C*.

4.4.0 PREVIOUS PRESERVATION WORK

Projects have been completed that address both the archeological and architectural resources within and in the vicinity of the County's solid waste facilities. Many of these studies have been designed to compile information on historic structures and historic districts. This previous work can be divided generally into two categories: 1) Survey and Documentation; 2) Site-Specific Studies related to the solid waste facilities. Work related to site-specific studies includes both completed and on-going investigations. Previous work in the area is summarized below.

4.4.1 SURVEY AND DOCUMENTATION

All of the historic properties in the vicinity of the County's solid waste facilities are linked by historical patterns of regional economic and physical development. The rolling topography of the area and the existing pattern of roads, cropland and pastures provide sweeping vistas throughout the area. This rural setting is an important common factor contributing to the historic integrity of the area and to its historic properties. A historical narrative can be found in *Appendix 4-D*.

A detailed built resource survey of historic sites in Montgomery County, including the Dickerson area, was completed by Christopher Owens and Michael F. Dwyer of the Maryland National Capital Park and Planning Commission in 1973. This survey compiled data on numerous historic sites in Montgomery County. The data was used to develop the '*Locational Atlas & Index of Historic Sites in Montgomery County, Maryland'*. Many of these resources were later incorporated in the *Master Plan for Historic Preservation in Montgomery County* following approval by the Montgomery County Planning Board.

The County's preservation program formally was initiated in 1977 with the formation of the Montgomery County Advisory Committee on Historic Sites (currently called the Historical Preservation Commission) . The task of the Advisory Council was to develop a Master Plan of Historic Sites and Districts for Montgomery County
and to develop an ordinance for the regulation and preservation of the historic resources. The

Master Plan was designed to provide guidelines for evaluating, protecting and strengthening Montgomery's history, through the preservation of built resources.

Two historic districts that meet National Register criteria have been identified in the vicinity of the solid waste facilities. The Chesapeake and Ohio (C & O) Canal Historic District is a linear multiple-property district that was listed in the National Register of Historic Places in 1979. The *Sugarloaf Mountain Historic District*, an approximately 16,000 acre rural historic district, is considered by the Maryland Historical Trust as eligible for listing in the National Register of Historic Places (personal communication, Ms. Beth Hannold 1990). Nomination materials for the Sugarloaf Mountain Historic District have been submitted to the

Maryland Historical Trust for technical review, which is required prior to submission of the documentation to the National Register Program. The proposed historic district has not been 100% listed officially as of August 2010. The objection of property owners to the designation of the area as a National Register Historic District is one obstacle to official listing.

The C & O Canal Historic District is currently a National Historic Park administered through the National Park Service. The canal was constructed between 1828 and 1850 to facilitate the transportation of goods and passengers between Georgetown and Cumberland, Maryland. The system remained in operation until 1924. The canal and its associated support structures are historically significant in the areas of architecture, commerce, conservation, engineering, transportation and the military. The C & O Canal Historic District is situated on the eastern bank of the Potomac River; portions of this district are southwest, west and northwest of the solid waste facilities.

The proposed Sugarloaf Mountain Historic District is a rural historic district incorporating cultural and natural landscape components in addition to agricultural, domestic, commercial and industrial resources. The unifying landscape elements within the district are views to and from the 1,282 foot high Sugarloaf Mountain. The significant historic themes represented in this district are agriculture, architecture, landscape architecture, community planning, economics and transportation.

Local community support for historic preservation in the Dickerson area also is evidenced by such projects as the conservation of the 1873 Dickerson Railroad Station and interest in the preservation of the 1935 Linden Park by residents of the area.

4.4.2 SITE-SPECIFIC STUDIES RELATED TO THE SOLID WASTE FACILITY

Resource Recovery Facility

Two agricultural complexes in the vicinity of the Resource Recovery Facility were recorded during the 1973 survey of historic sites in Montgomery County undertaken by Christopher Owens and Michael F. Dwyer of the Maryland Capital Park and Planning Commission. The properties were listed on the Maryland Inventory of Historic Properties maintained by the Maryland Historical Trust. The Shreve House (12-29) was identified as the ruins of a stone dwelling associated with an early nineteenth century agricultural complex. The Chimney Ruins (12-30) were identified as associated with the Benjamin and Charles Shreve House.

Daniel Koski-Karell undertook an archeological and historical reconnaissance survey of the Potomac Electric Power Company (Now NRG)) Dickerson Plant during the late 1980s. This study identified 11 prehistoric archeological sites including lithic scatters and hunting camps dating from the Late Archaic and Late Woodland Periods. Ten historic sites also were identified, which ranged in date from the mid-nineteenth to the mid-twentieth centuries. The KoskiKarell study recommended 7 prehistoric sites for further investigation. This study also reidentified the Shreve House (12-29) and the Chimney Ruins (12-30). The investigations evaluated Site 12-29 as significant and recommended in-place preservation. Site 12-30 was found to be extensively disturbed and did not possess significance.

Phase I Archeological Investigations were undertaken in 1991 for a proposed water line for the Resource Recovery Facility by R. Christopher Goodwin & Associates, Inc., pursuant to Section 106 of the National Historic Preservation Act, as amended. These investigations, completed for ENSR Consulting and Engineering, did not identify significant cultural resources; no further work was recommended.

Engineering-Science, Inc., also undertook a Phase I Archeological Investigation in 1991. This project, completed for the CNG Transmission Corporation, Clarksburg, West Virginia, reidentified site 18MO236, a late nineteenth- to mid twentieth-century historic artifact scatter. The nature of the artifacts, combined with the shallow natural stratigraphy of the deposit within the project area, supported a recommendation that the site possessed little research potential.

A study of secondary impacts associated with the construction of the Resource Recovery

Facility was completed by R. Christopher Goodwin & Associates, Inc., in 1991 in compliance with Section 106 of The National Historic Preservation Act of 1966, as amended. Undertaken for ENSR Consulting and Engineering, these investigations assessed the potential for secondary visual, light and noise effects to historic properties. The study concluded that although previous industrial development had impacted the integrity of views to the site, mitigation was appropriate to minimize the effects of the proposed project. The proposed Resource Recovery Facility was projected to be most visible from the south. The addition of landscape buffers and the use of low-reflective building materials were recommended.

Yard Trim Composting Facility

The Yard Trim Composting Facility encompasses the Lawrence White Farm (12-31) and is located adjacent to Martinsburg Road (12-32). The Lawrence White Farm, commonly known as the Matthews Farm, has been the subject of several architectural investigations. In addition, historical documentation has been compiled for Martinsburg Road (12-32), which contains a rare surviving one-mile section of one lane concrete paving built in 1931. The section is one of the earliest surviving paved roads in rural Montgomery County and is associated with early automobile transportation in Maryland. Both sites were documented as part of the 1973 survey by the Maryland Park and Planning Commission.

The Matthews Farm was the subject of an in-depth investigation by Eleni M. Silverman in 1980. In *The Historic. Preservation of Vernacular Architecture - The Lawrence White Farm*, Silverman identified the preservation of the complex as important to the conservation of the visual quality and variety of the rural and suburban environment. Supplementary documentation of the complex also was completed by Silverman in 1981.

In 1991, the architectural firm of Ward Bucher Architect completed an architectural conservation study of the Matthews farm complex. The resulting report, *Stabilization of the Matthews Farm, Dickerson, Maryland*, was submitted to the Department of Environmental Protection, Rockville, and Maryland Environmental Services, Annapolis. The study includes structural evaluations of each building in the complex as well as an assessment of the overall site as a significant example of an early twentieth century farm. The complex was defined as including a log cabin, bank barn, stone walls, board-and-batten house, cowshed, silos, gothic dairy barn, tractor shed and shed. Under an amendment of the SCA Agreement, the structures were prserved and are being maintained by the County. .

In 1992, the Matthews Farm was reviewed for inclusion in the *Master Plan for Historic Preservation in Montgomery County*. Staff recommended the designations of the complex. The Montgomery County Council voted in favor of the designation of the gothic dairy barn as an historic resource.

Site 2 Landfill

The 1973 architectural survey of Montgomery County identified three agricultural complexes in the vicinity of the proposed landfill. The E. Chiswell Farm (16-2), the John A. Jones (16-3), and Bittersweet Farm (16-4) were documented and listed on the Maryland Inventory of Historic Properties by Christopher Owens. The main house at the Jones Farm was destroyed by fire in 1978.

In 1978, Mark Walston of Sugarloaf Regional Trails documented an additional farm complex, the Trundle Farm (16-1). The main dwelling of the complex was designated as an historic site under the *Master Plan for Historic Preservation*.

The E. Chiswell Farm (16-2) was designated as an historic site under the *Master Plan for Historic Preservation* in 1992. The historic setting, or immediate site of the Chiswell Farm, was included in this designation.

In 1994, Daniel Koski-Karell completed *Archeological and Architectural History Phase H Evaluation Investigation for the Montgomery County Landfill Project* pursuant to Section 106 of the National Historic Preservation Act of 1966 as well as Article 83-B of the Annotated Code of Maryland. These investigations identified four significant historic properties, two historic archeological sites and two building complexes: the Chiswell Farm (16-2) and the Jones Farm (16-3). All four properties would be potentially impacted by the construction of the landfill. The investigation recommended detailed building documentation and Phase III archeological investigations to mitigate the adverse effects of the landfill project upon the four historic properties in the event that landfill related activities would impact these sites.

4.5.0 POTENTIAL IMPACTS OF CONCERN

Two types of impacts to historic properties generally are recognized. These are 1) direct impacts, through which an historic property is physically altered or removed; and 2) indirect impacts, through which a significant setting or use of an historic property is altered. Demolition through neglect is considered a direct impact. For the purposes of this plan, historic properties

within the boundaries of the County's solid waste facilities will be analyzed for direct impacts while resources in the vicinity of the facilities will be assessed for potential indirect impacts. Visual effects to historic properties in the vicinity of the facilities will be addressed under indirect project impacts.

4.5.1 DIRECT IMPACTS

The County's solid waste facilities will have a direct effect upon historic properties that possess those qualities of significance identified for historic properties designated under local, state and Federal preservation programs. The direct effects of the construction and operation of the three components of the solid waste facility, the Resource Recovery Facility and the Yard Waste Composting Facility and the Site 2 Landfill can be defined. Many of these effects upon historic properties specifically were identified in previous studies completed in compliance with Section 106 of NHPA and Article 83B of the Annotated Code of Maryland.

 The construction and operation of the Resource Recovery Facility has not required the demolition or removal of historic properties.

 The operation and expansion of the Yard Trim Composting Facility also has not required the removal of historic properties. The Matthews Farm complex is located on property that includes the Yard Trim Composting Facility. This complex contains one resource, the Gothic Dairy Barn, that is designated as an historic property under the *Master Plan for Historic Preservation in Montgomery County*. The barn has been renovated per the 1996 Agreement with the Sugarloaf Citizens Association, the current tenant. The remaining building complex, which historically was associated with the farm, is not designated as a Montgomery County Historic Property. The complex as a whole is documented on the Maryland Inventory of Historic Properties.

 Construction and operation of the proposed landfill will affect four historic properties: the Chiswell Farm Complex (16-2), the Jones Farm Complex (163), the Chiswell Farm Archeological Site (18MO379) and the Bogulea Farm Historic Artifact Scatter (18MO385). Current plans propose to retain the historic structures associated with the

Chiswell Farm (16-2) and the Jones Farm (16-3), sites included in both the *Master Plan for Historic Preservation in Montgomery County* and the Maryland Inventory of Historic Properties. The potential for direct impacts to these properties are related to changes in use and to the potential for structural deterioration due to deferred maintenance.

4.5.2 INDIRECT IMPACTS

Indirect impacts associated with the Resource Recovery Facility were completed by R. Christopher Goodwin and Associates, Inc., in 1991. This study extrapolated the indirect visual impacts of the proposed facility through field investigation and an analysis of proposed plans. Six views to the facility were identified within a five mile radius of the Resource Recovery Facility. The historic integrity of each of these view corridors had been impacted by previous industrial development (Mirant stacks).

 The proposed Resource Recovery Facility was found to be most visible from the south corridor in the vicinity of Wasche and Martinsburg Roads (12-32). This corridor affords direct views to the complex. The Yard Trim Composting Facility also is contained within this sight line. However, a large berm constructed at the intersections of Wasche and Martinsburg Roads, built with natural appearing contours has served to mitigate this view.

 The cumulative effects of new construction and additional night lighting were identified as a concern.

 Noise associated with facility operation also was identified as a potential impact to the setting of historic properties.

Investigation of the landfill site by Daniel Koski-Karell identified two types of indirect impacts to historic properties:

 Visual changes associated with an artificial mound resulting from the operation of the site; and

 Increased vehicular traffic.

4.6.0 POLICY RECOMMENDATIONS

1. Develop a standard real estate management plan for buildings acquired in association with the County's solid waste facilities.

2. Adopt recognized professional standards for work on all historic buildings within the County's solid waste facilities.
3. Stabilize the Gothic Dairy Barn at the Matthews Farm.
4. Restore the Gothic Dairy Barn at the Matthews Farm.
5. Screen views to the County's solid waste facilities from Martinsburg Road.
6. Preserve the historic section of Martinsburg Road.
7. Retain and re-use the historic structures at the Chiswell and Jones Farms.
8. Include public interpretation as part of cultural resource work required at the proposed landfill site.
9. Coordinate local, state, and Federal cultural resource activities.

4.7.0 IMPLEMENTATION STRATEGIES

1. Develop a standard real estate management plan, including a property assessment and management strategy for each building acquired in association with the County's facilities (*Appendix 3-A*). The plan should be developed upon the transfer of the property and identify:

- Current condition of the building;
- Commitment of funds and responsibility for maintenance of the property while under County ownership;
- Proposed uses of the building; and
- Recommendations for short-term actions on the property.

2. Adopt the Secretary of the Interior's Standards for Historic Rehabilitation as the standards for work on all historic buildings within the County's solid waste facilities. These buildings are the Chiswell Farm, the Jones Farm, and the Gothic Dairy Barn. It is anticipated that all work on the Chiswell Farm and the Jones Farm will be required to use these standards as a condition of Federal permits which are necessary for the construction of the landfill. The adoption of unified standards for work on historic buildings will insure consistency in the work at the solid waste facilities. *The Standards for Rehabilitation* was developed to assist in the preservation of historic materials and building features while providing for efficient contemporary use.

3. Implement the 1991 stabilization plan by Ward Bucher, Architect for the Gothic Dairy Barn at the Matthews Farm, to retain the resource. Implement the restoration of the Gothic Dairy Barn as a offices for the Sugarloaf Citizens Association. Restoration will be done to preserve the historic character of the barn.

4. Install and maintain landscape buffers, contouring and vegetation concurrently with the development and operation of the solid waste facilities (*Appendix 2F*).

4-18

 As specified in the negotiated agreement with the Sugarloaf Citizens Association, plant mixed deciduous and conifer trees between the Gothic Dairy Barn and the compost facility.

 Particular attention should be paid to the installation of buffers along South Martinsburg Road.

 Plans for the improvements should be developed in coordination with the Landscape Committee recommendations, and as plans pertain to the Matthews Farm, with the Sugarloaf Citizens Association.

5. Coordinate with County agencies to enforce existing preservation standards for the maintenance of the historic section of the Martinsburg Road. Repair and maintain stone fences located along Martinsburg Road and Wasche Road, as specified in the negotiated agreement with the Sugarloaf Citizens Association (*Appendix 2-F*).

6. Develop Real Estate Management Plans for the Chiswell and Jones Farms in advance of construction of the landfill:

 To document the current condition of the complexes;

 To identify conditions affecting the structural integrity of the component buildings and to identify appropriate treatments;

 To identify character defining elements to retain in the re-use of the complexes; and

 To identify and develop plans for the continued use of the structures

4-19

This program should be coordinated with Section 106 compliance under NHPA to mitigate any adverse affects to historic properties posed by the construction of the

landfill.

7. Facilitate public involvement in the cultural resources of the area during future archeological and architectural investigations at the proposed landfill site. The public interpretation program may include:

- An open house of in-progress work;
- Opportunities for local school participation; and
- Preparation and distribution of flyers on site and its context.

8. When funds are available, a cultural resources coordinator should be assigned to the solid waste facilities to avoid duplication of work and to coordinate cultural resource mitigation effects required under Section 106 of NHPA, the Annotated Code of Maryland, and the Master Plan for Historic Preservation in Montgomery County, Maryland.

CHAPTER 5: TRANSPORTATION

5.1.0 OBJECTIVES

Efficient operations of the County's solid waste facilities require that adequate transportation services be provided to the facilities. That is, the movement of persons, supplies and waste material to and from the waste facilities must comply with County long term contractual obligations as well as the practical needs of prudent facility operations. At the same time, transportation services will have effects upon the surrounding community and area roads. Therefore, the objective of this plan is to minimize any the adverse impacts of vehicular and rail traffic to and from the solid waste facilities in the Dickerson area.

5.2.0 BACKGROUND

5.2.1 TRANSPORTATION PATTERNS

Roadways

This analysis includes all area roads, which may be impacted by traffic to and from the solid waste facilities in Dickerson. Some of these roadways are maintained by the state, and some are maintained by Montgomery County. Roadways maintained by the state are designated with state route numbers: In the vicinity of the solid waste facilities, these include: Maryland Routes 28, 107, 109, 112, 117 and 118. These and other roadways are illustrated in Figure 5-1. The facilities are located approximately two miles southwest of Dickerson and four miles north of Poolesville, in the rural part of upper Montgomery County, Maryland. Regional highway access to this area is provided by Interstate 270 at a number of interchanges:

Darnestown Road (MD Route 28)

Shady Grove Road

Germantown Road (MD Route 118)

Clarksburg Road (MD Route 121)

Old Hundred Road (MD Route 109)[1]

[1] Along the Old Hundred Road portion of MD Route 109, there are two bridges with posted weight limits. The first, located just north of Old Baltimore Road, has posted limits of 58,000 pounds for single unit vehicles and 80,000 for combination unit vehicles. The second, located just west of I-270, has posted limits of 58,000 pounds for single unit vehicles and 66,000 pounds for combination unit vehicles.

Darnestown Road (MD Route 28) is the primary highway in the area which connects the solid waste facilities with these feeders to I-270. These are the key regional highways for access to the facilities from most of Montgomery County and for Frederick County.

Direct access to the solid waste facilities from Route 28 is provided by Martinsburg Road at the northeast comer of the property. At the present time, secondary access is also provided to the facilities from the south by Martinsburg Road and by Wasche Road. However, these two routes of access to the south are not suitable for truck traffic; therefore, primary access to the facilities will be limited to roadways which are capable of handling such traffic. Signs have ~~recently~~ been posted limiting trucks using the roads to under 3/4 tons.

Public Transit

Due to the rural nature of the area surrounding the solid waste facilities, there is no public transportation in the area. The nearest public transportation facility is a MARC rail station located in Dickerson with service to Washington, D.C. in the a.m. peak period and Martinsburg, West Virginia in the p.m. peak period. No Metrobus or Montgomery County Ride-On bus routes serve the area. Based on the current zoning, the County's desire to maintain the agricultural nature of the land in this area and needs of operational staff, it is unlikely that the demand for public transportation in the future will warrant any new service.

Rail Systems

Rail service to the County’s solid waste facilities is provided along the existing CSX rail line. This rail line runs from Union Station in Washington, D.C. through Montgomery County and

continues along the Potomac River through Frederick County. All railroad crossings of roads likely to be used by traffic generated by the County's facilities are grade separated crossings.

The rail line is currently used by CSX for freight and by AMTRAK for passenger transport. MARC also utilizes this line to provide commuter train service between Union Station and Martinsburg, West Virginia. Mirant has constructed a rail line from its site which connects to the CSX rail line in Frederick County. This connection is used to bring fuel to Mirant to supply its generation facility. This rail line has been further extended to provide rail service to the Resource Recovery Facility.

5.2.2 SURROUNDING ROAD NETWORK

Principal Roadways

A description of each the principal roads affected by solid waste facilities traffic are presented in the following paragraphs. Furthermore, the traffic data available from the Maryland State Highway Administration and augmented with the May and October 1994 surveys conducted by Gorove/Slade Associates and December and May 2002 surveys conducted by SCS Engineers are presented and compared with the capacity of each road. For the purpose of this report, vehicle trips are defined as one travel event from an origin to a destination. Thus, a truck traveling to Dickerson would generate two trips, from the origin to Dickerson, and a return trip back.

Traffic studies were conducted by SCS Engineers in Winter 2002, Spring 2002, inter 2003 and Winter 2005.

Comparisons between Spring 2002, Winter 2002, Winter 2003, and Winter 2005 data are presented in Figure 5***-2.*** For all of the Traffic Studies, data was collected from the same three locations. Traffic Studies performed during Spring 2002, Winter 2002, and Winter FY 2005 were conducted on a five day (weeklong) count while the Winter 2003 was conducted on a three-day count. Therefore, Figure ***5-2*** presents the average number of cars per hour for comparison purposes.

MD Route 28 (Darnestown Road) -

MD Route 28, a state designated Scenic Highway, runs northwest to southeast and provides the primary access to this region of Montgomery County from 1-270. The Scenic Highway designation is defined by the aesthetic value of road view. It is maintained as any other state highway is maintained. In the vicinity of the site, MD Route 28 is an approximately 24 foot wide, two-lane striped roadway with an asphalt curb found intermittently along the edge of pavement. The posted speed limit is 50 miles per hour along most of this route. However, the speed limit

does vary to as low as 30 miles per hour through towns such as Beallsville and Darnestown. The width of Route 28 is uniform from Dickerson east to Darnestown. There are only three traffic signals between Darnestown and Dickerson, and driveways and unsignalized intersections are few. A typical roadway with these characteristics can accommodate approximately 15,600 vehicle trips per day, including passenger cars and trucks, and maintain a level of service "C"[2] and has an ultimate capacity of 17,400 vehicles per day. Level of service "C" generally means that traffic flow is stable, but occasionally will be susceptible to congestion due to delays caused by turning vehicles. These numerical values are taken from level of service (LOS) maximum volume tables which were developed by the Florida Department of Transportation in conjunction with the Transportation Research Board's Highway Capacity Manual, Special Report 209, 1985 and are believed to be the most thoroughly researched and state-of-the-art generalized level of service tables in the United States. Thus, the capacity of Darnestown Road is in the range of 15,600 to 17,400 vehicles per day. Due to the presence of slow-moving agricultural traffic along MD Route 28, the overall daily capacity of the road is slightly lower during peak agricultural seasons.

The latest State of Maryland Traffic Volume Map shows that the 2010 average daily traffic volumes (ADT) on MD Route 28 increase progressively from the Dickerson area south and east to the Dawsonville area where the ADT volume is approximately 16,500 vehicles per day at the intersection of MD Routes 28 and 107. Near Darnestown, the ADT volume ranges from 13,540 to 15,140 vehicles per day. While the MDSHA recorded volumes along MD Route 28 have increased overall by approximately 28% since 1987, there remains a significant amount of capacity available on Darnestown Road to absorb additional traffic and still maintain an acceptable LOS of

[2] See Appendix 5-A for Level of Service definitions for general two-lane highway segments.

"C". The 2010 average daily traffic (ADT) volume on MD Route 28 at the intersection of Martinsburg Road is approximately 5050 vehicles per day. This volume indicates that this section of MD Route 28 currently operates at a level of service "A".

