DEVELOPMENT OF BROWNFIELD DATABASE USING GIS

by

Jubair Hossain

Presented to the Faculty of Graduate School of

The University of Texas at Arlington in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF SCIENCE IN CIVIL ENGINEERING

THE UNIVERSITY OF TEXAS AT ARLINGTON

August 2009

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to Dr. Sahadat Hossain, for his valuable guidance, encouragement, support and care in the accomplishment of this work. Dr. Hossain served as my advisor in all technical difficulties and a mentor in my carrier decisions. The support he provided in so many ways cannot be adequately expressed in words in these acknowledgments.

I would like express my sincere thanks to Dr. Laureano R. Hoyos and Dr. Melanie Sattler, for readily accepting to serve in my committee and for their valuable suggestions and advice.

Special thanks extended to Joshua Been, Mirza Elahi, Ziaur Rahman, S. M. Ashfaqul Hoq, Shahed Rezwan Manzur, and Kiran Kumar Penmethsa for their cooperation in all stages of work. I wish to acknowledge the help and encouragement from all my colleagues and friends for their moral support, friendship and helpful discussion.

Finally, I would like to express my heartfelt thanks to my parents and brothers for their support and encouragement given, to complete my masters program.

July 20, 2009

ABSTRACT

DEVELOPMENT OF BROWNFIELD DATABASE USING GIS

Jubair Hossain, M.S.

The University of Texas at Arlington, 2009

Supervising Professor: Dr. Sahadat Hossain

Brownfields are abandoned, idled or underutilized industrial or commercial sites where expansion or redevelopment is complicated by actual or perceived environmental contamination. Brownfields may be as small as a vacant city lot or as large as an abandoned manufacturing facility occupying several hundred acres. The extent of contamination encountered at brownfield sites may range from minor surface debris to extensive, dangerous soil and ground-water contamination. Concerning the communities in which brownfields are located, redevelopment may improve community appearance and image, relieve associated health and environmental concerns and produce a beneficial economic effect through increased property values and employment opportunities.

The overall objective of the present work is to make a comprehensive database and to integrate a variety of GIS-based spatial analysis procedures to locate, map, classify and assess

the current status of all the potential brownfield sites in the study area, Arlington, Texas. The focus of the current work was on the development of the brownfield database for three region of the City of Arlington: Central, East and Southwest. The database of the potential brownfield candidate sites was created from the listing of contaminated properties in different regulatory sources.

The database was enriched and updated with information describing the current status of the brownfield site. All the potential brownfield sites were converted into GIS shape files based on their physical addresses. The brownfield sites (shape files) were classified according to the region and the regulatory sources. Brownfield sites under each region were divided based on the acreage of the property and further subdivided according to the vacancy. For the current work all the brownfield sites were divided under four ranges of areas: sites with area less than or equal to 0.5 acre, greater than 0.5 acre and less than or equal to 1.5 acre, greater than 1.5 acre and less than or equal to 5.0 acre and greater than 5.0 acre.

All the features created in the ArcMap were converted into Google map using the ArcMap2GMap software. The purpose of the conversion of the ArcMap features into Google map was to create a user friendly interface so that any person can see and query the database without having knowledge in GIS.

TABLE OF CONTENTS

ACKNOWLEDMENTS ii

ABSTRACT iii

LIST OF ILLUSTRATIONS ix

LIST OF TABLES xii

Chapter Page

1. INTRODUCTION 1

1.1 Background 1

1.2 Objective 4

1.3 Organization 6

2. BROWNFIELDS 7

2.1 Introduction 7

2.2 Potential Hazards 8

2.2.1 Asbestos 8

2.2.2 Hazardous Waste 8

2.2.3 Lead 9

2.2.4 Pesticides and Herbicides 9

2.2.5 Radon 9

2.2.6 Underground Storage Tanks 10

2.2.7 Above Ground Storage Tanks 10

2.3 Soil Contaminant Transport 10

2.3.1 Liquid/Solid Phase 10
2.3.2 Dissolved Phase 11
2.3.3 Absorbed Phase 11
2.3.4 Vapor Phase 12
2.4 Site Assessment 12
2.4.1 Phase I Site Assessment 13
2.4.2 Due Diligence 15
2.5 Geographic Information Systems (GIS) 17
2.5.1 Definitions and applications 17
2.6 GIS Based Brownfield Analysis 18
3. GIS Data Collection 23
3.1 Introduction 23
3.2 Study Area 25
3.3 Identifying Regulatory Sources and Brownfields 30
3.3.1 PST Database 31
3.3.2 LPST Database 32
3.3.3 VCP Database 33
3.3.4 IOP Database 34
3.3.5 DCRP Database 34
3.3.6 IHW Generator Database 35
3.3.7 RCRA Generator 35
3.3.8 RCRA Corrective Actions Database 36
3.3.9 MSW Landfill 37
3.3.10 ERNS Database 38

3.3.11 City Provided 38

3.4 Required Data 39

3.4.1 City of Arlington Online Database 40

3.4.2 TAD Database...41

3.4.3 Site Visit..42

3.4.4 GIS Shape Files...44

4. PREPROCESSING AND ANALYSIS OF
THE BROWNFIELD SITES 45

4.1 Introduction..45

4.2 Locating Brownfield Sites 47

4.3 Creating and Mapping of New GIS Shape Files.......................................53

4.3.1 Site Selection According to Region...55

4.3.2 Site Selection According to Regulatory Source....................................58

4.3.3 Site Selection According to Acreage 65

4.3.4 Site Selection According to Land Use 70

4.4 Data Presentation 75

4.5 Client-Server Interaction..80

5. CONCLUSIONS AND RECOMMENDATIONS
FOR FUTURE WORK 82

5.1 Summary and Conclusions 82

5.2 Recommendations for Future Work...84

APPENDIX

A. DATABASE TABLE 86

B. ArcView MAP SHOWING BROWNFIELD SITES.................................93

REFERENCES 113

BIOGRAPHICAL INFORMATION..117

LIST OF ILLUSTRATIONS

Figure Page

1.1 City of Arlington map showing different sectors 3

2.1 Flow chart of the site assessment process 14

2.2 Flow chart of the due diligence process 16

2.3 Brownfield sites in City of Gresham, Oregon...19

2.4 Potential brownfield site in City of Worcester, Massachusetts...............................20

2.5 ArcView window showing brownfield sites
at some part of the Kenton County..21

2.6 City of Greenville brownfield interactive map..22

3.1 Flow chart showing the step by step procedure for data collection 24

3.2 City of Arlington map showing different sectors..26

3.3 TCEQ online data for a PST facility in the City of Arlington 32

3.4 TCEQ online data for a LPST facility in the City of Arlington.............................33

3.5 EPA online data for RCRA Corrective Action Facilities..37

3.6 Interactive map from City of Arlington online database..41

3.7 TAD online database query result 42

3.8 Photos of the sites in Arlington taken during site visit...43

3.9 ArcView window showing tax parcels for City of Arlington 44

4.1 Flow chart showing the step by step GIS based spatial analysis............................46

4.2 ArcView map showing tax parcels for City of Arlington 47

4.3 ArcView window showing the attribute table of the tax parcels 48

4.4 ArcView map showing address locator..49

4.5 ArcView window showing matched and unmatched addresses.............................50

4.6 ArcView window showing interactive matching option..51

4.7 ArcView map showing location of the brownfield sites in the study area.............52

4.8 ArcView map showing parcels that intersect with the brownfield sites 53

4.9 Diagram showing creation of new shape files
Based on different category..54

4.10 Selected sites in Central Arlington from
attribute table of “Brownfield Sites”...55

4.11 ArcView map showing highlighted brownfield sites in Central Arlington...........56

4.12 ArcView map showing highlighted brownfield sites in East Arlington 57

4.13 ArcView map showing highlighted brownfield sites in Southwest Arlington......57

4.14 Attribute table of the brownfield sites with highlighted LPST facilities 58

4.15 ArcView map showing highlighted LPST sites 59

4.16 ArcView map showing highlighted PST sites...60

4.17 ArcView map showing highlighted sites provided by the City personnel............60

4.18 ArcView map showing sites from VCP database 61

4.19 ArcView map showing highlighted sites from IOP database................................61

4.20 ArcView map showing highlighted sites selected from DCRP database..............62

4.21 ArcView map showing highlighted sites from IHW Generator database.............62

4.22 ArcView map showing highlighted sites from RCRA Generator database..........63

4.23 ArcView map showing highlighted sites from
RCRA Corrective Action Database 64

4.24 ArcView map showing highlighted MSW Landfill sites......................................64

4.25 ArcView map showing highlighted sites from ERNS database............................65

4.26 Attribute table showing highlighted brownfield sites with acreage less than or equal to 0.5 in the Central Arlington 66

4.27 ArcView map showing highlighted sites in Central Arlington
with acreage less than or equal to 0.5 67

4.28 ArcView map showing highlighted sites in Central Arlington with acreage
greater than 0.5 and less than or equal to 1.5...68

4.29 ArcView map showing highlighted sites in Central Arlington with acreage
greater than 1.5 and less than or equal to 5.0...69

4.30 ArcView map showing highlighted sites in Central Arlington
with acreage greater than 5.0 70

4.31 Highlighted vacant sites with acreage
less than or equal to 0.5 in Central Arlington 71

4.32 ArcView map showing highlighted vacant sites with acreage
less than or equal to 0.5 in Central Arlington 72

4.33 Highlighted occupied sites with acreage
less than or equal to 0.5 in Central Arlington 73

4.34 ArcView map showing highlighted occupied sites with acreage
less than or equal to 0.5 in Central Arlington 74

4.35 ArcMap2GMap window to convert the
ArcMap features into Google map...76

4.36 User interface of the brownfield database 76

4.37 Google map showing vacant sites in Central Arlington
with acreage between 1.5 and 5.0 77

4.38 Information page for a selected brownfield site...78

4.39 Google map showing all the leaking petroleum storage tanks
And an information window for a selected site 79

4.40 Information page for a selected LPST site 79

4.41 Google map showing 10 closest vacant brownfield sites in Central
Arlington with acreage in between 1.5 and 5.0 to an address................................80

4.42 Block diagram showing client-server interaction..81

LIST OF TABLES

Table Page

3.1 City of Arlington, Texas Demographic Profile..27

3.2 Number of Sites Collected from Different Regulatory Sources 39

3.3 Required Data for Each Brownfield Site 40

4.1 Number of Sites in the Study Area According to the Classifications.................75

CHAPTER 1

INTRODUCTION

1.1 Background

Brownfields are abandoned, idled or underused industrial and commercial sites where expansion or redevelopment is complicated by real or perceived environmental contamination that can add cost, time or uncertainty to a redevelopment project (Davis, 2002). Brownfields routinely are associated with distressed urban areas, particularly central cities and inner suburbs that once were heavily industrialized, but since have been vacated. A brownfield may be as small as an abandoned gas station on a one acre plot or as expansive as a steel manufacturing operation sprawled out over several hundred acres. Brownfield sometimes are defined as the opposite of "greenfields". Greenfields can be defined as the property that has not previously been used for commercial or industrial activities and is presumed free of contamination. The extent of contamination encountered at brownfield sites may range from debris to extensive soil and ground water contamination. Depending upon the level of contamination and cleanup standards of the project, remedial costs may range from thousands to millions of dollars (Reddy et al., 1999).

In 1980, the U.S. Congress established the Superfund program to provide the financial assistance needed for the remediation of hazardous waste sites that impose risk to the public health, safety and also to the surrounding environmental quality. The Superfund program is administered by the U.S. Environmental Protection Agency (USEPA). A ranking system has been established in order to identify which sites are eligible for the Superfund program. Sites with high score in USEPA's hazard ranking system are placed on the National Priority List (NPL). NPL is the published list of hazardous sites that require extensive and long term remediation and may be eligible to receive funding from the Superfund program. Besides this Superfund Program, USEPA took numerous initiatives to gear up brownfield redevelopment. In 1993, USEPA launched the brownfields pilot program with a $200,000 grant used for contaminated site in Cleveland (Davis, 2002). The purpose of the grant and the program as a whole was to create a model for brownfield redevelopment that could than be duplicated throughout the country.

President George W. Bush made brownfields reform a top priority which was reflected in April, 2001 when EPA awarded $38 million to help 90 communities in assessment and clean up under EPA's Brownfields Economic Redevelopment Initiative (Davis, 2002). President Bush also endorsed S 350, which would address Superfund liability and more than double funding for assessment and cleanup.

According to the U.S. Government Accounting office there are around 500,000 contaminated commercial and industrial sites around the country. Although these numbers are impressive but have raised the need for more powerful computer-based tools to interactively locate, monitor and keep an up to date record of all the brownfield sites in the state.

Historically, as the City of Arlington grew, certain areas, primarily the Central and East sectors, became the City's commercial and industrial centers the heart and soul of the community. However, over the last 30 years development has occurred in other parts of the City rather than these sectors. This shift has resulted in many vacant and underutilized properties in the downtown area. A significant number of these underutilized properties are brownfield candidate sites. The Southwest Industrial District is a regionally scaled industrial park that is home to a large General Motors assembly plant. This area has been exposed to numerous industrial and manufacturing uses. There is a greater possibility to identify brownfields among the existing business locations of the Southwest part of the Arlington. A map of City of Arlington with different Sectors (COA-1, 2006) is shown in Figure 1.1.

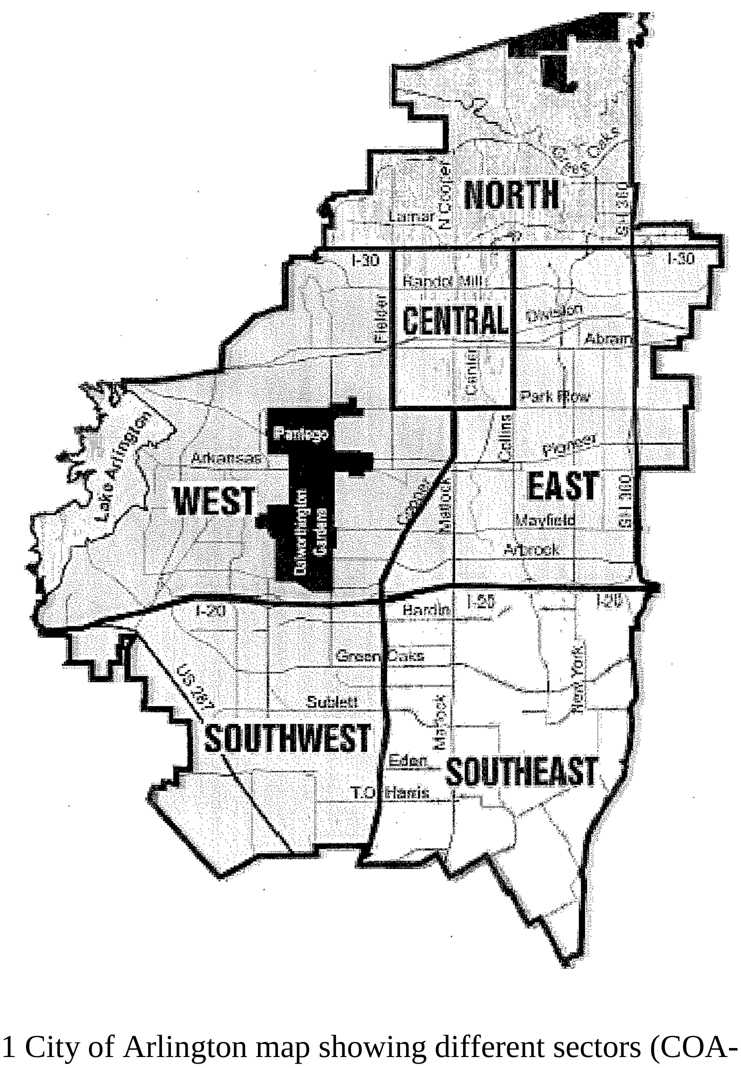


Figure 1.1 City of Arlington map showing different sectors (COA-1, 2006)

Arlington has significant potential to revitalize these target areas. In order for development to take place, it is necessary that sufficient land be available in and around the target sites. Therefore, the need to identify any available space for future development is a vital factor for the City's future vision. The City of Arlington has not developed any comprehensive plan to identify and locate the brownfield sites within the city through their GIS Department.

Some cities in the country are using GIS technology for maintaining and querying brownfield databases. The use of GIS helps tracking and inventorying brownfields, promoting revitalized sites to potential businesses, mapping, site review and environmental review. A Geographic Information System is an organized collection of hardware, software and data for capturing, managing, analyzing and displaying all forms of geographically referenced information and also allows the user to convert real world locations and spatial features into digitally recorded database. This digital information can be presented in the form of maps associated with attribute tables.

However, limited work has been done in the target area in the city of Arlington, Texas. Therefore, the objective of the present work is to create a brownfield database for city of Arlington using GIS.

1.2 Objective

The overall objective of the present work is to make a comprehensive database and to integrate a variety of GIS-based spatial analysis procedures to locate, map, classify and assess the current status of all the potential brownfield sites in the study area. Recent advances in computer-based Geographic Information System (GIS) have provided a suitable technology to accomplish the requirements of developing and maintaining comprehensive database of brownfield sites in the study area. Specific objective of the current work are presented here:

1. To collect information on potential brownfield sites from federal and state agencies.
2. To collect information regarding each brownfield sites through site visit, Tarrant Appraisal District information, City of Arlington database and City directory.
3. To collect GIS-compatible data and maps containing information on the study area.
4. To create excel database for all the brownfield sites from the information gathered through site visit, TAD information, City of Arlington database and City directory.
5. To convert brownfield information into GIS-compatible data using ArcView and to locate the brownfield facilities as point features (shape file) on GIS map using Address Geocoding technique.
6. To classify brownfield sites (shape files) according to sectors and regulatory sources.
7. To classify brownfield sites (shape files) of different Sectors based on acreage and occupancy.
8. To create user friendly interface using ArcMap2GMap software and to present the brownfield sites in Google map as a point location.
9. To incorporate Java in GIS attribute table to link the attribute table properties into a new web page from the Google map.

1.3 Organization

This thesis report is composed of five chapters: Introduction (Chapter 1), Brownfields (Chapter 2), GIS Data Collection (Chapter 3), Preprocessing and Analysis of the Brownfield Sites (Chapter 4) and Conclusions and Recommendations of Future Work (Chapter 5).

Chapter 2 presents a brief description of brownfields as well as the steps involved in the phase I environmental site assessment in the brownfield sites. This chapter also summarizes some case studies relating to the database development of brownfield sites using Geographic Information System (GIS).

Chapter 3 provides historical and demographical information about the study area and outlines the data collection procedures and sources for the study area's brownfield sites and GIS coverage used in the present work.

Chapter 4 is devoted to describing the development of the brownfield database and GIS based spatial procedures developed to locate, map, classify and assess the current status of all the identified brownfield sites in the study area.

Chapter 5 summarizes the main conclusions of the present work and recommendations for future work.

CHAPTER 2

BROWNFIELDS

2.1 Introduction

Many communities across the country have brownfields sites, which the U.S. Environmental Protection Agency (EPA) defines as abandoned, idle and under-used industrial and commercial facilities where expansion and redevelopment is complicated by real or perceived environmental contamination. A brownfield may be as small as an abandoned gas station on a one-acre plot or as expansive as a steel manufacturing operation sprawled out over several hundred acres. Brownfields sites may be divided into four categories (Davis, 2002):

1. Sites that despite needed remediation remains economically viable, due to sufficient market demand.
2. Sites that have some development potential, provided financial assistance or other incentives are available.
3. Sites that have extremely limited market potential even after remediation.
4. Currently operating sites that are in danger of becoming brownfields because historical contamination will ultimately discourage new investment and lending.

Brownfields sites are not natural phenomena. They occur as the result of historical use at industrial and commercial facilities. The soil and water at these sites have been repeatedly impacted by multiple contaminants in various concentration and amounts.

2.2 Potential Hazards

2.2.1 Asbestos

Asbestos is a mineral fiber found in rock. There are several kinds of asbestos fibers, all of which are fire resistant and extremely durable. This qualities made asbestos very useful in construction and industry. Asbestos was the most commonly used material in buildings in between approximately 1900 and 1972 (EAA, 2007). The use of asbestos was first restricted and was gradually phased out in the 1970s. The inhalation of asbestos fibers can cause various types of cancer, as well as asbestosis.

2.2.2 Hazardous Waste

The term "hazardous waste" refers to a large variety of chemical, biological and radioactive substances. Hazardous materials have a potential to cause contamination to a property or its surroundings when they are released into the environment by a spill, fire or intentional disposal. These hazardous substances include a wide variety of materials. Some household products and chemical used in industrial processes can all be hazardous materials. Soaps, detergents, cleaning preparations, solvents, paints, allied products, petroleum products, agricultural chemicals, biological products and equipment such as X-ray machines, batteries and electrical transformers may all be included as hazardous materials.

2.2.3 Lead

Lead is a pliable, soft metal that is used for pipes, rods and containers. Lead was a common ingredient in paint because it added strength, shine and extended the life of the paint. In 1978 the United Stated banned the use of lead pigments in paints used on interior and exterior residential surfaces (EAA, 2007). Lead can be extremely toxic, can impair physical and mental development of young children and can also lead to high blood pressure in adults.

2.2.4 Pesticides and Herbicides

Pesticides are chemical products developed to eradicate a target species. Pesticides include insecticides, herbicides, rodenticides, fungicides, disinfectants and plant growth regulators and have been developed to control insects, weeds, bacteria, fungi and rodents. Pesticides can significantly reduce agricultural crop losses, structural damage to property and public health concerns.

2.2.5 Radon

Radon is a radioactive colorless, odorless, naturally occurring gas that seeps through the soil, rock and water and collects in houses. Radon gas is produced when certain natural radioactive minerals break down or decay. Radon gas further decays into smaller particles known as radon daughters or progeny, which attach to soil or dust particles in the air. The radioactive decay of these daughter products damages lung tissue and causes cellular changes which may transform normal cells into cancer cells.

2.2.6 Underground Storage Tanks

According to EPA, an underground storage tank (UST) system consists of any underground piping connected to a storage tank that has at least ten percent of its combined volume underground (EPA-1, 1995). Any UST system containing petroleum and other hazardous substances is of great concern for public health and safety. Spills, overfills or leaking tanks or piping can cause fire or explosions that threaten human safety. Releases from UST can also contaminate ground water.

2.2.7 Above Ground Storage Tanks

Above ground storage tank (AST) can serve a variety of function such as portable tanks used on construction sites, fiberglass tanks used in chemical processing operations and large cylindrical steel tanks used at oil refineries. A leaking AST used to store a petroleum product or other hazardous substance presents a risk of contaminating surface soils and surface waters as wells ground water. An AST also poses a fire hazard if it contains flammable, combustible or reactive materials.

2.3 Soil Contaminant Transport

2.3.1 Liquid/Solid Phase

Contaminants are frequently released to the soil in their liquid or solid phase. Solids are not highly mobile once released; on the other hand, liquid contamination released to the environment can be highly mobile. Liquid contamination in the subsurface will migrate, under the forces of gravity, to the ground water surface. Once reaching the ground water surface, the contaminants chemical characteristics play an important role in the final disposition of the contamination (Yong et al., 1992).

Specific gravity is the primary property among these characteristics (Davis, 2002). Specific gravity can be defined as the ratio of the weight of a given volume of substance to that of an equal volume of water. Contaminants with higher specific gravity than ground water will sink through the aquifer until reaching an impermeable layer where they will collect (Yong et al.,1992). These contaminants will than migrate under the forces of gravity along the impermeable layer. Contaminants with lower specific gravity than ground water will float and collect on the ground water surface (Yong et al.,1992). These contaminants will than migrate under the influence of the direction of ground water flow.

2.3.2 Dissolved Phase

Contaminants reaching the ground water surface may exhibit the ability to dissolve. Chemical activity will dissolve the liquid or solid contaminant based on the chemical's water solubility which allows contamination to spread through the groundwater (Knox et al.,1993).

2.3.3 Absorbed Phase

Contaminants typically migrate through the near-surface soils before reaching the ground water surface. The migration of the contaminants is primarily dependent on the porosity of the soil. Soil porosity is the measure of the space between solid grains, and it is defined as the ratio of the volume of the solid material to the volume of void space. Porosity is reduced when smaller particles infill into larger particles. Soils with higher porosity will allow contaminants to move more easily through them. As contaminant move through soil, chemical and physical action will cause significant amounts of the contaminant to remain within the intergranular spaces of the soil. Once a contaminant has moved through a soil medium, remobilization of that contaminant is not typically significant, because the contaminant becomes trapped in the pore spaces by surface tension and chemical reactions (Davis, 2002).

2.3.4 Vapor Phase

The primary characteristic for volatilization of a contaminant is its vapor pressure. Vapor pressure can be defined as the ability of a compound or element to vaporize into the air. There are two common issues associated with the vapor phase of the contaminant. One is the possibility of inhalation by a worker at the facility and the other one is the ignition of the explosive vapors that have accumulated. Vapors are the most mobile phase of contamination. Vapors can migrate against gravity, through pore spaces and into synthetic and natural conduits. Vapors also represent the smallest volume of contaminant mass following a release (Davis, 2002).

2.4 Site Assessment

Site assessment and due diligence provide initial information regarding the feasibility of a brownfields redevelopment project. A site assessment evaluates the health and environmental risks of a site and the due diligence process examines the legal and financial risks. These two steps help the planner to build a conceptual framework of the site, which will develop into the foundation for the next steps in the redevelopment process.

The phase I site assessment is generally performed by an environmental professional. A site assessment typically identifies (EPA-2, 2001):

1. Potential contaminants that remain in and around a site;

2. Likely pathways that the contaminants may move; and
3. Potential risk to the environment and human health that exist along the migration pathways.

Due diligence helps to evaluate (EPA-2, 2001):

1. Potential legal and regulatory requirements and risks;
2. Preliminary cost estimates for property purchase, engineering, taxation and risk management; and
3. Market viability of the redevelopment project.

2.4.1 Phase I Site Assessment

The purpose of a phase I site assessment is to identify the type, quantity and extent of potential contamination at a brownfield site. Financial institutions typically require a site assessment prior to lending money to potential property buyers. A site investigation includes:

1. A review of readily available records, such as former site use, building plans, records of any prior contamination events;
2. A site visit to observe the areas used for various industrial processes and the condition of the property;
3. Interviews with knowledgeable people, such as site owners, operators and occupants, neighbors, local government officials; and
4. A report that includes an assessment of the likelihood that contaminants are present at the site.

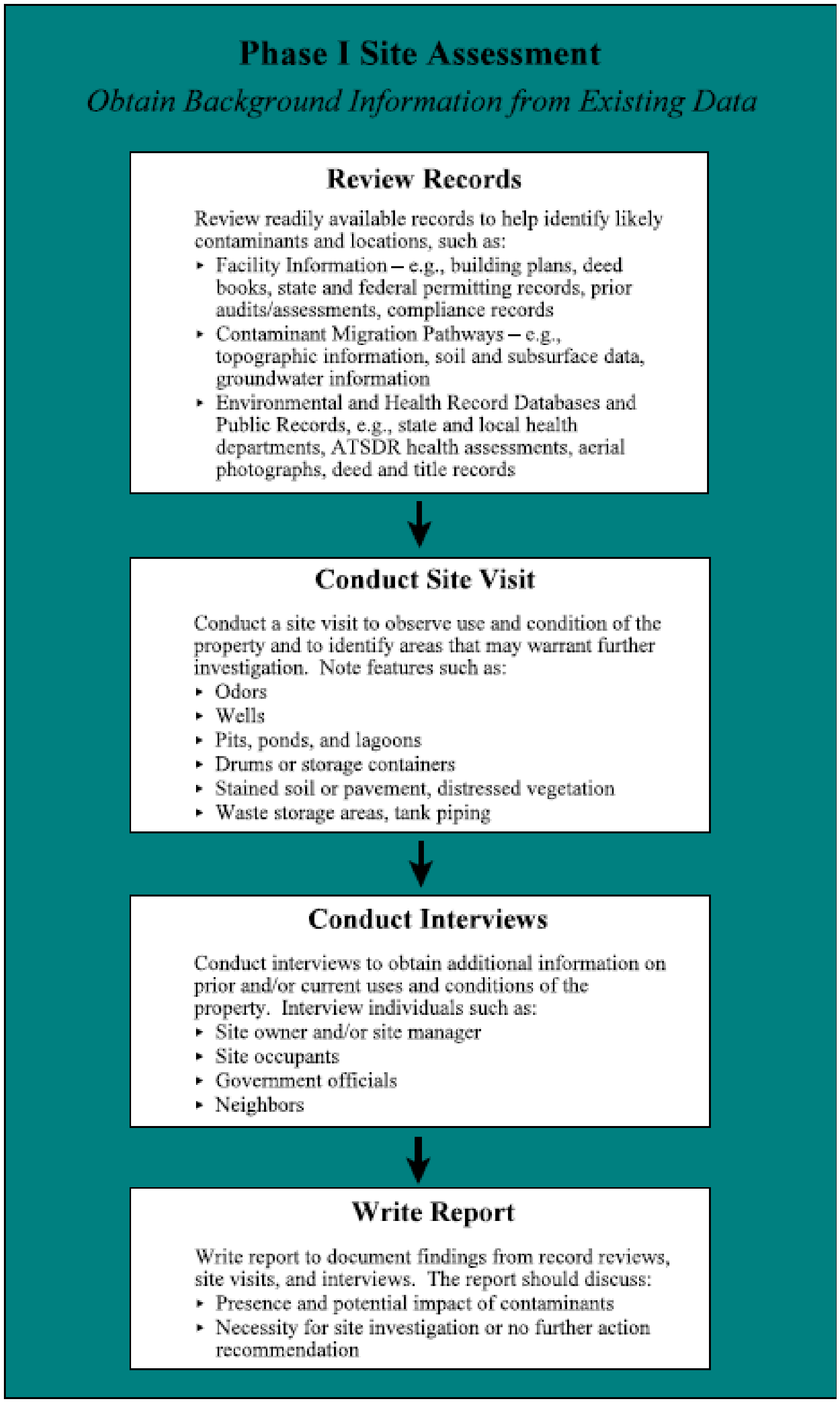


Figure 2.1 Flow chart of the site assessment process (EPA-2, 2001).

2.4.2 Due Diligence

The purpose of the due diligence process is to determine the financial viability and extent of legal risk related to a particular brownfield project. The concept of financial viability can be explored from two perspectives, the marketability of the intended redevelopment use and the accuracy of the financial analysis for redevelopment work. Figure 2.2 represents the three stage due diligence process.

Conduct Due Diligence

Minimize the Legal and Financial Risk of a Brownfields Project

Market Analysis

Determine the market viability of the project by:

- Developing and analyzing the community profile to assess public consensus for the market viability of the project
- Identifying economic trends that may influence the project at various levels or scales
- Determining possible marketting strategies
- Defining the target market
- Observing proximity to amenities for location attractions and value
- Assessing historic characteristics of the site that may influence the project

Financial Analysis

Assess the financial risks of the proojeet by:

- Estimating cost of engineering, zoning, environmental consultant, legal ownership, taxation, and risk management
- Estimating property values before and after project
- Determining affordability, financing potential and services
- Identifying lending institutions and other funding mechanisms
- Understanding projected investment return and strategy

Legal Liability Analysis

Minimize the legal liability of the project by:

- Reviewing the municipal planning and zoning ordinances to determine requirements, options, limitations on uses, and need for variances
- Clarifying property ownership and owner cooperation
- Assessing the political climate of the community and the political context of the stakeholders
- Reviewing federal and local environmental requirements to assess not only risks, but ongoing regulatory/permitting requirements
- Evaluating need and availability for environmental insurance policies that can be streamlined to satisfy a wide range of issues
- Ensuring that historical liability insurance policies have been retained
- Evaluating federal and local financial and/or tax incentives
- Understanding tax implications (deductibility or capitalization) of environmental remediation costs

Figure 2.2 Flow chart of the due diligence process (EPA-2, 2001)

2.5 Geographic Information Systems (GIS)

2.5.1 Definition and Applications

A Geographic Information System (GIS) is an organized collection of computer hardware, software, geographic data and presentation to efficiently organize, represent and manipulate all forms of spatial data. GIS provides users with ability to convert real world locations into digitally recorded database. This digital information can be presented in the form of maps.

GIS organizes geographic data so that a person reading a map can select data necessary for a specific project or task. GIS program is able to process geographic data from a variety of sources and integrate it into map project. GIS maps are interactive. On the computer screen, map users can scan a GIS map in any direction, zoom in or out and change the nature of the information contained in the map.

Polygons, lines and points are the three basic features in GIS (ESRI, 2001). Polygons represent things large enough to have boundaries, such as countries, lakes and tracts of land. Lines represent things too narrow to be polygons, such as rivers, roads and pipelines. Points are used for things too small to be polygons, such as schools, hospitals and buildings.

GIS has been used in many governmental agencies and departments for urban planning, zoning, code enforcement, emergency response, crime analysis and tax assessment. In environmental science field, GIS has been used in modeling storm water and runoff, managing of watersheds and wetlands, developing environmental impact statement, locating hazardous waste producing facilities and modeling of groundwater (Razzaq, 2003). In civil engineering, GIS has been used for modeling storm water pollution, sediment transport, solid waste collection management and determining alignment of freeways (Miles et al., 1999).

GIS has the capability to link all parties and issues through each phase of development. The ability of GIS to bring together many different data sources into a comprehensive and manageable format makes it an excellent tool for site selection. By referencing existing city maps and data layers, identifying specific areas of zoning and combining that information with other known features, GIS can be used to effectively compare and qualify brownfield sites for particular types of redevelopment.

2.6 GIS Based Brownfield Analysis

Different communities are using GIS as a management, decision support, institutional control and outreach tools to turn brownfields into performing economic assets and to revitalize the economic and environmental health of the community. These are done by tracking and inventorying brownfields, promoting revitalized sites to potential businesses, mapping, site review and environmental review. The process of redeveloping brownfields properties is a complex exercise consisting of many phases, involving many stakeholders from the community and calling upon many different sources of information to arrive at a solution.

City of Gresham, Oregon, had developed a brownfield database using GIS technology (Underhill, 2006) and prioritized the sites introducing developed ranking system. The primary inventory of the brownfield sites was based upon four different criteria: location, zoning, acreage and environmental issues. A ranking system was developed for each criterion with 10 as highest score and 1 as lowest score. Sites with higher cumulative score have a greater potential and were assigned green color in the map. Figure 2.3 shows the brownfield sites in City of Gresham, Oregon. The sites with yellow color have medium impact and with red color have low impact on the redevelopment potential of the brownfield sites.

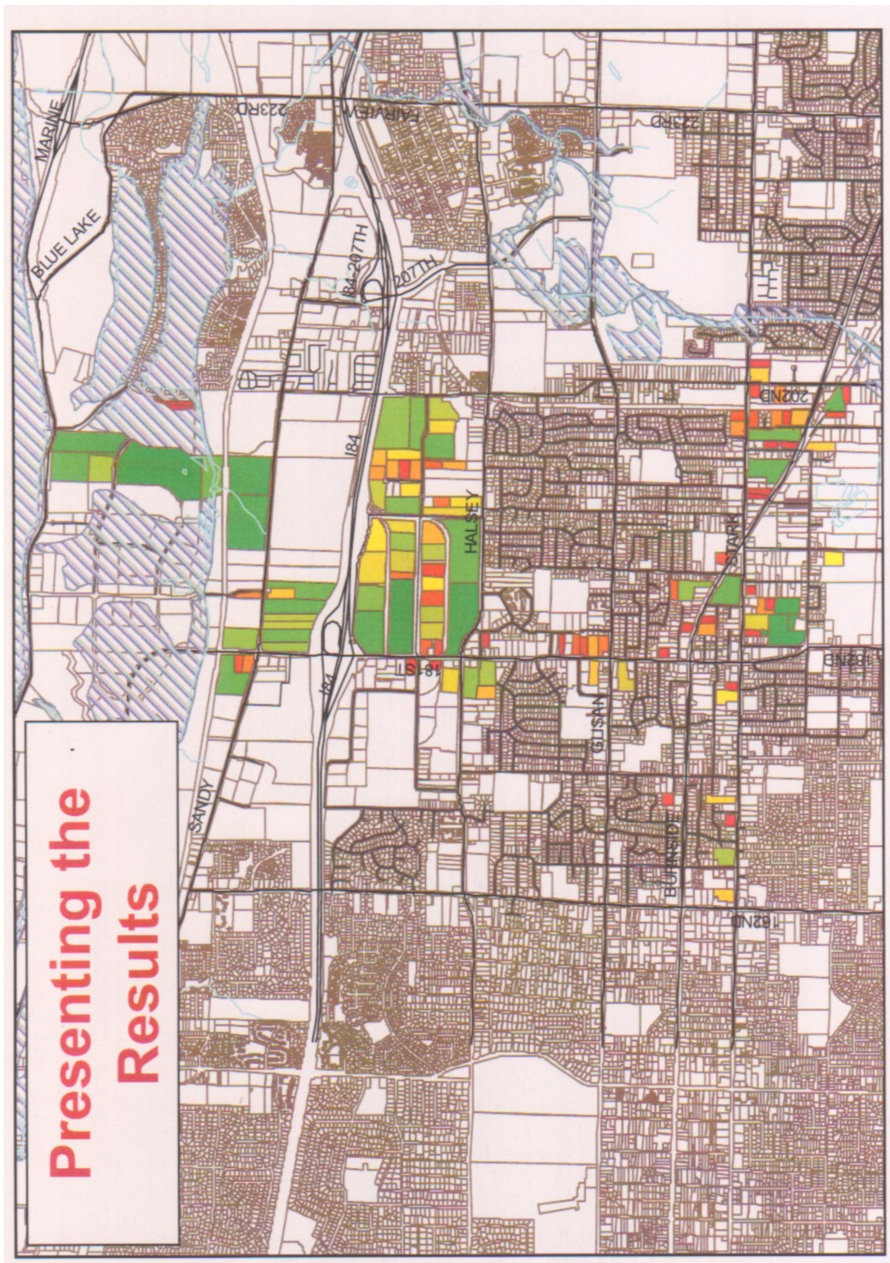


Figure 2.3 Brownfield sites in City of Gresham, Oregon (Underhill, 2006)

City of Worcester, Massachusetts, with 175,898 population, had been recognized as one of the most affordable-single family housing markets in the commonwealth of Massachusetts (White et al., 2006). Therefore, the need to identify any available space for future development is a vital factor for City's future vision. This had led to the development of Brownfield Redevelopment Inventory Query tool for the City of Worcester, Massachusetts. The City's GIS department is using GIS to locate the brownfield sites throughout the city and Microsoft Access to query the database. Figure 2.4 shows the potential brownfield sites in City of Worcester, Massachusetts. The different color of the parcels signifies the different regulatory sources from where the potential brownfield candidate sites were evaluated.

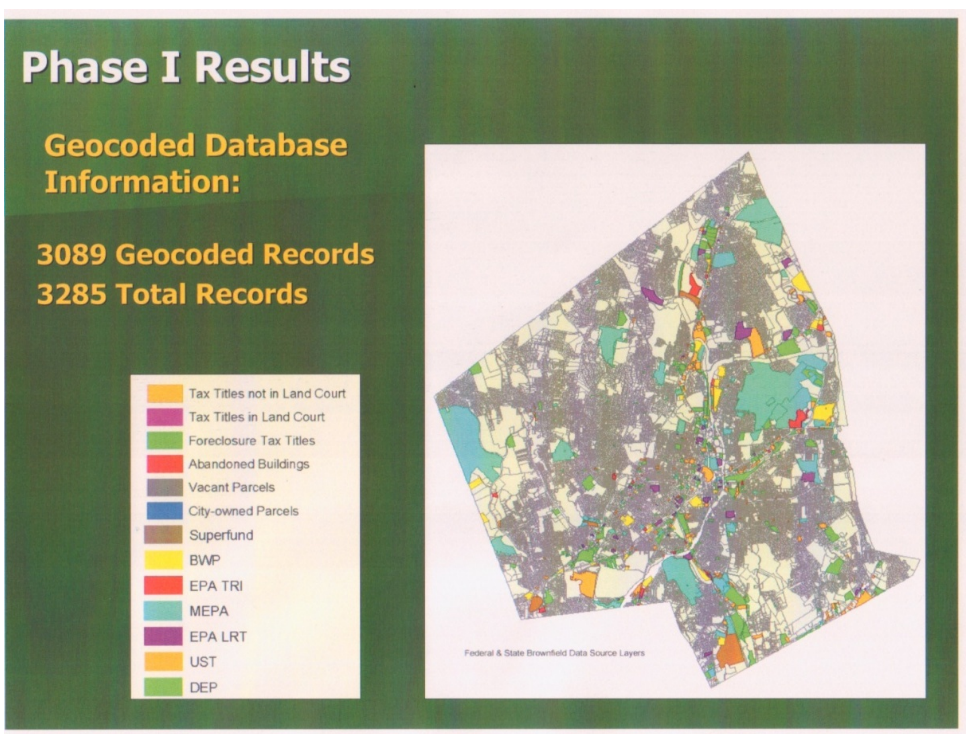


Figure 2.4 Potential brownfield sites in City of Worcester, Massachusetts (White et al., 2006)

The Northern Kentucky Area Planning Commission is using GIS to identify and create a database of the potential brownfield sites within the Kenton County. The candidate site selection was based upon different regulatory sources and community identified sites which has possible contamination (Kent, 2005). In Figure 2.5, the ArcView window shows the brownfield sites at some part of the Kenton County. From the figure it can be seen that brownfield sites were classified according to the regulatory sources and were assigned different colors for different sources.

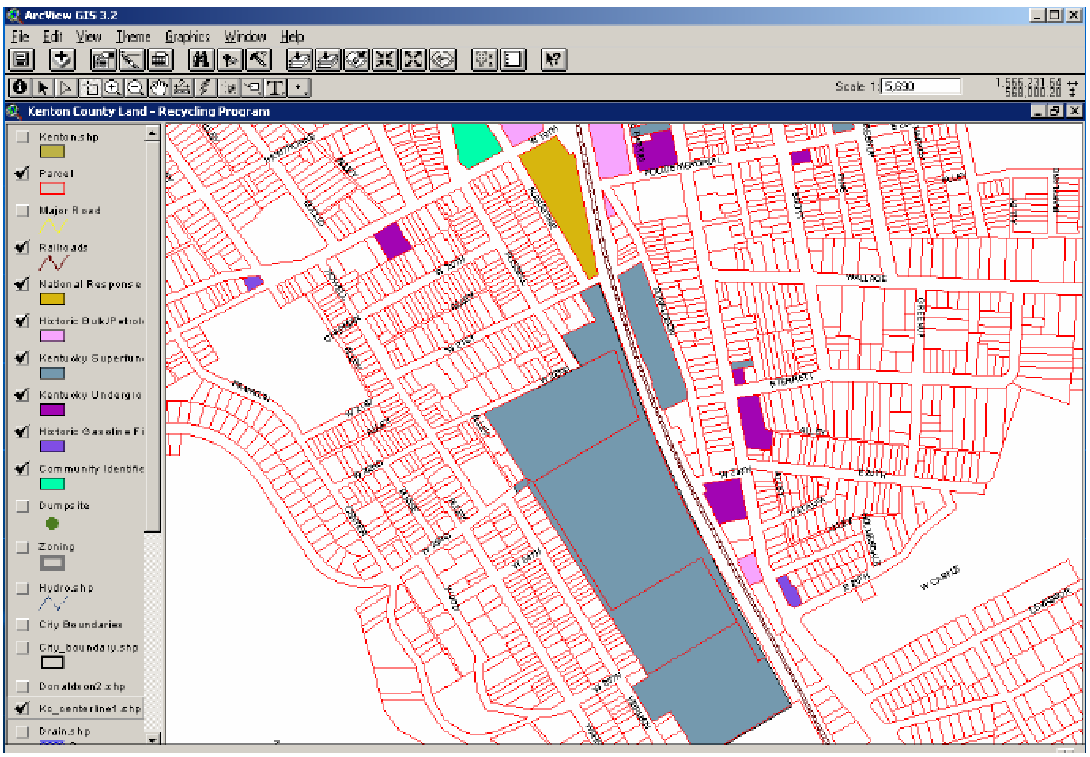


Figure 2.5 ArcView window showing brownfield sites at some part of the Kenton County (Kent, 2005)

City of Greenville, Texas had developed a brownfield database to assist in the prioritization and more detailed understanding of the historic usage of the potential brownfield sites in six target areas of City of Greenville, Texas. The information within this database includes site photographs, parcel information, zoning information and selected environmental information collected during the Environmental Due Diligence process concerning site acquisition and redevelopment. City of Greenville, Texas, had been using ArcIMS along with GIS to locate, map and present the brownfield sites as well as to query the database. Figure 2.6 shows the GIS based City of Greenville map with highlighted the brownfield target areas (COG, 2009).

