A GIS Connection Between Brownfield Sites, Transportation and Economic Development

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Executive Summary

This report outlines the design and development of a web-based data distribution system for brownfield site redevelopment in Toledo-Lucas County, Ohio. The system is designed to advance smart growth initiatives by creating the link between transportation infrastructure, economic development and the sustainable utilization of brownfield sites in the region. Smart growth is part of a new mobility trend to support economic redevelopment and part of a broad national effort to reduce urban sprawl, reduce congestion, and to use public resources with greater efficiency. The Lucas County Brownfield system developed here is a comprehensive data delivery tool that can assist policymakers and stakeholders with capital investment decisions to encourage smart growth within the region through the economic redevelopment of brownfield sites. It is envisioned that this web-based system will be a resource for commercial real estate developers, government officials and other regional brownfield redevelopment stakeholders.

Decades of industrial development followed by a subsequent drop in population have contributed to a significant number of brownfields left in the region. Several factors contribute to the difficulty in redeveloping these sites. These include: the availability of capital, overcoming perceptions from potential investors, and the availability of adequate data dealing with both physical characteristics of brownfield sites and their locations relative to the regional transportation system. This system was therefore designed to address these issues and to fill the data gap concerning brownfield sites in the region.

A multi-method approach was used to develop the system. In accordance with previously tested methods, government and organizational representative stakeholders were consulted for an initial needs assessment. Through these meetings, the project team was able to obtain key data sets, component elements and additional contacts and resources. Next, additional data sets were obtained and a data repository was compiled and preprocessed for use in developing a desktop GIS-based data viewer using *ArcGIS 9.3* software. Geoprocessing models were also developed within the desktop data viewer in order to enhance user functionality of the system. This desktop application formed the core for the development of a web-based GIS system that permits users to access the system with a web browser and internet connection at http://gisserver.sm.utoledo.edu/LucasCountyBrownfields/default.aspx.

As a result, this user-centered system allows public officials, regional stakeholders and potential developers of brownfield sites to search the repository through selection criteria with a series of menus, check-box selections, and query functions to retrieve data for brownfield parcels, local zoning regulations, network routing for HAZMAT and heavyweight truck loads, and other related data. Search criteria functions are encoded based on parcel size, proximity to various surrounding features, and to area businesses. Output is displayed through a combination of text, maps, and digital orthophotos. This system is thus a comprehensive data delivery tool that can assist policymakers and stakeholders with infrastructure and site selection capital investment decisions that encourage smart growth within the region through the economic redevelopment of brownfield sites.

Introduction

A current national trend is devoted to the promotion of smart growth strategies in many cities across the United States. This is part of a wider effort to support economic redevelopment to reduce urban sprawl, reduce congestion, and to utilize public resources with greater efficacy. The project presented here follows this trend with a particular emphasis on the design and development of a web-based geographic information system (GIS) that relates brownfield sites to local infrastructure (particularly the regional transportation system) to area markets, and to land use and zoning patterns. This system is designed for use as a decision making tool for site selection and capital investments in infrastructure. It is envisioned that local public officials, developers and regional stakeholders will use this system as a first stop resource for potential area brownfield redevelopment projects.

Brownfields are previously developed industrial sites that are now abandoned or contaminated and contribute to blight in the community. Some of these sites contain hazardous environmental contaminants while others are just perceived as contaminated with visible structural obstacles that inhibit redevelopment. Decades of industrial development followed by a subsequent drop in population have contributed to a significant number of brownfields left in the region. Several factors contribute to the difficulty in redeveloping these sites. These include the availability of capital, overcoming perceptions from potential investors, and the availability of adequate data dealing with both physical characteristics of brownfield sites and their locations relative to the regional transportation system. These factors are covered in greater detail below in the background section which highlights the main goal of this project – to overcome the lack of freely available data necessary to redevelop regional brownfield sites through a web-based GIS system.

The development of this data delivery resource took place over a number of stages. First, the project team engaged in a series of discussions with local businessmen and government officials to gather information for key design elements and pertinent data components. These meetings led to the design of a comprehensive repository of georeferenced data for brownfield parcel sites that included the following:

- key parcel attributes (*e.g.*, acreage, structures, *etc*.);
- environmental assessments and remediation efforts for each site;
- regional transportation and infrastructure networks;
- heavyweight truck routes;
- HAZMAT routes;
- intermodal facilities;
- zoning regulations;
- school districts;
- census and other regional population characteristic data; and
- business locations.

This web-based GIS thus allows users to search the repository through selection criteria with a series of menus and query functions to retrieve data results for brownfield parcels, surrounding zoning regulations, network routing for HAZMAT and heavyweight truck loads, and area market characteristics. Search criteria functions are encoded based on parcel size, proximity to selected infrastructure, zoning regulations, and other market characteristics. Output is displayed through a combination of text, maps, and digital orthophotos. This system is thus a comprehensive data delivery tool that can assist policymakers' and stakeholders' with capital investment decisions to encourage smart growth within the region through the economic redevelopment of brownfield sites.

Background

Dating back to the 19th century, Toledo-Lucas County once thrived as an industrial, commercial and transportation hub for the Great Lakes region. As with other major Midwest cities, Toledo has experienced a decline in its middle-class population over the last four decades due to a decline in manufacturing. Consequently, areas within the city have experienced property deterioration and abandonment leaving behind an abundance of brownfields particularly in the Downtown and East Toledo areas (USEPA, 2002). Over 65 parcels in Toledo have been identified by the Ohio EPA Division of Emergency and Remedial Response as Brownfield Inventory Projects in Lucas County; these are considered the highest priority sites and have known contaminants. A total of nearly 300 sites have been identified overall due to the decline in manufacturing over the last four decades (USEPA, 2009). These sites were compiled from EPA, the Toledo Metropolitan Area Council of Governments (TMACOG) - the regional MPO, the City of Toledo, and the Lucas County Improvement Corporation (LCIC) – the regional economic development agency, files.

This large number of abandoned and derelict properties causes a number of problems for the community. They contribute to blight that in turn leads to lower property taxes and less revenue generated for community services. In addition, these unused properties are not being utilized for any other activity, therefore leaving an untapped resource in the center of the urban core that could otherwise be productive space for future industry and job creation or returned to greenfield space for community recreation. Either scenario benefits the community by reusing brownfields.

Several barriers inhibit brownfield site redevelopment. Most commonly discussed in the literature are topics related to developer liability and access to capital. Less frequently discussed is the availability of data linking brownfield parcels to site, situation and infrastructure attributes that are vital components of site selection and capital investment decisions needed for redevelopment. As a result, the work here was performed to help fill the brownfields data gap for this region.

Review of Literature

A wide array of literature is devoted to brownfield redevelopment. The review of literature will therefore be divided into several components, beginning with the relationship between brownfield redevelopment and transportation improvements through

national smart growth initiatives. This will be followed by a discussion of the benefits and barriers to brownfield redevelopment. One such barrier – not well discussed in the literature – is the lack of data resources available for brownfield redevelopment efforts.

Brownfield Redevelopment through Smart Growth Initiatives. A widely accepted definition initially developed by the USEPA states that "brownfields are vacant, underutilized, or abandoned industrial or commercial sites where either real or perceived environmental contamination is an obstacle to further economic development" (Amakudzi, 1996; Charles, 2001; McCarthy, 2002; Amakudzi, et al, 2003). Alternatively, brownfields are described as "areas which have previously been developed, and have since fallen derelict and may or may not have existing buildings on them; with no assumptions regarding contamination or pollution of any sites" (Boott, et al, N.D.). Neither of these descriptions portrays brownfields in a positive light for the surrounding community. The exact number of brownfields nationwide is unknown but it is commonly accepted that there are approximately 500,000 sites nationwide. Aside from the obvious possible environmental factors and public health risks associated with brownfields, these sites contribute to overall blight in the community that in turn contributes to decreased property values and lower tax revenues along with a variety of other community deterioration factors.

A majority of the literature focuses on the benefits of redeveloping brownfields to improve property values, create jobs, increase tax revenues, remove blight from the community, the reuse of valuable public infrastructure, and as a mechanism to control urban sprawl and to protect greenfields (Amakudzi, 1996; DeSousa, 2005; Hula, 2010). Alternatively, DeSousa (2006) and Siikamaki (2008) discuss the benefits of converting brownfields into greenfields – rather than redevelopment – as part of an effort to improve the community. Some of these factors overlap with the benefits of redevelopment – removing blight and improving property values – while others are unique with the conversion to greenfields and urban park spaces. These authors address the benefits of public health and fitness given that residents will have new clean areas for exercise and recreation. Accordingly, both redevelopment and brownfield conversion to greenfield efforts enhance the community/ neighborhood image.

One major stimulus for brownfield remediation efforts came from smart growth initiatives brought forth by government policy during the 1990s. Brownfield redevelopment has been discussed extensively in the literature as a means to continue development through smart growth initiatives that promote higher land use densities, generate less traffic and congestion in support of alternative transportation modes, and revitalize deteriorating regions and neighborhoods (Amakudzi and Bomunung, 2003; Greenberg, et al, 2001; Amakudzi, et al, 2003; Nexus, 2010). In essence, smart growth is the opposite of urban sprawl. Reusing brownfields is particularly smart land use, as most brownfields are found in centralized locations already on prime transportation infrastructure connections. The most successful reutilization efforts occur where redevelopment and transportation infrastructure improvements are planned in conjunction with each other (Center for Environmental Excellence by AASHTO, 2010; Johnson, et al, 2002). Experts at ICF Consulting sum this connection as follows,

> Reusing brownfields is particularly smart land use because of brownfields' central location and connection to existing transportation systems. Their

> reuse has two benefits: *Value*. Redevelopment cleans up and reuses underused and potentially dangerous land right where it's most valuable—central to the most people, to the most businesses, and to existing, paid-off infrastructure. In sum, redevelopment turns a liability into an asset. *Growth with less traffic*. Redevelopment that's central to people and businesses reduces the traffic from new jobs and housing in two ways: first, more of these trips can be by foot and by transit, placing less demand on roads. Second, for trips on roads, central location means that the trips are on average shorter, reducing demand for road space. And often these trips are on roads that have been underused since the decline of the industry that used to occupy the brownfield. Putting trips on those roads can be far less costly.

Several papers cited by Hula (2010) expand upon this connection between brownfield redevelopment and improvements to transportation infrastructure by arguing that policy measures should support projects targeting broader community infrastructure. Thus, a greater prospect for brownfield redevelopment can take place around areas where transportation improvements invoke developer investments and create a marketable area. It is also argued that brownfield redevelopment hinges on funding, transportation, and public private partnerships. These factors all contribute to the overall social and economic benefits of reusing brownfields.

Not only is smart growth through brownfield redevelopment strategies beneficial for social reasons (*i.e*., less congestion, environmental benefits of cleaner land, *etc*.) it is also beneficial for economic reasons. The cost of revitalizing brownfields is often less than investment into new infrastructure that comparable greenfields – unused agricultural land or untouched green space – development would be (Nexus, 2010). In addition, investments in remediating brownfields are often a precursor to redevelopment, which ultimately leads to job creation and increased tax revenues (Howland, 2007; McCarthy, 2002). All of these trends lend to the overall importance of brownfield redevelopment.

During the 1990s widespread government initiatives were set forth to revitalize urban cores and ignite smart growth initiatives nationwide by relaxing earlier regulations where just about any previous or current owner could be held liable for the cost of any or all contamination cleanup efforts (De Sousa, 2005; Mazur, n.d.; McCarthy, 2002). The Toledo-Lucas County Port Authority played an essential role in getting standards relaxed in Lucas County by advocating an Urban Setting Designation (USD) through the State of Ohio's Voluntary Action Program (VAP). With the USD came a significant reduction in regulation barriers. It applies to sites where a community water system is utilized and there is no anticipation of groundwater use at or around the site. (McCarthy, 2002)

Toledo is recognized as a region that has put forth great effort in securing funding toward environmental assessments and brownfield cleanup efforts. Thus far, Toledo has received over $14 million dollars in funding for such efforts through the EPA and the Ohio Department of Development (Mazur, n.d.). To put this into perspective, the redevelopment incentives for the newer Chrysler plant on Stickney Avenue in Toledo cost the city and state a combined total of $300 million dollars (McCarthy, 2002). Toledo's experience in cleanup and reuse efforts are similar to those in other cities in the Midwest and Northeast. Targeting high profile "success stories" seems to be a common denominator among cities for selecting key redevelopment sites that will initiate a chain

reaction for redevelopment investments (McCarthy, 2002). The research project here is thus a direct result of current trends in smart growth initiatives and making the connection between brownfield redevelopment projects and transportation infrastructure investments.

Barriers to Brownfield Revitalization. Even though the benefits of brownfield revitalization have been clearly documented with respect to improving the urban core and the health and welfare of citizens in post industrialized cities, the fact of the matter remains that several barriers inhibit brownfield revitalization. First, several scholars agree that funding restrictions and engineering/developer cleanup liabilities are key obstacles to brownfield revitalization (Charles, 2001; McCarthy, 2002; DeSousa, 2005). McCarthy (2002) also states that other barriers include uncertain cleanup standards, complicated regulatory requirements and a lack of organized data sources. Many of these barriers prevent developers from seriously considering investments in brownfield revitalization projects (Hula, 2010).

In contrast, the brownfield stigma was lessened during the mid-1990s when government relaxed regulatory policies that had held developers and engineers involved in site cleanup efforts liable for further state or federal legal action if the site was designated as a Superfund site, even if they were not the site contaminators. McCarthy (2002) sums this problem up as follows,

> Federal laws, such as the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as Superfund, and the Resource Conservation and Recovery Act (RCRA), have discouraged brownfield redevelopment because they hold past, current and future owners, developers, operators and lenders potentially liable even if they were not responsible for the contamination. Uncertainty about contamination means that every brownfield may be considered a potential Superfund site even though most of these properties are not polluted enough to warrant federal action.

In the mid-1990s states responded to the cleanup liability issue by creating Voluntary Action Programs (VAPs). These programs allow private parties to investigate and cleanup brownfield properties on a voluntary basis without risk of future state enforcement action. Over 45 states have some type of VAP program (McCarthy, 2002). In relation to this project, Ohio's VAP is unique with its emphasis on privatization designed to save the Ohio EPA time and money by minimizing or eliminating up-front review of the site investigation and cleanup. Instead, private state certified professionals (CPs) and laboratories are used for analyzing environmental samples. Program requirements are limited as the OEPA can be notified by the CP of entry into the program and first contact can be as late in the process as the submission of a no further action (NFA) letter on behalf of the owner of a remediated site. The NFA letter simply explains to the OEPA how the site investigation and cleanup activities met standards set forth in the VAP rules (McCarthy, 2002).

Considering the volume of work involved in brownfield redevelopment research, only McCarthy (2002), DeSousa (2005), Boott (n.d.) and Hula (2010) touch upon a lack of cohesive data sources as a further obstacle for brownfield redevelopment. When there

is a lack of comprehensive data on the condition, location and management of brownfield sites the equity between "economic demands and social needs [combined] with the capacity of the environment to cope with pollution and to support human and other life" (Boott, n.d. p. 1) is diminished and sustainable development suffers. It is difficult for developers or other community stakeholders to initiate redevelopment efforts if they are unable to locate sites or possible contaminants based on a site's history. This is an important assertion that provides further rationale for this project. In this regard, the web-based GIS data delivery system developed here can act as the initial "go to" source for the region by providing access to pertinent data and analysis functions to assist developers and stakeholders in key decisions for site selection and investments in infrastructure improvements.

