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ENVIRONMENTAL MAPPING OF AN AFRICAN AMERICAN COMMUNITY IN HOUSTON, TEXAS: ADVANCING UNIVERSITY-COMMUNITY RELATIONSHIP

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ABSTRACT

This article reports the findings of an environmental mapping exercise undertaken as part of Texas Southern University Acres Homes Project. The exercise identified land uses within Acres Homes in Houston, Texas that may potentially pose adverse human health hazards. Sources of information include federal, state, and county database, interviews with the community residents, and site visits. The information obtained suggests that there are no facilities on the following lists in Acres Homes; National Priority List, Comprehensive Environmental Response, Compensation, and Liability Information System List, Texas Superfund List, and Leaking Underground Storage Tanks. However, the community has the largest cluster of closed/abandoned municipal landfills in Harris County, and one of the largest in the State of Texas. The report noted the absence of information regarding items which were disposed of in the landfills, and therefore recommended detailed soil sample analyses.

INTRODUCTION

The purpose of this study is to investigate whether or not locally-unwanted land uses (LULUs) are disproportionately located in a poor African American neighborhood in Houston, Texas. The siting of LULUs defined as "facilities which always threaten their surroundings by inflicting or promising to inflict negative externalities on them" [1, p. 3] is usually met with stiff local resistance.

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Notwithstanding that they are socially desirable, sometimes legally required, and therefore obviously needed, nobody seems to want LULUs such as municipal solid waste landfills and incinerators, half-way houses, hazardous waste treatment and disposal facilities, and high-voltage power lines in his or her backyard—a Not In My Backyard (NIMBY) concept. The intense local opposition is usually based on the inequity often associated with LULUs, that is, the facility's costs are borne by the host community which directly receives little or no benefits, and that these facilities are not uniformly distributed within the entire society.

As an example, the costs or the negative impacts of a hazardous waste incinerator (a LULU); factory and transportation noise, foul odors, toxic air emission, social stigma, or negative image of the community as a waste dump, and a consequent potential decline in host community's residential property are borne by communities closest to the facility while the benefits of proper management of the hazardous waste accrue to the entire society. In view of the societal need for these facilities, the conventional wisdom is that the facilities' proponents would seek a "path of least resistance," that is, communities with the least political and economic clout.

For example, in 1984 a Los Angeles public relations and political consulting firm submitted a report "Political Difficulties Facing Waste-to-Energy Conversion Plant Siting" to the California Waste Management Board, highlighting strategies for successfully siting noxious facilities. In looking for a potential site, the report noted that "A great deal of time, resources, and planning could be saved and political problems avoided if people who are resentful and people who are amenable to waste-to-energy projects (a LULU) could be identified before selecting a site" [2]. Within this context, the report noted that "All socioeconomic groupings tend to resent the nearby siting of major (waste disposal) facilities, but the middle and upper socioeconomic strata possess better resources to effectuate their opposition." Officials should therefore look "*for lower socioeconomic neighborhoods* (italics added) that are also in heavy industrial areas with little or no commercial activity" [2, p. 117]. Low income and/or minority neighborhoods where the residents tend to have low economic and political clout, therefore, seem to be prime candidates for the placement of LULUs.

Residents of low income and minority neighborhoods are, therefore, often wary of past and future placement of LULUs in their neighborhoods, an environmental justice or racism phenomenon. This contention is not necessarily misplaced because starting with the decision of the state of North Carolina to landfill more than 32,000 cubic yards of highly toxic PCB-contaminated soil in the predominantly African American community of Afton in Warren County in 1982, the disproportionate location, real or perceived, of noxious facilities in minority and/or low income neighborhoods has generated intense debate, controversy, and research. Some research [3-5] observed no or weak relationship between the locations of LULUs and minority and/or low-income neighborhoods, while others [6-10] concluded that LULUs are disproportionately located in poor

minority neighborhoods. The findings of another study [11] are, however, mixed as there was evidence of inequity in the distribution of noxious facilities in only some counties in urban Mississippi. Except for case studies, the empirical basis for environmental injustice or racism is therefore murky and unwieldy.

For example, the use of different spatial units of analysis has produced different results even when the same data set are used [12]. Using zip codes as the unit of analysis a study [13] observed that the landfills within Jackson metropolitan area are located in predominantly African American neighborhoods, an observation which contradicts the findings of a later study [11]. It was, therefore, suggested that environmental justice research may have to focus on individual backyards or local settings or even specific site studies [11]. However, the evidence (any evidence) of the choice of minority neighborhoods as the potential hosts of LULUs has produced a political backlash and generated environmental activism in these neighborhoods. Quite often, the local activist groups strengthen their effectiveness by seeking information about noxious facilities in their neighborhoods or communities.

A major concern of the residents of Acres Homes, a predominantly African American community in Houston, Texas is the need to identify past local land uses that may pose adverse human health and environmental effects to the community. This concern is not misplaced because prior to this study/project, a closed non-permitted landfill, the Old Booker Landfill located within the community generated intense controversy and attention. The landfill which was not fenced and, therefore, easily accessible to the public was built 8 to 10 feet higher than the surrounding properties and, therefore, run-off water containing toxic contaminants may seep into the surrounding properties. Subsequent to expressed citizens' health concerns, the Houston Department of Health Services (HDHHS) and Texas Commission on Environmental Quality (TCEQ) carried out a site assessment, and determined that soil, groundwater, and drinking water concentration of any metal and organic pollutants were under applicable EPA/TCEQ standards. Also, the TDH/Cancer Registry Division noted that the lack of significant elevation in cancer incidence or mortality for the Zip Code that includes the subdivisions around the Booker Landfill [14]. These findings were similar to another site assessment carried out by EPA. The EPA assessment noted that exposure to contaminants in the landfill, the yards surrounding the residential areas, and the ditch between the landfill and the residential areas poses no apparent public health hazard.