Table 5-1 estimates the percentage of the existing volume and capacity of MD Route 28 that is constituted by the County's solid waste facilities traffic. Additional counts were conducted in Winter 2005 by SCS Engineers

Improvements to the intersection of MD Route 28 and Martinsburg Road have been made. These improvements included cutting back the embankment on the east side of MD Route 28 and adding a northbound left turn lane. This project was funded jointly by Montgomery County and Mirant(now NRG). .

Martinsburg Road -

Martinsburg Road is a winding road of varying width which runs from MD Route 28 to Whites Ferry Road and primarily serves the agricultural land adjacent to it as well as the solid waste facilities (SWF), Mirant, and the Dickerson Conservation Area. Local residents report that this road now receives significant commuter traffic as well as a recent increase in delivery trucks. Martinsburg Road is comprised of the following three distinct sections:

From MD Route 28 to the SWF/Mirant Entrance -

This section of Martinsburg Road is an approximately 24 foot wide stretch of striped pavement which is not included in the Rustic Roads program. This stretch of Martinsburg Road was originally constructed for Mirant trucks at a thickness which allows the road to accommodate the truck traffic which travels to and from the County's facilities. Based on data

Winter 2005JANUARY 2002

Count Location	ADT (vehicles)	Estimated Solid Waste Facilities Traffic (Vehicles)	(% of ADT)	Capacity at LOS "C" (Vehicles)	Total Demand (% of Cap)	Facility Demand (% of Cap)
Martinsburg Road and Rt. 28	4,975	524	11.0%	16,500	30%	3.0%
Martinsburg Rd and Wasche Rd	409	524	128%	--	--	3.0%

Sources: SCS Engineers "Winter 2005 Traffic Monitoring at County Solid Waste Facilities in Dickerson"
Highway Capacity Manual, 1994-1996

TABLE 5-1:
MD. RTE. 28 CAPACITYANALYSIS

collected in Winter 2005, the average daily traffic volume on Martinsburg Road just north/east of the SWF/Mirant entrance is approximately 2,600 trips per day.

From the SWF/Mirant Entrance to Wasche Road (historic section) -

This approximately one mile stretch of Martinsburg Road just south of the solid waste facilities/Mirant entrance, in addition to being designated by the County as an Exceptional Rustic Road, is listed in the National Register of Historic Places.

Originally constructed in 1835 to provide farmers access between the railroad and the C & O Canal, this section of Martinsburg Road was paved with concrete in 1931 as a single lane road 9 to 10 feet in width with gravel shoulders. This section of roadway is one of the few remaining single lane roadways remaining in Montgomery County. The road is posted for no trucks over 3/4 tons.

From Wasche Road to Whites Ferry Road -

This section of Martinsburg Road, designated by the County as an Exceptional Rustic Road, is paved with mostly unstriped asphalt. The road width varies from 12 feet to 18 feet with gravel shoulders. A bridge with a posted weight limit of 16,000 pounds is located on this stretch of Martinsburg Road approximately one mile west of the Wasche Road intersection.

An at-grade intersection exists south of the historic section of Martinsburg Road to allow trucks hauling ash from Mirant generating facility to access their ash disposal areas south and east of Martinsburg Road. If Site 2 is developed, as a landfill, this private Mirant road will be utilized in the future by trucks hauling ash from the RRF to the Site 2 Landfill

. The posted speed limit on Martinsburg Road is 30 miles per hour.

Wasche Road -

Wasche Road, a designated Rustic Road, is an approximately 18 foot wide, two-lane striped roadway running north-south from Martinsburg Road to Whites Ferry Road. Currently, Wasche Road provides the only access to the planned Site 2 Landfill locale. When construction begins on the Site 2 Landfill, the Ash Haul Road will be extended south of Martinsburg Road. This will allow construction vehicles to access the site with minimum utilization of Wasche Road and the surrounding road network. The posted speed limit is 35 miles per hour. Based on data collected in Winter 2005, the average daily traffic volume on Wasche Road is approximately 409 vehicles per day. This road is posted for no trucks over 3/4 tons.

West Hunter Road -

West Hunter Road, a designated Rustic Road, is an approximately 18 foot wide, two lane roadway running east-west from Wasche Road to MD Route 28 in Beallsville. Because of its location, West Hunter Road may be used as a shortcut by some vehicles wishing to access the County's facilities from the east on MD Route 28. Based on data collected in October 1994, the average daily traffic volume on West Hunter Road is about 140 trips per day, of which approximately 15% occurs between the hours of 3:00 and 4:00 p.m. From these estimates, it appears as if West Hunter Road is being used as a "cut-through" by a small number of motorists each day. This road is posted for no trucks over 3/4 tons.

Internal Road System

The Yard Trim Composting Facility, the Resource Recovery Facility (RRF), and the Site 2 Landfill share a single access point with Mirant along Martinsburg Road. Access to the County's facilities is provided just before a secured gate at the Mirant entrance. The two-lane road to the Yard Trim Composting Facility and RRF is approximately 20 feet wide. The posted speed limit is 15 miles per hour. Very steep speed bumps have been placed at close intervals along this road to control speed.

The existing Mirant ash-disposal road is used by Mirant to haul ash to their disposal site south of Martinsburg Road. The ash-disposal road is an approximately 20-footwide, two-lane road which runs from north-south from an at-grade intersection at Martinsburg Road, behind the RRF, to the Mirant site. This road will be used by trucks hauling waste to the Site 2 Landfill south of Martinsburg Road.

Rustic Roads

As with the majority of the roads in this region of Montgomery County, the road network surrounding the County's solid waste facilities is composed primarily of narrow, winding, two-lane roads with little to no shoulder. Exceptions to this include: MD Route 28 (Darnestown Road), portions of MD Route 107, and MD Route 109 (Beallsville Road). The Maryland National Capital Park and Planning Commission has classified the majority of the roads within this region as Rustic Roads or Exceptional Rustic Roads in its Rustic Roads Functional Master Plan, dated March 1994. The legislation establishing the Rustic Roads Program (County Council Resolution No. 20-92) defines a Rustic Road as "a road within the Agricultural Reserve or adjoining rural areas (areas in

which the majority of zoning is RDT, RC or rural) in Montgomery County, which enhances the rural character of the area due to its particular configuration, alignment, scenic quality, landscaping, adjacent views, and historic interest, and which exemplifies the rural and agricultural landscape of the county." An Exceptional Rustic Road is defined as a road "having such an unusual and pleasing character as it exists today that preservation of the road in its current state is highly desirable. The road has special characteristics which contribute significantly to the rural, scenic, or historic features of Montgomery County and might lose these specific characteristics if improved or widened." The Rustic Roads program was established to preserve the rustic character of those roads identified by the County which meet one of the above definitions. The majority of these rustic and Exceptional Rustic roads, because of their narrow and winding nature, are not suitable for truck traffic. MD Route 28 southeast of Dickerson, and the section of Martinsburg Road from Route 28 to the solid waste facilities/Mirant driveway are the only roadways within the immediate region not classified as a Rustic or Exceptional Rustic Road.

Traffic Characteristics

The Maryland Department of Transportation has a limited amount of traffic volume data in the vicinity of the facilities. This data consists of counts conducted annually at a number of locations to represent the average daily traffic (ADT) volume at each location for that year. Figure 5-2 illustrates the count locations and corresponding ADT volumes as reported by the Maryland State Highway Administration (MDSHA) for the year 1993. In order to supplement the existing MDSHA traffic volume data in this area, automatic machine counters were placed by Gorove/Slade Associates in May 1994 on the following roadways in the area:

MD Route 28 immediately north of the Martinsburg Road intersection; Martinsburg Road immediately south of the solid waste facilities entrance;

Martinsburg Road immediately north of Whites Ferry Road; and

Wasche Road immediately north of Whites Ferry Road.

The data collected includes traffic associated with construction activities at the Resource Recovery Facility occurring during that time. These counts were augmented with additional counts by Gorove/Slade Associates in October 1994 at the following locations:

MD Route 28 east of the MD Route 109 intersection;

Martinsburg Road between MD Route 28 and the solid waste facilities entrance; and

West Hunter Road east of Wasche Road.

Comparison of previous traffic studies to the 2005 study are represented in *Figure 5-2*.

Figure 5-2 : COMPARISON OF PREVIOUS TRAFFIC STUDIES TO CURRENT TRAFFIC STUDY 2005

Location	Coming From	Going Toward	Average Number Of Cars Per Hour			
			Winter 2002	Spring 2002	Winter 2003	Winter 2005
1	Route 28 East	Route 28 West	144	160	113	184
	Route 28 West	Route 28 East	152	163	153	230
	Total Vehicles Continuing Through on Rt. 28		**297**	**323**	**265**	**415**
	Route 28 West	Martinsburg Rd	25	23	16	25
	Route 28 East	Martinsburg Rd	7	7	7	8
	Total Vehicles Approaching Facilities OR Location 3		**31**	**29**	**23**	**33**
	Martinsburg Rd	Route 28 East	7	7	9	31
		Route 28 West	23	26	23	9
	Total Vehicles Exiting County/Mirant Facilities		**30**	**33**	**32**	**40**
	TOTAL VEHICLE COUNT - LOCATION 1		**358**	**385**	**321**	**488**
2						
	Martinsburg Rd	Mirant	13	8	6	9
		County Facilities	7	9	9	12
	Total Vehicles Approaching County/Mirant Facilities		**20**	**17**	**14**	**20**
	Mirant	Martinsburg Rd	15	9	8	11
	County Facilities	Martinsburg Rd	7	9	10	12
	Total Vehicles Exiting County/Mirant Facilities		**22**	**18**	**18**	**23**
	TOTAL VEHICLE COUNTY- LOCATION 2		**42**	**35**	**33**	**44**
3						
	Old Martinsburg Rd South	Route 28	6	7	8	9
	Wasche Rd	Route 28	8	7	8	9
	Total Vehicles Approaching Facilities OR Location 1		**14**	**15**	**16**	**18**
	Old Martinsburg Rd North	Old Martinsburg Rd South	7	7	5	7
	Old Martinsburg Rd North	Wasche Rd	7	7	6	7
	Total Vehicles Approaching Facilities OR Location 1		**14**	**13**	**11**	**14**
	Wasche Rd	Old Martinsburg Rd South	1	1	1	1
	Old Martinsburg Rd South	Wasche Rd	1	1	1	1
	Total Vehicles Continuing Through On Local Roads		**1**	**1**	**2**	**2**
	TOTAL VEHICLE COUNTY - LOCATION 3		**29**	**29**	**29**	**34**
OVERALL AVERAGE NUMBER OF CARS PER HOUR FOR TRAFFIC STUDIES			**430**	**450**	**382**	**566**

Other discrepancies between the three Traffic Studies includes:

- Data for the Spring 2002, Winter 2002, and Winter FY 05 studies was recorded between 6:00 am and 6:00 pm, for a total of 12 hours. The Winter 2003 study recorded data between 7:00 am and 4:00 pm, for a total of 9 hours;

- Winter 2002 study – data counters worked five 12-hour shifts and took a 1-hour break for lunch;

- Spring 2002 study – data counters worked five overlapping 6-hour shifts and did not take lunch breaks; and

- Winter 2003 study – data counters worked three 9-hour shifts and continued to collect data throughout the day while only taking time out for quick restroom breaks.

- Winter FY 05 study – data counters worked five12-hour shifts with no break for lunch (two people per vehicle allowed for continued coverage over lunches and restroom breaks).

School Buses

The hours of operation for schools serving communities along MD Route 28 are somewhat staggered, which allows school buses to cover multiple routes during both the morning and afternoon periods. This results in extended school bus operation hours from 6:00 to 9:20 in the morning and 1:30 to 4:00 in the afternoon. *Figure 5-3*, developed from route sheets provided by the Bus Operations division of the Montgomery County School District, shows the approximate number of school buses that can be expected to be traveling on the stretch of MD Route 28 near MD Route 124 (and Quince Orchard High School) at any 10 minute interval during the aforementioned hours of school bus operation. This location is assumed to be representative of school bus traffic traveling along Route 28. As (*Figure 5-3*) shows, there are peak periods in which school bus traffic is most concentrated. These peak periods for the 1994-1995 academic year were from around 6:20 to 7:20 in the morning and from 1:40 to 2:10 and from 2:30 to 3:00 in the afternoon are for Darnestown traffic only.

Agricultural Traffic

Due to the agricultural setting of the area surrounding the solid waste facilities in Dickerson, there are a number of agricultural vehicles which will use Route 28, operating at a slower speed. Agricultural vehicles also use Martinsburg Road and Wasche Road. From a safety standpoint, it would therefore be desirable to alert the drivers of all vehicles associated with the County's facilities to the existence of these agricultural vehicles along area roadways. All County contractors especially during leaf haul season are made aware of agricultural traffic on Route 28.

5.3.0 POTENTIAL IMPACTS OF CONCERN

5.3.1 VEHICULAR

Vehicular traffic associated with the solid waste facilities consists of employees and supporting traffic, composting related traffic and construction related traffic for all facilities. Vehicular traffic associated with hauling waste from the Resource Recovery Facility (RRF) to the Site 2 Landfill will be limited to roads within the site, except at an at-grade intersection where the internal road will cross Martinsburg Road.

The Montgomery County Department of Public Works and Transportation (DPWT) developed traffic projections in relation to the County's solid waste facilities in its October 1993 report titled Traffic Projections for Montgomery County's Dickerson Area Solid Waste Management Facilities. This report presents traffic projections associated with both construction and facility operations from August 1993 to June 1997. These projections were revised in June of 1994 to reflect additional truck traffic related to the construction of the RRF that was expected

between May and September of 1994. A summary of the revised projected trips per day is presented in *Appendix 5-B* and is shown graphically on *Figure 5*-4. It should be noted that one vehicle (passenger vehicles, delivery vehicles, and trucks) will typically make one round trip which consists of two trips; one inbound to the solid waste facilities and the other outbound.

The data is tabulated by month and categorized by type of vehicle and associated activity. Between August 1993 and June 1997, the average number of trips per day was projected to range from 258 trips (129 vehicles) per day to 978 trips (489 vehicles) per day. In general, construction-related activities were projected to be the predominante cause of traffic generation at the facilities through May of 1996, which was the anticipated completion of the Site 2 Landfill at the time the projections were done. Data collected in December and May 2002 show that the average number of trips per day falls into the projected averages. There was an average of 444 trips (222 vehicles) per day visiting the County facilities and Mirant. Of these 444 trips 186 trips were to the County facilities.

In the winter 2005, there was an average of 688 trips (334 vehicles) per day visiting the County and Mirant. Of these 688 trips, 384 (192 vehicles) were to the County facilities.

Construction Traffic

The time periods with the anticipated greatest amounts of vehicular traffic may have been between September 1994 and May 1995 and were associated with the construction of the RRF. During this time, it was anticipated that the County's facilities would generate between 782 and 978 trips per day. Of this number, between 646 and 788 trips per day were related to construction of the RRF.

Currently County has no plans for any new construction; new studies and projections will be made if needed.

In 2009, a major construction project took place at the NRG power plant and the traffic light was signalized; after the construction the light is now unsinalized.

Facilities Operation Traffic

The projected highway traffic associated with the operations of the County's facilities varies between 50 trips per day in August 1993 to a high of 334 trips per day after all three facilities are fully operational. Once fully operational, the vehicular trips per day are estimated to vary seasonally between 258 trips per day in the winter to 334 trips per day in the fall. This variation in trips is primarily due to the seasonal aspects of the composting facility, with the majority of raw materials arriving to be composted in the summer and fall months. In 2002 the average trips per day to the County's facilities was 186 trips (93 vehicles). In 2005, the average trips per day to the County facilities was 384 (192); the increase is due to leafhaul. The County has a goal to to use rail cars to transport at least 50% of yard trimto the Composting Facility, a measure which will reduce traffic. In FY2012, 60% of the material came to the facility by rail..

Volume Monitoring Analysis

An additional analysis of traffic volumes was performed to determine the accuracy of the DPWT forecasts. Vehicular traffic related to the RRF facility during its construction period was discovered to be greater than projected, particularly from April to August of 1994, where the overage was between 163 and 283 vehicle trips per day. This overage of RRF related traffic is

shown in Figure 5-4. However, the actual vehicular traffic related to the Composting Facility was lower than projected through July 1994 by an amount of 10-70 trips per day. The 2005 study did not breakout the count between the two County facilities.

Highway Traffic Impacts

For August of 1994, the County's solid waste facilities were projected to generate approximately 774 trips per day. Actual recorded data showed traffic to be more in the range of 1,057 trips per day. As construction activity increased to its peak in 1995, this daily trip generation was projected to reach 978 trips per day. If it was assumed that the 283 RRF vehicle overage discovered in the monitoring analysis persisted into the peak period of construction activity, the total number of trips would have been approximately 1,261 trips. This increase, which would amount to approximately 200 vehicle trips per day over existing recorded volumes, would have been distributed onto the regional road network primarily via MD Route 28 to the east and to the north. While this increase may have been noticed by residents, these sections of roadway have more than adequate reserve capacity to absorb this traffic increase with no significant reduction in level of service. Also, the improvements made to the Martinsburg Road and Darnestown Road intersection have improved sight distance and safety at this intersection. In particular, the addition of the northbound left turn lane at this intersection has alleviated potential backups along northbound MD Route 28 with the installation of the light at the intersection.. As noted previously, new traffic light was installed at this location in 2009.

The forecasts for the post-construction period indicate average daily traffic volumes in the range of 266 to 392 trips per day.

Analyses of peak hour traffic conditions were performed by Gorove/Slade Associates at the following intersections near the site:

	AM	**PM**
MD Route 28 and MD Route 109 (signalized)-	6:00 - 7:00	5:15 - 6:15
MD Route 28 and Martinsburg Road (unsignalized)-	6:00 - 7:00	3:00 - 4:00

The results of these analyses, summarized in *Table 5-2*, show that the signalized intersection of MD Routes 28 and 109 operates at LOS "B"[3] during both the a.m. and p.m. peak hours, while the unsignalized intersection of MD Route 28 and Martinsburg Road operates at LOS "C"[4] and "D"[5] during the p.m. Peak hours. Overall intersection LOS for an unsignalized intersection is determined by the LOS of the least effectively operating traffic movement. In the case of this intersection, the most poorly operating movement is that of vehicles turning from northbound Martinsburg Road onto north/westbound MD Route 28. The traffic conditions analyzed are inclusive of solid waste facilities construction and operations traffic, as they are based on counts performed in October 1994. Although peak hour analysis of the intersection does not indicate a signal at the intersection of Martinsburg Road and Rt. 28 is warranted, DPWT agreed to request from the state that a signal be installed, under the negotiated agreement with the Sugarloaf Citizens Association. A blinking traffic signal was installed at the intersection of Route 28 and Martinsburg

[3] See Appendix 5-C for Level of Service definitions for signalized intersections.
[4] See Appendix 5-D for Level of Service definitions for unsignalized intersections.
[5] Ibid.

Road; 2009 during construction work at Mirant, after the construction the light is back to a a blinking traffic signal.

5.3.2 FREIGHT RAIL

All Municipal Solid Waste (MSW) destined to the RRF, including MSW collected in the vicinity of the Dickerson site, is to be shipped from the Shady Grove Transfer Station by rail to the County's facilities. Some or all yard trim from the Shady Grove facility will also be loaded onto rail cars for shipment to the RRF where they will be transported to the Yard Trim Composting Facility. Trains traveling to the RRF will utilize existing tracks, owned and operated by CSX, and an extension of the Mirant tracks to the facility site.

Municipal solid waste and yard trim from Shady Grove will be brought in by rail, except in the event of an extended period of rail unavailability. There are contingencies to re-route the trains if the rail line between Shady Grove and Dickerson becomes unusable for a short term. However, if the rail line becomes unusable, as in the case of a catastrophic event, trucks will be used to transport the MSW to the County's facility. In this case, there would be an increase of truck traffic by approximately 120 truck trips per day. This amount was confirmed by a test done by tbe County and Covanta in the fall of 2012. While this would be noticeable, the amount of the County's facilities trucks using area roadways in such a scenario would be less than the number of trucks on the roadways during the time of construction.

5.4.0 POLICY RECOMMENDATIONS

1. Heavy vehicle traffic is to be restricted to specific roadways in the vicinity of the site, namely:
   - MD Route 28;
   - Martinsburg Road between MD Route 28 and the SWF/Mirant entrance;
   - Internal roadways at the facilities.
2. Encourage the use of major roadways by employees. The use of local roads as a shortcut is to be discouraged. Measures to prevent this practice by means of traffic control are to be investigated for recommendation.
3. Scheduling of the County's facilities traffic (including trucks) to avoid conflicts with area school buses and commuter traffic will be in conjunction with scheduling used by Mirant.
4. Awareness of the presence of agricultural vehicles and school buses on area roadways is to be promoted to employees and contractors.
5. Intersections and roadways serving the solid waste facilities are to be upgraded and maintained to safely accommodate traffic to and from the facilities.
6. Rail is to be used for the shipping of all waste to the RRF and, except for extenuating circumstances.
7. Rail is to be used to the maximum extent possible for deliveries to the Yard Trim Composting Facility. It is recognized that some trucking is necessary during County leaf collection periods.
8. A risk management contingency plan is to be developed to address situations in which one or more of the elements of the transportation system break down.

9. Monitoring of Dickerson facilities traffic will be continued.

10 Materials for the landfill construction will be moved by rail, if feasible.

11. Management alternatives to minimize leachate truck hauling will be pursued by the County. If leachate is trucked, a spill containment strategy will be developed.

5.5.0 IMPLEMENTATION STRATEGIES

1. Contractors are to be instructed that heavy vehicle traffic is restricted in the vicinity of the site to the previously listed appropriate roadways.
2. Montgomery County Department of Environmental Protection (DEP) will develop enforceable road movement restrictions. Maintain existing signage installed by DEP to restrict truck traffic.
3. Annual updates and analysis of school bus schedules are to be performed to identify the specific time periods in which the County's solid waste facilities truck traffic should be restricted in order to avoid peak periods of concentration of school bus traffic on area roadways.
4. Safety training programs are to be established for County workers and contract personnel to address the presence of agricultural vehicles and school buses on area roadways.
5. Measures have been taken to improve the intersections at Martinsburg Road and NRGt and Route 28 and Martinsburg Road. The proper public agencies are to be made aware of maintenance problems that develop on public roadways in the vicinity of the County's facilities due to truck traffic in order to develop a proper

plan of maintenance consistent with the Rustic Roads Plan as described in Chapter 4: Cultural Resources. A flashing traffic light has been installed at intersection of Route 28 and Martinsburg .

6. Montgomery County is to develop enforceable policies to ensure that rail is used for the shipping of all waste to the RRF and, to the maximum extent possible, the Yard Trim Composting Facility.

7. A transportation demand management program is to be established to mitigate the impacts of situation in which one or more elements of the transportation network breaks down.

8. Traffic to and from the solid waste facilities is to be monitored with review of facility records to establish traffic counts for operating facilities. A traffic count at the intersection of Martinsburg Road and Rt. 28 will be conducted when and if truck traffic hauling to the facility increases to the 2004 levels to review the needs of the traffic control light at the intersection.

9. Montgomery County is to investigate the feasibility of moving materials for the landfill construction by rail.

10. During detailed design of Site 2 Landfill, the County will propose leachate management systems that will minimize truck hauling of leachate. Plans will be discussed with the community prior to implementation.