Using GIS as a Brownfield Redevelopment Tool. The long term success of brownfield redevelopment programs are dependent on government and decision makers' ability to compile information concerning land use, development incentives, and public goals, interests and incentives (Thomas, 2001). GIS is a comprehensive way to collect, organize, manage, maintain, integrate and analyze multiple data sources and is an important tool for providing textual and visual context to those data sets. Along with interactive mapping, it is known for its toolbox of geoprocessing and analytical capabilities. Thus, common analysis tools allow users to extract, overlay and join spatially related data, create buffers and service areas around features, and perform advanced spatial and network analyses. "One of the most powerful features of any GIS is the capacity to carry out various spatial analyses quickly and easily," (Boott, n.d.). In this regard, it is a comprehensive tool for use in brownfield remediation efforts. "The ultimate goal is to make brownfield sites competitive with undeveloped sites and return these areas to productive uses, stimulating local economic growth by getting these properties back on the tax rolls, providing new jobs, and attracting other businesses to the vicinity," (Thomas, 2001, p.9.).

In this manner, a GIS can be used to track and inventory brownfields, for interactive mapping, for site and environmental reviews, and to promote potential sites to prospective businesses (ESRI, 2004). Thus, brownfield redevelopment efforts are assisted in three important ways: through data integration, project management and stakeholder relations (Boott, n.d.; Thomas, 2001; Stasiak, 2002). First, as a full scale data integration tool, GIS can combine historical, social, economic and environmental data sets throughout the life span of the project. Second, as a project management tool it can be used to relate and display spatial and attribute data associated with brownfield redevelopment projects. Finally, a wide range of stakeholders can use GIS to collect and compare data sets to maintain cohesion within the project and to foster relationships between stakeholders (ESRI, 2004; Stasiak, 2002). These capabilities provide GIS the means to be a full scale decision support system (DSS) for brownfield redevelopment stakeholders.

The Toledo-Lucas County brownfield system was designed as a DSS for regional brownfield redevelopment. The system was designed based on three common DSS factors as described by Thomas (2001). First, a complete user needs analysis was conducted with area stakeholders. Second, a comprehensive database was compiled providing stakeholders with detailed accurate data. Third, success indicators were

established based on criteria set forth in meetings with stakeholders thereby qualifying the system as a full scale GIS based DSS for brownfield redevelopment. Finally, GIS as a DSS can be used as an outreach tool by itself or in conjunction with web-services to reach a wider audience.

GIS Web Services and Web-Based GIS Distribution Systems. GIS Web services are the software components that host spatial data and GIS functionalities that can be accessed and integrated into customized GIS applications. Developers utilize GIS Web services for custom applications that process geographical information without having to maintain a full GIS system or the associated spatial data (Lu, 2005). Users can tap into web-based GIS distribution systems through their web browsers without having any specialized GIS software on the desktop system.

Two key benefits of web-based GIS distribution systems are the increased interaction with users and connections to a wider audience (Kingston et al, 2000; Rao et al, 2007; Hoar, 2008; Koshak, 2006) and its advanced data integration capabilities (Lu, 2005; Koshak, 2006 Rao et al, 2007; Hoar, 2008). Thus, there is potential for more people over a broader area to be reached through the internet than other forum options and certainly at a lower cost compared to traditional methods – *i.e.* printing or public forums. In addition, any updates to data can be made on the web server and are immediately available to users with little or no printing costs (Koshak, 2006).

The second key benefit discussed in the literature is the capability of web-based GIS distribution systems to relate a wide range of spatial and non-spatial data sets. The systems discussed are used as public forums and as decision support tools for projects from environmental assessments (Kingston et al, 2000; Rao et al, 2007) to transportation infrastructure and mass transit routing (Hoar, 2008; Koshak, 2006). These systems can integrate spatially referenced shapefiles with tabular attribute data, satellite imagery, and aerial photographs. In addition, other photographs, images and documents along with links to additional web resources can be incorporated. Whereas Boott, et.al. (N.D.) created web pages for the project and used hyperlinks to augment their GIS tool but did not develop a true distributed web-based GIS. The other authors – Kingston, Rao, Hoar, Koshak and Lu – developed true web-based GIS distribution systems. As such, the foundations of these systems begin with web map server (WMS) mapping applications and a GIS web platform.

In contrast to the other papers reviewed in this section, Lu (2005) describes the comprehensive technical design for WMS applications and a platform for GIS web services and the interrelated component architecture. See the detailed diagram in Figure 1 for the WMS application framework. See Figure 2 for a visual depiction of the basic GIS platform server architecture that consists of three layers: the User Interface Layer, the Application Server Layer and the Database Layer. Refer to Lu (2005) for a more detailed technical discussion on the architecture development of a web based GIS distribution system.

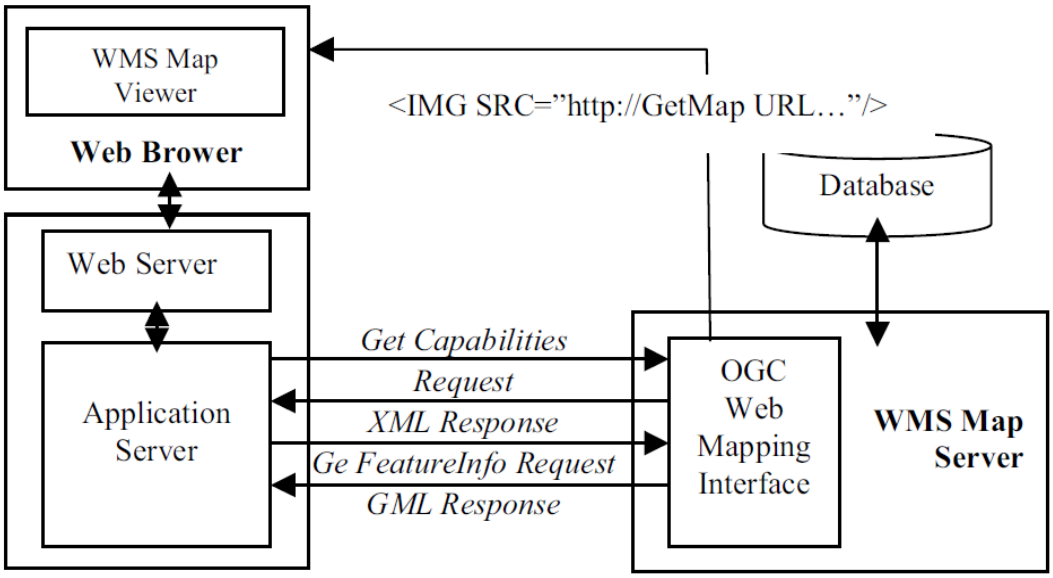

Figure 1 - The system architecture of WMS mapping applications (Lu 2005)

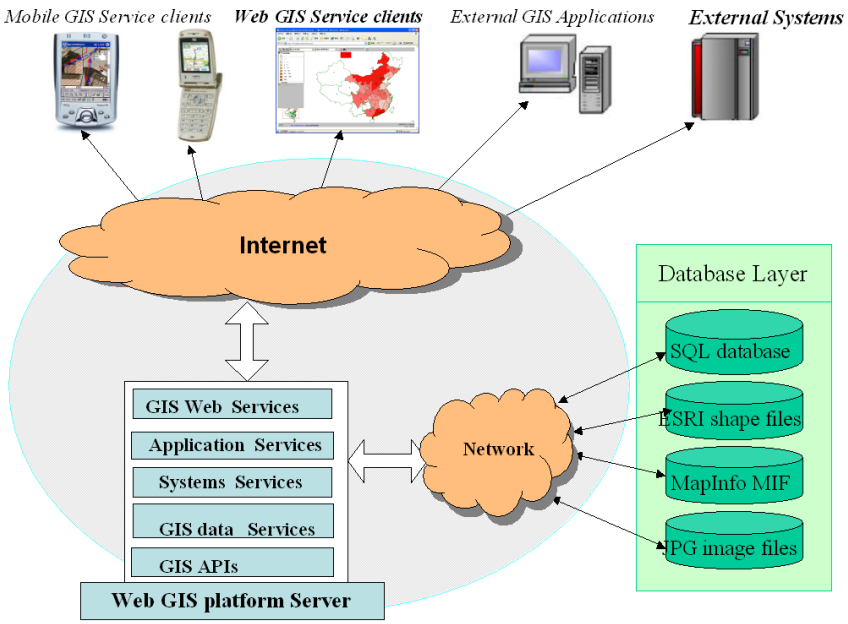

Figure 2 – Web GIS platform server environment (Lu 2005)

Methodology

A multi-method approach was employed through several distinct phases of this project. The initial phase entailed interviewing key commercial and government officials to gather information and relevant data components for the system. Subsequently, additional data sets were acquired and a comprehensive data repository was assembled and processed. In turn, a data viewer was designed in an *ESRI ArcMap 9.3* desktop GIS platform. Finally, the necessary files created from the *ArcMap* desktop application was used to develop a customized, user-friendly, web-based GIS distribution system in an *ArcGIS* Server environment. Specific steps to this project are outlined in detail as follows:

- conduct interviews with area stakeholders to determine a needs assessment;
- design a prototype system based on results from interviews with area stakeholders;
- compile relevant data for parcels, infrastructure, area businesses, markets, zoning, *etc*. to complete the project;
- build the data viewer and all geoporocessing models in a desktop *ArcMap* application;
- carry out system implementation and evaluation of results from discussions with area stakeholders;
- use the *ArcMap* desktop data viewer as the basis for developing a web-based data distribution application; and
- publish the interactive web-based data resource tool on the project web page to assist decision-makers with site selection and capital investments in infrastructure to promote brownfield redevelopment in Toledo-Lucas County, Ohio.

The following sections detail each phase of this project.

Discussions with Stakeholders. Several meetings were conducted with local businessmen and government officials in order to determine the overall viability and usefulness of this system. Results from initial meetings indicated positive support (and enthusiasm) from both commercial and government officials for the development of a Toledo based Brownfield Data Delivery System. Representatives from the City of Toledo, Division of Environmental Services, the Toledo Area Metropolitan Council of Governments (TMACOG), the Toledo-Lucas County Port Authority, the Lucas County Improvement Corporation (LCIC), and First Energy Corporation provided data and/or feedback for this work. Toledo Growth Partners was also contacted but did not participate. Meetings took place during September and October, 2010.

Toledo Metropolitan Area Council of Governments (TMACOG)
The meeting with TMACOG, Toledo's regional metropolitan planning organization (MPO), took place in September, 2010 and was attended by Roger Streiffert a Transportation Planner, David Gedeon the Director of Commuter Services/Transportation

Project Manager, and Marc Vondeylen a Transportation Technician III. Two key results materialized from this meeting. First, the group agreed that users should be able to query for brownfield parcel size by acreage within the system. It was also suggested that TARTA (Toledo Area Regional Transit Authority) routes and service areas, school systems, and traffic counts be included in the system. It was presumed that including school systems – primary, secondary, advanced – would give potential developers an opportunity to determine a local labor base and wage scales based on levels of training within the community. The inclusion of traffic counts were suggested so prospective retailers would have an idea of volume for potential customers travelling outside their enterprise. Second, TMACOG proved to be a key data source for the delivery system. A vital outcome of this meeting was gaining access to the following data sets for this project:

- Brownfield Inventory List – 2009
- Abandoned Gas Stations List – 2009
- Foreign Trade Zones – 2008
- Hazmat Routes – 2008
- Land Bank Properties – 2009
- Lucas Centerline roads - July 2010
- Michigan Legal Heavy Truck Routes - 2009
- NHS Intermodal Connector routes – 2009
- PCR Pavement Conditions – 2009
- Port Facilities – 2009
- Port Opportunity Districts – 2009
- Rail Yards – 2010
- Traffic Counts - Sept 2010
- Lucas Zoning – 2008
- TARTA data including:
    - routes,
    - TARTA service area,
    - Call-A-Ride service area,
    - Park & Ride lot locations.
- Bridge conditions – 2009

The meeting with TMACOG was an important starting place. It was instrumental in providing design ideas for the data delivery system from a user's perspective. In addition to key data sets and component suggestions, it was suggested during this meeting that several other area brownfield stakeholders be consulted for this project. Joel Mazur with the City of Toledo, Ford Webber with the Lucas County Improvement Corporation, and Hans Rosebrock from First Energy were all suggested as points of contact for this project. The following discussion highlights meetings with these stakeholders.

City of Toledo – Division of Environmental Services
A meeting with Joel Mazur at the City of Toledo Division of Environmental services took place in September 2010. A list of brownfield sites, compiled by the city, was furnished for use in this project. In addition, Mr. Mazur provided access to source documents for Phase I and Phase II environmental site assessments and results for remediation efforts where available. These source documents are vital pieces of data that have been integrated directly into the desktop system through hyperlinks.

Toledo-Lucas County Port Authority
The next meeting took place in October 2010 with Joe Cappel and Brian Perz at the Toledo-Lucas County Port Authority. After a short overview of the project, the group discussed the positive impacts this system would have in revitalizing neighborhoods. In addition, Mr. Cappel and Mr. Perz discussed the use of Clean Ohio Revitalization Fund (CORF) applications obtained through the Ohio EPA or the Ohio Department of Development as an opportunity to link these forms to this system. Furthermore, it was suggested during this meeting that links to any local brownfield site articles in the media and also links to consultants that can assist with CORF applications would be helpful to users of the system. These are valuable suggestions and are addressed in the Future System Developments section.

First Energy Corp
Another October 2010 meeting took place with Hans Rosebrock at First Energy Corp. The most valuable outcome of this meeting was the introduction to the Firstprospector and Ohio InSite websites. These are site selection websites that were valuable resources for designing the Lucas County brownfield data distribution system. In addition, Mr. Rosebrock gave an overview of electrical service levels. There are four basic levels of electrical power service: standard residential and retail power is available throughout Lucas County; the higher three transmission levels of service are required for certain industrial and manufacturing processes. Different industries and processes dictate the service level of power required to perform those processes. System capacity constraints limit transmission levels of service through various parts of the service area. First Energy cannot share the power grid network files due to Homeland Security issues, though they can provide site specific power attributes to interested developers or stakeholders directly.

Lucas County Improvement Corporation
A final meeting in October 2010 with Ford Webber, CEO of the Lucas County Improvement Corporation, who provided feedback from the users' perspective regarding inclusion of important datasets, component design pieces, and initial input for search criteria functions. Moreover, new contacts were obtained for commercial real estate developers, government agencies, and other potential stakeholders.

Data Repository. Data provides the backbone of this project, thus a significant portion of the project's effort was devoted to compiling and reconciling a wide variety of datasets from public and private sources into a single repository for use in the GIS application.

Along with the data sets and source documents from TMACOG and the City of Toledo, parcel attribute data and site photographs from the Lucas County Auditor's *AREIS* system were collected. Shapefiles of brownfield sites for the study area were also obtained from the Ohio EPA and integrated into the system. These data were combined with brownfield site data from TMACOG and the City of Toledo. In addition, 2008 Dunn and Bradstreet business establishment data were included. See Table 1 below for a complete list of data included in this project.