However, these findings did not seem to abate the community residents' concerns. In addition, the residents felt that in view of the lack of zoning in Houston, they may be living close to abandoned or active noxious facilities such as toxic waste dumps. One of the objectives of the Texas Southern University Acres Homes Project designed to forge a closer relationship between Texas Southern University, a Historically Black College and University (HBCU) and Acres Homes community in Houston, Texas is, therefore, to address this concern.

Traditionally, town and gown or community-university relationship is such that universities engage in research, teaching, and service activities that are independent of the communities in which they are located [15]. For example, these institutions of higher learning tend to carry out research and teaching based on the needs and the pedagogical requirements of the academic discipline while service focuses on those rendered to professional organizations, and to the university community [16]. However, the emerging trend especially for colleges and universities that are designated as "urban universities" is that these institutions of higher learning direct substantial efforts through research, teaching and service toward addressing selected problems in the "clientele" area.

The Texas Southern University Acres Homes Project is borne out of Texas Southern University's commitment to community outreach—"supporting past activities, developing new programs and services, and collaborating with local organizations in an effort to create a better quality of life for the people and communities it serves" [17, p. 2]. As an element of the Acres Homes project, environmental mapping of Acres Homes involves the identification of LULUs such as municipal solid waste landfills, active and inactive hazardous waste disposal facilities, and leaking underground storage tanks (LUSTs) that may pose potential dangers to human health and welfare. Other elements of the environmental mapping exercise include history of flooding in the community and an assessment of flooding potential.

Study Area

Acres or Acreage Homes, located in the northwest of the city of Houston, Texas. Houston was once considered the largest unincorporated Black community in the southern United States. The community which currently covers about 5,733 acres derived its name from the fact that land was sold by the acre—large enough to allow small gardens and enough space to keep chicken or farm animals. The purchases were owner-financed, required no down-payment, and payments ranged from $8 to $12 per month. The first settlers, predominantly African Americans who came around World War I were from rural areas and were attracted by the community's inexpensive land, low taxes, and the absence of any building standards or codes [18].

By the time the city of Houston decided to annex the community starting in 1967, it was a dispersed slum settlement, without transportation or educational facilities, substandard housing, and without water and sewer lines. About 61% of the structures were built before 1960. Regarding current land use 53.4% of the total land is undeveloped, 19.86% is single-family residential, industrial/commercial/office accounts for 16% while multi-family residential is as low as 1.04%. Several properties in the community are currently abandoned, vacant, dilapidated, or tax delinquent, and there is little or no commercial or industrial development in the community [19].

Acres Homes is still primarily a low income African American community. According to 2000 U.S. Census, most (86.4%) of the residents are African Americans, 53.1% of the African American households earns $25,000 or less while 54.5% of the renters pay at least 30% of their household income on rent. The predominance of low income African Americans in the community makes Acres Homes a good candidate for Texas Southern University, regarding university-community collaboration or relationship. Also, the history of TSU and its designation as an urban university makes it incumbent on the university to address urban communities' social, economic, and environmental problems in general and low income minority communities in particular.

Methodology

The methodology adopted for the study includes the review of several databases published by county, state, and federal agencies, site visits, and interviews with community residents and community leaders. The documents reviewed are Comprehensive Environmental Response, Compensation and Liability Act/National Priorities List (CERCLA/NPL), Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List, Texas Superfund, Inventory of Closed/Abandoned Permitted and Non-Permitted Municipal Solid Waste Landfills, Underground Storage Tanks (USTs), Leaking Underground Storage Tanks (LUSTs), and Harris County Flood Control District database.

THE 1980 COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT/ NATIONAL PRIORITY LIST (CERCLA/NPL)

The 1980 CERCLA is a remediation statute which addresses past (pre-1976 Resource Conservation and Recovery Act) or pre-existing environmental contamination especially those associated with hazardous waste disposal sites. The Act, designed to prevent future environmental disasters established a revolving trust fund "Superfund" to finance the clean-up of abandoned or inactive hazardous waste disposal sites where the owners cannot be identified, or if identified, do not have the resources for clean-up. In order to determine which sites are worthy of Superfund money, CERCLA directed U.S. Environmental Protection Agency (EPA) to create a list, National Priority List (NPL), ranking hazardous waste sites on the basis of the potential adverse effects, and thereby establishing a priority for clean-up [20].

The EPA and the states nominate sites to be placed on the NPL, and after nomination, the EPA utilizes a Hazard Ranking System (HRS) to determine the severity of the risks posed by the site. The ranking does not necessarily reflect the actual human health and environmental risks posed by the site, but rather the potential risks as determine by EPA. The listing on the NPL is, therefore, only

the first process that includes further studies, investigation, public comment, and remedial evaluation before any clean-up action. However, a site on the NPL is deemed to pose a sufficient degree of concern about human health and/or the environment as to warrant full federal investigation and possible response, and it is often very difficult to sell NPL-listed property, or borrow against it. For the purpose of this exercise the NPL database was reviewed on May 10, 2005 and updated on March 15, 2009. There is no NPL facility listed for Acres Homes.

COMPREHENSIVE ENVIRONMENTAL, RESPONSE, COMPENSATION AND LIABILITY INFORMATION SYSTEM (CERCLIS) LIST

The CERCLIS database is an inventory of sites that are suspected of a potential for releasing hazardous materials to the environment and, therefore, requires further investigation. The database is kept by U.S. Environmental Protection Agency (EPA) as part of the agency's Superfund program. EPA learns of these sites through citizen complaints, notification by site owner, state and local government identification, or through investigation by EPA programs other than Superfund. On further site analysis, mostly information gathering, a site or facility on the CERCLIS list may be recommended for: i) no further action under the EPA Superfund program, ii) a short-term clean-up, or iii) site investigation and evaluation for possible nomination to the NPL. However, being on the CERCLIS list does not per se imply that the site poses environmental or public health problems [20].