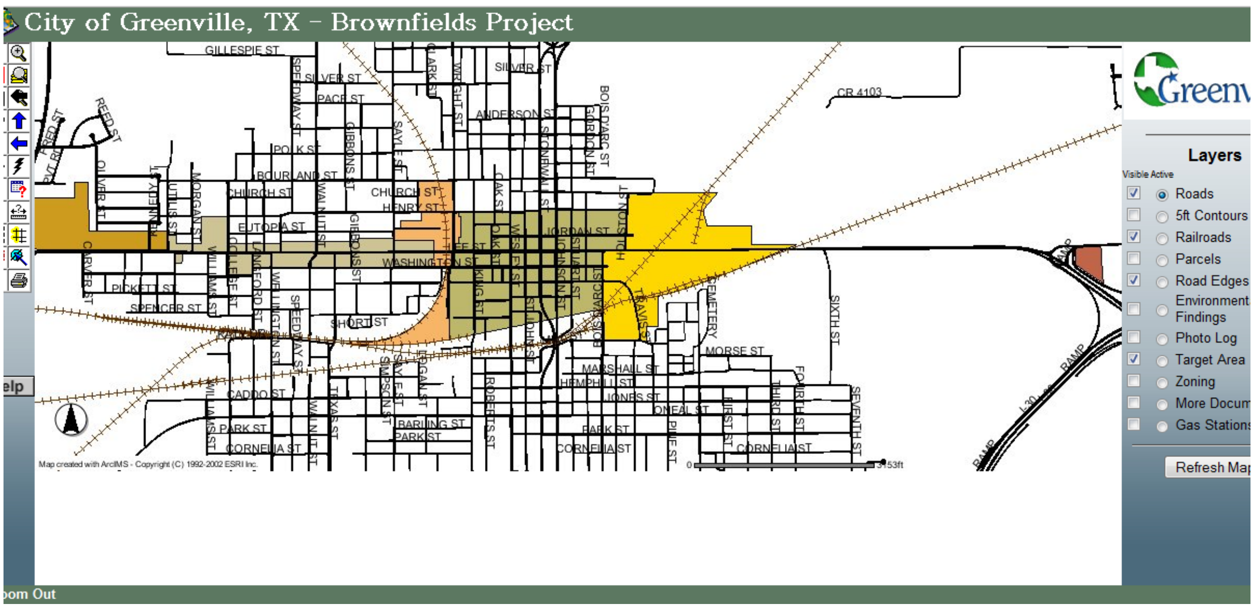


Figure 2.6 City of Greenville brownfield interactive map (COG, 2009)

CHAPTER 3

GIS DATA COLLECTION

3.1 Introduction

The overall objective of the present work is to integrate a variety of GIS based special analysis procedures to locate, map, classify and assess the current status of the brownfield sites in the study area. Recent advances in computer-based Geographic Information System (GIS) have provided a suitable technology to accomplish the requirements of developing and maintaining a comprehensive database of brownfield sites in the study area.

The purpose of this chapter is to demonstrate the procedure adopted to collect the data for the brownfield sites in the study area of City of Arlington, Texas. The step by step structure of the data collection is presented in Figure 3.1.

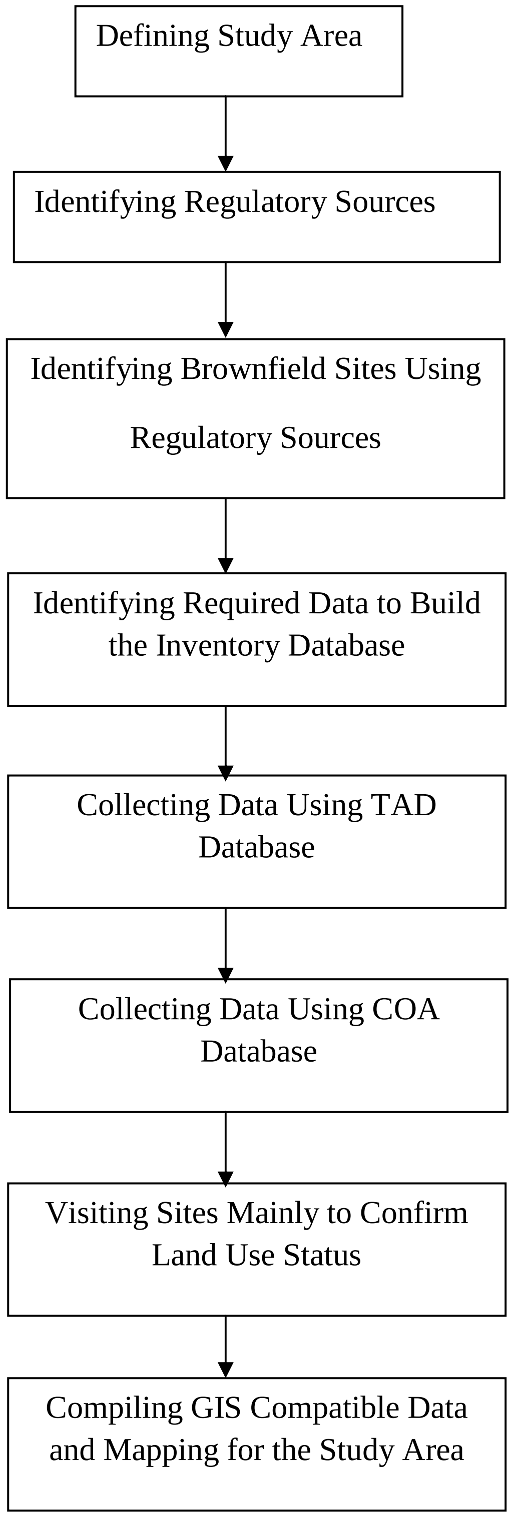


Figure 3.1 Flow chart showing the step by step procedure for data collection

3.2 Study Area

The City of Arlington is situated in East Tarrant County between Fort Worth and Dallas. The city grew out of a settlement called Johnson Station which was established by Middleton Tate Johnson in 1843, near Marrow Bone Spring (Devabhaktuni, 2002). Arlington was an established frontier town with a population of 800 citizens. It became a major Texas City with a steady development on January 17, 1920 under the provisions of the Home Rule Amendment (Devabhaktuni, 2002).

As the City of Arlington grew, certain areas, primarily the Central and East Sectors, became the City's commercial and industrial centers the heart and soul of the community. However, over the last 30 years development has occurred in other parts of the City rather than these sectors. This shift has resulted in many vacant and underutilized properties in the downtown area. A significant number of these underutilized properties are brownfield candidate sites. The Southwest Industrial District is a regionally scaled industrial park that is home to a large General Motors assembly plant. This area has been exposed to numerous industrial and manufacturing uses. There is a greater possibility to identify brownfields among the existing business locations of the Southwest part of the Arlington. A map of City of Arlington with different Sectors is shown in Figure 3.2. Table 3.1 presents the demographic profile for City of Arlington.

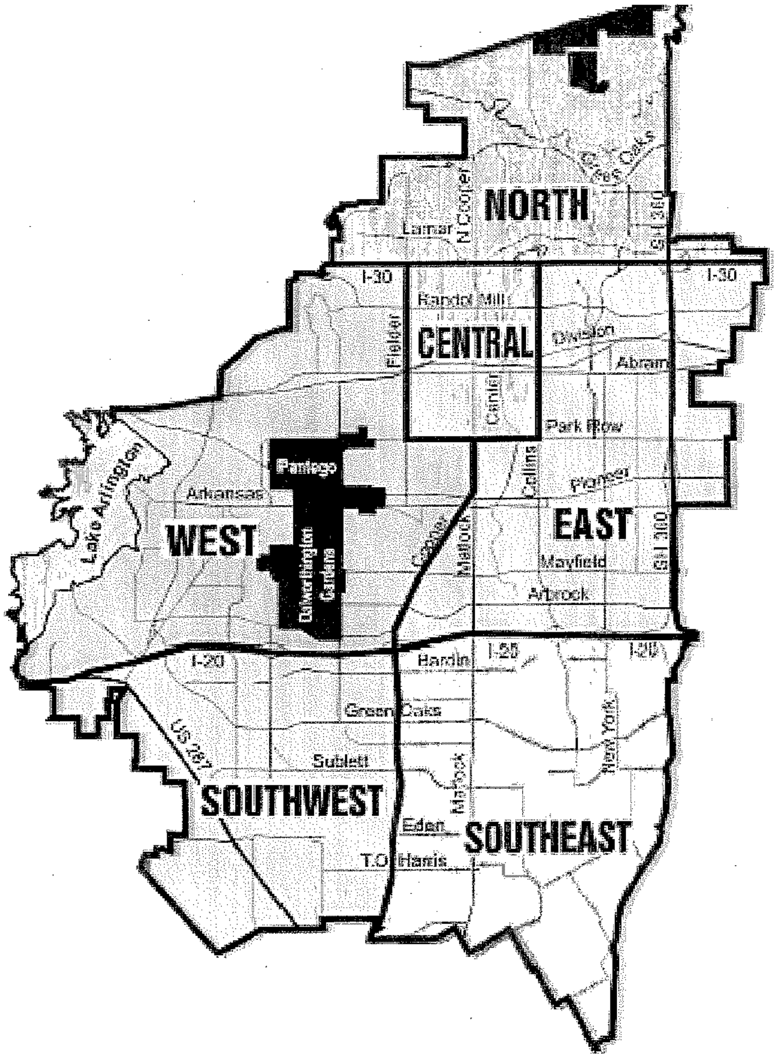


Figure 3.2 City of Arlington map showing different sectors (COA-1, 2006)

Table 3.1 City of Arlington, Texas Demographic Profile (COA-1, 2006)

Total Persons - 332,969			**Total Population in Households - 330,521**		
SEX AND AGE	**Persons**	**% of Total**	**RACE**	**Persons**	**% of Total**
Male	166,465	50.0%	White	225,379	67.7%
Female	166,504	50.0%	African American	45,727	13.7%
Under 5 years	27,755	8.3%	American Indian and Alaska Native	1,817	0.5%
5 to 9 years	27,054	8.1%	Asian	20,015	6.0%
10 to 14 years	25,219	7.6%	Native Hawaiian and Other Pacific Islander	475	0.1%
15 to 19 years	24,061	7.2%	Some other race	29,763	8.9%
20 to 24 years	26,806	8.15	Two or more races	9,793	2.9%
25 to 34 years	61,617	18.5%			
35 to 44 years	57,181	17.2%	**HOUSING OCCUPANCY**		
45 to 54 years	41,075	12.3%			
55 to 59 years	13,014	3.9%	**Total housing units**	**130,628**	**100.0%**
60 to 64 years	8,748	2.6%	Occupied housing units	124,686	95.5%
65 to 74 years	12,118	3.6%	Vacant housing units	5,942	4.5%
75 to 84 years	6,437	1.9%	For seasonal, recreational, or occasional use	364	0.3%
85 years and over	1,884	0.6%	Homeowner vacancy rate		1.4%
			Rental vacancy rate		6.1%

HOUSING CHARACTERISTICS					
Year Structure Built	**Units**	**% of Total**		**Units**	**% of Total**
1999 to March 2000	3,822	2.9%	**Specified Owner Occupied Units**	**63,091**	**100%**
1995 to 1998	9,352	7.1%	**Value**		
1990 to 1994	11,814	9.0%	Less than $50,000	3,283	5.2%
1980 to 1989	45,480	34.8%	$50 K to $99 K	30,750	48.7%
1970 to 1979	34,470	26.3%	$100 K to $149 K	17,525	27.8%
1960 to 1969	14,492	11.1%	$150 K to $199 K	6,823	10.8%
1940 to 1959	10,429	8.0%	$200 K to $299 K	3,283	5.2%
1939 or earlier	963	0.7%	$300 K to $499 K	1,070	1.7%
			$500 K to $999 K	312	0.5%
			$1,000 K or more	45	0.1%

Table 3.1 - Continued

POVERTY STATUS IN 1999	Male	Female	MEDIAN EARNINGS FOR FULL-TIME, YEAR-ROUND WORKERS	Male	Female
Total population with income below poverty level	**15,151**	**17,345**	**Median earnings in 1999**	**$38,612**	**$29,339**
Under 5 years	2,166	1,658	White	$41,655	$30,628
5 to 11 years	2,412	2,435	Black	$34,267	$28,517
12 to 17 years	1,568	1,532	American Indian/Alaska Native	$36,146	$23,077
18 to 24 years	3,146	3,484	Asian	$34,067	$22,094
25 to 34 years	2,640	3,273	Native Hawaiian/Pacific Islander	$39,167	$36,204
35 to 44 years	1,770	2,393	Other race	$22,723	$20,445
45 to 54 years	817	1,022	Two or more races	$33,533	$28,493
55 to 64 years	355	583	Hispanic (any race)	$25,102	$21,518
65 to 74 years	207	478			
75 years and over	70	487			
	Persons	**% of Total**	**EDUCATIONAL ATTAINMENT**	**Persons**	**% of Total**
Total population with income below poverty level	**32,496**	**100.0%**	**Population 25 years and over**	**203,373**	**100.0%**
White	14,624	45.0%	Less than 9th grade	12,493	6.1%
Black	6,239	19.2%	9th to 12th grade, no diploma	18,163	8.9%
American Indian/Alaska Native	268	0.8%	High school graduate (includes equivalency)	42,657	21.0%
Asian	2,920	9.0%	Some college, no degree	54,418	26.8%
Native Hawaiian/Pacific Islander	91	0.3%	Associate degree	13,805	6.8%
Other race	6,316	19.4%	Bachelor's degree	44,030	21.6%
Two or more races	2,038	6.3%	Graduate or professional degree	17,807	8.8%
Hispanic (any race)	11,028	33.9%			

Arlington has significant potential to revitalize these target areas. However, there are a few constraints that can influence the City's revitalization strategy. First, Central Arlington, which includes downtown, has almost reached its build-out capacity. Second, the proposed Dallas Cowboys stadium and proposed Glorypark project will be constructed by the end of 2009. With those two calibers of projects there is a need for development resurgence in these target areas and the neighborhoods that surround them. In order for development to take place, it is necessary that sufficient land be available in and around the target sites.

Therefore, the need to identify any available space for future development is a vital factor for the City's future vision. The redevelopment on the brownfields sites, particularly in the downtown area of the Central Arlington, will provide Arlington with the opportunity to gain a wealth of new businesses, shop and restaurants. Downtown will be able to provide residents and thousands of UTA students, staff and faculty with the opportunity to take advantage of the various recreational amenities available to them.

The East Sector will benefit from this redevelopment through the stimulation of economic development and the creation of new jobs in the area. This is in turn will provide an increase to the local tax base. Additionally, persons living in those areas will benefit enormously through the cleanup of sites that may cause them both health and safety concerns.

Large industrial sites, such as the Great Southwest Industrial District, pose a greater threat of contamination to the community than smaller sites and are generally more costly to cleanup and redevelop. However, they are more attractive to developers of brownfields sites because they can reap greater economic return on the projects.

3.3 Identifying Regulatory Sources and Brownfields

The purpose of the current thesis work was to create a database of brownfields sites for the study area in City of Arlington using GIS. Sites listed in different regulatory sources were considered for the inventory of brownfields because of the possibility of those sites being a potential brownfields. In order to accomplish this goal, the following regulatory sources were utilized:

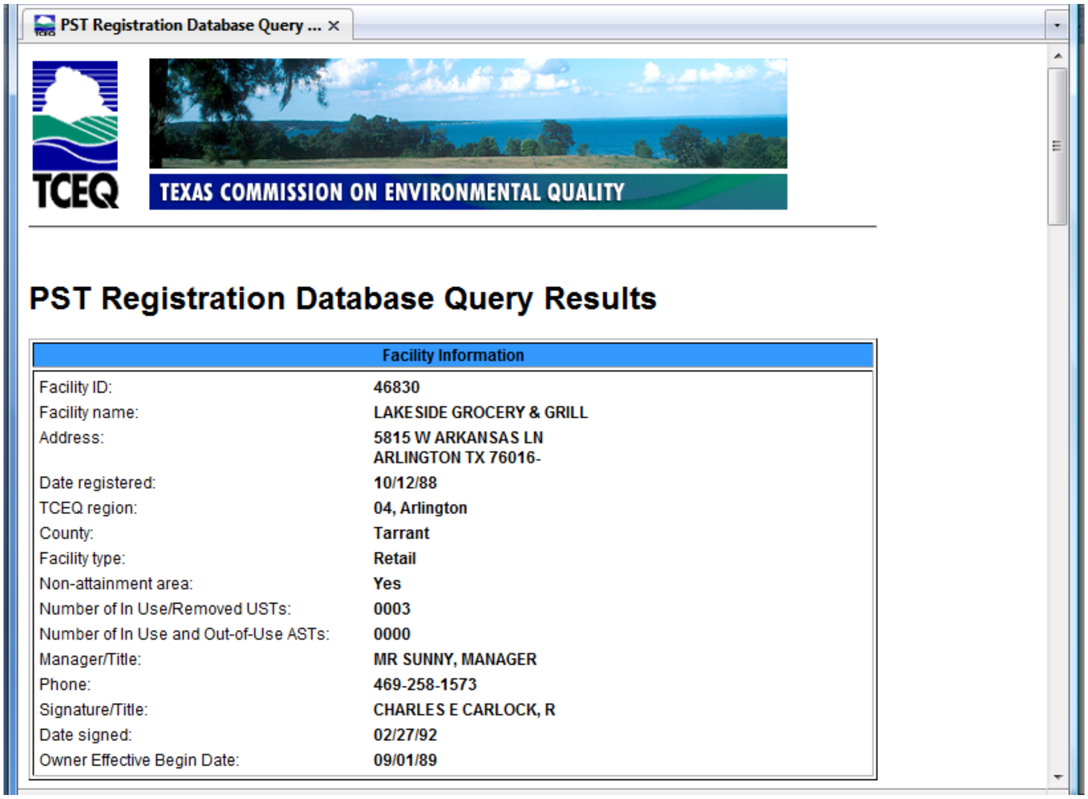
1. List of all petroleum storage tank (PST) facilities in the study area.
2. List of all leaking petroleum storage tank (LPS) facilities.
3. Sites that were taken under the Voluntary Cleanup Program (VCP) for City of Arlington.
4. Sites listed under the Innocent Owner/Operator Program (IOP).
5. Dry cleaners which were taken under the Dry Cleaner Remediation Program (DCRP).
6. Sites that generates hazardous waste and were listed as Industrial Hazardous Waste (IHW) Generator.
7. Sites listed as generator under the Resource Conservation and Recovery Act (RCRA).
8. The Corrective Action facilities under the Resource Conservation and Recovery Act (RCRA).
9. List of Municipal Solid Waste Landfill located in the City of Arlington.
10. Sites those were reported to the Emergency Response Notification System.
11. GIS map showing tax parcels (shape files) for City of Arlington.

The sources and collection processes of the information outlined above are summarized in the following paragraphs.

3.3.1 PST Database

A petroleum storage tank (PST) system is defined as an underground storage tank (UST) system that contain petroleum or a mixture of petroleum and minimum quantities of other regulated substances. A comprehensive database of the existing petroleum storage tanks (PSTs) in the study area was collected from two different sources: the PST online data available on the TCEQ website (TCEQ-1, 2008) and reports of environmental consulting firm.

Information obtained from consulting firm was in the form of Microsoft Excel sheet and contained the name and address of the PST facilities. Using the TCEQ database, PST sites were identified at the target areas. Figure 3.3 shows the TCEQ online data format for a selected PST facility in the study area.



PST Registration Database Query ...

TCEQ

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PST Registration Database Query Results

Facility Information	
Facility ID:	46830
Facility name:	LAKESIDE GROCERY & GRILL
Address:	5815 W ARKANSAS LN ARLINGTON TX 76016-
Date registered:	10/12/88
TCEQ region:	04, Arlington
County:	Tarrant
Facility type:	Retail
Non-attainment area:	Yes
Number of In Use/Removed USTs:	0003
Number of In Use and Out-of-Use ASTs:	0000
Manager/Title:	MR SUNNY, MANAGER
Phone:	469-258-1573
Signature/Title:	CHARLES E CARLOCK, R
Date signed:	02/27/92
Owner Effective Begin Date:	09/01/89

Figure 3.3 TCEQ online data for a PST facility in the City of Arlington

3.3.2 LPST Database

A leaking petroleum storage tank is any PST that is leaking. Underground leaking tank can harm the environment and may be subjected to state cleanup requirements. Most underground storage tank (UST) installed through the 1980s were bare steel tanks, which eventually corrode and leak (IDEQ, 2009). Faulty installation or inadequate operation and maintenance also can cause PSTs to release their contents into the environment.

A comprehensive database of leaking petroleum storage tanks (LPSTs) in the study area was collected from the TCEQ LPST online data query (TCEQ-2, 2008). Figure 3.4 shows the online data format for a selected LPST facility in the study area.

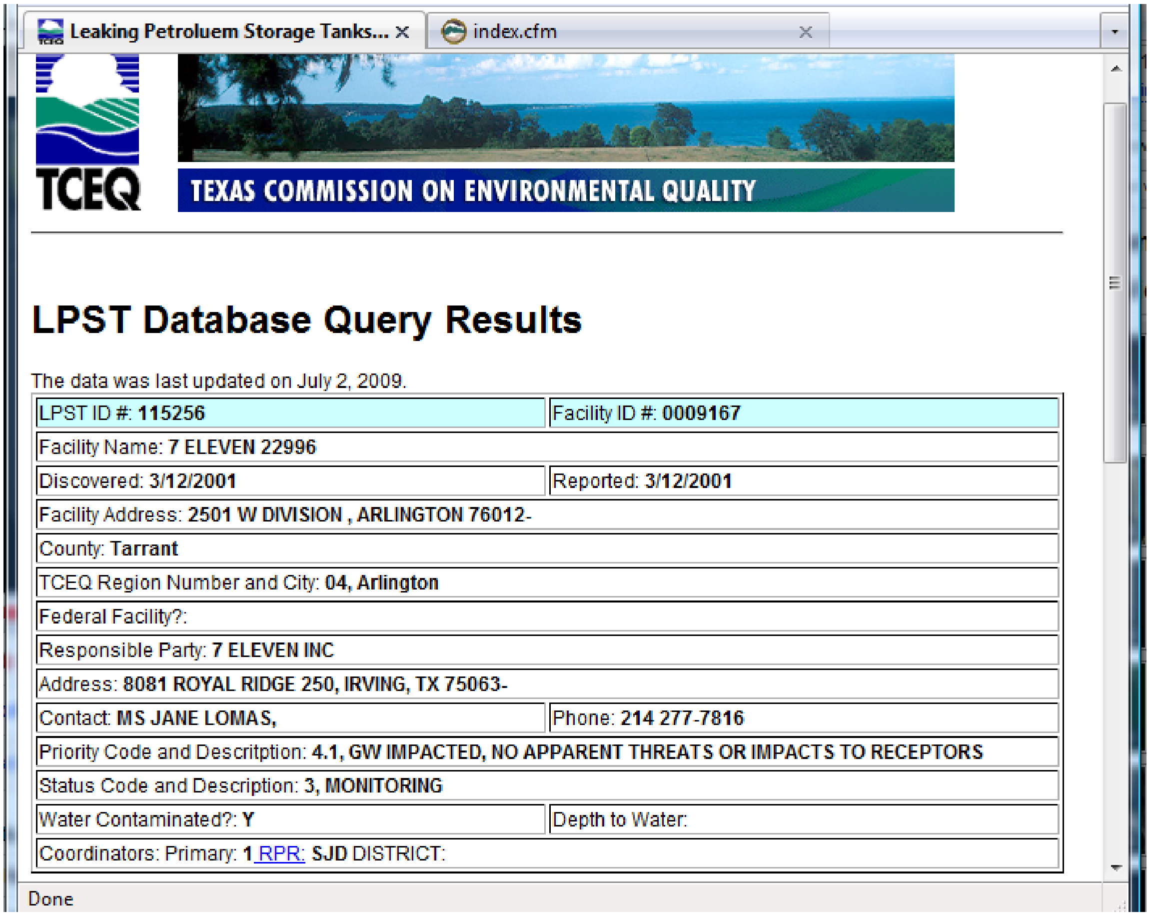


Figure 3.4 TCEQ online data for a LPST facility in the City of Arlington

3.3.3 VCP Database

The voluntary cleanup program (VCP) provides a means for private parties and government entities to voluntarily investigate and cleanup properties that may be contaminated. VCP sites generally have the option to enter the brownfields program if the participants requests (ODEQ, 2009). VCP includes sites ranging from old oil refineries with multiple sources of contamination that affect hundreds of acres to sites less than an acre with a single source of contamination.

A comprehensive database of VCP facilities in the study area was collected from TCEQ online database (TCEQ-3, 2008). The database contains the facility information in the Microsoft Excel format.

3.3.4 IOP Database

Innocent owner or operator program (IOP) includes the property that is contaminated as a result of release or migration of contaminants from a source or sources not located on the property and they did not cause or contribute to the source or sources of contamination. IOP can be used as a redevelopment tool for a contaminated property by an innocent owner/operator certificate (IOC). This IOC is provided to an innocent owner or operator whose property is contaminated solely as a result of the release or migration of contaminants from an offsite source. The innocent owner/operator certificate (IOC) releases the owner/operator from liability for all cost incurred during the investigation, monitoring or remediation of contaminants.

A comprehensive database of IOP sites in the study area was collected from TCEQ online database (TCEQ-4, 2008). The database contains the facility information in the Microsoft Excel spreadsheet.

3.3.5 DCRP Database

Dry cleaners are the largest users of the perchloroethene (PCE) solvents. Due to releases from dry cleaner to soil and groundwater, natural attenuation is occurring at many of the dry cleaner sites. From the case study of 137 dry cleaner sites in Texas, Rifai et al. (2004) showed that elevated levels of PCE and its degradation products were found in soil, groundwater and perched water.

The facility information under the dry cleaner remediation program (DCRP) was collected from environmental consulting firms. The data was gathered in Microsoft Excel sheet and contained the name and address of the DCRP facilities in the study area.

3.3.6 IHW Generator Database

According to provision 40 CFR 260.10, a hazardous waste generator is any person or site whose processes and actions create hazardous waste. Generators are divided into three categories based upon the quantities of waste they produce. The large quantity generators generate 1000 kilograms per month or more of hazardous waste, small quantity generators generate more than 100 kilograms of hazardous waste and conditionally exempt small quantity generators generate 100 kilograms or less per month of hazardous waste (EPA-3, 2009).

Hazardous waste is waste that is dangerous or potentially harmful to the health and environment. Hazardous waste can be liquid, solids, gases or sludges. They can be discarded commercial products, like cleaning fluids or pesticides or the by products of manufacturing processes.

The database of the IHW Generators in the study area was collected from the environmental consulting firm. The database was in the form of Microsoft Excel sheet and contained the name of and address of the facility. During the present thesis work, the three types of IHW generators were listed as single.

3.3.7 RCRA Generator

According to provision 40 CFR 260.10, a resource conservation and recovery act (RCRA) generator can be defined as any person, by site whose act or process produces hazardous waste identified or listed in part 261 or whose act first causes a hazardous waste to become subject to regulation. The RCRA generators are also be identified as large quantity, small quantity and conditionally exempt small quantity generators.

The database of the RCRA generators in the study area was collected from environmental consulting firms in the form of Microsoft Excel sheet.

3.3.8 RCRA Corrective Actions Database

Accidents at facilities that may cause hazardous waste release into the soil, groundwater, surface water and air. The resource conservation and recovery act (RCRA) corrective action program which is run by EPA, works with responsible facilities to investigate and cleanup such hazardous waste releases(EPA-4, 2009).

A comprehensive database of the RCRA Corrective Actions facilities was collected from two different sources: the EPA online data sources and environmental consulting firms. Figure 3.5 shows the database of the RCRA Corrective Action facilities from the EPA online resources (EPA-5, 2008).

	Region	State	County	City	EPA ID	Facility Name	Remedy Construction
3022	6	TX	Tarrant	Arlington	TXD980626154	Detrex Corporation	
3023	6	TX	Tarrant	Fort Worth	TXD020335170	Huntington Pacific Ceramics Inc	
3024	6	TX	Tarrant	Fort Worth	TX7572024605	Lockheed Martin Corporation	
3025	6	TX	Tarrant	Fort Worth	TXD982293912	Techni Coat Inc	Remedy Constructed
3026	6	TX	Tarrant	Fort Worth	TX0571924042	Us Department Of The Navy	Remedy Constructed
3027	6	TX	Tarrant	Haltom City	TXD981053416	Safety-Kleen Systems Inc	
3028	6	TX	Tarrant	Hurst	TXD980626006	Bell Helicopter Textron Inc	
3029	6	TX	Tarrant	Hurst	TXD005966452	North American Galvanizing Company	
3030	6	TX	Tarrant	Saginaw	TX0000141572	Texas Army National Guard Saginaw	
3031	6	TX	Taylor	Abilene	TXD005964598	Pride Refining Inc	Remedy Constructed
3032	6	TX	Taylor	Abilene	TXD062287883	Safety-Kleen Systems Inc	
3033	6	TX	Taylor	Dyess Afb	TX3571924643	Us Department Of The Air Force	Remedy Constructed
3034	6	TX	Tom Green	San Angelo	TXD027002112	Texas Tank Car Works	Remedy Constructed
3035	6	TX	Tom Green	San Angelo	TX2571524071	USAF Goodfellow AFB	
3036	6	TX	Travis	Austin	TXD041470543	Ibm Corporation	
3037	6	TX	Val Verde	Del Rio	TX2571524105	Us Department Of The Air Force	
3038	6	TX	Victoria	Victoria	TXD008123317	E I Du Pont De Nemours And Company	
3039	6	TX	Walker	Huntsville	TXD980747893	Texas Department Of Criminal Justice	
3040	6	TX	Ward	Monahans	TXD000803247	Dowell Schlumberger Incorporated	
3041	6	TX	Wichita	Sheppard Afb	TX3571524161	Us Department Of The Air Force	Remedy Constructed
3042	6	TX	Wichita	Wichita Falls	TXD078552932	Ppg Industries Inc	
3043	6	TX	Wichita	Wichita Falls	TXD000747428	Safety-Kleen Systems Inc	
3044	7	IA	Black Hawk	Cedar Falls	IAR000003145	Fiberdyne Inc	Remedy Constructed
3045	7	IA	Black Hawk	Waterloo	IAD075848085	Black Hawk County Landfill	
3046	7	IA	Black Hawk	Waterloo	IAD062776422	Chamberlain Mfg-Former Site of	
3047	7	IA	Black Hawk	Waterloo	IAD005279393	Construction Machinery	
3048	7	IA	Black Hawk	Waterloo	IAT200010593	Hydrite Chemical Co	
3049	7	IA	Black Hawk	Waterloo	IAD005289806	John Deere Waterloo Works-Westfield Ave	
3050	7	IA	Boone	Boone	IAD085372506	Gates Rubber	
3051	7	IA	Butler	New Hartford	IAR000003152	Fiberdyne Inc	Remedy Constructed
3052	7	IA	Cass	Atlantic	IAD096526108	Dana Glacier Vendervell/Dydo	
3053	7	IA	Cerro Gordo	Mason City	IAD005307459	Curries 12Th St Ne Facility	
3054	7	IA	Cerro Gordo	Mason City	IAD000678326	Safety Kleen - Mason City	
3055	7	IA	Clinton	Clinton	IAD047303771	Collis Inc	
3056	7	IA	Clinton	Clinton	IAD045372836	Equistar Chemicals Lp	Remedy Constructed
3057	7	IA	Clinton	De Witt	IAD984590869	Clinton County Highway Dept	
3058	7	IA	Delaware	Manchester	IAD069619765	Exide Technologies	Remedy Constructed
3059	7	IA	Delaware	Manchester	IAD984599589	Hawkeye Castings Inc	
3060	7	IA	Des Moines	Burlington	IAD000688572	Burlington Northern Santa Fe Railroad	
3061	7	IA	Des Moines	Burlington	IAT200010916	Univar Usa Inc	
3062	7	IA	Des Moines	Middletown	IAR000005876	Aet Deactivation Facility	
3063	7	IA	Des Moines	Middletown	IA7213820445	Iowa Army Ammunition Plant	

Figure 3.5 EPA online data for RCRA Corrective Action Facilities

3.3.9 MSW Landfill

A MSW landfill is a scientifically engineered facility built into or on the ground that is designed to hold and isolate waste from the environment. Federal and state regulation strictly governs the location, design, operation and closure of MSW landfills in order to protect human health and environment. MSW landfills are the most common places for waste disposal are an important part of an integrated waste management system. MSW landfills receive household waste. MSW landfill can also receive non-hazardous sludge, industrial solid waste and demolition debris (EPA-6, 2009). According to EPA, about 54 percent of the MSW generated nationwide, is disposed of in MSW landfills.

The database of the MSW landfill in City of Arlington was collected from environmental consulting firms and from the city personnel.

3.3.10 ERNS Database

The Emergency Response Notification System (ERNS) is a computer database that contains information on release notification of oil and hazardous substances. It covers release in the United States that have been reported to the National Response Center or any of the U.S. EPA Regions.

A comprehensive database of the facilities under emergency response notification was collected from the National Response Center (NRC) online data sources. The database format was in the Microsoft Excel sheet and contained the information about the location, date and incident of the spill.

3.3.11 City Provided

Through discussions and suggestions among the city personnel, they had suggested few sites that might be potential candidate to be listed as brownfield sites in the study area. The sites provided by the City personnel were also added into the database.

Table 3.2 presents the number of potential brownfield sites collected from the regulatory sources listed above.

Table 3.2 Number of Sites Collected from Different Regulatory Sources

Sources	Regulatory Sources	No. of Sites
Texas Commission of Environmental Quality	Leaking Petroleum Storage Tank	79
Texas Commission of Environmental Quality	Petroleum Storage Tank	91
Texas Commission of Environmental Quality	Voluntary Cleanup Program	12
Texas Commission of Environmental Quality	Innocent Owner/Operator Program	3
Environmental Consulting Firms	Dry Cleaner Remediation Program	10
Environmental Consulting Firms	Industrial Hazardous Waste Generator	54
Environmental Consulting Firms	RCRA Generator	25
EPA and Environmental Consulting Firms	RCRA Corrective Actions Generator	3
Environmental Consulting Firms	MSW Landfill	2
National Response Center	Emergency Response Notification System	12
City of Arlington	Site Provided by City Personnel	40
	Total	331

3.4 Required Data

As a part of the brownfield inventory, different information was collected for the brownfield potential sites. The information collected does not constitute a complete Phase I site assessment, but does provide a significant amount of information to that end. Information collected for the database, was to help in the process of site prioritization for the Brownfield Inventory. Table 3.2 shows eighteen different fields of data that was collected for each brownfield candidate site.

Table 3.3 Required Data for Each Brownfield Site

Field	Description
Tax Parcel ID	
Date Updated	
Legal Description	
Geo-reference Number	
Account Number	
Acreage	
Property Status	
Street Address	
City	
State	
Region	
Previous Address	
Vacant	
Business Name	
Previous Business Name	
Business Type	
Previous Business Type	
Regulatory Source	

The information required was collected from City of Arlington online database, TAD online database, City Directory, other local databases and through sites visit.

3.4.1 City of Arlington Online Database

City of Arlington online database (COA-2, 2008) provides information regarding sites within city limit through interactive mapping. The Tax Parcel ID of a site was collected from City of Arlington online database (COA-2, 2008) search. Figure 3.6 shows the online interactive mapping from City of Arlington website.

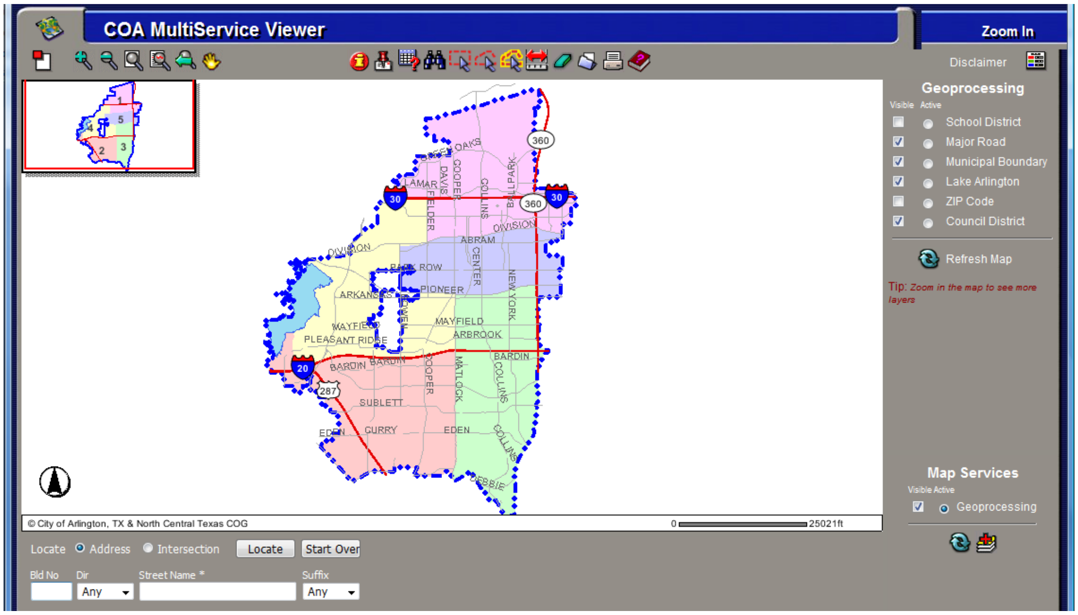


Figure 3.6 Interactive map from City of Arlington online database (COA-2, 2008)

3.4.2 TAD Database

Tarrant Appraisal District (TAD, 2008) database provides information of legal description, geo-reference number, account number and acreage of that particular site. There were different search options to retrieve the data of a particular site from TAD database. For the current study, the street address of a site was used to find the information regarding that site. Figure 3.7 shows the online database query result for a site.

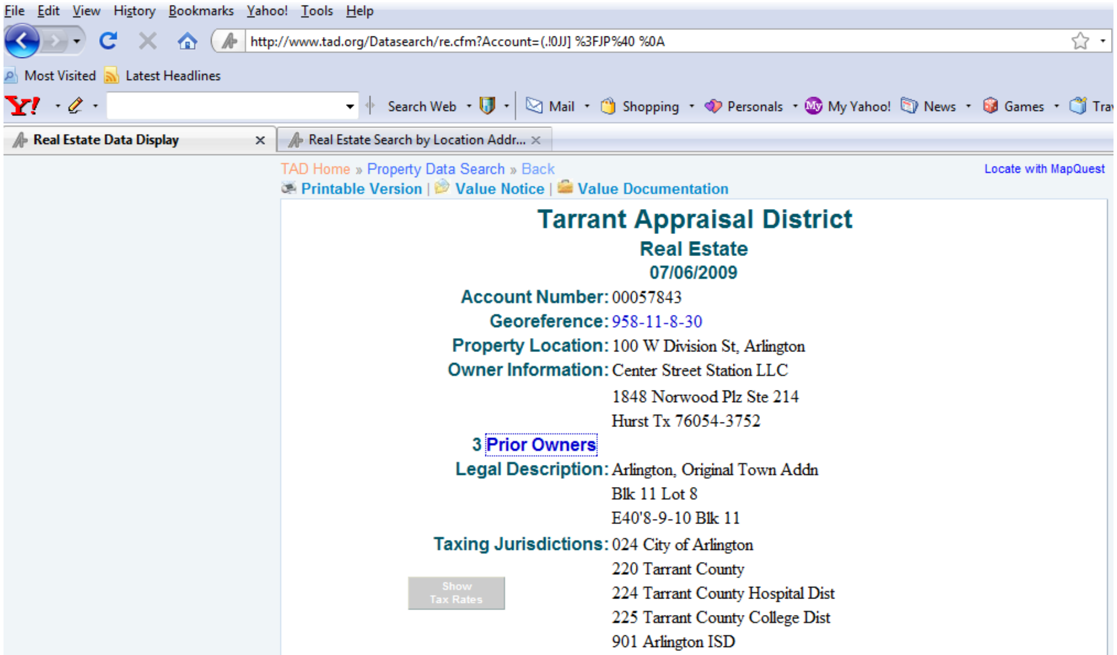


Figure 3.7 TAD online database query result

3.4.3 Site Visit

There were 331 brownfield candidate sites which were collected from different regulatory sources in the study area. Accurate information regarding the property status, vacancy and current business name and type of brownfield sites was not found from any sources. The LPST database contains business name but for some cases it was not the current business, but the information on previous business were listed. Therefore, to find out and verify the current business, it was important to visit all the sites. All these information regarding the site was collected through site visit to each of the 331 sites. Figure 3.8 shows the pictures of the sites taken during site visit.

(a)

(b)

(c)

(d)

(e)

(f)

Figure 3.8 Photos of the sites in Arlington taken during site visit (a) 322 International Parkway, (b) 804 N Collins St, (c) 1305 Tomlin Ln, (d) 3217 E Abram St, (e) 3231 E Abram St, (f) 3200 E Randol Mill Rd

The previous business name of the site was collected from the City of Arlington city directory, 1988. The current business name collected during site visit was also checked with the business name of the site listed in the city directory, 2008.

3.4.4 GIS shape files

The shape files for the City of Arlington Tax Parcels were collected from the City of Arlington geographic information system website (COA-3, 2008). Figure 3.9 shows the tax parcels with city boundary for the City of Arlington.

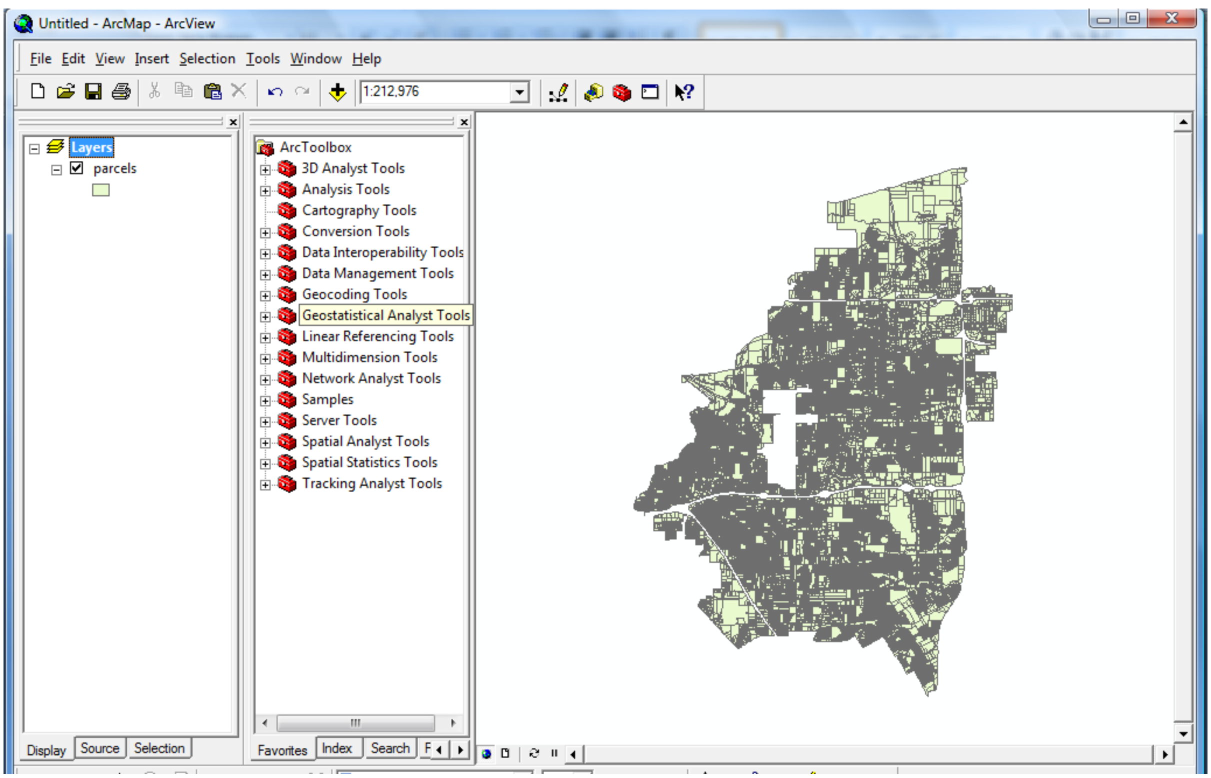


Figure 3.9 ArcView window showing tax parcels for City of Arlington

CHAPTER 4

PREPROCESSING AND ANALYSIS
OF THE BROWNFIELD SITES

4.1 Introduction

The purpose of the data collection was to create a database of potential brownfield sites in the study area and finally to locate, map and assess all the sites using Geographic Information System (GIS). The data collected from different sources and through site visit, was put into excel sheet so that it can be readable by ArcMap. Then all the brownfield sites were located into map and analyzed using GIS. The step by step structure of the GIS based spatial analysis process followed in the present work is shown in Figure 4.1.