Brownfields Inventory	Compiled list of all brownfield properties in Toledo - 2009	TMACOG, City of Toledo, Ohio EPA
Ohio EPA Brownfields	Ohio EPA Lucas County Brownfields	Ohio EPA
Abandoned Gas Stations	Ababndoned or suspected abandoned gas stations - 2009	TMACOG
Foreign Trade Zones	Foreign Trade Zones in the Toledo area - 2008	TMACOG
HAZMAT Routes	HAZMAT Routes in and around Lucas County - 2008	TMACOG
Land Bank Properties	Land Bank Properties - 2009	TMACOG
Center Line Roads	Center line roads in Lucas County - 2010	TMACOG
Michigan Permit Routes	Michigan legal heavy truck routes - 2009	TMACOG
Intermodal Connector Routes	National Highway System (NHS) Intermodal Connector Routes - 2009	TMACOG
Pavement Conditions	PCR Pavement Conditions - 2009	TMACOG
Port Facilities	Port Facilities - 2009	TMACOG
Port Opportunity Districts	Port Opportunity Districts - 2010	TMACOG
Rail Yards	Rail Yards in Lucas County - 2010	TMACOG
Traffic counts	Traffic Counts Lucas County - Sept. 2010	TMACOG
Lucas Zoning	Zoning in Lucas County - 2008	TMACOG, Lucas County AREIS System
TARTA System	TARTA routes, service area, call-a-ride service area, park and ride lot locations	TMACOG
Bridge conditions	Bridge conditions Lucas and Wood Counties - 2009	TMACOG
istates	Lucas County Interstate routes	Lucas County AREIS System
iramps	Lucas County Interstate ramps	Lucas County AREIS System
hways	Lucas County Highways	Lucas County AREIS System
hramps	Lucas County highway ramps	Lucas County AREIS System
countylab	Municipal Jurisdictions in Lucas County	Lucas County AREIS System
Streets	Lucas County Streets	Lucas County AREIS System
Schools	Lucas County School Districts	Lucas County AREIS System
Lucas1.sid	Ortho photos for Lucas County	Lucas County AREIS System
Businesses	Harris InfoSource Dunn and Bradstreet Business Data - 2008	Midwest FreightView

Table 1 – Data sets, descriptions and sources incorporated into the Brownfield Data Delivery System

It is important to note here that work for this project did not include a separate investigation to collect primary data regarding which sites were to be included as brownfields in this project. Brownfield sites were obtained from several secondary sources and combined into a single brownfield inventory for the Toledo-Lucas County area. This was a detailed process. Data sets from TMACOG, City of Toledo and the Ohio EPA were combined to include more than 450 brownfield sites—many of which were duplicates. All of the duplicate sites among the three sources were thus removed. Each remaining site was then searched through the Lucas County AREIS system to fill in any data gaps missing from the original list. Sites were found in the system by searching either the parcel number or address whichever was available. For these sites, any missing attribute information was included in the inventory database and site photos were downloaded when available. A total of 291 sites resulted from this process and are now included in the final brownfield inventory shapefile. See Table 2 in the appendix for the complete list with attributes. Many of the sites from the originally compiled list could not to be located due to incomplete or incorrect addresses and parcel numbers. In some cases, no address or parcel number was included in the original data file at all, only a vague landmark description. In these cases, a further investigation is needed to identify parcel numbers and addresses for these sites.

Furthermore, after all datasets were collected, each was verified, georeferenced and processed for inclusion into the Lucas County Brownfield Data Repository. All datasets were systematically organized within the repository by data source and type for optimum data retrieval. As a result, these preprocessed datasets were directly used in the next stage of this effort; building the data viewer.

Development of Data viewer. Designing the data viewer in a GIS was the next step toward the final web-based information delivery system. During this stage brownfield data from the repository was combined and integrated into an *ArcGIS 9.3* desktop GIS project file. The data were georeferenced the Ohio State Plane (North Zone) coordinate system (NAD83, Lambert Conformal Conic projection, in Feet).

The next series of figures provides an illustration of the viewer. The opening page of the viewer is shown in Figure 3. Figures 4 and 5 show a visual depiction of HAZMAT routes (purple), and then HAZMAT routes and Highways (green) below. Figures 6 and 7 show how a user can zoom in within the desktop application and then add Michigan heavy weight truck routes. Figure 8 below shows blue highlighted parcels when hyperlinks are activated. Then Figure 9 below displays a popup box with site source documents listed. Users can click one of the links to activate/view available source documents as shown in Figures 10, 11, and 12.

Other illustrations of the viewer are presented in the Appendix. These include Figure A.1 showing the application with port facilities and rail yard layers active. Figure A.2 is a digital orthophoto layer of Lucas County. Figure A.3 is a close-up on Toledo of the same layer. Figures A.4, A.5 and A.6 show zoning in Lucas County, foreign trade zones and their proximity to brownfields and TARTA service area coverage.

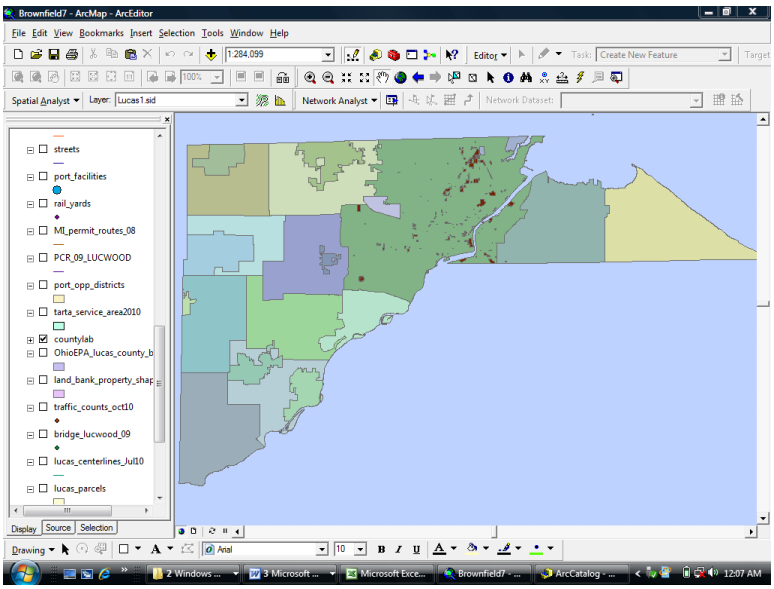

Figure 3 - Initial GIS view of the desktop system with county jurisdictions and brownfield parcel layers active

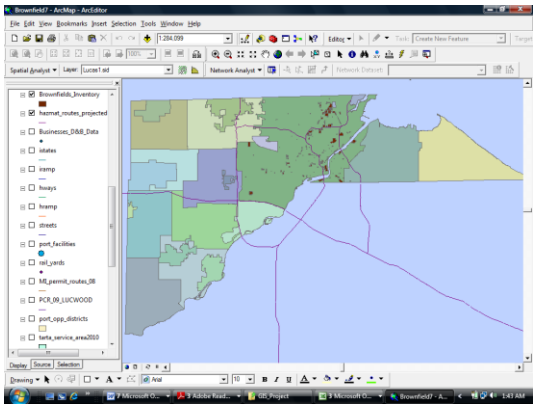

Figure 4 – HAZMAT routes

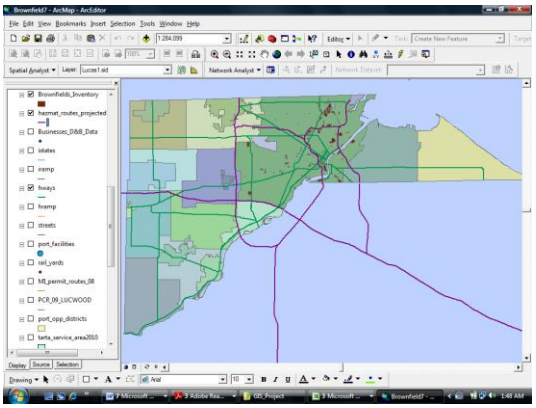

Figure 5 – HAZMAT routes and Highways

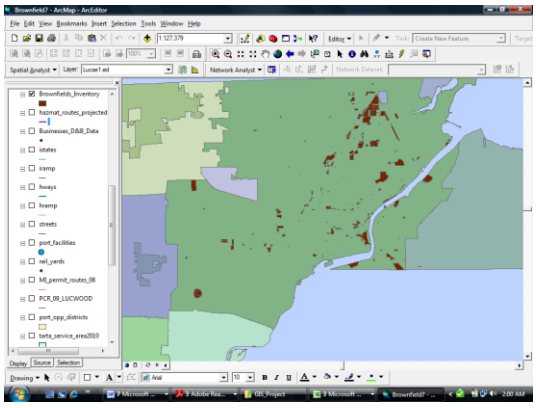

Figure 6 – Zoom in on Toledo

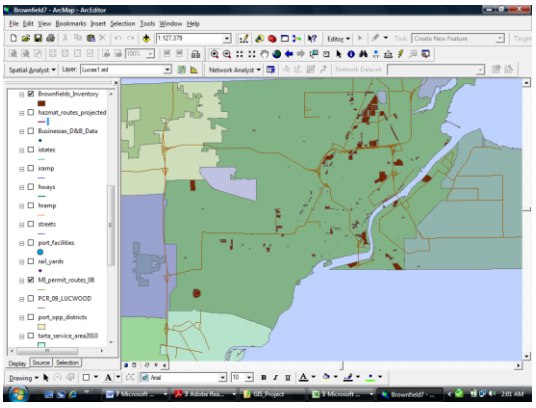

Figure 7 – Add Michigan heavy weight routes

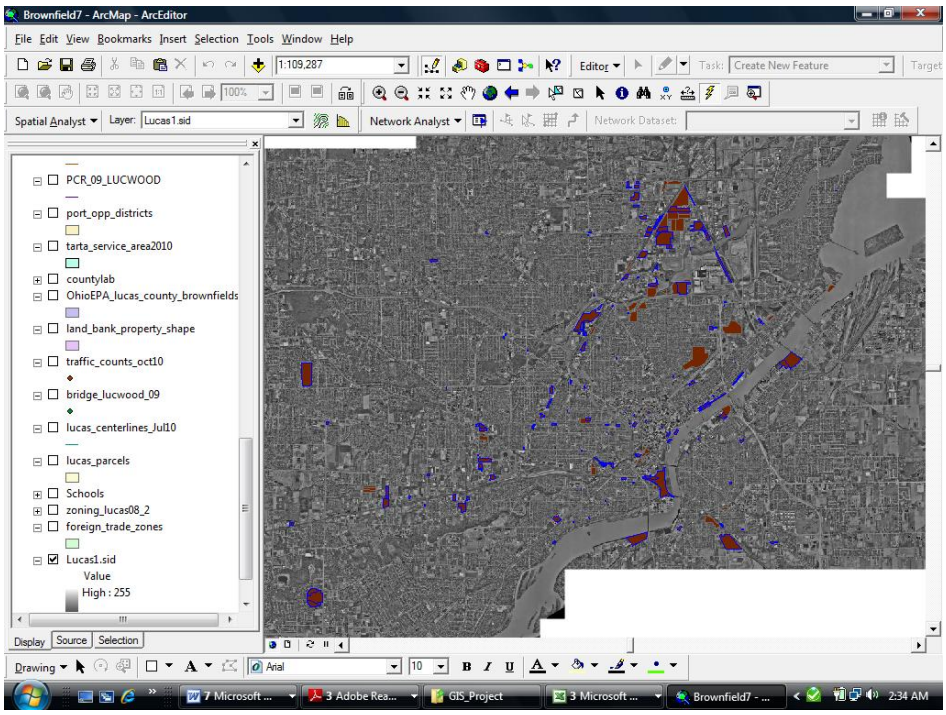

Figure 8 – Activate hyperlinks

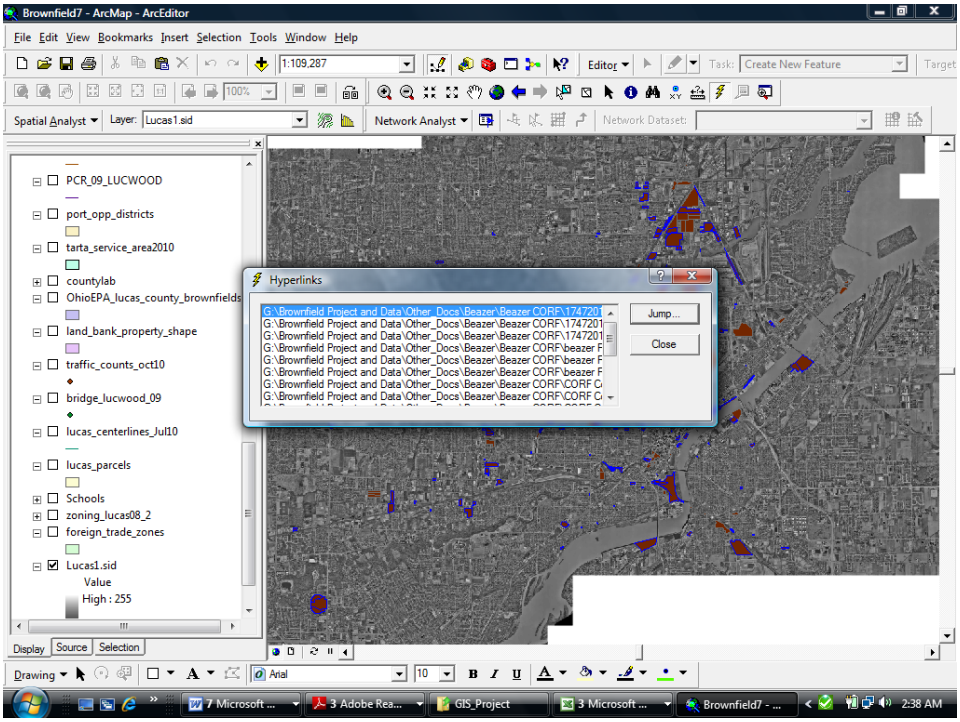

Figure 9 – Click any blue highlighted parcel to jump to site photos and source documents

