

# **APPENDIX 1**

**DISCHARGE PERMIT APPLICATION SUMMARY**

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### MARYLAND DEPARTMENT OF THE ENVIRONMENT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGE PERMIT APPLICATION SUMMARY

#### MARYLAND STATE HIGHWAY ADMINISTRATION

#### **PART I. STATEMENT OF AUTHORITY**

##### **A. United States Environmental Protection Agency**

Section 402 of the Clean Water Act (CWA) prohibits the discharge of any pollutant to waters of the United States from a point source, unless that discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Under the provisions of the NPDES regulations, stormwater discharges from municipal separate storm sewer systems are considered point sources that require an NPDES permit.

##### **B. State of Maryland**

The Maryland Department of the Environment (MDE) has been granted authority by the United States Environmental Protection Agency (EPA) to issue NPDES permits in accordance with statutory requirements promulgated by the CWA. The Environment Article, Title 9, Subtitle 3, Part IV, Annotated Code of Maryland requires a discharge permit for any activity that could cause or increase the discharge of pollutants into waters of the State. Additionally, Code of Maryland Regulations (COMAR) 26.08.04 requires MDE to administer the NPDES program as part of the State's own discharge permit system. These regulations also define municipal separate storm sewer systems as point sources of pollution subject to NPDES permit requirements.

##### **C. Permittee Responsibilities**

Section 402(p) of the CWA, as amended by the Water Quality Act of 1987, requires NPDES permits for stormwater discharges from large and medium municipal separate storm sewer systems. Additionally, any operators of municipal storm sewer systems within these jurisdictions require permits as well. The Maryland State Highway Administration (SHA) operates a system of highways, including associated drainage systems, within 9 Maryland jurisdictions defined as large or medium municipalities that have existing NPDES stormwater permits. As a result, SHA was required to submit a two-part NPDES permit application to satisfy the EPA's regulations for permitting stormwater discharges from municipal separate storm sewer systems. Appendix 1 summarizes the SHA's NPDES stormwater application.

NPDES regulations require permit conditions that effectively prohibit non-stormwater discharges and reduce the discharge of pollutants to the “maximum extent practicable.” Specific permit conditions are outlined in Permit # MS-SH-99-011. Appendix 2 outlines MDE's long-term monitoring database and Appendix 3 includes a spreadsheet for the reporting and tracking of NPDES data. Additionally, NPDES regulatory requirements can be found in Appendix 4.

## **PART II. BACKGROUND**

### **A. Problems Associated with Stormwater Pollutants**

Pollutants in stormwater discharges from many sources are largely uncontrolled. The *National Water Quality Inventory, 1994 Report* to Congress provides a general assessment of water quality based on biennial reports submitted by the States under Section 305(b) of the CWA. This report indicates that urban runoff is responsible for 6% of the nation's impaired wetlands, 12% of impaired rivers, 18% of impaired lakes and reservoirs, and 46% of impaired estuaries. During rain events that produce runoff, numerous pollutants including sediment, nutrients, bacteria, oil, metals, and pesticides are washed into storm sewer systems from diffuse sources such as construction sites, residential neighborhoods, commercial areas, parking lots, roads, highways, and industrial facilities. Additionally, illegal dumping, sanitary sewer system leaks, accidental spills, and illicit connections to storm sewer systems can be significant sources of pollutants. Some of the more serious effects to receiving waters are the contamination of drinking water supplies, restrictions on water contact recreation, loss of wildlife habitat, decreases in the number and diversity of aquatic organisms, and fish kills.

### **B. History of NPDES Stormwater Program**

Efforts to improve water quality under the NPDES program have traditionally focused on reducing pollutants in point source discharges from industrial facilities and municipal sewage treatment plants. In response to the need for controlling stormwater discharges, Congress amended the CWA in 1987 requiring the EPA to establish NPDES requirements for stormwater discharges. In November 1990, EPA issued final stormwater regulations for eleven categories of industry and certain municipal separate storm sewer systems. As part of the municipal stormwater program, jurisdictions in Maryland operating large and medium municipal separate storm sewer systems must submit a two-part application to MDE outlining programs for monitoring and controlling stormwater discharges. Additionally, any operators of municipal separate storm sewer systems within large and medium jurisdictions are required to submit applications for permit coverage as well. Required information includes Legal Authority, Source Identification, Discharge Characterization, Management Programs, Assessment of Controls, and Fiscal Resources.