Currently (as of May 10, 2005 and updated March 15, 2009) there is no CERCLIS facility listed for Acres Homes. However, as of February 23, 2004 the Booker Landfill was listed as CERCLIS faculty # TXN000605565. The facility has probably been taken off the CERCLIS list especially in view of the site investigation by Texas Department of Health under cooperative agreement with Agency for Toxic Substances and Disease Registry (ATSDR).

Texas Superfund List/Registry

The Texas Solid Waste Disposal Act requires the Texas Commission on Environmental Quality (TCEQ), formerly known as Texas Natural Resource Conservation Commission to establish a state Superfund registry of facilities that may constitute imminent and substantial threats to public health and safety or to the environment. The TCEQ uses the Hazard Ranking System (HRS) developed by EPA, and facilities are scored on a scale of 1-100 based on the actual or potential release of hazardous substances into the environment. Sites that receive an HRS score of 5 or greater are eligible to be placed on state Superfund registry while sites that receive HRS scores of 28.5 or greater are eligible to be nominated for federal NPL Superfund sites. The first Texas Superfund list identifying such

sites was published in the January 16, 1987. The TCEQ is required to update the list annually to add new facilities or delete facilities that are deemed not to pose adverse environmental and public health effects any longer [21]. As of May 10, 2005 (updated March 15, 2009) there is no facility or site that appeared on the TXSF list in Acres Homes.

Closed/Abandoned Municipal Solid Waste Facilities (Permitted/Non-Permitted)

Prior to the enactment of 1976 Resource Conservation and Recovery Act (RCRA), the responsibility of managing municipal solid waste rests with state, regional, and local government agencies. The most common disposal methods at that time include open dumps and open burning. The RCRA requires states to develop solid waste management plans, close all open dumps, and provide sanitary landfills. Prior to, and for several years after the annexation of Acres Homes by the City of Houston, the main disposal method for solid waste is the use of unregulated open dumps owned by individual citizens. These owners would accept all types of wastes including household and industrial hazardous waste.

Many residents believe that these facilities especially Booker Landfill—a closed 25-acre non-permitted solid waste facility, and three permitted landfills pose significant health and environmental problems. Booker Landfill was operated as a non-permitted solid waste facility during the late 1960s and early 1970s. Citizens' concerned about Booker Landfill triggered a site investigation by the Texas Department of Health, Environmental, Epidemiology and Toxicology Division (TDH) under cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR) in 2003 [14].

The elements of the site assessment are: visual inspections of the landfill and surrounding property, a review of existing documents, collection and analyses of surface soil samples (0-6 inches in depth) from the landfill, and from residential yards and "ditches" adjacent to the landfill. The subsequent report noted that exposure to chemicals in the surface soil at the landfill poses no apparent public health hazard, and that the incidence and mortality data for various types of cancer for the areas fall within acceptable ranges. The report, therefore, recommended that no further action is necessary and the facility was subsequently taken off hence the CERCLIS list [14].

In 1993, Texas Legislature passed House Bill (HB) 2537 which required Council of Governments (COGs) to identify and compile a list of permitted and non-permitted closed and/or abandoned municipal solid waste facilities in the state. The bill was prompted by a potential public health hazard—the discovery of flammable gas and eventual evacuation of an apartment complex that was built on a closed landfill in Austin. In 1995, the Texas Natural Resources Conservation Commission now Texas Commission on Environmental Quality (TCEQ) contracted with Southwest Texas State University (SWTSU) to coordinate with the

state's 24 Council of Governments (COGs) and compile an inventory of identified or suspected closed/abandoned landfills in the state (Texas Commission on Environmental Quality) [22].

The project undertaken by SWTSU resulted in an inventory of about 4,200 closed/abandoned landfills in the state with more than 500 of these sites in the 13-county Houston-Galveston Area Council (HGAC). Of the 223 abandoned/closed landfills identified in Harris County, 36 were located in a 2-square mile area of Acres Homes, making the community the largest cluster of such sites in the county, and one of the largest in the state. Also, 33 of the 36 sites in Acres Homes are classified as non-permitted. Information obtained as a result of the SWTSU project is limited to estimated point location, and available historical information.

The State Bill (SB) 1447, passed in 1999 required the COGs to provide a higher level of detail on a limited number of the closed landfills—exact or approximate boundaries of each closed landfill, field verification, former land use of the property, and that the inventory should be available to the public. Senate Bill 1447 requires that when an exact boundary is determined, the current landowner must be informed regarding the former land use of the property, and that the complete inventory of closed landfill must be available as part of public record [22].

Acres Homes Closed Landfills: Site Description and Site Analysis

Site visits were made to all the closed/abandoned landfills in Acres Homes (see Figure 1). The objectives of the site visit include: verification of the site location reported in the TCEQ database, collection of information about the current site conditions and/or use, surrounding land use, proposed site and/or surrounding land use, evidence of past use as a landfill including presence of trash heaps, and posted violation notices. Also, interviews were conducted with people who live close to the site, people who are knowledgeable about Acres Homes, and in one instance, a past owner of one of the sites. The information obtained through these activities and existing records is as follows:

- 1700 Mansfield, Site is a vacant lot. New homes are located across the street (see Figure 2).
- 1935 DeSoto, Site is a vacant lot with well maintained vegetation. Single family homes are located on either side of property (see Figure 3).
- A.D. White located at 3624 Creekmont Drive. Site is a vacant lot with overgrown vegetation. A ditch with stagnant water exists in front of property. Industrial buildings are located on either side of property (see Figure 4).
- Cebra, located at 5900 Cebra Street—Site is a vacant lot with well-maintained vegetation, and without any overgrowth vegetation. A "No Trespassing" sign was posted on site. A single family home was located to the north of site (see Figure 5).