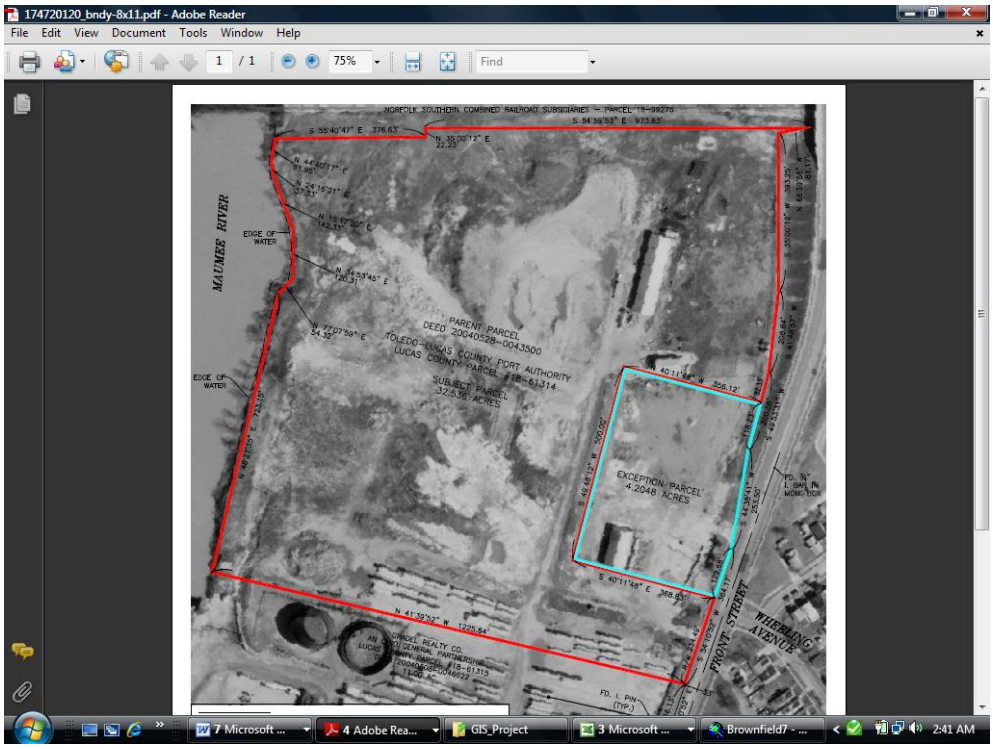

Figure 10 – Results: Site photo from a CORF application PDF document

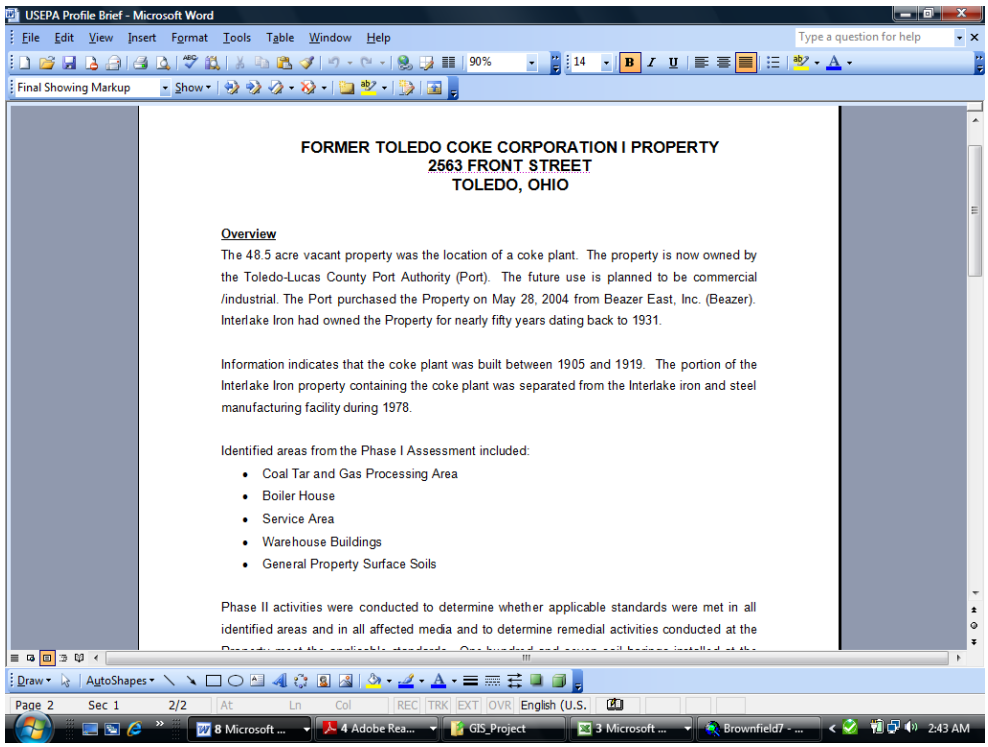

Figure 11 – Results: USEPA Profile Brief

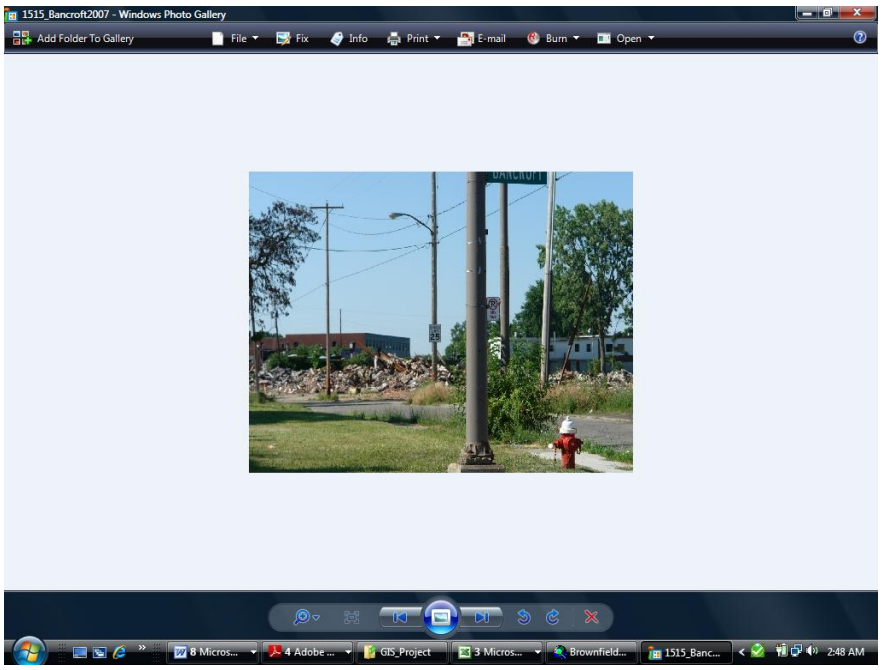

Figure 12 – Hyperlink site photo from AREIS of 1515 Bancroft

In addition to hyperlink tools, several geoprocessing models were developed in the desktop application for integration as geoprocessing tasks in the web-based system. Several buffer tool and selection tools were developed as part of this system. One model developed for this system is the Proximity Model in Figure 13 below. It is used to search for desirable brownfield parcels within a certain distance of selected features. Users can select available features from a selection list in the "Input Features" parameter (Figure 14). Next users input the distance criteria in the "Search Distance" parameter. In this case the user has input 2500 feet (Figure 15). Figures 16 and 17 illustrate the execution of the model.

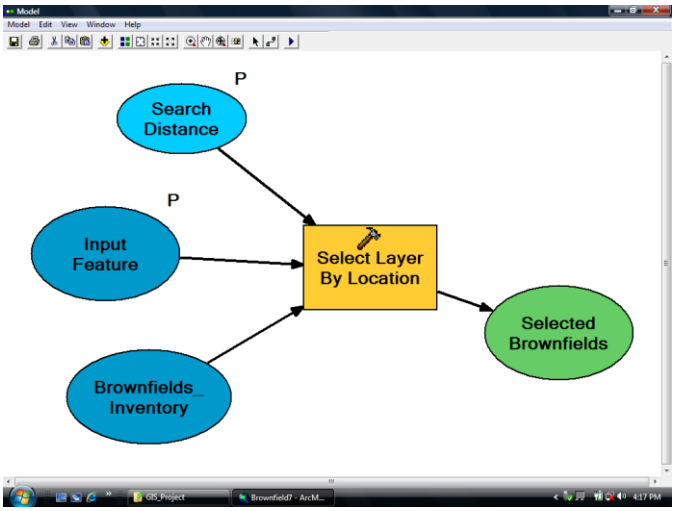

Figure 13 - Proximity model

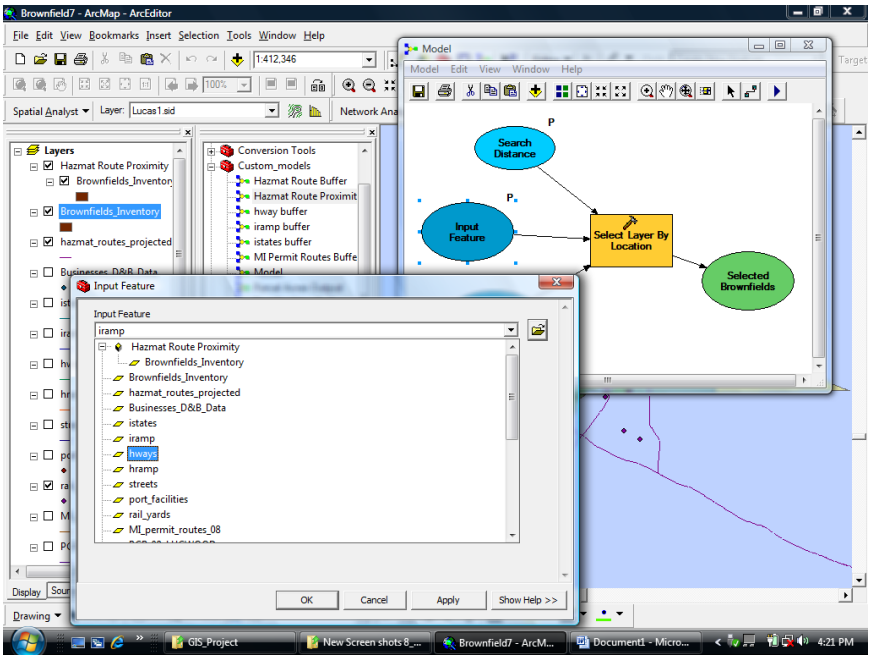

Figure 14 – Proximity model input feature selection box

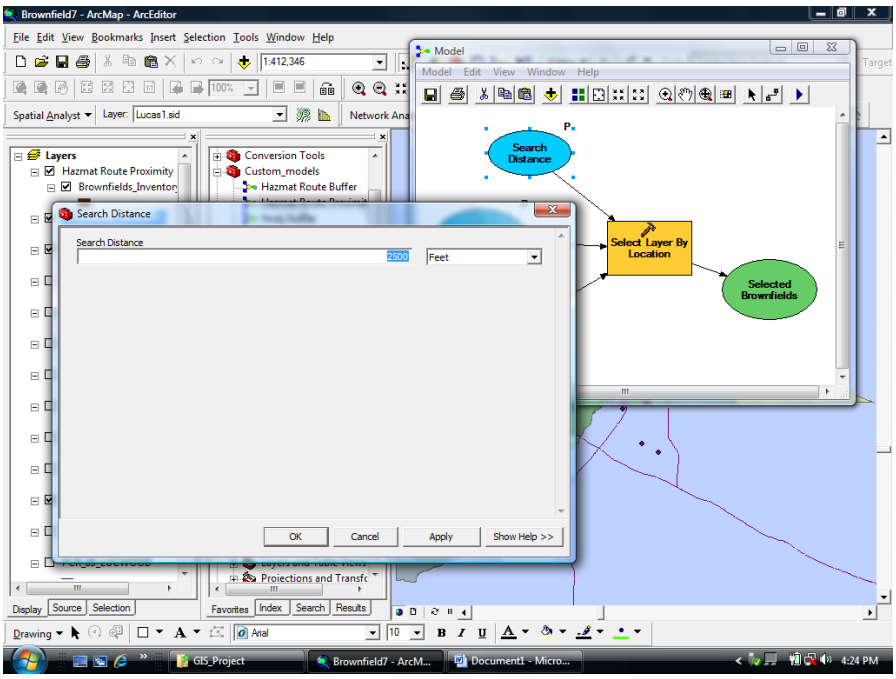

Figure 15 – User defined distance parameter

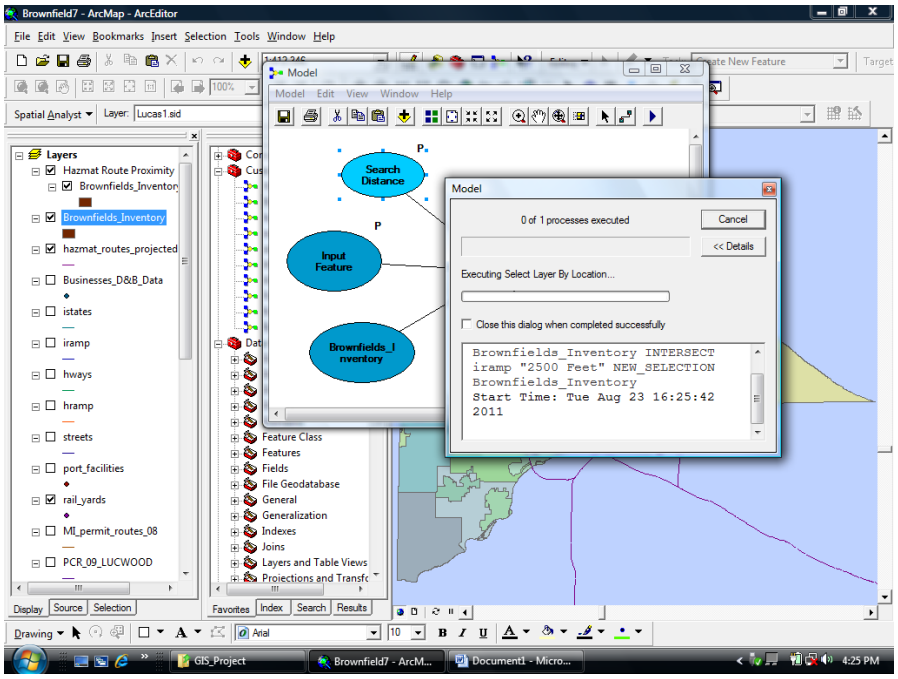

Figure 16 – Run the model

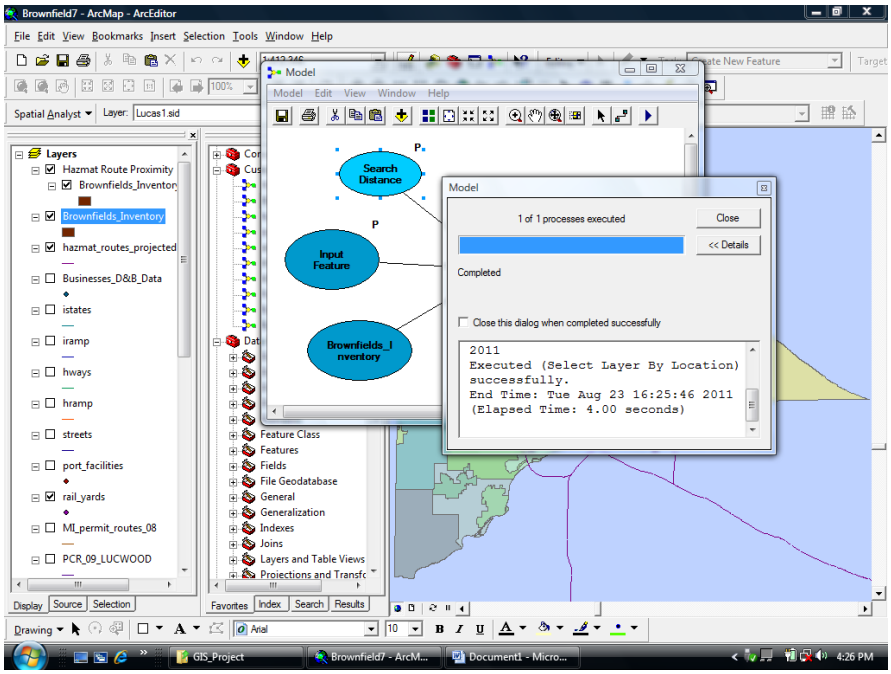

Figure 17 – Successful execution

Here are visual output results of parcels (highlighted in aqua) that are less than 2500 feet (approx. ½ mile) from an interstate ramp (dark blue feature) in Figure 18 below. The user enters the distance and selects new parameters from dropdown list (Figure 19). This time the user defined parameters are to select brownfield sites within 1200 feet from port facilities.