### **C. Maryland's Perspective**

Maryland's efforts to reduce stormwater pollution have focused on protecting and restoring the water quality of Chesapeake Bay. The Maryland General Assembly passed the Erosion and

Sediment Control Law in 1970 to control runoff from construction sites and in 1982 passed the Stormwater Management Act which requires that appropriate best management practices (BMP) be used for new development in order to maintain, as nearly as possible, the pre-development runoff conditions. Additionally, the Chesapeake Bay Program, a cooperative effort among the major Bay states and the federal government, has elevated the importance of stormwater management programs in Maryland by establishing a 40% nutrient reduction goal to the Chesapeake Bay and by focusing cleanup efforts on the Bay's tributaries. Although Maryland's existing programs will aid the SHA in satisfying NPDES stormwater requirements, additional stormwater control measures will be needed for full compliance with the federal program.

### **PART III. APPLICATION SUMMARY**

#### **A. Jurisdiction Description**

##### **1. Physical Data**

The SHA maintains all State roads and U.S. interstates within Maryland excluding those associated with toll facilities or located in Baltimore City. The State system includes approximately 6,000 centerline miles, 16,064 lane miles, and more than 2,400 bridges. This network of highways spans numerous physiographic regions and services urban, suburban, and rural jurisdictions. Headquartered in Baltimore, SHA's Administrative offices set statewide policies, conduct major traffic studies, and provide technical assistance to seven engineering districts which handle most of the day-to-day responsibilities.

All of Maryland's 23 counties fall into one of SHA's seven engineering districts. However, only those districts servicing Maryland's urban jurisdictions with populations greater than 100,000 come under the purview of the NPDES municipal stormwater program. For example, districts 1, 2, and 6 encompass Maryland's Eastern Shore and the western part of the State where populations are considered rural. Conversely, districts 3, 4, 5, and 7 are centrally located in Maryland and cover more urbanized areas. These urban districts will play a vital role in SHA's NPDES stormwater permit because they are within jurisdictions having populations greater than 100,000 and are required to have NPDES municipal stormwater permits. These districts service transportation goals unique to each region and are described below.

District 3 is located in the south central part of Maryland and includes Montgomery and Prince George's counties which are permitted currently under the NPDES municipal program. The Montgomery portion of the district is primarily in the physiographic region known as the Piedmont Province, characterized by gently rolling to steep hills with shallow soils. The Prince George's County portion, located further east and south, is almost entirely in the Atlantic Coastal Plain, characterized by little topographic relief and deep soils. The highways in this district are the gateway to the nation's capitol. Many residents commute daily to Washington D.C. on I-95, the Capitol Beltway (I-495), and I-270. Both counties have extensive urban areas and attract much growth and development. Highway expansion and maintenance in this district present major challenges because of the heavily traveled arteries.

District 4 located in north central Maryland encompasses Baltimore and Harford counties, both

permitted localities. Additionally, both counties are split by the Fall Line, which runs southwest to northeast. There are slightly greater portions of each county located in the Piedmont Province than the Atlantic Coastal Plain. This district includes both urban and rural areas. Maintenance and construction of highways radiating from the Baltimore Beltway (I-695) to suburban and rural areas, including I-95, I-70, I-795, and I-83, is the district's main focus.

The Southern Maryland counties of Anne Arundel, Calvert, Charles and St. Mary's comprise District 5 and lie entirely within the Atlantic Coastal Plain. Urban development is more concentrated in the northern portion of this region with only Anne Arundel and Charles counties requiring NPDES municipal stormwater permits. Annapolis, the State's capitol, is located in Anne Arundel County and is connected to all areas of the State via major arteries such as MD 2, MD 3, U.S. 50, U.S. 301, MD 100, and I-97. Major arteries in Charles County include MD 5 which is Southern Maryland's express route to Washington, D.C. and U.S. 301 which is a major North/South corridor.

District 7 located in north central Maryland just west of District 4, encompasses Carroll, Frederick, and Howard counties. Individual NPDES municipal stormwater permits cover all three of these jurisdictions. The majority of the land area in this district is in the Piedmont Province with a portion of Frederick County in the Blue Ridge Province, characterized by ancient mountain formations with bedrock outcroppings. These counties are among the fastest growing in the State, with agricultural areas burgeoning into suburban enclaves. Many of these counties' residents are Baltimore and Washington, D.C. commuters who travel major highways such as I-95, I-70, I-270, U.S. 29, and MD 140.