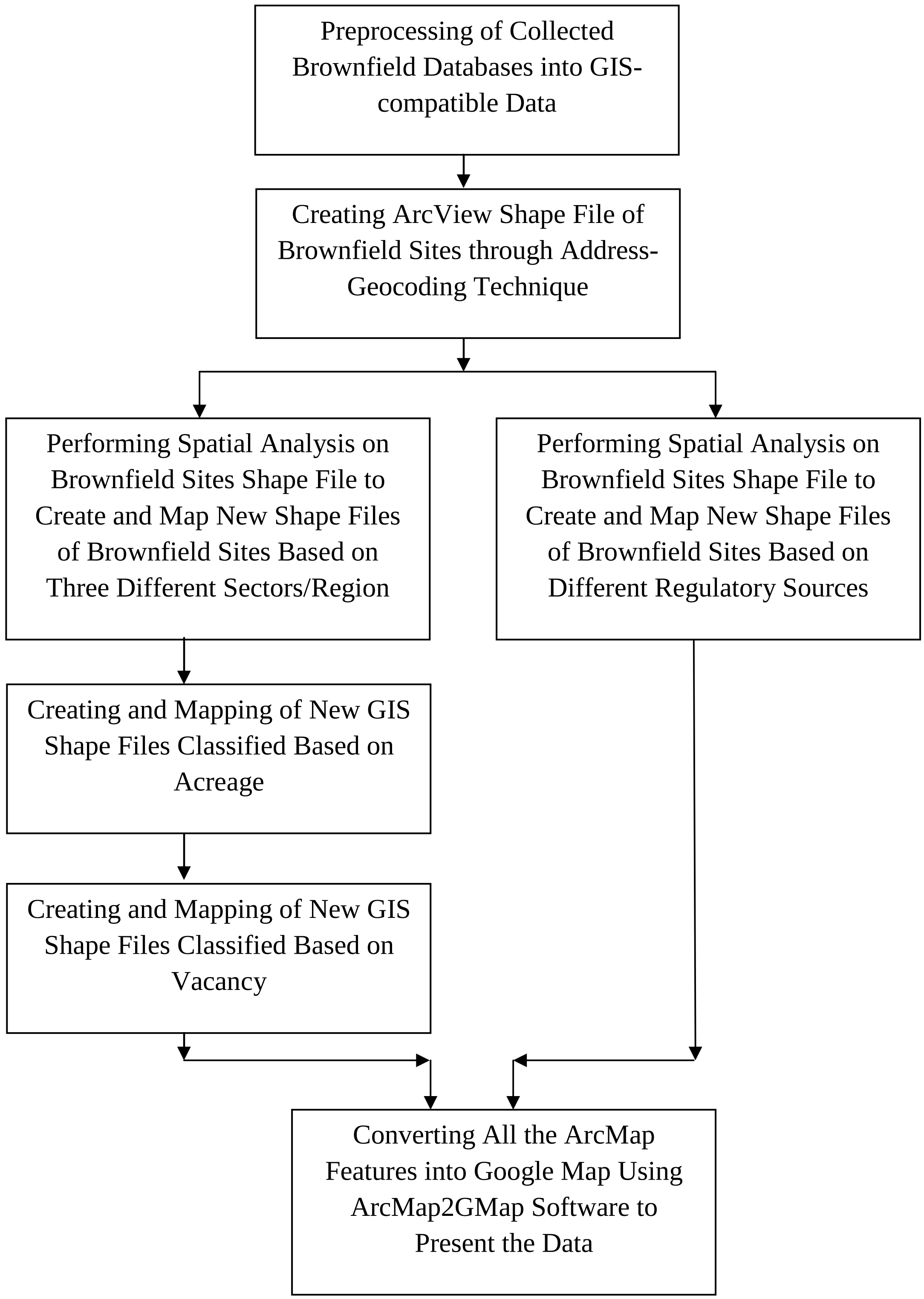


Figure 4.1 Flow chart showing the step by step GIS based spatial analysis

4.2 Locating Brownfield Sites

After preparing the database of current brownfield sites in the study area to be readable by ArcView, the necessary themes were added to a new "View" in an ArcView project. The Tax Parcels (shape file) was added to this new "View" by selecting "Add Data" from the "Standard Toolbar". Figure 4.2 shows an ArcView map with Tax Parcels for the City of Arlington. The attribute table for the parcels was shown in Figure 4.3.

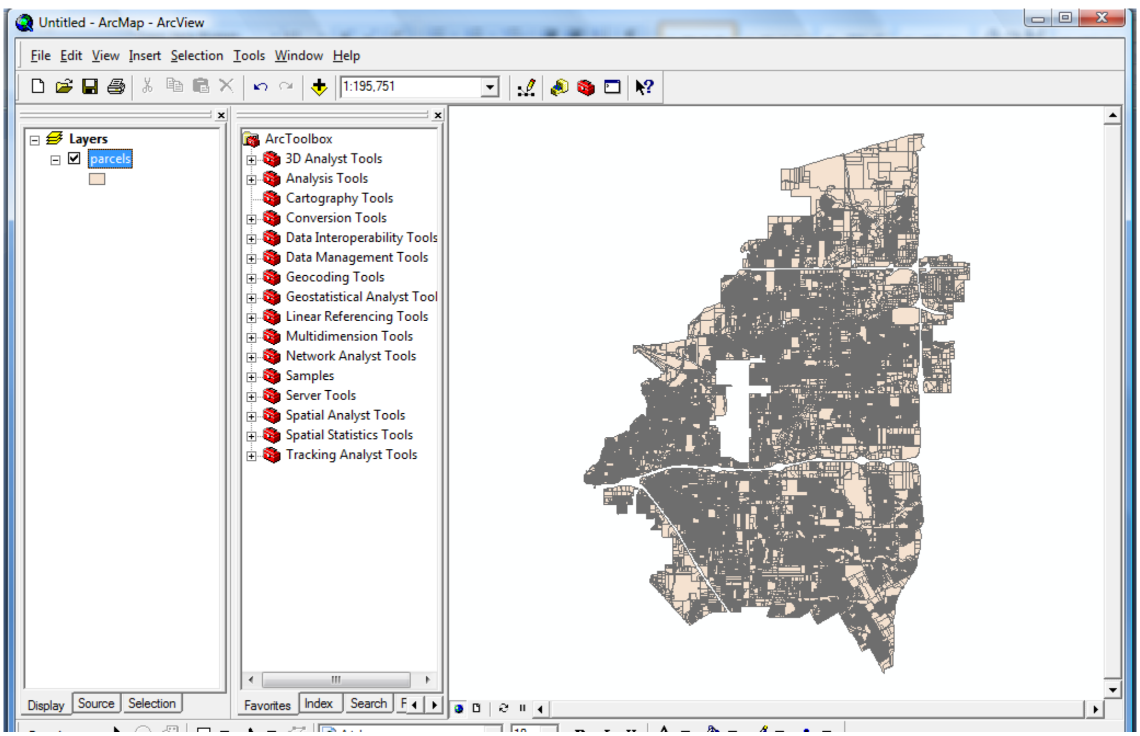
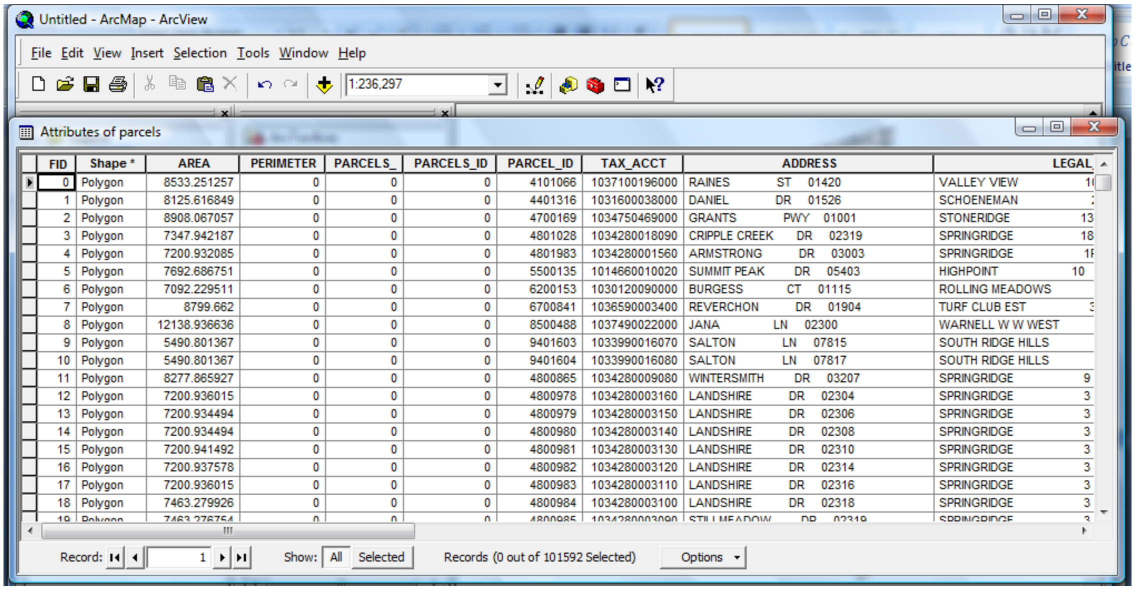


Figure 4.2 ArcView map showing tax parcels for City of Arlington



FID	Shape *	AREA	PERIMETER	PARCELS_	PARCELS_ID	PARCEL_ID	TAX_ACCT	ADDRESS	LEGAL
0	Polygon	8533.251257	0	0	0	4101066	1037100196000	RAINES ST 01420	VALLEY VIEW
1	Polygon	8125.616849	0	0	0	4401316	1031600038000	DANIEL DR 01526	SCHOENEMAN
2	Polygon	8908.067057	0	0	0	4700169	1034750469000	GRANTS PWY 01001	STONERIDGE 13
3	Polygon	7347.942187	0	0	0	4801028	1034280018090	CRIPPLE CREEK DR 02319	SPRINGRIDGE 18
4	Polygon	7200.932085	0	0	0	4801983	1034280001560	ARMSTRONG DR 03003	SPRINGRIDGE
5	Polygon	7692.686751	0	0	0	5500135	1014660010020	SUMMIT PEAK DR 05403	HIGHPOINT 10
6	Polygon	7092.229511	0	0	0	6200153	1030120090000	BURGESS CT 01115	ROLLING MEADOWS
7	Polygon	8799.662	0	0	0	6700841	1036590003400	REVERCHON DR 01904	TURF CLUB EST
8	Polygon	12138.936636	0	0	0	8500488	1037490022000	JANA LN 02300	WARNELL W W WEST
9	Polygon	5490.801367	0	0	0	9401603	1033990016070	SALTON LN 07815	SOUTH RIDGE HILLS
10	Polygon	5490.801367	0	0	0	9401604	1033990016080	SALTON LN 07817	SOUTH RIDGE HILLS
11	Polygon	8277.865927	0	0	0	4800865	1034280009080	WINTERSMITH DR 03207	SPRINGRIDGE 9
12	Polygon	7200.936015	0	0	0	4800978	1034280003160	LANDSHIRE DR 02304	SPRINGRIDGE 3
13	Polygon	7200.934494	0	0	0	4800979	1034280003150	LANDSHIRE DR 02306	SPRINGRIDGE 3
14	Polygon	7200.934494	0	0	0	4800980	1034280003140	LANDSHIRE DR 02308	SPRINGRIDGE 3
15	Polygon	7200.941492	0	0	0	4800981	1034280003130	LANDSHIRE DR 02310	SPRINGRIDGE 3
16	Polygon	7200.937578	0	0	0	4800982	1034280003120	LANDSHIRE DR 02314	SPRINGRIDGE 3
17	Polygon	7200.936015	0	0	0	4800983	1034280003110	LANDSHIRE DR 02316	SPRINGRIDGE 3
18	Polygon	7463.279926	0	0	0	4800984	1034280003100	LANDSHIRE DR 02318	SPRINGRIDGE 3

Figure 4.3 ArcView window showing the attribute table of the tax parcels

In order to locate potential brownfield sites on an ArcView map as point features, an address geocoding technique was applied. The process of creating map features from addresses is called geocoding (ESRI, 2001).

The first step in the geocoding process is to create an address locator. Address locator contains an “Address Style” that determines which components (e.g. , street name, street type, direction and zip code) will be required elements in the geocoding process. In this case “US One Address” was selected as an address style which can locate points on the study areas streets if the address of the point feature contains the street’s number, name, direction and type. Using the created address locator the brownfield sites are geocoded and the output files were saved as “Brownfield Sites”. All the addresses in the output shape file is automatically assigned a geographic coordianates and located as a point feature. Figure 4.4 shows the option to select the created address locator during the gecoding of the addresses.

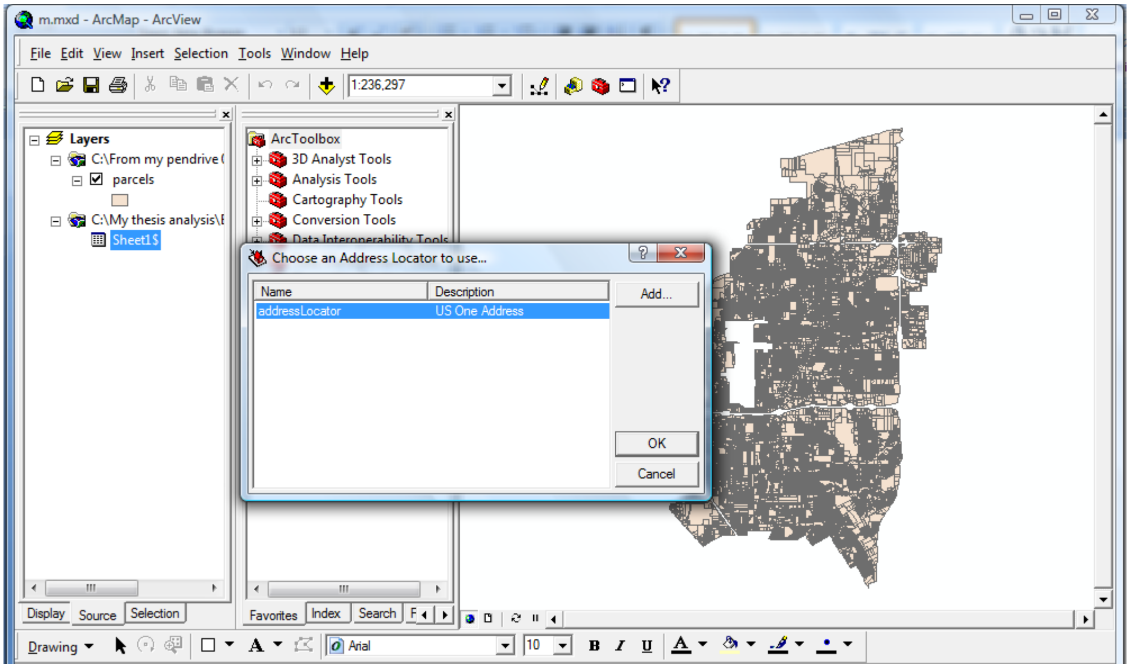


Figure 4.4 ArcView map showing address locator

The next step in the brownfield sites address geocoding process is to rematch the addresses that matched with score less than 80. ArcView considers a total weighted score of 75 or more to be a good match. Figure 4.5 shows the ArcView window showing matched and unmatched addresses.

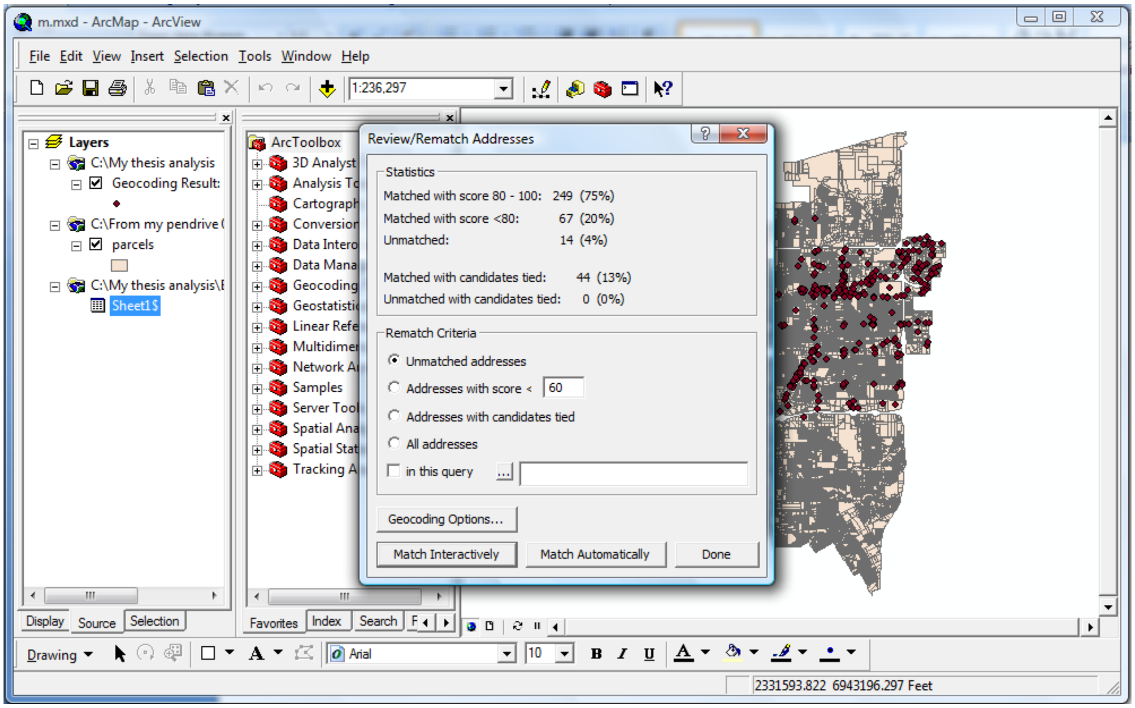


Figure 4.5 ArcView window showing matched and unmatched addresses

The addresses with score less than 80 and unmatched addresses were re-matched using the option "Match Interactively". Most of the addresses had a spelling mistake when entering into the Excel database. Figure 4.6 shows the ArcView window for the interactive matching. Figure 4.7 shows all the brownfield sites in the study area after re-matching all the addresses with score more than 80.

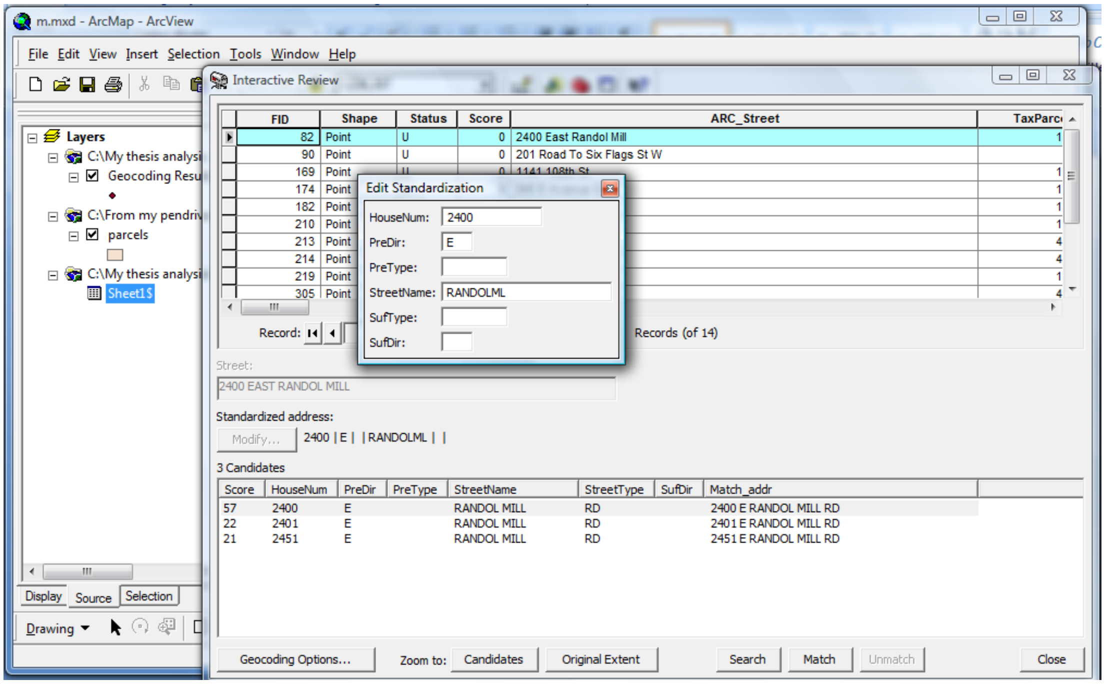


Figure 4.6 ArcView window showing interactive matching option

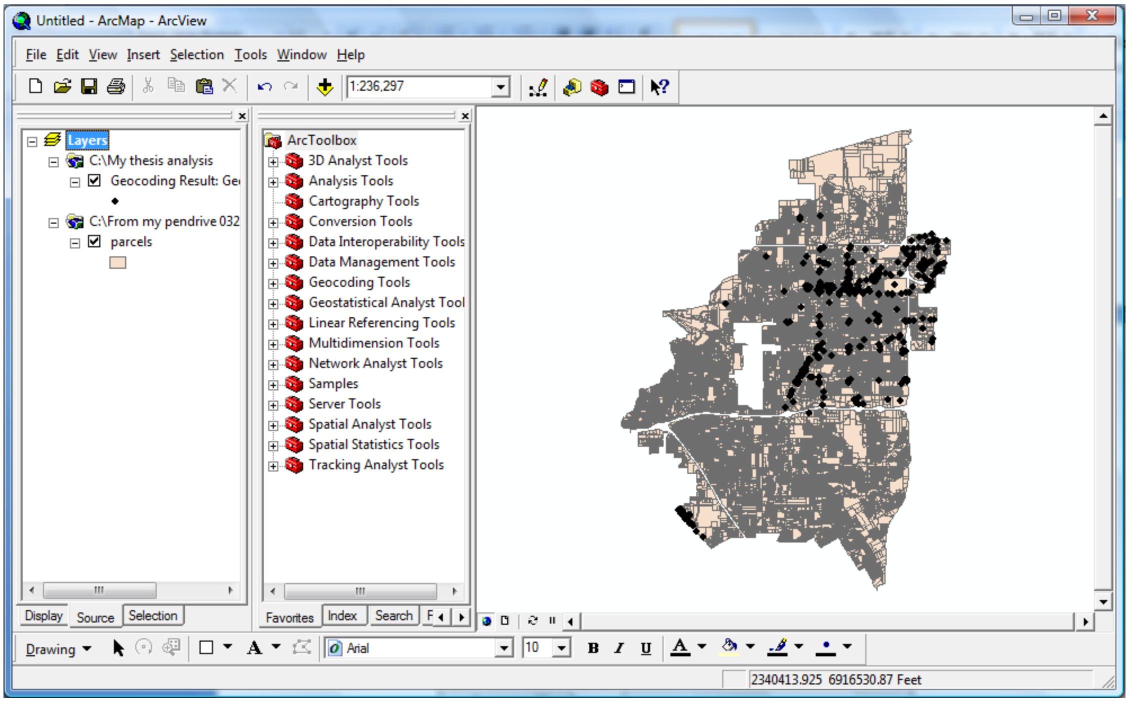


Figure 4.7 ArcView map showing location of brownfield sites in the study area

The parcels that contained the brownfield sites were selected from the option "Select by Location" from the "Selection" menu and the output "Parcels" was added to the table of contents. Figure 4.8 shows the selected parcels in the ArcView map.

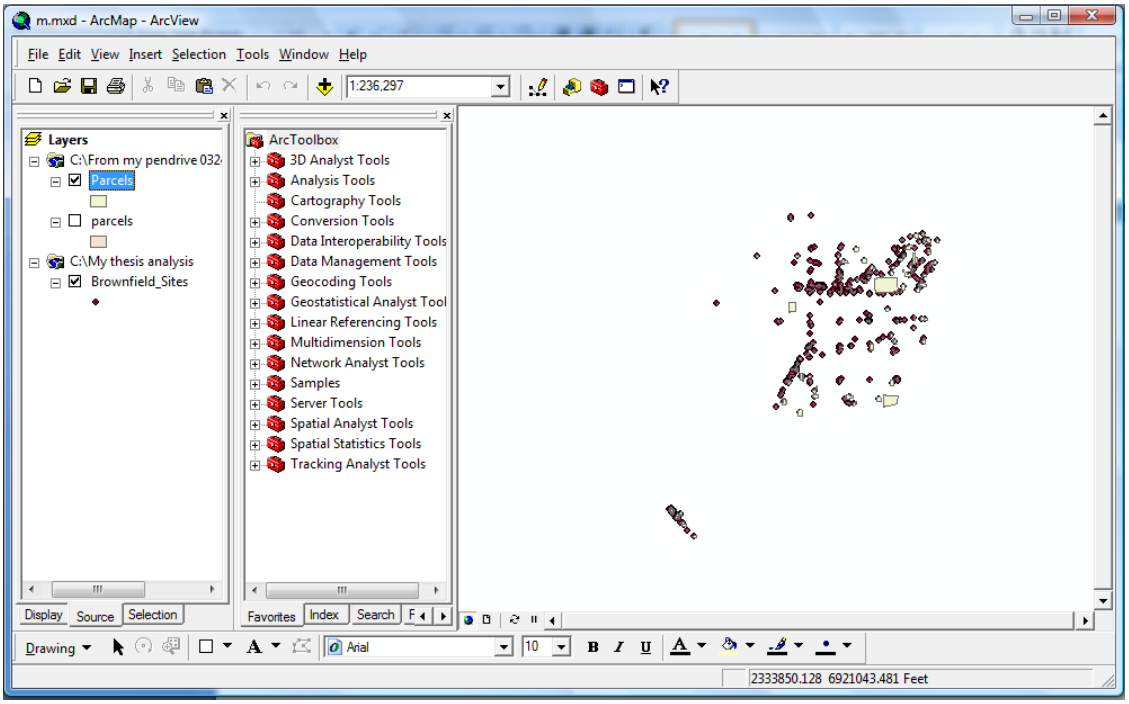


Figure 4.8 ArcView map showing parcels that intersect with the brownfield sites.

4.3 Creating and Mapping of New GIS Shape Files

The focus of the current work was on the three different sectors/region of the City of Arlington: Central Arlington, East Arlington and Southwest Arlington. The brownfield sites (shape file) were classified according to the three different sectors/region and the regulatory sources where the sites were listed. The shape files of the brownfield sites created according to three different regions were further divided according to the acreage of the property and land use of the property. Figure 4.9 shows a diagram illustrating the selection of the brownfield sites based on different category.

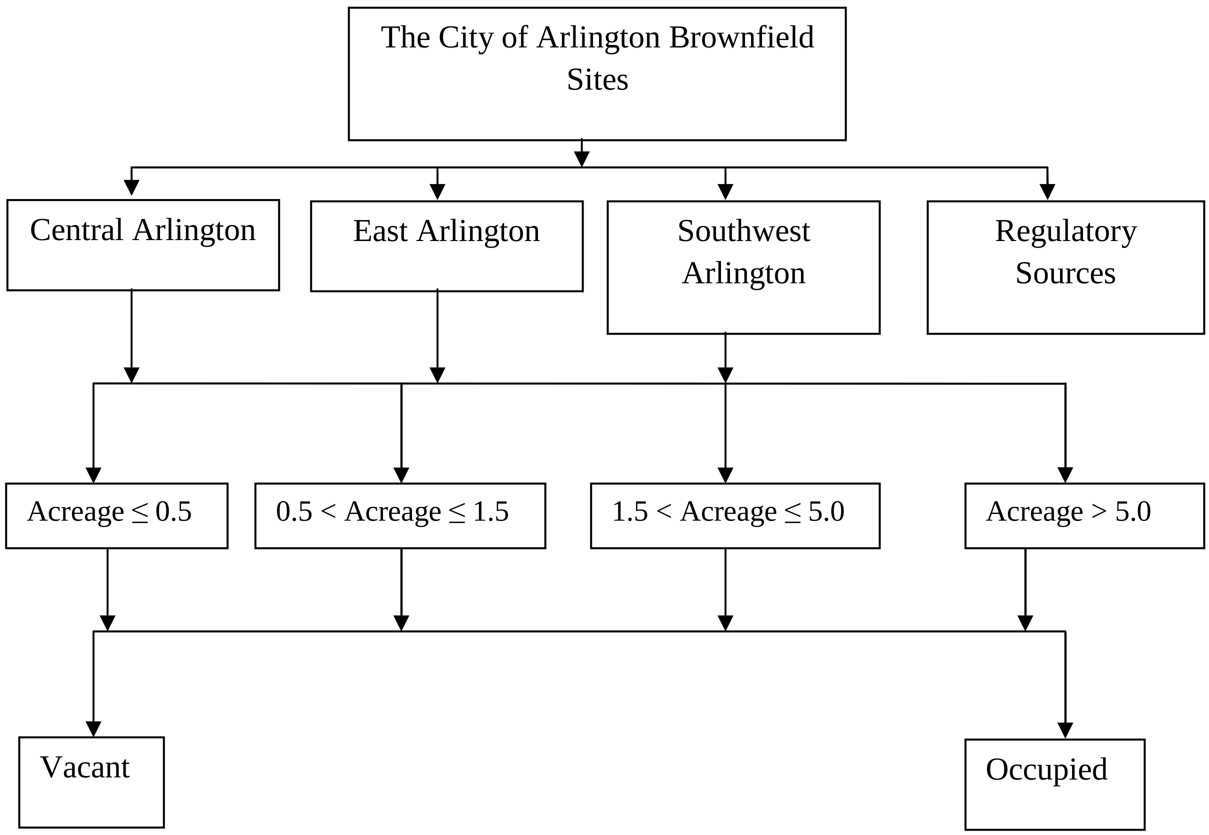


Figure 4.9 Diagram showing creation of new shape files based on different category

4.3.1 Site Selection According to Region

In the attribute table of the “Brownfield Sites” the sectors were named as region. As stated earlier, the primary objective of the thesis work was to identify the brownfield sites in the Central, East and Southwest Arlington. The shape file “Brownfield Sites” created from the excel database has all the sites. But for better presentation and to make clear distinction among the three different region, the sites were classified according to the region and was added as a new shape file. From the option menu at the bottom of the attribute table of “Brownfield Sites”, “Select By Attribute” was selected and a new text box appeared. In the text box, “Region” was put equal to ‘Central Arlington’ and all the sites in the Central Arlington were selected. The selected sites were named “Central Arlington” and added as a new layer on the ArcView map. Figure 4.10 shows the ArcView window to select the sites in the Central Arlington. Figure 4.11 shows the sites in Central Arlington in the ArcView map.

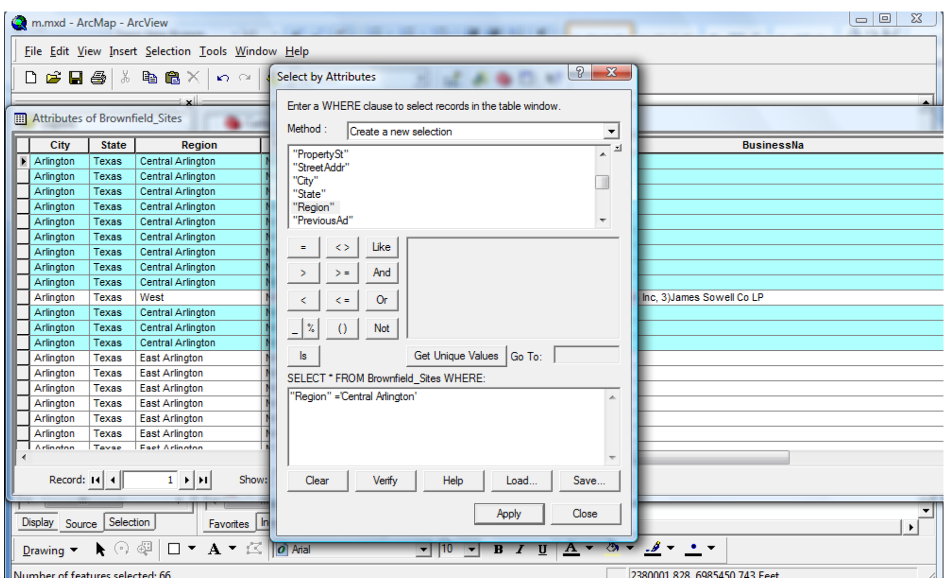


Figure 4.10 Selected sites in Central Arlington from attribute table of “Brownfield Sites”

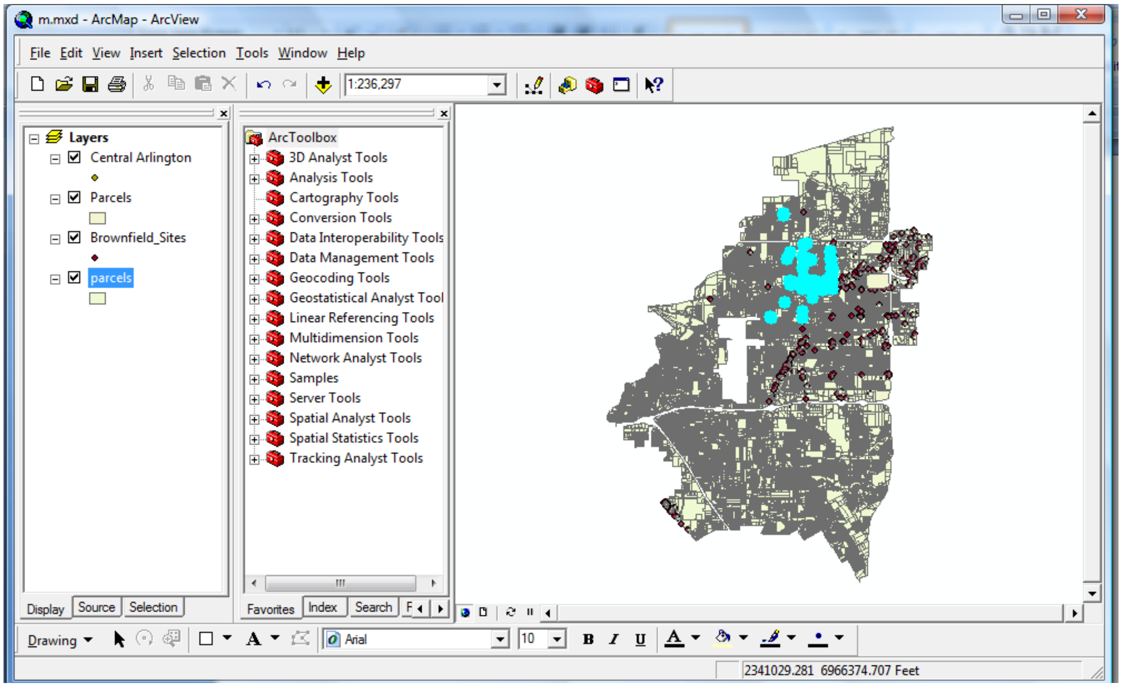


Figure 4.11 ArcView map showing highlighted brownfield sites in Central Arlington

The procedure described above was used to select the sites in both East and Southwest Arlington from the “Brownfield Sites” attribute table. The selected sites were then added as a new layer to the ArcView map. Figure 4.12 and Figure 4.13 shows the selected sites in East and Southwest Arlington respectively.

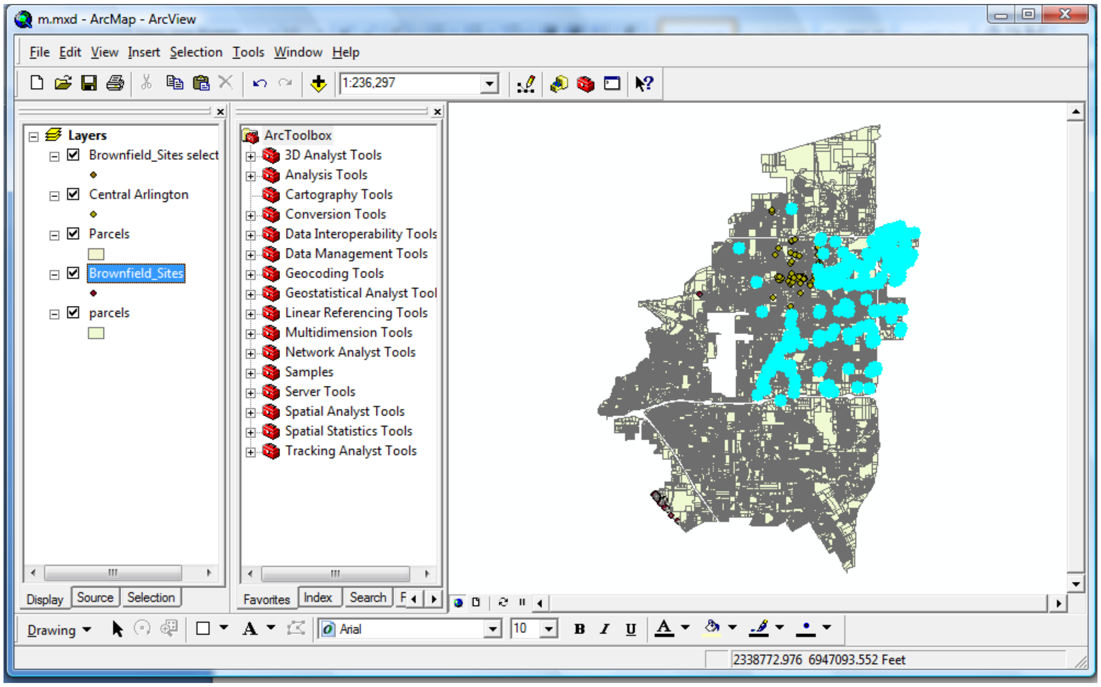


Figure 4.12 ArcView map showing highlighted brownfield sites in East Arlington

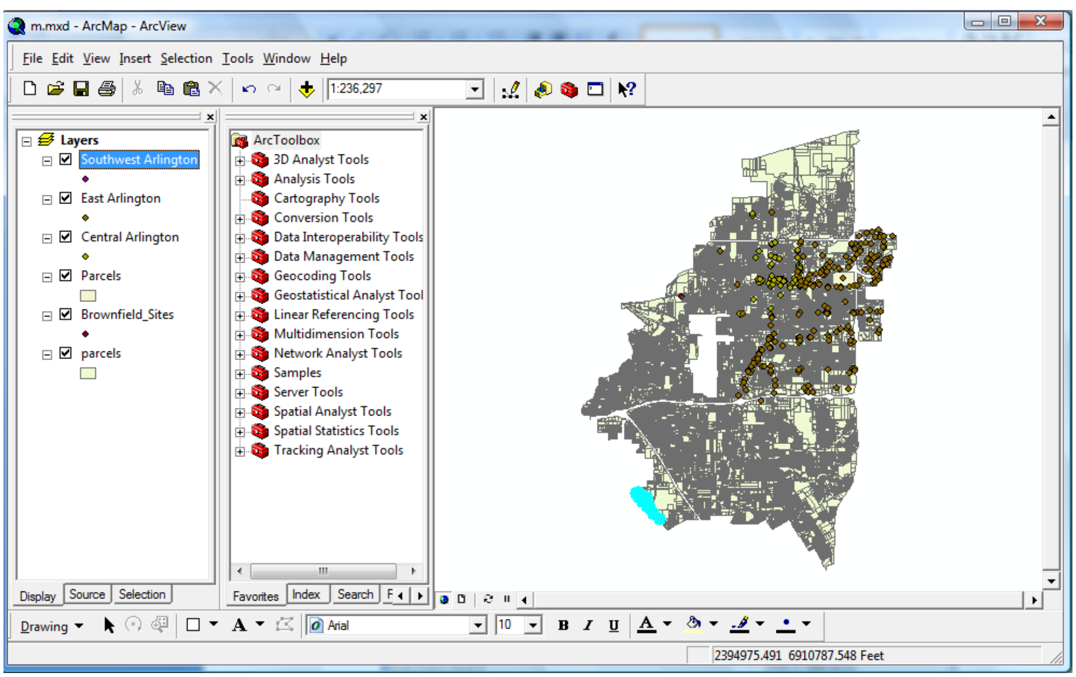


Figure 4.13 ArcView map showing highlighted brownfield sites in Southwest Arlington

4.3.2 Site Selection According to Regulatory Source

The objective of the present work is to create a brownfield database for City of Arlington as the city has no such information about the potential brownfield sites in the City of Arlington. The brownfield database for the study area was created from the contaminated sites that were listed in different regulatory sources.

To select the sites from Leaking Petroleum Storage Tank database, the attribute table for the layer "Brownfield Sites" was opened. From the options menu at the bottom of the attribute table, "Select by Attributes" was selected and a new text box appeared. In the text box, the "Regulatory Source" was put equals to "Leaking Petroleum Storage Tank" to select all the sites from LPST database. Figure 4.14 shows the highlighted sites that were collected from LPST database. These selected sites were added as a new layer in the ArcView map. Figure 4.15 shows all the leaking petroleum storage tank sites in the ArcViw map.

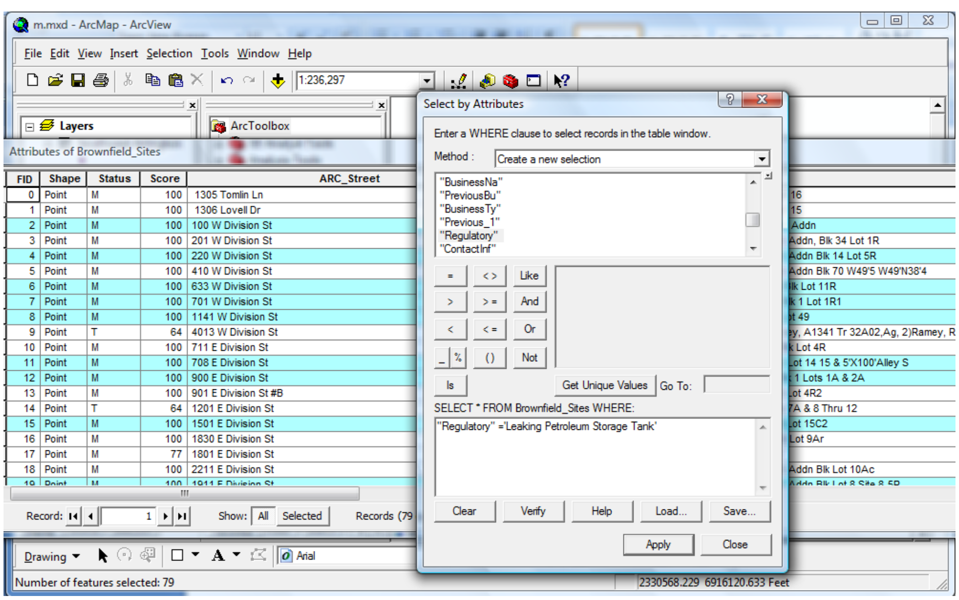


Figure 4.14 Attribute table of the "Brownfield Sites" with highlighted LPST facilities

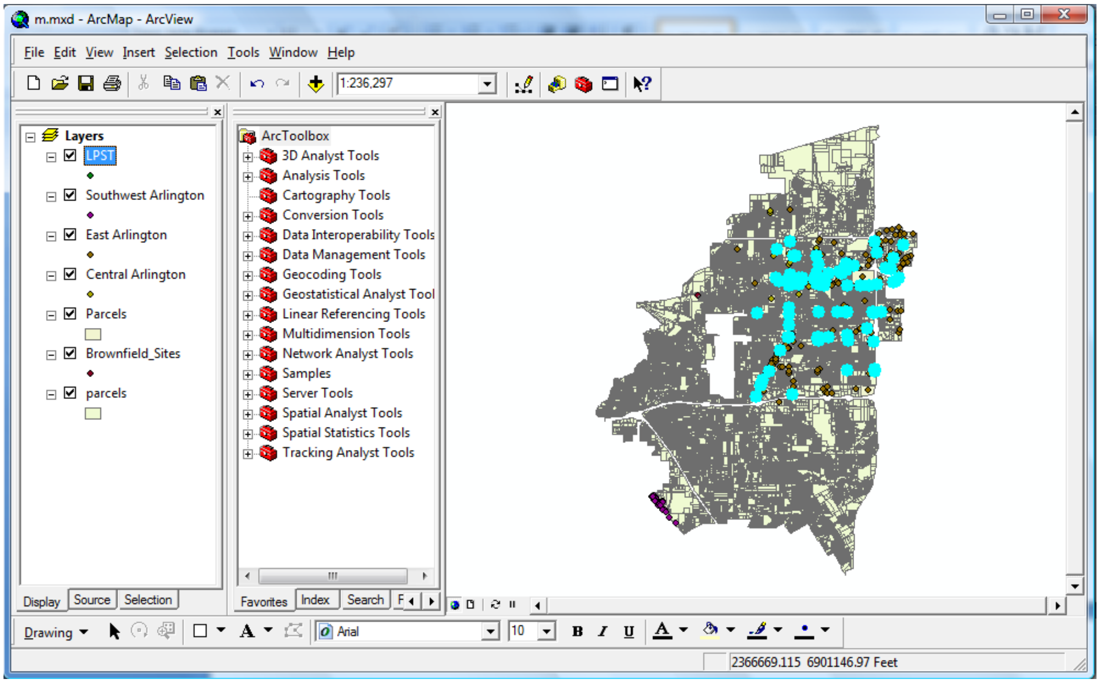


Figure 4.15 ArcView map showing highlighted LPST sites

The method described above was used to select and create new layers of sites from different regulatory sources. Sites from different regulatory sources were shown in separate layer from Figure 4.16 through 4.25.

