

CASE STUDY 3

Maryland State Highway Administration (MDSHA) Environmental Strategic Plan and Management Systems

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STATUS	Under Development
FOCUS	<p>The Stormwater Management Program addresses Construction and Operations.</p> <p>The enterprise-wide Environmental Strategic Plan will address Planning and Design (including Permitting, Environmental Review, and Project Development), Construction, and Operations and Maintenance.</p> <p>The Independent Environmental Monitoring Program addresses Construction.</p>
DOT's BASIS FOR SELECTION OF FOCUS	MDSHA has undertaken strategic environmental planning, as an outgrowth of the Administration's stewardship commitments and overall strategic planning efforts. MDSHA has been engaging in a structured Continuous Quality Improvement (CQI) program since 1988. Between 1988 and 2002, MDSHA developed and implemented environmental policies and procedures, environmental quality assurance procedures, environmental training and expanded environmental staffing. MDSHA is now developing an agency-wide environmental stewardship strategic plan, examining and prioritizing environmental aspects of MDSHA activities, and establishing, goals, plans, timelines, and responsibilities.
RELEVANCE TO THE EMS PROCESS ROADMAP	MDSHA is using a Plan – Do – Check – Act process to develop its EMS. As described in the "Plan" steps of the EMS process, MDSHA is identifying and characterizing its needs and opportunities, defining resource requirements, identifying and prioritizing its actions, and obtaining management commitment. Within the "Do" steps MDSHA has defined specific actions and. In certain instances, identified responsibilities, developed and implemented procedures, processes, and tools.
ACCOMPLISHMENTS AND BENEFITS	<p><u><i>Stormwater Management Program Highlights</i></u></p> <p>The NPDES team has accomplished the following major goals since its inception in 1999:</p> <ul style="list-style-type: none">• • Developed a strategic implementation plan for all NPDES activities.• • Developed a comprehensive program for inspecting, maintaining, remediating and enhancing stormwater management facilities for functional, structural and visual quality aspects.• • Established field inspection protocols and tools for data collection. MDSHA has implemented a very structured inspection and process improvement program for stormwater facilities which:<ul style="list-style-type: none">○ ○ Ensures that inspections are duplicable, and○ ○ Identifies action items to maintain compliance and implement

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environmental improvements (these items are generated from inspections and ratings prepared by teams of trained inspection staff).

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ACCOMPLISHMENTS AND BENEFITS (cont'd)

Stormwater Management Program Highlights (cont'd)

- MDSHA mapped the entire state for opportunities for retrofitting BMPs for pollution prevention and stream restoration which go beyond requirements thereby ensuring compliance and reducing costs of operation and compliance.
- Established partnerships with several local jurisdictions involving watersheds assessments and restoration efforts – SHA is currently partnering on eight different watershed improvement plans. These partnerships help to improve relationships with stakeholders, thereby offering the potential for less time consuming reviews and reduced oversight burdens.
- Performed numerous stormwater retrofits and enhancements.
- In 1999, MDSHA received one of the first NPDES Municipal Separate Storm Sewer System (MS4) Permits issued to a state transportation agency.
- The NPDES Team has received the AASHTO Pathfinder Award from the Standing Committee on Quality.
- Maryland's regulatory agency, Maryland Department of the Environment (MDE), considers SHA as a "national leader in the control of stormwater", that has done a "commendable job in implementing a successful NPDES stormwater program".

Enterprise-wide Environmental Strategic Plan (Under Development) and Database (Under Enhancement)

- MDSHA has achieved an environmental stewardship ethic and environmental leadership at many levels. An Advanced Leadership Program assists in the development of future SHA leaders, and has been instrumental in developing leadership skills in many environmental professionals.
- An enterprise-wide Oracle database called Permit Tracker has been developed with a Visual Basic software front end. Use of custom rather than off-the-shelf, adapted database applications adds flexibility when program updates are in order to fit changing needs. Benefits have included improved ability to track agency coordination and permit requirements, compliance assurance and greater ease of mind that no gaps are emerging. Every project is monitored, auditing occurs, and systems have been created to share information.
- SHA multi-disciplinary planning, engineering and environmental teams are leading the nation in developing state of the art environmental protection, mitigation, restoration and enhancement techniques in many areas including neighborhood enhancement, context-sensitive design, environmentally sensitive treatments for structures, stormwater management, water quality monitoring, stream restoration, fish passage, erosion and sediment pollution control, reforestation, incident management, partnership planting projects, roadside vegetation management, maintenance facility

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screening, and sound wall enhancements.

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ACCOMPLISHMENTS AND BENEFITS (cont'd)

Independent Environmental Monitoring Program

- MDSHA has reduced wetland and stream impacts through the use of an independent Environmental Monitor, a progressive mutually beneficial cooperative effort between MDSHA and the Corps, which set the stage for more expeditious initiation and completion of complex public-need/transportation projects throughout the country in a cost-effective manner, ensuring that appropriate environmental protection standards and safeguards are in place.

IMPLEMENTATION NEEDS

- Environmental Stewardship Strategic Plan needs to be completed in order to comprehensively address SHA environmental activities and establish measurable outcomes
- MDSHA has accomplished the above with less staffing than would have been desired. The SHA would still like to expand inspection, mediation, and retrofit design capabilities for stormwater management facilities.
- MDSHA is continuing work on combining management systems, including their permit tracking system, maintenance, and other management systems.