## **2. SHA as a Municipal Separate Storm Sewer System**

Initially, there was some ambiguity regarding the SHA's participation in the NPDES stormwater program. While it was clear that activities like vehicle maintenance and salt storage dome required industrial permit coverage, the State-owned highway infrastructure presented numerous questions and complications related to the municipal separate storm sewer system process. Maryland's system of highways and appurtenant water conveyance systems do not easily correspond to EPA's definition of a "large" or "medium" storm drain system (e.g., populations over 250,000 constituting "large" municipalities and populations over 100,000 constituting "medium" municipalities). The only population associated with the SHA is the vehicular traffic using the State's road network. Additionally, many of the municipal permit application requirements such as forecasting population growth or decline; monitoring residential and commercial runoff; and mapping landfills and parks are not appropriate for the SHA to provide.

The compelling evidence that brings Maryland's SHA into the NPDES municipal stormwater program is in 40 CFR 122.26 (a)(3)(i) which states that "[p]ermits must be obtained for all discharges from large and medium municipal separate storm sewer systems..." SHA's network of roads and drainage systems are located within 10 Maryland municipalities that EPA defines as either a large or medium municipal storm sewer system. Moreover, 40 CFR 122.26 (b)(8) defines a municipal separate storm sewer system as "...a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains)...(o)wned or operated by a state, city, town, borough, county, parish, district, association, or other public body..." From this regulatory language comes the

supposition that any public highway department operating within large or medium municipalities and responsible for water conveyances must participate in the NPDES municipal stormwater program. This includes Maryland's SHA. Programmatically, because the SHA owns storm drain systems that are interconnected with those that are permitted currently, it makes sense that the SHA have an obligation to join Maryland's NPDES municipal stormwater efforts.

## **B. Programmatic Components**

Aside from the difficulty of determining participation is the challenge of choosing the appropriate NPDES permitting option for the SHA. Several permitting options were provided by EPA for entities such as the SHA who owned significant storm sewer systems within large or medium NPDES municipalities. 40 CFR 122.26 (a)(3)(iii) states that, "[t]he operator of a discharge from a municipal separate storm sewer system which is part of a large or medium municipal separate storm sewer system must either: (A) Participate in a permit application (to be a permittee or a co-permittee)...(B) Submit a distinct permit application which only covers discharges from the municipal separate storm sewers for which the operator is responsible; or (C) A regional authority may be responsible for submitting a permit application..." Beyond this broad guidance, little specific information was provided regarding how and when transportation agencies were to apply for NPDES permit coverage.

When Maryland's first NPDES municipal stormwater permits were issued, the tenets of issuing one regional permit verses individual permits were discussed. Maryland's NPDES jurisdictions opted for exclusive permits because they owned a majority of their storm sewers and wanted to maintain control. Hence, for responsive stormwater management programs, it made sense to issue NPDES permits at a jurisdictional level. Regional issues were handled through special conditions in each permit requiring cooperation among municipal operators. MDE decided to handle SHA in the same manner and issue them a distinct permit with special conditions for interjurisdictional cooperation.

To provide SHA with the necessary guidance, MDE reviewed the NPDES municipal stormwater application regulations and purged requirements which did not make sense for a transportation authority. While tasks such as providing population estimates and monitoring of residential land use are not appropriate, other tasks are, such as mapping storm sewer outfalls and their drainage areas. MDE compiled a list of all relevant tasks and negotiated a schedule with SHA for submittal (please refer to Appendix 5 for a complete task list). This task list was to act as an NPDES permit application. These materials are now sufficiently complete for MDE to write an NPDES municipal stormwater permit for Maryland's SHA. The following sections 1 through 6 provide a summary of SHA's application submitted in response to MDE's guidance (*provided in italics*) and correspond to EPA's major categories of legal authority, source identification, discharge characterization, management programs, program funding and assessment of controls.

