

END-OF-YEAR PROJECT PROGRESS REPORT MORGAN STATE UNIVERSITY

Date of Report: September 30, 2003

EPA Agreement Number: R828771-01

Center: Center for Hazardous Substances in Urban Environments, John Hopkins University

Identifier Used by Center for Project: RP #7

Research Project #: Morgan State University

Title of Project: Environmental Assessment and GIS System Development of Brownfield Sites in Baltimore.

Investigators: Dr. G. Chen, Dr. G.B. Oguntimein, and Dr. S. Williams.

Institution: Morgan State University

Project Period: October 1, 2001 to September 30, 2003

INTRODUCTION

This report covers the activities carried out since October 2001. This research involves a multidisciplinary approach to environmental assessment of at-risk sites in the Baltimore metropolitan area. The objectives of the research project were (1) to work in collaboration with city, state and federal partners to collect, analyze, and document the data on the locations, usage history, risk factors, and potential for remediation of selected existing Brownfield sites in Baltimore; (2) to develop a comprehensive Geographic Information System (GIS) inventory of environmental activities at these sites and (3) to conduct outreach activities that will provide community service, environmental education and information through the creation of partnership with stakeholders impacted by brownfields.

Progress Summary/Accomplishments

In order to achieve objective 1, Morgan State University team is working with the Park Reist Corridor Coalition (PRCC) a community located in the northwest area of Baltimore with a US postal zip code 21215 for their Brownfield Assessment project. According to a NASA survey this area of Baltimore has highest population with asthma and highest lead contamination. The team has accomplished the following tasks: 1) Environmental Site Assessment on Three Brownfield sites in the area. 2) Economic Assessment on the community neighborhood. This information is useful for the baseline study of strategic planning of the Brownfield redevelopment. The environmental assessment can reveal the potential risk of exposure to any hazardous environment. The summary results of analysis are given as follows:

- 1) Site 1 is located at 4701 Reisterstown Road was a former Gas Station that was closed 20 years ago. The underground storage tank was removed and there was a low residual level of petroleum contamination that remains at the site and as such does not warrant additional investigation because the levels do not present any

- threat to human health or the environment. The community is proposing to develop the site into an in-house children playground.
- 2) Site 2 is located in the 4700 block (even number side) on Reisterstown Road and was used by a Dodge Auto Dealership, together with a Glass and a few small-business companies. A Little League Park, and now idle and non-specific park occupies the space.
 - 3) Site 3 is located at 4431 Reisterstown Road is bounded by Reisterstown Road, Wylie Avenue and about 60 yards from West Cold Spring Lane was there was a gas filling station operated by Gulf Oil Corporation between 1937 and 1952, while from 1968 to 1975, it was an auto sales lot operated by several different companies chronically. No information is available whether the underground storage tank has been removed.

The economic assessment on the Park Heights neighborhood indicated that both economy (business) and population have declined significantly in the area. The decline included a more than 14% decrease in population in the community from Year 1990 to Year 1999 and many abandoned residential town homes. This decline is projected to continue and even worsen for next few years if no redevelopment is implemented.

In addition the Morgan State University team also embarked on a survey of auto body shops located in the Park Height Reisterstown corridor (PRC) with the objective of determining the occupational; safety practices and environmental impact of the auto body operation. There are over twenty shops located in this area. From an initial survey of ten of these shops, all the shops had good disposable practices with waste drum for different chemicals and frequent pick up of the waste. The workers were observed to be working at odd postures of body parts, which might lead to musculoskeletal disorders such as carpal tunnel syndrome and other forms of cumulative trauma disorders. The workers who are not using respirators (11.1%) and protective clothing (66.6%) are at risk of health problems due to the inhalation of toxic chemicals contained in the paints. A community wide awareness program on safety and health issues for the owners and the workers of the auto body shops could prove to be beneficial in minimizing the safety and health risks. A short workshop program to disseminate information on ergonomically safe methods of working would also be beneficial.

Development of Geographic Information system (GIS)

In order to meet objective 2 which was to develop the GIS mapping incorporating the results of Brownfield and Economic Assessment on Park Heights area of Baltimore, MSU team using ArcGIS 8, the most popular GIS software, has developed the model and database create the GIS mapping for the Brownfield sites in Park Heights community. Two layers were created to store the information about our assessment results: one layer to store the environmental assessment results on the three Brownfield sites; the second layer to store the information about the auto body shops that are major pollution contributors in the area. These information/database can be conveniently accessed on the GIS mapping by clicking the respective place.

In addition, we have designed a GIS identifier capability for these Brownfield sites and Auto Body Shops: as long as we move the cursor close to the site, an identifier box will automatically appear, to give the information about the address and/or company ownership's name, historical usage of the three Brownfield sites and the auto body shops.

Educational Outreach

A one-day summer environmental education program for Baltimore City High School students. The theme of the program was *Environmental Protection in Urban Communities*. The objectives were to:

- Introduce high school students environmental issues as it relates to the urban communities
- Stimulate student's interest in environmental protection issues and career in environmental science and engineering.

In attendance were students came from Webdubors High School, Western High School and Baltimore Polytechnic Institute. Forty-four high school students responded to the announcement we sent to but only ten actually showed up on the day. The topics covered were (a) Environmental Pollution Prevention and Green Chemistry Concept (b) Introduction of Brownfield and Its Redevelopment (c) Hazards of Industrial Waste" (d) Urban Environment, the role of Community Association. Following the seminars, the students visited the Engineering School Environmental Lab in the School of engineering, and then took a tour of the Brownfield Sites in the Park Height community

Other Outreach Activities

Morgan State University (MSU) team worked with Mr. Henri Thompson Director of The Park –Reist Corridor Coalition (PRCC) on the development of Proposal for an EPA grant for auto body shop. In addition We are working with **Clearing House for a Healthy Community** in East Baltimore on two major concerns namely the environmental effects of exposure to various toxic and hazardous agents from a particle aggregating company (Baltimore Aggregate Recycling Company (BARC)) located in the area and Redevelopment of Brownfield sites

Dissemination Of Research Findings

Three papers on the results obtained have been presented at *the 2002 ASEE Conference* in Montreal, Canada, in June 2002; at the *2002 Brownfields Conference*, Charlotte, North Carolina, November, 2002; and at the *Conference on Cleaning Up Contaminated Properties for Reuse and REVitalization: Effective TECHnical Approaches and Tools (RevTech)*, Pittsburgh in July 2003.