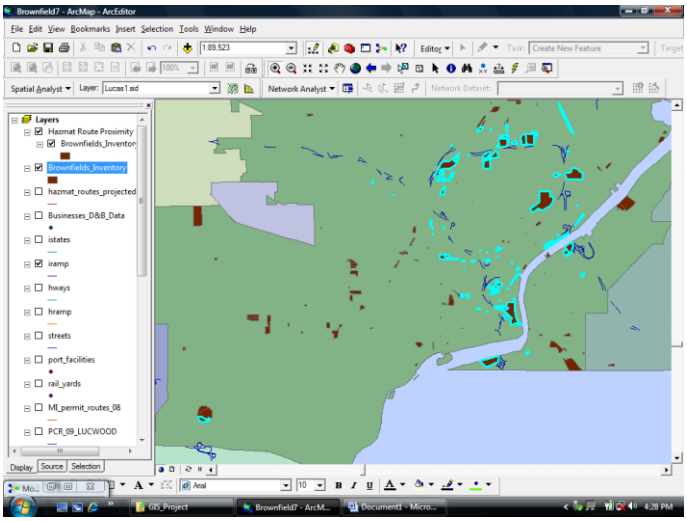

Figure 18 – Output display

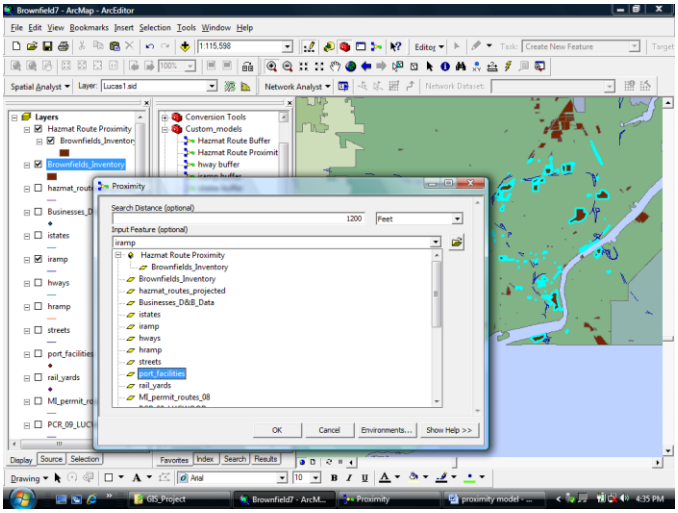

Figure 19 – New parameters

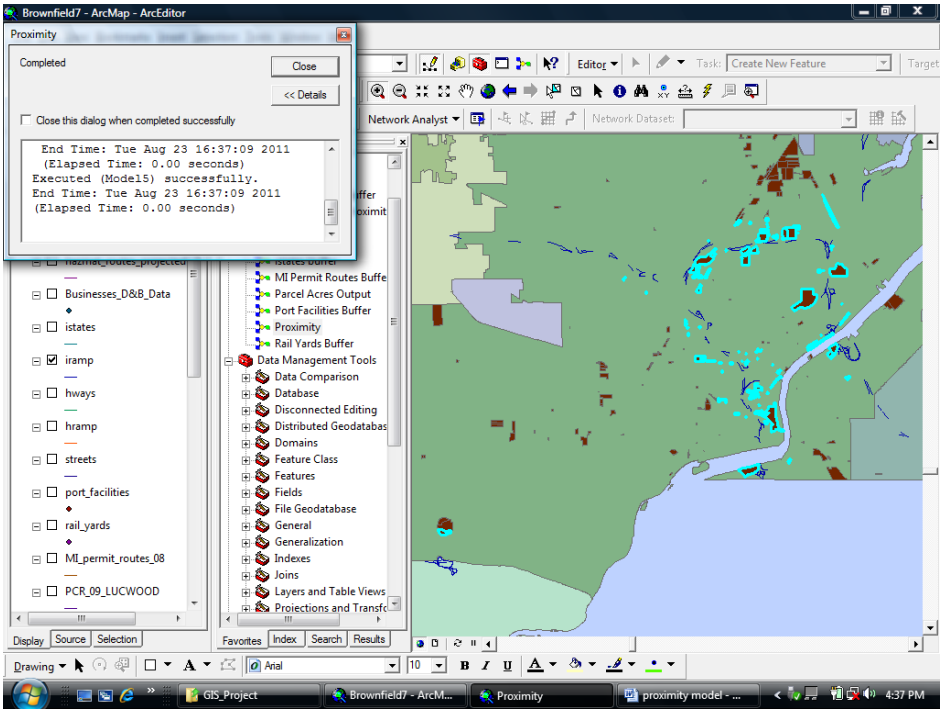

Figure 20 – Successful execution

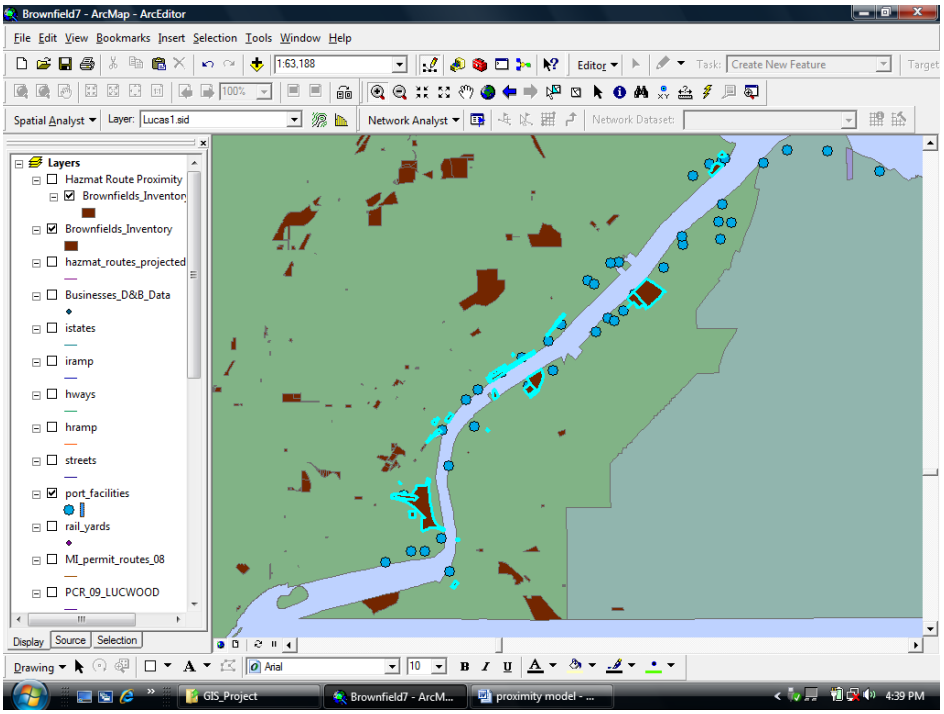

Figure 21 – Output results of new parameters entered in Figure 19

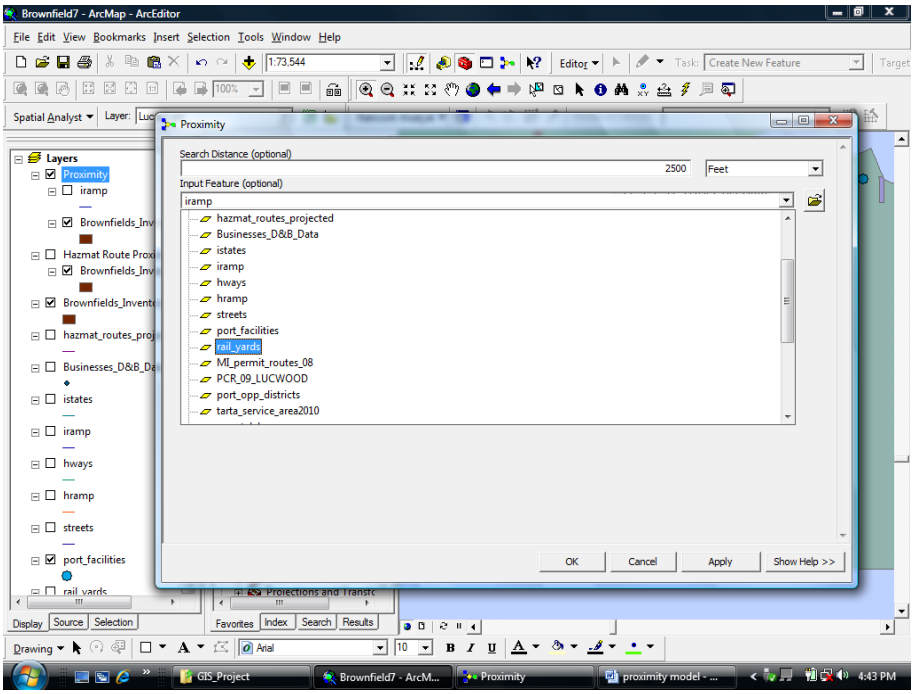

Figure 22 – Model layer dialog box

Users can right click on the proximity layer in the desktop application to open the model input dialog box (Figure 22). The model has been saved as a layer file and will be used to publish the geoprocessing task in the web application. As a result, this seamlessly integrated data viewer will provide the platform for the final data delivery system application.

Web-Based Data Delivery System: Development and Implementation

Development of the web-based data delivery system architecture and implementation of the system comprised the final stages for this project. The data viewer, completed in the previous phase, provides the foundation for building the web-based data delivery system application. A customized, user-friendly, brownfield data delivery system was developed using *ArcGIS Server 10*. Users can search the data repository through selected criteria with a series of drop-down menus, query functions and additional analytical tools in order to retrieve data for selected brownfield parcels, surrounding zoning regulations, network routing for HAZMAT and heavyweight truck loads and area market characteristics. Search criteria functions are encoded based on parcel size, proximity to selected infrastructure (under continued development at this time) and other market characteristics. Output is displayed through a combination of text, tables, maps, and digital orthophotos. The data retrieval and analysis tools from this application are intended to assist developers, government officials and other stakeholders through the decision-making process for capital investments in site selection and infrastructure improvements surrounding brownfield redevelopment.

User's can access the system at http://gisserver.sm.utoledo.edu/LucasCountyBrownfields/default.aspx. The opening user interface (Figure 23) is initially displayed on the site. Here users can begin by using any of the tools in the tool bar. These include standard web-based GIS tools such as pan and zoom functions in addition to higher functioning measure; x,y location; and identification tools. In addition, several customized tools were developed specifically for this project. Users can query sites based on any possible attribute. For example, Figure 24 shows that "jeep" has been entered in the popup box. Figure 25 displays the results from querying "jeep" in the results box in the upper left hand corner and shows how the user can zoom in for a closer view. Notice that two parcels with the same address are displayed in the box while the corresponding feature on the map is highlighted in green. Users can gather more information about any site by clicking the 'Map Identify' tool to display a popup box with that feature's attributes (Figure 26).