### **1. Legal Authority**

*Task 1. The SHA shall provide a description, prepared by legal counsel, documenting the authority that SHA intends to rely on to control stormwater discharges in accordance with 40 CFR 122.26.*

The only legal manner in which a person may discharge or increase stormwater runoff into SHA's municipal storm sewer system is via access control permits issued in accordance with COMAR 11.04.05.06 C and D (commercial access) and 11.04.06.02.G (residential access). SHA assures that these permits limit stormwater volume and pollutants contributed from adjacent properties. If violated, SHA may suspend or terminate an access permit. For construction activity, SHA may issue stop work orders, which require contractors to cease and desist until violations are corrected. Discharges by persons other than permit holders or contractors (e.g., vehicles or pedestrians using the highway system) are prohibited by the Environment Article, Sections 4-410 through 4-413, Annotated Code of Maryland and the Maryland Transportation Code Section 21-1111(d) (dumping trash and oil into the storm sewer). Compliance with permit conditions are determined routinely through inspections by SHA employees or consultants. Additionally, SHA may sue for injunctive relief to assure compliance in accordance with the Maryland Transportation Code Section 8-625 (b).

### **Summary**

The SHA's Attorney General's Office, in consultation with MDE's Attorney General, provided the documentation above regarding various laws and codes controlling stormwater discharges from SHA's municipal storm sewer system. If in any instance these laws should prove insufficient for controlling stormwater discharges in accordance with 40 CFR §122.26(d)(2), additional authority shall be required.

## **2. Source Identification**

*Task 1. SHA shall provide, within Maryland's NPDES jurisdictions, a priority list of watersheds where data collection will progress.*

SHA generated a priority list, by NPDES jurisdiction, for data collection. Because of the intricacies of working with different geographic information system (GIS) formats and databases, SHA proposed that data should be collected on a county basis as opposed to watersheds. From a data gathering perspective, it is much easier to work with one entity, solve data compatibility issues, complete all data gathering, and move on to other jurisdictions. MDE supported this approach and recommended that SHA select contiguous jurisdictions with common watersheds as they progressed so that watershed data would become complete. SHA's data collection priority list by county is as follows: Howard, Montgomery, Prince George's, Anne Arundel, Baltimore, Harford, Charles, Carroll, and Frederick counties.

*Task 2. SHA shall provide, within a mutually agreed upon pilot watershed study area, the location of: all known storm drain outfalls and conveyance structures including pipes, pipe sizes, swales, inlets, etc...; drainage area of each identified outfall; all SHA interconnections with locally owned storm drain systems; all SHA properties including maintenance facilities, office complexes, salt storage domes, borrow and spoil areas, stockpile areas, etc.; and all stormwater management facilities.*

The SHA and MDE agreed upon Howard County as a pilot study area. Howard County was a logical choice because of GIS compatibility and availability of base maps from the County. Starting with base maps, SHA researched available records and overlaid pertinent stormwater

information including SHA rights-of way, storm sewer conveyances and outfalls, stormwater management facilities, drainage areas, and locations in which their system interconnects with Howard County's. SHA provided MDE with a hard copy example of this work. MDE has requested that future data submittals be provided in digital format for GIS logging and use.

*Task 3. SHA shall provide a schedule to expand data collection activities in other priority watersheds.*

Based upon its experience in Howard County, SHA anticipates that source identification mapping of their storm sewer system in each county will take approximately 18 months to complete. Working through the priority list of counties enumerated above, SHA anticipates completing data collection requirements on a schedule of one jurisdiction every 18 months.

*Task 4. SHA shall write a report regarding the compatibility of its GIS with those of local NPDES jurisdictions.*

SHA circulated a survey to all NPDES jurisdictions in Maryland to assess GIS use and compatibility with the SHA's system. Data were compiled in an SHA report entitled "*Priority List for Data Collection: County Questionnaire*" (June 30, 1994) and submitted to MDE. The report was ostensibly used by SHA to develop its priority list of counties for future data collection activities.

*Task 5. A description of procedures to collect all of the above described data for new SHA projects.*

SHA has written a "*Standard Procedures*" (June 30, 1994) manual for recording SHA municipal storm sewer system information in GIS format. SHA's goal is to compile a complete data set of all drainage system components necessary for hydrologic analyses, the preparation of pollutant load estimates, and the ability to model changes in management practices. SHA has not yet implemented these procedures for recording new road system data.

### **Summary**

SHA has used Howard County as a pilot study area to gather source identification information. Using this experience, SHA will expand its data collection efforts for all NPDES permitted municipal storm sewer systems in Maryland. SHA's NPDES permit will require the timely completion of source identification data, including a BMP inventory, necessary for assessing its storm sewer system and computing pollutant load estimates. Additionally, SHA's permit will require that its GIS be used to record data on all new road projects undertaken in the State.