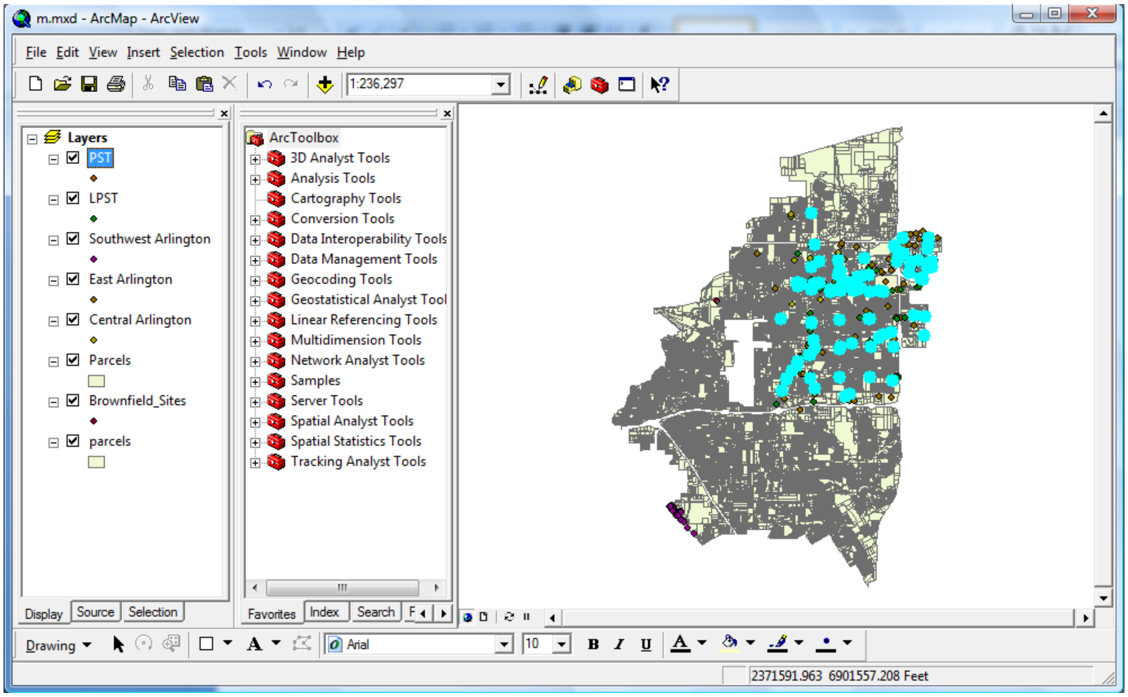


Figure 4.16 ArcView map showing highlighted PST sites

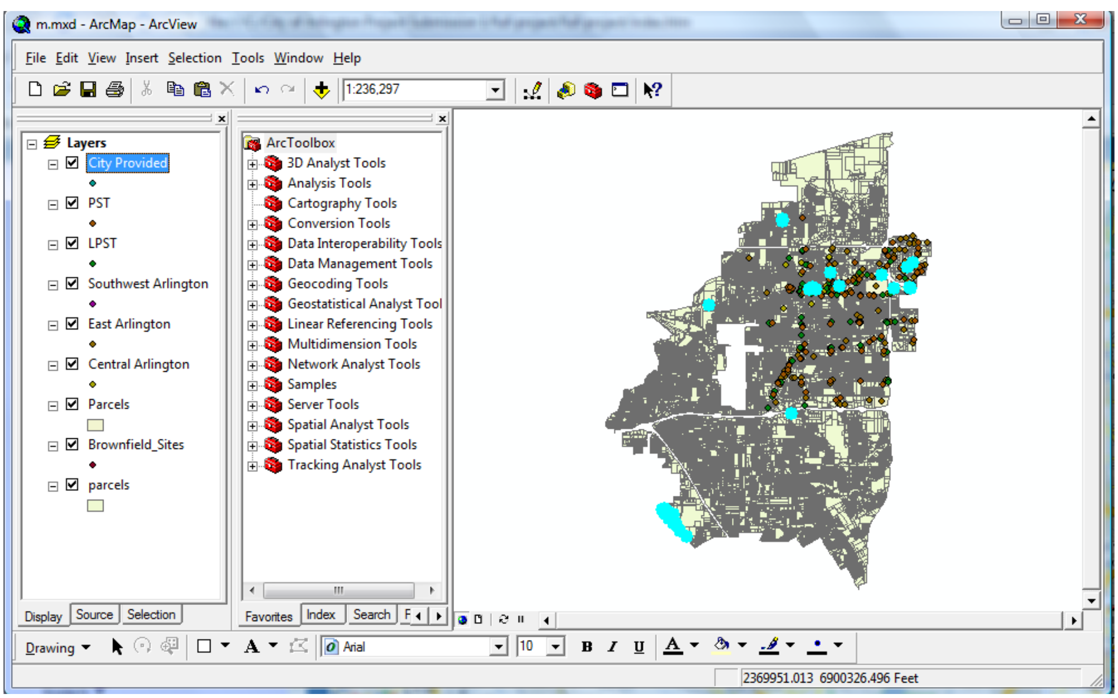


Figure 4.17 ArcView map showing highlighted sites provided by the City personnel

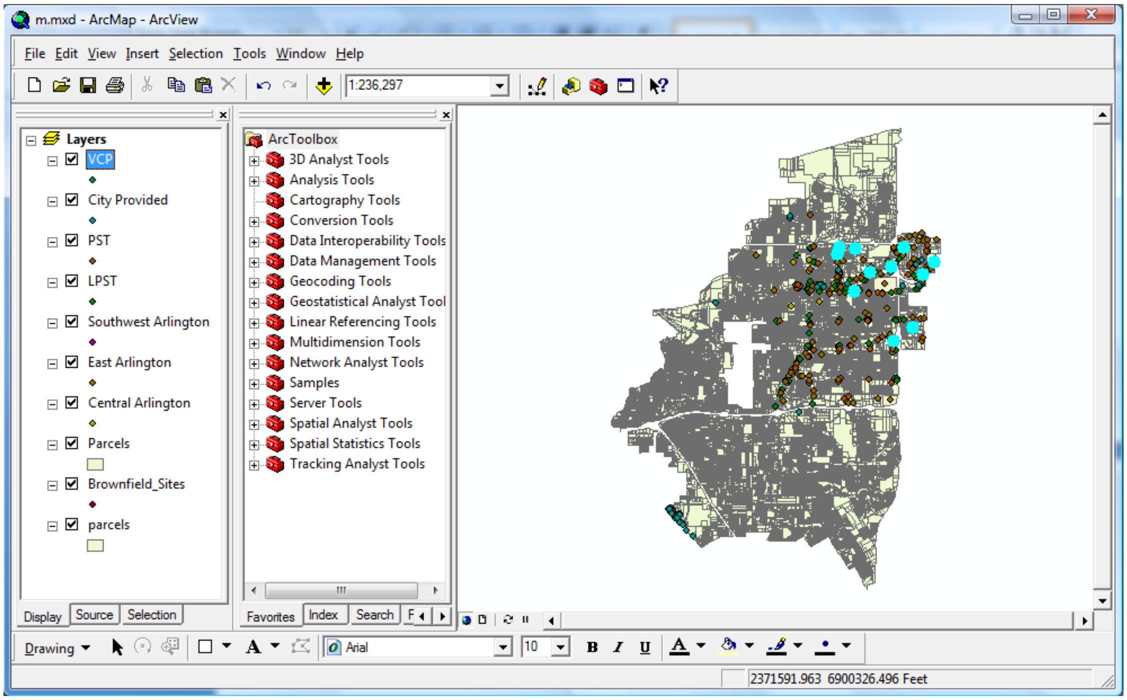


Figure 4.18 ArcView map showing highlighted sites from VCP database

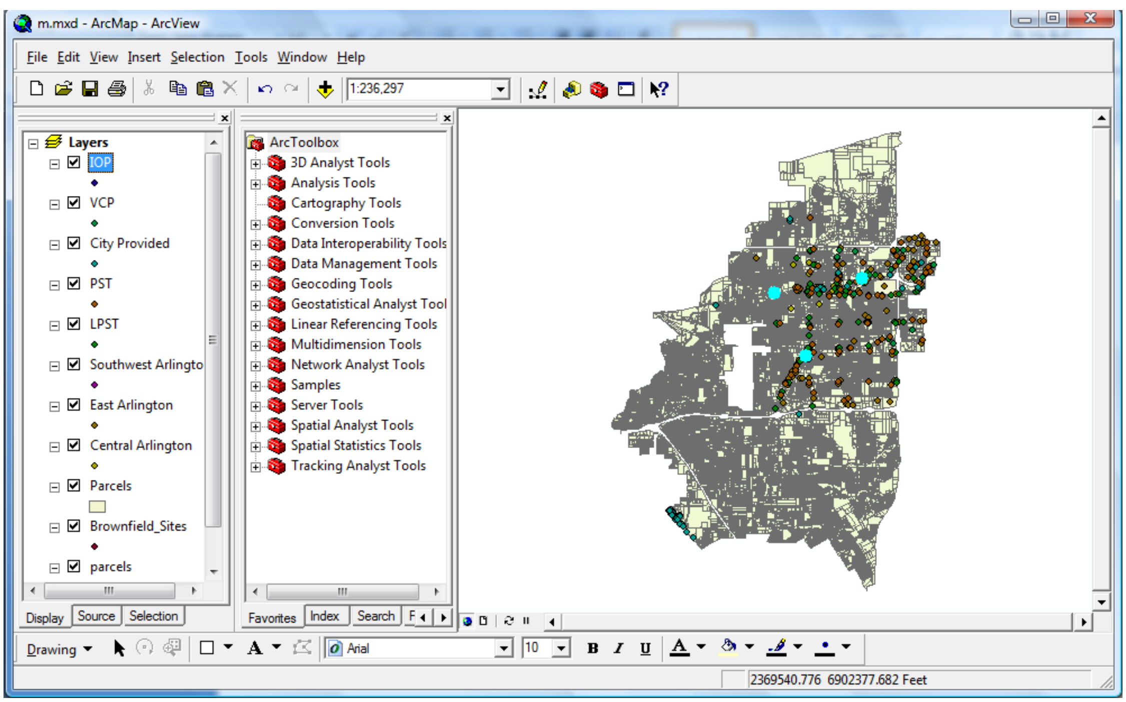


Figure 4.19 ArcView map showing highlighted sites from IOP database

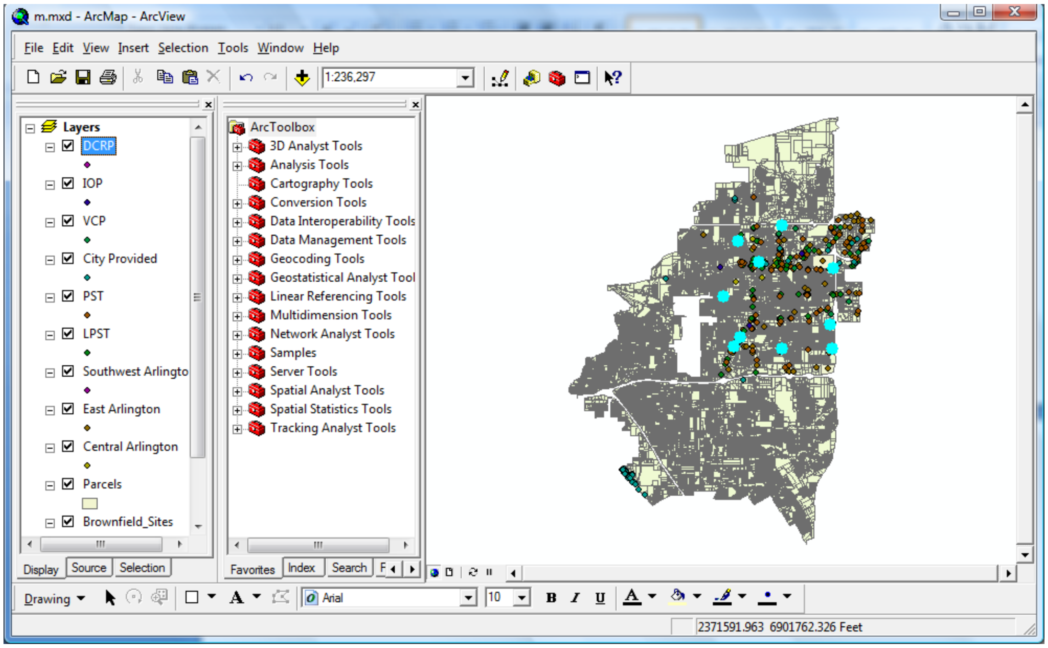


Figure 4.20 ArcView map showing highlighted sites selected from DCRP database

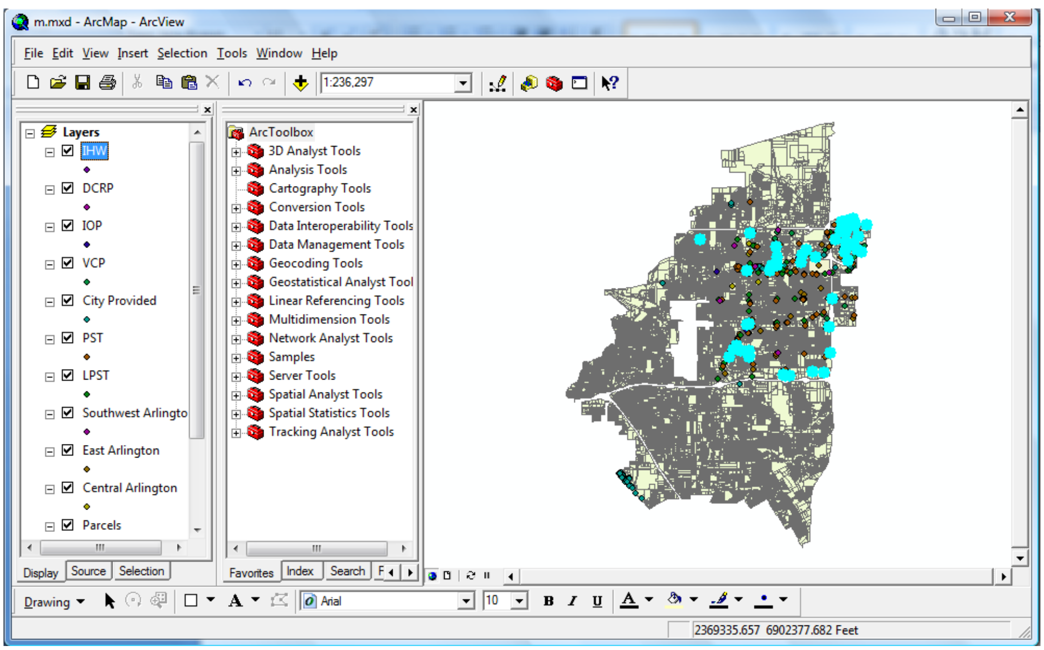


Figure 4.21 ArcView map showing highlighted sites from IHW Generator database

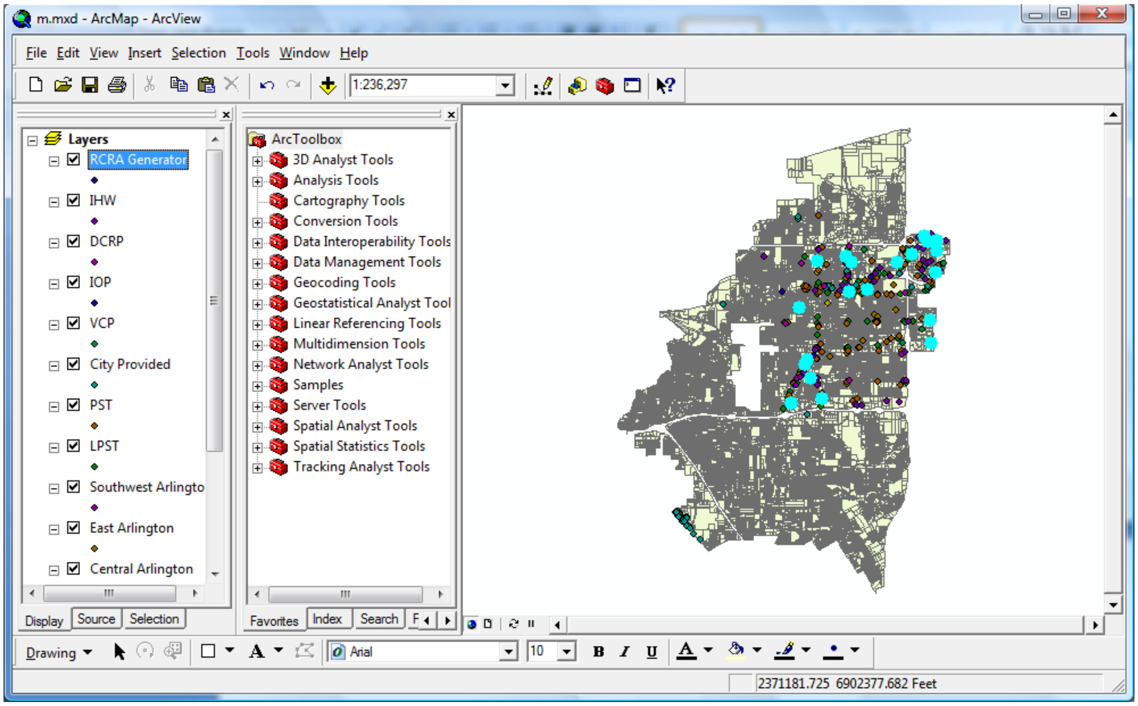


Figure 4.22 ArcView map showing highlighted sites from RCRA Generator database

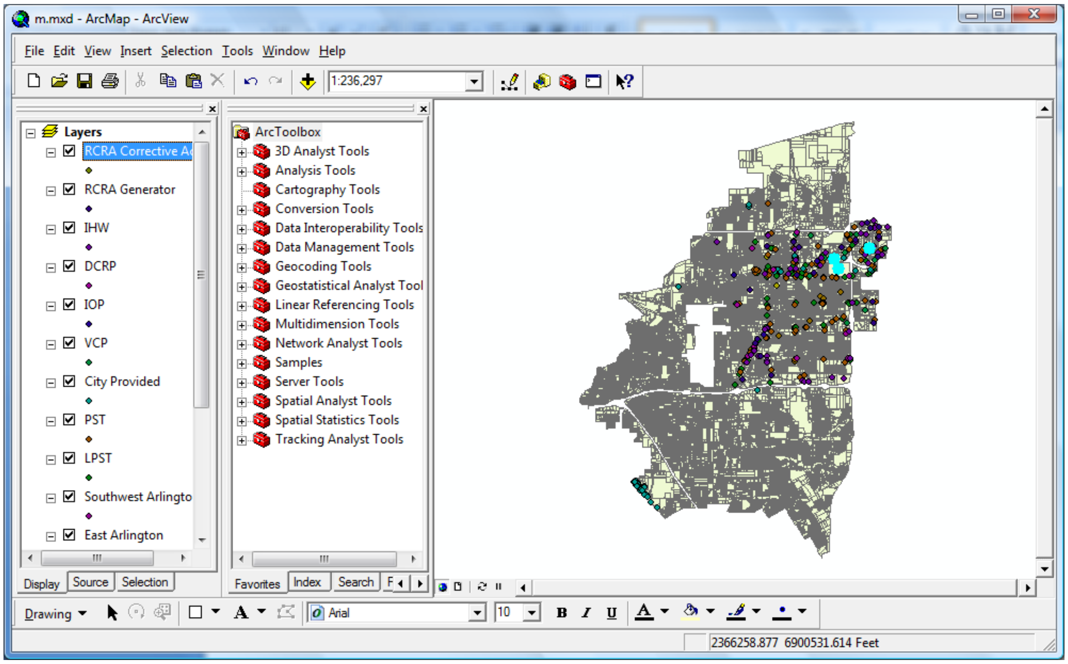


Figure 4.23 ArcView map showing highlighted sites from RCRA Corrective Action database

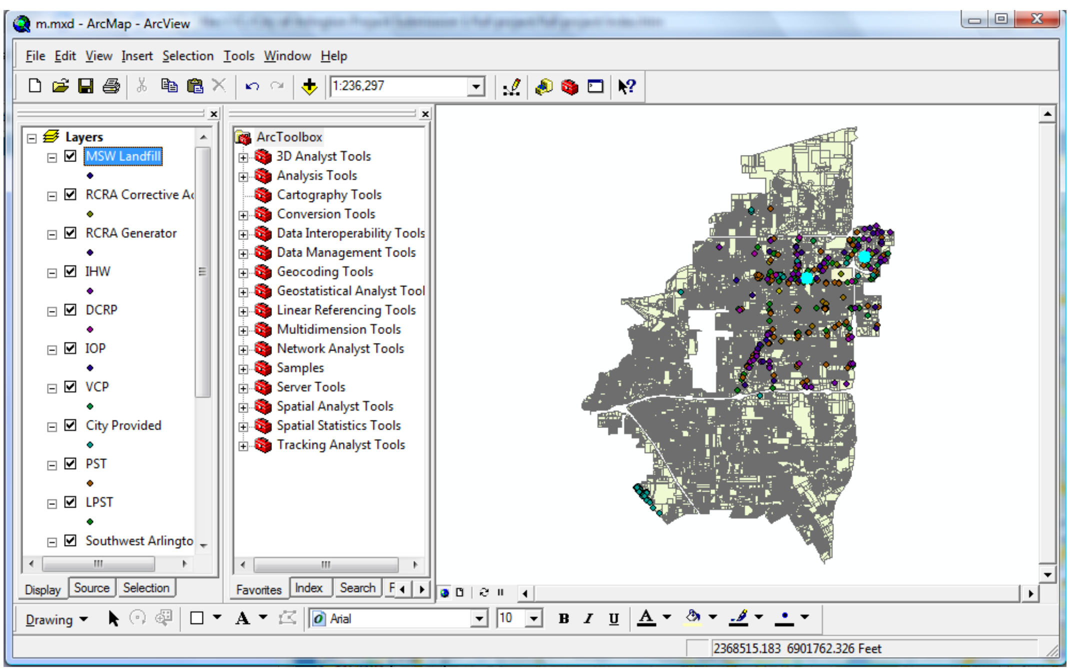


Figure 4.24 ArcView map showing highlighted MSW Landfill sites

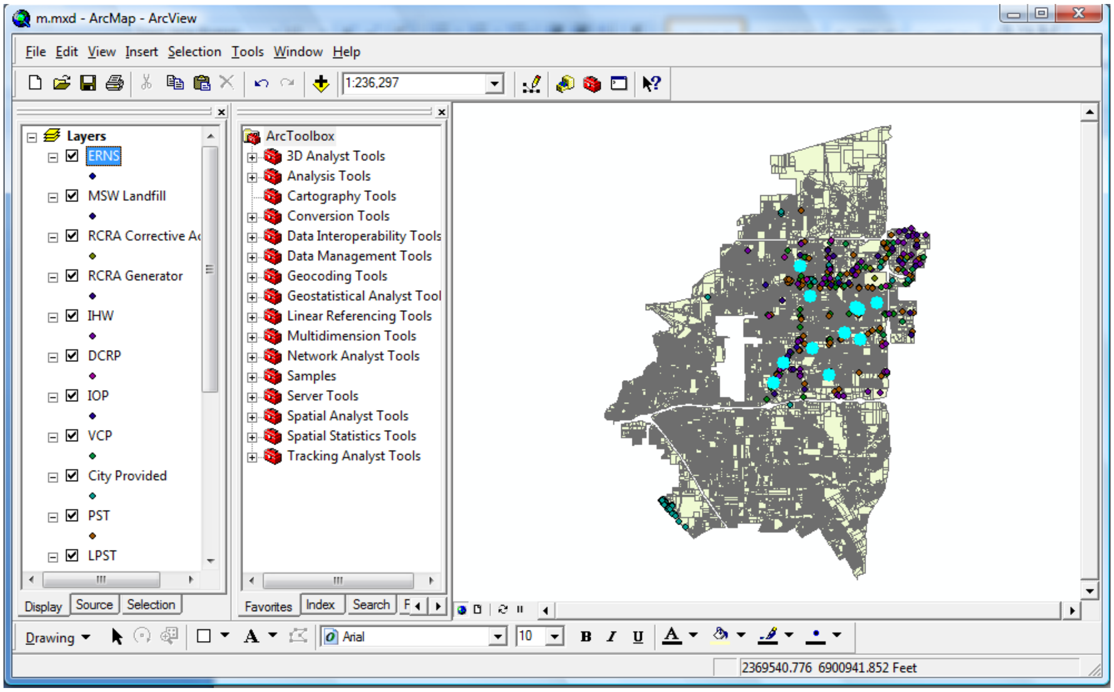


Figure 4.25 ArcView map showing highlighted sites from ERNS database

4.3.3 Site Selection According to Acreage

A brownfield may be as small as an abandoned gas station on a one acre plot or as expensive as a steel manufacturing operation sprawled out over several hundred acres. Depending upon the acreage of the site, it will attract different kind of potential developers from large investors to small scale investors. Therefore, it was necessary to categorize the brownfield sites according to their acreage. In the present work, the analysis was done by dividing the brownfield sites in each region into four groups with acreage less than 0.5, between 0.5 to 1.5 and 1.5 to 5 and greater than 5.

In the previous section, it was presented that brownfield sites in three different regions were added as a new layer in the ArcView map. To divide the sites in the Central Arlington according to acreage, the attribute table for the layer "Central Arlington" was opened. From the options menu at the bottom of the attribute table, “Select By Attribute” was selected and a new text box appeared. In the text box, “Acreage” was put less than or equal to 0.5 to select all the sites in Central Arlington which has area less than or equal to 0.5 acre. Figure 4.26 shows the selected sites in the attribute table of the “Central Arlington” layer. These selected sites were added to the ArcView map as a new layer. Figure 4.27 shows the sites in the Central Arlington which have acreage less than or equal to 0.5.

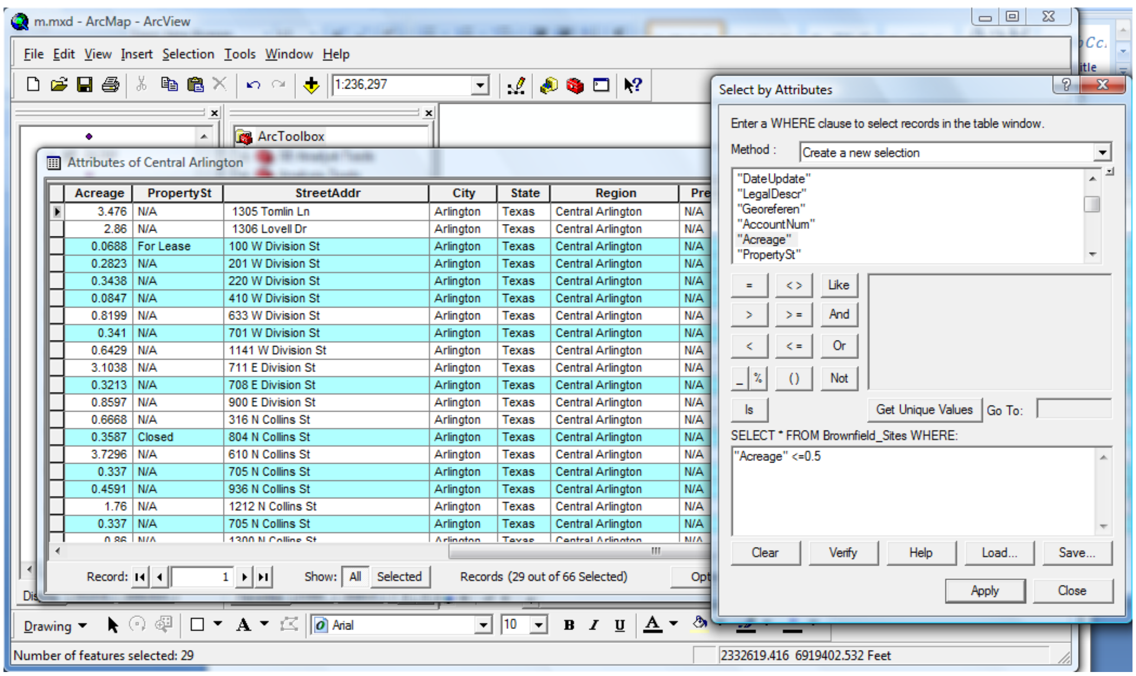


Figure 4.26 Attribute table showing highlighted brownfield sites with acreage less than or equal to 0.5 in the Central Arlington

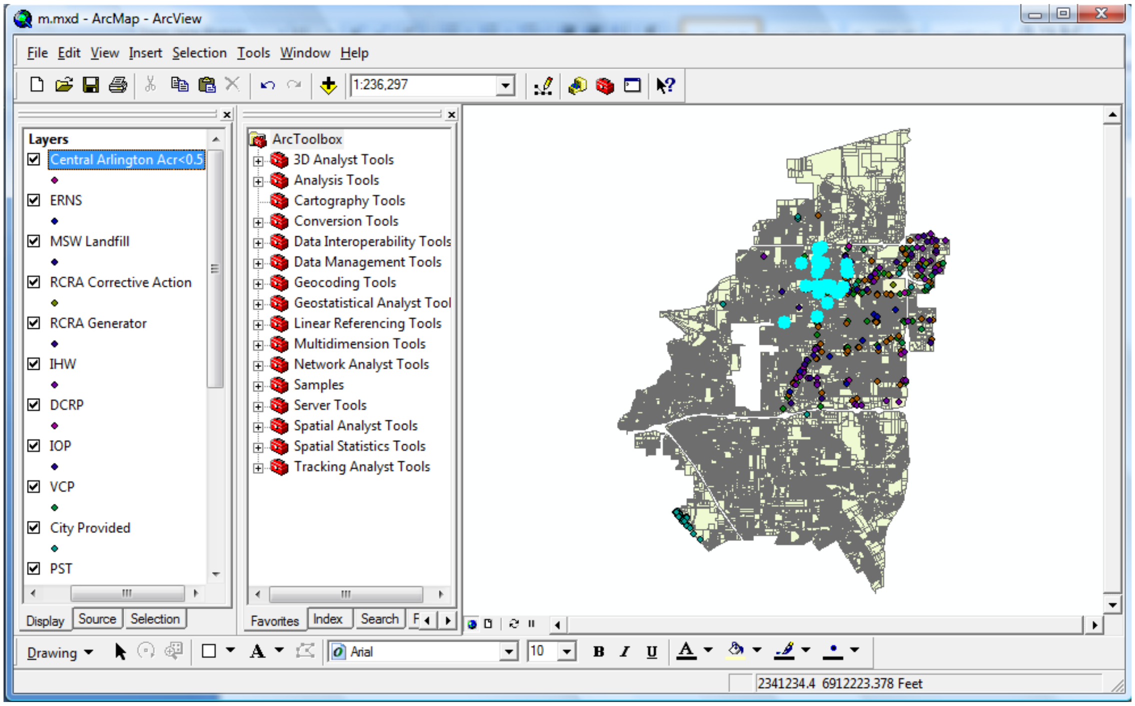


Figure 4.27 ArcView map showing highlighted sites in Central Arlington with acreage less than or equal to 0.5

The method described above was used to create new layer of sites with acreage between 0.5 and 1.5, 1.5 and 5 and greater than 5. Figure 4.28 through Figure 4.30 shows the brownfield sites in the Central Arlington which have area within these ranges.

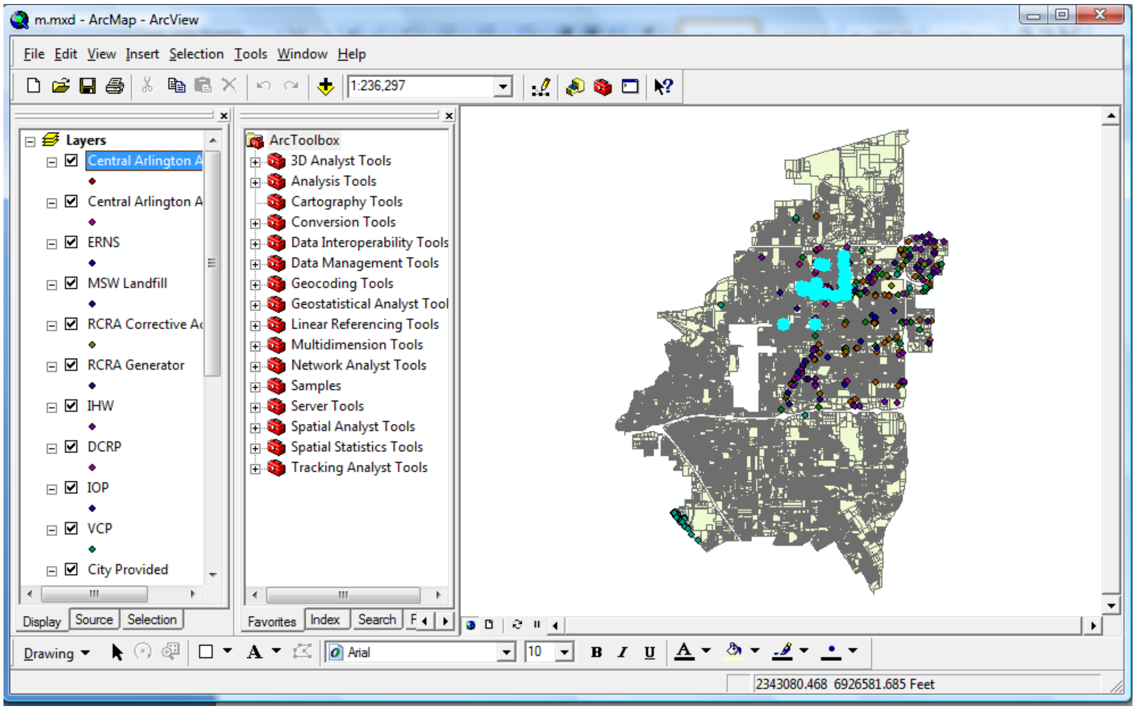


Figure 4.28 ArcView map showing highlighted sites in Central Arlington with acreage greater than 0.5 and less than or equal to 1.5

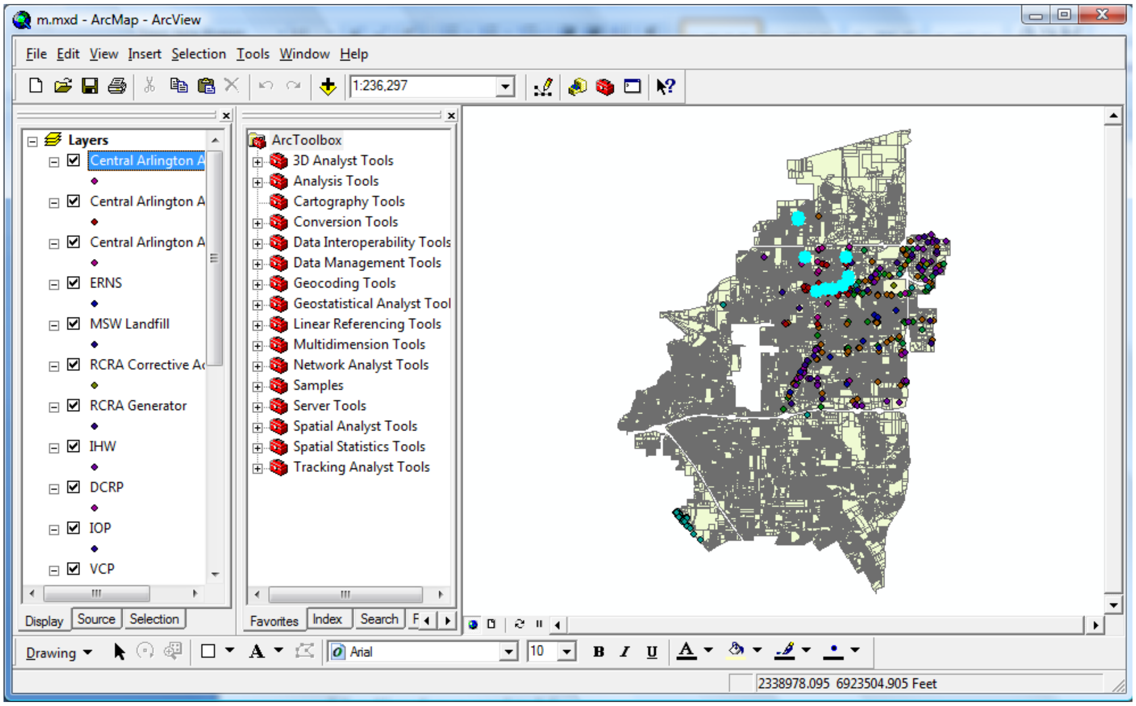


Figure 4.29 ArcView map showing highlighted sites in Central Arlington with acreage greater than 1.5 and less than or equal to 5

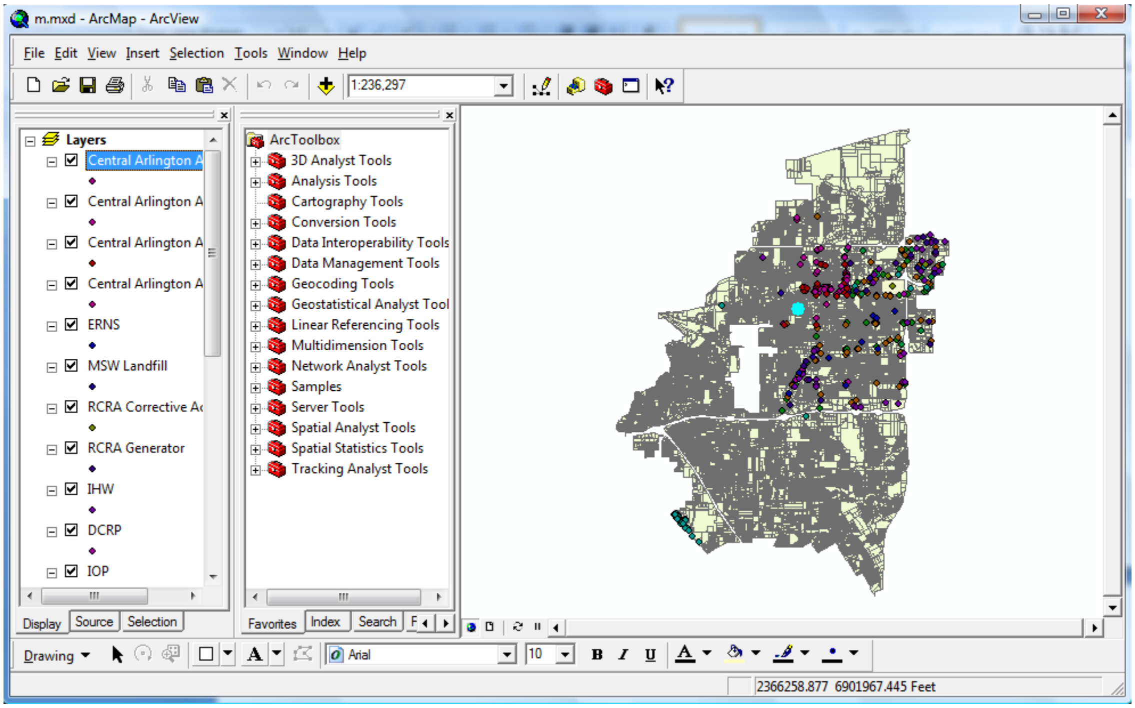


Figure 4.30 ArcView map showing highlighted sites in Central Arlington with acreage greater than 5

Using the method described above all the brownfield sites in East and Southwest Arlington were divided based on the area of the property. The created layers were then added to the ArcView map.

4.3.4 Site Selection According to Land Use

As stated previously that brownfields are abandoned, idled or underused industrial and commercial sites where expansion or redevelopment are complicated by real or perceived environmental contamination. All the sites listed in the database were collected from different regulatory sources which have a potential for contamination. Vacant sites are more suitable to the potential property buyers due to fewer hazards during the process of site assessment and redevelopment. Therefore all the sites in each region were further classified according to the vacancy. This classification was done on the layers which were already categorized according to the region and acreage.

To determine the vacant sites in the Central Arlington with acreage less than or equal to 0.5, attribute table for that particular layer was opened. From the option menu at the bottom of the attribute table, the option “Select By Attribute” was selected and a new text box appeared. In the text box, “Vacant” was put equal to ‘Y’. Figure 4.31 shows the attribute table with highlighted sites that are vacant. Figure 4.32 shows the ArcView map with vacant sites in the Central Arlington which have area Less than or equal to 0.5.

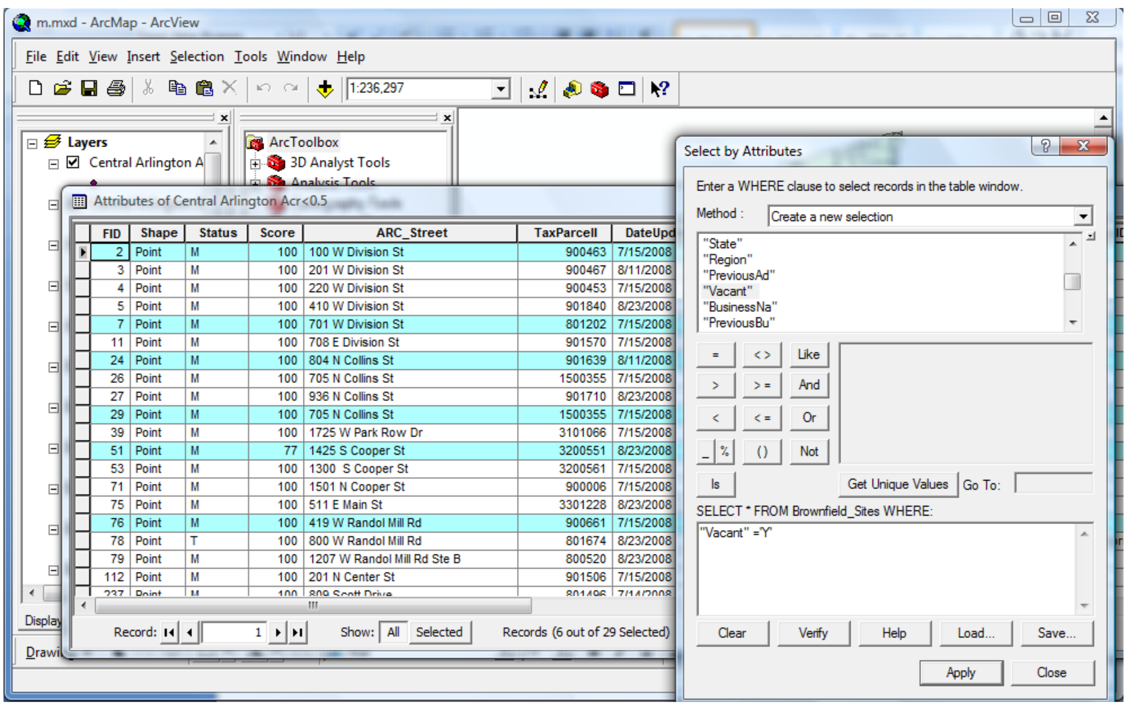


Figure 4.31 Highlighted vacant sites with acreage less than or equal to 0.5 in Central Arlington

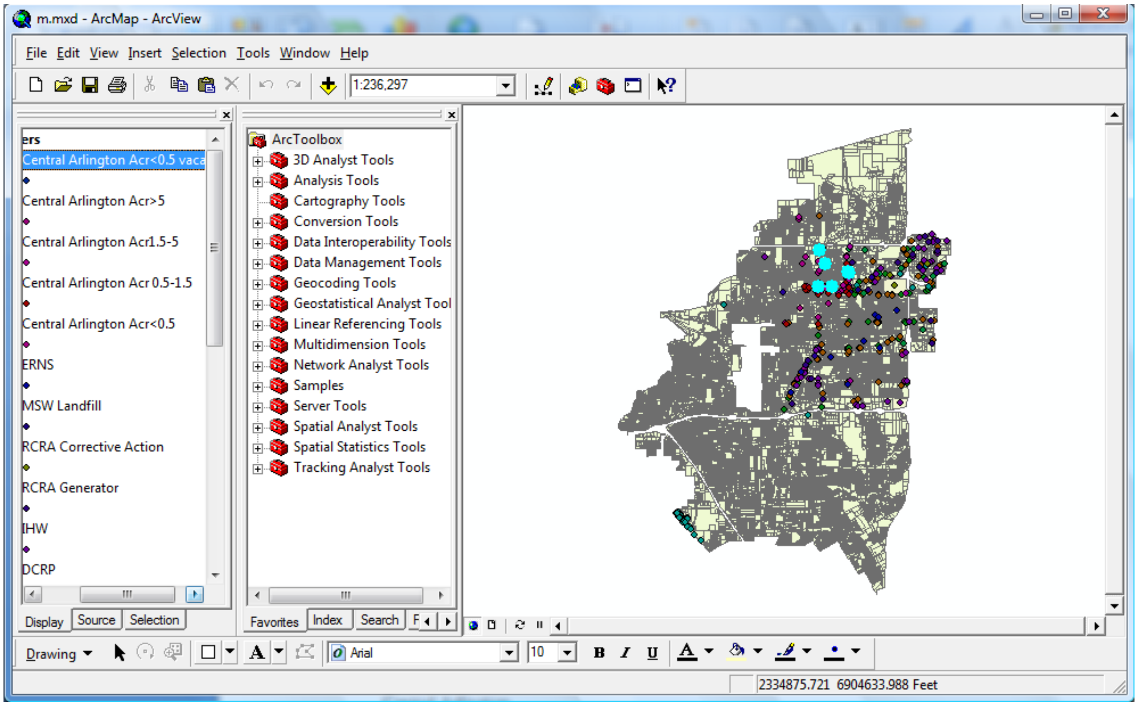


Figure 4.32 ArcView map showing highlighted vacant sites with acreage less than or equal to 0.5 in Central Arlington

The occupied sites with acreage less than or equal to 0.5 in Central Arlington were selected according to the method described above and were added as a new layer in the ArcView map. The only difference was, in the text box “Vacant” was put equal to ‘N’. Figure 4.33 shows the highlighted occupied sites with acreage less than or equal to 0.5 in Central Arlington. Figure 4.34 shows the ArcView map with occupied sites for this category.