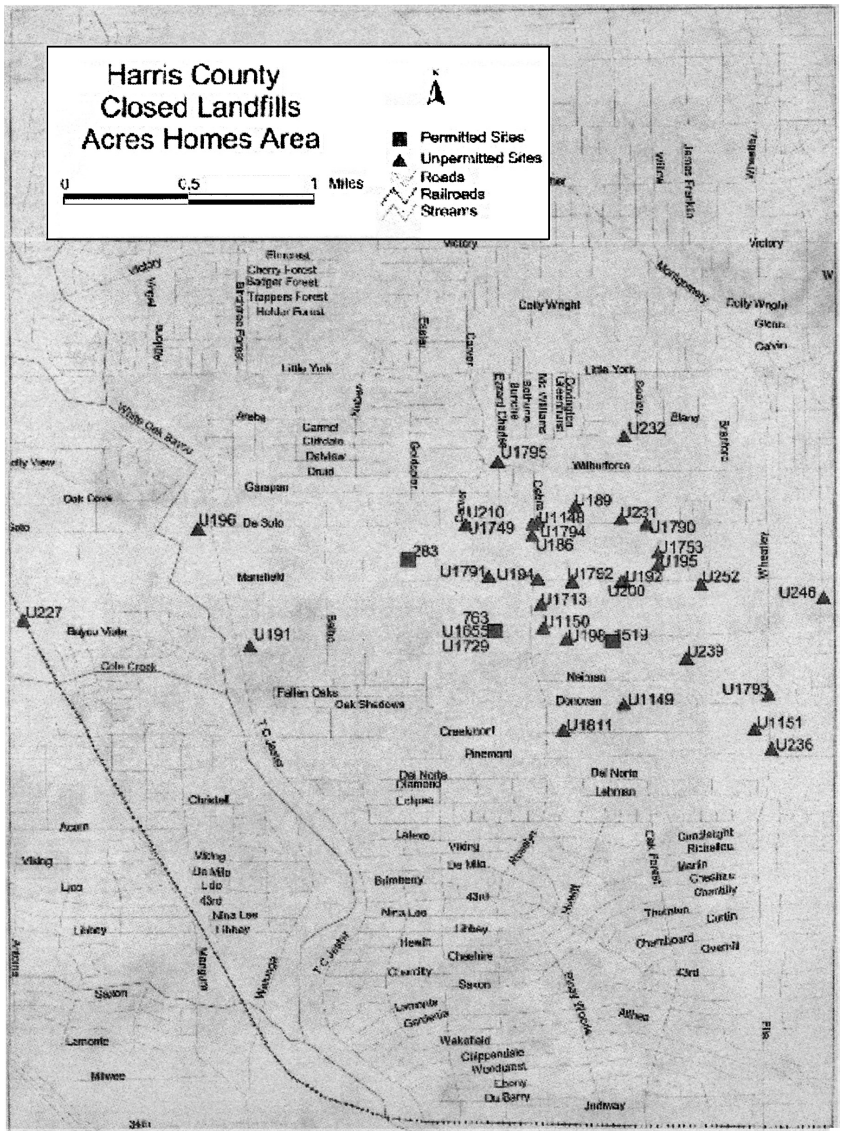

Figure 1. Closed/abandoned landfills in Acres Homes.

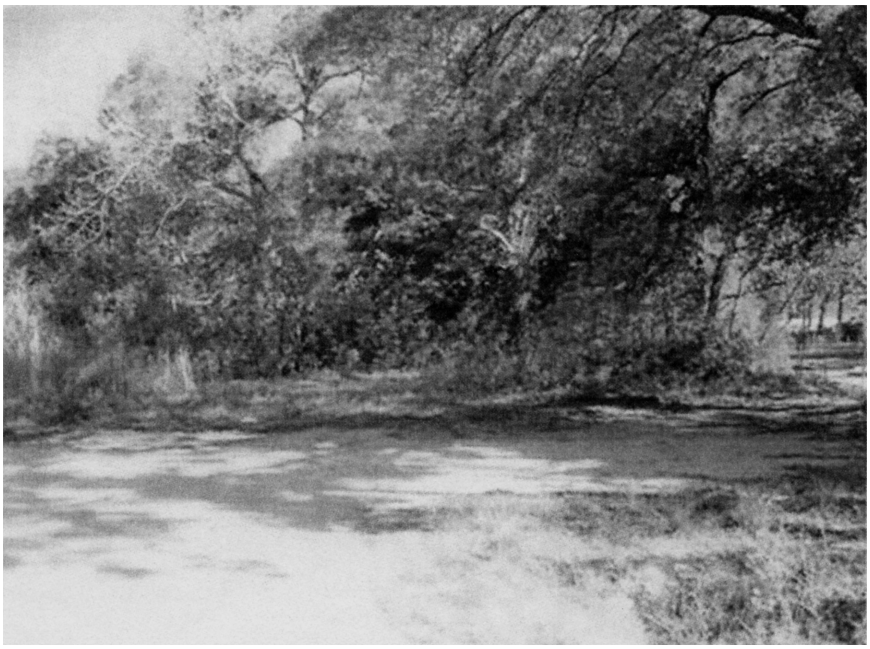

Figure 2. 1700 Mansfield Street.

Figure 3. 1935 De Soto Street.