### **3. Discharge Characterization**

*Task 1. SHA shall provide documentation of visual field screening of all major outfalls for illicit connections in the pilot study watershed.*

SHA recently completed field screening of all major outfalls in Howard County for illicit

connections. SHA is currently in the process of analyzing and generating a report for dry weather flow field screening in Howard County.

*Task 2. SHA shall provide MDE's database for dry weather flow screening documenting physical outfall characteristics.*

SHA has completed its field screening of all major outfalls in Howard County and databases have been submitted to MDE.

*Task 3. SHA shall provide a report describing the magnitude of dry weather flow in the pilot watershed.*

SHA has not completed its field screening activity, precluding it from generating a report on the magnitude of dry weather flows through their storm sewer system in Howard County.

*Task 4. SHA shall provide a description of existing water quality studies for highway runoff.*

On August 5, 1997, SHA provided MDE with a spreadsheet that contains highway runoff sampling data from a variety of sources including highway authorities in Delaware, Florida, Colorado, and the Nationwide Urban Runoff Program (NURP). Additionally, the United States Geological Survey (USGS) is conducting a nationwide study on highway runoff sampling for the Federal Highway Administration (FHWA). The SHA's spreadsheet and report will be finalized in several months when the research gathered by USGS is available and can be incorporated.

*Task 5. SHA shall provide storm flow monitoring, in accordance with 40 CFR 122.26, of two major outfalls draining primarily highway drainage.*

The SHA is in the process of monitoring two major storm sewer system outfalls. Site number one is an outfall from a stormwater management facility located on Pindell School Road at the interchange with MD 32. This site was field surveyed by MDE and subsequently approved. Although no data have been submitted to MDE, monitoring is currently underway. In addition to the application requirements, SHA has proposed to perform a BMP monitoring study at the Pindell School Road site during the term of its permit. Relevant BMP efficiency study topics envisioned for this site include monitoring pollutant removal rates, changes in pollutant removal rates over time, and pollutant rates after maintenance cycles.

The SHA selected a second site at the Dulaney Valley Road and 695 Baltimore Beltway interchange to conduct stormwater monitoring. The site was selected based on MDE's current permit monitoring protocols as summarized in "Maryland's National Pollutant Discharge Elimination System Municipal Stormwater Monitoring" (MDE, 1997). Initially, MDE required each NPDES municipality to provide chemical sampling and analysis to support Chesapeake Bay Programs. Data on nutrients, sediment, and metals are used for calibrating Bay models and for assessing the Program's goal of 40% nutrient reduction by 2000. However, local governments that were conducting the monitoring, found the data to be of little use in assessing stream health. They argued that biological and physical monitoring would be more useful. As a result, MDE

has pared extensive chemical monitoring requirements and added biological and physical monitoring in current permits. The selection of an outfall amenable to this comprehensive monitoring scheme is more rigorous than for chemical monitoring alone. The SHA, by choosing an appropriate site now during the application monitoring process, will be able to use the same site for monitoring during its permit term. SHA's District 4 office is working with Baltimore County staff to select an appropriate site.

*Task 6. SHA shall provide a report comparing SHA monitoring data results with existing water quality studies for highway runoff.*

A majority of the research on existing water quality studies has been completed by SHA. Stormwater monitoring by SHA is currently being done and once complete, a comparison report will be written. This work will aid in the determination of future SHA monitoring efforts.

### **Summary**

SHA is currently analysing field screening data on dry weather flows for Howard County. Experience gained from this screening effort will be used to develop monitoring procedures for discovering illicit connections in the future. SHA has also begun the monitoring of storm flows at its Pindell School Road site in compliance with application requirements. Data collected will be compared to highway monitoring data gathered from around the country. This site along with one other currently being selected will be used for stormwater monitoring during the course of SHA's permit. Data generated will be used for developing storm sewer system pollutant load estimates for highway runoff and watershed assessments being coordinated with surrounding jurisdictions.

## **4. Management Programs**

*Task 1. SHA shall provide a description of all SHA programs related to the control of stormwater runoff including procedures for fertilizer, pesticide, herbicide, and salt applications.*

The SHA's environmental goal is to avoid impacts where feasible, minimize impacts wherever possible, and finally, mitigate for unavoidable impacts. The highway development process includes the following phases: planning, design, construction, and maintenance. During each phase, SHA has developed policies and procedures to address applicable environmental regulations. Additionally, SHA looks for opportunities to provide environmental enhancements during the highway development process. The primary programs designed to control stormwater quantity and quality are described below.