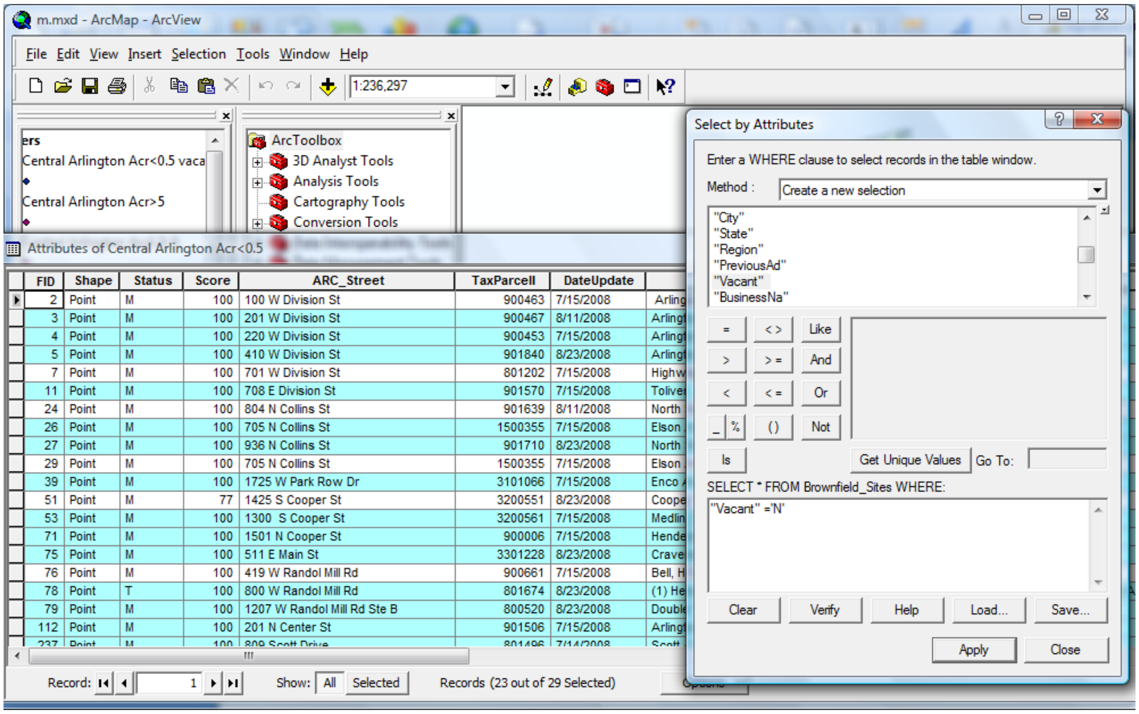


Figure 4.33 Highlighted occupied sites with acreage less than or equal to 0.5 in Central Arlington

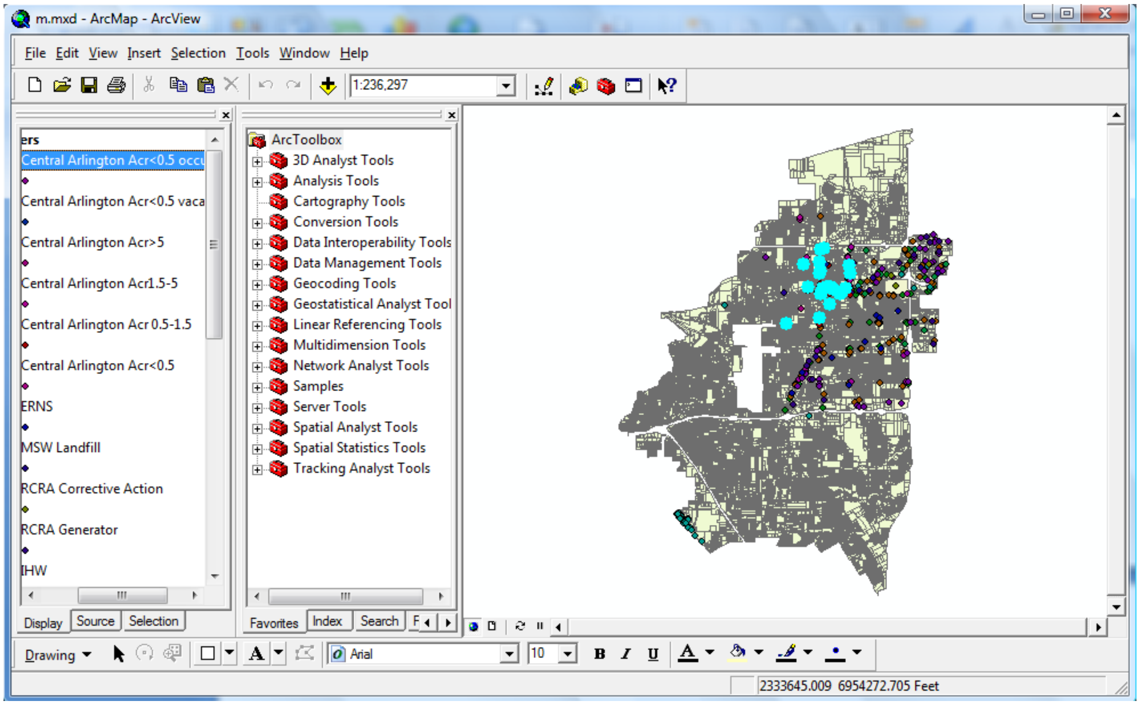


Figure 4.34 ArcView map showing highlighted occupied sites with acreage less than or equal to 0.5 in Central Arlington

The methods described in this section were used to further classify the brownfield sites according to vacancy which had already been classified in the three regions and four different ranges of areas. All these new layers were added in the ArcView map. Table 4.1 presents the number of sites in the study area for each classification.

Table 4.1 Number of Sites in the Study Area According to the Classifications

		Central Arlington	East Arlington	Southwest Arlington	Total
Acreage ≤0.5	Vacant	6	2	1	9
	Occupied	23	36	6	65
0.5<Acreage≤1.5	Vacant	3	11	0	14
	Occupied	22	74	3	99
1.5<Acreage≤5.0	Vacant	5	5	5	15
	Occupied	5	63	7	75
Acreage>5.0	Vacant	0	2	0	2
	Occupied	2	43	7	52
	Total	66	236	29	

4.4 Data Presentation

The layers created after the screening of region, acreage and vacancy, the layer for each particular regulatory source and the parcel layer was added to the ArcMap2GMap software. Figure 4.35 shows the ArcMap2GMap window to convert the ArcMap features into Google map. For each added layer, an information window field which can be seen as a pop up window in the Google map for each site and a unique color was selected. In this case, the street address of a site was set to be seen in the information window. After selecting the “Let’s Do It” option, all the features in the ArcMap was converted to the Google map. Figure 4.36 shows the final user interface of the database.

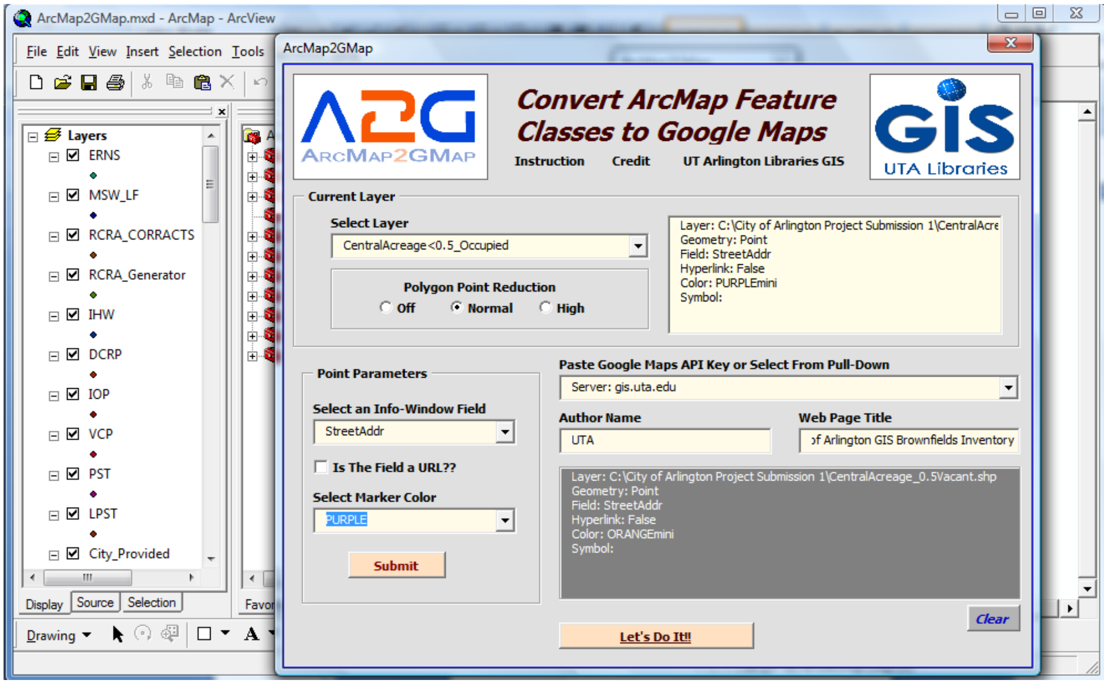


Figure 4.35 ArcMap2GMap window to convert the ArcMap features into Google map

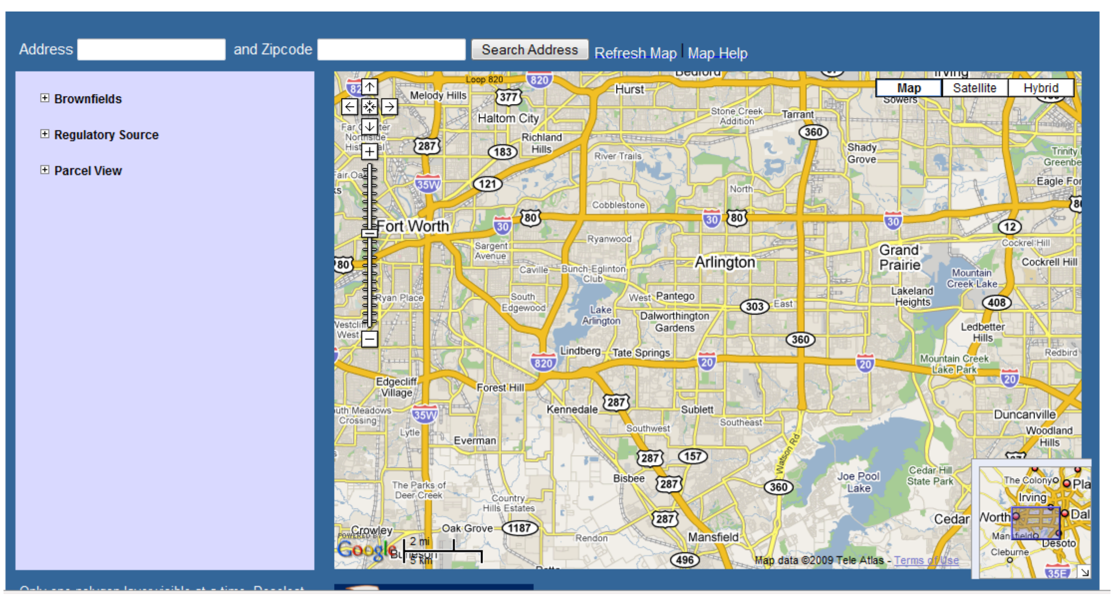


Figure 4.36 User interface of the brownfield database

There are three main categories as presented in Figure 4.36. First one is the list of all Brownfield sites which was divided into three parts- Central, East and Southwest Arlington. Brownfield sites in these three parts of the Arlington were categorized based on the Acreage of the sites. After selecting one of the ranges of acreage, two check boxes appear, named "Vacant" and "Occupied". Once the "Vacant" checkbox is selected, all the vacant sites for that particular region and range of acreage appear in the Google map. Figure 4.37 shows the vacant site in Central Arlington with acreage between 1.5 and 5. When a particular site is selected, an information window pops up showing the address of that site. This address link directs to a new web page where the information that was collected regarding that particular site can be shown. Figure 4.38 shows the web page that contains the information for the selected site in Figure 4.37.

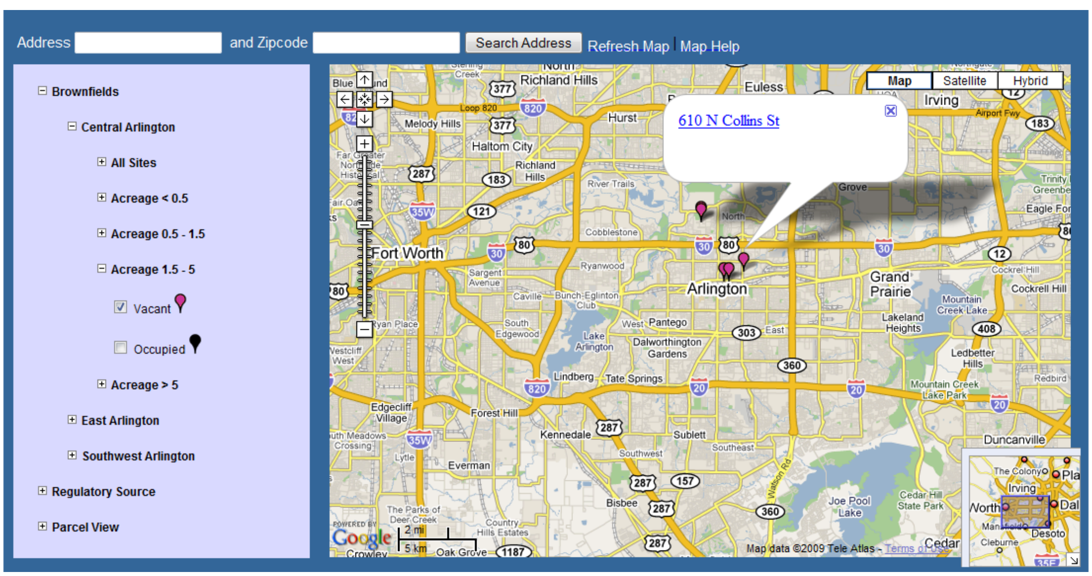
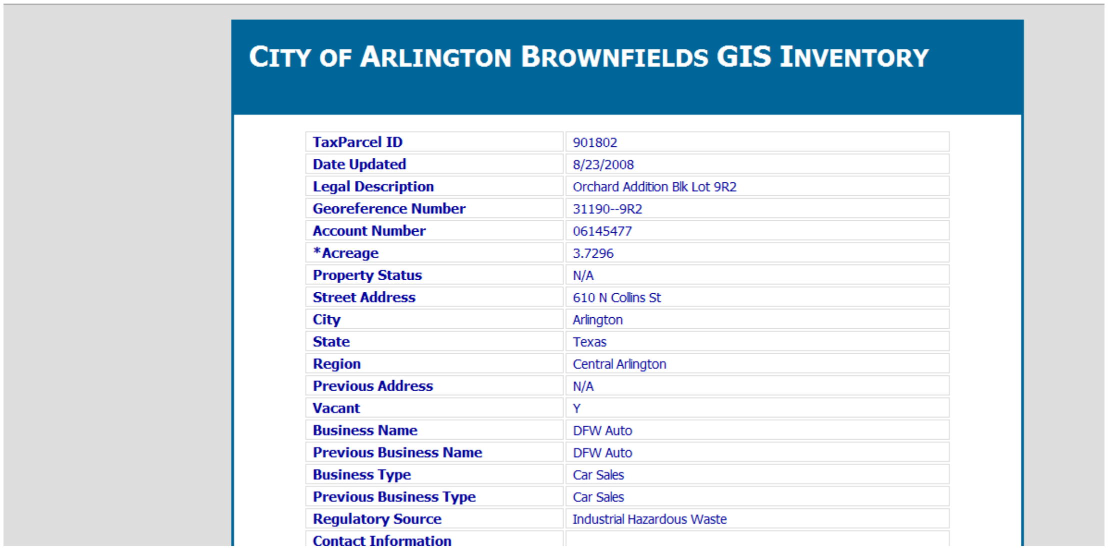


Figure 4.37 Google map showing vacant sites in Central Arlington with acreage between 1.5 and 5.



CITY OF ARLINGTON BROWNFIELDS GIS INVENTORY

TaxParcel ID	901802
Date Updated	8/23/2008
Legal Description	Orchard Addition Blk Lot 9R2
Georeference Number	31190--9R2
Account Number	06145477
*Acreage	3.7296
Property Status	N/A
Street Address	610 N Collins St
City	Arlington
State	Texas
Region	Central Arlington
Previous Address	N/A
Vacant	Y
Business Name	DFW Auto
Previous Business Name	DFW Auto
Business Type	Car Sales
Previous Business Type	Car Sales
Regulatory Source	Industrial Hazardous Waste
Contact Information	

Figure 4.38 Information page for a selected brownfield site

In Figure 4.36, the second menu has the listing of all sites according to their regulatory sources. Figure 4.39 shows all the leaking petroleum storage tanks and an information window for a particular selected site. Figure 4.40 shows the information for the selected site in Figure 4.39.

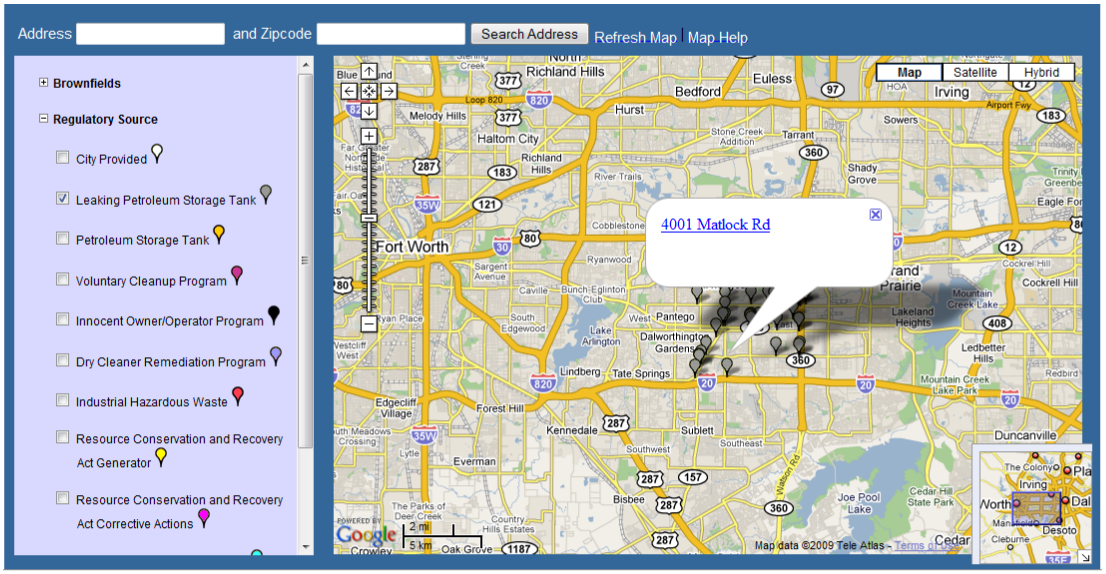


Figure 4.39 Google map showing all the leaking petroleum storage tanks and an information window for a selected site

CITY OF ARLINGTON BROWNFIELDS GIS INVENTORY

TaxParcel ID	6300095
Date Updated	7/15/2008
Legal Description	Dalfin Addition Lot 2Ar
Georeference Number	9163--2AR
Account Number	41248759
*Acreage	1.2454
Property Status	N/A
Street Address	4001 Matlock Rd
City	Arlington
State	Texas
Region	East Arlington
Previous Address	N/A
Vacant	N
Business Name	Sweet Tomatoes
Previous Business Name	Fina 022014140823
Business Type	Restaurant
Previous Business Type	Gas Station
Regulatory Source	Leaking Petroleum Storage Tank

Figure 4.40 Information page for a selected LPST site

From the interface created, it is also possible to find 10 closest brownfield sites of any category to an address. In Figure 4.41 vacant brownfield sites in Central Arlington with acreage in between 1.5 and 5 were selected to view. Then an address "821 W Abram St, Arlington" was entered into the Address box and searched for that address in the Google map. The address appears in the map with an information window which shows the 10 closest brownfield sites of the selected category to that address.

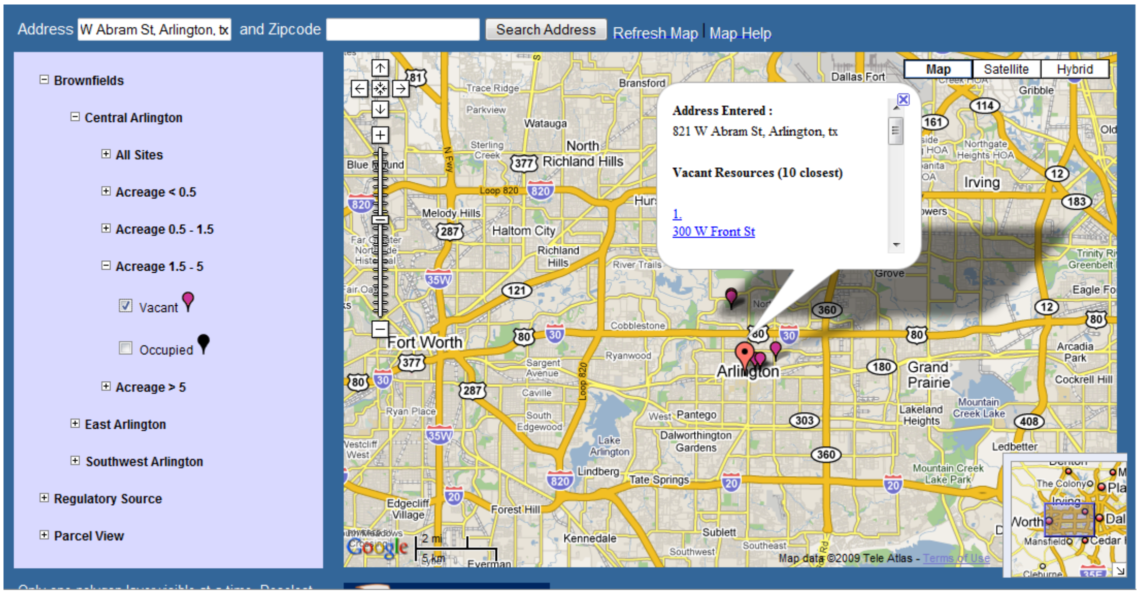


Figure 4.41 Google map showing 10 closest vacant brownfield sites in Central Arlington with acreage in between 1.5 and 5.0 to an address.

4.5 Client-Server Interaction

The database created for brownfield sites in the study area has three main components: client, server and Google map server. Client can be defined as any regular user who wants to see the database. Server contains the map features and all the information regarding the brownfield sites in excel file. At last, the Google map server, using longitude and latitude can point the actual location of the site in the map. Figure 4.41 shows a block diagram which depicts the client-server interaction.

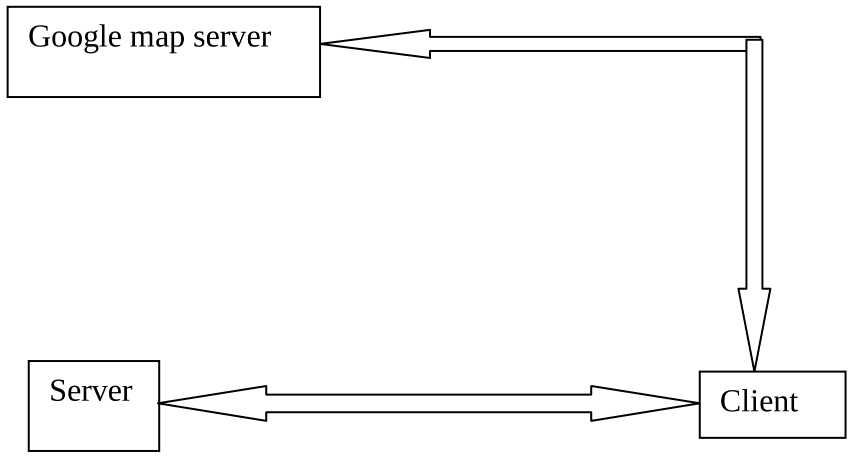


Figure 4.42 Block diagram showing client-server interaction

The diagram in Figure 4.42 can be described as follows:

1. Client sends a request for the interface.
2. Server sends the interface with map, longitude and latitude for all the available location.
3. Client selects a category to view from menu which sends all the longitude and latitude of the sites under that category to Google map server.
4. Google map sends actual point location with marker for those longitude and latitude to client.
5. Client than select any specific site and sends request for data of that location to server.
6. Server searches the database for that specific site and sends all the data to client.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE WORK

5.1 Summary and Conclusions

The redevelopment on the brownfields sites, particularly in the downtown area of the Central Arlington, will provide Arlington with the opportunity to gain a wealth of new businesses, shop and restaurants. Downtown will be able to provide residents and thousands of UTA students, staff and faculty with the opportunity to take advantage of the various recreational amenities available to them. The East Sector will benefit from this redevelopment through the stimulation of economic development and the creation of new jobs in the area. This is in turn will provide an increase to the local tax base. Additionally, persons living in those areas will benefit enormously through the cleanup of sites that may cause them both health and safety concerns. Large industrial sites, such as the Great Southwest Industrial District, pose a greater threat of contamination to the community than smaller sites and are generally more costly to cleanup and redevelop. However, they are more attractive to developers of brownfields sites because they can reap greater economic return on the projects.

The present study can be summarized as follows:

1. The potential brownfield sites in the study area were collected from different regulatory sources where these sites were reported to have potential contamination risk. There were 66 sites in Central Arlington, 236 sites in East Arlington and 29 sites in Southwest Arlington.
2. The attribute table of the brownfield sites shape file was created from the excel database. The attribute table contained eighteen different attribute fields for each site and the information for those fields was collected from City of Arlington online database, TAD online database, and through site visit.
3. The brownfield sites (shape files) in the three region of City of Arlington were classified into four proposed classes (shape files) based on their acreage. This area classification included sites with acreage less than or equal to 0.5, greater than 0.5 and less than or equal to 1.5, greater than 1.5 and less than or equal to 5.0 and greater than 5.0.
4. The sites which were classified according to acreage were further classified and created shape files based on the vacancy of the sites.
5. All the brownfield sites (shape file) were also classified and created new shape files according to the regulatory sources from where the sites were collected.
6. The proposed classification serves as an expedite site assessment to help planners and inspectors of the study area to prioritize sites during site selection process. However, the proposed classification does not replace site investigations, which are essential prior to initiating any redevelopment plan.

7. A user interface was created by converting all the features in the ArcMap to Google map using ArcMap2GMap software.
8. The final interface created interacting with Google map can be used by any person without having any knowledge in GIS.
9. The accuracy and reliability of this work is limited to the accuracy of data collected from both governmental and private agencies.

5.2 Recommendations for Future Work

Continuing the work reported herein will further refine the effectiveness and substantiate the reliability of the developed PC-supported, user friendly, GIS-based framework. Following are the key recommendations suggested for future works:

1. Using Global Positioning Systems (GPS) equipment to generate shape files for the brownfield sites will provide more reliable results than using the "Address-Geocoding" technique. However, this process requires years of work by a team of specialists to accomplish collecting and manipulating the data.
2. The classification of the brownfield sites made based on regulatory sources can be further classified according to acreage and vacancy which will allow the client to search for brownfield sites either from three regions of the City of Arlington or from regulatory listings.
3. The other three region of the City of Arlington: north, west and southeast part can also be considered for the inventory of the brownfield sites. This database will widen the redevelopment strategy for the City of Arlington and can assist in the economic development of the city.

4. Site photos, reports of the site assessment, chemicals of concern and owner information can be collected and linked to the existing database which will expedite the site selection process for planners.

APPENDIX A

DATABASE TABLE

TaxParcelID	DateUpdated	LegalDescription	GeoreferenceNumb	AccountNumber	Acreage	PropertyStatu	StreetAddress	Region	PreviousAddress	Vacant	BusinessName	PreviousBusinessName	BusinessType	PreviousBusinessType	RegulatorySource
401656	8/11/2008	Smith, T Addition, Blk Lot 16	39075--16	06268749	3.476	N/A	1305 Tomlin Ln	Central Arlington	N/A	Y	Q S Wholesale Inc	Q S Wholesale Inc, Six Fl	Open Field	Open Field	City Provided
401657	8/11/2008	Smith, T Addition, Blk Lot 15	39075--15	06268730	2.86	N/A	1306 Lovell Dr	Central Arlington	N/A	Y	Undeveloped	N/A	Undeveloped	N/A	City Provided
900463	7/15/2008	Arlington, Original Town Addn Blk 11 Lot 8 E40'8-9-10 Blk 11	958-11-8-30	00057843	0.0688	For Lease	100 W Division St	Central Arlington	N/A	Y	Former Vandergrif	Former Vandergriff Motor	Car Sales	Car Sales	Leaking Petroleum Storage Tank
900467	8/11/2008	Arlington, Original Town Addn, Blk 34 Lot 1R	958-34-1R	06055184	0.2823	N/A	201 W Division St	Central Arlington	N/A	N	Altex	Altex	Game Room	Game Room	City Provided
900453	7/15/2008	Arlington, Original Town Addn Blk 14 Lot 5R	958-14-5R	06592392	0.3438	N/A	220 W Division St	Central Arlington	N/A	N	Frontline Automob	Vacant Lot	Car Sales	Vacant Lot	Leaking Petroleum Storage Tank
901840	8/23/2008	Arlington, Original Town Addn Blk 70 W495 W49'N38'4	958-70-431	00059854	0.0847	N/A	410 W Division St	Central Arlington	N/A	N	Comet One-Hour C	Comet One-Hour Cleaners	Dry Cleaner	Dry Cleaner	Dry Cleaner Remediation Program
901796	7/15/2008	Denny & Finch Addition Blk Lot 11R	9690--11R	06312527	0.8199	N/A	633 W Division St	Central Arlington	N/A	N	Just Bail Bonds	Fina	Office	Gas Station	Leaking Petroleum Storage Tank
801202	7/15/2008	Highway Park Addition Blk 1 Lot 1R1	18230-1-1R1	06081452	0.341	N/A	701 W Division St	Central Arlington	N/A	Y	7 Eleven 1634 124	Vacant	Gas Station	Vacant Lot	Leaking Petroleum Storage Tank
801641	7/15/2008	Daggett, E Addition Blk Lot 49	9140--49	06312489	0.6429	N/A	1141 W Division S	Central Arlington	N/A	N	Town & Country 1	Town & Country 181 Fina	Gas Station	Gas Station	Leaking Petroleum Storage Tank
601625	8/11/2008	1)Ramey, Robert R Survey, A1341 Tr 32A02,Ag, 2)Ramey, Robert R Survey Abst 1341 Tr 32A, 3) Ramey, Robert R Survey A1341 Tr 32A02 Less Ag	1)A1341-32A02, 2) A1341-32A, 3) A1341-32A02	1) 05304830; 2)05304849, 3)40598942	1)19, 2)17.393, 3)70.55	N/A	4013 W Division S	West	N/A	Y	1)James Sowell Co LP , 2)Sagamore Hill Baptist Chch Inc,	N/A	Church	N/A	City Provided
9018298	8/23/2008	Toliver Acres Addition Blk Lot 4R	42300--4R	03155579	3.1038	N/A	711 E Division St	Central Arlington	N/A	N	Automax Paints an	AT Lowry Toyota	Car Sales and Pain	Car Sales	Industrial Hazardous Waste
901570	7/15/2008	Toliver, Joseph Addition Lot 14 15 & 5'X100'Alley S	42305--14-30	03155315	0.3213	N/A	708 E Division St	Central Arlington	N/A	N	The Kar Store	Cams Rental	Car Sales	Car Rental	Leaking Petroleum Storage Tank
1500418	7/15/2008	Harrison, L C Addition Blk 1 Lots 1A & 2A	17320-1-1A	01184725	0.8597	N/A	900 E Division St	Central Arlington	N/A	N	Dollar	Shell Oil Co	Car Sales	Gas Station	Leaking Petroleum Storage Tank
1500637	8/23/2008	Field Acres Addition Blk Lot 4R2	13770--4R2	40350088	1.4649	N/A	901 E Division St	East Arlington	N/A	N	Vandergriff Body	Vandergriff Body Shop	Auto Repair	Auto Repair	Industrial Hazardous Waste
1500401	8/11/2008	Field Acres Addition Lts 7A & 8 Thru 12	13770--7A-30	00932000	28.5333	N/A	1201 E Division St	East Arlington	N/A	Y	One Prime Property	One Prime Property Inc, E	Open Field and So	Open Field and Some Ho	City Provided
1500627	7/15/2008	Field Acres Addition Blk Lot 15C2	13770--15C2	07550995	0.6318	N/A	1501 E Division St	East Arlington	N/A	Y	land	Service Station Facility	land	Gas Station	Leaking Petroleum Storage Tank
1600056	8/23/2008	Pilant Acres Addition Blk Lot 9Ar	32410--9AR	06023916	2.321	For Lease	1830 E Division St	East Arlington	N/A	N	Storageland Rental	Zoecon	Storage	Suppliers of Agrochemic	Industrial Hazardous Waste
1600172	8/23/2008	Gsid Comm #3 Site 1R1	48508--1R1-04	07550855	1.6265	N/A	1801 E Division St	East Arlington	N/A	N	New and Used Tire	Randy Hiley Mazda	Auto Repair Shop	Car Dealer	Innocent Owner/Operator Program
1600084	8/23/2008	Six Flags Business Park Addn Blk Lot 10Ac	38675--10AC	03685594	2.25	N/A	2211 E Division St	East Arlington	N/A	N	Arlington Office	Proterio Leasing Inc	N/A	N/A	Industrial Hazardous Waste
1600063	7/15/2008	Six Flags Business Park Addn Blk Lot 8 Site 8-5R	38675--8-13	06023908	5.8339	N/A	1911 E Division St	East Arlington	N/A	N	Texas Car Cars	Bledsoe Dodge Inc	Car Sales	Car Sales	Leaking Petroleum Storage Tank
1600054	7/15/2008	Pilant Acres Addition Blk Lot 8A	32410--8A	06195385	0.61	N/A	1800 E Division St	East Arlington	N/A	Y	Phillips 66 Store 2	Phillips 66 Store 27348	Gas Station	Gas Station	Leaking Petroleum Storage Tank
1700090	7/15/2008	Guerin, M Addition Blk Lot 6A	16510--6A-A	01141074	1.2651	N/A	2821 E Division St	East Arlington	N/A	N	Firestone Service C	Firestone Service Center	Auto Service Cent	Auto Service Center	Leaking Petroleum Storage Tank
1500451	7/15/2008	Gsid Comm #3 Blk Lot 6	48508--6	03690679	1.0189	N/A	1731 E Division St	East Arlington	N/A	N	Fina	Vista 4025	Gas Station	N/A	Leaking Petroleum Storage Tank
901598	7/15/2008	Toliver Acres Addition Blk Lot 53A	42300--53A	03156125	0.6668	N/A	316 N Collins St	Central Arlington	N/A	N	Shine Express Car	Sonny's Car Wash	Car Wash	Car Wash	Leaking Petroleum Storage Tank
901639	8/11/2008	North Side Addition (Arlington),Blk Lot 1A,Lots 1A & 2A	30220--1A	01969536	0.3587	Closed	804 N Collins St	Central Arlington	N/A	Y	The Fluke 777 Gas	Texas Way	Game Room and G	Gas Station	City Provided
901802	8/23/2008	Orchard Addition Blk Lot 9R2	31190--9R2	06145477	3.7296	N/A	610 N Collins St	Central Arlington	N/A	Y	DFW Auto	DFW Auto	Car Sales	Car Sales	Industrial Hazardous Waste
1500355	7/15/2008	Elson Addition Blk Lot 2R	12700--2R	06048668	0.337	N/A	705 N Collins St	Central Arlington	N/A	N	7 Eleven Store 261	7 Eleven Store 26128	Gas Station	Gas Station	Leaking Petroleum Storage Tank
901710	8/23/2008	North Side Addition (Arlington Blk Lot 9Ac	30220--9AC	01969692	0.4591	N/A	936 N Collins St	Central Arlington	N/A	N	Valero	Exxon Tiger Mart 67019	Gas Station	Gas Station	Industrial Hazardous Waste
901715	7/15/2008	Murray Estates Addition Blk 1 Lot 10R1	27060-1-10R1	04847350	1.76	N/A	1212 N Collins St	Central Arlington	N/A	N	Pep Boys Store 72	Pep Boys Store 725	Automobile Garage	Automobile Garage	Resource Conservation and Recovery Act Generator
1500355	7/15/2008	Elson Addition Blk Lot 2R	12700--2R	06048668	0.337	N/A	705 N Collins St	Central Arlington	N/A	Y	Open Land in Stad	7 Eleven 26128	Open Land in Stad	Gas Station	Leaking Petroleum Storage Tank
901714	7/15/2008	Murray Estates Addition Blk 6 Lot 9R	27060-6-9R	06195296	0.86	N/A	1300 N Collins St	Central Arlington	N/A	Y	Vacant	Collins Food Mart	Land	Gas Station	Voluntary Cleanup Program
1500028	7/2/2008	Dalby Acres Addition Blk Lot 1R2	9150--1R2	06195253	0.8968	N/A	1505 N Collins St	East Arlington	N/A	N	Chick-fil-A	Chick-fil-A	Restaurant	Restaurant	Voluntary Cleanup Program
901738	7/15/2008	Murray Estates Addition Blk 5 Lot 3R1	27060-5-3R1	40647609	0.7079	N/A	1000 N Collins St	Central Arlington	N/A	N	Panda Express	Randol Mill Mobil Servic	Restaurant	Auto Service Center	Leaking Petroleum Storage Tank
6300829	8/23/2008	Ramey, R R Addition Blk Lot 18R	33415--18R	06662765	1.278	N/A	4120 S Collins St	East Arlington	N/A	N	Whataburger	Exxon Mobil	Restaurant	Gas Station	Industrial Hazardous Waste
7100215	8/23/2008	Ramey, R R Addition Blk Lot 7	33415--7	04982541	0.5399	N/A	4121 S Collins St	East Arlington	N/A	N	Mobil Oil 00121	Mobil Oil 00121	Gas Station	Gas Station	Industrial Hazardous Waste
4700455	8/23/2008	Collins Plaza Blk Lot 3R	7785--3R	00577294	0.6253	N/A	3321 S Collins St	East Arlington	N/A	N	Dry Clean City Su	Dry Clean City Super Cen	Dry Cleaner	Dry Cleaner	Dry Cleaner Remediation Program
901508	8/11/2008	Arlington, Original Town Addn Blk C Lot B Adj Strip	958-C-B	40000370	2.1476	N/A	E Front St	Central Arlington	N/A	Y	Open Field (Undev	N/A	Open Field (Undev	N/A	City Provided
901813	8/11/2008	Arlington, Original Town Addn Blk B Lot B	958-B-B	40000362	2.1476	N/A	300 W Front St	Central Arlington	N/A	Y	Open Field (Undev	Ken Evans Roofing and Si	Open Field (Undev	Roofing Contractors	City Provided
3400900	8/23/2008	Barry, W J Addition Blk Lot 5A	1720--5A	05813603	0.964	N/A	1700 W Park Row	Central Arlington	N/A	N	Our Park Cleaners	Image Plus Cleaners	Dry Cleaner	Dry Cleaner	Dry Cleaner Remediation Program
3101066	7/15/2008	Enco Addition Blk A Lot	12780-A	00860603	0.4648	N/A	1725 W Park Row	Central Arlington	N/A	N	Shamrock	Triple 7 Store	Gas Station	N/A	Leaking Petroleum Storage Tank
4102064	7/15/2008	Sylvan Heights Addn-Arlington Blk 4 Lot A1	41170-4-A1	41193652	0.8132	N/A	901 E Park Row D	East Arlington	N/A	N	Residential Buildin	Texaco Food Mart 41 190	Residential Buildin	Gas Station	Leaking Petroleum Storage Tank
4300464	8/23/2008	Gsid South Site 18A1	48543--18A1	03693775	0.7564	N/A	2601 E Park Row	East Arlington	N/A	N	Park Row Texaco	Park Row Texaco	Gas Station	Gas Station	Industrial Hazardous Waste
4300458	7/15/2008	Gsid South Blk 18 Lot 1B Site 18	48543-18-1B	03693686	1.3427	N/A	2801 E Park Row	East Arlington	N/A	N	7 Eleven 1634 185	7 Eleven 1634 18555	Gas Station	Gas Station	Leaking Petroleum Storage Tank
4201478	7/15/2008	Shell Site Buena Vista Addn No Legal Per Vol 388-17 Pg 227	38270--04	02741245	0.5165	N/A	2525 E Park Row	East Arlington	N/A	N	Laundra Mart	Stop N Go 480	Laundry	Gas Station	Leaking Petroleum Storage Tank
4201481	7/15/2008	Buena Vista Addition-Arlington Blk 22 Lot 3D	4240-22-3D	00365939	0.4294	N/A	2517 E Park Row	East Arlington	N/A	N	BPT Mart	Diamond Shamrock Mart	Gas Station	Gas Station	Leaking Petroleum Storage Tank
4100850	7/15/2008	Arlington Estates Addition Blk 10 Lot 20R	890-10-20R	00064432	0.3443	N/A	1819 E Park Row	East Arlington	N/A	N	Kwik Car Wash	Kwik Car Wash	Car Wash	Car Wash	Leaking Petroleum Storage Tank
4500405	7/15/2008	Caldwell, P Addition Lot 3R1	6090--3R1	00395404	0.8225	N/A	2524 E Park Row	East Arlington	N/A	N	A Michoacana Me	Exxon 66345	Shop	Gas Station	Leaking Petroleum Storage Tank
4201108	7/15/2008	Hillcrest Park Addition Blk 5 Lot 4	18360-5-4A	01288962	0.2364	N/A	1901 E Park Row	East Arlington	N/A	N	6 Pack Express	Dees Way 17	Grocery Store	N/A	Leaking Petroleum Storage Tank
4100854	7/15/2008	Arlington Estates Addition Blk 10 Lot 15R	890-10-15R	04848829	0.3969	N/A	1827 E Park Row	East Arlington	N/A	N	Perla Dental of Arl	7 Eleven Store 2392 31 631	Dental Service	Gas Station	Leaking Petroleum Storage Tank
4100763	7/15/2008	McKnight Manor Addition Blk A Lot 1	27690-A-1A	01857533	0.4386	N/A	1601 E Park Row	East Arlington	N/A	N	Residential Buildin	Chevron	Residential Buildin	Gas Station	Leaking Petroleum Storage Tank
4600916	8/23/2008	Gsid South Site 88	48543--88	03694410	9.239	N/A	3300 E Park Row	East Arlington	N/A	N	United States Cold	Wal Mart	Storage	Super Store	Resource Conservation and Recovery Act Generator
3200551	8/23/2008	Cooper North Addition Blk C Lot 2A	8330-C-2A	00628379	0.4697	N/A	1425 S Cooper St	Central Arlington	N/A	Y	One Hour Martinizi	One Hour Martinizing Cle	Dry Cleaner	Dry Cleaner	Industrial Hazardous Waste
3501376	7/15/2008	Stephens, John Addition Blk Lot 31B	40810--31B	06231748	1.3739	N/A	1500 S Cooper St	Central Arlington	N/A	N	Shell	Texaco	Gas Station	Gas Station	Leaking Petroleum Storage Tank
3200561	7/15/2008	Medlin, O Addition Blk Lot 28A	25708--28A	01756788	0.2824	N/A	1300 S Cooper St	Central Arlington	N/A	N	Snap N Go	Stop N Go 2410	Gas Station	Gas Station	Leaking Petroleum Storage Tank
3501237	7/15/2008	Cooper Corner Addition Blk Lots A1 B & C	8325--A1	00628328	0.7693	N/A	1900 S Cooper St	East Arlington	N/A	N	Quick Trip	7 Eleven 1634 21088	Gas Station	Gas Station	Leaking Petroleum Storage Tank