CHAPTER 6: THE VISUAL LANDSCAPE MASTER PLAN

6.1.0 VISION STATEMENT

Protection and preservation of the rural landscape is important not only because it meets the needs of certain Federal and state objectives, but also because it is a precious natural and cultural resource that cannot be replaced when lost. This loss is experienced not just as a change of lifestyle, but as the disappearance of memories--views, homes, crossroads-that knit people into communities. The essential quality in the Dickerson area is threatened by the competing needs of public utilities and Montgomery County's solid waste facilities and must be protected as the design and implementation of these facilities advances.

The rural landscape is that land between suburbia and wilderness in which the interaction of the natural topography with its web of various plant and animal ecosystems create recognizable, visual patterns over landforms. Man's presence is recognized more by the manipulations of these landforms and ecosystems to serve local land uses, than by buildings and other manmade structures necessary to support more populated areas. In western Montgomery County, the visual land pattern that dominates the rural Dickerson region has been created by agricultural land use. The preservation of this rural landscape, characterized by farmland and forested stream bottoms, was formalized as public policy in 1980 when the area was rezoned to Agricultural Reserve in accordance with the Functional Master Plan for the Preservation of Agriculture and Rural Open Space in Montgomery County.

While government recognizes the value of the rural landscape through zoning modifications, it is the behest of the local Dickerson community to identify and evaluate the particular qualities and features that characterize their specific sense of place. This focus on visual qualities--its rhythms, forms and features--is essential to any discussion of change to local landforms since peoples' perception of place is predominantly based on what they see. Community members, through their history of their visual experience, and ongoing relationship to their land can best prioritize actions needed to protect the visual landscape. Therefore, the Montgomery County Department of Environmental Protection (DEP) commissioned a Visual

Landscape Master Plan in order that the study of the rural landscape can be translated into specific goals, objectives and strategies that can affect modifications or mitigate the presence of the non-agricultural land use of the County's solid waste facilities and Mirant.

6.1.1 EXISTING CONDITIONS: THREATS TO THE RURAL LANDSCAPE

The facilities located in Dickerson include those solid waste facilities owned by Montgomery County and the Mirant electric generating plant and ash storage facilities. Both the present facilities and those proposed, are intrusions of major industrial operations into a rural agricultural area. The community is concerned that the development of the facilities has occurred in an incremental, piecemeal fashion, and that little consideration has been given to the cumulative impacts they have on the rural community. The community is concerned that it is being forced to bear the impacts of the facilities and that adequate landscape mitigation efforts are needed. The community is positioned to help resolve difficulties through advanced planning and control and to insure that any future planning and mitigation efforts are appropriate, comprehensive and implemented.

6.2.0 THE PLANNING PROCESS TO PROTECT THE RURAL LANDSCAPE

6.2.1 OBJECTIVES

The community, through the development of the Visual Landscape Master Plan, sought to examine the role of appropriate landscaping in mitigating the various impacts from the County’s solid waste facilities. The objectives of the community participants were to create a forum that would allow them to be involved in the planning process and to identify the problems associated with the present and proposed public facilities that may be addressed through appropriate landscaping. It was also an objective to identify the opportunities for aesthetic and environmental improvements related to the development and operation of these facilities. It was

to be the task of the community to propose solutions to the identified problems and work constructively with both Montgomery County and Mirant to develop an agenda for implementing solutions over the lives of the individual facilities. After the development of conceptual solutions, the remaining goals are to develop specific landscape plans and to insure the implementation of the plans throughout the life of the facilities.

6.2.2 THE PROCESS

Martha Donnelly & Associates, Landscape Architects, (MDA) undertook the Visual Landscape Master Plan as an outgrowth of prior work with the Dickerson community regarding the Site 2 Landfill. MDA had been working with the Landfill Working Group and Montgomery County DEP since 1990 developing schemes for buffer treatments along Wasche Road frontage of the site and establishing a dialogue regarding the role of the local visual landscape. At the request of the community, they began work in 1993 in conjunction with the Landscape Committee, also locally known as the Tree and Shrub Committee, to focus on landscape issues central to all solid waste facilities and Mirant. The Roadmap to the Future. prepared by MDA (Appendix 6-A), documented these efforts, presented prototypical problems and solutions for local community evaluation, and developed citizen's overall goals to guide future master planning. The goals that were established are:

 Maintain the rural and agricultural landscape character.

 Mitigate the negative impacts of the non-agricultural regional facilities that include: the Site 2 Landfill, the RRF, the Composting Facility and the Mirant facilities.

 Insure long-term environmental integrity of the land used by these facilities through protection of stream corridors, wetlands and existing hydrological regime, and through the provision of vegetative cover for the landfill cap, buffer and borrow areas and other disturbed areas.

 Address long-term maintenance and operation requirements posed by facilities and by recommended mitigation measures.

6.2.3 INVENTORY AND ANALYSIS

Against the background of these established goals and the continuing dialogue with community, the process focused on three areas of information gathering and analysis:

 First, compilation of physical and cultural data available to describe the existing characteristics and planned changes to the study area;

 Next, an interpretive analysis of the effects of future changes on the present landscape;

 Finally, identification and measurement of the nature of existing and potential impacts on the study area according to local sentiment.

General boundaries of the study area were determined by anticipating and extending the limits of the immediate visual impact of the solid waste and Mirant facilities to existing roads (to the east and south), west to the Potomac River and north to Sugarloaf Mountain. Since opportunities for mitigation are more attainable close to the facilities, it was decided that mitigating distant views of the existing 700 foot Mirant stack were outside this planning effort. Prior to in-depth work, a meeting in February 1994 was attended by DEP and the Landscaping Committee to review and approve the master planning process from inventory through analysis, and the product, a set of plans describing design/planning recommendations.

Compilation

Data was collected from several sources. U.S.G.S. maps and aerial surveys at 600 foot and 2,000 foot scale provided current topographic, land cover and land use information. Information was obtained from the Maryland National Capital Park and Planning Commission (MNCPPC). Its Planning Department, Divisions of Design, Zoning & Preservation, Environmental Planning Department, and Transportation Planning Department provided land use maps, identification of stream corridors, and inventories of historic sites and trails that provided cultural context for the Dickerson area. Design drawings for the Site 2 Landfill (Woodward-Clyde), RRF (Covanta), Yard Trim Composting Facility (Bengston, Debell & Elkin, Ltd.) and Mirant Flyash Storage Cells A & B (Mirant) provided insights into the exact extent of their impact on the Dickerson area. These drawings were studied according to changes in terrain,

physical prominence, land use, land cover and its effect on wildlife.
Data was organized according to two contexts: 1) regional vs. local conditions and impacts illustrated at 2,000 and 600-foot scales; 2) physical vs. cultural attributes. This inventory and analysis information is described in Figures 6-1 through 6-8 and provides the basis for design recommendations, Figures 6-9 and 6-10.

Interpretative Analysis

Analysis of information focused on two major areas: 1) the visual impact caused by present and future changes; and 2) the environmental impact of changes to the natural ecosystems that underpin the nature and extent of visual impacts. Simple comparisons were made between existing and proposed conditions - gentle rolling farm fields vs. engineered angular contours on the landfill and Mirant sites, the reduction in forest cover and its impact on wildlife. Appropriate evaluation of some design data required additional investigation. A balloon launch was undertaken in order to document and evaluate the specific visual impact of the completed landfill at its planned maximum height and Mirant Cell A, the two scenes most vulnerable to changes. A 13 foot, white, helium balloon was tethered 110 feet above the field at the Jones Farm and a red and white striped balloon 75 feet above the Mirant Cell A in order for citizens, consultants and County officials to photograph and evaluate the changes to the existing scene. The changing seasonal nature of the countryside required periodic photographic surveys in order to determine viewsheds and the extent of incompatible views of the County's solid waste and Mirant facilities.

Analysis of the existing natural ecosystem involved identifying changes to soils, hydrology, plant communities and wildlife habitats. Research indicated that in order to maintain present ecosystems as part of future design and mitigation efforts, certain criteria will be required. Habitats must be of a size and a configuration that support desired plant and animal species. Forested "movement" corridors between habitats are essential and must be folded into the ultimate use of the land. In all grading operations, especially the borrow areas on the landfill site, the final soil profile must be able to support the desired plant species appropriate for the

intended land use. Plant communities must be monitored for the long-term effects of changes to the water table in areas where major grading operations occur. Vegetation surrounding existing shaded stream corridors must be protected not only to filter run-off but also to maintain the reduced temperatures essential to aquatic habitats.

Community Input

As residents in a changing landscape, local citizens are sensitive not only to major modifications to and reductions of existing farmland, but also to the effects of these facilities' operations such as litter, noise, night lighting and greater traffic. Additionally, practical needs of farming operations provided guidance regarding design criteria for future design work. Meetings in 1993 through 1995 with the Landscape Committee, the Landfill Working Group, the Dickerson Solid Waste Facilities Oversight Committee and the general public at the Poolesville High School were held in order to listen and incorporate these concerns. Citizens conducted windshield surveys in 1993 by traveling roads adjacent to the facilities and making notations of their impressions on maps. These suggestions and concerns, particularly the identification of vulnerable views, were incorporated into the planning process. Phone calls and one-on-one briefings of area residents provided more informal dialogue.

The Design Standard

Threaded through the inventory and analysis process was the underlying goal of supporting the rural landscape. Research indicates that since there is no generic "rural landscape", its form and function is that which is recognized by the community as "correct" and which is supported by natural ecosystems. The following summary identifies the Dickerson rural landscape's major attributes (included on Figure 6-6) against which any changes or modifications should be evaluated:

 Farmland, primarily row and fields crops rather than livestock, is the major land use and the patchwork of cultivated fields separated by hedgerows and forested stream bottoms support a diverse wildlife.

 Open, quiet views dominate the region. The open ground of gently rolling topography affords broad vistas in which the cluster of farm buildings provides occasional visual counterpoint to natural vegetation. Unlike suburban developments where plants are used to create style, provide privacy or to delineate property lines, there is a minimal presence of designed residential settings.

 The predominant visual features include:

- farmsteads (open field/ clusters of farm buildings);
- historic sites (buildings, cemeteries, roads and districts); - large wooded areas;
- Sugarloaf Mountain and distant horizons of the Virginia Blue Ridge; - narrow rural roads without broad shoulders;
- road edge treatments that vary (fences, stone walls, hedgerows, roadcuts); - the dark night sky.

6.3.0 LANDSCAPE PLANS

***Figure 6-1*: Regional Cultural Landscape Plan @ 2,000 Feet**: provides context. It locates the approximate 1,800 acres of the solid waste and Mirant facilities within the Montgomery County Agricultural Reserve and locates several protected county, state and Federal parklands and the communities of Poolesville, Dickerson, and Barnesville. Significant historic features include networks of rustic roads and bike trails and an extensive list of sites that are either designated landmarks or on the resource inventory list. Features within or adjacent to the facilities include most of Martinsburg and Wasche Roads, the Gothic Dairy Barn, the Chiswell Farm, the Wells Farm, the Jones Farm (known locally as the Musser Farm) and the Jones Farm (known locally as the Antonelli Farm).

***Figure 6-2*. Regional Physical Landscape Plan @ 2,000 Feet**: provides geographical context. Sugarloaf Mountain to the north and the Potomac River to the west are the major geographical landmarks. The typical forest cover is fragmented with the largest stands located within
6-10
protected parks: Sugarloaf Mountain Park, Monocacy Natural Resource Area, Dickerson Regional Park, and the C&O Canal National Historic Park. Most regional highpoints, except for Sugarloaf Mountain, are not high enough to be within the solid waste and Mirant facilities viewshed.

***Figure 6-3*: Existing Topography @ 600 Feet**: shows horizontal, gently sloping uplands, dissected by steeper slopes that create stream corridors that characterize the study area. Site 2 Landfill and Mirant Cell A sit on a high, broad plain approximately 200-250 feet above the Potomac River and is exposed to views from Martinsburg and Wasche Roads. Therefore, any changes anticipated by the County or Mirant to the landscape will greatly affect the perceived rural character by local travelers and must be undertaken carefully.

***Figure 6-4*: Proposed Topography @ 600 Feet:** indicates the unnatural, angular nature of the proposed contours for the landfill and Mirant cells A & B. Additionally, the steep grades and the unusual height of these facilities will create a discordant view within the existing broad, rounded slopes of the area. Design strategies should focus on contouring any future facilities in a naturalistic manner that is consistent with the grades and flowing curves of the existing fields.

***Figure 6-5*: Landcover Plan @ 600 Feet:** indicates existing land use. Most land is in field cultivation and framed by forest stands predominantly found along wetlands and creeks. Industrial use represented by the Mirant Generating Plant, Cell C, the RRF and the Composting Facility is the secondary use. With completion of these facilities, none of the approximately 1800 acres will be in agricultural production. There is very little land maintained as residential setting.

***Figure 6-6*: Regional Summary Analysis Plan @ 2,000 Feet:** describes visual attributes of the existing rural landscape and recommends design objectives that support this landscape and/or mitigate the negative effects of non-agricultural land uses. Specific notations on the plan recommend methods of tying the area physically and culturally back into the larger region. They are:

 Create a regional forested wildlife corridor by developing bi-county (Frederick and Montgomery) strategies for reforesting lands between Sugarloaf Mountain Park/Monocacy Resource Area and the C&O Canal National Park. Reforestation should include lands within Mirant and County facilities.

 Involve the Global Ecology Studies Program at the Poolesville Senior High School in the long-term study of all the facilities.

***Figure 6-7*: Local Summary Analysis Plan @ 600 Feet:** provides a chart and plan notations of specific recommendations for all five facilities. General guidelines include an assessment and adaptive re-use of existing structures, modifications to the facilities' operations procedures, evaluation of impact and development protection measures for plant and wildlife communities and safeguards for existing hydrology and natural landforms.
Figure 6-7A provides the complete list of guidelines.

***Figure 6-8*: Visual Analysis Plan @ 600 Feet:** locates dominant, vulnerable views along Wasche and Martinsburg Roads, delineates the existing visual rhythms along the road edge and describes its character. This character - the speck style and materials of wood's edge, hedgerow, stone wall, fencing and topography - is the visual language or vernacular of the region. Future design modifications should protect important views and be consistent with existing rhythms and vernacular.

***Figure 6-9*: Ideal Visual Perspectives:** compares existing or planned views with design alternatives that support the recommendations of the Local Visual Master Plan. These sketches underscore the importance of naturalistic contouring of the landfill and Mirant Flyash Storage

Cells, extensive forestation with indigenous or naturalized species, and the use of combinations of plants and recontouring to screen undesired views.

***Figure 6-10*: Local Visual Master Plan @ 600 Feet**: establishes guidelines which organize specific recommendations for major units of development and illustrates appropriate design prototypes. Major design objectives include:

 The appropriate afforestation of all vacant lands at the Mirant generating plant that does not conflict with security or safety measures;

 The creation of a continuous green edge around the Composting Facility that screen operations, supports the requirements for a wildlife corridor, and links the forest cover of Dickerson Regional Conservation Park with areas to the north and east of the solid waste facilities;

 Design modifications that create more naturalistic landforms for Mirant Cells A & B and edge treatments that screen future operations;

 Cohesive design for the landfill that softens final landforms, enhances wildlife habitats and tree cover, protects the wetlands, utilizes the farm vernacular in final landcover, establishes adaptive reuse of existing farm buildings, and screens landfill operations; final plantings on the closed landfill will have to be selected so as not to harm the cap.

 The protection and enhancement of major natural ecosystems.

6.4.0 POLICY RECOMMENDATIONS

1. Propose the implementation of the Visual Landscape Master Plan as developed for the mitigation of noise, lighting and visual impacts as set forth in the following design objectives:

a. Maintain the farm vernacular/natural appearing topography in all manipulated landforms;

b. Long-term design solutions for the landscape should be sustainable and require minimal maintenance;

c. All landscape solutions should include: wetlands management, wildlife

habitat, reforestation;
d. Maintain sense of broad vistas;
e. Design required screening so that vegetation blends with surrounding areas;
f. Screen for noise generated by facility operations;
g. Reduce lighting and screen where possible;
h. Traffic volumes should not be increased in order to reduce the need for additional landscaping necessary to maintain safety and minimize noise;
i. Design solutions should blend with existing features and rhythms of the landscape;
j. Protect historic sites by providing an appropriate setting. Adaptive reuse should not destroy the visual character of the historic buildings;
k. Design building clusters to conform with farmstead character.
2. Target tasks immediately for the Yard Trim Composting Facility and the Site 2 Landfill, two areas of immediate concerns of the Landscape Committee. Specific target areas are:

Yard Trim Composting Facility:
a. Improvement of the existing woods (Poplar forest) from the Mirant entrance to the Matthews farm buildings, as agreed to in the negotiated settlement with the Sugarloaf Citizens Association;
b. Restoration and reuse of Matthews farm buildings for Sugarloaf Citizens Association offices as described in the negotiated settlement with the Sugarloaf Citizens Association;
c. Design and implementation of additional screening to link the existing woods to the planting on the new berm recently constructed along Martinsburg Road;
d. Return the land around the Matthews Farm buildings and the area behind the berm to agricultural use;

e. Examine the opportunities for further reforestation and activities compatible with agricultural use and ongoing operations;
f. Develop and implement a real estate management plan, consistent with the negotiated agreement with the Sugarloaf Citizens Association, for the facility with specific recommendations made about litter and noxious weeds.

Site 2 Landfill:
a. Design and implement screening and aesthetic improvements in the buffer along Wasche Road immediately;
b. Develop and implement a real estate management plan for the Jones/Antonelli farm immediately. Manage buildings presently held by Montgomery County as land purchases continue;
c. When landfill construction begins, immediately develop excavation and reclamation of borrow areas;
d. Develop and implement a real estate management plan for land not utilized in the initial stages of construction of the landfill.
3. Maintain a comprehensive design process for the life of the facilities and maintain a community-based advisory committee to provide a forum for community input into landscaping and environmental restoration. The community must have the right to initiate modifications in procedures or plans. The community will be represented in the decision-making process throughout all phases of design and implementation of landscaping plans.
4. Implementation of landscaping will be contemporaneous with any new construction or development of the County's solid waste facilities. Screening, reforestation, and aesthetic mitigation will be implemented at the earliest opportunities so to minimize facility impacts on the community.
5. Real estate management plans should be developed and implemented for all the land under Montgomery County control in order to prevent the degradation of

properties. The plans will assess the existing properties, define what should be done with the property and how they will be managed. Designated responsibilities for executing the plan will be defined.

6. Coordination with Mirant on landscaping issues should continue. It should be noted that Mirant has embarked on reforestation and visual mitigation plans in cooperation with the community with the first phase of planting begun in April 1995.

6.5.0 IMPLEMENTATION STRATEGIES

1. In keeping with the objectives of the Visual Landscape Master Plan, conduct the following tasks immediately:

a. Modify the final contour of the landfill from an angular shape to a softer, more natural form. Stockpiles of borrow material should be graded and stored in a visually sensitive manner appropriate to the rural setting. Final contours of the borrow areas should also be soft natural landforms. Also, modify the final cover of the landfill to support revegetation of a substantial percentage of the covered landfill by woody plants characteristic of the region. Incorporate these modifications into the engineering documents for the Site 2 Landfill.

b. Develop and implement appropriate management plans for the newly planted areas. These plans should be coordinated with the forest management plans developed for the forest stands, and should address proper cultural conditions for the plants, irrigation, control of excessive animal damage, elimination of noxious weeds, and replacement of plantings where needed. Such management plans should continue for the life of the facilities and post-closure as needed.

c. Coordinate development of the landscaping plan with potential competing land uses for agriculture and reforestation, and habitat improvement, or other appropriate uses as defined by the community. Post-closure land use should

be limited to agriculture (field crops, not livestock), forest, landscaping, recreation, or other community
sanctioned uses.

2. Develop plan of action for the implementation of specific tasks targeted for the Yard Trim Composting Facility and the Site 2 Landfill as listed in Policy Recommendation #2.

3. Create a citizen-based Dickerson Facility Oversight Advisory Committee with appropriate sub-committees to oversee the implementation of the Visual Landscape Master Plan and to coordinate other activities with the landscaping objectives and the Sugarloaf Citizens Association on the Matthews Farm property.

4. Link the timing of the implementation of the landscaping for mitigation of specific facilities to the beginning of that facility, e.g., screening along Wasche Road should be implemented before work on the landfill. Major activities, e.g., excavation of borrow areas, should be timed to minimize the interval between initial disturbance and final planting with due consideration given to the seasonality of the planting.

5. Develop a program or procedure for the re-use, sale and removal of buildings either existing on County owned land or acquired by Montgomery County as also recommended in Chapter 4: Cultural Resources.

6. Establish a procedure for the coordination between Montgomery County and Mirant on landscaping and reforestation issues as needed.

CHAPTER 7: NOISE

7.1.0 OBJECTIVES

Every person in Montgomery County is entitled to ambient noise levels that are not detrimental to life, health, and enjoyment of property. Excessive noises threaten the health, safety and welfare of the people of the county. The objective of the plan is to:

- Minimize extraneous background noise and nuisance noise associated with the County solid waste facilities.
- Meet all state and County regulatory requirements pertaining to noise.

7.2.0 BACKGROUND

The Dickerson site is subject to two broad classes of noise sources: point sources and line sources. Point source noise includes that noise emanating from stationary operations and from construction equipment. Line sources of noise are characterized by vehicular traffic on highways and railroad traffic.

Noise can be measured in a variety of units and settings; the most commonly used is the A-weighted decibel (dBA). A decibel (dB) is a unit of measure of sound pressure level. A-weighting is an electronic approximation of what the human ear hears. Perceived loudness varies with many factors such as distance, background and climate. As a point of reference, most human

speech takes place in the 60 to 65 dBA range with 3 dBA being just audible and 120 dBA being a rock concert.

The Montgomery County Noise Ordinance, enacted in 1974 and amended in 1996, sets the permissible sound levels for noise at the property line for various zones. This ordinance supersedes COMAR regulations, Title 26, Subtitle 02, Chapter 03, Control of Noise Pollution, due to its more stringent criteria. For noises emanating from sources on a property located in a commercial or industrial zone, the maximum nighttime sound level at any point on a property line is 62 dBA. On a property line separating a commercial zone from a residential zone, the maximum permissible nighttime sound level is 55 dBA at any point on the property line. Similarly, if noise is emanating from sources located in a residential zone, the maximum permissible nighttime sound level is 55 dBA. By specifying an allowable maximum sound level at the property line of the Dickerson site of 55 dBA, the County will meet the most stringent regulatory criteria. For construction activities, the County ordinance grants an exemption of 20 dBA over the property line standard during the daytime hours from 7 a.m. to 9 p.m. weekdays and 9 a.m. to 9 p.m. weekends and Federal holidays.

An acoustic environment of approximately 55 dBA means that normal conversation and activity is possible outside; and in the case of minimally code compliant home construction you can expect to see another 10-20 dBA reduction in sound level inside the home,. Given the rural characteristics of the area, the County has designed its facilities such that the daytime property line standard can be met. In addition, anticipated nighttime/early morning property line sound levels are predicted to be substantially below the allowable nighttime residential standard of 55 dBA.

Noise levels decrease at a predictable rate with increasing distance from the source. This is commonly known as spreading loss. Noise from a point source diminishes at an approximate

rate of 6 dBA per each doubling of distance. An additional attenuation is found where the intervening ground is soft, covered with vegetation, shrubbery, or scattered trees.

Operating methods and conditions have also been found to have a large effect upon vehicle noise levels. Large diesel trucks are generally 15 dBA noisier than passenger cars. Generally, noise levels for passenger vehicles passing by at 50 feet would be in the range of 65 to 75 dBA. Diesel powered dump trucks or similar heavy trucks can be expected to produce passby levels in the range of 75 to 90 dBA at 50 feet. Some variables affecting vehicle sound levels include vehicle design, operating conditions, road surfaces and road grade.