### **Planning Phase**

The SHA's Planning Office follows numerous federal and State requirements to minimize the impact of highway construction and, subsequently, stormwater runoff. The National Environmental Policy Act and the Maryland Environmental Policy Act ensure that applicable federal and State environmental agencies are apprised of highway projects and possible impacts.

The State's Economic Growth, Resource Protection, and Planning Act helps to guide development into suitable areas, protect sensitive land, and increase transportation efficiency while reducing trips and mileage. Nationally, the Intermodal Surface Transportation Efficiency Act and the National Trail Systems Act provide funding for alternative transportation and commuting options. The Maryland Critical Area Commission regulates land use immediately adjacent to the Chesapeake Bay and numerous federal and State regulations limit the use of wetlands for development and stipulate strict mitigation requirements for impacted areas.

### **Design and Construction Phases**

Realizing the need to coordinate environmental issues organization-wide, the SHA established the Office of Environmental Design (OED). Its main role is to incorporate environmental considerations as a fundamental and integral component of highway planning and design. The OED also functions to increase awareness, sensitivity, and skills concerning environmental resources and design issues with SHA. These issues include wetlands, stream restoration, historic resources, urban design, reforestation, landscaping, and pedestrian and community issues. OED works closely with other SHA offices to ensure that environmental and urban design issues are given adequate consideration. Other responsibilities include tracking all environmental permits, assisting in resolving permit issues, and ensuring that permit related commitments made during project development are met.

The State Erosion and Sediment Control and Stormwater Management regulations are integral for stream protection during the highway design and construction phases. All disturbances greater than 5,000 square feet are required to have an approved erosion and sediment control plan. SHA's Chief Engineer's Office administers a program to instruct design, construction, and maintenance personnel in the State's *Erosion and Sediment Control Guidelines*. Each participant who fulfills the class requirements receives State certification. Maryland's Stormwater Management regulations require that post development runoff mimic pre-development characteristics as close as possible. Training for planners and designers is provided periodically to ensure the use of the latest design techniques.

For areas of road construction where stormwater management measures are not feasible, the SHA has signed an agreement with MDE for a water quality banking program. The agreement allows SHA to provide water quality treatment at alternative locations in the same watershed. To meet the requirements of the agreement, water quality measures must be investigated in the following order of preference; 1) within the same drainage area, 2) within the same project, and 3) within the same watershed.

Maryland's Reforestation law requires that any State-funded highway construction project that clears one or more acres of forest must replace an equal amount in the county and watershed where the clearing occurred. The construction agency is responsible for locating reforestation sites and bearing the cost of reforestation. If sites cannot be located for reforestation, the construction agency may pay a fee into the Reforestation Fund at 10 cents per square foot of forest cleared, which is then used to locate and plant suitable sites.

## **Maintenance Phase**

To ensure that stormwater management practices are maintained after completion, the SHA has developed a comprehensive stormwater management facilities inspection program. SHA's procedures for maintaining stormwater management facilities include routine inspections of each facility once every three years and initiating repair work where necessary. Additionally, locations for stormwater management retrofits are continually examined and systematically selected for implementation.

SHA's Office of Maintenance sponsors a winter maintenance training program for the control of deicing materials. Salt domes are required for storage and spreaders are calibrated to ensure proper application rates. Managers and team leaders supervise truck operators and continually inform them of the negative effects excessive salt use can have on the environment. A pilot program was initiated by the SHA for pre-wetting salt with magnesium chloride. This procedure supposedly increases the effectiveness of the salt and therefore decreases the quantity introduced to the environment. Results from the winter of 1993-1994 were encouraging and SHA expanded this program in 1994-1995 to five maintenance facilities. In 1995, a report was produced summarizing the effectiveness of these procedures with recommendations for statewide use. MDE has not received this report or SHA's plans for further use of magnesium chloride.