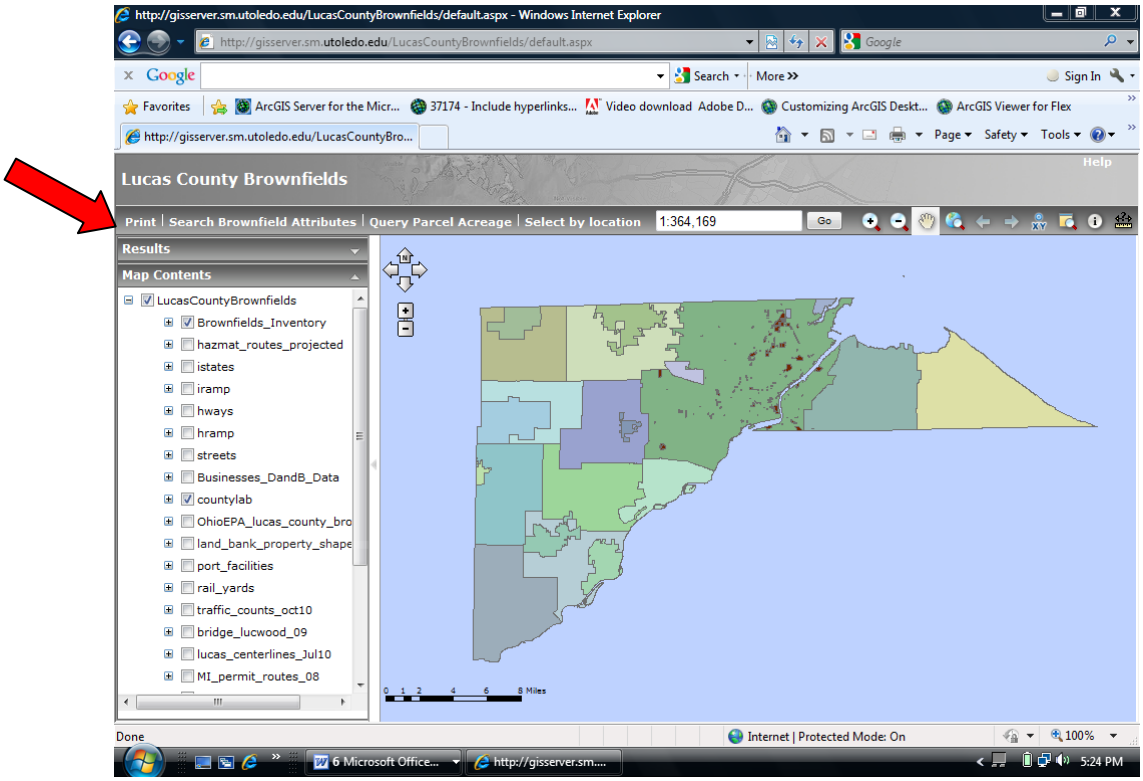

Figure 23 – User interface, red arrow pointing to tool bar

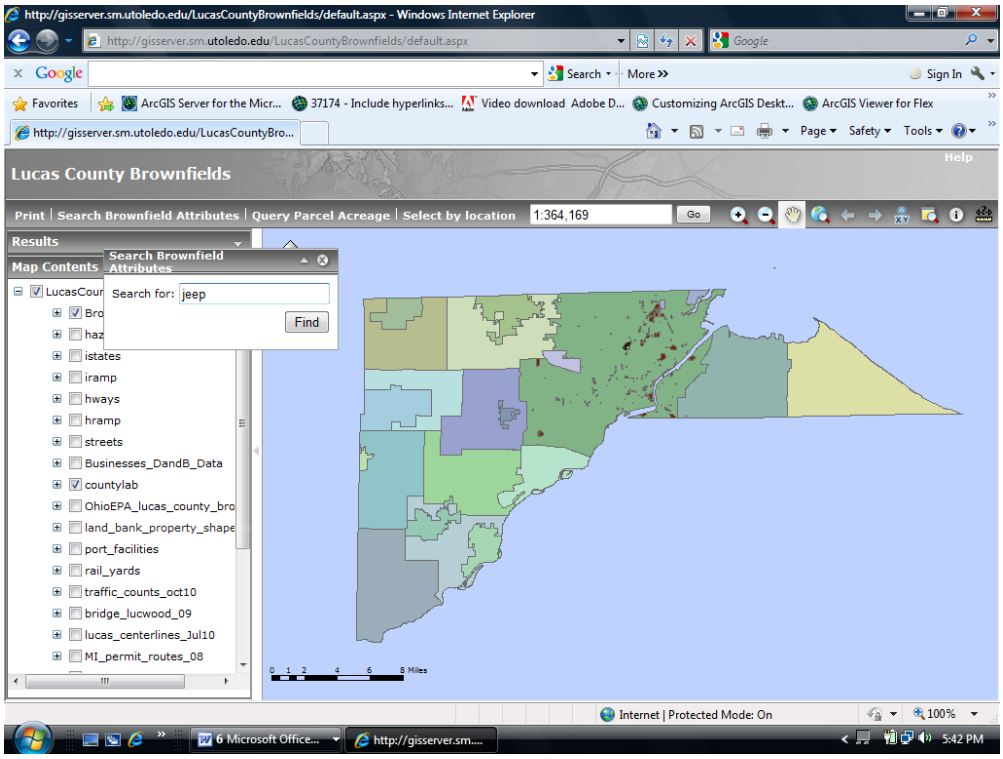

Figure 24 – Popup box for search attributes

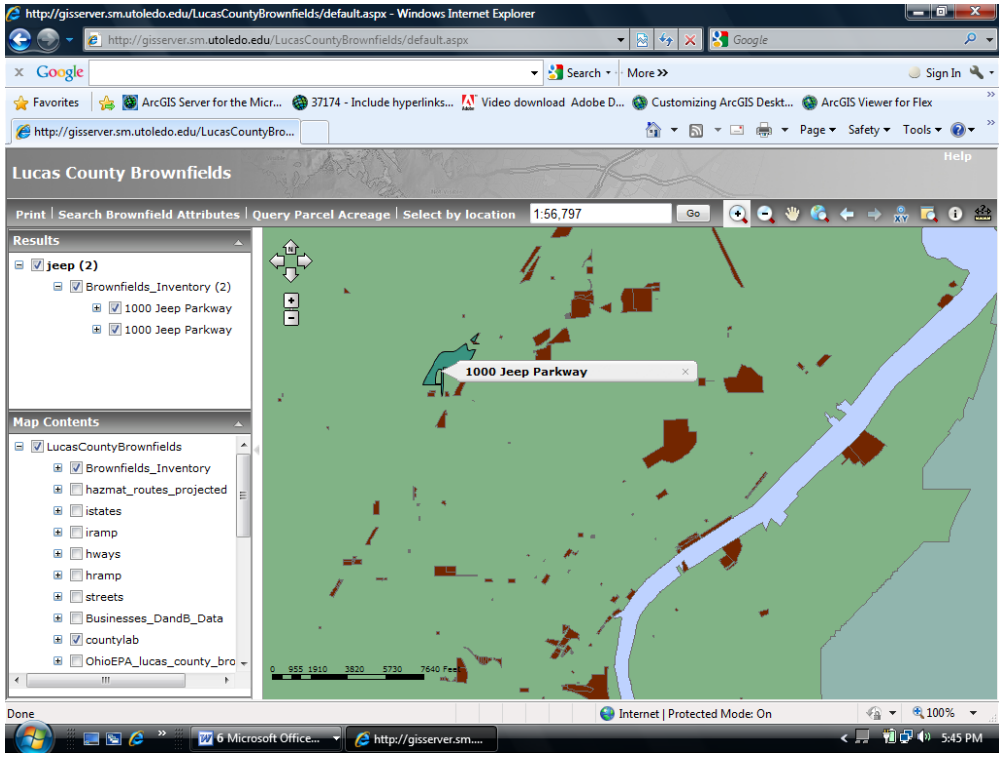

Figure 25 – Results

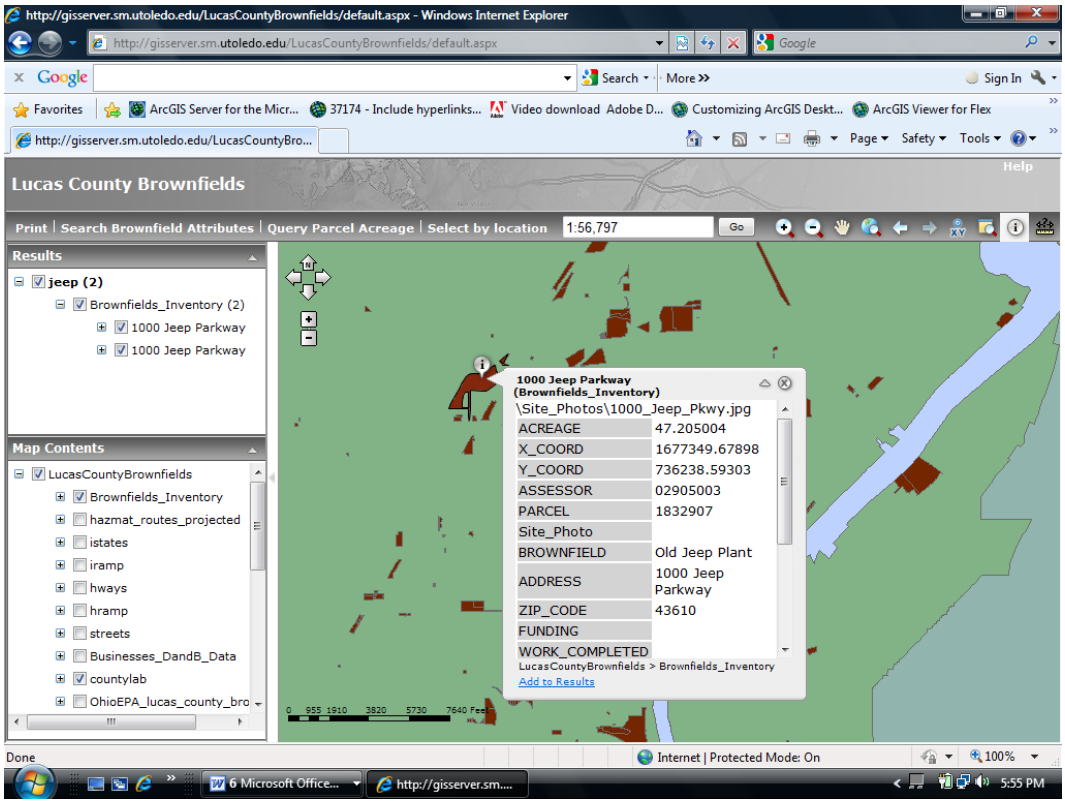

Figure 26 – Identify map object

Users can also select a number of additional features from the data repository through the map contents box on the left of the display. Selected infrastructure is displayed in Figure 27 below. Streets and business establishments are shown in Figure 28 and traffic counts at a particular location are shown in Figure 29 where the "Map Identify" tool is activated to display count values in front of The University of Toledo. Users can query parcels by acreage values with the 'Query Parcel Acreage' tool. Results display in the results box similar to the 'Search Brownfield Attributes' tool. The 'Select by Location' tool will be discussed in greater detail in the next section.

Future System Developments

Groundwork for the 'Select by Location' tool is currently in the development process. Figures 30 and 31 show the user input dialog box with a tip box and feature drop-down menus. The tool requires some minor input and output data structure reconfiguration in order for it to execute properly in the *ArcGIS Server 10* application. This configuration will be restructured and added at a later time. Another area that warrants future work is integrating hyperlinks to source documents into the web-based application. There was also a data configuration with this issue that will need to be worked out and added at a later time.

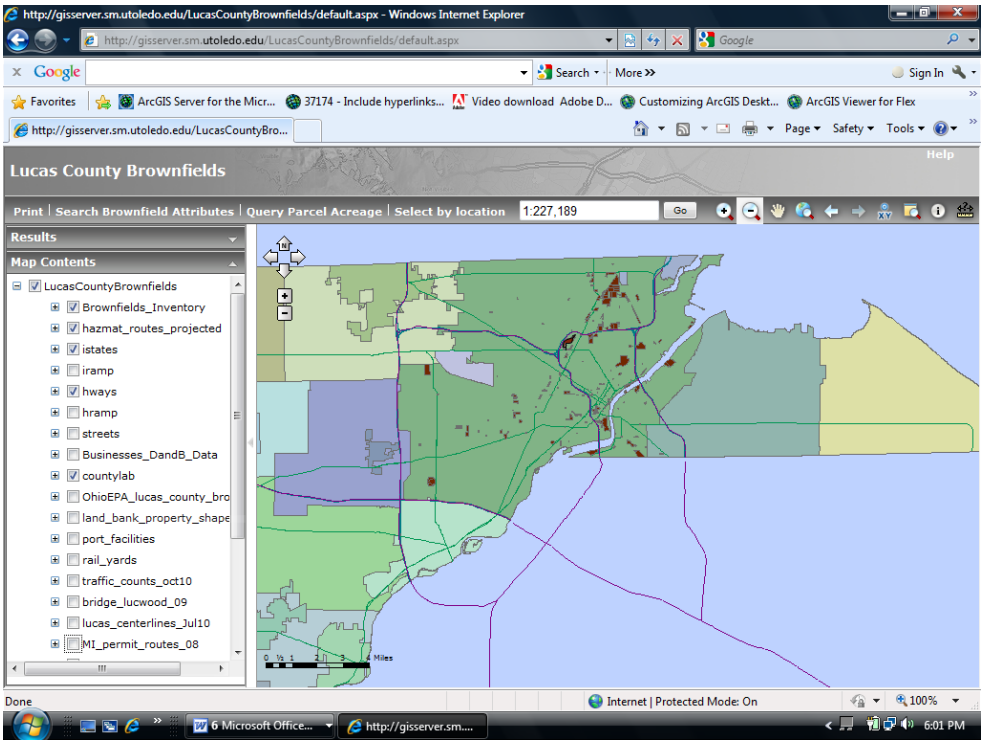

Figure 27 – Additional infrastructure displayed

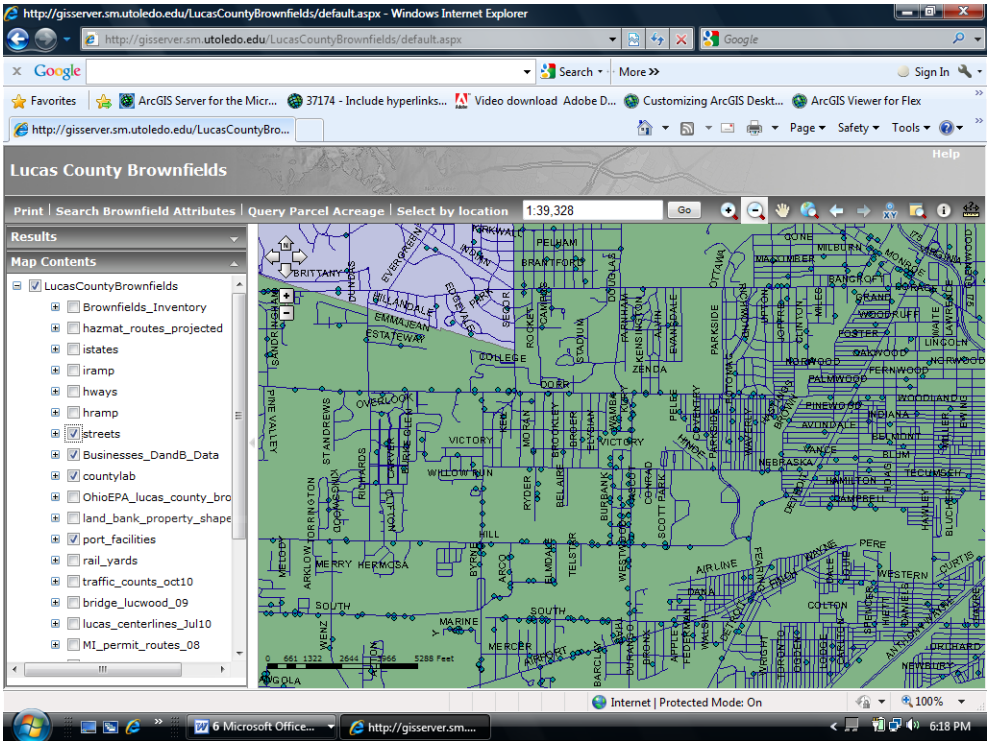

Figure 28 – Streets and business establishments (blue dots)

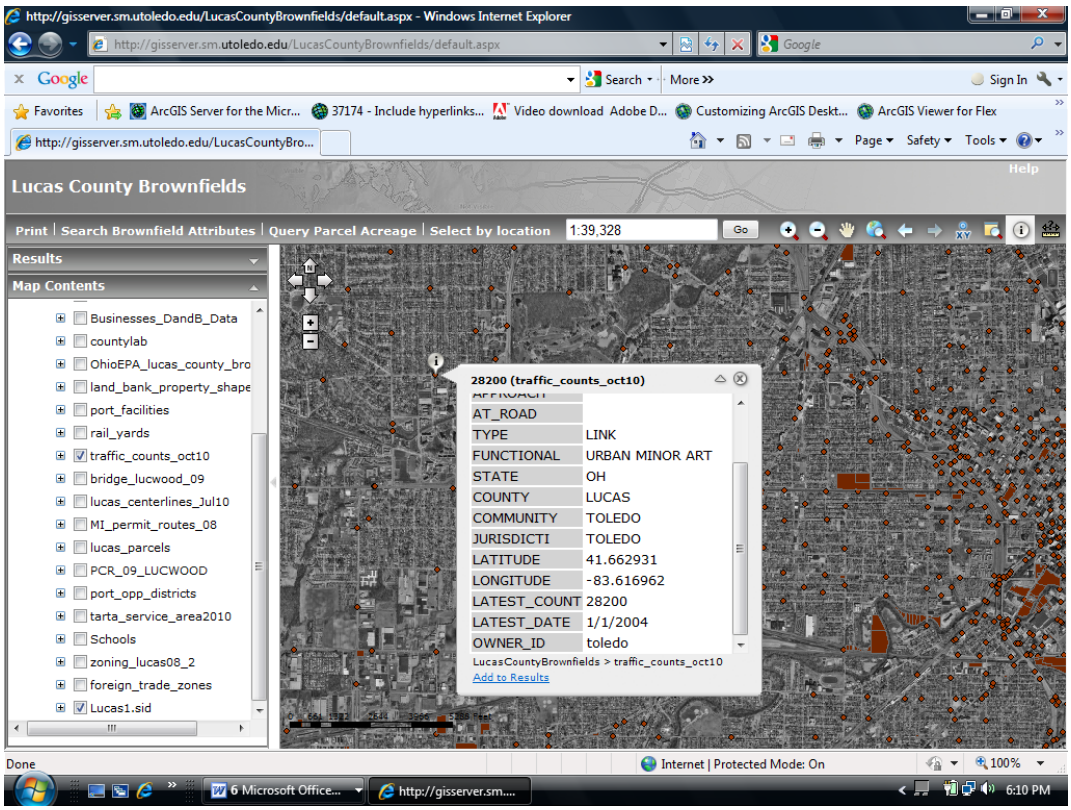

Figure 29 – Traffic counts (red dots) in front of The University of Toledo

In addition to the above items, several suggestions were also made during the course of this project that justifies further design integration into this system. Links to articles and other media files, CORF applications, and professional consultants as suggested by the Toledo-Lucas County Port Authority representatives would add to the site. Further investigation is needed to identify parcel numbers and addresses for brownfield sites that were missing locational information. These items are beyond the scope of this project.