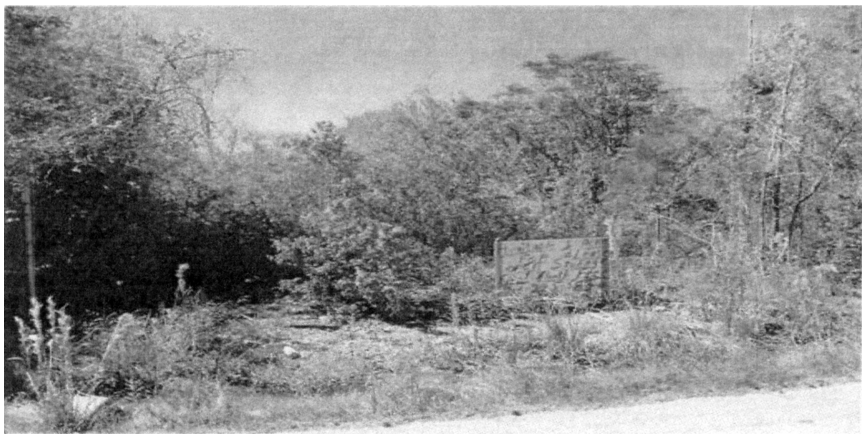

Figure 4. 3624 Creekmont Drive.

- AH-Coy McQueens Dump, 1800 Paul Quinn Street—Site is a vacant lot covered with overgrown grass (vegetation). Single family homes are on either side of the site and a vacant lot on the other side of the street.
- Coy's Dump, 1600 Paul Quinn Street—Site is a vacant lot with cleared vegetation. Single family homes are located on either side of site. The property on the opposite side of street is currently vacant but is identified as the future home of a tabernacle.
- Grandma's, 3600 Paul Quinn Street—Site is located at the end of a street with much overgrown vegetation on the property. A single family home is located to the east and the bayou is located to the west (see Figure 6).
- M & J #2, 3630 De Soto Street—Site appears to have been or being used as a concrete disposal area. There is significant vegetation overgrowth on the site. A large, single family home is located to the east and a flood control detention basin is located to the west. The property to the south is vacant (see Figure 7).
- Mansfield, 1400 Mansfield Street—Site is vacant with overgrowth vegetation. Single family homes are adjacent to the site. A pest control business (Pro-Tec Pest Control) is located across the street.
- West Donovan, 1400 W. Donovan Road—Site appears to be a strip of land behind W. Donovan with overgrown vegetation. Single family homes align property.
- Old M & J #1 Dump, 1800 De Soto Street—Site is vacant, with overgrown vegetation, and slated for sale. A single family home is located on the opposite side of street and a welding company is located to the west of the site.

Figure 5. 5900 Cebra Street.

- Alvin Ray, 1401 W. Tidwell Road—Exact site is difficult to identify but much of the property on the area is vacant. An apartment complex is located on the northeast corner of W. Tidwell/Wheatley intersection.
- B. J. Stringer, 10528 Tanner Road—Site is surrounded by closed (currently inactive) Type IV landfill, Hawthorn Park Landfill Permit #2185.
- Bobby Wiley's Dump, 1700, 1718, 1720, and 1800 DeSoto—Site is a vacant wooded land surrounded and adjacent to single family homes.
- Brooks Dump, 1526 DeSoto—Site contains a woodshed and small barn. Site is surrounded by single family homes (see Figure 8).
- C. C. Sherrod Dump, 3833 Creekmont—Site is vacant with overgrown vegetation. Industrial building is located adjacent to site (see Figure 9).
- Carter Swint I, 2400 and 2500 Paul Quinn—Site is a vacant lot. Single family homes are located close to site.
- Carter Swint II, 2400 Paul Quinn—Site is a vacant land.
- Carter Swint III, 2727 DeSoto—Site is a vacant land surrounded by single family homes (see Figure 10).

Figure 6. 3600 Paul Quinn Street.

- Chambers, 5500 Wheatley/Ella on Middle Street—Site is a vacant land surrounded single family homes (see Figure 11).
- Charlie Evans, 2244 Wilburforce—Site is vacant land surrounded by single family home (see Figure 12).
- Coy McQueen, 1611 DeSoto—Site is vacant land. Also adjacent land is vacant (see Figure 13).
- Donnie Williams Open Dump, North end of 5900 Block of Midgeley—Site is vacant land surrounded by single family residential homes.
- International Disposal Company (IDC) Tidwell, S of West Tidwell, E. of Rossyln. No access to site either through driveway or walkway. Some residential homes are located across from site. Sign on site reads:

  Notice to Public
  Proposed Multifamily Residential Rental Community

  The Enclave LTD has application to the Texas Department of Housing and Community Affairs for Housing Tax Credits for the development of a proposed multifamily residential rental community. The Enclave Rental

Figure 7. 3630 De Soto Street.

Homes will be located at approximately 2300 block of Tidwell Road, Houston, TX 77091. This development community will comprise of 30 units on 5.118 acres. Contact Isaac Mathews with IV Enterprise Inc. located at 1126 W. Tidwell. The telephone number is 713-688-8311. For more information on this program, contact the Texas Department of Housing and Community Affairs, 507 Sabrine, Suite 700, Austin Texas 78701, or by phone at 512-475-2216 or view our website at www.tdhca.state.us

- IDC (Duoto Cebra), 2100 block W. Tidwell. Site is overgrown with tall grasses and trees. There is no noticeable entrance to property. Site is surrounded by single family residential homes.
- James P. Neatherlin, 1611 Bland. Site is closed to the public, and designated for private use only. Notice of dumping violations displayed on the site. Site is generally unkempt, and is overgrown with tall grasses.
- Lawrence Petitt I and II, 2400 block of Paul Quinn (2 sites). Site includes three adjoining lots in two parcels, Pettit I – 1.8181 acres and Pettit II – .8596 acres. Sites are classified by the County Assessor's Office as General Commercial Vacant. Site is located in a predominantly residential area. Property owner is identified as Terry Pettit of 1422 W. Donovan St. Houston, TX 77091.