3800892	8/23/2008	Newton, A Addition Blk Lot 4C	28060--4C	01865633	2.05	N/A	2530 S Cooper St	East Arlington	N/A	N	G&M Collision Ce	Mitchel Auto body	Auto Repair	Auto Repair	Resource Conservation and Recovery Act Generator
3800884	7/15/2008	Newton, Anderson Survey A 1161 Tr 25B	A1161-25B	04072901	0.63	N/A	2536 S Cooper St	East Arlington	N/A	N	Villedas Window T	Donald E Hunn	Tints and Alarms	N/A	Leaking Petroleum Storage Tank
3800491	8/23/2008	Newton, A Addition Blk Lot 29R	28060--29R	06270719	2.019	N/A	2710 S Cooper St	East Arlington	N/A	N	Pep Boys	Pep Boys	Auto Mechanic Sh	Auto Mechanic Shop	Resource Conservation and Recovery Act Generator
3800485	8/23/2008	Newton, A Addition Blk Lot 4R	28060--4R	04847393	1.2924	N/A	2800 S Cooper St	East Arlington	N/A	N	Metro PCs	Comet Cleaners	Office	Dry Cleaner	Dry Cleaner Remediation Program
3800467	8/23/2008	Newton, A Addition Blk Lot 9A	28060--9A	01865749	3.0823	N/A	2918 S Cooper St	East Arlington	N/A	N	Cooper Auto Servi	Cooper Auto Service & St	Auto Service Cent	Auto Service Center	Emergency Response Notification System
3800675	8/23/2008	Newton, A Addition Blk Lot 30R	28060--30R	05267440	3.2813	N/A	2921 S Cooper St	East Arlington	N/A	N	B & B Automotive	Freds Auto Service	Auto Repair	Auto Repair	Industrial Hazardous Waste
3800681	7/15/2008	Lane, J W Addition Blk Lot 3R	23580--3R	04979702	0.462	N/A	3301 S Cooper St	East Arlington	N/A	N	7 11 Store	7 11 Store	Gas Station	Gas Station	Leaking Petroleum Storage Tank
3800697	8/23/2008	Johnson Station Bus Park Addn Blk 1 Lot 1	21885-1-1	01466976	0.6508	N/A	3109 S Cooper St	East Arlington	N/A	N	Cooks Collision Re	Cooks Collision Repair	Auto Repair	Auto Repair	Industrial Hazardous Waste
3800460	8/23/2008	Newton, A Addition Blk Lot 81	28060--81	05669472	1.5359	N/A	3200 S Cooper St	East Arlington	N/A	N	Shamrock	Falcon Cleaners	Gas Station	Dry Cleaner	Dry Cleaner Remediation Program
6201031	8/23/2008	Rolling Meadows Addition Blk 1 Lot Ar1	35040-1-AR1	05820588	5.9319	N/A	3415 S Cooper St	East Arlington	N/A	N	Tiffany Park Shopp	Tiffany Park Shopping Ce	Shopping Center	Shopping Center	Industrial Hazardous Waste
6101062	7/15/2008	Schooler Tract Addition Blk Lot 18B	37650--18B	02691450	0.2754	N/A	3624 S Cooper St	East Arlington	N/A	N	Quick Lube	Jiffy Lube 922	Auto Repair	Auto Repair	Leaking Petroleum Storage Tank
6101065	7/15/2008	Southwoods Addition Blk 4 Lot 3	39765-4-3	04848098	0.7162	N/A	3710 S Cooper St	East Arlington	N/A	N	Shell Express Mart	Texaco Service Station 41	Gas Station	Gas Station	Leaking Petroleum Storage Tank
6101049	7/15/2008	Southwoods Addition Blk 3 Lot 1A	39765-3-1A	04848063	0.8657	N/A	3800 S Cooper St	East Arlington	N/A	N	Parks Texaco	MOBIL 12AH1	Gas Station	Gas Station	Leaking Petroleum Storage Tank
6200957	8/23/2008	Homart Addition Blk Lot 2R1	19065--2R1	06527639	14.3589	N/A	3821 S Cooper St	East Arlington	N/A	N	Dillards Departme	Dillards Departmental Sto	Store	Store	Resource Conservation and Recovery Act Generator
4100604	7/15/2008	Lane, C T Addition Blk Lot 1	23575--1	04847091	2.035	N/A	4200 S Cooper St	East Arlington	N/A	N	Comercia Bank	Phoenix Management Co	office	Office	Leaking Petroleum Storage Tank
900307	7/15/2008	Wright, J R Addition Blk Lot 6Br1 Lts 6Br1 & 7R1	47880--6BR1	03675173	0.5066	N/A	425 N Cooper St	Central Arlington	N/A	N	Texas Black Belt A	Southwest Office Systems	Academy	Office	Leaking Petroleum Storage Tank
900006	7/15/2008	Henderson, J M Addition Blk Lot 26A	17710--26A	05919339	0.3461	N/A	1501 N Cooper St	Central Arlington	N/A	N	7 Eleven 24261	7 Eleven 24261	Gas Station	Gas Station	Leaking Petroleum Storage Tank
3200933	7/15/2008	Jordan Addition-Arlington Blk 3 Lts 19A 20A Thru 27	22080-3-19A	01471805	1.7443	N/A	717 W Main St	Central Arlington	N/A	N	City of Arlington	City Police Department	Parks and Recreati	Office and Parking Lot	Leaking Petroleum Storage Tank
3201044	8/23/2008	Daggett, E Survey A 430 Tr 17	A 430-17	03859002	0.742	N/A	721 W Main St	Central Arlington	N/A	Y	Arlington Police D	Arlington Police Dept	Parking lot	Parking lot	Industrial Hazardous Waste
3200939	7/15/2008	Arlington Heights Addition Blk 7 Lot	920-7	04609522	0.9862	N/A	1111 W Main St	Central Arlington	N/A	N	Police Depot	Trans Tex Supply Co Inc	Parking	N/A	Leaking Petroleum Storage Tank
3301228	8/23/2008	Cravens Addition Blk 1 Lot 1Rb	8620-1-1RB	06354602	0.4395	N/A	511 E Main St	Central Arlington	N/A	N	Arlington Automot	Arlington Automotive Ma	Machine Shop	Machine Shop	Industrial Hazardous Waste
900661	7/15/2008	Bell, H G Addition Blk Lot A1	2020--A1	00145998	0.466	N/A	419 W Randol Mill	Central Arlington	N/A	Y	Diamond Shamroc	Diamond Shamrock 944	Gas Station	Gas Station	Leaking Petroleum Storage Tank
900071	7/15/2008	Kiel Estates Blk Lot B	22570--B	01502468	0.6887	N/A	501 W Randol Mill	Central Arlington	N/A	N	Fina 9404	Fina 9404	Gas Station	Gas Station	Leaking Petroleum Storage Tank
801674	8/23/2008	(1) Henderson, John M Survey A 696 Tr 7C03, (2, 3 and 4) Arlington Memorial Hospital Ad Blk 1 Lot 1R1A1	1)A 696-7C03 2)6501-1R1A-10 3)6501-1R1A 4)6501-1R1A	1)A 03934764, 20	2)16.8440,	N/A	800 W Randol Mill	Central Arlington	N/A	N	Arlington Memori	Arlington Memorial Hosp	Hospital	Hospital	Resource Conservation and Recovery Act Generator
800520	8/23/2008	Double Y Wooded Estate Addn Blk G Lot 15R1	10105-G-15R1	04739027	0.2721	N/A	1207 W Randol M	Central Arlington	N/A	N	Reino Cleaners	Silver Star Speciality Clea	Dry Cleaner	Dry Cleaner	Dry Cleaner Remediation Program
1500597	8/23/2008	Cedarland Plaza Subdivision Blk 2 Lot 3R	6904-2-3R	40733157	16.276	N/A	915 E Randol Mill	East Arlington	N/A	N	Wal Mart	Wal Mart	Super Store	Super Store	Resource Conservation and Recovery Act Generator
1600020	8/23/2008	Six Flags Business Park Addn Blk Lot 41 Site 41	38675--41-B	03685357	6.7552	For Lease	2001 E Randol Mil	East Arlington	N/A	N	Proterra Properties	ACS Hydraulics	Real Estate Agents	Hydraulic Technology	Industrial Hazardous Waste
1600097	7/2/2008	Six Flags Business Park Addn Blk Lot 44A	38675--44A	06586307	6.525	N/A	2400 East Randol M	East Arlington	N/A	N	Elite Interior Grou	Randol Mill Service Cente	N/A	Dry Cleaners	Voluntary Cleanup Program
1600101	8/23/2008	Six Flags Business Park Addn Blk Lot 40 Site 40	38675--40-B	03685349	4.0899	N/A	2500 E Randol Mil	East Arlington	N/A	N	SWP	Teters Faucet Parts Center	N/A	Plumbing Shop	Industrial Hazardous Waste
1700065	8/23/2008	Gsid Comm #2 Inst #1 Blk 2 Sites 2 & 2A	48502-2	04911776	5.1129	N/A	2920 E Randol Mil	East Arlington	N/A	N	Corrugated Servic	Corrugated Services LP A	Recycling Center	Recycling Center	Municipal Solid Waste Land Fill
1700154	7/15/2008	Gsid Comm #2 Inst #1 Site 14	48502-14	03687570	2.0529	N/A	3100 E Randol Mil	East Arlington	N/A	N	PDMS Incorporate	Pilgrims Pride Corp	Building Contracto	Wholesale Shop	Leaking Petroleum Storage Tank
1700147	8/11/2008	Gsid Comm #2 Inst #1 Site 33R	48502-33R	03687910	1.3769	N/A	3200 E Randol Mil	East Arlington	N/A	N	Pasco Automotive	Pasco Automotive Group	Car Sale	Car Sale	City Provided
1700199	8/23/2008	Gsid Comm #2 Inst #1 Site 31A	48502-31A	03687805	0.95	N/A	3315 E Randol Mi	East Arlington	N/A	N	Palmer Johnson Po	Palmer Johnson Power Sy	Transpotation Equ	Transpotation Equipment	Industrial Hazardous Waste
1700167	7/2/2008	Gsid Comm #2 Inst #1 Sites 75 & 106	48502-75	03688321	1.4953	N/A	3221 E Randol Mil	East Arlington	N/A	N	Borden Packaging	Reico Construction Inc	Printing Inks Man	Manufacturing Kitchen &	Resource Conservation and Recovery Act Corrective
1700333	7/2/2008	Gsid Comm #2 Inst #6 Blk Lot 14	48507--14	04618971	5	N/A	3800 E Randol Mil	East Arlington	N/A	N	Berryman Product	Berryman Products, Inc.	Chemical Packagin	Chemical Packaging	Voluntary Cleanup Program
900925	8/23/2008	Turnpike South Addition Blk Lot 3R	44030--3R	06836097	10.3029	N/A	201 Road To Six F	Central Arlington	N/A	N	Home Depot USA	Home Depot USA HD055	Super Store	Super Store	Industrial Hazardous Waste
3300487	7/15/2008	Arlington, Original Town Addn Blk 45R Lot	958-45R	06145698	1.057	N/A	201 W Abram St	Central Arlington	N/A	N	City of Arlington S	City Stge	Auto Repair	Storage	Leaking Petroleum Storage Tank
3200865	7/15/2008	Medlin, O Addition Blk Lot 28Ar	25708--28AR	40361136	0.8856	N/A	700 W Abram St	Central Arlington	N/A	N	KFC	Shell Oil Co	Restaurant	Gas Station	Leaking Petroleum Storage Tank
3301160	7/15/2008	Cain-Brogdon Addition Blk Lot 2R	6080--2R	06625002	1.3775	N/A	815 E Abram St	Central Arlington	N/A	N	CVS	Western Auto Supply Co	Pharmacy	Auto	Leaking Petroleum Storage Tank
4100018	7/15/2008	Blackwell, J Addition Blk Lot 1A	2760--1A	00226416	0.3882	N/A	901 E Abram St	East Arlington	N/A	N	10 Minute State In	10 Minute State Inspectio	Auto Service Cent	Auto Service Center	Leaking Petroleum Storage Tank
4100017	8/23/2008	Blackwell, J Addition Blk Lot 6A	2760--6A	00226475	1.1957	N/A	905 E Abram St	East Arlington	N/A	N	JIS Corporation	J I S Corporation	Auto Service Cent	Auto Service Center	Resource Conservation and Recovery Act Generator
4100119	7/15/2008	Broadmoor Addition-Arlington Blk 4 Lot 1R	3650-4-1R	00294179	0.3213	N/A	1202 E Abram St	East Arlington	N/A	Y	Eason Petroleum	Eason Petroleum	Gas Station	Gas Station	Leaking Petroleum Storage Tank
4101975	7/2/2008	Peterman-Davis Addition Blk Lot 9	32220--9	02199157	0.3787	N/A	1503 E Abram St	East Arlington	N/A	N	Firestone Service C	Sky Motors Auto Sales an	Automotive Tire a	Automotive Tire and Ser	Voluntary Cleanup Program
4200231	7/15/2008	Kathadie Corners Addition Blk Lot 1A	22230--1A	01477463	0.3561	N/A	1900 E Abram St	East Arlington	N/A	N	Low Rate Insuranc	7 Eleven 1634 20696	Insurance Office	Gas Station	Leaking Petroleum Storage Tank
4200243	7/15/2008	Elroy Heights Addition Blk D Lot 1	12720-D-1	00849332	0.4304	N/A	2120 E Abram St	East Arlington	N/A	N	7 Eleven Store 209	7 Eleven Store 20994	Gas Station	Gas Station	Leaking Petroleum Storage Tank
4202191	8/23/2008	Harris, M Addition Blk Lot 1A1	17260--1A1	01182080	248.778	N/A	2525 E Abram St	East Arlington	N/A	N	General Motors Co	General Motors Corporatio	Auto Assembly Pl	Auto Assembly Plant	Resource Conservation and Recovery Act Corrective
4202162	7/15/2008	Hollandale Addition Blk 17 Lot 3	18820-17-3	04849302	0.6183	N/A	2530 E Abram St	East Arlington	N/A	N	Fast Tune & Lube	Fast Tune & Lube 819	Auto Service Cent	Auto Service Center	Leaking Petroleum Storage Tank
4202163	8/23/2008	Hollandale Addition Blk 17 Lot 6	18820-17-6	04849310	0.8259	N/A	2544 E Abram St	East Arlington	N/A	N	Comet Cleaners	Comet Cleaners	Dry Cleaner	Dry Cleaner	Dry Cleaner Remediation Program
4300054	7/15/2008	Prairie Oaks Park Addition Blk 1 Lot 2B	32928-1-2B	06267173	1	N/A	2700 E Abram St	East Arlington	N/A	N	Valero Corner Stor	Total Store 4487	Gas Station	Gas Station	Leaking Petroleum Storage Tank
4300007	8/11/2008	Ross, John M Survey, A 1349 Tr 2B01	A1349-2B01	04141598	12.0899	N/A	2801 E Abram St	East Arlington	N/A	N	Simpkins Industrie	Simpkins Industries Inc	Producing Cartons	Producing Cartons and p	City Provided
4300028	8/11/2008	Ross, John M Addition Blk Lot 5	36625--5	02566249	2.11	N/A	3231 E Abram St	East Arlington	N/A	N	Sears Service Cent	Sears Service Center #837	Service and Repair	Service and Repair	City Provided
4300026	8/11/2008	Ross, John M Addition Blk Lot 2	36625--2	02566214	3.61	For Lease	3217 E Abram St	East Arlington	N/A	Y	Twins Roofing and	Baymax Transport Inc	Roofing/Siding Co	Truck Repair	City Provided
4300857	7/15/2008	Silver Belle Estates Addition Blk 2 Lot 10R	38890-2-10R	41342674	8.2199	N/A	3206 E Abram St	East Arlington	N/A	N	Penske Truck Leas	Penske Truck Leasing Co	Truck Rental	Truck Rental	Leaking Petroleum Storage Tank
4300030	7/15/2008	Silver Belle Estates Addition Blk Lot D	38890--D	05928613	2.0399	N/A	3212 E Abram St	East Arlington	N/A	N	Budget Rent A Car	Budget Rent A Car	Car Rent	Car Rent	Leaking Petroleum Storage Tank
4300027	7/15/2008	Ross, John M Addition Blk Lot 3R	36625--3R	05668263	13.7769	N/A	3408 E Abram St	East Arlington	N/A	N	Builders First Sour	Builders First Source Tex	Office	Office	Leaking Petroleum Storage Tank
3200260	7/15/2008	Medlin, Owen Survey A 1043 Tr 6O	A1043-6O	04036859	47.3379	N/A	1225 W Mitchell S	Central Arlington	N/A	N	The University of T	The University of Texas a	Office and Parkin	Office and Parking Lot	Resource Conservation and Recovery Act Generator
800817	7/15/2008	Henderson, J M Addition Blk Lot 11	17710--11	01201484	4.2	N/A	1219 N Davis	Central Arlington	N/A	N	Moore and Sons F	Moore and Sons Funeral H	Funeral Home	Funeral Home	Leaking Petroleum Storage Tank
901906	7/15/2008	Arlington, Original Town Addn Blk 1 Lots 11 & 12	958-1-11	00057533	0.132	N/A	201 N Center St	Central Arlington	N/A	N	R C Used Car Lot	R C Used Car Lot	Car Sales	Car Sales	Leaking Petroleum Storage Tank

8300293	8/11/2008	Wilson, Joseph E Survey A1671 Tr 1E01	A1671-1E01	05712246	4.43	N/A	7700 Mansfield Ca	Southwest Arlingto	N/A	Y	Residential	N/A	Residential	N/A	City Provided
8300088	8/11/2008	Russell, Jesse Blk Lot 4 Per Plat A-3655	36797--4-71	07060386	0	N/A	7200 Mansfield Ca	Southwest Arlingto	N/A	N	Residential	N/A	Residential	N/A	City Provided
8300089	8/11/2008	Russell, Jesse Survey A 1361 Tr 13F02	A1361-13F02	04145283	2.06	N/A	7208 Mansfield Ca	Southwest Arlingto	N/A	Y	Undeveloped (Resi	N/A	Undeveloped (Resi	N/A	City Provided
8300062	8/11/2008	Russell, Jesse Survey Abst 1361 Trs 13D2 & 13L	A1361-13D02	06614655	0	N/A	7300 Mansfield Ca	Southwest Arlingto	N/A	N	Residential	N/A	Residential	N/A	City Provided
8300810	8/11/2008	Russell, Jesse Survey, A 1361 Tr 13	A1361-13	04145070	0.3321	N/A	7302 Mansfield Ca	Southwest Arlingto	N/A	Y	Residential	N/A	Residential	N/A	City Provided
8300263	8/11/2008	Russell, Jesse Blk Lot 2	36797--2	06454895	4.1739	N/A	7324 Mansfield Ca	Southwest Arlingto	N/A	Y	Open Field	N/A	Open Field	N/A	City Provided
8300291	8/11/2008	Russell, Jesse Survey A 1328 Tr 1E,1984 Cameo 28 X 44,	A1328-1E	04134184	0	N/A	7400 Mansfield Ca	Southwest Arlingto	N/A	N	Mobile Home	N/A	Mobile Home	N/A	City Provided
8300284	8/11/2008	1)Russell, Jesse Survey A1328 Trs 1D1 1H 7A1 7A2 7E 7E1 & 7E2-Less Homestead, 2)Russell, Jesse Survey A1328 Trs 1D1 1H 7A1 7A2 7E 1983 Redman 14 X 72	A1328-1D01	1)04134583, 2) 06	5.3259	N/A	7406 Mansfield Ca	Southwest Arlingto	N/A	N	Cowtown Truck Pa	Cowtown Truck Parts & S	1)Auto Salvage, 2)	1)Auto Salvage, 2)Mobi	City Provided
8300283	8/11/2008	1)Russell, Jesse Survey A1328 Trs 1D1 1H 7A1 7A2 7E 7E1 & 7E2-Less Homestead, 2)Russell, Jesse Survey A1328 Trs 1D1 1H 7A1 7A2 7E 1983 Redman 14 X 72	A1328-1D02	1)04134583, 2) 06	5.3259	N/A	7408 Mansfield Ca	Southwest Arlingto	N/A	N	Cowtown Truck Pa	Cowtown Truck Parts & S	1)Auto Salvage, 2)	1)Auto Salvage, 2)Mobi	City Provided
8300282	8/11/2008	1)Russell, Jesse Survey A1328 Trs 1D1 1H 7A1 7A2 7E 7E1 & 7E2-Less Homestead, 2)Russell, Jesse Survey A1328 Trs 1D1 1H 7A1 7A2 7E 1983 Redman 14 X 72	A1328-1D03	1)04134583, 2) 06	5.3259	N/A	7410 Mansfield Ca	Southwest Arlingto	N/A	N	Cowtown Truck Pa	Cowtown Truck Parts & S	1)Auto Salvage, 2)	1)Auto Salvage, 2)Mobi	City Provided
8300065	8/11/2008	7E1 & 7E2-Less Homestead, 2)Russell, Jesse Survey A1328 Trs 1D1 1H 7A1 7A2 7E 1983 Redman 14 X 72 Lb# Tex0266980	A1328-1D04	1)04134583, 2) 06	5.3259	N/A	7422 Mansfield Ca	Southwest Arlingto	N/A	N	Cowtown Truck Pa	Cowtown Truck Parts & S	1)Auto Salvage, 2)	1)Auto Salvage, 2)Mobi	City Provided
8300034	8/11/2008	Russell, Jesse Survey A 1361 Tr 13E01	A1361-13E01	04476824	0.4199	N/A	7301 US Bus Hwy	Southwest Arlingto	N/A	N	B & B Foreign Car	B & B Foreign Car Salvag	Car salvage	Car salvage	City Provided
8300227	8/11/2008	Russell, Jesse Blk Lot 1R	36797--1R	07060378	2.8877	N/A	7315 US Bus Hwy	Southwest Arlingto	N/A	N	Allstar Imports & A	Allstar Imports & Americ	Motor Vehicle par	Motor Vehicle parts	City Provided
8300083	8/11/2008	Russell, Jesse Survey A 1328 Tr 2J	A1328-2J	04134443	2.0199	N/A	7321 US Bus Hwy	Southwest Arlingto	N/A	N	A B's Chevrolet, A	A B's Chevrolet, A B's Fo	Automative Parts a	Automative Parts and Su	City Provided
8300081	8/11/2008	Russell, Jesse Survey A 1328 Tr 1G 1G-2L-2E2 Abs 1328	A1328-1G	04134214	1.5219	N/A	7405 US Bus Hwy	Southwest Arlingto	N/A	Y	Residential	N/A	Residential	N/A	City Provided
8300264	8/11/2008	Russell, Jesse Blk Lot 3	36797--3	06454909	0.5869	N/A	7421 US Bus Hwy	Southwest Arlingto	N/A	N	Texas M&M truck	Texas M&M truck and Au	Auto Parts Repair	Auto Parts Repair	City Provided
8300278	8/11/2008	Russell, Jesse Survey A 1328 Tr 7B01	A1328-7B01	04134591	0	N/A	7425 US Bus Hwy	Southwest Arlingto	N/A	N	Residential	N/A	Residential	N/A	City Provided
8300044	8/11/2008	Russell, Jesse Survey A1328 Tr 2M & A1361 Tr 13C	A1328-2M	04145216	4.1699	N/A	7307 US Bus Hwy	Southwest Arlingto	N/A	N	Nationwide Discou	Nationwide Discount Auto	Motor Salvage	Motor Salvage	City Provided
8300292	8/11/2008	Russell, Jesse Survey Abst 1328 Trs 1E1 & 7B	A1328-1E01	04134192	3.144	N/A	7501 US Bus Hwy	Southwest Arlingto	N/A	N	Eagle Truck & Aut	Eagle Truck & Auto Parts	Auto Parts	Auto Parts	City Provided
8300050	8/11/2008	7E1 & 7E2-Less Homestead, 2)Russell, Jesse Survey A1328 Trs 1D1 1H 7A1 7A2 7E 1983 Redman 14 X 72 Lb# Tex0266977	A1328-1D01	1)04134583, 2) 06	5.3259	N/A	7509 US Bus Hwy	Southwest Arlingto	N/A	N	Cowtown Truck Pa	Cowtown Truck Parts & S	1)Auto Salvage, 2)	1)Auto Salvage, 2)Mobi	City Provided
8300082	8/11/2008	Russell, Jesse Survey A 1328 Tr 2H	A1328-2H	04134435	2.8	N/A	7401 US Bus Hwy	Southwest Arlingto	N/A	Y	Undeveloped	N/A	Undeveloped	N/A	City Provided
8300123	8/11/2008	Bower, Louisa Survey A 159 Tr 3C	A 159-3C	03766063	5.11	N/A	8011 US Bus Hwy	Southwest Arlingto	N/A	N	Small Houses and	N/A	Small Houses and	N/A	City Provided
8300294	8/11/2008	Russell, Jesse Survey A1328 Tr 8A02	A1328-8A02	05712238	1.5699	N/A	7701 US Bus Hwy	Southwest Arlingto	N/A	N	Auto Salvage Yard	N/A	Auto Salvage Yard	N/A	City Provided
8300115	8/11/2008	Bower, Louisa Survey A 159 Tr 3C	A 159-2C	03765873	3.7	N/A	7801 US BUS Hwy	Southwest Arlingto	N/A	N	A B's Chrysler Ply	A B's Chrysler Plymouth	Automotive Parts &	Automotive Parts & Sup	City Provided
8300112	8/11/2008	Bower, Louisa Survey A 159 Tr 3C	A 159-2A01B	03765806	0	N/A	7921 US BUS Hwy	Southwest Arlingto	N/A	N	Residential	N/A	Residential	N/A	City Provided
3901172	7/15/2008	Southgate Addition-Arlington Blk 4 Lot 1R	39605-4-1R	05232171	1.1316	N/A	711 W Pioneer Pkw	East Arlington	N/A	N	Conoco 43077	Conoco 43077	Gas Station	Gas Station	Leaking Petroleum Storage Tank
3901163	8/23/2008	Southgate Addition-Arlington Blk 3 Lot 1R	39605-3-1R	02811510	0.723	N/A	800 W Pioneer Pkw	East Arlington	N/A	N	Tetco	Mobil Oil 00PWO	Store	Gas Station	Industrial Hazardous Waste
3901171	7/15/2008	Southgate Addition-Arlington Blk 5 Lot 2R	39605-5-2R	02811588	0.6195	N/A	901 W Pioneer Pkw	East Arlington	N/A	N	Radio Shack	Chevron 60106147	Gas Station	Gas Station	Leaking Petroleum Storage Tank
3600937	7/15/2008	Hyden, James Addition Blk Lot 1A	21010--1A	01413120	0.5492	N/A	830 E Pioneer Pkw	East Arlington	N/A	N	Chevron	Fina Gas & Food Mart	Gas Station	Gas Station	Leaking Petroleum Storage Tank
3600943	7/15/2008	Southmoor Addition Lot 1A1	39650--1A1	02870266	0.7308	N/A	831 E Pioneer Pkw	East Arlington	N/A	N	First Cash Pawn	Fina	Office	Gas Station	Leaking Petroleum Storage Tank
4400890	8/23/2008	Three O Three Addition Lot 1A3	42060--1A3	03129047	0.6177	N/A	900 E Pioneer Pkw	East Arlington	N/A	N	Western Union	Chevron USA 106206	Money Transfer O	Gas Station	Industrial Hazardous Waste
4400828	8/23/2008	Jackson Square Addn-Arlington Blk 1 Lot 2B1	21420-1-2B1	01446002	0.5851	N/A	901 E Pioneer Pkw	East Arlington	N/A	N	Food Mart Texaco	Mobil Oil 00JND	Gas Station	Mobil Service Station	Leaking Petroleum Storage Tank
4400818	7/15/2008	Harris, F L Subdivision Blk Lot 4B	17210--4B	01181858	0.7192	N/A	1219 E Pioneer Pk	East Arlington	N/A	N	Colonial Car Wash	Colonial Car Wash 6	Car Wash	Car Wash	Leaking Petroleum Storage Tank
4500357	7/15/2008	Lee, A J Addition Blk Lot 5	23730--5	01592718	1.2799	N/A	1900 E Pioneer Pk	East Arlington	N/A	Y	Land	Exxon Store 6 2801	Land	Gas Station	Leaking Petroleum Storage Tank
4900081	7/15/2008	Forum Village Addition Blk A Lot 3R2	14518-A-3R2	04850963	0.6899	N/A	2333 E Pioneer Pk	East Arlington	N/A	N	Racetrac 320	Racetrac 320	Gas Station	Gas Station	Leaking Petroleum Storage Tank
4900449	7/2/2008	Pioneer Crossing Blk A Lot 3	32475-A-3	06581900	9.478	N/A	2540 E Pioneer Pk	East Arlington	N/A	N	Dollar Tree	K-Mart Store Arlington	Store	Retail Store/Automotive	Voluntary Cleanup Program
4600343	8/23/2008	Grid South Site 60	48543--60	03694119	5.5099	N/A	3315 E Pioneer Pk	East Arlington	N/A	N	Auto USA	Payless Cashways Inc	Car Dealer	Store	Resource Conservation and Recovery Act Generator
1600094	8/11/2008	Six Flags Business Park Addn,Site 30 Tr V111	38675--30-04	03685314	4.4027	N/A	2401 Centennial D	East Arlington	N/A	N	Sygma Network	Sygma Network	Food Service Deliv	Food Service Delivery	City Provided
6500013	8/11/2008	Newton, J L Addition, Blk Lot 11R1R	28095--11R1R	40024199	19.3424	N/A	1100 W IH 20	East Arlington	N/A	N	American Honda M	Vandergriff Collision Cen	Motor vehicle sale	Auto Service Center	City Provided
1600087	8/23/2008	Six Flags Business Park Addn Blk Lot 9A	38675--9A	03686043	0.9776	Closed	322 International P	East Arlington	N/A	Y	Verizon Wireless	Detrex Corporation	Office	Solvent Distribution/Was	Resource Conservation and Recovery Act Corrective
1700193	8/11/2008	Grid Comm #2 Inst #1 Site 63R	48502-63R	06631401	2.3789	N/A	627 112th St	East Arlington	N/A	N	Tulco Oils Inc	Tulco Oils Inc	Whole Saler of Pet	Whole Saler of Petroleum	City Provided
4801579	8/23/2008	Kroger-Vantage Subdivision Blk 1 Lot 3Ar	22928-1-3AR	06147895	2.5719	N/A	2510 E Arkansas L	East Arlington	N/A	N	Park Cleaners	Park Cleaners	Dry Cleaner	Dry Cleaner	Dry Cleaner Remediation Program
4802035	8/23/2008	Springridge Addition Blk 35 Lot 2	40015-35-2	04983203	1.4989	N/A	2501 E Mayfield R	East Arlington	N/A	N	Comet Cleaners	Comet Cleaners	Dry Cleaner	Dry Cleaner	Dry Cleaner Remediation Program
1500001	8/23/2008	Sanford-Yates Subdivision Blk Lot 1R	37365--1R	04740823	2.4822	N/A	900 E Copeland R	East Arlington	N/A	N	Polo Cleaners	Crystals Cleaners and Alte	Dry Cleaner	Dry Cleaner	Dry Cleaner Remediation Program
1700257	8/23/2008	Grid Comm #1 Blk 2 Site 9	48501-2-9	03686442	2.3359	N/A	715 Avenue H E	East Arlington	N/A	N	EZA End Zone Att	Automation Resources	Spirit Item Fundra	N/A	Industrial Hazardous Waste
1700318	8/23/2008	Grid Comm #2 Inst #6 Blk Lot 11	48507--11	04618955	5	N/A	514 N Great South	East Arlington	N/A	N	Spartech Plastics	Centex Container	Extruded Sheet an	Storage	Industrial Hazardous Waste
7200820	8/23/2008	Arbrook Addition Blk Lot A1R	810--A1R	04849868	107.1799	N/A	2500 E Arbrook Bl	East Arlington	N/A	N	High Point Church	Johnson & Johnson Medic	Church	Medical Supply	Industrial Hazardous Waste
1600040	8/23/2008	Six Flags Business Park Addn Blk Site 3-3	38675--3-BC	03685721	2.96	N/A	401 Exchange Dr	East Arlington	N/A	N	Vail Check	Rocky Mountain Bank No	Check Printing	Check Printing	Industrial Hazardous Waste
3800804	8/23/2008	Newton, A Addition Blk Lot 7A2	28060--7A2	40015211	13.0206	N/A	921 W Mayfield R	East Arlington	N/A	N	Shoreline Products	Shoreline Products	Gym, Cooler Servi	Gym, Cooler Service	Industrial Hazardous Waste
1700153	8/23/2008	Grid Comm #2 Inst #1 Site 38	48502-38	03687961	1.4089	N/A	508 109th St	East Arlington	N/A	N	Zeppi Rustic Furnit	Western Manufacturing C	Furniture Manufac	Manufacturing Kitchen C	Industrial Hazardous Waste
1700236	8/23/2008	Grid Comm #1 Blk 9 Site 6	48501-9-6	03687023	1.6789	N/A	801 Ave G	East Arlington	N/A	N	General Magnaplat	General Magnaplate Texa	Metal Coating	Metal Coating	Resource Conservation and Recovery Act Generator
1700274	8/23/2008	Grid Comm #1 Blk 6 Site 2	48501-6-2	03686647	2.8689	N/A	1101 N Great Sout	East Arlington	N/A	Y	DCT Industrial	Northern Telecom Electro	Real Estate	Electronic Connectors St	Industrial Hazardous Waste

1700286	8/23/2008	Grid Comm #1 Blk 15 Site 2 Boundary Split	48501-15-2	04907655	5.266	N/A	1200 Avenue H E	East Arlington	N/A	N	Pyondell Base	Lord Label Systems	Manufacturing Pol	Printing Services	Industrial Hazardous Waste
1700235	8/23/2008	Grid Comm #1 Blk 8 Lot 1R	48501-8-1R	04985524	2.4919	N/A	1101 E Avenue G	East Arlington	N/A	N	W W Henry Comp	W W Henry Company	Manufacturing Ad	Manufacturing Adhesive	Industrial Hazardous Waste
1700221	8/23/2008	Grid Comm #2 Inst #2 Site 11	48503-11	03689158	1.7759	N/A	3501 Avenue E Ea	East Arlington	N/A	N	AFISCO Industrial	Vanguard Sales	Supply House	Auto Air Conditioning	Industrial Hazardous Waste
1700200	8/23/2008	Grid Comm #2 Inst #1 Site 67	48502-67	03688267	0.807	N/A	626 112th St	East Arlington	N/A	N	DUNN Commerci	Mid America Roller	Real Estate Agents	Printers Rollers	Industrial Hazardous Waste
1700255	8/23/2008	Grid Comm #1 Blk 2 Site 12	48501-2-12	03686477	0.9579	N/A	1141 108th St	East Arlington	N/A	N	Spartech Polychon	Hysan Corporation-Chemi	Reprocessing Plast	Chemical Co	Industrial Hazardous Waste
1700198	8/23/2008	Grid Comm #2 Inst #1 Site 39	48502-39	03687988	1	N/A	609 112th St	East Arlington	N/A	N	Pro Chem Cleaning	Mogul Dexter Water Mgt	Chemicals and Fre	Water Treatment	Industrial Hazardous Waste
1700227	8/23/2008	Grid Comm #2 Inst #2 Site 1R	48503-1R	05949513	16.078	For Sale	2910 Avenue F	East Arlington	N/A	N	Electrocom Autom	Electrocom Automation	Electrocom	Electrocom	Industrial Hazardous Waste
1700084	8/23/2008	Grid Comm #2 Inst #1 Site 87	48502-87	03688496	2.6799	N/A	630 106th St	East Arlington	N/A	N	Robinson Stell RP	Aubrey-National Great Sc	Laser Cutting	N/A	Industrial Hazardous Waste
1700182	8/23/2008	Grid Comm #2 Inst #1 Site 31Br	48502-31BR	03687821	1.7002	For Sale	608 111th Street	East Arlington	N/A	Y	EGS Treasure Che	EGS Treasure Chest Repu	Printing Press	Printing Press	Industrial Hazardous Waste
1700237	8/23/2008	Grid Comm #1 Blk 9 Site 7	48501-9-7	03687081	4.6959	For Lease	845 E Avenue G	East Arlington	N/A	N	Stream Reality	Thermo DMA	N/A	Diagnostic Kits	Industrial Hazardous Waste
1700327	8/23/2008	Grid Comm #2 Inst #6 Blk Lot 23	48507--23	04619072	2.3788	N/A	408 113th St	East Arlington	N/A	N	Baker Tanks & Fu	Division Brite Sol Service	Manufacturer of T	N/A	Industrial Hazardous Waste
1700279	8/23/2008	Grid Comm #1 Blk 4 Site 4 & Blk 5 Tri Nwo City Bounda	48501-4-4	03686582	13.6099	N/A	925 Avenue H E	East Arlington	N/A	N	Texas Star Overflo	Texas Star Overflow	Transparencies, Co	Transparencies, Compou	Industrial Hazardous Waste
1700150	8/23/2008	Grid Comm #2 Inst #1 Site 103	48502-103	03688674	1.9299	N/A	505 110th St	East Arlington	N/A	N	Lance	Lance	Incorporated Chips	Incorporated Chips manu	Industrial Hazardous Waste
1700219	8/23/2008	Grid Comm #2 Inst #2 Site 15-1 Lead 1	48503-15	03689190	3.0139	N/A	3015 Avenue E E	East Arlington	N/A	N	USA Bouquet	Federal Signal	Manufacturing Co	Manufacturing Signals	Industrial Hazardous Waste
7100218	8/23/2008	Arlington Tech Centre Addition Blk 11 Lot 1R	998-11-1R	40015246	5.298	N/A	1440 Tech Centre	East Arlington	N/A	N	Hiley Mazda/Volks	Hiley Mazda/Volkswagen	Car and Auto Deal	Car and Auto Dealer	Industrial Hazardous Waste
3800729	8/23/2008	Matlock Medical Center Blk C Lot 1 5.987 Ce	25137C-C-1	05948681	0.3282	N/A	3132 Matlock Rd #	East Arlington	N/A	N	Arlington Mansfiel	Arlington Mansfield Path	Diagnostic Center	Diagnostic Center	Industrial Hazardous Waste
3800728	8/23/2008	Lane, J W Addition Blk Lot 20A	23580--20A	06081274	2.5992	N/A	3330 Matlock	East Arlington	N/A	N	Building	Mayfield Village Cleaners	Diagnostic Center	Dry Cleaner	Industrial Hazardous Waste
1700165	8/23/2008	Grid Comm #2 Inst #1 Site 4A	48502-4A	03687449	2.0429	For Lease	3002 Ave E E	East Arlington	N/A	N	Graimport USA	Kerrys Etc	N/A	Glassware Decorators	Industrial Hazardous Waste
4802034	8/23/2008	Springridge Addition Blk 35 Lot 3	40015-35-3	04983211	0.75	N/A	3394 S Watson Rd	East Arlington	N/A	N	Fetco	Chevron Fac 106218	Store	Gas Station	Industrial Hazardous Waste
4801588	8/23/2008	Kroger-Vantage Subdivision Blk 1 Lot 1Br1	22928-1-1BR1	05647738	0.91	N/A	2590 E Arkansas L	East Arlington	N/A	N	Chevron	Mobil Oil 00215	Gas Station	Gas Station	Industrial Hazardous Waste
6200903	8/23/2008	Rolling Meadows Addition Blk 13 Lot B1	35040-13-B1	06907962	1.5362	N/A	3400 Matlock Rd	East Arlington	N/A	N	Walgreen	Walgreen	Store and Pharmac	Store and Pharmacy	Industrial Hazardous Waste
1700381	8/23/2008	Grid Comm #1 Blk 8 Lot 4R1	48501-8-4R1	07324677	1.9099	N/A	1130 Avenue H E	East Arlington	N/A	N	Louis Printing Serv	Louis Printing Services	Printing Press	Printing Press	Industrial Hazardous Waste
1700343	8/23/2008	Grid Comm #2 Inst #1 Site 1R	48502-1R	06356265	26.1269	N/A	600 109th St #B	East Arlington	N/A	N	Special Distributio	N/A	Distribution Servic	N/A	Industrial Hazardous Waste
4102014	8/23/2008	Hillview Addition-Arlington Blk 3 Lot 52A	18540-3-52A	01306936	0.6427	N/A	120 Fairview St	East Arlington	N/A	N	Lane Supply	Lane Supply	Metal Fabricating	Metal Fabricating	Resource Conservation and Recovery Act Generator
7200749	8/23/2008	Arlington Tech Centre Addition Blk 2 Lot 1R1	998-2-1R1	40097471	12.2906	N/A	2100 Design Rd S	East Arlington	N/A	N	Ready Aire Inc	Ready Aire Inc	Temperature Contr	Temperature Control Pro	Industrial Hazardous Waste
1500650	8/23/2008	Ballpark Addition, The Blk A Lot 10	1563J-A-10	40380041	14.1358	N/A	1401 Nolan Ryan	East Arlington	N/A	N	Siemens Logistics	Siemens Logistics & Asse	Research Facility	Research Facility	Voluntary Cleanup Program
3800597	7/2/2008	Central Plaza Blk 2 Lot 2A	6930-2-2A	40332810	3.7739	N/A	800 Orthopedic W	East Arlington	N/A	N	Arlington Orthope	Arlington Orthopedic	Hospital	Hospital	Innocent Owner/Operator Program
1500458	7/2/2008	Six Flags Business Park Addn Site 42	38675--42-04	03685365	0.8789	N/A	608 Stadium Dr	East Arlington	N/A	Y	Sumof City	Stonegate Homepark LP	Auto Service Cent	Former Mobile Home Pa	Innocent Owner/Operator Program
1500578	8/23/2008	Reico Industrial District Blk Lot 11R	33890--11R	08093016	3.5637	N/A	1212 Harrison Ave	East Arlington	N/A	N	Duncan Disposal	Arlington Disposal Transf	Waste Manageme	Waste Management and	Municipal Solid Waste Land Fill
1600041	7/15/2008	Six Flags Business Park Addn Blk Site 3-2	38675--3-BB	03685713	2.0732	N/A	411 Exchange Dr	East Arlington	N/A	N	Nationalease of Ar	Brown Rental Equipment	Truck Leasing	Truck Leasing	Leaking Petroleum Storage Tank
1600073	7/15/2008	Six Flags Business Park Addn Blk Lot 7Abb	38675--7ABB	04847881	3.03	For Lease	2116 Exchange Dr	East Arlington	N/A	Y	Jasons Deli Distrib	Proficient Food Co	Warehouse	N/A	Leaking Petroleum Storage Tank
4802034	7/15/2008	Springridge Addition Blk 35 Lot 3	40015-35-3	04983211	0.75	N/A	3394 S Watson Rd	East Arlington	N/A	N	Chevron Station 1	Chevron Station 106218	Gas Station	Gas Station	Leaking Petroleum Storage Tank
7200619	7/15/2008	Arbrook Addition Blk Lot Br	810--BR	04983246	1.423	N/A	3400 S Watson	East Arlington	N/A	N	Whip In Fina	Whip In Fina	Gas Station	Gas Station	Leaking Petroleum Storage Tank
1700041	7/15/2008	Grid Comm #2 Inst #1 Sites 80 & 80A	48502-80	03688380	6.4199	N/A	624 N Watson Rd	East Arlington	N/A	N	Stadium Auto	Mid City Chrysler Plymou	Auto Sales	Auto Sales	Leaking Petroleum Storage Tank
7200002	7/15/2008	Hayman, W Addition Blk Lot 3	17585--3	04984730	0.6514	N/A	1900 E Mayfield	East Arlington	N/A	N	EZ Mart 487	E Z Mart 487	Gas Station	Gas Station	Leaking Petroleum Storage Tank
4801588	7/15/2008	Kroger-Vantage Subdivision Blk 1 Lot 1Br1	22928-1-1BR1	05647738	0.91	N/A	2590 E Arkansas L	East Arlington	N/A	N	Tetco 410	Tetco 410	Store	Store	Leaking Petroleum Storage Tank
1700019	7/15/2008	Grid Comm #2 Inst #2 Blk 4 Lot 4B1	48503-4-4B1	05251184	0.747	N/A	900 N Watson Rd	East Arlington	N/A	N	Shell	Texaco	Gas Station	Gas Station	Leaking Petroleum Storage Tank
4900362	7/15/2008	Lee, A J Addition Blk Lot 18	23730--18	05641047	2.28	N/A	1901 E Arkansas L	East Arlington	N/A	N	Whip In	Whip In	Gas Station	Gas Station	Leaking Petroleum Storage Tank
4400883	7/15/2008	Three O Three Addition Blk Lot 1Cd	42060--1CD	03129089	0.5153	N/A	901 E Arkansas Ln	East Arlington	N/A	N	Cat Fish Floyd	Diamond Shamrock 940	Restaurant	Gas Station	Leaking Petroleum Storage Tank
1700108	7/15/2008	Grid Comm #2 Inst #5 Site 19 Lot 1	48506-19-1	03689824	0.6859	N/A	316 109TH ST	East Arlington	N/A	N	A&R Muffler	Firestone Store	Auto Repair	Auto Repair	Leaking Petroleum Storage Tank
1700310	7/15/2008	Grid Comm #2 Inst #6 Blk Lot 17	48507--17	04619005	0.8233	Abandoned	820 N Great South	East Arlington	N/A	Y	Former Fuel Boss	Former Fuel Boss 550	Gas Station	Gas Station	Leaking Petroleum Storage Tank
1500406	7/15/2008	Reico Industrial District Blk Lot 17R	33890--17R	06195318	1.68	N/A	1108 Harrison Ave	East Arlington	N/A	N	Kelly Mcknight W	Kelly Mcknight Wrecker	Wrecker Facility	Wrecker Facility	Leaking Petroleum Storage Tank
6300095	7/15/2008	Dalfin Addition Lot 2Ar	9163--2AR	41248759	1.2454	N/A	4001 Matlock Rd	East Arlington	N/A	N	Sweet Tomatoes	Fina 0220141 40823	Restaurant	Gas Station	Leaking Petroleum Storage Tank
4801588	7/15/2008	Kroger-Vantage Subdivision Blk 1 Lot 1Br1	22928-1-1BR1	05647738	0.91	N/A	2590 E Arkansas L	East Arlington	N/A	N	Tetco 410	Tetco 410	Store	Store	Leaking Petroleum Storage Tank
1700142	8/23/2008	Grid Comm #2 Inst #4 Parcel A	48505-A	03689395	14.3081	N/A	401 N Great South	East Arlington	N/A	N	Proline Printing In	Grand Food Corporation	Lithographic Print	Distribution Center	Resource Conservation and Recovery Act Generator
1700133	8/23/2008	Grid Comm #2 Inst #5 Site 18	48506-18	03689808	0.8769	N/A	3100 Dalworth	East Arlington	N/A	Y	AFCO	Cosby Fuels	N/A	Gas Station	Resource Conservation and Recovery Act Generator
3800707	8/23/2008	Vickery Sims Addition Blk 1 Lot 1	44625-1-1	03264823	5.6	N/A	905 W Mayfield	East Arlington	N/A	N	A-1 Remanufactur	A-1 Remanufactured Mtr	Machine Shop	Machine Shop	Resource Conservation and Recovery Act Generator
6300907	8/23/2008	Highlands Addition, The-Ar1 Blk 4 Lot 2R	18135-4-2R	07655681	15.5895	N/A	600 W Arbrook B	East Arlington	N/A	N	Costco Wholesale	Costco Wholesale	Super Store	Super Store	Resource Conservation and Recovery Act Generator
4600909	8/23/2008	Grid South Site 53	48543--53	03694089	2.4793	N/A	1800 Timberlake D	East Arlington	N/A	N	Holden Business F	Holden Business Forms	Manufactures Coa	Manufactures Coated an	Resource Conservation and Recovery Act Generator
4600330	8/23/2008	Grid South Site 71R	48543--71R	03694194	8.1181	N/A	2001 Timberlake D	East Arlington	N/A	N	Access Business G	Access Business Group L	N/A	N/A	Resource Conservation and Recovery Act Generator
1700235	8/23/2008	Grid Comm #1 Blk 8 Lot 1R	48501-8-1R	04985524	2.4919	N/A	1101 E Avenue G	East Arlington	N/A	N	W W Henry Comp	W W Henry Company	Manufacturing Ad	Manufacturing Adhesive	Industrial Hazardous Waste
1700312	8/23/2008	Grid Comm #2 Inst #6 Blk Lot 1	48507--1	04618866	4.0019	N/A	840 N Great South	East Arlington	N/A	N	Spartech Plastics	Spartech Plastics	Manufacturing Pla	Manufacturing Plastic R	Resource Conservation and Recovery Act Generator
1700284	8/23/2008	Grid Comm #1 Blk 15 Site 1 & Pt Closed St On West Boundary Split	48501-15-1	04892933	11.61	N/A	1000 113TH ST	East Arlington	N/A	N	Pepsico Inc	Pepsicola Concentration	Manufacturing Uni	Manufacturing Unit	Resource Conservation and Recovery Act Generator
1700044	7/2/2008	Grid Comm #2 Inst #1 Site 48	48502-48	03688100	4.6329	N/A	2800 Avenue E Ea	East Arlington	N/A	N	Pratt and Whitney	Interturbine Dallas Casing	Manufacturing Air	Aviation/Industrial Turb	Voluntary Cleanup Program
1700238	8/23/2008	Grid Comm #1 Blk 9 Site 1	48501-9-1	03686965	1.9859	N/A	941 E AVE G	East Arlington	N/A	N	SRE Corporation	Imperial Tool and Mfg In	Producing Restaur	N/A	Resource Conservation and Recovery Act Generator
1700236	8/23/2008	Grid Comm #1 Blk 9 Site 6	48501-9-6	03687023	1.6789	N/A	801 Ave G	East Arlington	N/A	N	General Magnapla	General Magnaplate Texa	Metal Coating	Metal Coating	Resource Conservation and Recovery Act Generator
1700246	8/23/2008	Grid Comm #1 Blk 9 Site 12	48501-9-12	03687082	2.28699	N/A	948 AVENUE H E	East Arlington	N/A	N	Frito-Lay Inc	Frito-Lay Inc	Manufactures snac	Manufactures snack chip	Resource Conservation and Recovery Act Generator
1600126	8/23/2008	Six Flags Business Park Addn Blk Lot 56	38675--56	04632095	3.7265	N/A	616 Six Flags Dr	East Arlington	N/A	N	North Central Tex	Texas Department of Agri	Office	Office	Resource Conservation and Recovery Act Generator
1700360	8/23/2008	Grid Comm #2 Inst #1 Blk 51 Lot 1	48502-51-1	07170629	1.9685	N/A	710 106TH STREE	East Arlington	N/A	N	Sherwin-Williams	Sherwin-Williams Co	Producing Powder	Producing Powder Coati	Resource Conservation and Recovery Act Generator