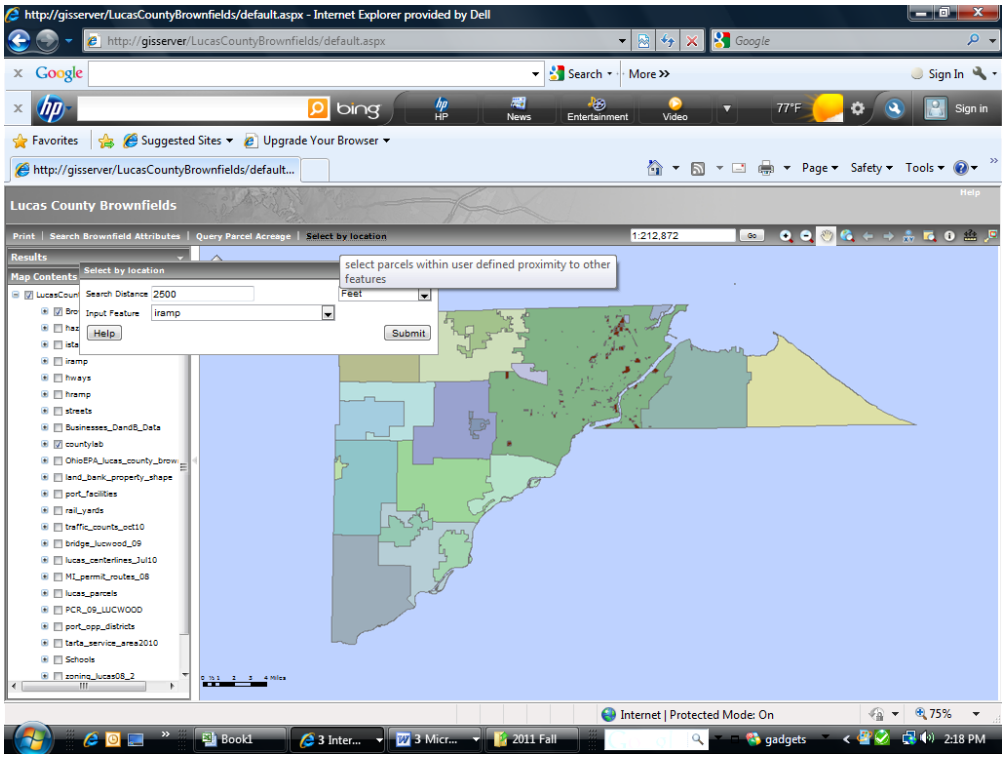

Figure 30 – Select by Location popup dialog box and tip box

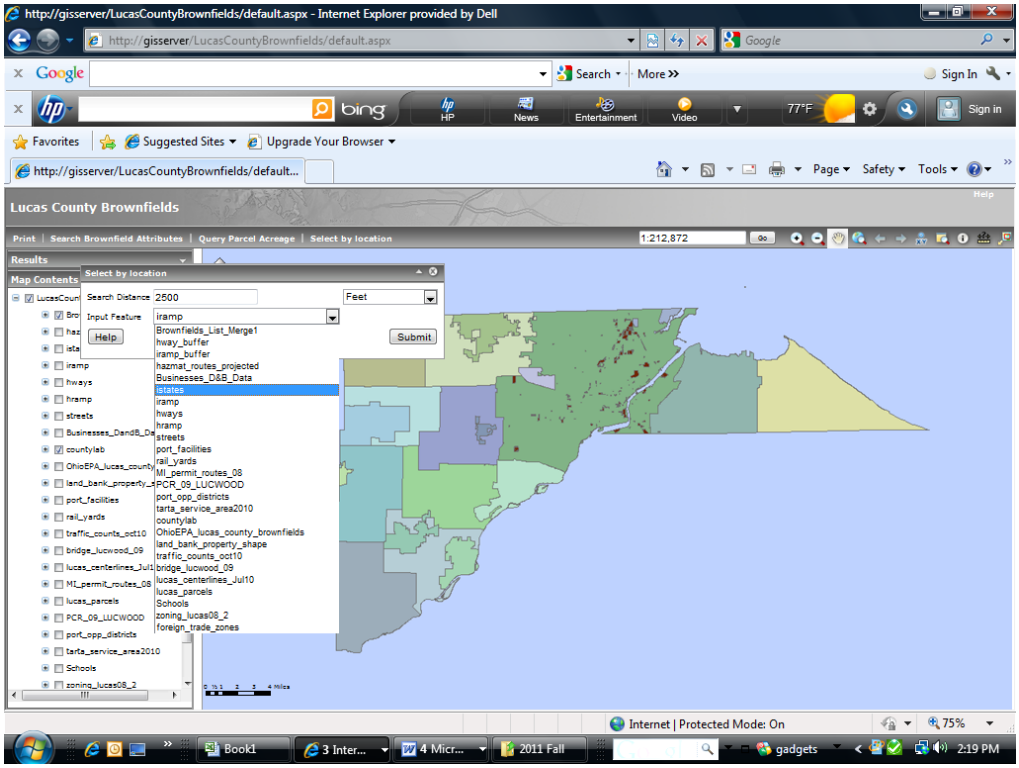

Figure 31 – Select by Location popup dialog box and drop-down feature selection list

Conclusions

The report presented here outlined the design and development of a web-based data distribution system for brownfield site redevelopment in Toledo-Lucas County, Ohio. The system is designed to advance smart growth initiatives by creating the link between transportation infrastructure, economic development and the sustainable utilization of brownfield sites in the region. The Lucas County Brownfield system developed here is a comprehensive data delivery tool that can assist policymakers and stakeholders with capital investment decisions to encourage smart growth within the region through the economic redevelopment of brownfield sites. It is envisioned that this web-based system will be a resource for commercial real estate developers, government officials and other regional brownfield redevelopment stakeholders.

This system is designed to fill the data gap concerning brownfield sites in the region. A multi-method approach was used to develop the system. Government and organizational representative stakeholders were consulted for an initial needs assessment. Through these meetings, key data sets, component elements and additional contacts and resources emerged. Next, additional data sets were also obtained and a relational data repository was compiled and preprocessed for use in developing an ArcView 9.3 desktop GIS data viewer. Geoprocessing models were developed within the desktop data viewer for use in the web-based application to enhance user functionality of the completed system. The desktop application was used as the base for developing the user-centered web-based distributed GIS thus allowing users anywhere with a web browser access to the system.

Finally, this user-centered system allows stakeholders to search the repository through selection criteria with a series of menus, check-box selections and query functions to retrieve data results for brownfield parcels, surrounding zoning regulations, network routing for HAZMAT and heavyweight truck loads, and other area market characteristics. Search criteria functions are encoded based on parcel size, proximity to various features and area businesses. Output is displayed through a combination of text, maps, and digital orthophotos. This system is thus a comprehensive data delivery tool that can assist policymakers and stakeholders with infrastructure and site selection capital investment decisions that encourage smart growth within the region through the economic redevelopment of brownfield sites.

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Appendix

Table 2 – Brownfield Inventory

Brownfield Inventory List

Parcel #	Brownfied	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
0100001	Salvation Army / Potential Community Center	702 Dorr	43607	17.6		File; Phase I, 2005	Geo Environmental Consortium		Residentail and commercial use,	City of Toledo	Parking lot, vacant, William Smith Park		covered in asphalt and concrete		
0200047	Dorr & Detroit	1441 Dorr St	43607	1.03	USEPA Assessment '03	Phase II, 2005 Phase II, field sampling approval 2008	Watterson Environmental Group			Toledo Urban federal Credit Union	Vacant	Benzene levels above Vap stardards	Chruch occupies space, asphalt-paved lot, generally flat. *Aerial photos show no buildings remaining on site (SS 3/23/2011)	Corner of Dorr and Detroit	Site not to be used for residential use; UST Closure Assessment Report for 1409 Door, 1995; Compressive site assessment report, 2000 *Zoned office/commercial in the Lucas County Areis system (SS 3/23/11)
0205477	Kumba	2153 N. Detroit	43606	0.243	USEPA Assessment '06	VAP Phase I	R.D. Zande	Bernard Culp Bonded Oil Co. sold 1989	Vacant	St. Martin De Porres Church / Blair Leonard Paul, Bishop	Vacant			Southwest of Bancroft and Detroit Ave.	Former gas station
0205481	Kumba	2147 N. Detroit	43606	0.243	USEPA Assessment '06	VAP Phase I	R.D. Zande	Bernard Culp Bonded Oil Co. sold 1989	Vacant	St. Martin De Porres Church / Blair Leonard Paul, Bishop	Vacant			Southwest of Bancroft and Detroit Ave.	Former gas station
0205484	Kumba	2145 N. Detroit	43606	0.243	USEPA Assessment '06	VAP Phase I	R.D. Zande	Bernard Culp Bonded Oil Co. sold 1989	Vacant	St. Martin De Porres Church / Blair Leonard Paul, Bishop	Vacant			Southwest of Bancroft and Detroit Ave.	Former gas station
0206421	Bartley Place	826 Bartley	43609	0.07				Furfaro, Darleen	Residence	Furfaro William F & Darlene	Residence				
0206424	Bartley Place	826 Bartley	43609	0.07				Furfaro, Darleen	Residence	Furfaro William F & Darlene	Residence				
0206497	Bartley Place	826 Bartley Pl Rear	43609	0.953				Gorney, Mark		Pheasant Run Development LLC	Vacant Lot				
0211317	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
0211347	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
0211377	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
0227251	Gas Station - Investigation Needed	1224 Detroit Ave										Gas Station - Investigation Needed			Detroit and Dorr, Image
0300031	Salvation Army / Potential Community Center	802 Dorr	43607	17.6		File; Phase I, 2005	Geo Environmental Consortium		Residentail and commercial use,	City of Toledo	Parking lot, vacant, William Smith Park		covered in asphalt and concrete		
0300462	Gas Station - Investigation Needed	601 Dorr St.										Gas Station - Investigation Needed			Dorr and City Park (Murray's), Image
0305647	Adams St	1311 Adams	43624	.239,.042	USEPA Assessment '03	Phase I, 2005 & II	Mannik & Smith	Bennett Enterprises, Barbhill Claude	auto sales and repair	Uptown Place LLC, Pashalis		USTs, ASTs, petroleum products, lead paint and asbestos	30,000 sq. ft. masonary building, paved parking lot and grass covered.	northwest of Maumee River	Former gas station, used car dealership, located in an heavily industrialized area
0319291	Girard	1102 Girard	43605	1.05	USEPA Assessment '04	Phase I, 2006; VAP Phase I & II, 2005; Phase II, 2007	Mannik & Smith Group; TTL; Bowser Morner	Alex Herrick Tim Hutchinson		Forfeited Land	Vacant			Corner of Ironwood Ave. & Girars St.	Land was forfeited to City of Toledo
0327037	SWIP - Gorney	76 Erin St	43612	0.4		Phase I, additional unknown	Hull & Associates	Port Lawrence Title and Trust	Industrial	Toledo Recycling Co	unknown	unknown		unknown	
0327047	SWIP - Gorney	74 Erin St	43612	0.175		Phase I, additional unknown	Hull & Associates	Port Lawrence Title and Trust	Industrial	Toledo Recycling Co	unknown	unknown		unknown	
0327057	SWIP - Gorney	64 Erin St	43612	0.18		Phase I, additional unknown	Hull & Associates	Port Lawrence Title and Trust	Industrial	Toledo Recycling Co	unknown	unknown		unknown	
0327064	SWIP - Gorney	3730 Lagrange St.	43612			Phase I	Hull & Associates	Port Lawrence Title and Trust	Industrial	Toledo Recycling Co	unknown	USTs		Tyler Landfill is located 100 feet east of site	
0327071	SWIP - Gorney	3724 Lagrange St.	43612	0.08		Phase I	Hull & Associates	Port Lawrence Title and Trust	Industrial	Toledo Recycling Co	unknown	USTs		Tyler Landfill is located 100 feet east of site	
0327074	SWIP - Gorney	3722 Lagrange St.	43612	0.08		Phase I	Hull & Associates	Port Lawrence Title and Trust	Industrial	Toledo Recycling Co	unknown	USTs		Tyler Landfill is located 100 feet east of site	
0327077	SWIP - Gorney	3718 Lagrange St.	43612	0.08		Phase I	Hull & Associates	Port Lawrence Title and Trust	Industrial	Toledo Recycling Co	unknown	USTs		Tyler Landfill is located 100 feet east of site	
0327081	SWIP - Gorney	3714 Lagrange St.	43612	0.03		Phase I	Hull & Associates	Port Lawrence Title and Trust	Industrial	Toledo Recycling Co	unknown	USTs		Tyler Landfill is located 100 feet east of site	
0330357	Baker Brothers	958 Wall St	43610	6.032				Toledo Metalizing Co.	Ind Whse/Manufactue	Thorpe Soken Investmant Co LLC					Image
0403104	Gas Station - Investigation Needed	578 High St										Gas Station - Investigation Needed			off of Maumee and Broadway, Small warehouses and light ind. Activity, Image
0411812	Champion	1110 Hastings	43607	2.488	N/A	ARIES on line, 1993	N/A	Ohio II, LLC; Cooper Automotive; Champion Spark Plug		ASD Investments LLC				South of Dorr St east of Upton	
0411813	Hastings	1228 Hastings (two parcels)	43607	.79 & 0.83	N/A	File, AREIS on-line report	N/A	Villarreal, Richard K.	N/A	Pinnacle Holdings LTD	N/A	N/A	N/A	N/A	N/A