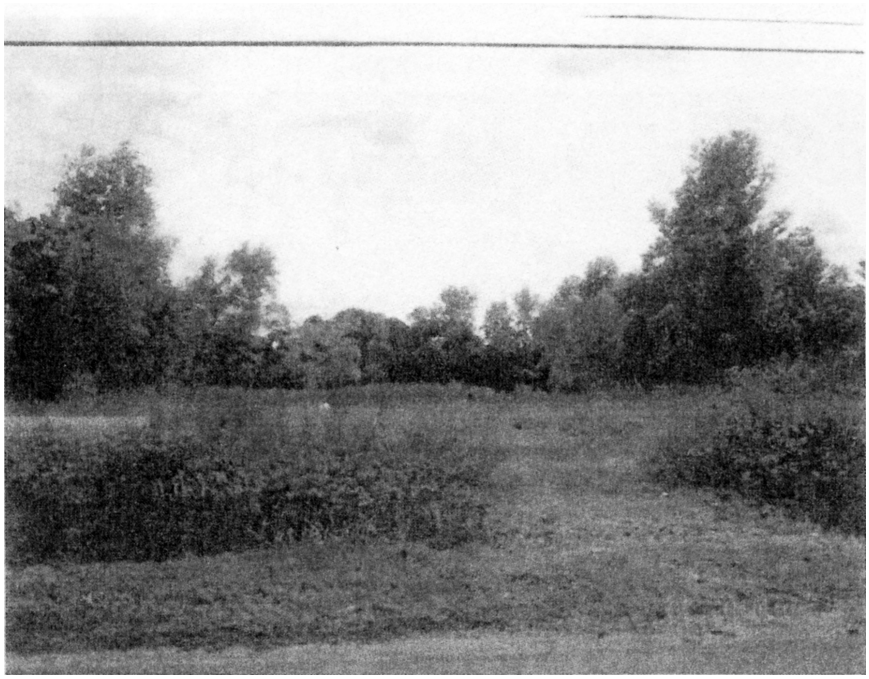

Figure 8. Brooks Dump 1526 De Soto.

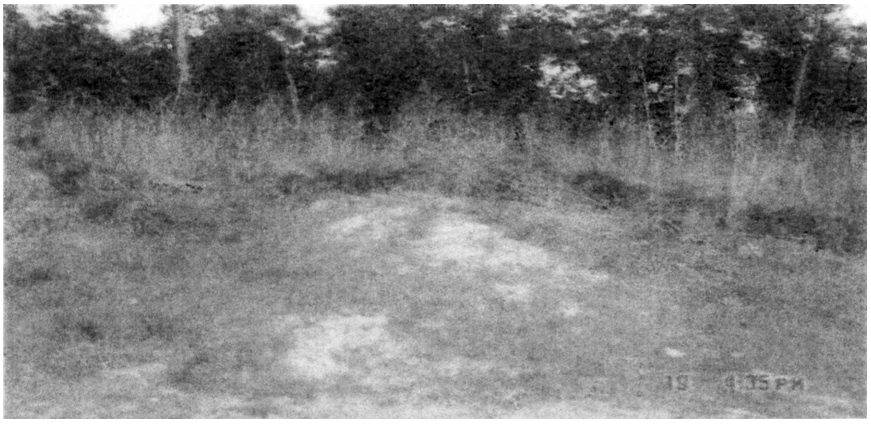

Figure 9. C.C. Sherrod Dump 3833 Creekmont.

Figure 10. Carter Swint III 2727 De Soto.

Figure 11. Chambers 5500 Wheatley/Ella.

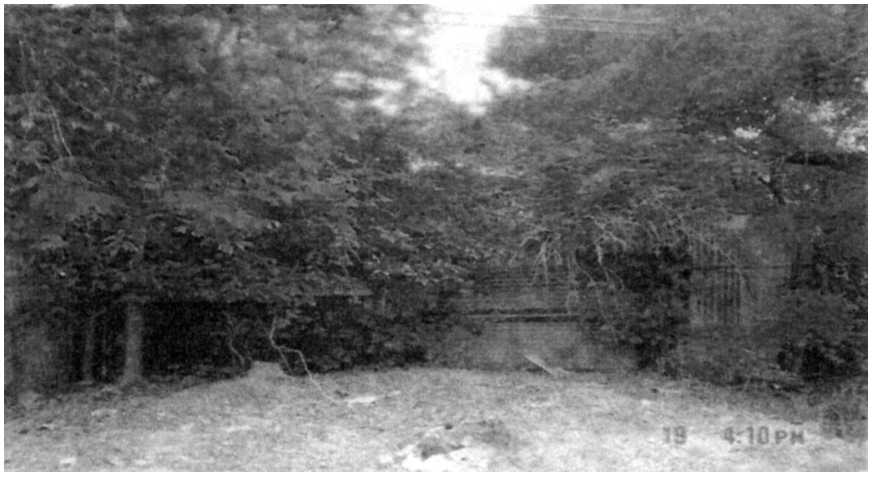

Figure 12. Charlie Evans 2244 Wilburforce.