7.2.1 NOISE CONTROL MEASURES

Noise mitigation for each of the solid waste facilities can be characterized by three general: approaches (1) mitigation at the source and/or, (2) mitigation by distance and/or, (3) mitigation by barrier.

In general, acoustical design measures make use of the best reasonably available technologies or strategies. The following measures have predicted results established by tests:

Method 1 - Mitigation at Source

Mitigation at the source of emissions is found to be the most effective way of controlling noise. Equipment can be fitted with standard noise control features such as silencers and lagging. Low noise models for different types of equipment can also be specified. At night, strobe lights can be substituted for back-up beepers. Vehicle noise can be greatly reduced by improved exhaust muffling and baffling and sound dampening in the engine compartment. Back up alarms on

vehicles, a constant source of noise complaints, can be reduced by having the alarm tied to a sensor that would sound only when an object was present or would sound at 5 to 10 dBA above the sensed background noise.

Method 2 - Mitigation by distance

The further the operation is from the property line, the less noise can be expected to reach the property line. For every doubling of the distance, a noise reduction or spreading loss of approximately 6 dBA can be expected.

Method 3 - Acoustical Barriers (Noise Walls, Berms, and Landscaping)

An acoustical wall can be designed to isolate critical areas from sound problems. Factors influencing the effectiveness of a noise wall are distance from the source, height, continuity, length and mass. Acoustical walls can attenuate sound by 5 to 20 dBA dependent upon their design and the source sound characteristics. Acoustic barriers are often considered as a last resort measure after attaining maximum attenuation from engineering or management controls at the individual source of emissions.

An earthen berm serves much the same function as an acoustical wall, only usually at considerably less cost. The earthen berm has the additional advantage of being more aesthetically pleasing. Combined with landscaping, its sound mitigation properties are enhanced and its appearance improved over time. Earthberms have been found to mitigate between 5 and 23 dBA of noise in an operational setting. They are more effective than an acoustical wall of the same height.

Landscape plantings can be used as an acoustical barrier to help mitigate noise, but have limited effectiveness. Areas covered with low growing vegetation are more absorptive of sound than hard paved surfaces. The most effective type of landscaping needed to reduce noise levels are dense plantings of trees with understory shrubs. A 200 foot wide belt of medium dense evergreens mitigate sound by 3-4 dBA.

7.3.0 POTENTIAL IMPACTS OF CONCERN

7.3.1 YARD TRIM COMPOSTING FACILITY

The Yard Trim Composting Facility has been in operation as a yard waste facility since 1983. The facility, while land intensive, is not equipment intensive. The equipment used on site, three mobile SCARAB mixer/shredders, six front end loaders, two forklifts, two mechanical bagging lines, a Royer screener, a power screener, and a truck dumper, have relatively low noise profiles. Other mobile equipment consists of County trucks delivering material to the site, private contractors picking up the finished compost material, *Leaf-Gro*, and mowers.

In response to citizen concerns on the noise from the backup beepers of heavy equipment operating at the County's Composting Facility, DPWT purchased a "Radar Dual Alarm System" for installing on all heavy mobile equipment. The system has a narrow radar beam and is capable of sounding a tolerable backup alarm during normal backing operation and then switch to maximum sounding alarm when danger is detected by radar. The Maryland Environmental Services (MES) installed this alarm system on all front end loaders at the Yard Trim Composting Facility. The same type of alarm system will be installed at the Material Recycling Facility (MRF).

The most recent noise study of the Composting Facility was conducted in June 1993, by the Noise Program of the Office of Environmental Policy and Compliance, Department of Environmental Protection (Final Report, Conceptual Design ... Yard Waste Composting Facility, pg. C3-1). The results of the noise study indicated that noise levels did not exceed the 55 dBA standard at the property lines. Noise studies, including noise contouring, conducted by noise consultants for the Resource Recovery Facility, demonstrate that the cumulative effects of noise generated by the RRF will not raise the measurement of noise above 55 dBA at the Composting Facility property line at Martinsburg Road. Twenty-four hour noise monitoring was conducted for a period of time; but was discontinued based on results. Current noise complaints are investigated by the Department of Environmental Protection. In addition, the earthen berm constructed along Martinsburg Road and the Composting Facility as a visual screening measure, also acts as a noise mitigating barrier. Further recommendations for screening as found in Chapter 6, the Local Visual Master Plan call for the vegetative buffering of the Matthews' Farm from the Composting Facility. This will also contribute to the mitigation of noise impacts from the Composting Facility.

7.3.2 RESOURCE RECOVERY FACILITY (RRF)

Noise levels emanating from the RRF, the Yard Trim Composting Facility, and Mirant facilities located on the Dickerson site must not exceed 55 dBA at the property line. Noise at the RRF will emanate from operations within the building as well as from operations occurring on site. The operations inside the building will not significantly affect noise levels because they are mitigated by the building with the employment of standard noise control silencing features.

Previous sound level monitoring of the facility has shown that noise levels from the outdoor operations do not exceed maximum noise levels.

The Divison of Solid Waste Services (DSWS) previously used a continuous noise monitoring system to evaluate the impacts of noise. The purpose of the continuous noise monitoring program was to record sound levels at the boundary of the Dickerson site and document the sources of noise whenever needed. On those occasions when County staff, Covanta or citizens communicated to the Division of Solid Waste Services (DSWS) incidents of noise possibly from the RRF and Yard Waste composting operations (Example :RRF steam release, startup, shutdown, etc., and bulldozer or backup beeper noise from the Yard Trim Composting Facility), DSWS Staff would conduct a more detailed analysis of the audio and digital data recorded during those time periods to ascertain the noise levels during such occurrences. If the noise levels exceeded the levels specified in the County's noise code, this information was communicated to the County's Department of Environmental Protection, Division of Environmental Policy and Compliance (DEPC).

After an evaluation period it was determined that the continuous noise monitoring system was no longer necessary and noise complaints are now handled on a case by case basis by DEPC. Re-implementation of a continuous noise monitoring system should be reconsidered if quantifiable long-term dBA measurements are required to help resolve any noise related issues.

Major equipment used in the outdoor operations includes trucks, a container handler and gantry cranes. They are referred to as the mobile equipment on the site. When the train carrying waste arrives at the site, rail cars with containers are separated from the remainder of the train, and the containers are off-loaded onto trucks by a gantry crane. The trucks deliver the containers for

emptying on to the interior tipping floor of the RRF. The trucks then return to the train with empty containers and pick up a full container for another shuttle run to the tipping floor. Approximately five truck round trips per hour from the rail yard to the pit are needed to complete this unloading operation. The gantry cranes and trucks have been fitted with silencer mufflers, altered exhaust pipes, self adjusting back up beepers and sound insulation on the power units. A complete outline of the noise control measures for all equipment can be found in *Appendix 7-A*.

Stationary equipment contributing to the outdoor noise levels are the cooling tower, induced draft (ID) fans, reverse air (RA) fans and screw conveyers. A number of measures have been taken to reduce noise emissions from these sources. They include low noise fan types, use of enclosed gear boxes, and minimal use of openings in the building structure and specialized building construction methods.

In February 1995, the Final Decision and Order (Appendix 7-B) on a special exemption application from the Noise Control Ordinance applicable to the operation of the RRF was released and includes the following language:

1. For Noise Ordinance compliance purposes:

    a. The Mirant site and the RRF site will be considered one parcel provided sound generated from the RRF will not have any impact on the current ambient sound levels at the outer boundaries of the Mirant property. This provision will be for a ten-year period with the possibility of renewal upon satisfactory performance.

    b. The RRF site and the Composting Facility property, including the Matthews Farm north of Martinsburg Road, will be considered as one parcel, with

sound levels from each facility measured on the Composting Facility side of Martinsburg Road. This provision will be for a one-year period, subject to renewal based upon performance and unchanged circumstance. Should the Composting Facility parcel cease to be owned by the County, the adjacent RRF boundary must be attenuated sufficient to meet the property line limits of the Noise Ordinance prior to transfer.

2. On or before the date that the RRF is certified as acceptable to the County, the facility will be in compliance with the property line standards of the Noise Ordinance, subject to the above provisions, including the construction of a properly designed acoustic barrier, approved by the Department, along the Dickerson Conservation Park boundary with the facility.

3. When attenuated shuttle trucks are available but prior to the date the facility is certified as acceptable, develop actual noise contours of the haul road to the proposed ash landfill and develop abatement strategies, should they be necessary.

4. When a locomotive becomes available on site, but prior to the date the facility is certified as acceptable, evaluate the noise impact of that locomotive, including an octave band analysis.

5. Locomotive operations on site will be limited to between the hours of 7 a.m. and 9 p.m., Monday through Saturday, unless there is an emergency declared by the County Executive.

6. Subject to specification and approval by the Department, develop the capability to perform continuous noise monitoring. As stated earlier, Solid Waste Services conducted a 24-hour noise monitoring program at the Composting Facility property boundary along Martinsburg Road as part of the Special Exemption requirements. The data obtained in this program indicates that the RRF has been and is in compliance with all of the provisions of the Special Exemption noted above.

7.3.3 SITE 2 LANDFILL

Landfill site operations will consist of site development and construction, liner and leachate collection system installation and maintenance, placement of waste, daily and intermediate cover and final capping and closure. Initial site construction will involve clearing of the site for initial construction operations, creating a stabilized access road into the site and establishing stormwater, erosion and sediment controls. The landfill cells will be constructed on an as needed basis, beginning with one ash cell and one solid waste cell. Soil cover material needed for the daily covering of the cells could be obtained from both on-site and off-site sources. The on-site material will be obtained from borrow areas that may be excavated in the early stages of construction and stockpiled on-site.

Noise impacts from the construction and daily operations of the landfill will be generated by heavy mobile equipment. The equipment will consist of landfill compactors, heavy rollers, bulldozers, and related earth moving equipment. Equipment necessary for both maintenance and construction will consist of graders, sweepers, flushers, agricultural machinery, backhoes and tank

trucks and will be used throughout the life of the landfill. Each open cell is anticipated to have a tamping foot compactor or smooth drum vibratory roller and one heavy bulldozer.

As stated in the Phase III Refuse Disposal Permit Application submitted by Montgomery County (Vol. 1 of 3, pgs. 3-11), on-site construction activities which generate levels at the property line in excess of 55 dBA, will be limited to either the hours as provided for construction activities in the Montgomery County Noise Ordinance, or the proposed landfill operating hours, whichever is more stringent.

When the landfill becomes operational, the construction exemption will cease to be applicable, and the facility will adhere to the same property line noise standard as the other County facilities in the area.

Truck traffic along the haul road from the RRF to the landfill will be contributing to existing noise levels. Presently, the Mirant trucks are using the road to carry ash from their generating facility to ash piles along Martinsburg Road. As part of the on-going comprehensive noise studies being undertaken at the solid waste facilities by Montgomery County, the haul road will be examined for its potential noise impact. It is expected that the traffic along this route will exceed noise standards and that mitigated actions will be required. Those studies, however, will be performed if the Site 2 Landfill is developed and mitigation strategies, if necessary, will be recommended at that time.

7.4.0 POLICY RECOMMENDATIONS

1. Implement the directives as stated in Section VII, Final Decision and Order, by the Director of the Department of Environmental Protection.

2. Implement a noise monitoring program of the solid waste facilities and select noise mitigation strategies that employ the best reasonably available control technologies (BRACT) necessary to comply with the Montgomery County Noise Ordinance.
3. Make a request of Mirant to explore mitigation strategies proposed by Montgomery County on mobile equipment.
4. Reduce impacts from noise at landfill by limiting operating hours during the day on weekdays to the maximum extent practical.

7.5.0 IMPLEMENTATION STRATEGIES

1. If conditions warrant, establish a program of noise testing that analyzes the site during different phases of operational activities at the boundary locations and implement mitigation strategies as necessary for compliance with the Montgomery County Noise Ordinance or as reasonably requested by the community; including regular reporting to the community on the results of noise testing.
2. Explore with Mirant the retrofitting of their mobile equipment with noise reducing devices. Also explore equipping vehicles of contractors accessing Mirant and the solid waste facilities on a regular basis with noise reducing devices.
3. Operate under permitted operational hours only, unless extenuating circumstances require additional hours.

CHAPTER 8: LIGHTING

8.1.0 OBJECTIVES

The introduction of an industrial land use into a rural environment can create a visual intrusion into the dark, nighttime setting. Residents in the Dickerson vicinity have repeatedly expressed concern that the lighting at the Resource Recovery Facility and NRG is intrusive. It is important to maintain the agricultural character of the rural landscape and to minimize the visual impact of the solid waste facilities. The objective of the plan is to:

- Control and limit on-site lighting to minimize the impact on the nighttime sky and on the surrounding community.

8.2.0 BACKGROUND

The purpose of outdoor lighting is to facilitate safe movement of pedestrians and vehicles, promote a more secure environment and improve the legibility of critical landmarks, entrances and activity areas. Poor lighting and glare can create hazardous conditions and create an unsafe nighttime environment. Off-site glare can inhibit visibility and cause visual discomfort. Poor lighting design can result in excessive disturbances to the nighttime sky.

In the rural residential environment, outdoor lighting is confined to street lamps spaced at critical road intersections, widely spaced lamps along major roads and along a town's main street.

Private residential lighting may light driveways and the immediate exterior of homes and out buildings.

Outdoor industrial lighting is primarily used to light entrances/exits into a building, areas with outdoor activities pertinent to the operations of a facility, and site lighting for safety, security and visibility. Lighting may also be provided in accordance with any local, State or Federal regulations that may be applicable.

Light is measured in footcandle units. A footcandle is defined as a unit for measuring illumination equivalent to the illumination of a plumber's candle at a distance of one foot. The Illuminating Engineering Society (IES) provides recommended levels of illumination for different activity locations in the reference, IES Lighting Handbook, 1987 Application Volume. These guidelines represent current standards in the lighting industry. Tables for recommended lighting levels applicable to the solid waste facilities are included in the *Appendix 8-A*.

Yard Trim Composting Facility

The Yard Trim Composting Facility lighting consists primarily of security lighting at key locations around the site. A large pole light is currently illuminating the entrance into the site where the office trailer and truck scales are located. The compost storage pavilion is equipped with skylights to utilize natural light during the day. Pendant mounted 400 watt high pressure sodium fixtures are located inside the pavilion. High pressure sodium wall fixtures with low cutoff angle to confine light to the immediate vicinity of the pavilion are mounted on the exterior columns. All but one of these fixtures are manually operated to restrict their use to the times when they are actually needed.

Resource Recovery Facility (RRF)

The lighting design for the Resource Recovery Facility consists of roadway, railyard, outdoor process area lighting and architectural accent lighting. The stack is lighted in conformance with minimum Federal Aviation Administration requirements as outlined in the FAA Advisory Circular, Obstruction Marking and Lighting.

The roadway lighting illuminates the parking lot and access road around the perimeter of the building and the site's interior roads with high pressure sodium lighting. The main access road outside the facility gate remains unlighted. Thirty foot high pole lights controlled by photocells are used in all scenarios and direct all light downward. The railyard is lighted with 40 foot pole lights that illuminate the tracks and container handling area in rectangular patterns of light. The light fixtures are set at a 35 degree angle to the horizon. The rail lights are controlled by photocells with manual override. The two main outdoor process areas include the stairways and platforms and the cooling area deck located on the backside of the main building. The lights have reflectors that direct the light downward. Architectural accent lighting consists of wall mounted fixtures that are equipped with reflectors to direct the light downward and minimize side light and glare. The flagpole and the facility sign are lighted with spotlighting. These are also controlled by photocells with manual override.

Site 2 Landfill

The detailed design drawings for the Site 2 Landfill have not been completed as of yet. Lighting should be confined to adequate security lighting and lighting necessary to ensure the safe

movement of people and vehicles. The lighting should be designed to minimize the nuisance lighting on any neighboring residential properties. The operating hours of the landfill will not require night lighting except in the shorter days of fall and winter. Proposed permit operating hours are from 7:30 a.m. to 5:30 p.m., Monday through Friday, and 7:30 a.m. to 1:00 p.m. on Saturday. Site lighting will be considered carefully, however, prior to the start of construction if construction activities are to extend into the nighttime hours.

8.3.0 POTENTIAL IMPACTS OF CONCERN

The Resource Recovery Facility (RRF) and Mirant, both 24-hour per-day operations, clearly create the most impact on the nighttime sky. The impact of off-site glare is minimized due to their location, abutting land uses, and existing perimeter tree buffers.

The hours of operation for both the Yard Trim Composting Facility and the Site 2 Landfill will be limited to daylight hours. In the fall and winter months, these operations may spill into early dusk, but only for a short period of time. Because of its proximity to main roads, the Composting Facility must be evaluated for lighting that may cause off-site glare. The angle of the light on the pole at the Composting Facility entrance did contribute to this problem, but has since been remedied.

The RRF employs a variety of lighting types for different purposes throughout the site. The lighting plans have been reviewed by an independent consultant, R. W. Beck, for direct glare beyond the project perimeter and spill light, referred to as sky glow, into the night sky. This evaluation suggests that the lighting design appears to have minimized both concerns without sacrificing the adequacy of light provided or compromising the safety of personnel. This has been

achieved by keeping fixture mounting lights low, direct downlighting used as much as practical, low fixture angles to prevent glare from intense high angle lights and advanced design floodlights.

It may be important, for the purpose of this facilities plan, to evaluate the site lighting in terms of what lighting is not needed for the safe and efficient operations of the facility than what lighting is needed. It is necessary to light the internal and perimeter roadways for vehicular circulation. The amount of wasted light may be decreased by the careful placement of lights. Light poles are spaced to provide a continual pattern of light on the dark asphalt roadway, a poor reflector of light. This may not be necessary as long as a clear and consistent pattern is provided to visually mark the roadways. A continual pattern of illumination is also designed for the parking lot at higher levels of footcandles than recommended standards. Architectural accent lighting is used to clearly define entrances and doorways and facility signage. The lighting of the flagpoles and the facade of the building, however, may be considered unnecessary.

As R.W. Beck has recommended in their letter dated August 19, 1994, to Northeast Maryland Waste Disposal Authority, the walkways in front of the administration building could utilize a lower intensity pathway lighting with bollard lights rather than the 12 foot pole lights shown on the design plans. This suggestion was not implemented. The railyard, because of the intensity of the operations taking place at this location, should be lighted so that personnel safety is not compromised. This would only need to occur while there are active operations in this area. The lighting for the process areas are also lighted for safe and efficient nighttime operations. This should occur only during the hours that these areas are in use.

8.4.0 POLICY RECOMMENDATIONS

1. Re-evaluate current conditions to further minimize lighting impacts off-site from RRF. Include Compost facilitiy in all evaluations.
2. Once nighttime operations stop, extinguish all non-essential lighting at each facility.
3. Have all lights equipped with measures used to control illumination patterns and direction. Prevent the angle of lighting to exceed a 90° angle to the horizon.

8.5.0 IMPLEMENTATION STRATEGIES

1. Initiate an on-site evaluation of lighting conditions at RRF and compost facility Mirant to determine if adjustments can be made for the reduction of off-site impacts. Refer to the letter of August 19, 1994, by R. W. Beck for review of further recommendations.
2. Include as part of operation procedures for all the solid waste facilities, the extinguishing of all non-essential lighting.
3. Begin to immediately implement a program for monitoring of all light sources for compliance with desired light angles, illumination patterns and direction, and off-site glare. Adjust any lighting as needed at each facility.

CHAPTER 9: FOREST AND WILDLIFE HABITAT

9.1.0 OBJECTIVES

It is the objectives of the forest and wildlife habitat plan to:

- Manage and conserve all forests on County property to not only meet state and local regulatory requirements, but to strengthen the health and diversity of existing stands of forests and wildlife.
- Enhance existing wildlife habitats, provide protection to significant stands of vegetation, and increase the area of forested lands.

9.2.0 BACKGROUND

9.2.1 FOREST

With the passage of the Maryland Forest Conservation Act (SB-224) along with Montgomery County forestry regulations, existing forest condition and character becomes an integral part of the site planning process for land development.

The area evaluated for this section of the facilities plan is bounded by the Mirant electric generating plant to the north; Route 28, Martinsburg and Wasche Roads to the east; Whites Ferry

Road to the south; and Martinsburg Road, Dickerson Regional Park, C & O Canal and Potomac River to the west.

The total tract area is approximately 960 acres, none of which occur within 100-year floodplain. Perennial streams that maintain base flows throughout the summer months do not occur within the bounds of the study area. There are, however, perennial streams found outside the study area. There are three distinct drainage divides for the study area. They are the Little Monocacy, Broad Run and Potomac "direct" watersheds, all of which are Use Class I waters. Use Class I is classification typical of urbanized and/or agricultural watersheds. Only one compost pond and portions of the Composting Facility drain to an unnamed tributary of the Little Monocacy. The majority of the study area drains from east to west into a dendritic network of four channels feeding directly into the Potomac. The southernmost portion of the property drains to Broad Run.

Of the total 960 acres, approximately 180 acres occur within forest cover. Linear hedgerows less than 35-feet wide or isolated blocks of trees less than 10,000 square feet were not calculated as forest cover. All woodlands observed in the study area are associated with wetlands or waterways and are comprised of bottomland and upland buffer hardwood species or linear hedgerows that represent property boundaries, wind breaks, or field separations. A more complete description and analysis can be found in the Forest Stand Delineation report, prepared by Environmental Quality Resources (*Appendix 9-A*). Forested lands surveyed for this report are shown in *Figure 9-1*.

According to state and county forestry regulations, the Dickerson study area would be allowed to have 79.32 acres of forest cleared without incurring any mitigation requirements as

shown on the MNCPPC approved Forest Stand Delineation (FSD) phase 1, Forest Conservation Worksheet (*Table 9-1*). The County is proposing further forestry enhancements that will promote long-term integrity of forest structure.

As a required element of FSD compliance, a listing of any known significant plant or animal species that might occur within or nearby the Dickerson Facility Plan area was requested from the Maryland Department of Natural Resources, (DNR) Natural Heritage Program. The DNR response dated April 20, 1994, identified five species known to occur nearby along the slopes of the C & O Canal and Potomac River which included white trout lily, Short's rockcress, valerian, smooth cliffrake and auricled geradia. After performing detailed abstract characterizations, areas of preferred habitat were isolated and investigated during peak seasons for positive taxonomic identification. None of the listed species were found within the study area. Unfortunately, a variety of weeds introduced from Europe and Asia have taken over many of the area's rich forest fragments and have choked out portions of native flora. Aggressive weeds including Japanese honeysuckle, Asiatic bittersweet, tree of-heaven, multiflora rose, garlic mustard and ground ivy were commonly found within the woodlots.

A sizable population of the State endangered *Kngia dandelion* along the northern edge of forest stand 1, located at the Site 2 Landfill was identified. An August 24, 1994, letter from DNR supports plan approval of the landfill footprint with the provision that several management recommendations be implemented (*Appendix 9-B*). The most important long term protection element will be to expand the edge of the tree line where the *Krigia dandelion* occurs by 50 feet wide and 150 feet long. Other techniques will include girdling of select trees to improve the light

gap opening, removal of the multiflora rose, and installation of a wire fence to demarcate and protect the population from trampling.