SHA's Cloverleaf Program is a multifaceted approach to beautifying highways and improving air and water quality. The program, which has four components, is implemented by each maintenance district and works to involve citizens. Reforestation enhances the appearance of rights-of-way while offering numerous ecological benefits such as erosion control, reduction of stormwater runoff, improved air quality, and increased wildlife habitat. "Maryland Blooms" aims to beautify open highway spaces while promoting awareness of the natural environment. The "Grow Don't Mow" program reduces highway maintenance costs, conserves energy, and allows for natural reforestation. Finally, SHA is participating in the State's Tree-Mendous Maryland program that seeks to plant more trees each year than we lose.

*Task 2. SHA shall provide a description of procedures to coordinate the identification and elimination of illicit storm drain connections with local jurisdictions.*

SHA is currently conducting illicit connection inspections of all major storm sewer system outfalls in Howard County. No procedures for continued illicit connection field screening or efforts to coordinate with surrounding jurisdictions have been proposed.

*Task 3. SHA shall provide a description and implementation schedule of a program to promote public education regarding water quality. This program shall include prominent identification of stream crossings, maintenance crew education, and salt application training.*

SHA has numerous programs aimed at educating the public and Administration personnel. The Cooperative Planting Program works with garden clubs and civic organizations for planting rights-of-way. Citizen groups agree to pay for the wholesale cost of the plant materials. SHA

will design the planting project and purchase, install, and maintain the plant material. The Adopt-A-Highway program provides safety training and the necessary equipment for groups to collect litter along roadways in one to three mile segments at least four times a year. This successful program reduces the risk of litter and other roadside debris from reaching local waterways.

In an effort to coordinate and standardize training concerning environmental awareness organization-wide, SHA established the Environmental Training Task Force. The task force's mission is to develop a core group of environmental awareness courses for each SHA employee. The goal is to ensure that all employees understand how their daily activities affect the environment. As part of this program, SHA employees participate in Chesapeake Bay field trips which provide a first hand look at the connection between the Bay and its tributaries, including the creeks, streams, and wetlands that highway projects often must cross.

### **Summary**

SHA has implemented numerous programs that aid in reducing excessive stormwater flow and controlling stormwater pollutants. The SHA's permit will require the continuation of these programs. Additionally, SHA is proactive in experimenting and implementing new programs for the protection of the environment. SHA's NPDES permit will encourage these efforts by requiring further enhancement of stormwater management programs such as design requirements, maintenance procedures, education of staff and the public, vegetative plantings, mitigation requirements, and retrofit assessment and implementation. The SHA's permit will also establish new requirements for SHA to effectively eliminate illicit connections from its storm sewer system. Because of the linear nature of SHA's road system, part of this strategy will be to cooperate with surrounding jurisdictions and their illicit connection detection and elimination programs. Successful watershed management will also demand cooperation between SHA and other NPDES jurisdictions.

### **5. Program Funding**

A summary of SHA's NPDES application submittal, specific to the regulatory requirements for program funding, is as follows:

*§122.26(d)(2) "(vi) For each fiscal year to be covered by the permit, a fiscal analysis... shall include a description of the source of funds...to meet the necessary expenditures..."*

SHA provided MDE with copies of two contracts they awarded for the work outlined above to be completed. Each contract was for \$750,000 and are open ended until all work required for the NPDES stormwater permit application is complete. SHA will provide adequate funding to comply with ongoing requirements stipulated in SHA's NPDES municipal separate storm sewer system permit.

### **Summary**

SHA's program funding should be adequate to implement the NPDES stormwater program.

Permit conditions will stipulate that SHA estimate the costs of its stormwater programs and maintain adequate funding to implement these programs.

## **6. Assessment of Controls**

A summary of SHA's NPDES application submittal, specific to the regulatory requirements for assessment of controls, is as follows:

*§122.26(d)(2) "(v) Estimated reductions in loadings...expected as a result of the... management program..."*

The SHA is in the process of gathering the necessary information for conducting assessments of its municipal storm sewer system. The "*Standard Procedures*" (June 30, 1994) manual details how the SHA will compile municipal storm sewer system information in GIS format. Ultimately, SHA should have a complete data set of all drainage system components necessary for hydrologic analysis, the preparation of pollutant load estimates, and assessment of management practices.

### **Summary**

The SHA's NPDES municipal separate storm sewer system permit will require the Administration to either, 1) provide MDE with annual assessments of reductions expected as a result of stormwater management programs, or 2) cooperate with MDE and surrounding jurisdictions by providing them with the necessary information for computing pollutant loads. Additionally, these assessments will need to be refined as data is obtained from SHA's long-term monitoring program.