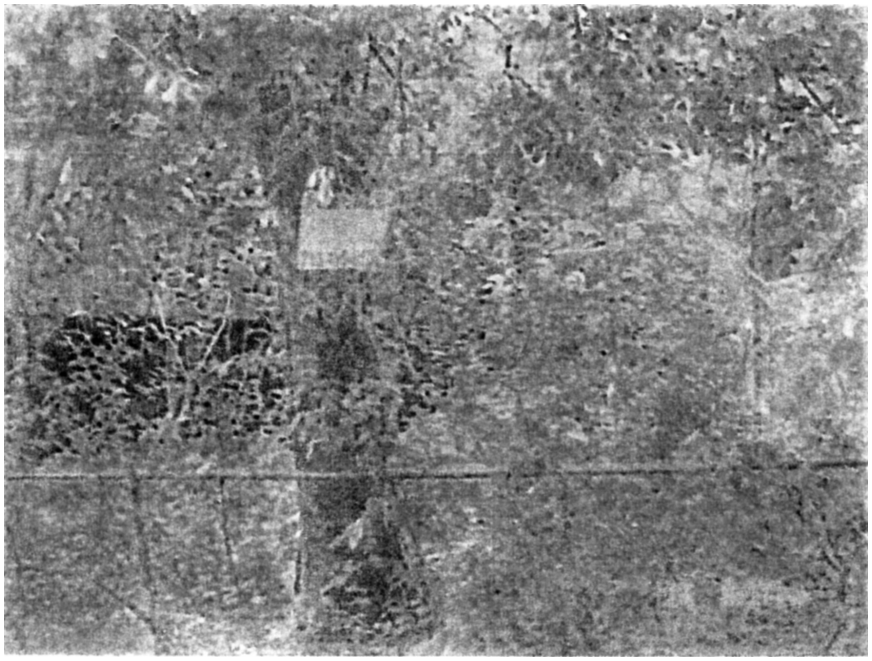

Figure 13. Coy McQueen, 1611 DeSoto.

- Pinemont, intersection of Ella and Pinemont. Site is at a 4-way stop sign in a commercial/business area. At the other three corners are a Shell gas station, a MiniMart, and a mortuary. Also, a closed (boarded-up) child care facility is located close to site. Site is overgrown with weeds and tall grasses.
- Lee Johnson, 2417 Mansfield. Site is fenced with trees and tall grasses growing over the fence. A notice of dumping violation notification given by the City of Houston is on the site. Residential homes are located across from site.
- Leo Bank, 1717 Mansfield. Site seems to have been a residential home in the past. Site is well-kept with residential homes across the site. Owner, though identified, was not willing to provide any information on the site. Total acreage is 1.9511 acres.
- Raymond Booker, 1721 Paul Quinn. Owner (who wants to remain anonymous) indicated that there was in the past, a legal issue (on the site) that caused him some jail time. He also indicated that there was once a proposal to have a golf driving range on the site but that it did not materialize. Construction materials are visible on the site. Acreage is 2.0241.
- Raymond Shephards Dump, 2002 Mansfield. Site is covered with sand and concrete, and appears as a dump site that has been covered.
- Tar Paper Dump, 2200 DeSoto. Site is unkempt, contains waste materials including tires and old household items.
- Tatum Simmons, 5800 Tuskegee. Site is unkempt—several trees and tall overgrown grasses, that cover waste materials. Adjacent property is vacant.
- 6006 Midgeley Street. Site is located at a dead-end street, and adjacent lots include residential homes and vacant lots. Site is unkempt, several trees and overgrown grasses surrounding what appears to be a horse stable with horse trailer. Site is adjacent to single family homes.

Underground Storage Tanks (USTs)

Underground Storage Tank (UST) fields are underground storage tanks which hold toxic materials such as gasoline or waste oil, and if leaking can move quickly through soil and pollute groundwater, streams, and soil, and can cause fire and explosion. Leaking USTs can, therefore, pose threats to individual and community drinking water supplies, and contaminate homes and businesses with toxic vapors. The concern about Leaking Underground Storage Tanks (LUSTs) is exacerbated by the observation that 50% of the nation's population and virtually all (100%) of the population in rural areas rely on groundwater for drinking water. In Texas, it is estimated that 45% of the population rely on groundwater for drinking water. The Hazardous and Solid Waste Amendments of 1984 authorized the regulation of underground storage tanks (USTs) while Superfund Amendments and Reauthorization Act of 1986 created the Leaking Underground Storage Tank trust fund for clean-up of identified LUSTs, and for enforcement activities.

However, the authorization for the tax that provides the trust fund expired in December 1995.

The Small Business Liability Relief and Brownfield Revitalization Act of 2002 provide funds for clean-ups of LUST sites for redevelopment and thereby stimulate the revitalization of communities, rural or urban. In addition to federal funds several states including Texas have established financial assistance to owners and operators of USTs through reimbursement for clean-up. EPA utilized the federal LUST fund created by SARA 1986 to partner with local communities for pilot UST fields clean-ups. None of the 139 USTs in Acres Homes is identified as a LUST.

Flooding and Flooding Potential

The objective of this phase is to collect information/data that can be used in part in developing a Flood Mitigation Plan for Acres Homes community. The relevant information collected for the Acres Home Project include the identification of the drainage basin, history of flooding, and velocity of current in the basin, FEMA Flood classification as it relates to Acres Homes, and past evacuation activities in the community. The main source of flood water in Acres Homes is from White Oak Bayou watershed. The White Oak Bayou watershed consists of about 151 miles of open streams including the primary channels—Cole Creek and Little White Oak, and tributary channels—Vogel Creek and Brickhouse Gully. There is long history of flooding along the White Oak Bayou due to the bayou's flat terrain, relatively impervious clay, and occasional torrential rainfall. Also urbanization has led to an increase in the magnitude and duration of flooding.