4600327	7/2/2008	Gsid South Site 84	48543--84	03694380	2.2699	N/A	3212 Pinewood Dr	East Arlington	N/A	N	Koltrans Group An	McLaughlin Manufacturin	Truck Accessories	Drapes/Blinds Manufact	Voluntary Cleanup Program
1700044	7/2/2008	Gsid Comm #2 Inst #1 Site 48	48502-48	03688100	4.6329	N/A	2800 Avenue E Ea	East Arlington	N/A	N	Pratt and Whitney	Interturbine Dallas Casing	Manufacturing Air	Aviation/Industrial Turbi	Voluntary Cleanup Program
1600078	7/2/2008	Six Flags Business Park Addn Blk Lot 5	38675--5	03685764	2.4029	N/A	1900 Exchange Dr	East Arlington	N/A	N	Sonoco Annex	Exchange Duplex Wareho	Warehouse	Office/Warehouse	Voluntary Cleanup Program
1700227	7/2/2008	Gsid Comm #2 Inst #2 Site 1R	48503-1R	05949513	16.078	For Sale	2910 Avenue F	East Arlington	N/A	N	Electrocom Autom	Electrocom Automation	Electrocom	Electrocom	Industrial Hazardous Waste
1700125	7/2/2008	Gsid Comm #2 Inst #5 Lot 4A	48506--4A	07869126	7.1215	N/A	315 N Great South	East Arlington	N/A	N	Blackmon Mooring	N/A	Warehouse	Carpet Cleaning/Uphols	Voluntary Cleanup Program
6300894	7/14/2008	Robinson, A Addition Blk Lot 9	34830--9	06498434	0.2927	N/A	3408 S Collins St	East Arlington	N/A	N	Car Wash	Car Wash	Car Wash	Car Wash	Emergency Response Notification System
4500361	7/14/2008	Lee, A J Addition Blk Lot 6R	23730--6R	01592726	14.4808	N/A	2225 Newyork Av	East Arlington	N/A	Y	Residential	Residential	Residential	Residential	Emergency Response Notification System
4100977	7/14/2008	Valley View Addition-Arlington Blk 8 Lot 4	44410-8-4	03242544	0	N/A	907 Newton St	East Arlington	N/A	N	Residential	Residential	Residential	Residential	Emergency Response Notification System
4202228	7/14/2008	Wingate, A C Addition Lot 5	47337--5	07696884	7.894	N/A	2315 Stonegate St	East Arlington	N/A	N	Residential	Residential	Residential	Residential	Emergency Response Notification System
4401041	7/14/2008	Plaza Terrace Addition Blk 16 Lot 5B	32610-16-5B	02220962	0	N/A	1408 Glynn Oaks	East Arlington	N/A	N	Residential	Residential	Residential	Residential	Emergency Response Notification System
4201319	7/14/2008	Hillcrest Park Addition Blk 3 Lot 1	18360-3-1	01289209	0	N/A	1900 Skylark	East Arlington	N/A	N	Residential	Residential	Residential	Residential	Emergency Response Notification System
3900796	7/14/2008	Stoneridge Addition Blk 7 Lot 1 & Part of Common Area	40510-7-1	02968827	0	N/A	401 Grants Parkwa	East Arlington	N/A	N	Residential	Residential	Residential	Residential	Emergency Response Notification System
6101062	7/14/2008	Schoolar Tract Addition Blk Lot 18B	37650--18B	02691450	0.2754	N/A	3624 S Cooper St	East Arlington	N/A	N	Quick Lube	Quick Lube	Auto Service	Auto Service	Emergency Response Notification System
801496	7/14/2008	Scott Addition (Arlington) Blk 3 Lot 7	37720-3-7	02696096	0	N/A	809 Scott Drive	Central Arlington	N/A	N	Residential	Residential	Residential	Residential	Emergency Response Notification System
330383	7/14/2008	Ditto & Collins Addition Blk 8 N40' E90'68 E90'69 & 10' A	9960-8-68-30	00723134	0	N/A	600 S Pecan	Central Arlington	N/A	N	The University of T	The University of Texas at	Residential Hall	Residential Hall	Emergency Response Notification System
1500575	09/11/2008	Field Acres Addition Blk Lot 1R	13770--1R	00931969	2.8064	N/A	405 N Collins St	Central Arlington	N/A	N	All Star Auto Servi	Vandergriff Buick	Auto Service	Car Sales	Petroleum Storage Tank
901630	09/11/2008	Orchard Addition, Blk Lot 7R	31190--7R	02078546	0.5022	N/A	620 N Collins St	Central Arlington	N/A	N	Discount Motors	Former Vickers Station	Car Sales	Gas Station	Petroleum Storage Tank
1500264	09/11/2008	Stadium West Addition Tract I	40070--1-B	02946475	0.9183	N/A	1001 N Collins St	Central Arlington	N/A	N	Shell	Shell	Gas Station	Gas Station	Petroleum Storage Tank
1500363	09/11/2008	Blackwell, J Addition Blk Lot 25	2760--25	04983092	0.68	N/A	617 N Collins St	Central Arlington	N/A	Y	N/A	Goodyear Tire and Rubber	N/A	Auto Service	Petroleum Storage Tank
901620	09/11/2008	Toliver Acres Addition Blk Lot 1B	42300--1B	03155528	0.707	N/A	500 N Collins St	Central Arlington	N/A	N	Fina	C Stadium Beer & Wine	Gas Station	Gas Station	Petroleum Storage Tank
4102051	09/11/2008	Broadmoor Addition-Arlington Blk 1 Lot 4R	3650-1-4R	07323581	0.6628	N/A	205 S Collins St	Central Arlington	N/A	N	Family Mart	Family Mart	Gas Station	Gas Station	Petroleum Storage Tank
3300003	09/11/2008	Davis, Sol Addition Blk Lot 58R1	9480--58R1	05815053	0.4855	N/A	615 W Abram St	Central Arlington	N/A	N	Diamond Shamroc	Stop N Go 2053	Gas Station	Gas Station	Petroleum Storage Tank
3300524	09/11/2008	Arlington, Original Town Addn Blk 55 Lot 1R	958-55-1R	00059439	0.428	N/A	401 E Abram St	Central Arlington	N/A	N	M & R Auto Sales	Six Parts Auto Repair	Auto Sales	Auto Service	Petroleum Storage Tank
3300027	09/11/2008	Davis, Sol Addition Blk Lot 4R	9480--4R	00698806	0.4177	N/A	606 W Main St	Central Arlington	N/A	N	Hightower Service	Hightower Service Inc	Plumbing	Plumbing	Petroleum Storage Tank
3200937	09/11/2008	Arlington Heights Addition Blk 9 Lot	920-9	04609549	0.9393	N/A	1133 W Main St	Central Arlington	N/A	N	John Wright Assoc	Ken Evans Roofing and St	Automotive Parts a	Roofing Contractors	Petroleum Storage Tank
3300542	09/11/2008	Arlington, Original Town Addn Blk 98R Lot	958-98R	00060666	0.5635	N/A	400 E South St	Central Arlington	N/A	N	Goodyear Tire and	Goodyear Tire and Rubber	Auto Service	Auto Service	Petroleum Storage Tank
801188	09/11/2008	Masonic Heights Addition Blk 3 Lot A3	25050-3-A3-A	01641239	0.5728	N/A	1140 W Division S	Central Arlington	N/A	N	Mondial Auto Sale	12D9D	Car Sales	N/A	Petroleum Storage Tank
801183	09/11/2008	Ramsey Addition (Arlington) Blk Lot 17R	33420--17R	02305070	0.9938	N/A	1010 W Division S	Central Arlington	N/A	N	Moore Rental Serv	Moore Rental Service	Truck Rental	Truck Rental	Petroleum Storage Tank
900420	09/11/2008	Davis, Solomon Survey A 425 Tr 80	A 425-80	03855708	0.2456	N/A	536 W Division St	Central Arlington	N/A	N	J & J Paint Supply	Prime Equipment 217	Auto Paint Wareho	Automotive and Industri	Petroleum Storage Tank
801076	09/11/2008	Hillcrest Addition-Arlington Blk 7 Lot 1R Imp Only	18330-7-1R	06749895	0	N/A	1101 W Division S	Central Arlington	N/A	N	J R S Auto	JR Discount Food Mart	Auto Sales	Food Mart	Petroleum Storage Tank
900487	09/11/2008	Arlington, Original Town Addn Blk 36 Lot 1 1-2-S1/2 3 B	958-36-1-30	00058645	0.4017	N/A	301 W Division St	Central Arlington	N/A	N	Speed Mart 1	Speed Mart 1	Gas Station	Gas Station	Petroleum Storage Tank
900074	09/11/2008	Town North Addition Blk 7 Lot 1R3 Imp Only-Serv Stat	42400-7-1R3	06669379	0	N/A	901 N Cooper St	Central Arlington	N/A	N	Discount Inspectio	Fina	Auto Service Cent	Gas Station	Petroleum Storage Tank
900008	09/11/2008	Panhandle Park Subdivision Lots Hr1 & Pr2	31450--HR1	04980115	0.0732	N/A	1529 Industrial Ct	Central Arlington	N/A	N	Communications N	Communications North	Arlington Tower S	Arlington Tower Site	Petroleum Storage Tank
4200235	09/11/2008	Elroy Heights Addition Blk Cr Lot 4	12720-CR-4	40647781	0.287	N/A	2030 E Abram St	East Arlington	N/A	N	S & I Auto Service	The Ice Box	Auto Service Cent	N/A	Petroleum Storage Tank
4100010	09/11/2008	East Abram Shopping Center Blk Lot 5	10540--5	00759856	1.4752	N/A	1321 E Abram St	East Arlington	N/A	Y	N/A	Pioneer Oil Co	N/A	Manufacturing Oil	Petroleum Storage Tank
4101952	09/11/2008	Clubview Addition Blk B Lot 1	7550-B-1	00553042	0.4821	N/A	1400 E Abram St	East Arlington	N/A	N	Lucky Seven Food	Lucky Seven Food Store	Gas Station	Gas Station	Petroleum Storage Tank
3101089	09/11/2008	McKnight Manor Addition Blk A Lot 1	27690-A-1A	01857533	0.4387	N/A	1601 W Park Row	East Arlington	N/A	N	Fina	Whip In 118	Gas Station	Gas Station	Petroleum Storage Tank
4500006	09/11/2008	Lee, A J Addition Blk Lot 3	23730--3	01592688	0.3444	N/A	1900 E Park Row	East Arlington	N/A	N	Chevron Food Mar	Chevron Food Mart	Gas Station	Gas Station	Petroleum Storage Tank
4600320	09/11/2008	Gsid South Site 44	48543--44	03694038	0.583	N/A	3200 E Park Row	East Arlington	N/A	N	Save N Go	Stop N Go 2074	Gas Station	Gas Station	Petroleum Storage Tank
4401542	09/11/2008	Degman, J Addition Blk Lot 1	9625--1	00701661	0.287	N/A	1832 E Park Row	East Arlington	N/A	N	Conoco	Stop N Save	Gas Station	Gas Station	Petroleum Storage Tank
4900486	09/11/2008	Gsid South Blk Lot 102 Site 102	48543--102-04	05642272	6.19	N/A	3401 E Park Row	East Arlington	N/A	N	Volvo	United Rentals	Construction Equip	N/A	Petroleum Storage Tank
3601311	09/11/2008	Phillips Park Addition Blk 1 N 129 Lts 15R & 16	32340-1-16-31	02200686	0.3587	N/A	824 E Park Row D	East Arlington	N/A	N	Conoco	Collins Food Store	Gas Station	Gas Station	Petroleum Storage Tank
900081	09/11/2008	Ridgeway Addition Blk 3 N57 Lot 3A	34290-3-3A	02391805	0.5093	N/A	300 W Randol Mill	Central Arlington	N/A	N	Kwick Food Store	Wheel In 102	Store	N/A	Petroleum Storage Tank
1700323	09/11/2008	Gsid Comm #2 Inst #6 Blk Lot 41	48507--41	04619218	5	N/A	3700 E Randol Mil	East Arlington	N/A	N	Clear Channel Out	Clear Channel Outdoor	Manufacturing Sig	Manufacturing Signs and	Petroleum Storage Tank
1700145	09/11/2008	Gsid Comm #2 Inst #1 Site 117	48502-117	03688968	5.81	N/A	3320 E Randol Mil	East Arlington	N/A	N	Reliance Steel & A	Reliance Steel & Aluminu	Manufacturing Ste	Manufacturing Steel and	Petroleum Storage Tank
1700076	09/11/2008	Gsid Comm #2 Inst #1 Site 37	48502-37	03687953	4.599	N/A	2820 E Randol Mil	East Arlington	N/A	N	Edgcomb Metals	Intsel Southwest	Manufacturing Ste	N/A	Petroleum Storage Tank
1700155	09/11/2008	Gsid Comm #2 Inst #1 Site 9	48502-9	03687503	1.452	N/A	3000 E Randol Mil	East Arlington	N/A	N	United Rental	Rapid Ways Trucking Co	Equipment Rental	Auto Transport	Petroleum Storage Tank
3800456	09/11/2008	McGuire Subdivision Blk Lot 1Ra	27610--1RA	06081126	1.37	N/A	3022 S Cooper St	East Arlington	N/A	N	Colonial Car Wash	Colonial Car Wash 1	Car Wash	Car Wash	Petroleum Storage Tank
6101114	09/11/2008	Lane, J W Addition Blk Lot 22	23580--22	06351379	1.4391	N/A	3310 S Cooper St	East Arlington	N/A	N	Fina	Fina	Gas Station	Gas Station	Petroleum Storage Tank
6101072	09/11/2008	Knight Addition Blk 2 Lot 2R2B	22860-2-2R2B	06340288	0.1322	N/A	3704 S Cooper St	East Arlington	N/A	N	Discount Tire Co	Halle-Von Voightlander	Tire sales	N/A	Petroleum Storage Tank
3600019	09/11/2008	Lambert Addition Blk 1 W 150' Lot 2R	23470-1-2R-10	01581503	0.3616	N/A	1529 S Cooper St	East Arlington	N/A	N	Taylors State Inspe	Taylors State Inspection C	Auto Inspection an	Auto Inspection and Serv	Petroleum Storage Tank
3600020	09/11/2008	Lambert Addition Blk 1 Lot 1R1	23470-1-1R1	01581481	0.3317	N/A	1531 S Cooper St	East Arlington	N/A	N	Texas Oil Exchang	Super Lube Arlington	Auto Service Cent	Auto Service Center	Petroleum Storage Tank
6101091	09/11/2008	Schoolar Tract Addition Blk Lot 2Ra	37650--2RA	06907741	1.18	N/A	3400 S Cooper St	East Arlington	N/A	N	Wendys	Johnson Sta Fina Station	Food Store	Gas Station	Petroleum Storage Tank
3800494	09/11/2008	Newton, A Addition Blk Lot 46	28060--46	01866222	0.81	N/A	2726 S Cooper St	East Arlington	N/A	N	A&B Muffler Sho	A&B Muffler Shop 22	Auto Service Cent	Auto Service Center	Petroleum Storage Tank
3600264	09/11/2008	Newbern Addition Blk Lot C1	27990--C1	01864424	3.0442	N/A	2025 S Cooper St	East Arlington	N/A	N	New Bern Compan	Nationwide Advertising S	Office	Office	Petroleum Storage Tank
3800620	09/11/2008	157 South Blk 1 Lot 2Ar	31170-1-2AR-C	02077841	0.7617	N/A	2401 S Cooper St	East Arlington	N/A	N	Super Beverage Pl	MR Discount Citgo	Gas Station	Auto Tire and Service	Petroleum Storage Tank
3800789	09/11/2008	Newton, A Addition Blk Lot 134	28060--134	07583591	1.361	N/A	2905 S Cooper St	East Arlington	N/A	N	Racetrac 414	Racetrac 414	Gas Station	Gas Station	Petroleum Storage Tank
7100208	09/11/2008	Arlington Tech Centre Addition Blk 9 Lot 2	998-9-2	40331857	19.9672	N/A	3801 S Collins St	East Arlington	N/A	N	Washington Mutua	Washington Mutual Card	Bank	Bank	Petroleum Storage Tank
6300825	09/11/2008	Robinson, A Addition Blk Lot 2R	34830--2R	06097006	0.41	N/A	3400 S Collins St	East Arlington	N/A	N	7 Eleven Store 254	7 Eleven Store 25416	Gas Station	Gas Station	Petroleum Storage Tank
3900926	09/11/2008	Stoneridge Addition Blk 9 Lot B1	40510-9-B1	02969130	0.9183	N/A	2300 S Collins St	East Arlington	N/A	N	Nicks Corner Mart	Nicks Corner Mart 2	Gas Station	Gas Station	Petroleum Storage Tank

6300901	09/11/2008	Ramey, R R Addition Blk Lot 20	33415--20	06839754	1.213	N/A	3900 S Collins St	East Arlington	N/A	N	Racetrac 513	Racetrac 513	Gas Station	Gas Station	Petroleum Storage Tank
4400803	09/11/2008	Harris, F L Subdivision Blk Lot 12R 1.1450 Ac	17210--12R	05660858	0.3961	N/A	1223 E Pioneer Pk	East Arlington	N/A	N	Fuel For Texas	Citgo Food Store	Gas Station	Gas Station	Petroleum Storage Tank
4600355	09/11/2008	Quiktrip 853 Addition Blk 1 Lot 1	33291-1-1	07324553	1.79	N/A	3316 E Pioneer Pk	East Arlington	N/A	N	Quiktrip 853	Quiktrip 853	Gas Station	Gas Station	Petroleum Storage Tank
4500465	09/11/2008	Shepherds Glen Subdivision Blk 1 Lot 1A	38329-1-1A	07294751	1.8858	N/A	2020 E Pioneer Pk	East Arlington	N/A	N	Supertrack Store	Supertrack Store	Store	Store	Petroleum Storage Tank
4500848	09/11/2008	Lee, A J Addition Blk Lot 13	23730--13	01592793	0.9429	N/A	2125 E Pioneer Pk	East Arlington	N/A	N	Popeys Chicken &	7 Eleven 1634 30457	Restaurant	Gas Station	Petroleum Storage Tank
4500411	09/11/2008	Forum Village Addition Blk E Lot	14518-E	00980420	7.27	N/A	2401 E Pioneer Pk	East Arlington	N/A	N	Southwest Internat	WT Masters International	Truck Rental	N/A	Petroleum Storage Tank
3800727	09/11/2008	Lane, J W Addition Blk Lot 20B	23580--20B	06081231	0.4177	N/A	3360 Matlock Rd	East Arlington	N/A	N	Stop N Go 2120	Stop N Go 2120	Gas Station	Gas Station	Petroleum Storage Tank
6200977	09/11/2008	Rolling Meadows Addition Blk 13 Lot A3	35040-13-A3	07702353	1.6508	N/A	3532 Matlock Rd	East Arlington	N/A	N	Quiktrip 854	Quiktrip 854	Gas Station	Gas Station	Petroleum Storage Tank
7200002	09/11/2008	Hayman, W Addition Blk Lot 3	17585--3	04984730	0.6515	N/A	1900 E Mayfield	East Arlington	N/A	N	EZ Mart 487	EZ Mart 487	Gas Station	Gas Station	Petroleum Storage Tank
1600063	09/11/2008	Six Flags Business Park Addn Blk Lot 8 Site 8-5R	38675--8-13	06023908	5.834	N/A	1911 E Division St	East Arlington	N/A	N	Texan Can Cars	Bledsoe Dodge	Car Sales	Car Sales	Petroleum Storage Tank
1500451	09/11/2008	Gsid Comm #3 Blk Lot 6	48508--6	03690679	1.019	N/A	1731 E Division St	East Arlington	N/A	N	Fina	Fina	Gas Station	Gas Station	Petroleum Storage Tank
1700090	09/11/2008	Gsid Comm #2 Inst #5 Site 98b1A	48506--5RB1-10	06366783	1.8464	N/A	2801 E Division St	East Arlington	N/A	Y	J C Penny	J C Penny	Store	Store	Petroleum Storage Tank
1700123	09/11/2008	Gsid Comm #2 Inst #5 Site 1A	48506-1A	03689573	0.45	N/A	3515 E Division St	East Arlington	N/A	N	Reliable Auto Netw	Diamond Shamrock 0225	Car Sales	Gas Station	Petroleum Storage Tank
1500449	09/11/2008	Filant Acres Addition Lot 5A1	32410--5A1	02205807	1.5695	N/A	1701 E Division St	East Arlington	N/A	N	Icecream Shoppe g	Putt Putt Golf and Games	Game Room	Game Room	Petroleum Storage Tank
1700097	09/11/2008	Arlington Village #1 Blk C Lot 1R	1015-C-1R	05668417	1.695	N/A	3317 E Division St	East Arlington	N/A	N	Racetrac 594	Racetrac 594	Gas Station	Gas Station	Petroleum Storage Tank
4500419	09/11/2008	Caldwell, P Addition Blk Lot 14B	6090--14B	05767849	0.4477	N/A	2501 E Arkansas L	East Arlington	N/A	N	Mira Corner Store	Mira Corner Store	Store	Store	Petroleum Storage Tank
4500362	09/11/2008	Lee, A J Addition Blk Lot 18	23730--18	05641047	2.28	N/A	1901 E Arkansas L	East Arlington	N/A	N	Whip In 102	Whip In 102	Gas Station	Gas Station	Petroleum Storage Tank
4400883	09/11/2008	Three O Three Addition Blk Lot 1Cd	42060--1CD	03129039	0.5154	N/A	901 E Arkansas Ln	East Arlington	N/A	N	Diamond Shamroc	Diamond Shamrock 940	Gas Station	Gas Station	Petroleum Storage Tank
3600273	09/11/2008	Johnson Creek Addition Blk Lot 1	21755--1	01461981	0.3882	N/A	511 W Arkansas L	East Arlington	N/A	N	Arkansas Food Ma	7 Eleven 1634 15443	Store	Gas Station	Petroleum Storage Tank
7200264	09/11/2008	Hayman, W Addition Blk Lot 1	17585--1	04849272	0.6887	N/A	1901 E Arbrook Bl	East Arlington	N/A	N	EZ Mart 483	EZ Mart 483	Store	Store	Petroleum Storage Tank
4101987	09/11/2008	Hillview Addition-Arlington Blk 4 Lot 4A	18540-4-4A	01307150	0.9452	N/A	137 Fairview	East Arlington	N/A	N	Sodd Electric Co In	Sodd Electric Co Inc	Warehouse	Warehouse	Petroleum Storage Tank
4600302	09/11/2008	Gsid South Site 42 Less W 7.074 Acres	48543--42-10	03693996	20.888	N/A	1900 Timberlake D	East Arlington	N/A	N	Arnold Logistics	JC Penny Co Unit 9508	Warehouse	N/A	Petroleum Storage Tank
4600322	09/11/2008	Gsid South Site 72	48543--72	03694208	6.763	N/A	1801 Timberlake D	East Arlington	N/A	N	General Body Met	General Body Metroplex	Manufacturing Tru	Manufacturing Truck Bo	Petroleum Storage Tank
1500642	09/11/2008	Ballpark Addition, The Blk A Lot 1A	1503J-A-1A	40379949	15.8244	N/A	1000 Ballpark Way	East Arlington	N/A	N	Rangers Ballpark I	Rangers Ballpark In Arlin	Stadium	Stadium	Petroleum Storage Tank
3800605	09/11/2008	157 South Blk 2 Lot 4B1	31170-2-4B1	02078031	0.5961	N/A	700 Secretary Dr	East Arlington	N/A	N	United States Post	Chucks Grocery and Grill	Office	Food Mart	Petroleum Storage Tank
3800606	09/11/2008	157 South Blk 2 Lot 4A	31170-2-4A	02078015	0.7831	N/A	716 Secretary Dr	East Arlington	N/A	N	Chambers Automo	Chambers Automotive	Auto Repair	Auto Repair	Petroleum Storage Tank
1500417	09/11/2008	Harrison, L C Addition Blk 3 Lot 3	17320-3-3	04620089	0.7117	N/A	908 Harrison Ave	East Arlington	N/A	N	Kelly Mcknight W	Kelly Mcknight Wrecker	Wrecker Service	Wrecker Service	Petroleum Storage Tank
1500427	09/11/2008	Reico Industrial District Blk Lot 9	33890--9	02330164	0.7346	N/A	1213 Harrison Ave	East Arlington	N/A	N	Protech Coatings	Protech Coatings	Manufacturing Inc	Manufacturing Inc	Petroleum Storage Tank
1700050	09/11/2008	Gsid Comm #2 Inst #1 Site 3	48502-3	03687422	9.97	N/A	600 N Watson Rd	East Arlington	N/A	N	Cummins Southern	Cummins Southern Plains	Manufacturing Tru	Manufacturing Truck Pa	Petroleum Storage Tank
1700048	09/11/2008	Gsid Comm #2 Inst #1 Site 6	48502-6	03687465	0.415	N/A	840 N Watson Rd	East Arlington	N/A	N	Six Flags Conoco	Six Flags Conoco	Gas Station	Gas Station	Petroleum Storage Tank
1700357	09/11/2008	Gsid Comm #2 Inst #1 Site 113R Lot 7	48502-113R-7	06931189	0.7546	N/A	800 N Watson Rd	East Arlington	N/A	Y	Cummins Sales &	Cummins Sales & Service	Office	Office	Petroleum Storage Tank
1600129	09/11/2008	Gsid Comm #4 Blk Site 1 Per Plat 388-27-265	48509--1-70	05302889	0.4377	N/A	920 Six Flags Dr	East Arlington	N/A	N	Valero 4486	Valero 4486	Gas Station	Gas Station	Petroleum Storage Tank
4200229	09/11/2008	Kathadis Corners Addition Blk Lot C	22230--C	01477439	0.3512	N/A	215 New York Ave	East Arlington	N/A	N	B Johns Discount I	B Johns Discount Beverag	Gas Station	Gas Station	Petroleum Storage Tank
4200241	09/11/2008	Elroy Heights Addition Blk D Lot 3	12720-D-3	00849359	0.3587	N/A	214 Sherry St	East Arlington	N/A	Y	25 Cents	Tarrant 45	Car Wash	N/A	Petroleum Storage Tank
901619	09/11/2008	Toliver Acres Addition Blk Lot 1C	42300--1C	03155536	0.6	N/A	825 E Sanford	East Arlington	N/A	N	Western Union	Budget Rent A Car Corp	Money Transfer O	Car Rent	Petroleum Storage Tank
1700372	09/11/2008	Gsid Comm #2 Inst #6 Lot 47A2	48507--47A2	07692064	2.7137	N/A	903 113th St	East Arlington	N/A	N	VZB-AAPNTX	VZB-AAPNTX	High Speed Intern	High Speed Internet, Pla	Petroleum Storage Tank
1700033	09/11/2008	Gsid Comm #2 Inst #1 Site 94	48502-94	03688542	2.41	N/A	626 106th St	East Arlington	N/A	N	Displays Unlimited	Longhorn Liquors Ltd	Manufacturing Wo	Wholesaler of Wines and	Petroleum Storage Tank
1700171	09/11/2008	Gsid Comm #2 Inst #1 Site 105R	48502-105R	03688690	4.31	N/A	716 110th St	East Arlington	N/A	N	Carry Transit	Carry Transit	Transporting Liqu	Transporting Liquid	Petroleum Storage Tank
1700174	09/11/2008	Gsid Comm #2 Inst #1 Site 43	48502-43	03688054	1.6	N/A	808 110th St	East Arlington	N/A	N	Southwestern Bell	Southwestern Bell Teleph	Office	Office	Petroleum Storage Tank
1700327	09/11/2008	Gsid Comm #2 Inst #6 Blk Lot 23	48507--23	04619072	2.3788	N/A	408 113th St	East Arlington	N/A	N	Baker Corp	Motor Transport Co	Producing Tanks, I	N/A	Petroleum Storage Tank
1700324	09/11/2008	Gsid Comm #2 Inst #6 Blk Lot 37	48507--37	04619196	2.754	N/A	525 113th St	East Arlington	N/A	N	The American Cor	Maurice Sporting Goods	Manufacturing Pla	Wholesaler of Sporting C	Petroleum Storage Tank
1700285	09/11/2008	Gsid Comm #1 Blk 11 Site 1 Boundary Split	48501-11-1	04325915	6.86	N/A	1001 113th St	East Arlington	N/A	N	Packaging Corpora	Packaging Corporation of	Producing Contain	Producing Container Box	Petroleum Storage Tank
1700320	09/11/2008	Gsid Comm #2 Inst #6 Blk Lot 9	48507--9	04618947	2.5818	N/A	408 N Great South	East Arlington	N/A	N	Mission Petroleum	Mission Petroleum Carrie	Carrier Services	Carrier Services	Petroleum Storage Tank
1700310	09/11/2008	Gsid Comm #2 Inst #6 Blk Lot 17	48507--17	04619005	0.8234	N/A	820 N Great South	East Arlington	N/A	Y	Former Fuel Boss	Former Fuel Boss 550	Gas Station	Gas Station	Petroleum Storage Tank
801682	09/11/2008	Henderson, J M Addition Blk Lot 7A2F	17710--7A2F	06454941	0.8616	N/A	701 W Road to Six	East Arlington	N/A	N	Shell Service Stati	Shell Service Station 1010	Gas Station	Gas Station	Petroleum Storage Tank
1700005	09/11/2008	Gsid Comm #1 Blk 13 Site 3	48501-13-3	03687198	0.5451	N/A	501 Avenue H E	East Arlington	N/A	N	Shell	Express Mart 49	Gas Station	Gas Station	Petroleum Storage Tank

APPENDIX B

ArcView MAP SHOWING BROWNFIELD SITES

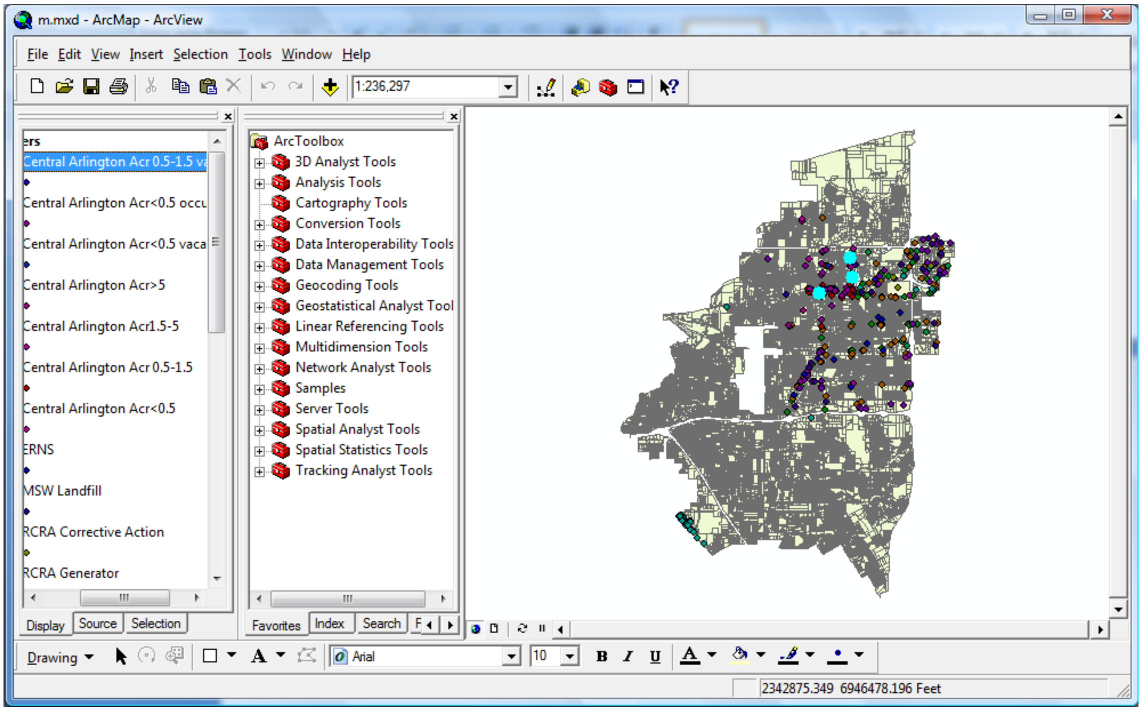


Figure B.1 ArcView window showing highlighted vacant sites in Central Arlington with acreage greater than 0.5 and less than or equal to 1.5

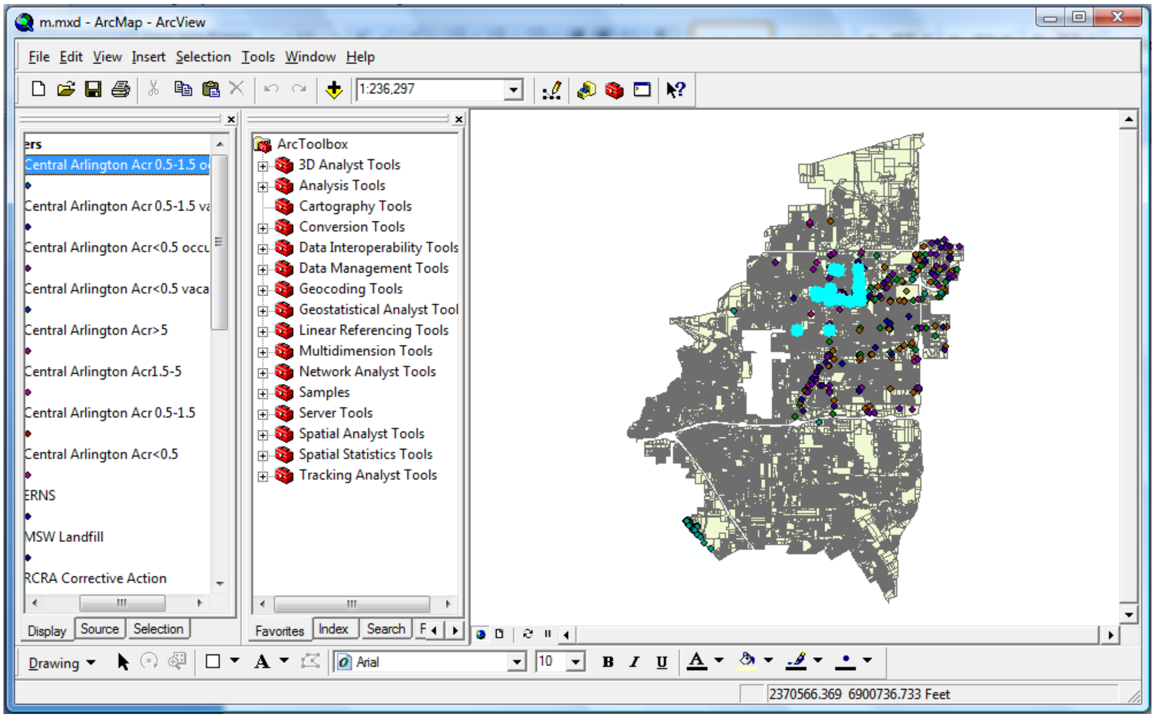


Figure B.2 ArcView map showing highlighted occupied sites in Central Arlington with acreage greater than 0.5 and less than or equal to 1.5

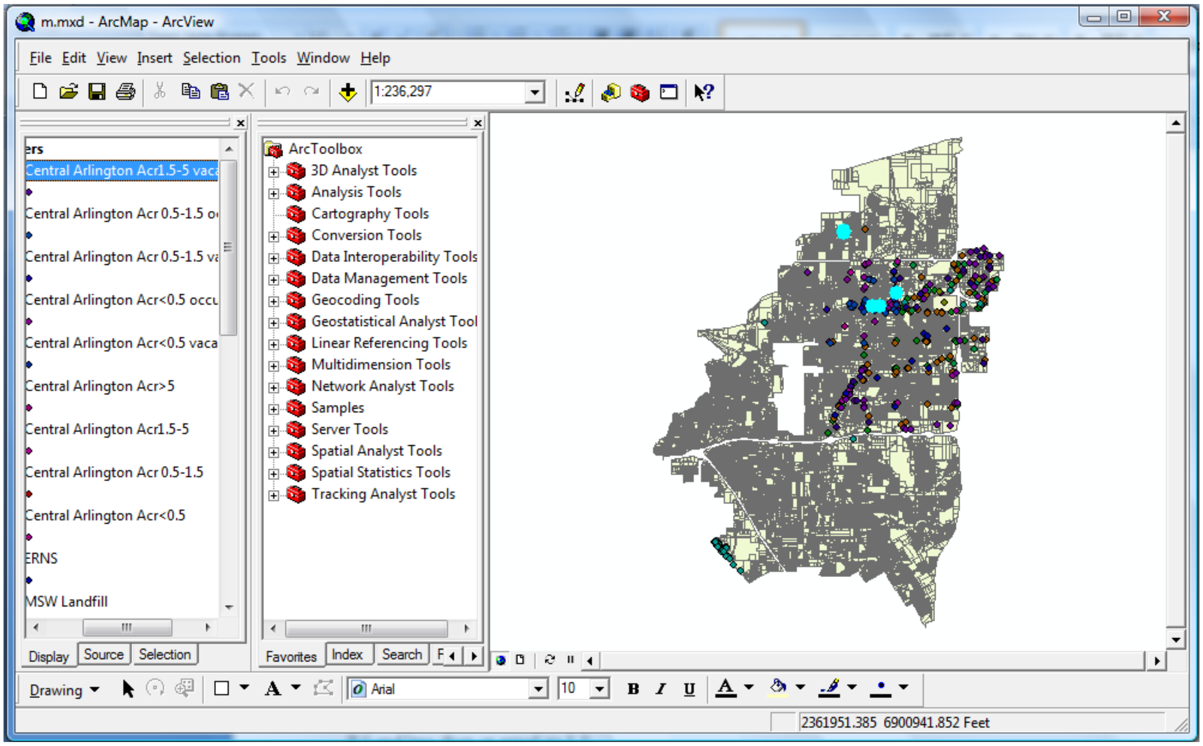


Figure B.3 ArcView map showing highlighted vacant sites in Central Arlington with acreage greater than 1.5 and less than or equal to 5.0

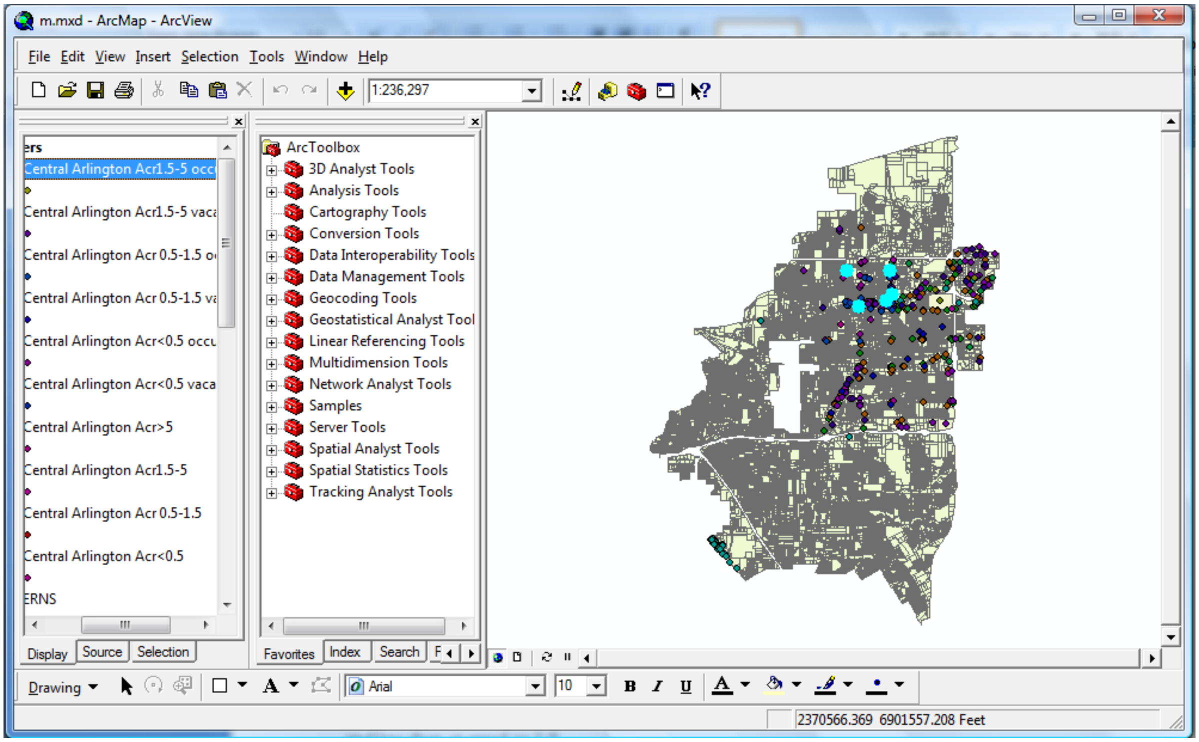


Figure B.4 ArcView map showing highlighted occupied sites in Central Arlington with acreage greater than 1.5 and less than or equal to 5.0

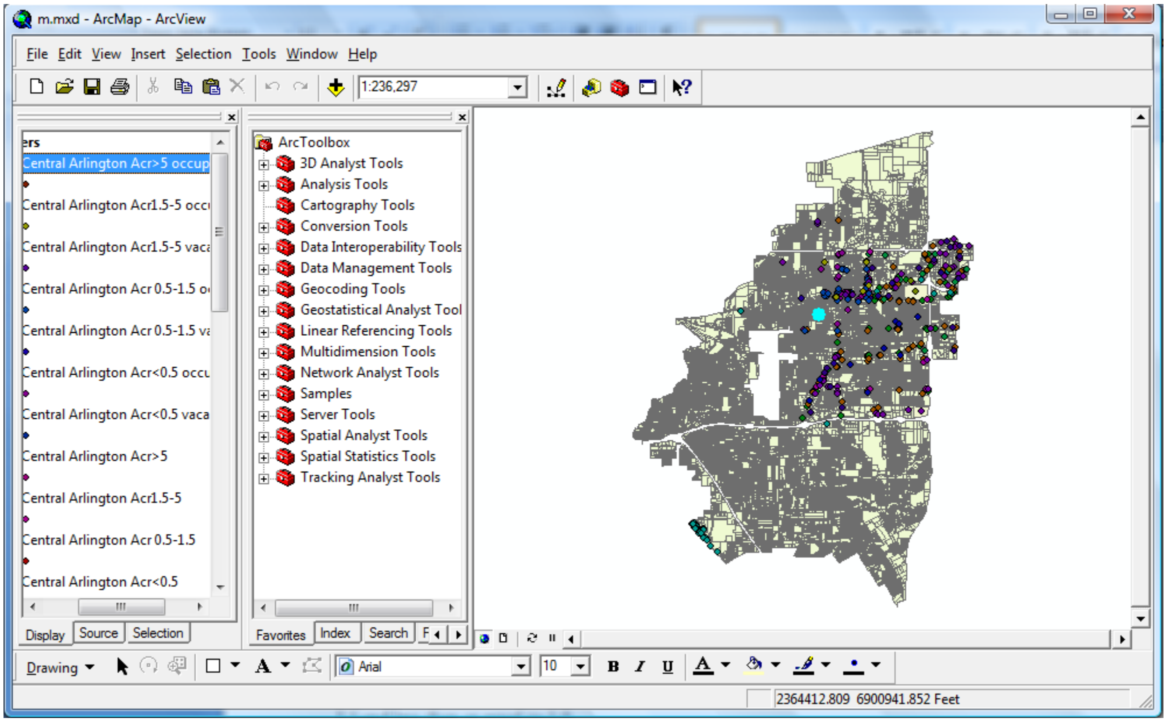


Figure B.5 ArcView map showing highlighted occupied sites in Central Arlington with acreage greater than 5.0

