



INDOT Research

# TECHNICAL *Summary*

Technology Transfer and Project Implementation Information

TRB Subject Code: 23-8 Environmental Impact Abatement  
Publication No.: FHWA/IN/JTRP-2002/24, SPR-2458

February 2003  
Final Report

## **Development of a Database and System for Analyzing the Actual and Potential Impacts on the Environment of Existing and Planned INDOT Sites**

### **Introduction**

Information on existing INDOT maintenance facilities is needed to evaluate which sites are the most environmentally sensitive. This information will allow INDOT to prioritize, when funds are available, the sites that should be closed and/or relocated. Analysis of this information will also identify facilities that

require pollution control devices, such as oil/water separators, and those that need to implement storm water runoff controls. This information will also assist the identification of appropriate locations for new facilities, such as the newly-designed salt storage buildings.

### **Findings**

The first objective of the study was to identify the source, character, currency and format of environmental, ecological, geological and other data for each existing facility site and organize it in a "hard copy" and/or computerized framework to aid the prioritization and planning process for facility upgrades to protect the environment, for regulatory compliance, and for potential replacement or relocation of existing sites. An extensive investigation of available GIS databases was conducted and a directory of relevant databases constructed, including over 30 that integrated INDOT facility or highway location GIS data with the geographic or environmental feature. The directory was compiled in a CD-ROM and distributed to INDOT staff who, subsequently, participated in a training program conducted by study researchers.

The second objective was to identify and assess the criteria currently employed by INDOT to select locations for new and/or relocated facilities, including the ASTM Phase I and II Environmental Site Assessment criteria, and to recommend additional criteria including those required to mitigate potential environmental impacts at new sites, if necessary. The study identified INDOT facilities posing a potential threat to

the environment due to salt operations and the lack of stormwater/washwater pollution control devices or measures. The study also identified segments of state-maintained highways proximate to and within one mile of "sensitive waters," as the terms are defined in the state's storm water rule. Nine environmental sensitivity criteria were used to identify INDOT facilities for priority attention. Of the 59 maintenance facilities located in municipalities regulated by the storm water rule (MS4s), 22 are identified by one or more of the criteria. Twenty-seven of the 59 locations are not connected to a POTW for the discharge of washbay and shop floor drain effluent and 19 of these locations are also identified by one or more of the criteria; as are twenty-four of the 84 maintenance facilities not in MS4 areas.

The third and fourth objectives were to recommend Best Management Practices for implementation at existing sites to protect the environment and for new facilities sited at locations where potential environmental impacts exist, and to provide cost estimates of Best Management Practices involving engineering upgrades for existing and new facilities. The study examined various structural and non-structural Best Management Practices (BMPs) for storm

water quality control, including those currently employed by INDOT and others from a review of the literature. A CD-ROM compiling BMP information from 23 federal, other state and private sources and their hyperlinks was produced for use by INDOT officials and staff. Options for controlling washbay effluent were described and estimates of cost provided for each of the five options.

The fifth objective was to recommend procedures and policies for decommissioning facilities prior to their closure and relocation. A thorough review was provided of the ASTM Phase I and II standards for conducting Environmental Site Assessments (ESA) for both facility site selection and prior to facility closing. An alternative format, the RISC Investigation Report, is described and recommended

## Implementation

The operations of the Indiana Department of Transportation are governed by policies and procedures issued by department administrative officials to managers of district, subdistrict and unit facilities. Some of these policies address operations that impact, or have the potential for impacting, the environment. A few of the existing policies should be updated to comport with current federal and state environmental regulation and additional policies need to be promulgated to ensure adequate environmental protection. These policies should:

- prioritize facilities for connecting to local POTWs or, alternatively, storing salt-contaminated washwater and shop floor drain effluent to be transported to the nearest amenable POTW or to be used as brinemaking “make-up” water;
- restrict salt truck and box washout to facilities connected to local POTWs;
- require GIS mapping of storm water outfalls (point-of-discharge) to waters of the state from facilities and highway segments within and proximate to MS4s

and “sensitive” waters of the state and require testing/monitoring of storm water discharge at these outfalls and in the receiving waters;

- require a survey of INDOT maintenance facilities to ascertain the type of storm water controls best suited to protect the environment;
- restrict salt and salt/sand storage, mixing and loading to designated areas under a roof or completely enclosed by a perimeter curb to prevent stormwater and meltwater runoff;
- require the capture and containment of motor vehicle fluids released to shop drains or the employment of “dry shop” practices;
- require improved management of contaminated surface storm water runoff from the facility;
- use the RISC Investigation Report format to supplement the Phase I and II environmental site assessments for facility site selection and prior to facility closing.

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