9.2.2 WILDLIFE HABITATS

The Potomac River, C & O Canal and Monocacy corridors are well known for their support of good birding. The diversity of migrant and local year-round species is documented in the Maryland breeding bird atlas (7 ½ minute quad, Poolesville sheet, quad ID# NW and CW, species list). Observed during forestry field data collection, included the interior dwelling wood thrush, game species turkey and quail and migrants such as indigo bunting and scarlet tanager.

According to Maryland Department of Natural Resources, during the 1993/94 hunting season, 940 deer were taken from the greater Poolesville/Dickerson area. The quantity of deer harvested from Montgomery County has increased by about 50 percent since the 1993/1994 hunting season. In 1996 14 deer were taken out of Dickerson Regional Park (MNCPPC) immediately west and abutting the study area. Field study has indicated that crop damage from grazing was evident but not pronounced. The region has generated sustained harvests of between 900 and 1000 deer from the last several years, indicative of a stable situation. Woodland deer browse, and herbaceous cover loss does not reflect population levels in excess of biological carrying capacity. Culturally, however, deer are at annual levels where crop damage and residential interaction are pushing tolerable limits. In their FY09 report to the Executive; the MNCPPC recommended that DSWS manage the deer population at the Site 2 property because of the effect the deer was having on the economic viability of agriculture on the County's land.

All of the woodlands observed in the study area are associated with wetlands or stream channels that are comprised of bottomland and buffer hardwoods (hard mast, nuts, and acorns and soft mast, fruit and berries) or linear hedgerows that represent property boundaries, wind breaks or field separations. They function as genetic, riparian and wildlife movement corridors and are important to facilitate "flow" from one woodland tract to another.

There are many negative aspects to the edge effect of linear woodlands. To better understand forest edges and borders, an "area to edge" ratio is used to apply the average number of feet in the edge to every acre in the stand. Any forest tract with a high degree of edge is predisposed to a host of problems including being overwrought with alien species, vine intrusion, drying winds that reduce the quality of forest growth, and animal or breeding predation and parasitism. It is expected that "weed seed" species such as Japanese honeysuckle and multiflora rose will increase as seeds are brought in from the overall area.

Montgomery County has the least forest acreage of any other county in the State. The linear edge effect is not pronounced in woodlots found in circular or rectangular tracts containing larger acreages. Long-term land management planning recommendations should include widening of riparian buffers to make them more functional as interior woodlands and connection of otherwise disjunct woodlots from genetic isolation. Non-dedicated agricultural fields should be allowed to revert to forest cover in order to provide self sustaining forest interior.

Species richness within a forest tract follows a consistent pattern of an increasing number of species with the increasing size of an area. For example, using forest interior dwelling birds as a biological reference, bird species richness increases significantly through a forest size of 60 acres and will continue to increase at forest sizes greater than 60 acres. If select agricultural fields that

directly abut priority retention forests were allowed to revert into woodlands there could be an expansion of habitat wildlife, with overall woodland area increased and interior conditions improved.

9.3.0 POTENTIAL IMPACTS OF CONCERN

With the implementation of the recommendations made in the Forest Stand Delineation and the Visual Landscape Master Plan (Chapter 6), the amount of forest area will be expanded beyond the requirements of existing county and state regulations. Afforestation of the identified priority areas will expand wetland buffers, improve protection of existing waterways and water bodies, increase existing forested tracts and enhance wildlife habitat and movement corridors.

During the course of study, it was found that there was a conflict between recommended areas of afforestation and borrow areas identified on the landfill concept plans. Borrow areas are areas designated within the landfill from which soil could be taken for construction and cover of the landfill. As a result, Woodward-Clyde and Environmental Quality Resources (EQR) were asked to examine the ramifications of two separate options available to the County in the construction of the landfill (*Appendix 9-C*). In summary, Option A considered bringing soil into the site for landfill construction instead of borrowing on-site and afforesting those priority planting areas. Option B considered developing the designated borrow areas and then reclaim and afforest the area as appropriate. In discussions with the Oversight Group, it was concluded that it would be more cost-effective and environmentally feasible to pursue reclamation of the borrow areas. Option B was supported by the Dickerson Oversight Group, with priority to be given to immediately developing borrow areas and to begin reclamation activities and afforestation as soon as the soils for landfill construction are removed and stockpiled. These borrow areas to be

immediately developed when landfill construction begins are shown in *Figure 9-2.* The Oversight Group felt that this would provide future forested lands that would serve as a visual buffer to the surrounding residents.

9.4.0 POLICY RECOMMENDATIONS

1. Follow recommendations outlined in the Forest Stand Delineation report, 1994.
    - evaluate priority natural areas and expand or enhance them for the benefit of wildlife;
    - thicken riparian buffers to make them more functional as interior woodlands and connecting otherwise adjunct woodlots to avoid genetic isolation;
    - allow "non-committed" agricultural fields to revert to forest in order to provide self-sustaining forest interior;
    - allow a few fields that abut priority retention forests to succeed in order to expand habitat preferences for wildlife;
    - maintain woodlands greater than 60 acres;
    - maintain natural vegetation shrub layer; maintain water sources in or adjacent to the woods; and
    - crop thin the poplar woods to allow enough light gap to promote a transition to a more indigenous forest type.
2. Write and adopt a forest maintenance plan for the existing forest stands and for the upgrading of existing forest edges and wildlife corridors.

3. Employ management techniques as outlined in August 24, 1994, letter from MD-DNR Natural Heritage Program for the protection of *Krigia dandelion* population.

4. Follow recommendation of final reports on Landfill borrow and afforestation studies prepared by Woodward-Clyde Consultants and Environmental Quality Resources.

5. Avoid blasting during development of landfill.

9.5.0 IMPLEMENTATION STRATEGIES

1. Montgomery County and citizen advisory group establish the prioritization of recommendations and establish a time frame for their implementation.

2. Initiate implementation of forest maintenance plan immediately after adoption of Dickerson Facilities Plan.

3. Put *Krigia dandelion* management techniques into place immediately and continue to monitor and maintain for the life of the project.

4. Integrate borrow/reclamation option into final engineering documents for Site 2 Landfill. Develop borrow areas immediately and begin site restoration and afforestation.

5. Do not use blasting in exploitation of borrow areas. Avoid using blasting in construction of the landfill footprint. Minimize any blasting necessary for construction of structures, utilities or roads.

Deer Management Plan

In response to recommendations from MNCPPC Deer Management Report to the Executive in FY09, the Montgomery County Division of Solid
Waste Services (DSWS) began the process of implementing deer population management on the approximately 800 acres of County owned property that they manage in the Dickerson area between Martinsburg and Wasche Roads. The goal of this effort is to help the Site 2 properties to remain economically viable for agricultural use by managing the impacts from deer overpopulation.

Working with DAFIG, MNCPPC, Economic Development and The County Attorney's office, DSWS developed regulations for deer management on the County owned properties they manage in the Dickerson Area.

An RFP was issued and a one year contract with an option to renew for two additional years was awarded to Patriot Land and Wildlife Management Services Inc.(PLWMS)., to manage deer on the properties. PLWMS is in their fourth year of wildlife management.

CHAPTER 10: SURFACE WATER AND WETLANDS

10.1.0 OBJECTIVES

A comprehensive wetland investigation and literature review of all current water resources related studies was completed by Environmental Quality Resources, Inc., (EQR) in October 1994. The Dickerson Facility Plan contains a 960 acres study area under County ownership. The objectives of this water resources chapter are to:

- Prevent the contamination of surface water in the study area.
- Comply with Corps and Maryland Department of the Environment (MDE) regulatory wetland requirements related to water resources manipulation and protection, as well as any applicable MNCPPC stream buffer guidelines.
- Preserve and enhance the quality of surface water.
- Minimize change to the study area and hydraulic flow conditions in order to maintain the quantity and quality of wetlands and surface water resources.

10.2.0 BACKGROUND

All of the wetlands and waterways occurring within the study area have been flagged, delineated, field located and classified. These narrative reports, qualifying the regulatory and jurisdictional parameters of the wetlands are available through studies performed by A. Morton

Thomas, Inc., Post, Buckley, Schuh & Jernnigan, Inc., and Woodward-Clyde Consultants, 1993 and 1994. These reports are available in the information repository now established at the Poolesville Public Library and the Upcounty Services Center Library. Since these initial reports, the Montgomery County Department of Environmental Protection – Watershed Management Division (DEP-WMD) has continued to monitor and update information on the surface water wetlands in the study area. All the information from this ongoing monitoring is available at DEP-WMD.

Environmental Quality Resources, Inc., (EQR) has prepared a comprehensive wetland study of the entire 960 acre area (*Appendix 10-A*). Previous data was field reviewed for accuracy, including several small segments of wetland additions that were necessary to complete the connections of dendritic, riparian systems and small depressional wetlands evidenced in aerial photo reconnaissance, but not picked up in previous studies. *Figure 10-1* is a map which identifies all of the wetlands, ponds, surface water flow paths and their classifications, as occurring in the study area. The majority of the wetlands are associated with woodland streams.

The overwhelming majority of the facility plan study area drains as unnamed first order headwater tributaries to the Potomac River. A small portion of the Composting Facility flows to an unnamed tributary of the Little Monocacy. The southern-most section of the property represents the originating headwaters of Broad Run which is also a tributary of the Potomac. All three drainage divides represent "Use Class I" streams. Use Class I streams are typical within agricultural or urbanized settings.

Use Class I streams are suitable for water contact recreation and for fish other than trout. For Use Class I, pH values may not be less than 6.5 or greater than 8.5 which is the normal range

to support fish. From a thermal perspective, Use Class I streams cannot exceed 90°F or be in excess of ambient surface water temperatures, whichever is less.

Three stormwater management control ponds occur within the Yard Trim Composting Facility study area (*Figure 11-4*). These ponds have been sized and installed to pretreat storm leachate prior to entry into receiving streams.

Currently two ponds occur at the footprint of the proposed Site 2 landfill. One pond south of the site is used for health risk studies and the other one, east of the site is used for irrigation.

Resource Recovery Facility (RRF) stormwater is managed by a detention pond which outfalls to a receiving stream draining to the Potomac River.

10.3.0 POTENTIAL IMPACTS OF CONCERN

Any surface water contamination could detrimentally impact drinking water and food supplies, which would harm the health, welfare, safety and financial concerns of the local and county residents. If surface water contamination is identified during any sampling or testing program, mitigation efforts will be taken to avoid impacts to local streams or water supplies. The County will take immediate mitigation measures to protect public health in the event that contamination of surface water.

10.3.1 YARD TRIM COMPOSTING FACILITY

The Yard Trim Composting Facility has the potential to affect surface water conditions from any of its activities as well as from the three stormwater management ponds that are

constructed on site. Both the stormwater management ponds and receiving waters have been studied recently for a select battery of chemical parameters including:

- total dissolved solid concentrations;
- chloride concentrations;
- pH;
- ammonia nitrogen concentrations;
- nitrate-nitrogen concentrations;
- total phosphorous concentrations; and
- total organic carbon concentrations.

In August 1995, the stormwater management ponds were cleaned out. Sediments removed from the ponds were tested for Cadmium and Lead. Cadmium was not detected and lead was detected at 39 mg/kg dry weight which is well below the 300 mg/kg dry weight set by the Maryland Department of Agriculture for general use compost products. Stormwater ponds were also cleaned out in 2002. Pond 2 was cleaned in 2005, Pond 1 in 2009 and Pond3 2010.

In a review of over two years of quarterly monitoring results for Composting Facility stormwater management ponds, impact to receiving streams is within acceptable ranges for Use Class I streams defined by Maryland Department of Environment (MDE). Criteria are set for bacteria, dissolved oxygen, temperature, pH, turbidity and toxic substances (*Appendix 10-B*). Water temperature during the summer months on the receiving streams below the ponds discharge structures never exceeded 68°F which represent compliant summer temperatures for Use Class I fisheries.

Thermal temperatures from the ponds should not be allowed to heat the streams to a point where macroinvertebrates and fish would be adversely affected. Field monitoring documentation suggests that this has not happened. Receiving streams' pH levels were always within acceptable ranges for aquatic life (pH 6.5 - 8.5).

In 1989, pesticide screenings were performed for Montgomery County to test for the presence of a variety of pesticides on the incoming grass for composting. All tests showed pesticides to be below detection limits (*Appendix 10-C*). It was surmised in this study that these low pesticide levels were attributable to the short active life of most commonly-used pesticides, and the probability that pesticides volatilize or run-off into lawns rather than being taken up into blades of grass. Chemical testing of the compost is performed annually and the results have been within the limits set by the Maryland Department of Agriculture. Maryland Environmental Services (MES) follow the guidelines of the Composting Council and one of the parameters they regularly test for is pesticides.

Parameters that may raise future concerns are related to nutrient enrichment and contaminants in runoff. These contaminants include petroleum based products such as oil, grease, gas and metals associated with urban runoff. Copper, zinc, lead and cadmium bind to sediment and grit and may inadvertently be included in leaf collection along County roadways.

Although there has been some water quality monitoring done on the site in the past, the data is fragmented and inconsistent. While it may be possible to use this data for future comparison, it would be best to start a new program. This would provide data on existing conditions, and allow an examination of future trends and changes. A new program should be initiated this year and continue for the next three years. This time period should be sufficient to

ascertain which retrofit technologies should be installed on the facility in order to comply with Use Class I Water requirements.

A total of five stations should be established on the site (*Figure 10-2*). One station should be established at the discharge point for each of the three ponds. The two remaining stations should be located at the point where the streams cross the property line. This arrangement will allow for an evaluation of the water quality as it leaves the ponds, as well as opportunity to examine the affect of groundwater inputs on the quality of the water as the streams leave the property. A fifth station should also be set up on similar stream to the south of the Composting Facility (along the border of Mirant and the proposed landfill). This stream is comparable to the streams on the Composting Facility and the additional station will act as a reference by which to characterize changes in the two streams of concern.

As the streams are Use Class I waters, the following parameters should be measured at each stream station on a monthly basis from March to October: 1) dissolved oxygen, 2) pH, 3) specific conductance, and 4) turbidity. Temperature should be monitored continuously at all stations for the same period using a recording datalogger. Ambient air temperature should also be recorded continuously at the site to coincide with water temperature monitoring. Additionally, storm events should be monitored at each of the five stations for the following: total phosphorus, total kjeldahl nitrogen, BOD, and oil and grease.

Finally, once in the spring and fall of each year, the streams aresampled for macroinvertebrates. Sampling, data collection, and statistical methods should follow those of the Montgomery County DPW, Water Quality Monitoring Program, Stream Monitoring Protocols. A

summary of the testing results is found in “Summary of Water Quality of two streams draining the Dickerson yard trim compost facility; 1999-2011.

Well recognized in the literature are articles defending the value of converting portions of open water bodies into vegetated wetlands for their capability to take up nutrients (i.e., nitrogen, phosphorus - the byproducts of composting). The addition of vegetated pretreatment marshes and forebays will extract nutrients from the water column, converting them to tissue growth and/or transformation during the growing season. Excessive nutrient loading and potential stream channel erosion is best reduced through the employment of wet ponds and artificial marshes which stand alone in demonstrating a general ability to continue to function as designed for relatively long periods of time without routine maintenance. A. Morton Thomas (AMT), consulting engineers to Montgomery County, have designed vegetated pre-treatments forebays for the three stormwater ponds at the Composting Facility. This retrofit will assist in the removal of sediment and nutrients from the surface water prior to its entering the stormwater ponds and pretreat discharge prior to its entering the receiving streams. If needed, supplemental aeration bubblers could be installed in open water portions of the ponds. These would increase dissolved oxygen levels thereby improving microbial action for nutrient removal.

Other "stacked" best management practices can be undertaken by Montgomery County. These could include; 1) a widening of the "littoral fringe" (shoreline capable of supporting emergent plantings) of the ponds to further relieve the nutrient burden, and 2) the planting of tree cover adjacent to the ponds for thermal closure. It is postulated that the ponds will eutrophy, (i.e. become rich enough in mineral and organic nutrients to promote a proliferation of plant life, especially algae which can result in a lack of dissolved oxygen in the water) as a result of increased

organic loading beyond their carrying capacity, and subsequently burden the streams in excess of pre-existing agricultural conditions. Because of the high concentrations of organics being processed at the facility, a 4-year cyclical retrofit and maintenance program will need to be in place that services the stormwater management ponds periodically to ensure that they are operating to their design intent and capacity. In 2002 all three ponds were dewatered and sediments removed. Pond 2 was cleaned in 2005, Pond 1 in 2009 and Pond3 2010.

10.3.2 SITE 2 LANDFILL

However, the 100-foot buffer areas, which exceed the minimum State standard of 25 feet, have been established. These buffers, most of which are presently fallow land and not being actively farmed, will be allowed to mature as woodland buffers. Grade changes necessary for landfill operations are intended to minimize changes to existing hydrological support of existing wetlands. It is a recognized goal to attempt to mock existing flow paths as best as possible to ensure the viability of existing wetlands. It should be noted, however, that the majority of surface flow and recharge areas are presently in active agriculture.

The existing farm ponds at the Site 2 Landfill Site will, with engineering upgrades, remain functional as sediment control/stormwater management ponds. The naturalized pond will be re-engineered into a stormwater management pond and used as an area for wetlands mitigation.

10.3.3 RESOURCE RECOVERY FACILITY (RRF)

The detention pond at the RRF manages surface water runoff from the facility's impervious surfaces, including parking lots. The potential for leachate will be monitored annually on this site. The pond is designed in accordance with pertinent regulations of Montgomery County Department of Environmental Protection (DEP) and Maryland Department of the Environment (MDE). Monitoring will continue to be performed to insure the water is cleansed properly before entering the receiving stream State discharge permits require that stormwater samples be taken quarterly and tested for Total Lead, Total Cadmium, Total Mercury, pH, and flow. In addition, Montgomery County's DEP tested for BOD, COD, TDS, Dissolved Oxygen, Conductivity, Ammonia, Oil and Grease, Chloride, Calcium, Sodium and 17 metals.

10.4.0 POLICY RECOMMENDATIONS

In addition to preventing any contamination of the surface water in the study area, specific policies are as follows:

1. Protect and preserve existing woodland tracts.
2. Honor the 25-foot mandatory wetland protection buffers.
3. Develop a prioritization afforestation schedule for entire area of the solid waste facilities.
4. Monitor stormwater ponds at all facilities to insure they are functioning properly, and maintain and retrofit as necessary.
5. Implement the vegetated pre-treatment forebay design as proposed for the Composting Facility stormwater ponds by A. Morton Thomas, 1994.

6 Insure that the ponds are functioning as designed and nutrient burden within the open water of the ponds and receiving streams is reduced for the life of the facility.

7. Establish monitoring stations at five locations shown on Figure 10-2.

8. Minimize changes to existing hydrological support of existing wetlands.

10.5.0 IMPLEMENTATION STRATEGIES

In addition to periodic monitoring of all surface water in the study area and preventing any contamination therefrom, the following specific actions will be taken:

1. Follow recommendations set forth in the Forest Delineation Stand report and the Wetland Study, 1994 (*Appendix 9-A and 10-A*).

2. Follow proper permitting procedures with the Maryland Department of the Environment (MDE) if any impacts are proposed to jurisdictional wetlands, their buffers or "Waters of the United States".

3. Initiate plantings of priority afforestation areas associated with wetland buffers as identified in the Forest Stand Delineation report. Land associated with the Matthews Farm will remain in agricultural use or will remain as forest, continuing existing usage.

4. Develop stream monitoring protocol and seasonal monitoring program for the life of the solid waste facilities.

5. Continue water quality monitoring of the stormwater management facilities and their receiving streams at Yard Trim Composting Facility to determine if any additional modifications or enhancements are needed to improve water quality.

Discharge will continue to be monitored as needed for qualitative and quantitative information until levels within the Use Class I requirements are met for the streams. In the event water quality parameters are exceeded, appropriate retrofit technologies will be installed. Add pesticides to the parameters tested for stormwater pond discharge.

6. Install monitoring stations as shown on Figure 10-2. On a monthly basis, from March to October, measure: 1) dissolved oxygen, 2) pH, 3) specific conductance, and 4) turbidity. Water temperature should be measured continuously at all stations. Ambient air temperature should also be recorded continuously at the site to coincide with water temperature.

7. Utilize "stacked" best management practices for sediment erosion control, stormwater management and recharge of preconstruction flow paths in the design engineering of Site 2 Landfill.

CHAPTER 11: GROUNDWATER

11.1.0 OBJECTIVES

In February 1998, EPA determined that the Poolesville Area Aquifer System "is the sole source or principal source of drinking water for this area and if the aquifer system were contaminated it would create a significant hazard to public health". The sole source designation subjects all federally assisted projects to EPA review to ensure the project's design, construction, and operation will not contaminate the aquifer so as to create a significant hazard to the public health.

The Dickerson area derives its domestic water supply from wells fed by subsurface aquifers. Potential disturbance and contamination of the groundwater supply by the solid waste management activities at the solid waste facilities must be avoided. The objectives of the plan are to:

- Prevent the contamination of ground water in the study area.
- Preserve the quality of groundwater and protect the water supplies.
- Minimize changes to the study area to maintain the quantity and quality of groundwater resources.

11.2.0 BACKGROUND

11.2.1 GEOLOGY

The subsurface investigation reports, prepared by Woodward-Clyde Consultants (WCC) for Site 2 Landfill as presented in the Montgomery County Refuse Disposal Permit Application and available geology maps, were reviewed to develop an understanding of the site's geologic conditions. That review indicated the County's solid waste facilities are geologically located in the Triassic Basin of the Piedmont physiographic province. In the area of the facilities, the Triassic Basin rocks consist of interbedded sandstones, siltstones and shales. These rocks have been termed the New Oxford Formation and have been found to be predominantly sandstones and siltstones in the Dickerson area. A north-south trending diabase dike is present to the east of the facilities and some small diabase dikes or sills may be present in the facility boundaries. The thickness of the Triassic rocks in this area is estimated to exceed 10,000 feet.

A north-south trending belt of limestone conglomerate about one quarter mile wide, extends southward from the Potomac River about 0.2 miles west of Martinsburg. This rock has different hydrologic properties than the common siltstones and sandstones of the Triassic Basin, but as it does not underlie any waste facilities, it is not discussed.

Residual soils, consisting primarily of the Penn and Readington silt loam series, are present above the rock. These soils are derived from the in-place weathering of the rock. Relatively sound rock is typically present within 5 to 25 feet of the ground surface. The residual soils are predominantly silty with sand and clay and gradually increase in density from relatively loose near

the ground surface to compact and more rock-like with depth. The top of "rock" cannot be precisely defined as the soils take on more rock-like characteristics with depth.

Alluvial soils are present within and adjacent to some stream channels. These are typically silty and sandy in nature and represent residual soils that have been transported by stream flow and erosion. The alluvial soils are normally only a few feet thick and either overlay residual soils or weathered rock.

The Triassic rocks are sedimentary in nature and were originally laid down as horizontally stratified deposits. Due to past geologic processes, the bedding has been tilted so that it dips between 5 to 10 degrees to the west in the facility area. A persistent set of fractures or "joints" has been developed parallel to the original bedding. Thus, these bedding plain joint sets dip to the west at 5 to 10 degrees. Three other persistent fractures or joint sets are present. Two of these are near vertical in dip and trend or "strike" to the east and north, respectively. The northerly trend is typically the most common and persistent set. The fourth fracture set present in the area strikes northwesterly and has a near vertical dip.

The combination of the fracture sets causes the bedrock to be broken into rectangular blocks. These fractures provide interconnected conduits for groundwater flow.