KEYS TO SUCCESS

MDSHA's keys to success have included:

- Considerable staff of skilled professionals in Environmental Engineering and Science.
- Making sure that responsibility is clearly assigned.
- A commitment to environmental stewardship and continuous quality improvement.
- Being comprehensive and flexible enough to make changes to the systems. "Any rigid system fails as soon as a problem shows up." For example, MDSHA added over a dozen new things they want to track to their Permit Tracker system over the past year. The system now generates action items and sets schedules.
- Environmental Stewardship is a Key Performance Area in the SHA Business Plan, with a status that earned a place in SHA's mission statement.

BACKGROUND, ADDITIONAL INFO

Stormwater Program

SHA's NPDES program has provided a structured template and national model for systematically addressing stormwater pollution prevention as an organizational goal. In order to protect the Chesapeake Bay, the SHA had well-established Stormwater Management and Erosion & Sediment Control Programs in place for several decades, far exceeding NPDES regulations. SHA has been a pioneer among DOTs in multi-phased sediment controls, contract specifications that ensure success, training of designers, field personnel and contractors, and in layered inspection/enforcement processes.

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MDSHA developed a detailed strategic plan and timeline to identify the program goals and priorities, and to assign responsibilities. A cross-functional NPDES team includes experts in state-of-the-art information technology,

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BACKGROUND, ADDITIONAL INFO (cont'd)

Stormwater Program (cont'd)

fieldwork, NPDES regulations, environmental engineering, ecosystems, public relations, and SHA systems. The program was incorporated into the SHA Business Plan under the SHA's stewardship goal with the aim of "demonstrating environmental stewardship by developing strategies and processes for a systematic implementation of the program, and complying with the permit regulations in an environmentally responsible and cost efficient manner."

Following are several highlights of this Program.

- Integrated biological and physical monitoring with more traditional water chemistry monitoring, providing data that directly links the contributing water quality to impacts in the streams. A report was prepared to compare SHA's water quality data with other highway studies.
- Developed pilot projects to streamline the integration of technology into the field data collection and analysis process.
- Established auxiliary programs to support the goals of the NPDES program. MDSHA is going beyond regulatory requirements in its stormwater management and environmental enhancement processes.
- Developed Standard Procedures Manual for Source Identification data collection and database development.
- Developed a GIS system for capturing the drainage infrastructure of >1500 roadway miles.
- Performed Discharge Characterization of stormwater to analyze quality of highway runoff.
- Prepared a report on SHA's on-going Public Education and Outreach Programs and initiated new efforts such as the Environmental Responsibility Booklet, Cable-broadcast video, and informational presentations.
- Established Pollution Prevention Teams at all 35 SHA Maintenance Facilities to implement the customized Stormwater Pollution Prevention Plans in an environmentally responsible manner, including pollution prevention training to personnel.
- Provides Technology Transfer information and guidance to other Maryland Department of Transportation (MDOT) modals.

Independent Environmental Monitoring Program

The Environmental Monitor has been an on-site environmental manager and problem solver, charged with three broad responsibilities:

- Review design and construction activities with emphasis on avoidance and minimization and to ensure environmental commitments and requirements are incorporated into the construction of the project.
- Function as an unbiased independent source of environmental expertise, including making recommendations of measures and actions

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to reduce impact and to rectify non-compliance issues.

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BACKGROUND, ADDITIONAL INFO (cont'd)

Independent Environmental Monitoring Program (cont'd)

- • Serve as a liaison between the public, the participating department of transportation (DOT), and the regulatory agencies, specifically in relation to environmental commitments and coordination with the COE for problems/issues that may arise regarding construction associated with jurisdictional Waters of the United States.
- • Maintain a physical presence during the full length of construction activities within environmentally sensitive areas and obtains periodic water quality data from streams and stormwater management facilities. The Environmental Monitor functions in addition to the services normally requested for Environmental Construction Inspection (ECI).
- • Ensures implementation of commitments made in documents completed during the National Environmental Policy Act (NEPA) process.

The environmental monitoring effort begins with involvement in the initial design phase and extends throughout the life of the construction project, including review of all submittals for the ongoing project designs.

Environmental Strategic Plan

A central environmental stewardship council consisting of the MDSHA Administrator and members from construction, maintenance, design, planning, project development, and traffic sets goals, business plans, objectives, and action items. Their goal is to continuously sustain and improve program delivery and environmental stewardship and integrate environmental stewardship into all SHA organizations and activities. Quality circles in every office address issues in every office while quality breakthrough teams focus on specific issues. An agency-wide quality conference is held once a year.

Having achieved an excellent track record in permit and environmental compliance, MDSHA is now focusing on proactive environmental improvements and community enhancement. The Administration's Environmental Stewardship goal not only requires mitigation of environmental impacts, but also seeks to create and/or preserve greenways and other natural settings wherever possible.

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EXAMPLE TOOLS, PROCEDURES

SHA willingly and generously shares its successes and experiences with other transportation organizations. The SHA publications, [When Main Street is a State Highway-Blending Function, Beauty and Identity](#) and [Environmental Responsibility-Our Contributions to Preserve and](#)

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Enhance Maryland's Environment are commonly requested examples. MDSHA has written policies, handbooks, and guidance manuals in most functional areas.