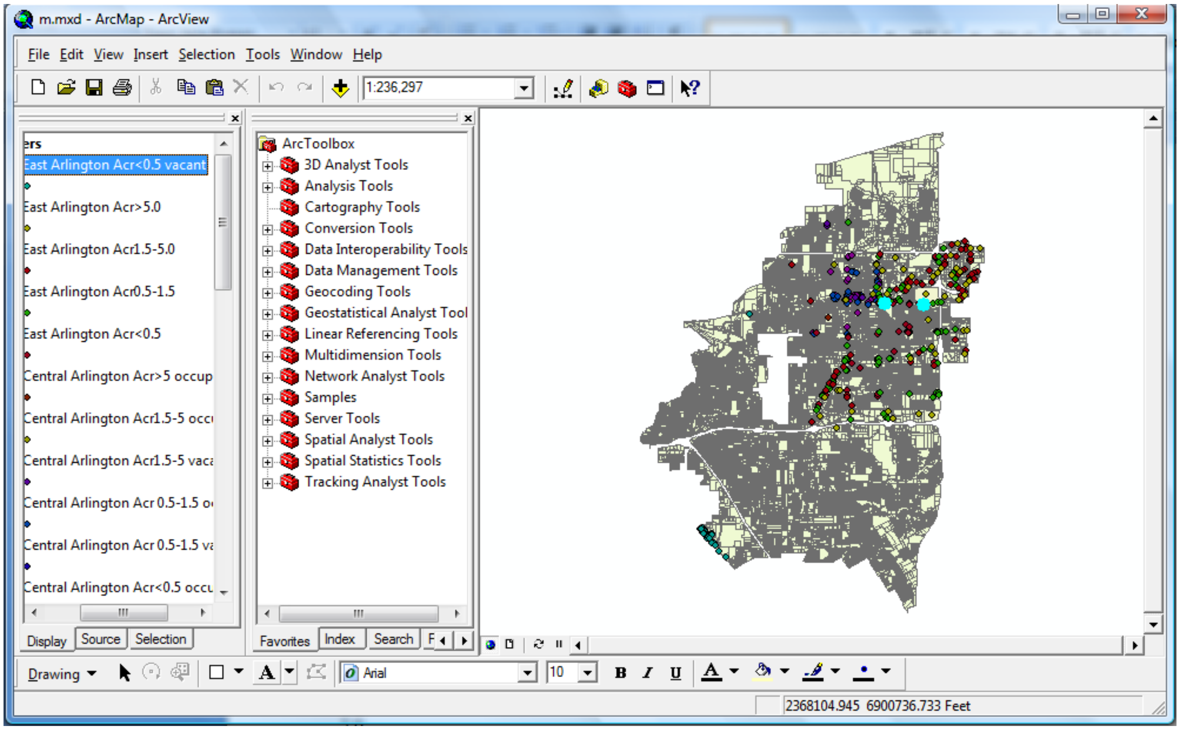


Figure B.6 ArcView map showing highlighted vacant sites in East Arlington with acreage less than or equal to 0.5

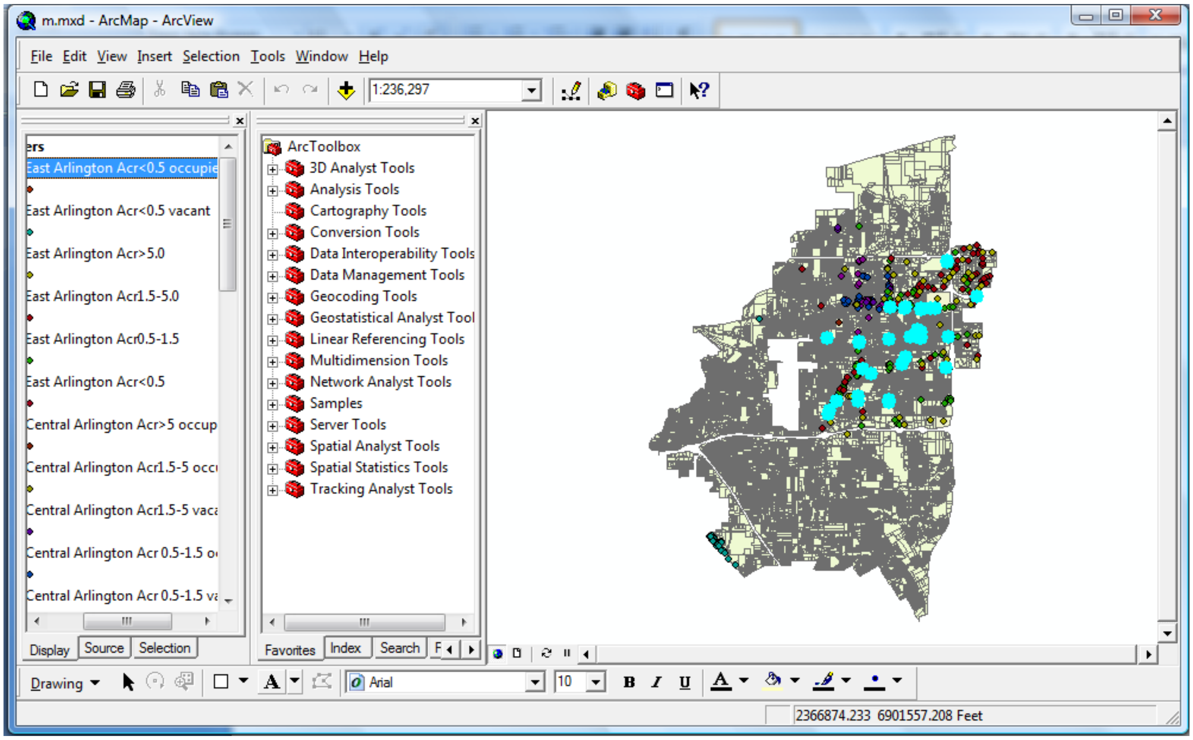


Figure B.7 ArcView map showing highlighted occupied sites in East Arlington with acreage less than or equal to 0.5

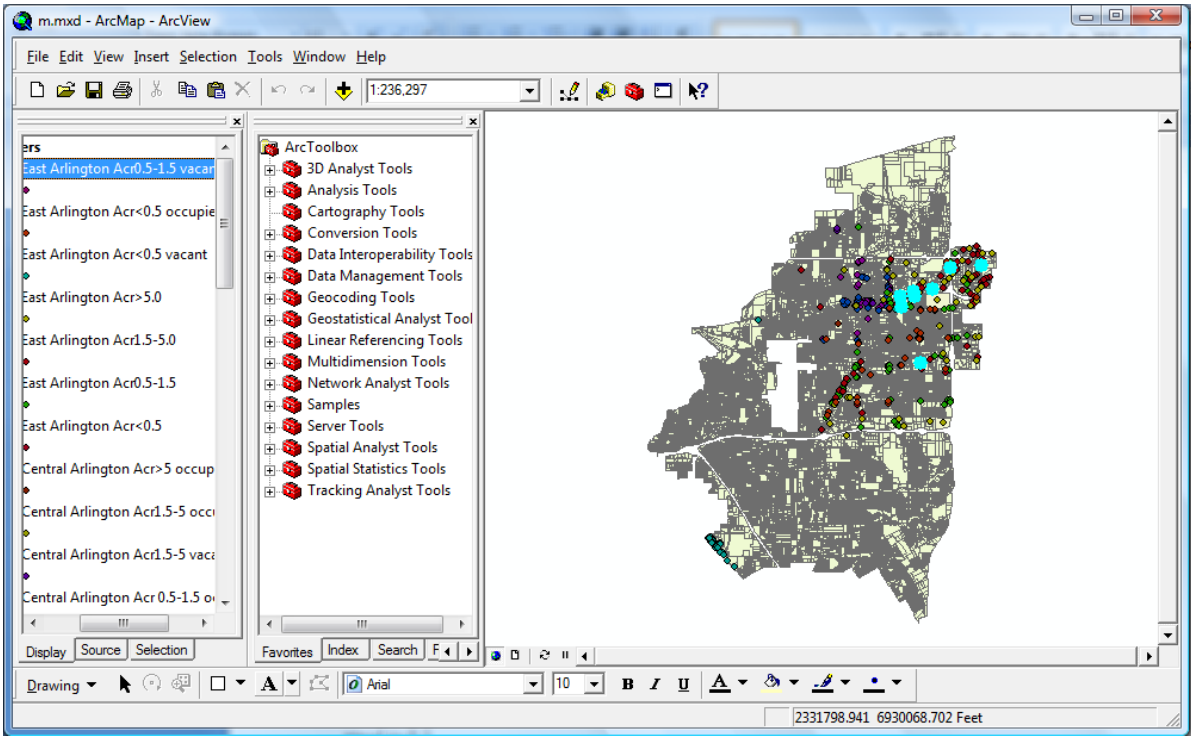


Figure B.8 ArcView map showing highlighted vacant sites in East Arlington with acreage greater than 0.5 and less than or equal to 1.5

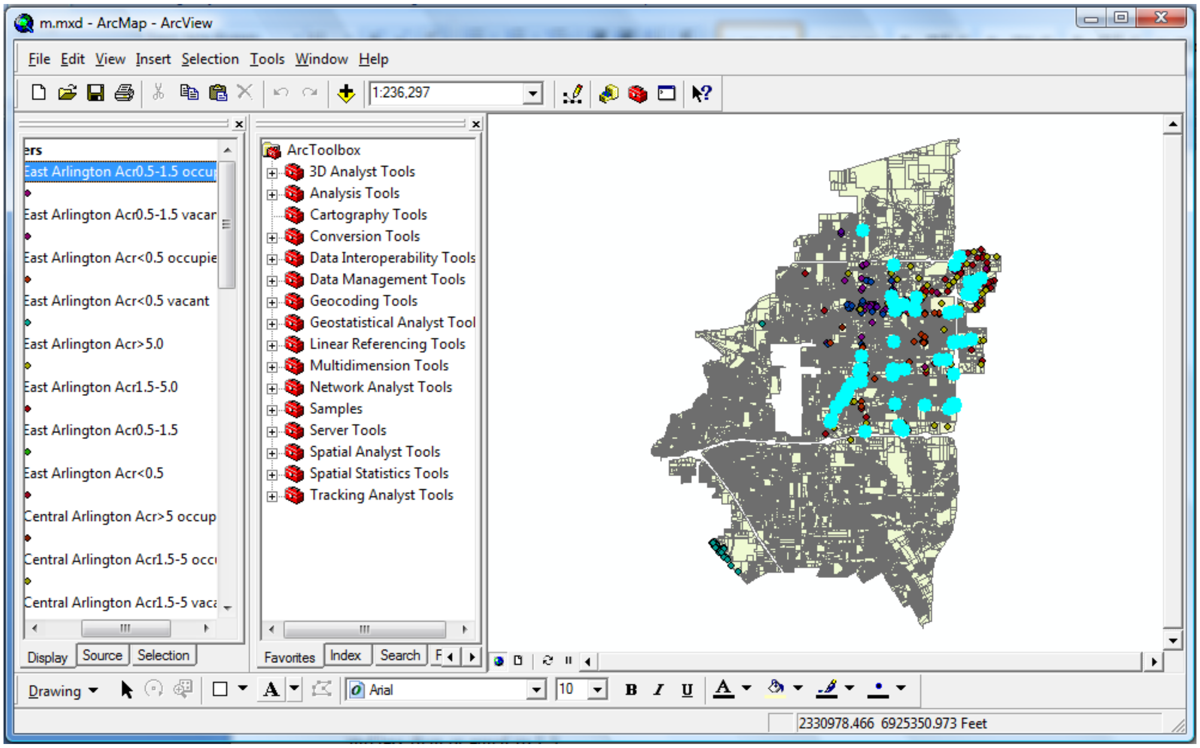


Figure B.9 ArcView map showing highlighted occupied sites in East Arlington with acreage greater than 0.5 and less than or equal to 1.5

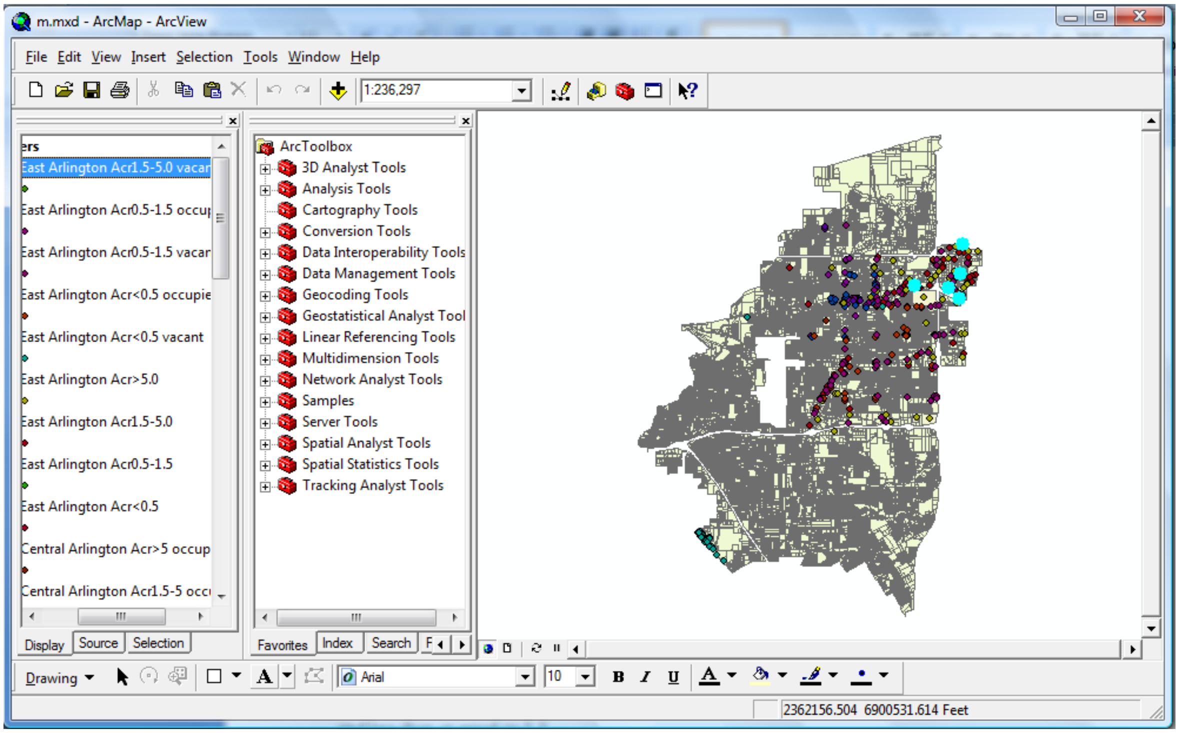


Figure B.10 ArcView map showing highlighted vacant sites in East Arlington with acreage greater than 1.5 and less than or equal to 5.0

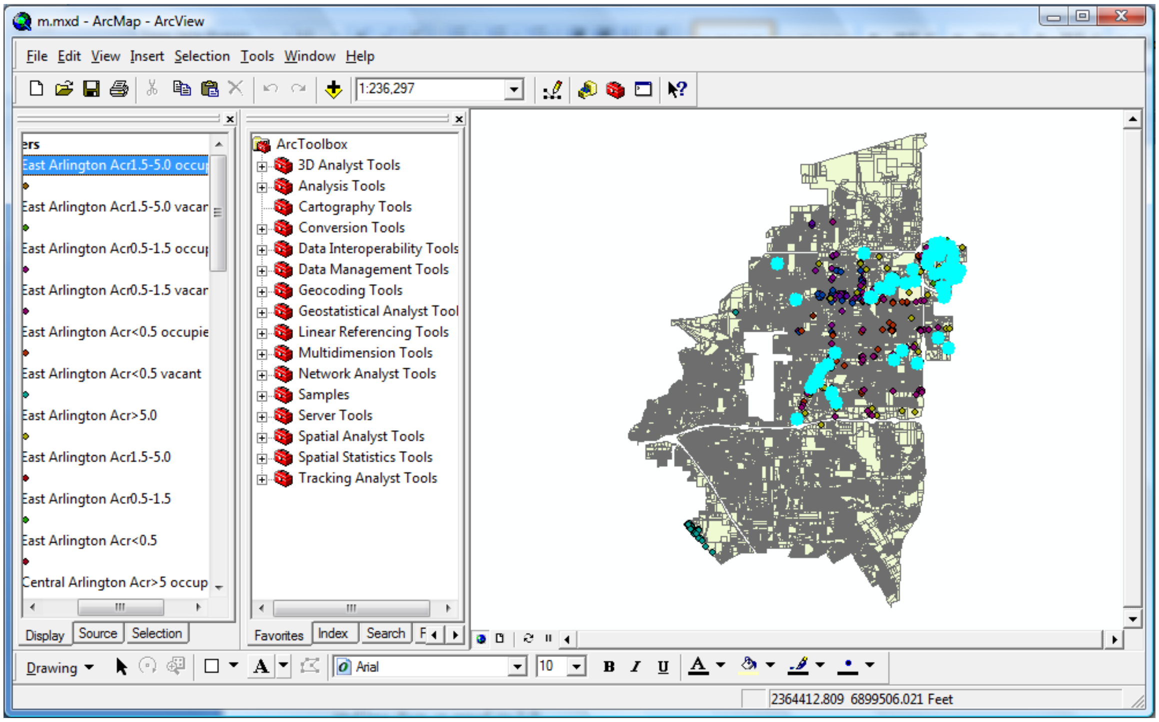


Figure B.11 ArcView map showing highlighted occupied sites in East Arlington with acreage greater than 1.5 and less than or equal to 5.0

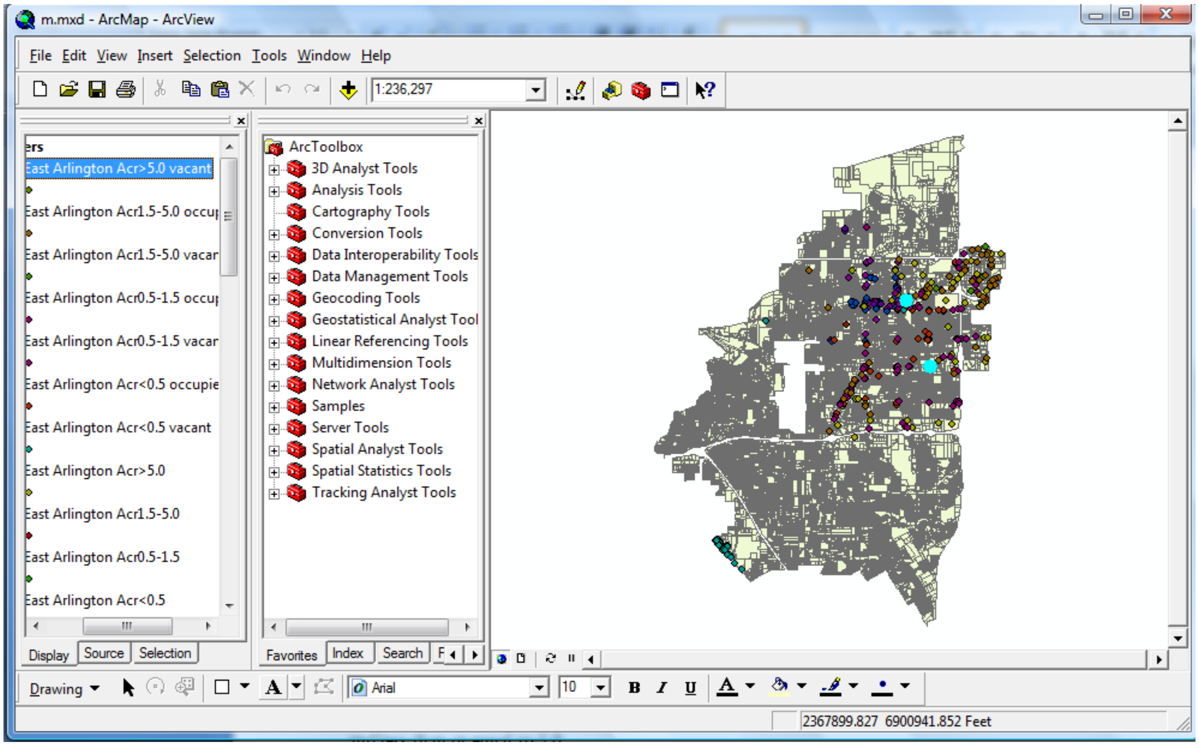


Figure B.12 ArcView map showing highlighted vacant sites in East Arlington with acreage greater than 5.0

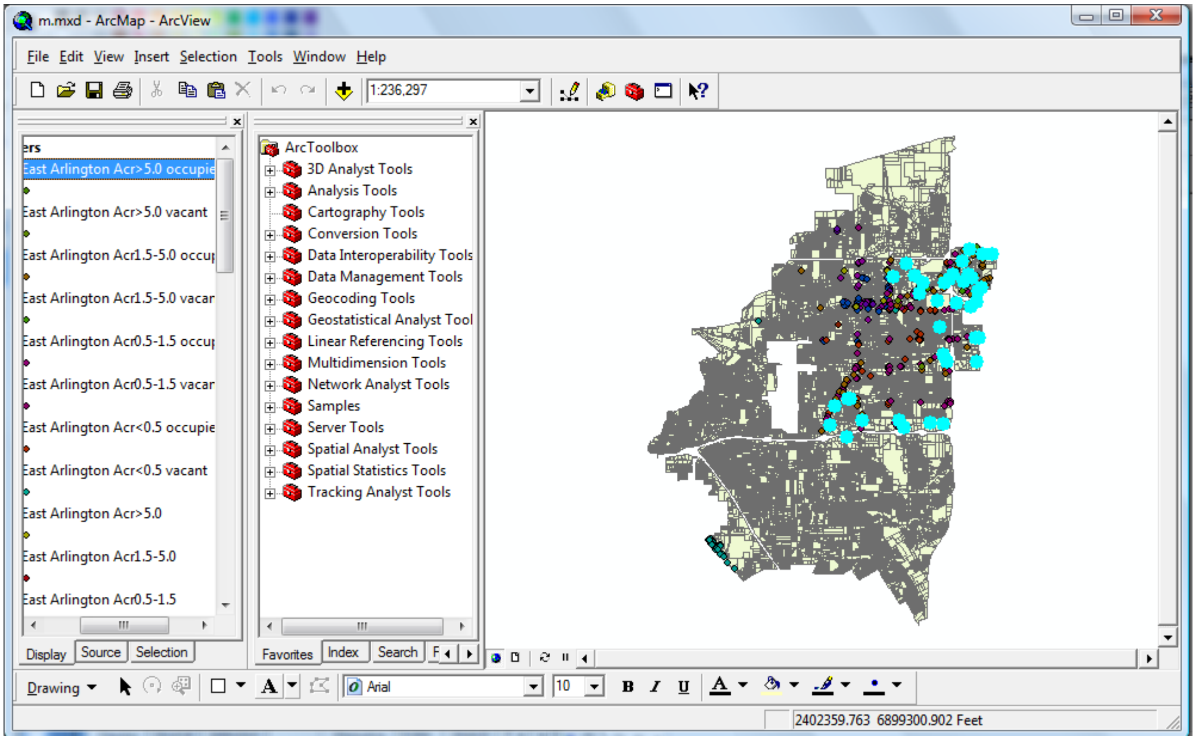


Figure B.13 ArcView map showing highlighted occupied sites in East Arlington with acreage greater than 5.0

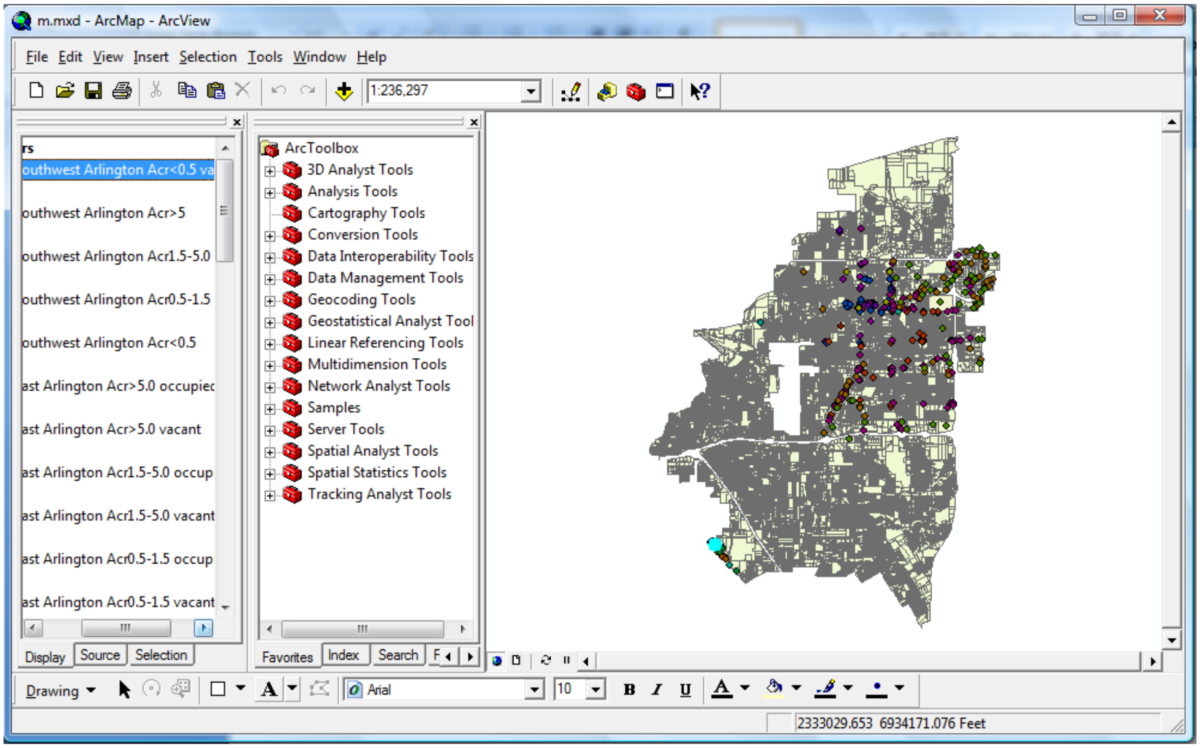


Figure B.14 ArcView map showing highlighted vacant sites in Southwest Arlington with acreage less than or equal to 0.5

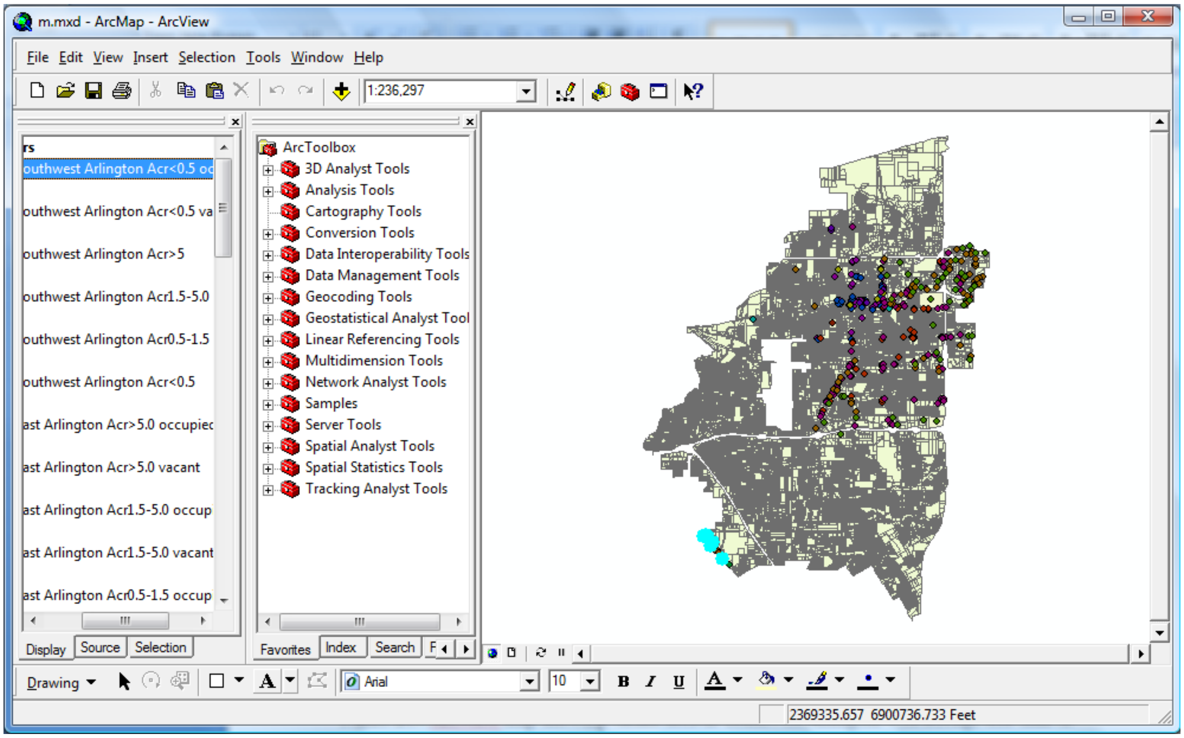


Figure B.15 ArcView map showing highlighted occupied sites in Southwest Arlington with acreage less than or equal to 0.5

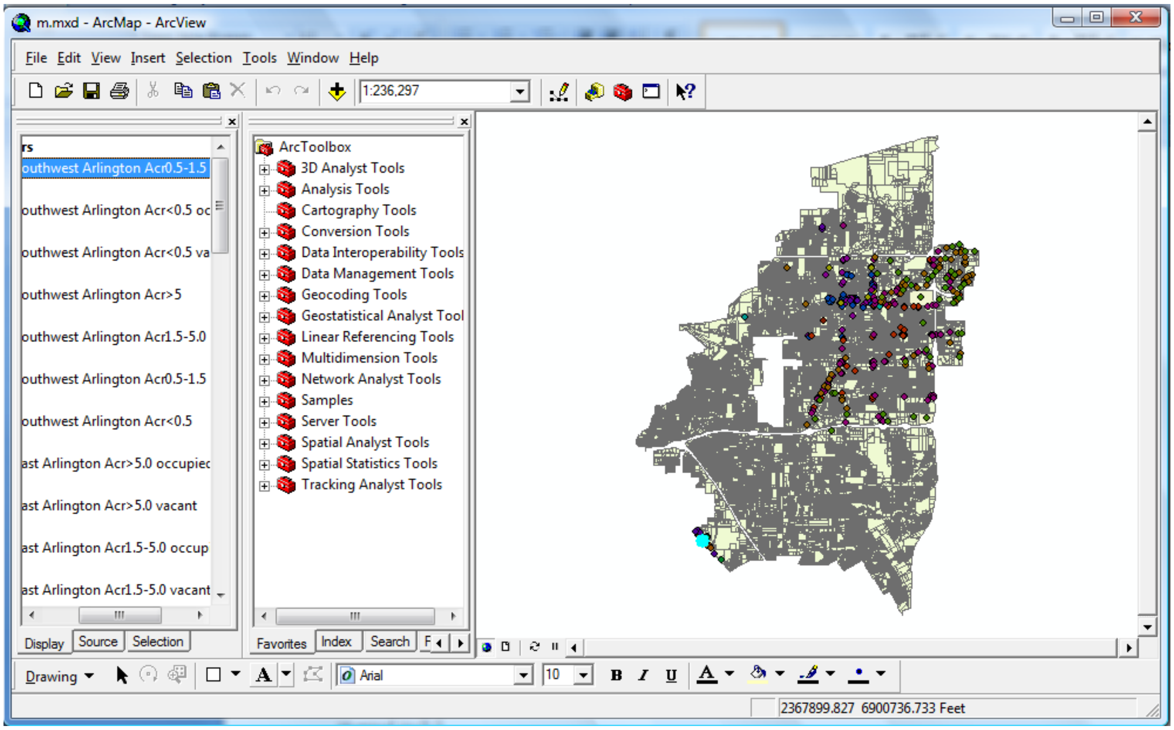


Figure B.16 ArcView map showing highlighted occupied sites in Southwest Arlington with acreage greater than 0.5 and less than or equal to 1.5

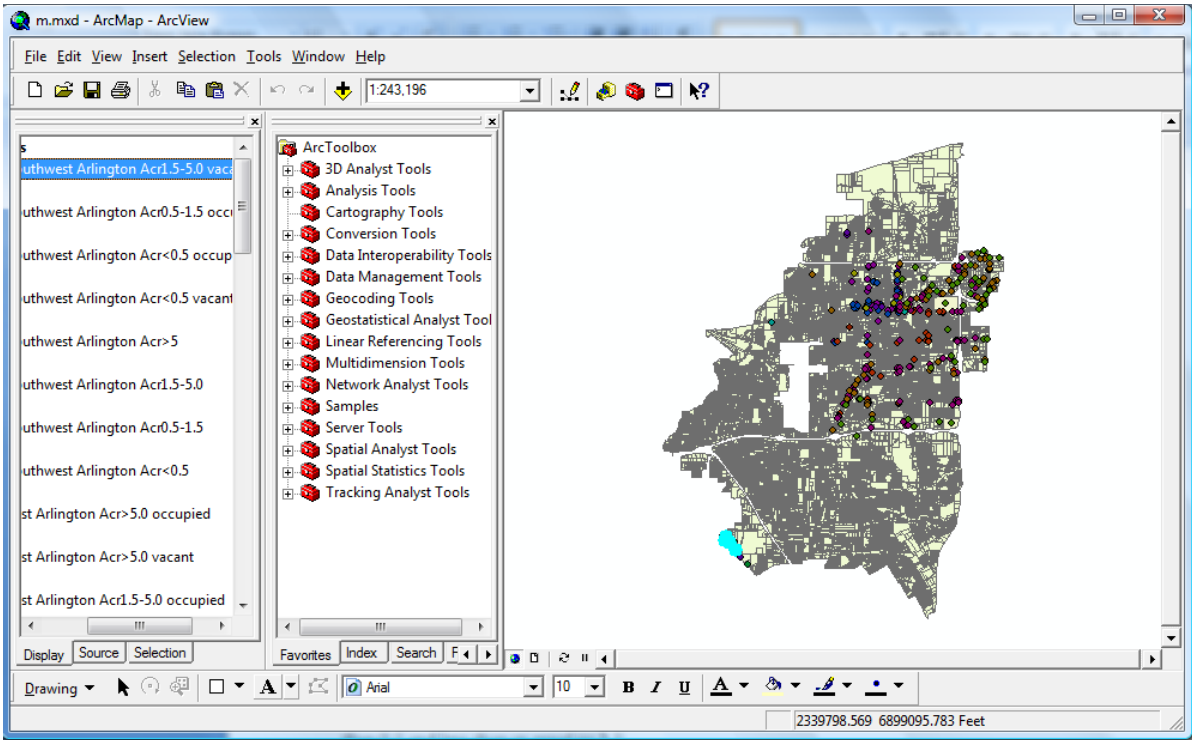


Figure B.17 ArcView map showing highlighted vacant sites in Southwest Arlington with acreage greater than 1.5 and less than or equal to 5.0

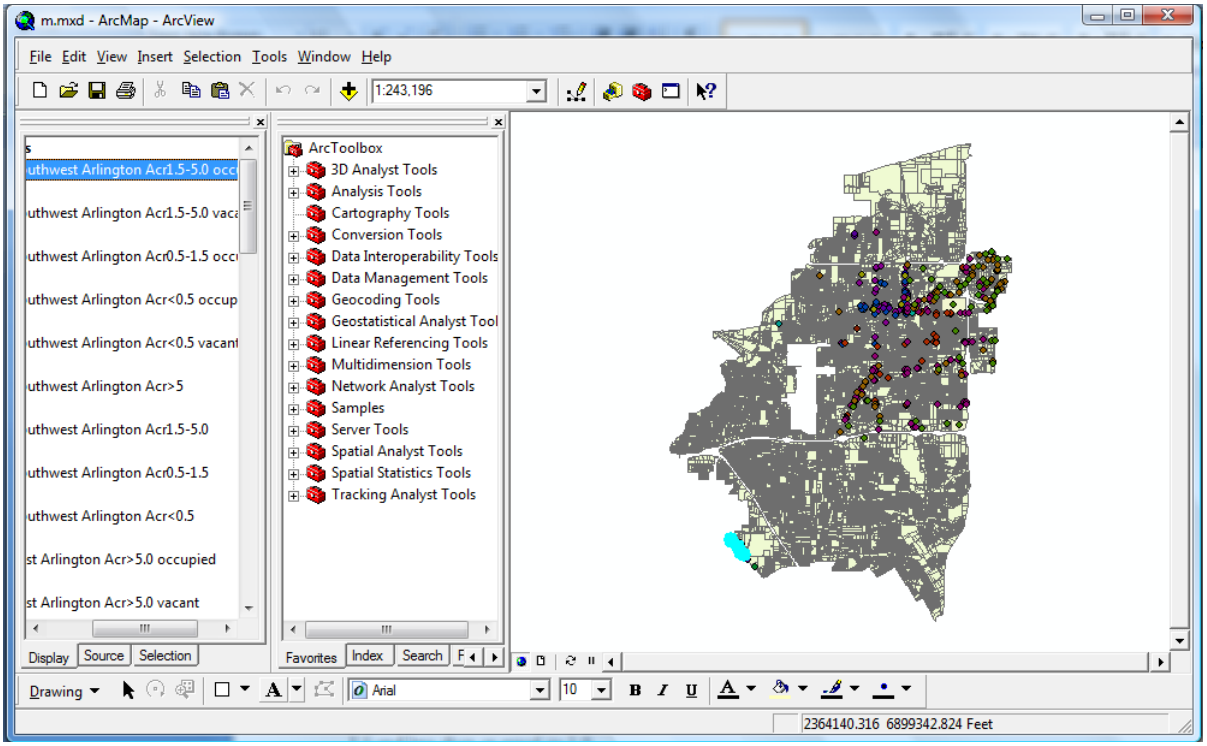


Figure B.18 ArcView map showing highlighted occupied sites in East Arlington with acreage greater than 1.5 and less than or equal to 5.0

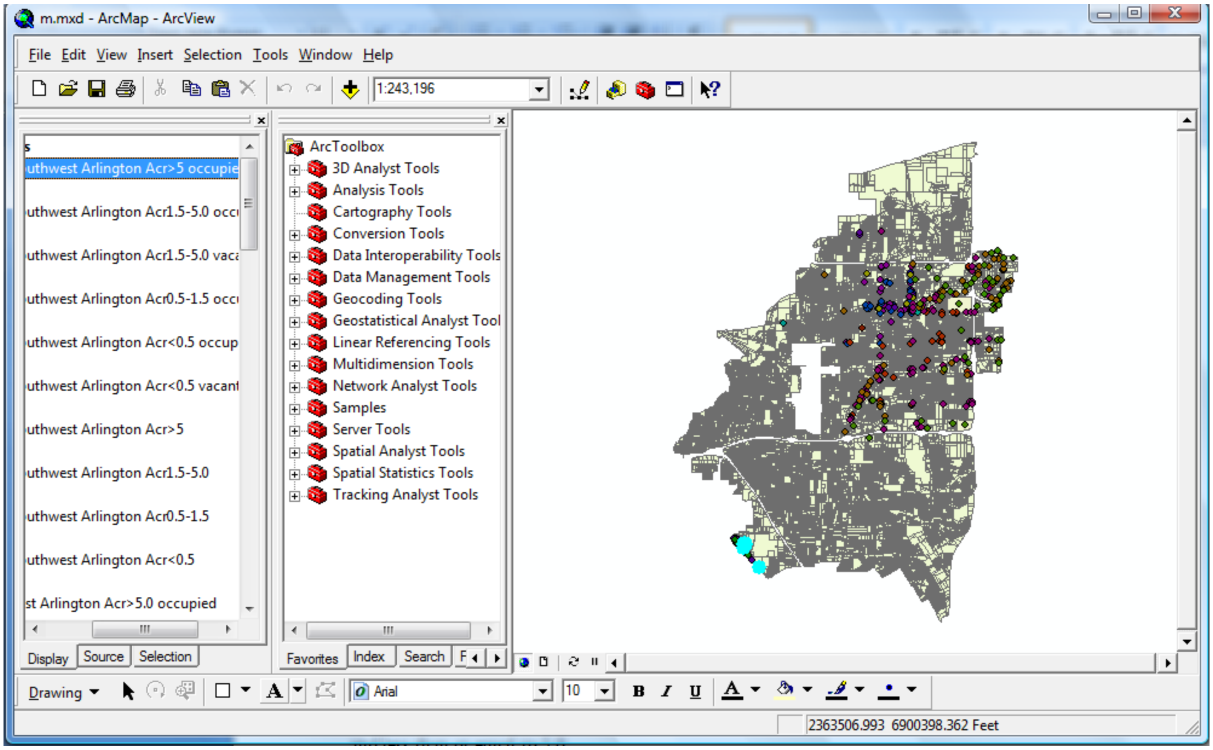


Figure B.19 ArcView map showing highlighted occupied sites in Southwest Arlington with acreage greater than 5.0

REFERENCES

COA-1 (2006). City of Arlington, Community Wide Hazardous Substances Assessment Grant Application, *2006.*

COA-2 (2008). City of Arlington, Geographic Information System, Interactive Mapping Applications. *(http://www.arlingtontx.gov/gis/interactiveMapping.html)*

COA-3 (2008). City of Arlington, Office of Geographic Information System. *(http://www.ci.arlington.tx.us/gis/download.html)*

COG (2009). City of Greenville, City of Greenville Brownfield Interactive Map. *(http://gis.ci.greenville.tx.us/website/brownfields/viewer.htm)*

Davis, Todd S. (2002). "Brownfields: A Comprehensive Guide to Redeveloping Contaminated Property." *American Bar Association, U.S.A., 2002.*

Devabhaktuni, K. N. (2002). "Assessment of Potential Heave Induced Infrastructure Distress Hazard in Expansive Soil Environments Using GIS Technology." *M. Sc. Thesis at The University of Texas at Arlington, Arlington, Texas.*

EAA (2007). Environmental Assessment Association, "The Basic Guide to Performing Phase I Environmental Site Assessments." *Online Learning Course, 2007.*

ESRI (2001). “Getting to Know ArcGIS Desktop.” *Environmental System Research Institute, CA,2001*

IDEQ (2009). Idaho Department of Environmental Quality. *(http://www.deq.idaho.gov/waste/prog_issues/ust_lust/index.cfm#whatislust)*

Kent, R. (2005). “Kenton County Land Recycling Program.” *ESRI Publications, 2005.*

Knox, Robert C., Sabatini, David A., and Canter, Larry W. (1993). “Subsurface Transport and Fate Processes.” *Lewis Publishers, U.S.A., 1993.*

Miles, Scott B., and Ho, Carlton L. (1999). “ Applications and Issues of GIS as Tool for Civil Engineering Modelling.” *Journal of Computing in Civil Engineering, Vol. 13, No. 3,July, 1999, ASCE-1999.*

ODEQ (2009). Oklahoma Department of Environmental Quality. *(http://www.deq.state.ok.us/LPDnew/VCPIndex.htm)*

Razzaq, I. A. (2003). “ Assessment of Groundwater Risk Potential of Petroleum Underground Storage Tank Facilities Using GIS Technology.” *M.Sc. Thesis at The University of Texas at Arlington, Arlington, Texas.*

Reddy, Krishna R., Adams, Jeffrey A., and Richardson, Christina (1999). “Potential Technologies for Remediation of Brownfields.” *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management, Vol. 3, No. 2, April, 1999, ASCE-1999.*

Rifai, Hanadi S., Saurez, Monica P., and Webb, C. (2004). “Natural Attenuation of Chlorinated Solvents at Dry Cleaner Sites.” *Report Presented at University of Houston, Texas.*

TAD (2008). Tarrant Appraisal District, Online Database Query Page. *(http://www.tad.org/Datasearch/re_location_search.cfm?matches)*

TCEQ-1 (2008). Texas Commission on Environmental Quality, PSTs Registration Database Queries. *(http://www.tceq.state.tx.us/cgi-bin/permitting/pstregis2/pstregis2.pl).*

TCEQ-2 (2008). Texas Commission on Environmental Quality, LPSTs Registration Database Queries. *(http://www.tceq.state.tx.us/cgi-bin/permitting/rpr/lpstquery.pl).*

TCEQ-3 (2008). Texas Commission on Environmental Quality, VCP Database. *(http://www.tceq.state.tx.us/remediation/vcp/vcp.html#Database)*

TCEQ-4 (2008). Texas Commission on Environmental Quality, IOP Database. *(http://www.tceq.state.tx.us/remediation/iop/iop.html)*

Underhill, Mark R. (2006). “GIS Based Brownfiled Analysis.” *ESRI Publications, 2006.*

U.S. EPA-1 (1995). “ Must for USTs: A Summary of Federal Regulations for Underground Storage Tank Systems.” *July, 1995.*

U.S. EPA-2 (2001). “Technical Approaches to Characterizing and Cleanup Automotive Recycling Brownfields.” *January, 2001.*

U.S. EPA-3 (2009). Hazardous Waste Generators. *(http://www.epa.gov/osw/hazard/generation/index.htm)*

U.S. EPA-4 (2009). Office of Corrective Action. (*http://www.epa.gov/waste/hazard/correctiveaction/index.htm)*

U.S. EPA-5 (2008). RCRA Corrective Action Online Database.

(http://www.epa.gov/waste/hazard/correctiveaction/facility/index.htm)

U.S. EPA-6 (2009). Municipal Solid Waste Landfill Home Page.

(http://www.epa.gov/solidwaste/nonhaz/municipal/landfill.htm)

White, S., Kamyck, H., and Lynch, M. (2006). "Brownfields Redevelopment Inventory Query." *Brwonfields 2006 Conference, Boston, Massachusetts, November, 2006.*

Yong, R. N., Mohamed, A. M. O., and Warkentin, B. P. (1992). "Principles of Contaminant Transport in Soils." *Elsevier Science Publishers B. V., Netherlands, 1992*

BIOGRAPHICAL INFORMATION

Jubair Hossain graduated in Civil Engineering, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh with a Bachelors degree in 2007 and later on started his graduate studies at The University of Texas at Arlington in 2008. During his graduate program, he had an opportunity to work as a graduate research assistant and graduate teaching assistant under Dr. Sahadat Hossain in civil engineering. The author's main research interest includes Geographic Information System (GIS), Soil Profiling and Site Investigation using Resistivity Methods, Deep Foundations and Landfills.

.