11.2.2 GEOLOGY OF SITE 2 LANDFILL SITE

The results of 33 test borings and 45 test pits indicate that the subsurface conditions encountered at the landfill site were generally consistent with the regional geologic information. The surface soils and subsurface soils are residual materials derived from the weathering of the

Triassic sandstone, siltstone, and shale. The boundary between the overburden soils and unweathered rock is a gradual transition over a distance of several feet.

Overburden soil thicknesses across the site ranged from about 3 to 27.5 feet, with an average of about 9 to 10 feet. The thinnest overburden occurs in the southwestern and southeastern portions of the site, outside the proposed landfill footprint. The thickest overburden was encountered at the northwestern comer of the site.

The overburden soils consist primarily of clayey to sandy silts, lean clays, and silty to clayey fine sands. All contain varying amounts of rock fragments which generally increase with depth. The more clayey soils tend to occur more frequently in the central portions of the site, while most of the sandier soils exist along the eastern portion of the site. However, the gradation and distribution of soils can be fairly random.

The observed overburden thickness within the proposed landfill footprint ranges from 5 to 13.5 feet. The majority of the upper soils within the footprint are silty and/or clayey soils which will provide a low permeability barrier between the landfill bottom and the underlying groundwater. The clayey soils tend to be concentrated in the southwestern half of the footprint. The thickness of the clayey soils ranges from about 2 feet to 11.5 feet. The clayey soils generally overlie the silty soils or silty to clayey fine sands. Sandier soils were encountered near the surface at the southeast corner and at the southwestern areas of the footprint. Sandier soils also occurred at approximate depths of 2 to 7 feet below clayey or silty soils; these sandier soils contained a significant amount of silt on the order of 22 to 50 percent, which results in a relatively low-permeability material.

The buffer zone of the proposed landfill consists primarily of sandy to clay silts with lesser amounts of lean clays and silty fine sands, all containing varying amounts of rock fragments. The sandier materials are concentrated in the northern portion of the site and in the southeastern corner of the site. They are also found scattered along the western and southern portions of the buffer zones. The clayey materials were found primarily along the southeastern buffer area. They typically overlie silty or sandy materials or are interbedded with them. Most of the overburden soils should be able to be removed using conventional excavation equipment, such as bulldozers and large excavators.

11.2.3 GEOHYDROLOGY

The general geohydrology of the County's solid waste facilities is well understood from extensive work completed for the Site 2 Landfill by Woodward-Clyde Consultants. This data was used as the basis for establishing general geohydrologic conditions at the Yard Trim Composting and Resource Recovery Facilities. Several monitoring wells are across Martinsburg Road from the Composting Facility and extensive aquifer testing has been completed in this area as required by the refuse permit application. This data helps provide a general understanding of overall geohydrology for the County's facilities. A copy of the Phase II Hydrogeologic Report is attached as *Appendix 11-A*. The data in that report is summarized below. Locations of monitoring wells used to characterize groundwater at the Site 2 Landfill are indicated in *Figure 11-1*.

Two relatively distinct groundwater flow systems are present at the site. The uppermost system is a water table aquifer that is present within the residual soils and upper weathered rock

zone. This water table is maintained by infiltration from surface precipitation (rainfall) and can vary substantially on a seasonal basis.

The estimated total infiltration into the groundwater system in this region is between 8 to 12 inches of the approximately 42 to 43 inches of total rainfall per year. It is not unusual for this water table to fluctuate by up to 10 feet on an annual basis due to variations in the amount of precipitation that infiltrates into the ground and reaches the groundwater table.

The shape of the water table aquifer mimics the topography in a subdued manner. The depth to the water table is generally greatest on hill tops and least in drainage channels. Perennial flow in creeks and streams typically represent the groundwater surface in those areas and are groundwater discharge zones for water that has entered the flow system on adjacent hills and slopes. Thus, the water table is found to be higher in elevation on the slopes and hills. Hill tops typically represent hydraulic divides where the groundwater elevations are locally the highest. On the hill top, water would be expected to be within 15 to 20 feet of ground surface while the depth to water in drainage channels would be less than 5 feet in ephemeral or intermittent streams to zero feet where water is actively flowing.

In the water table aquifer zone, the water flow is predominantly through the residual soils. In these materials, the flow is between the individual mineral grains similar to how water would flow through a beach sand. The void space between the grains is termed "porosity". Pore spaces through which water which flows is referred to as primary porosity. The hydraulic conductivity of these soils has been found to be relatively low, with typical values of approximately 0.1 feet per day. Water will typically move slowly through these materials at a rate in the range of 10 to 100 feet per year.

Below the water table aquifer is a deeper water flow zone within the rock. This zone is fed by water that slowly percolates down from the water table aquifer. The flow mechanism in these materials is fundamentally different than in the residual soils. Flow within the rock is through natural fractures or joints and not between individual mineral grains. The rock fractures are termed "secondary porosity". Typically the secondary porosity is a much smaller percentage than primary porosity for soil. Therefore, there is less space for water flow in rock than in the soil. However, if a large and persistent fracture is encountered, the volume of water flowing within the fracture can be significant.

In the upper weathered rock zone, typically the upper 100 feet or so below the land surface, the secondary porosity fractures are often filled with silt and clay that has migrated from the residual soil or is a weathering product of the rock's chemical disintegration. These fractures may also be filled with chemical precipitates, such as calcite or iron oxides, that were deposited by flowing groundwater. By whatever means, the upper 100 feet or so of the rock is typically less conductive to groundwater flow than either the overlying soil or underlying rock. As a result, the infiltration of water from the surface into the deep rock fractures is a slow process.

Wells that pump water from the deep rock fractures typically have little impact on the water table aquifer water levels since the response time, due to the low conductivity filled fracture rock barrier, is slow. Thus, the deeper water bearing zone or aquifer is partially isolated or "semi-confined" from the upper water table aquifer system.

Flow in the deeper aquifer occurs in a similar manner to the upper water table aquifer. In this case, the discharge of ground water to surface water bodies is likely to be further downstream towards the Potomac River and deeper tributary stream channels rather than through local

discharge zones in relatively shallow stream channels in the upper reaches of the drainage basins. The groundwater flows in the vicinity of the Site 2 Landfill are shown in *Figure 11-2.*

11.3.0 POTENTIAL IMPACTS OF CONCERN

Any ground water contamination will have the most immediate and greatest impact on the water table aquifer. If contamination of the water table aquifer were to occur, this upper level aquifer would be affected first. As a result, the local streams and shallow water supply wells (if contamination moves off-site) are at greatest risk from site activities.

11.3.1 SITE 2 LANDFILL

The proposed Site 2 Landfill is designed and will be operated so as to avoid impacts to the groundwater system (the aquifer). A series of monitoring wells will be used during operation to immediately identify contamination, should it occur. Technical assessments indicate that the rate of movement of groundwater is slow. If groundwater contamination is identified during sampling or testing program, mitigation efforts will be taken to avoid impacts to local streams or water supplies. The County will take all necessary efforts to protect to protect public health in the event that contamination of groundwater from the landfill is detected. If water supplies are affected - - either the quantity or quality of potable water supplied by area wells - - the County will immediately provide a safe source of potable water to affected residents. Area residents report that many local domestic wells are shallow, hand-dug wells (less than 60 feet deep) that are subject to fluctuations in the water table aquifer. These types of wells do not meet current state standards

for well construction. . *Figure 11-3* indicates the location of domestic wells within a one-half-mile radius of the Site 2 Landfill.

During the public comment period in May, 1996, concern was expressed about the effect impervious surface area for the Site 2 Landfill would have on area surface waters - - streams and wetlands. While localized changes in the recharge of the water table aquifer from diverted runoff could result in some changes in local hydrology, the water diverted by the impervious surfaces at the landfill will be collected in stormwater management ponds and discharged to area streams. Through ponds and streams, diverted runoff will still infiltrate to some extent into the groundwater and continue to recharge the water table aquifer.

If and when the County decides to use the Site II as a landfill, then a Groundwater Monitoring Plan specific to this site will be developed in accordance with all local, State and Federal regulations.

11.3.2 YARD TRIM COMPOSTING FACILITY

The Yard Trim Composting Facility has the potential to impact groundwater quality due to runoff directed into the stormwater management ponds. This runoff may be of poor water quality due to leaching of yard trim compost. Stormwater management ponds No. 1 and 2 *(Figure 11-4*) do not have synthetic liners. Although, it is noted that stormwater management pond No. 3 has a synthetic liner which is designed to limit seepage to the pond subgrade soils, the liner is in very bad condition. The liner was removed in 2002 and was replaced with a soil-cement liner. The asphaltic compost area also has the potential to impact groundwater. The asphalt acts as a low permeability barrier to the compost leachate but does not act as a liner. It is possible that some

leaking into the groundwater system may occur at this facility. The chemistry of the leachate must be documented to assess the specific impacts.

As with the soils, the presence of underground storage tanks in the Composting Facility area is a potential source for groundwater contamination. This contamination, if it were to occur, would be limited to the upper water table aquifer. Information on the location and condition of these tanks has been provided by Maryland Environmental Services (MES). There are currently two underground storage tanks in operation at the composting facility. A double walled fiberglass tank of 6,000 gallon capacity used for diesel fuel is located on the east side of the maintenance building. This tank was installed in the fall of 1994 and was reported to meet all Maryland regulations. The second tank is a 250 gallon tank located at the northeast comer of the maintenance facility which is used to store waste oils until they are disposed. This tank was tested in 1994 and retro-fitted with overspill protection to meet current State regulations. The USTs are tested on a regular basis.

As shown in figure 11-4, the County currently samples 6 groundwater monitoring wells around the Compost facility on quarterly basis to monitor the groundwater quality.

A review of the monitoring activities of the compost at the Dickerson site, compiled by DEP since November 2000, indicated the presence of Arsenic, Copper, Zinc, Nitrates, Cadmium, Nickel, Lead, and Mercury at extremely low levels (*Appendix 11-C*). These constituents are detrimental to water quality if found in significant concentrations.

The presence of the relatively impervious asphalt may cause localized changes in the recharge of the water table aquifer. However, since the facility was built in 1981, these localized changes should be evident in the present conditions.

There is some concern from area residents that the reduction in the recharge of the water table aquifer, due to the presence of the relatively impervious asphalt, may affect domestic wells in the vicinity of the site.

11.3.3 RESOURCE RECOVERY FACILITY

The refuse brought to the facility will be in closed containers and the waste will not be exposed to precipitation. As a result, production of adverse leachate is unlikely. However, the potential for adverse leachate will be continuously monitors and prevented.

11.4.0 POLICY RECOMMENDATIONS

In addition to preventing or mitigating any contamination of the groundwater in the study area, specific policies are as follows:

1. Site 2 Landfill.

    a. Follow the procedures and guidelines presented in the Sampling and Analysis Plan (SAP) of the Refuse Disposal Permit Application. Adjust and modify the SAP to reflect unique characteristics of the Site 2 Landfill's design, hydrogeology, and the area's domestic water supplies requiring protection.

b. Provide a pro-active approach to insure the water quality of domestic water supply wells of residences near the site are not negatively impacted by site activities.

c. Develop protocols to follow if elevated parameter concentrations are identified during implementation of the SAP.

d. Avoid blasting.

e. Establish means to immediately communicate the sampling results of groundwater monitoring to the community..

2. Yard Trim Composting Facility

a. Conduct a hydrogeologic investigation to determine the hydrogeologic characteristics of the water table aquifer.

b. Monitor the effect of the relatively impervious asphalt surface on the water table aquifer.

c. Monitor the effect of the Composting Facility on the water quality of the water table aquifer.

d. As with the landfill, provide a pro-active approach to monitor and protect the water quality of domestic water supply wells of residences near the facility.

e. Verify compliance with State and Federal Regulations for all Underground Storage Tanks (USTs) at the site.

.

3. Resource Recovery Facility

a. Follow existing procedures and polices identified in Refuse Disposal Permit Application (*Appendix 11-D*).

11.5.0 IMPLEMENTATION STRATEGIES

1. Site 2 Landfill

a. Review results of sampling and analysis plan (SAP) with independent consultant on a quarterly basis to evaluate the impact of the facility on the hydrogeologic conditions of the site.

b. Provide domestic well testing both before and after landfill operations begin. Residents within one-half mile down gradient and one-quarter mile upgradient of the site will be offered the opportunity to have their domestic water supply wells sampled.

c. If elevated parameter concentrations are identified during the SAP, a hydrogeologic study, in accordance with the Maryland Department of Environment (MDE) regulations, should be conducted to identify the source of elevated parameters and recommendations made for corrective action.

d. No blasting will be employed for the borrow areas; landfill and leachate collection system will be designed to avoid blasting wherever possible; only use blasting where other engineering alternatives are not feasible. Provide advance notice to community in the event blasting is required.

e. Place groundwater sampling results in an information repository at the libraries at Poolesville and Upcounty Services Center. If analysis of groundwater sampling data indicates a potential problem may exist, notify potentially affected property owners within 24 hours and issue a press release on the findings.

f. Expand monitoring program, as appropriate, to include domestic wells further from the site if it is found that the water table aquifer elevations or quality has changed. Should groundwater monitoring detect contamination levels above drinking water standards from contamination originating from any solid waste facility, Montgomery County shall contain and mitigate the problem and provide domestic water supplies as described in the Alternative Water Supply Study (Appendix 11-E). Measures that are being evaluated in detail and would be implemented depending on the nature of the contamination problem, include individual treatment systems, installation of replacement deep wells, development of a Community Groundwater System (a new well field outside the area affected by contamination to serve affected residents), extending the Poolesville water supply system, and extending the WSSC water supply system.

2. Yard Trim Composting Facility

a. Offer option for well testing to residents living within 1/2 mile of facility. If there proves to be a problem with well contamination, expand area of well testing.

b. Review Underground Storage Tank (UST) records and status to verify compliance with State and Federal regulations for all USTs present at the site. If a UST is out of compliance, provide necessary modifications to bring into compliance.

3. Resource Recovery Facility

a. Periodically review existing procedures and policies as identified in Refuse Permit Disposal Application to identify any necessary modifications.

CHAPTER 12: AIR AND ODOR

12.1.0 OBJECTIVES

Maintaining the integrity of the ambient environment is crucial to protecting the health and well being of the community. In efforts to protect public health, welfare and the quality of the environment, the objectives of the plan are to:

- Meet or exceed the air quality and odor compliance requirements of all Federal, state and local governments.
- Based on current technology, reduce to the maximum extent possible the air quality impacts on public health and the environment.
- Establish monitoring procedures to ensure compliance with regulatory requirements for emissions released from the facilities and provide quality checks on the ambient measurements of air quality.
- Avoid noxious odors emanating from the solid waste facilities.

12.2.0 REGULATORY BACKGROUND

The enactment of the Clean Air Act (CAA) in 1970 by the U.S. Congress, and subsequent amendments in 1975 and 1977, formed the basis of the existing domestic Air Pollution Control

Program. Under the CAA, the Federal Government established ambient air quality standards for the protection of public health. These standards are known as National Ambient Air Quality Standards (NAAQS). Currently, six pollutants have NAAQS. These pollutants are: Particulate Matter, with separate standards for particles 10 microns (PM-10), and 2.5 microns (PM-2.5); Sulfur Dioxide (SO_2); Carbon Monoxide (CO); Nitrogen Dioxide (NO_2); Ozone (O_3); and Lead (Pb). These six pollutants are called criteria pollutants.

Under the CAA, two distinct categories of NAAQS were established: primary standards for the protection of human health and secondary standards for the protection of plants and sensitive animal life. Currently, secondary standards are the same as the primary standards for PM as measured on a 24-hour basis, NO_2 as measured on an annual basis, lead and ozone. A complete description of the current NAAQS is maintained at: http://www.epa.gov/air/criteria.html

The primary objective for establishing these standards is to bring air quality levels throughout the United States below the NAAQS. The primary means to accomplish this objective is to control the pollutants released from point sources (i.e., industrial smokestacks) as well as mobile sources (e.g., automobiles).

A region where ambient levels of a particular pollutant are at or below the NAAQS; that region is termed as "in attainment" with respect to that pollutant. A region where ambient levels of a particular pollutant exceed the NAAQS; that region is termed as "in non-attainment" with respect to that pollutant. Past ambient air quality data monitored in the Dickerson region indicates that the region is in attainment with the NAAQS for both primary and secondary standards of all pollutants with the exception of Ozone.

Under the Clean Air Act, all states were required to submit plans to the U.S. Environmental Protection Agency (EPA) outlining the procedures for controlling emissions from pollution sources in their states and a schedule for achieving ambient air quality levels below the NAAQS. These plans are called State Implementation Plans (SIPS). If EPA approves the SIP submitted by a state, that state becomes an "authorized state", to enforce Federal regulations required under the Clean Air Act, including issuance of all permits required under the CAA and enforcement of all permit requirements. Normally, there is no direct involvement by the EPA as long as the agency is satisfied that the state is enforcing the approved SIP. However, the EPA retains the authority to intervene at any time to enforce requirements specified in the SIP approved by the EPA. Maryland's SIP was approved by the EPA, therefore, Maryland is an authorized state and issues all permits and enforces Federal regulations required under the CAA.

Following the 1970 CAA and subsequent amendments of 1975 and 1977, many states, including Maryland, expanded ambient air quality monitoring programs. Under these programs, monitoring stations were installed throughout the state in order to sample criteria pollutants. The next set of significant legislation was the 1990 CAA Amendments. These amendments have broad coverage for bringing into compliance various industries and other pollution-generating sources through a rigorous permitting process. Major topics relevant to this report are addressed in Titles 1, 111 and V. Non-attainment, described as the failure to meet the NAAQS for criteria pollutants, is addressed in Title I of the CAA. Hazardous air pollutant (HAP) emissions are addressed in Title III, and operating permit requirements for pollution-generating sources are addressed in Title V of the CAA

Regulations pertaining to the quantitative measurement of odor parameters have not been established by Federal, state or local mandates. Since odor is evaluated subjectively, there are no laboratory or other analytical tools which can measure against a 'standard' for the quantity of odor. However, both the state and county codes regulate odor qualitatively. The County Code states in general terms that the DEP Director may issue such orders as may be necessary for the protection of public health, safety, comfort, convenience and well being of citizens. The Code Of Maryland Regulations (COMAR 26.11.06.09) states more specifically that a person may not cause or permit the discharge into the atmosphere of gases, vapors or odors beyond the property line in such a manner that a nuisance or air pollution is created.

12.3.0 EXISTING CONDITIONS AND ENVIRONMENTAL MONITORING

12.3.1 AIR OUALITY/HEALTH-RISKS

RESOURCE RECOVERY FACILITY

Air Permits

In April 1988, Montgomery County submitted an application to the Maryland Department of Environment (MDE) seeking Prevention of Significant Deterioration (PSD) approval for a municipal solid waste (MSW) resource recovery facility (RRF). The purpose of this application was to obtain MDE's approval to site a 2,250 tons per day (TPD) facility adjacent to the Mirant power plant near Dickerson, Maryland. Air quality modeling analysis, done for the PSD application, projected "significant" ground level concentrations (GLCs) for both sulfur dioxide and nitrogen dioxide emissions released from the stack of the RRF requiring evaluation of best

available control technology (BACT) for these two pollutants. MDE reviewed the technical information for BACT submitted by the County and determined that with the application of BACT, the facility will comply with all PSD and NAAQS requirements. In February 1992, MDE issued the PSD approval. Subsequently, the County applied for an air permit to construct an 1,800 TPD facility at the Dickerson site. In February 1993, MDE issued the air permit to construct. (*Appendix 12-A*).

The air permit to construct the Resource Recovery Facility issued by the MDE, requires Best Available Control Technologies (BACT) to minimize toxic air pollutant emissions from the RRF stack. Each of these technologies have been proven effective in controlling stack emissions at currently operating facilities.

The technologies are:

- Selective Non-Catalytic Reduction (SNCR) - controls nitrogen oxide emissions.
- Direct lime injection in to the boiler, and dry acid gas scrubber system - controls sulfur dioxide, hydrogen chloride, hydrogen fluoride, and sulfuric acid mist.
- Fabric filter baghouse - controls particulate matter.
- Activated carbon injection system - controls mercury emissions
- Auxiliary burners for automatic combustion - controls carbon monoxide and furnace temperature.

It must be noted that the dry scrubber and fabric filter baghouse system also controls organics and trace metals.

In the Federal Register of December 19, 1995, the EPA published Emission Guidelines for Municipal Waste Combustors. For some stack emissions, EPA's guidelines were more stringent

than the emission limits specified in MDE's air permit for the RRF. While the dry scrubber fabric filter baghouse system (DS/FF) controls trace metals which are in particulate form, the DS/FF system cannot effectively control mercury, which is largely in vapor form. Therefore, EPA specified that activated carbon injection technology was the best available technology to control mercury, and the County has installed that technology. This remains the case today.

Prior to the issuance of an operation permit, MDE required the facility operator, Covanta, to conduct stack tests for certain pollutants and combustion parameters in order to demonstrate that the facility complies with the air permit to construct requirements (Permit No. 15-1707-2-0132N). In addition, during the operational period of the facility, additional stack tests are required for the same parameters. These tests must be conducted in accordance with the State of Maryland, Department of the Environment, Air and Radiation Management guidelines. Compliance tests conducted in August 1995 demonstrated that the state-of-the art Air Pollution Control (APC) equipment installed on the RRF was capable of meeting the guidelines promulgated by the EPA. Therefore, the RRF did not need any retrofit of new APC equipment. However, in the case of mercury, it was found that adjustment of the carbon injection rate might be needed to meet EPA's proposed mercury (Hg) emission levels which were more stringent than the emission limits specified in the RRF's air permit issued by MDE. In November 1995, the RRF received an operation permit (Permit No. 15-01718), which allowed the facility to operate until October 31, 2000. On November 30, 2001 the RRF received a Title V Permit (Permit No. 24-031001718) to operate until October 31, 2006. On September 1, 2007, the RRF received a Title V Permit (Permit No. 24-031-01718) to operate until October 31, 2011. Under that Title V Permit the stack testing frequency requirement remained annual. Under MDE rules, the filing of a complete application

for renewal allows the permit holder to continue operation under the terms of the last permit until such time as a the State acts on the permit application for renewal, as is the case at the time of this writing.

As noted previously, Dickerson is located in a region that the USEPA has designated "non-attainment" with respect to the NAAQS for ozone. NOx (oxides of nitrogen, are precursor to the subsequent down-wind formation in the lower atmosphere of ozone as well as fine particulate. In 2009, in keeping with the County's progressive environmental commitment to its citizens, Montgomery County installed a patent pending system (LN^{TM}), to reduce RRF annual NOx emissions by about 50 percent. In terms of NOx reduction, this was equivalent to removing about 70,000 cars from the road and was the first use of this technology on a publicly-owned waste-to-energy facility. Specifically, the County contracted Covanta (through the Northeast Maryland Waste Disposal Authority) to install and operate the LN^{TM} system so that each boiler will not exceed 90 ppm NOx on a flow rate weighted calendar year average basis. At the same time, the County modified the SNCR system by switching from anhydrous ammonia reagent to aqueous ammonia reagent. This eliminated the storage and use of a hazardous material at the RRF site, and the modification was designed to work with LN^{TM}. These modifications not affect the Air Operating Permit limitation which remained 180 ppm NOx (measured as NO_2) on a 24-hour basis. As can be seen from Table 12-1, the LN^{TM} system is working.