According to Harris County Flood Control District, there are approximately 8,600 homes in the 1% (100-year) flood plain and approximately 1,900 of which are in the 10% (10-year) flood plain in the county. The Flood Insurance Rate Map (FIRM) maps indicate that a portion of Acres Homes is in the 100-year floodplain. Regarding the velocity of current, the historical data show that there has been a significant increase in stream flow from 1990 compared to previous years. Some of the flood control projects that have been undertaken on the White Oak Bayou include: widening and enlarging the lower 10.7 miles of the bayou; construction of 4 miles of channel enlargement; acquisition of 8 detention basins for a total of 380 surface areas; and excavation of 2,230 acre-feet of dirt at six of the detention basins. The last three projects were embarked upon since 1984 and at a cost of $84 million.

Prior to Hurricane Katrina, Tropical Storm Allison of 2001 was identified as the most damaging storm not only in communities in the White Oak Bayou watershed Figure 14), but also in U.S. history. Tropical Storm Allison dumped as much as 38 inches in Harris County over a weekend period. There are no actual loss data for properties specifically for Acres Homes as a result of Allison. However, the Harris County Flood Control District data shows that White Bayou watershed with 7,600

claims had the second highest number of claims during Allison. There were no records of loss of lives. Also, according to the Division of Emergency Management Acres Homes is not an identified evacuation zone for any category of hurricane. However, this does not suggest or imply that Acres Homes could not evacuate during specific hurricane events.

The highlights of the data collected and presented by Carol Mims Galloway (Houston City Council Member, District B) to Houston City Council on March 31, 2004 noted that Zip codes 77088 and 77091 (which includes Acres Homes) ranked in the top 10% and 20% respectively regarding the number of applications submitted to FEMA by victims of Hurricane Allison. The report noted much of the damage by Allison in these and other Zip Codes in District B was due in part to lack of proper storm water drainage systems, and ditches that were overgrown with weeds or blocked due illegal dumping of waste materials. These observations are similar to the issues such as street drainage and flooding, and cleaning of ditches emphasized by residents of Acres Homes at a Town Hall meeting convened by Houston City Council Member, District B—Carol Mims Galloway at the Acres Homes Multi-Service Center on April 14, 2005 (Personal observation).

CONCLUSION

This environmental mapping project attempted to identify the noxious facilities in Acres Homes. The information was obtained through site visits and public records available at the time of the project, and extensive interviews with residents and community leaders of Acres Homes. The limited scope of our assessment and any inaccuracy of public records may preclude the detection of other potential sources of contamination. The absence of NPL, CERCLIS or TXSF facility, and LUSTs in Acres Homes is based on "the information available" and does not completely rule out the possibility of having such facilities in the community. Also, the limited scope of our assessment and any inaccuracy of public records may preclude the detection of other potential sources of contamination.

Regarding closed/abandoned solid waste landfills, this study noted that Acres Homes community has the largest concentration of such landfills in Harris County, and one of the largest in the state of Texas. Also, the absence of information regarding the materials disposed of in the abandoned/closed landfills in Acres Homes ought to be considered as a source of major concern. The need for detailed soil sample analyses is necessary in view of the proposal to build an apartment complex on one of the sites. As earlier noted the motivation for HB 2537 which required that all closed and/or abandoned municipal solid waste landfills be identified is the discovery of flammable gas in an apartment complex built on a closed landfill in Austin. Also, this report provides some information that can be used in part to develop Flood Mitigation Plan for Acres Homes.

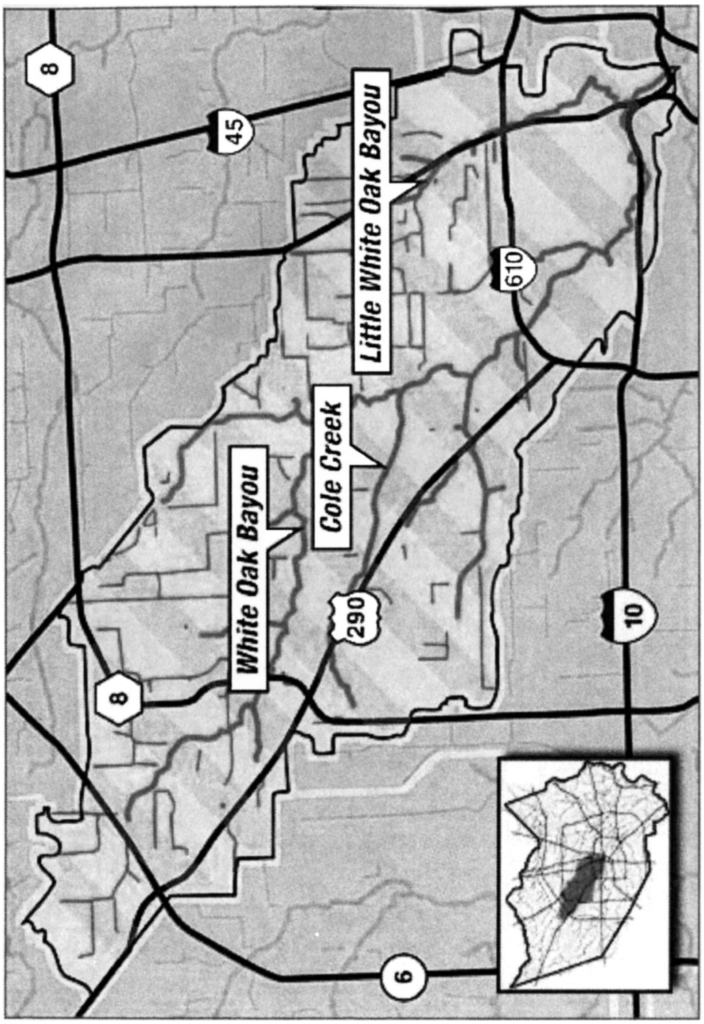

Figure 14. White Oak Bayou Watershed.

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