In accordance with the Operating Permit, Covanta was required to conduct quarterly stack tests for each of the three combustion trains during the first year of operation to demonstrate that the facility can operate within the prescribed conditions in the permit, and subsequently annual stack testing was required. Covanta has conducted all stack test. All

contractors and subcontractors were previously screened by the County for their compliance record through the Investigations and Oversight Branch of the U.S. Environmental Protection Agency (USEPA). Results from all stack testing conducted to date are presented in *Table 12-1*. The emission limits required by the MDE permits are also listed in *Table 12-1*.

Table 12-1

[Replacement Table 12-1 is in preparation.]

In addition, the emission limits promulgated by the USEPA, whenever they are more stringent than MDE emission limits, are noted in *Table 12-1*. A comparison of the monitored emission levels with the required emission limits indicates that the facility emissions are far below the limits required by MDE and the USEPA.

In addition to annual stack tests, the facility operator is required to maintain a continuous emissions monitoring system (CEMS) for measuring stack emissions and certain combustion parameters for which USEPA-approved CEMS technology exists. The CEMS equipment was installed in the facility and has been functioning well. The CEMS equipment monitors the following parameters: Sulfur dioxide (SO_2), Carbon monoxide (CO), Oxygen (O_2), Nitrogen dioxide (NO_2), Carbon dioxide (CO_2), Hydrogen chloride (HCl), Opacity and furnace roof temperature.

Montgomery County Government and the Maryland Department of the Environment has direct access to the data generated by the continuous monitoring of stack emissions through a computer link. For easy public access, the County maintains CEMS data in real time (hourly updated) on its website, and the website includes a query tool to enable web users to retrieve archived CEMS data for at least the past 12 months at any time.

In addition to CEMS stack monitoring , the County maintains a weather station at the Dickerson site collecting meteorological data (e.g. wind direction and speed), which can be used in determining the impact area of the plume. In the Dickerson area, the winds are predominantly from northwest to southeast in fall and winter, and from southeast to northwest in spring and summer. On an annual average basis, the winds are predominantly from northwest to southeast. As is the case with the CEMS, data generated by the Dickerson weather station is maintained on the County's website for easy public assess in real time (e.g. updated every 15 minutes) at: http://66.167.38.205/SiteDKweatherRpt/. Like the CEMS, web users are able to query a back-log of archived data.

Cumulative Air Quality Impacts

As required by the Prevention of Significant Deterioration (PSD) Air Permit, the County obtained emissions inventory within 50 kilometers of the site and conducted a screening analysis for air quality impacts. In the final analysis, seven facilities were modeled using ISCST (Industrial Source Complex Short Term) model and RTDM (Rough Terrain Dispersion Model). The resulting air quality impacts were far below the National Ambient Air Quality Standards (Reference: Request for PSD Approval for a Resource Recovery Facility in Montgomery County, Maryland, Prepared by Roy F. Weston, Inc., April 1988).

Cumulative Health-risk Studies

In an effort to study the potential impact of the RRF on public health and the environment, the Department of Environmental Protection (DEP), Division of Solid Waste Management

(DSWM), commissioned a health-risk assessment study by the Roy F. Weston Company. This assessment identified two categories of pollutants that were known to be emitted from combustion of municipal waste in a RRF and were considered to be of concern from a public health perspective. These two categories are organics and trace metals. The organics considered for health-risk evaluation were: dioxins/furans, PAHs, PCBs and formaldehyde. The metals considered for health-risk evaluation were: arsenic, beryllium, cadmium, chromium, nickel, lead and mercury. Emissions data used in that analysis were based on stack measurements made from 43 municipal solid waste combustion facilities that were operating in the United States, Canada and Europe. Weston used EPA's and WESTON's air quality dispersion/deposition models to determine the dry areas/zones resulting from the RRF stack emissions (Reference: Health Risk Assessment for a Resource Recovery Facility in Montgomery County, Maryland, September 1989).

Dry Deposition.

In fair (dry) weather, the plume from the stack can travel several miles from the facility, and during the transport, the pollutant concentrations will decrease rapidly due to dispersion and dilution. Therefore very low levels will deposit on the ground. The location will depend on the atmospheric conditions including wind and stability. This process is called dry deposition. California Air Resources Board (GARB) developed a computer model that provides hourly dry deposition velocities based on meteorological and turbulence characteristics of the atmosphere, particle properties (size, density etc.), and characteristics of the surface on which the particles are deposited (roughness length). The County's contractor, Roy F. Weston incorporated that algorithm in to EPA's UNAMAP ISCST air quality dispersion model. Particle size distribution was obtained

from stack sampling data from MSW facilities that were similar to the County's facility. Weston's modified version of ISCST computed at each receptor, hourly ground level concentrations and deposition velocities, and then obtained hourly deposition fluxes using the concentrations and deposition velocities, and then provided the annual average deposition fluxes. On an annual average basis, the maximum dry deposition zone was projected to be southeast of the RRF near Beallsville, Maryland. The isopleths were drawn based on the data on annual average deposition fluxes at several hundred receptors. From that study, isopleths in *Figure 12-1* are labeled in units of grams per square meter per year for an emission rate of one hundred grams per second of any pollutant released from the stack of the RRF. Because emission rate of each pollutant (e.g. metals such as arsenic and cadmium, and organics such as dioxins/furans) is different, the actual magnitude of the deposition of a particular pollutant was obtained by multiplying the nominal magnitude of the isopleth with the actual emission rate of the pollutant. This information is provided in the reference cited above. Therefore, the usefulness of the isopleths in *Figure 12-1* was to identify the expected locations of maximum annual average deposition and the decrease of the facility's impacts with distance and direction.

Wet Deposition.

In wet weather (rain or snow), the plume from the stack is washed by the rain/snow and the pollutants deposit much closer to the stack. Because the distance traveled by a plume under wet weather conditions is much less than the distance traveled during dry weather conditions, the

pollutant levels under wet weather conditions are generally higher than under dry weather conditions. This process is called wet deposition. Wet deposition studies were also conducted using EPA's computer models. Wet deposition involves removal of particles (washout/scavenging) by precipitation. In 1986, EPA developed a computer algorithm for wet deposition. This algorithm includes particle size and rainfall intensity dependent scavenging coefficients to compute wet deposition. Weston integrated this algorithm in to the ISCST model. The maximum wet deposition zone was projected to be within one mile, generally to the South of the RRF (Figure 12-2). The isopleths in Figure 12-2 are also based on an emission rate of 100 grams per second, and are drawn in a similar fashion as the dry deposition isopleths.

For carcinogenic substances, it was assumed that there were no thresholds (safe levels) below which toxic effects are not produced in an individual. However, laboratory experiments on animals and epidemiological studies done so far have demonstrated that carcinogenic effects occur only at high doses. These results were extrapolated to very low doses with the assumption that some risk of cancer remains at these very low doses. There remain some dispute among scientists as to the validity of the extrapolation from high to low doses. Nevertheless, health risks from long-term exposure to low levels of carcinogens were estimated with the above assumption. Both the County and the Maryland Department of Natural Resources (DNR) conducted health-risk studies for the stack emissions from the Resource Recovery Facility (RRF). These studies took in to account breathing of ambient air as well as consuming food and water at the combined maximum impact areas of the RRF. The results of those studies indicated that, for the maximally exposed individual, the increased risk of getting a cancer from exposure to carcinogenic substances emitted from the RRF, over a 70-year period was one to three in a million. Based on those results, Weston

concluded that the health-risks resulting from the stack emissions of the RRF were below levels that were needed to meet regulatory requirements.

The Maryland Department of Natural Resources (DNR) independently conducted a cumulative health-risk study. This study also concluded that the health-risks resulting from the stack emissions of the RRF were below the levels established by regulatory agencies. In addition, the DNR study concluded that the health-risks resulting from the stack emissions of the three facilities located in Dickerson, Mirant's coal-fired power plant, Mirant's natural gas-fired combustion turbines and the County's RRF, were below the levels that are needed to meet regulatory requirements (Reference: Overview of the Risk Assessment Study of the Dickerson site in Montgomery County, Maryland, Maryland Department of Natural Resources, Power Plant and Environmental Review, August, 1989). Health-risk assessment experts considered that the conclusions of the two studies with regard to the RRF were similar.

As a result of public concern about mercury levels in the environment, the Maryland Department of Natural Resources (DNR) conducted a special study to determine the contribution of coal-fired power plants to mercury in the ambient environment in Maryland. The study entitled "Power Plant Contributions to Environmental Mercury" was published in October 1994. In the DNR study, mercury levels in ponds, reservoirs and Chesapeake Bay were determined. As part of that study, DNR selected several ponds within 10 miles of the Mirant (now GenOn) Power Plant near Dickerson, Maryland and sampled fish tissue for mercury. As part of the RRF environmental monitoring program, Montgomery County sampled fish tissue in five ponds that are near the Dickerson site. There were two ponds that were common to both noted DNR and Montgomery County studies. The data from these two ponds are presented in Table 12-2. The results indicated

that mercury levels in fish sampled in these two ponds were well below the Federal Food and Drug Administration (FDA) standards for fish consumption. Maryland state standards were identical to the FDA standards.

Table 12-2

[no change]

As noted, the above-mentioned health risk assessment (HRA) for the RRF (Weston, 1989), was conducted prior to the construction of the RRF. It therefore had use emission parameters from other waste-to-energy facilities. In 2003, in order to fulfill its commitment to address community concerns, the County updated its HRA for the RRF following USEPA guidelines using measured pollutant emission rates specific to the constructed Montgomery County RRF as well as meterological data available from the Dickerson weather station. The results of that update indicated that the relative risk of harm to human health presented by the RRF, were lower than or consistent with those predicted in the 1989 Weston study. The results indicted a less than 1 chance in a million increased lifetime risk in the occurrence of a carcinogenic effect, and no adverse noncarcinogenic health effects, from RRF-related emissions for the maximally exposed individual.

The updated report, published after an extensive public comment period, is entitled "Final Report: Update of Health Risk Study for the Montgomery County Solid Waste Resource Recovery Facility, ENSR Corporation, September 2006" and is maintained available for download on the County's website at:

http://www6.montgomerycountymd.gov/swstmpl.asp?url=/content/dep/solidwaste/facilities/rrf_studies.asp

In its review, of the study, the DAFIG recommended that the County periodically update its Health Risk Assessment (HRA) for the RRF every ten years, or sooner if EPA issued substantially different air dispersion modeling and/or health risk assessment protocols. Indeed, the USEPA has promulgated a new air dispersion computer modeling system (AERMOD) fully replacing the previously promulgated ISCST/ISC3 models which were used for the original 1989 HRA and for the 2003 update. The USEPA has since also substantially revised its HRA protocols (e.g. uptake pathway parameters) since that 2003 update. At the time of this writing, the County is procuring an updated study to incorporate current air dispersion modeling guidelines and HRA protocols.

Environmental Monitoring Program

In 1989, the County made a commitment to conduct an environmental monitoring program with two study phases—"pre-operational phase" and an "operational phase". The purpose of the pre-operational monitoring program was to collect baseline data (pre-RRF operation) in both air and non-air media on certain target chemicals that had been identified in the health-risk studies as important from a public health perspective. Although this monitoring program was not required under the state regulations, DEP designed and implemented the program to fulfill its commitment to the citizens living in the Dickerson region.

The pre-operational field sampling program began in February 1994 and was concluded in February 1995. The RRF began operating in May, 1995. The operational sampling program was conducted form February 1996 through February 1997, and was similar to the pre-operational monitoring program.

Sampling sites were selected near the maximum dry and wet deposition areas as predicted by dispersion/deposition models (Weston, 1989). Additional sites were selected at nearby population centers to address the concerns of citizens living in those areas. These sites are shown in *Figure 12-3*. For the air media, two primary sites and four secondary sites are selected. One primary site, identified as the maximum impact site, was selected near Beallsville at the location of maximum dry-deposition. A second site, identified as the background site, was selected approximately 20 miles east of the facility where the impact of the facility is insignificant. Both sites are located on the property owned by Montgomery County Volunteer Fire Departments. At the two primary sites, organics, respirable particulates (PM-10) and metals were monitored. In the pre-construction and first opertional period monitoring studies, organics monitoring included: dioxins/furans, PAHs, PCBs and formaldehyde. In subsequent operational phase monitoring, based on those results, organics monitoring was limited to dioxins/furans. The primary metals of potential concern were: arsenic, beryllium, cadmium, chromium, nickel, lead and mercury, and those metals were monitored in the pre-operational and all operational phase monitoring studies.

Of the four secondary sites, one sampler was permanently located at Lucketts, in Loudoun County and a second sampler was rotated among the other three sites located at Poolesville Middle/senior high school, Monocacy elementary school in Barnesville and composting facility. At these secondary sites, monitoring was limited to dioxins. The stationary site, Lucketts elementary school, was selected because it was upwind of the facility based on the annual average predominant wind direction. At that site, a dioxin/furan monitoring station was installed on the roof of Lucketts Elementary School. At the other three sites, sampling was conducted periodically. One of these three sites was within 500 feet of the RRF. A second site was located on the roof of

the Poolesville Middle/Senior High School and a third site was located on the roof of the Monocacy Elementary School in Barnesville. The latter two sites were within four miles of the RRF.

The non-air media sampling sites for the First Operational Phase Monitoring were selected for the following media: soil, earthworms, garden vegetables, fish, sediment, water, hay and cow's milk. Five sites were selected for soil and earthworm sampling. Of the five sites, two sites are located near the maximum wet deposition area, one site is located near the maximum dry deposition area, one site is located on the Dairy farm about a mile from the maximum dry deposition area, and one site is located at the background air monitoring station in Burtonsville, Maryland. Earth worms were sampled at all of these sites except the dairy farm.

Three sites were selected for sampling garden vegetables. Of the three sites, one site was located near the maximum wet deposition area, a second site wss located near the maximum dry deposition area and the third site was located at the background air monitoring station. These sites corresponded to soil sampling sites. At those sites, carrots, lettuce and tomatoes are sampled. Five farm ponds that were within the dry and wet deposition area of the RRF were selected for sampling fish, sediment and water.

A farm located about a mile from the maximum dry deposition area, where dairy operations were taking place, was selected for sampling hay and cow's milk. This farm was within three miles of the RRF site. Monitoring at that farm occurred before the RRF began operations and was planned to continue during operational phase monitoring after the RRF became operational. Milk samples were taken at that farm from the milk tank collecting milk from approximately 100 cows. At the time, tit was reported that less than a 10% turnover of cows occurred during a year of testing. In addition, hay samples were taken from baled hay harvested on the farm that is fed to those cows.

(In subsequent monitoring years, the original dairy operation ceased but another nearby dairy farm was substituted.)

The results obtained in the 12-month baseline environmental monitoring program indicated that the target chemicals for which regulatory standards or guidelines existed, were all within such standards/guidelines. The dioxin/furan levels in the environment were consistent with other environmental data collected in the United States. Those results were communicated to the public in quarterly public briefings fulfilling the Public Participation Plan mandated by MDE's air permit to construct the RRF.

In 1992, the County developed a "Dickerson Masterplan Implementation Schedule Ongoing/Upcoming Items Ten Year Expenditure" schedule indicating study items, pending appropriation authority, through County Fiscal Year 2010. For ambient air and non-air environmental media monitoring efforts that schedule indicated varying periodicity—air monitoring was scheduled at five-year intervals and non-air media monitoring at three-year intervals.

Subsequent operational phase ambient air monitoring was conducted during the winter of 2002 and spring of 2003, and during the winter of 2008, and subsequent operational phase non-air media monitoring was conducted was conducted in 2001, 2004, and 2007. Each monitoring report incorporated and built upon the results of the preceding monitoring. The most recently completed non-air environmental media monitoring reports is entitled "Final Report: Fourth Operational Phase (June 2007) Non-Air Media Monitoring for the Montgomery County Solid Waste Resource Recovery Facility Near Dickerson, Maryland, ENSR Corporation, June 2009". The most recently completed air monitoring report is entitled, "Final Report: Report on the Third Operational Phase

Air Media Sampling Program – Winter 2008, AECOM, Inc., March, 2010". Following extensive comment periods, these reports were approved by the DAFIG including recommendations for future monitoring. The full reports of those most recently completed air and non-air monitoring studies are maintained available for download from the County's' website at: http://www6.montgomerycountymd.gov/swstmpl.asp?url=/content/dep/solidwaste/facilities/rrf_studies.asp.

Tables 12-3 and 12-4 present the Executive Summaries of those most recently-competed air and non-air media monitoring studies._ DAFIG recommendations included conforming the periodicity of future air and non-air media monitoring to occur in the same year and with five-year periodicity. With DAFIG concurrence, budgetary constraints interrupted subsequent monitoring, however, at the time of this writing, the County is in the process of procuring next operational phase monitoring for both air and non-air environmental media, following the recommendations of the DAFIG.

Table 12-3

Conclusions and Recommendations of the 2008 Ambient Air Monitoring Study

Chemicals	Observations/Conclusions	Recommendations
Polychlorinated Dioxins and Furans (PCDDs/PCDFs)	All congeners were detected with 30 day sampling. Assuming non-detects present at detection limits, third operational phase (2008) and second operational phase (2002-03) TEQs appear to be much lower than the first operational (1996-97) and preoperational (1994) phases. The latter is primarily due to the improvement of detection limits for the second and third operational phases compared to previous phases. The second and third operational phase data, which have improved detection limits, indicate ambient levels are not increasing, and possibly decreasing. Assuming non-detects are zero, TEQ data are relatively comparable for all phases with the exception of the first operational phase data which appear to be the lowest measured data for both the Beallsville and Lucketts sites. The highest TEQ data for Beallsville were measured during the second operational winter phase and the highest data for Lucketts were measured during the second operational spring phase. However, TEQs measured during the third operational winter phase for both Beallsville and Lucketts are lower than these highest values. It is difficult to draw conclusions from comparison of the second and third operational data to the first operational and pre-operational data where many congeners were not detected, but there does not appear to be any trend, increasing or decreasing.	Continue periodic monitoring during one out of every five years and collect 30-day samples to develop database with improved detection limits.
Metals	Comparison of historical data show general variability with no discernable trends. Arsenic and Chromium concentrations measured at both Lucketts and Beallsville exceeded the EPA "RSL screening levels" (levels developed by U.S. EPA to conservatively screen for potential air contaminant exposure at Superfund sites) but are not unusual for other rural areas in the US. Also, lesser concentrations were observed downwind of the RRF at Beallsville than upwind at Lucketts, and overall observed ambient air concentrations are not inconsistent with the modeled ambient air concentrations attributable to the RRF contained in the County's Health Risk Assessment for the RRF.	Continue periodic monitoring during one out of every five years to establish database and independently confirm APC performance and conservative air dispersion modeling.

Table 12-4

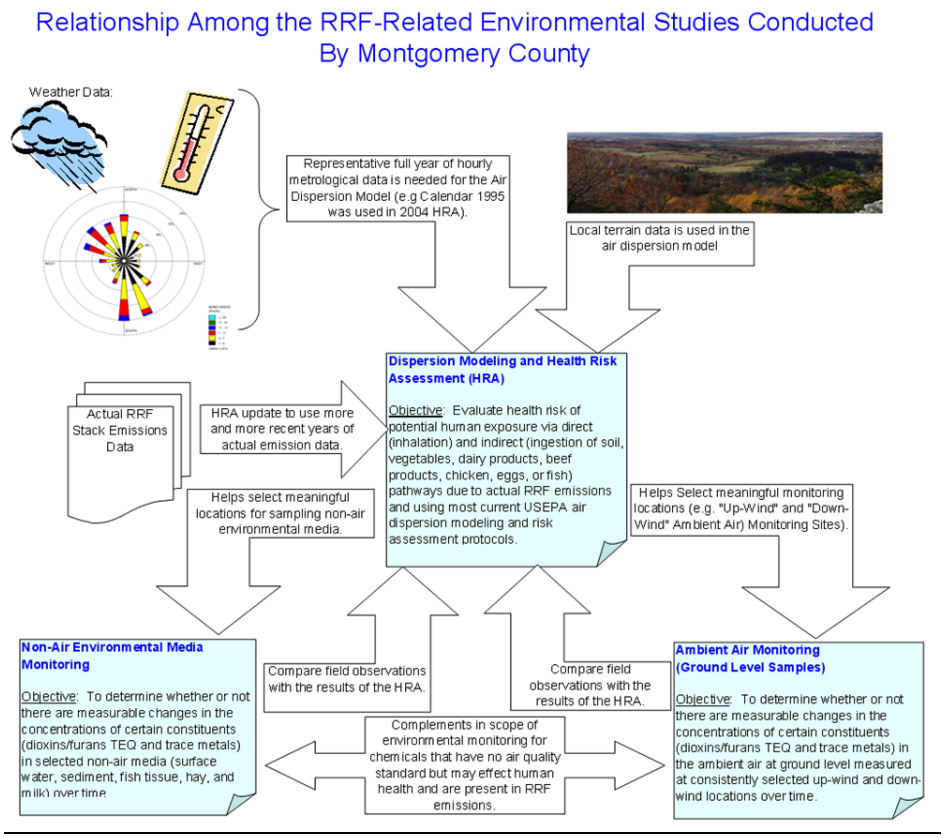
Conclusions and Recommendations of the 2007

Non-Air Environmental Monitoring Study

Chemical	Observations/Conclusions	Recommendations
Polychlorinated dioxins and furans (PCDDs/PCDFs)	No significant change in patterns or concentrations from previous sampling events. Lower detection limits were achieved in 2007, and this is reflected in the higher TEQs in several media when TEQs are calculated assuming zero values for non-detected congeners. When detection limits are included, TEQs are generally consistent with or lower than prior years. Milk is an example of this. TEQs for hay at Arthur Johnson Farm indicate a slight increase over 2004 regardless of treatment of non-detects. However, given only two sample years (2004 and 2007), there is not sufficient evidence for trend evaluation. The pattern of congeners in milk and hay do not reflect the pattern expected to accumulate based on bioconcentration potential of each congener and the emissions from the RRF. Therefore, no evidence to suggest the increase is attributable to RRF emissions.	Continue to monitor at time intervals concurrent with air monitoring (5 years, beginning 2012). Continue to target identical fish species as sampled in 2001, 2004 and 2007. Continue to sample at Pond 2, Pond 3 and Pond 5. Continue to sample sediment to provide adequate data for trend analysis. Continue to sample milk and hay at Arthur Johnson Farm and hay at Pond 3 Farm and the background farm.
Metals: Arsenic, Beryllium, Cadmium, Chromium, Nickel, Lead,	No significant change in patterns or concentrations from previous sampling events. The sediment concentrations of mercury in 2007 were either comparable to, or lower than, historic concentrations observed in previous monitoring programs. While slight increases were observed in chromium, nickel and lead, it must be noted that, mercury is emitted from the RRF in far greater amounts (over 7 times more) than chromium, nickel and lead. Also, 2007 mercury concentrations in sediment are comparable to, or lower than, historical data. Therefore, there is no evidence to suggest that the RRF emissions have contributed to the observed increase in chromium, nickel or lead concentrations. Continued sampling of pond sediment for metals in future programs will provide additional data for trend analysis. None of the other metals in any medium appear to differ significantly from previous sampling events.	Continue to monitor at time intervals concurrent with air monitoring (5 years, beginning 2012). Continue to target identical fish species as sampled in 2001, 2004 and 2007. Continue to sample at Pond 2, Pond 3 and Pond 5. Continue to sample sediment to provide adequate data for trend analysis. Continue to sample milk and hay at Arthur Johnson Farm and hay at Pond 3 Farm and the background farm.
Mercury*	Mercury concentrations in fish continue to be consistent with previous sampling events and have not changed significantly since the RRF became operational. Fluctuations in measured concentrations (Table ES-1) are slight and likely due to natural variations among individual fish.	Continue to monitor at time intervals concurrent with air monitoring (5 years, beginning 2012). Continue to target identical fish species as sampled in 2001, 2004 and 2007. Continue to sample at Pond 2, Pond 3 and Pond 5.
* Mercury is listed separately since it has been of particular concern to the residents living in the area.		

Figure 12-4 Illustrates the relationship among the RRF-Related Environmental Studies Conducted by the County which, in addition to the recommendations in those most recent reports, acts as guide for those upcoming studies.

Figure 12-4



[The above figure is to be appear in landscape orientation on the page.]

Site 2 Landfill

The Department of Environmental Protection (DEP) examined ash toxicity data from several resource recovery facilities that are currently operating in the United States. The results indicated that the ash generated by facilities that are similar to the County's facility passed the toxicity test.

After the facility started commercial operations, the first quarterly ash residue characterization program was conducted for the County's RRF from December 11 through December 19, 1995. This program was designed in accordance with USEPA's draft guideline document entitled "Sampling and Analysis of Municipal Refuse Incinerator Ash", "Guidance for

Sampling and Analysis of Municipal Waste Combustion Ash for the Toxicity Characteristics", and other supporting documents. The sampling results and the regulatory thresholds indicated that all metals were far below the regulatory thresholds. All organics were below detection limits, which were in turn below the regulatory thresholds. Therefore, the ash was considered nonhazardous, and could be deposited in a sanitary landfill. Subsequent ash testing continued to support this determination. Table 12-5 presents the results of the latest Ash Characterization Test Report. The full report appears in Appendix 12-[].

Table 12-5

MONTGOMERY COUNTY RESOURCE RECOVERY FACILITY: OCTOBER, 2011
COMPARISON OF SW-846 STATISTICAL RESULTS
AND REGULATORY THRESHOLDS
FOR METAL ANALYTES

Analyte	90% Upper Confidence Interval per SW-846 (b)	Regulatory Threshold (a)
Metals		
Arsenic	0.250	5.0
Barium	0.35	100.0
Cadmium	0.225	1.0
Chromium	0.250	5.0
Lead	0.250	5.0
Mercury	0.00199	0.2
Selenium	0.050	1.0
Silver	0.250	5.0

(a) 40 CFR Part 261. All units are expressed as milligrams per liter (mg/L).

(b) 90% Upper Confidence Interval as a single-tailed distribution is equivalent to an 80% Upper Confidence Interval as a two-tailed distribution.

Source: Covanta Montgomery, CEG Report No. 3652, November 23, 2011

Currently, RRF ash is being beneficially used (for alternate daily cover and road building) inside the Old Dominion Landfill in Virginia. This is under a County multi-year contract with Republic Services, Inc. (the “Out-of-County Haul” Contract). Also under this, waste delivered to

the County which is not processible at the RRF is delivered to the Honeygo Run C&D recycling facility in Perry Hall, Maryland, and any waste that is processible at the RRF but exceeding RRF capacity (termed "by-pass" waste) must be disposed of in a sanitry landfill located in Brunswick County, Virginia. The County does not project any by-pass waste, however, well prior to the 2017 termination the current contract, the County plans to procure a replacement out-of-County haul contract for those services. If the Site 2 Landfill were built, RRF ash, non-processibles and/or RRF bypass could be deposited there.

Air emissions from a landfill operation primarily consist of emissions derived from the anaerobic decomposition of solid waste materials. Methane, a highly flammable and explosive gas and some volatile organic compounds (VOCS) are the byproducts of this reaction. If the Site 2 landfill were built, it would employ a system of active gas collection with destruction or use through actively managed flares, gas-to-energy or other beneficial direct use. This gas management system would be designed to efficiently combust the air emissions in the landfill gas so that there would be minimal effects on air quality.

In addition to landfill emissions, there would be exhaust emissions from vehicular and construction equipment activity. However, these emissions woiuld be very small compared to the emissions from road traffic in the area. Such emissions would not be expected to make any significant impact on the air quality of the region because the current ambient levels in the region are far below the ambient air quality standards. Fugitive dust would be controlled through wetting down (spraying water on) haul roads and construction areas as frequently as needed.

Regulated asbestos contaminated materials would be accepted for landfilling upon prior request. The materials would be handled in accordance with applicable regulation to assure that there will be minimal releases of fugitive dust.

Yard Trim Composting Facility

The Yard Trim Composting Facility remains in operation. Air emissions related to this operation mainly involve pollutants generated from the combustion of diesel fuel in the transportation vehicles and heavy equipment used on the site. Pollutants for which ambient air quality standards exist are: fine particulates (PM-10), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (S O_2) and lead (Pb). Using EPA's documents, the County estimated emissions from the vehicles used at the compost site and also examined ambient air quality data at existing monitoring stations. Results of the study outlined in Conceptual Design and Preliminary Assessment of the Proposed Expansion of the Dickerson Yard Waste Composting Facility, 1993, showed that the ambient air quality in the Dickerson Region will still be below the NAAQS, while the Yard Trim Composting Facility and the RRF continue to operate in the future.

Federal or state regulations do not specifically address air emissions from Yard Trim Composting Facility operations. Beyond the emissions produced from the use of vehicles at this site, there are no current regulatory guidelines for addressing emissions of other substances from the naturally occurring decomposition of material at this facility.

12.3.2 ODOR

Resource Recove1y Facility (RRF)

Solid waste is delivered to the RRF by rail cars in sealed intermodal containers. These containers are not be opened until they are inside the building and on the tipping floor of the RRF.

The control of odor, particularly from the tipping floor, is dependent upon the pressure differential between the outdoor air and the interior of the building. Because the combustion air is drawn from the refuse pit, the interior of the building is maintained at a negative pressure relative to the outdoors. Therefore, odorous organic compounds which may emanate from the waste in the pit do not permeate to the outside air but rather are entrained into the air that feeds the furnaces and are destroyed. Because of good combustion of the waste, any odor present in the gases is eliminated before the gases leave the facility's stack.

The County's office of Environmental Policy and Compliance checks for odor problems in response to citizen complaints. In addition, the MDE checks for odor problems during routine audits of waste-to-energy facilities. The auditor provides a subjective evaluation based on the odor detected during the site audit.

Yard Trim Composting Facility

Odor is always a major concern at any type of composting operation. However, well-informed neighbors, together with current best practices at the Montgomery County Yard Trim Composting Facility assure that operations at the facility do not result in significant odor problems. The Environmental Management System (EMS) under which the Compost Facility is now operated includes a detailed Standard Operating Procedure (SOP) for odor management.

Grass has the greatest potential for odor generation because of its high moisture and nitrogen content that leads to rapid putrefaction if there is lack of aeration. Noxious odors can emanate from localized pockets of material that are undergoing anaerobic decomposition. Good mixing acts to reverse this condition (though not immediately). Odor is not generated when there is adequate aeration with oxygen mixed into the composted materials. To assure this condition, the grass that is delivered to the Yard Trim Composting Facility is immediately mixed with bulking agents (leaves) and placed into windrows and agitated to increase aeration in the piles. The windrows are turned frequently to facilitate aerobic decomposition. Even with good practices, however, minor odors of a woody nature may be detected when turning the windrows during the early period of composting. These odors subside as the residence time of the piles increases. Attention to wind direction together with selection of site unloading area, with neighbors in mind, has also mitigated the occurrence of odor complaints. A shallow layer finished compost can be layered on to any odorous material received (a technique rarely needed). Lastly (a technique not yet needed) anti-odor sprays could be temporarily applied to localized odorous material while regaining effective recovery of aerobic conditions.

Site 2 Landfill

RRF ash does not contain sufficient organic materials generate any odors. Bypass waste (waste that would be processible at the RRF but which is delivered to the County is quantities exceeding RRF processing capacity) is inherently a type of waste that could generate odors. However, bypass waste is not planned or projected. Non-processible waste, being comprised of noncombustible construction and demolition (C&D), is not a type of waste that inherently

generates odors. All landfill leachate would be stored utilizing a closed tank system prior to treatment and disposal, or re-use in approved applications. Because the leachate is not generally exposed to the outside air, odor problems are not expected to be of concern from leachate handling either.

Therefore, odor problems would not be expected to be a problem at the Site 2 Landfill if it were ever used. As an added measure, the Site 2 design includes extensive buffer area.

12.4.0 POTENTIAL IMPACTS OF CONCERN

Despite the control measures described in earlier sections for minimizing air emissions and odors, there may be occasions when the control technology or management measures implemented for the County's facilities come to a temporary halt due to unanticipated causes, resulting in potential impacts to the environment and/or the public health. Under such circumstances, mitigative measures must be taken to minimize such impacts.

For example, at the RRF there may be a rupture in one or more of the bags contained in a fabric filter baghouse module. If this happens, the opacity would go up. The operator in the control room, who monitors all the Continuous Emissions Monitoring parameters including opacity, is able to see this problem. He should immediately take the baghouse module offline and connect a spare module. Similar actions must be taken in the case of failure of any other APC equipment in order to minimize air quality impacts. These actions may include taking the unit offline until the situation is corrected.

Another example is potential airborne emissions of ash during loading and unloading operations. Although the ash is quenched to keep it moist, there is a potential for airborne

emissions of ash on a hot, dry, windy day. When the plant operators see this problem, additional quenching operations are instituted to minimize emissions of airborne ash. Currently, a meteorological tower is operating at the Compost Facility adjacent to the RRF site. Wind, temperature and relative humidity can be obtained from this tower. Generally, if the wind speeds exceed 20 miles per hour (mph) and low relative humidity conditions exist, the operators should watch for visible emissions and plan additional quenching accordingly.

Covanta has prepared a manual entitled "Operations and Maintenance Plan" which contains policies, procedures and instructions for the safe operation and maintenance of the facility. Several topics are addressed in this manual including spill prevention control and countermeasure plan, fire and general emergency plan, environmental noncompliance shutdown plan, boiler emergency shutdown plan and DCS loss emergency shutdown plan. The facility manager is responsible for implementing these plans through his staff under emergency situations. In the case of an emergency, Covanta contacts the County's Fire and Rescue Services, which makes decisions on evacuation of personnel on the site or citizens living off the site.

At the Yard Trim Composting Facility, an example of environmental impact would be odor from the piles. If odor is perceived by the operating staff, control measures, such as increased aeration to the compost piles, must be taken to facilitate aerobic decomposition which minimizes odor.

At the Site 2 Landfill, odors could emanate from bypass waste, if disposed there. Mitigative measures include placing cover material promptly on the landfilled waste.

12.5.0 POLICY RECOMMENDATIONS

1. Best management practices, as described in Section 12.4, must be employed to minimize impacts to the community from air emissions and odor from the Dickerson facilities. These practices are to be reviewed periodically and updated in consultation with the Dickerson Area Facilities Advisory Group (DAFIG)s.
2. Establish a mechanism for the dissemination of the monitoring data to the public. The forums for such public dissemination could include public briefings and citizen advisory committee meetings such as the Dickerson

   Facilities Advisory Group and the Solid Waste Advisory Committee (SWAC).
3. Establish a Citizen Response Program with clearly defined points of contact for citizens to use to report concerns; program will monitor and respond to concerns voiced by the community.

12.6.0 IMPLEMENTATION STRATEGIES

1. Covanta, should continue its policy of regular County-attended visual inspection of the activities and conditions on the site, including management practices to minimize community impacts.

2. The County should update its Health Risk Assessment for the RRF every ten (10) years or sooner if the USEPA materially modifies its air dispersion modeling guidelines and/or its human health risk assessment protocols, and as a result of any HRA update, the County should make appropriate modifications to its Environmental Monitoring Program (for both ambient air and non-air monitoring).

3. Maintain web access to the CEMS data as described above.

4. Make available to the public through public libraries (in Rockville and Poolesville) materials relating to the solid waste facilities. These materials include the facility plan, technical reports, permits, monitoring protocols and monitoring data from stack tests, CEM equipment and the environmental monitoring program. The materials to be placed in these public libraries include:

   - Annual compilations of the CEMS data,
   - Annual Stack Testing and Relative Accuracy Testing reports,
   - Annual Emissions Certifications Reports to the State, and
   - Any Operating Permit Renewal.

In compliance with the County's waste reduction policy, any of these materials may be in the form of compact disc (CD) in lieu of paper reports.

5. Maintain the existence of the DFIG as chartered, and for the purposes set fourth, in County Council Resolution No. 13-1498, adopted 12/1/98.

CHAPTER 13: USE AND MAINTENANCE OF LAND BEFORE CONSTRUCTION OF SITE 2 LANDFILL

13.1.0 INTRODUCTION

Since this facilities plan was initiated in 1994, a new directive has been issued by the County Executive and the County Council. DPWT is to obtain proposals for the out of county disposal of ash, non-processibles, by-pass waste and regulated asbestos- contaminated material. The County entered into a contractual agreement to transport the ash and non-combustibles to a private landfill in Virginia until 2012. This contract may be renewed for an additional 5 years. After that, further outsourcing options may be pursued. Since a contract has been awarded, the County postponed development of the Site 2 Landfill. Since a contract for out-of-county waste disposal has been awarded, the landfill development at Dickerson will be postponed for at least another 10 years and perhaps indefinitely. Additionally, as of 2010, a contract has been signed for ash reuse as well as for reuse of construction and demolition debris with Honey Go Run in Baltimore County, Maryland.

This issue was raised during the period of public comment on the facilities plan in May 1996. Of concern to residents is what DPWT will do with the land that has now been acquired for

future development of the Site 2 Landfill. This section sets forth the agency's plans for the 650 acre landfill site.

13.2.0 MAINTAIN EXISTING LAND USES

The County will maintain all existing land uses for properties acquired for landfill development. At present, all agricultural lands are being leased to area farmers for cultivation. This practice will continue until the land is needed for landfill development, should it ever occur. The County also now controls 4 sites with structures: the former Draper Property at 19815 Martinsburg Road, the historic Chiswell Farm House on the former Huang Property at 20130 Wasche Road, the Jamison farm complex (formerly the Antonelli Farm/Camp Adventure) at 19800 Wasche Road, and the former Dunn Property at 19420 Wasche Road. Each of these sites will be maintained and leased for residential or agricultural uses as currently or most recently occupied. The intent of DPWT is to not alter land use on properties now under County ownership.

13.3.0 MAINTENANCE OF PROPERTIES

As described in other sections of this document, the County will prepare Real Estate Management Plan for each property owned by the County. These Real Estate Management Plans were prepared in 1997. An example of a completed plan is included in *Appendix 3-A*. Each plan first assesses each property, identifying structure conditions, existing land use, easements or other institutional and legal consideration, and defines any repairs or improvements which should be made. A recommendation is then made as to the actions to be taken on the property. A schedule

of ongoing maintenance activities to be performed to maintain the properties in good condition is also defined.

The intentions of DEP are to recommend that each property be retained and maintained in their existing use. Until landfill development occurs, no changes to property use will be recommended. However, opportunities to cost effectively improve existing structures will be considered, providing such improvements do not alter the character of the existing or most recent use.

13.4.0 LANDFILL RELATED ACTIVITIES TO BE PERFORMED

The County will acquire and maintain the permits for the Site 2 Landfill. Two activities which have been authorized by the County Council in the Comprehensive Solid Waste Management Plan to occur during the period an out-of-county disposal contract is in place are the installation of groundwater monitoring wells on the site, and the planting of trees along Wasche Road to screen the future view of the landfill, should it be developed. These two activities have already occurred, although no ground water monitoring is occurring.

CHAPTER 14: IDENTIFICATION OF LONG-TERM RECLAMATION AND POST-CLOSURE STRATEGIES

14.1.0 INTRODUCTION

It will be Montgomery County's responsibility to provide the initiative and commitment for the restoration, reclamation, or re-use of the land and built structures following the close of operations for any of the solid waste facilities. Restoration involves the return of the land to an ecologically stable condition through the repair of native habitats. Reclamation details the re-use of the land for other determined uses through the integration of the land use with the sustainable state of the natural landscape. Re-use is dependent upon finding an appropriate adaptive use of an existing structure or built environment. It is a long-term investment that should be considered carefully and folded into plans for future construction of solid waste facilities; including the construction of the landfill, to include the establishment of forest and wildlife habitats and the planting for screening and visual aesthetics. What is implemented today will be a part of tomorrow.

14.2.0 POST-CLOSURE OPPORTUNITIES

Pre-determination of uses that may be appropriate 50 years in the future is difficult to define with any certainty. With the knowledge that is possessed today, however, Montgomery County and the community members can begin to chart a course of action for alternative uses when any of the solid waste facilities have ceased activities.

It should be noted that with reclamation-type activities, a restoration of the historical landscape to the extent possible to maintain the visual aesthetic of the rural setting and sustain ecological balance of the natural systems must be considered. Recommendations made for the visual screening, reforestation, wetland and stream corridor enhancement, and wildlife habitat and movement in earlier chapters, are initial steps in creating sustainable land uses. During the solid waste facility operations, the control of runoff and sediment erosion, the replacement of topsoil and establishment of natural covers and vegetation will lend to the regeneration of the natural landscape for both the improvement of today's and tomorrow's landscape.

14.2.1 SITE 2 LANDFILL

The future reclamation of the closed landfill is an opportunity to provide for community open space. The solid waste facility's adjacency to the Dickerson Regional Conservation Park and the C & O Canal, readily lends to expansion of those recreational areas. A landfill's conversion to parkland is a solution being used at an increasing rate with the demand for park and recreational facilities in many jurisdictions. It is considered a highly popular, technically feasible land use. In keeping with the rural atmosphere of the area, the park could be designed for passive type activities

geared toward community use. Park uses could include equestrian activities, nature appreciation and educational activities, picnicking and open space activities. Trails for horseback riding, walking, bicycling and running are all popular parkland pastimes.

Elements of the landfill closure that will dictate design of the future landscape, include the capping of the landfill footprint and the ventilation of methane gas. Topography of final closure on landfill should reflect more natural contours as described in Chapter 6. Because of the impenetrable capping system, the landfill footprint will not support forest growth. As recommended in the Visual Landscape Master Plan (Chapter 6), the final vegetative cover needs to be determined. The future use of the landfill should be considered when making this determination. Structures, due to the possible shifting of the settling footprint, should not be placed in the footprint area. The amount of methane gas vented from the closed landfill should be minimal due to the small quantity of organic material that will be landfilled. The placement of any enclosed structures, however, should be carefully sited so they do not capture venting gas.

14.2.2 YARD TRIM COMPOSTING FACILITY

The composting facility is an operation that may effectively serve Montgomery County citizens for an indefinite period into the future. If there is reason to discontinue composting operations at a county-wide level, and the facility does become obsolete, it could be dismantled by removing the pavement and structures. Environmental monitoring, if necessary, should be continued and any remedial measures for cleaning the site undertaken.

Because it is immediately adjacent to an existing farmstead, the land once occupied by the facility coul**d** be returned for agricultural use which is consistent with the Master Plan for the area**.**

If this does not prove to be a viable option for whatever reason may exist in the future, it could also be considered as a site for afforestation. By planting this tract of land, an additional 100 acres of forest could be established adjacent to existing forest stands, thus increasing the mass of forested area. It would also provide a vegetative buffer that would strengthen visual screening and noise control mitigation from impacts from the RRF and NRG (Mirant), The Facility Site Agreement shall control this area and no buffers added that would pose a conflict.

14.2.3 RESOURCE RECOVERY FACILITY

The Resource Recovery Facility, like the Yard Trim Compost Facility, may serve the County citizens for an indefinite amount of time. Its closure could be predicated upon replacement technology or deterioration of its components and/or building that are not cost effective to repair or replace.

If it is found that the operation of the incinerator is no longer appropriate, but the large block structure that houses the operation is of salvageable condition, it should be considered for reuse when the internal workings of the incinerator are dismantled. Use of this structure should be determined through interaction with the community, in consultation with the standing Citizens Advisory Committee (described in Chapter 15). and should take into account compatibility with existing land use in the area.

14.3.0 POST-CLOSURE ACTIVITIES

The landfill has an anticipated life of 50 years. The technical aspects of closure of the landfill and the other facilities are directed by regulations, both local, state and Federal.

One of the most important aspects of post-closure, other than the specific engineering tasks, is the determination of future use of the solid waste facilities. Montgomery County and the citizens of the community must resolve these issues together and strive to put clear concept plans in place now that will aid in the transition from its existing use to the future use.

The re-use planning process is one that has taken place previously between the County and the Dickerson area residents when alternative uses for the former sludge composting facility were explored. The objectives of the process are to have the County and residents work in concert in evaluating re-use, reclamation or restoration alternatives. Like the previous process, a similar program of identification, evaluation and development of recommendations could be put into place.

Identification of concerns and goal setting by the community that are part of the planning process and will ensure representation by the community in determining the solid waste facility's future. Evaluations based on need, compatibility with the setting, economic factors and future impacts, can be explored in a manner that should result in acceptable alternatives.

14.4.0 POLICY RECOMMENDATIONS

Chapter 14 of the Master Plan is dedicated to the subject of "Long Term Reclamation and Post-Closure Strategies" (Chapter 14). The Policy Recommendation and Implementation Strategy stated there are as follows:

1. Following the adoption of the Dickerson Facilities Plan, begin the process of identifying and evaluating the solid waste facilities for future land uses following their closure.

14.5.0 IMPLEMENTATION STRATEGIES

1. "Charge a technical advisory group and a citizen's committee with the responsibility of identifying, evaluating and recommending future uses for the solid waste facilities. The Dickerson Facilities Plan should be employed as a planning tool when pursuing this process".

The County remains committed to that policy and that strategy and there are other provisions that pertain.

Landfill: Specifically with respect to the post-closure use of the site reserved for a potential landfill, Item (1)(c) of Section 6.5.0, Implementation Strategy, states as follows,

"Post-closure land use should be limited to agriculture, forest, landscaping, recreation of other community sanctioned uses."

Compost Facility: The disposition of the site occupied by the Composting Facility is also governed by the Court ordered "Stipulation Agreement of Settlement and Compromise between the County and the Sugarloaf Citizen's Association". In particular, Section C-3 of 1981 that agreement stipulates: "Montgomery County agrees that after removal of the composting facility, it will restrict the future use of the Mathews Farm to uses that are consistent with county and use plans and policies, including policies favoring the wedges and corridors concept and the protection and preservation of agricultural uses…."

RRF: Pertaining to the RRF, as noted by the County Attorney the "Facility Site Agreement" (excerpts attached) includes all of the County's Solid Waste Facilities in Dickerson that were purchased from PEPCO. This included the land that the RRF sits on as well as certain rail access. This Agreement was signed on October 5, 1989 and authorizes use of the site for any waste disposal activities that are authorized by the County. The Agreement gave PEPCO the right to repurchase the Facility Site if the County abandons such uses. Therefore, any reference to Master Plans prior to 1989 could be in contravention to this Agreement. The Master for Solid Waste Facilities in the Dickerson Area (Dickerson Master Plan) is an important document. As stated in Chapter 1, it serves as the plan of action for

implementing County policies and strategies to address community concerns and is the framework for a continuing working relationship with the citizens of the Dickerson community. Thus, County cannot agree to include new Policy Recommendations in the Dickerson Master Plan that would be in contravention of that agreement..

Figure 15-1

Relationship Among the RRF-Related Environmental Studies Conducted By Montgomery County