Brownfield Inventory List

Parcel #	Brownfied	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
0459259	Oakwood	1220 Oakwood	43607	1.198 (acrage only .13 in Aeries)	N/A	File	N/A	No record in Aeries	N/A	TCCN Homes II, Limited Partnership	N/A	N/A	Industrial/warehouse facility 57,180 sq. ft, woven wire fence around perimeter (Aerial photographs from Aeries show a house with a garage on each plot, 2 houses & 2 garages total)SS 3/28/11		Further investigation necessary, this appears to be residential.
0460317	Old Doehler Jarvis	1825 Smead	43606	3.39	USEPA Funded Assessment			Doehler-Jarvis until 1992, Lawson-Smead Enterprises Forfeited land in 2010	Die casting for automobile hood ornaments	City of Toledo	Vacant		Corner of Smead and Oakwood Ave.		Appears to be adjacent to railroad tracks
0501837	Barron Drawn Steel	1755 Norwood Ave	43607	1.163				Barron Drawn Steel Corp through 2003, Toledo Industrial Storage through 2004		Landau/160 Inc.					Data from Areis and shpfile
0502254	Barron Drawn Steel	1678 Norwood	43607	3.431				Barron Drawn Steel Corp through 2003, Toledo Industrial Storage through 2004.		Landau/160 Inc.					Data from Areis and shpfile
0502267	Barron Drawn Steel	1677 Norwood	43607	0.087				Barron Drawn Steel Corp through 2003, Toledo Industrial Storage through 2004.		Landau/160 Inc.					Data from Areis and shpfile
0502274	Barron Drawn Steel	1677 Norwood	43607	0.072				Barron Drawn Steel Corp through 2003, Toledo Industrial Storage through 2004.		Landau/160 Inc.					Data from Areis and shpfile
0502277	Barron Drawn Steel	1677 Norwood	43607	0.174						Landau/160 Inc.					Data from Areis and shpfile
0502344	Barron Drawn Steel	1402 Barron steel St	43607							Landau/160 Inc.					Data from Areis and shpfile
0502874	Fernwood	1646 Fernwood	43607	1.93	USEPA Assessment '03 / '06	Phase I & II	Phase I, TTL	BDS Aquistion Corp.		Toledo Community Development	Vacant	UST	Concrete and asaphalt covered land with scattered areas of vegetation since 1994		This site has an extensive history of industrial use
0513457	Oak St.	1155 Oak St.	43605	0.21		Phase I, 2002	Geo Environmental Consortium			City of Toledo					
0518571	Country Fresh Dairy	1149 Grand Ave.	43606	1.3	USEPA Assessment '03	Phase I, 2004	R.D. Zande		Industrail use		Industrail use		31,770 sq. ft. structure; 14,080 sq. ft. structure		2002 reported release of 4,000 gallons of formaldehyde from the western boundary property
0601232	Penn RR - Intl Park	201 First St.	43551												Image
0601817	Gas Station - Investigation Needed	601 Indiana Ave										Gas Station - Investigation Needed			Indiana and City Park, Image
0707757	Gas Station - Investigation Needed	914 Berdan										Gas Station - Investigation Needed			Image
0745481	Gas Station - Investigation Needed	1712 Manhattan Blvd.										Gas Station - Investigation Needed			Not registered, Image
0771411	Southwyck, Dillards	2040 S Reynolds	43614		USEPA Assessment '06	Phase I/Asbestos Survey, 2008	Bowser Morner	Lion Dry Goods Co.	Retail	LIO LLC	Vacant	Asbestos		Site, 500 feet west of intersection of Southwyck Boulevard and Reynolds Road	
0771421	Southwyck	2040 S. Reynolds	43614	58.49	USEPA Assessment '06	Phase I, 2008	Mannik & Smith	Susan Sandleman, Title Guarantee & Trust, Lion Dry Goods Co.	Retail	S-S-C Company, Lion LLC	Vacant	Asbestos, PCBs, ASTs & USTs		Southwest of Reynolds Rd. & Glenddale Ave.	
0771471	Southwyck	2000 S. Reynolds	43614	58.49	USEPA Assessment '06	Phase I, 2008	Mannik & Smith	Susan Sandleman, Title Guarantee & Trust, Lion Dry Goods Co.	Retail	S-S-C Company, Lion LLC	Vacant	Asbestos, PCBs, ASTs & USTs		Southwest of Reynolds Rd. & Glenddale Ave.	
0851891	Chevy Trans Plant	3199 Maplewood Ave	43610	5.47	USEPA Funded Assessment			Forfeited Land		City of Toledo					
0852441	Bush	311 Bush	43604	0.218	USEPA Assessment '03	Proposals VAP Phase I		D'Ascenzo Lisa	Apartments	Toni Battle				Between Summit and Superior	
0852447	Bush	311 Bush	43604	0.72	USEPA Assessment '03	Proposals VAP Phase I		D'Ascenzo Lisa	Apartments	Toni Battle				Between Summit and Superior	
0907061	Gas Station - Investigation Needed	2520 Collingwood										Gas Station - Investigation Needed			Near Delaware, Image
0907801	Gas Station - Investigation Needed	3026 Northwood										Gas Station - Investigation Needed			Midas, Image
0913807	Gas Station - Investigation Needed	450 Langdon St										Gas Station - Investigation Needed			Used Car Sales (South and Broadway), Dean Ball, Wheels for Work, Inc., Image
0915771	Salvation Army / Potential Community Center	925 Palmwood	43607	17.6		File; Phase I, 2005	Geo Environmental Consortium		Residentail and commercial use,	Dept. of Natural Resources	Parking lot, vacant, William Smith Park		covered in asphalt and concrete		
0915787	Salvation Army / Potential Community Center	1415 Lawrence	43607	17.6		File; Phase I, 2005	Geo Environmental Consortium		Residentail and commercial use,	Toledo CSD	Parking lot, vacant, William Smith Park Building		covered in asphalt and concrete *Building		
0956221	Manhattan Boulevard & Phillips Avenue	305 W. Manhattan Blvd.	43608	0.07				Carol Hall		Rocky Gillespie	single family home				single family home zoned residential/agricultural
0956224	Manhattan Boulevard & Phillips Avenue	301 W. Manhattan Blvd.	43608	0.07						Connie Oates	single family home				single family home zoned residential/agricultural

Brownfield Inventory List

Parcel #	Brownfied	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
0962037	Gas Station - Investigation Needed	4933 Lewis										Gas Station - Investigation Needed			At Laskey, Image
0963444	Holmes St.	1500 Holmes	43605	0.08						Neighborhood Housing Services of Toledo					
0963447	Holmes St.	1500 Holmes	43605	0.08						Neighborhood Housing Services of Toledo					
0963451	Holmes St.	1500 Holmes	43605	0.08						Neighborhood Housing Services of Toledo					
0963454	Holmes St.	1500 Holmes	43605	0.08						Neighborhood Housing Services of Toledo					
0963457	Holmes St.	1500 Holmes	43605	0.08						Neighborhood Housing Services of Toledo					
0965957	Gas Station - Investigation Needed	1317 Navarre										Gas Station - Investigation Needed			Seven-eleven, Image
1005784	Cooks	3111 Buckeye St.	43611	9.28	USEPA Assessment '04	Initial Phase I, 2002; Initial Phase II, 2003; Phase II,2007	TolTest; Hull & Associates, Inc., TTL	Greater Unity Baptist Church		Young, Kevin A		Petroleum hydrocarbons, chlorinated VOC		Interstate-280, located 200 feet east of property	
1005787	Cooks	3111 Buckeye St.	43611	9.28	USEPA Assessment '04	Initial Phase I, 2002; Initial Phase II, 2003; Phase II,2007	TolTest; Hull & Associates, Inc., TTL	Greater Unity Baptist Church		Young, Kevin A		Petroleum hydrocarbons, chlorinated VOC		Interstate-280, located 200 feet east of property	
1019831	Monroe Street	3053 Monroe	43606	2	USEPA Funded Assessment	Phase I, 2000 Phase II 2002	TolTest, Hull & Associates	City of Toledo		Fifth Third Bank		PCBs,19 Drums of hazardous waste	Office space, warehouse		
1023302	Former Macomber School	1501 Monroe	43608			Phase I, 1997	TolTest, Inc.		School Building		School Building	UST,			
1023374	Gas Station - Investigation Needed	5 17th St										Gas Station - Investigation Needed			Near Dorr and Washington, Image
1024841	Gas Station - Investigation Needed	1713 Jefferson										Gas Station - Investigation Needed			off of 17th St., Image
1025334	Gas Station - Investigation Needed	120 21st St										Gas Station - Investigation Needed			21st. and Monroe St., Image
1058773	Close Security - Toledo Prison	2001 Central	43608	45.6						State of Ohio					
1105917	Old Modern Builders Supply	733 Elbon	43608	1.59		Phase I, 2004	TDOES	multiple oweners	agricultural, yard waste recycling, commercial	Stickney Ave Investment		UST/AST,			
1105971	Oberly Ray Disposal	3812 Twining St.	43608	0.1						Stickney Ave Investment					No Image
1114087	Galena & Chase	713 Galena	43611	0.192	USEPA Assessment '03	Phase I, 2005	The GeoEnvironmental Consortium, Inc			Northriver Development Corp	Vacant		2 story building, asphalt parking lot		
1114094	Galena & Chase	719 Galena	43611	0.192	USEPA Assessment '03	Phase I, 2005	The GeoEnvironmental Consortium, Inc			Northriver Development Corp	Vacant		1 story buildings, asphalt parking lot		
1116091	Bassett St.	600 Bassett St.	43611		USEPA Assessment '03	VAP Phase I & II, 2004; Phase II, 2000	Mannik & Smith; Midwest Environmental consultants	Dr. Sheldon Shachner		City of Toledo	Vacant	corrosive, flammable, poisonous liquids,soil staining, tire piles, fuel-like odors, stressed vegetation	Site is partially demolished, littered with construction debris and opportunistic dumping	Site bounded on North side by Manhattan Marsh & bounded on South side by abandoned railroads	performed to determine if the city would acquire the site, groundwater monitoring well located on northerly portion
1117381	New York	702 New York	43611	0.27	USEPA Assessment '03	Phase I, 2005; Phase II,2006	Watterson Environmental Group			James Hodges	Super Auto Express	AST, general industrial use	L-shaped building and small metal building	Michigan St. & New York Ave.	
1117387	New York	702 New York	43611	0.27	USEPA Assessment '03	Phase I, 2005; Phase II,2006	Watterson Environmental Group			James Hodges	Super Auto Express	AST, general industrial use	L-shaped building and small metal building	Michigan St. & New York Ave.	
1117407	830 New York	830 New York Ave.	43611	1.75		Phase I	TTL	Matrix Corp.	Kel Mar, metal cleaning	River East Revitalization Corp.	Vacant			Located east corner of New York and Edison St.	
1118494	830 New York	830 New York Ave.	43611	1.75		Phase I	TTL	Matrix Corp.	Kel Mar, metal cleaning	River East Revitalization Corp.	Vacant			Located east corner of New York and Edison St.	
1121774	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
1121791	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
1121807	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
1121824	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
1121841	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
1121851	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
1121861	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
1121871	AMONYX	215 City Park Avenue	43604	5.56		Phase I; Asbestos Inspection Report;			Commercial; Gas station; Industrial;	Brown Claudia Sebree	Commercial;				
1124107	Secor Garden	601-613 Montrose	43607		N/A	Property inquire, 1997	TDOES		House & Travern		Vacant	no environmental concerns			Property inqurie
1157424	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157437	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157441	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				

Brownfield Inventory List

Parcel #	Brownfied	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
1157444	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157514	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157544	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157561	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157564	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157567	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157574	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157577	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157581	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1157584	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1159841	Gas Station - Investigation Needed	403 Broadway										Gas Station - Investigation Needed			Broadway and Summit junction, Little Acapulco
1206257	Gas Station - Investigation Needed	2814 Monroe St										Gas Station - Investigation Needed			U-haul (R & T Warren across Bancroft), Image
1213754	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1214754	Downtown Summit Redevelopment Project	239 North Summit Street	43604	1		Phase I; Asbestos Inspection Report;			Commercial;		Commercial;				
1214757	Downtown Summit Redevelopment Project	237 North Summit Street	43604	1		Phase I; Asbestos Inspection Report;			Commercial;		Commercial;				
1214761	Downtown Summit Redevelopment Project	235 North Summit Street	43604	1		Phase I; Asbestos Inspection Report;			Commercial;		Commercial;				
1214764	Maumee Tower/Fiberglass Downtown Summit Redevelopment Project	200 N. St. Clair	43604	0.71	USEPA Funded Assessment	Phase I; Asbestos Inspection Report;			Commercial		Other				
1216784	Madison Building	607 Madison St. & 237 Huron St.	43604			Phase I, 2000	TDOES		Office and retail establishments	Anthony Sanalone	Mostly vacant	Asbestos, PCBs, AST	Site consists of a nine-story brick office building	Loacated with in 1 mile, west of Maumee River	1st skyscraper in Toledo
1217397	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1223525	Jerusalem Baptist Church	441 Dorr	43602	1.14	USEPA Assessment '06	Phase I & Phase II, 2008	TTL		Gas station		Church			Corner of Dorr St. & Collingwood	445 Dorr former gas station, UST removed
1224998	Streets, Bridges & Harbor Salt Piles	0 Water St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		A combined sewer outfall #26 for the City of Toledo is located on the southeast corner if the 1338 N. Summit St. Parcel
1225242	Steam Plant	320 Water Street	43605	3.5		Phase I; Phase II;			Industrial;		Other;				
1229231	Gas Station - Investigation Needed	1150 Oak St										Gas Station - Investigation Needed			LRH Services; No Image
1321184	Gas Station - Investigation Needed	3042 131st St.										Gas Station - Investigation Needed			Near Summit, in Point Place, Image
1323521	Manhattan Boulevard & Phillips Avenue	3304 Blanchard ST.	48133	9.33 10.01		Phase I, 1998;	TDOES			City of Toledo			Utilized as a roadway since, 1940		Site consists of the intersection at Manhattan Blvd. and Phillips Ave. and extends east on Manhattan Blvd. to Windermere Blvd.

Brownfield Inventory List

Parcel #	Brownfied	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
1403547	Gas Station - Investigation Needed	901 Broadway										Gas Station - Investigation Needed			Empty lot, used to be an old tan bldg., Garrison D., Trustee, of the 901 Broadway Trust Number, Image
1412451	Gas Station - Investigation Needed	1111 Western Ave										Gas Station - Investigation Needed			Seven-eleven; Image
1412454	Gas Station - Investigation Needed	1111 Western Ave										Gas Station - Investigation Needed			Seven-eleven; Image
1420844	Erie Street Redevelopment Project	367 South Erie Street	43624	3.62		Phase I; Phase II; Asbestos Inspection Report;			Commercial; Industrial;		Commercial;				
1420854	Erie Street Redevelopment Project	371 South Erie Street	43624	3.62		Phase I; Phase II; Asbestos Inspection Report;			Commercial; Industrial;	River Road Redevelopment	Commercial;				
1420857	Erie Street Redevelopment Project	329 South Erie Street	43624	3.62		Phase I; Phase II; Asbestos Inspection Report;			Commercial; Industrial;		Commercial;				
1420948	Quilter Building/ TDOES	348 S. Erie				Phase I & II				City of Toledo	TDOES				Image
1422801	Erie Coatings	602 S. Hawley St	43560	0.037						T & B Martre					No image
1433981	Gas Station - Investigation Needed	2202 Central										Gas Station - Investigation Needed			Also site on Central by Doris, Image
1499002	Streets, Bridges & Harbor Salt Piles	0 Water St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		
1541577	Gas Station - Investigation Needed	3012 N. Detroit										Gas Station - Investigation Needed			Near Central, Image
1542952	Streets, Bridges & Harbor Salt Piles	0 Water St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		A combined sewer outfall #26 for the City of Toledo is located on the southeast corner if the 1338 N. Summit St. Parcel
1542987	Streets, Bridges & Harbor Salt Piles	1338 N. Summit St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		A combined sewer outfall #26 for the City of Toledo is located on the southeast corner if the 1338 N. Summit St. Parcel
1544334	Suspected Abandoned Gas Station	940 Huron													Off of Lagrange, Image
1548734	Champlain Corridor	905 Champlain	43604	0.104				H I N Enterprises LTD	Ind Lt Mfg	Esho, Talal					
1550334	Adams St	1301 Adams	43624	.239,.042	USEPA Assessment '03	Phase I, 2005 & II	Mannik & Smith	Bennett Enterprises, Barbhill Claude	auto sales and repair	Uptown Place LLC, Pashalis		USTs, ASTs, petroleum products, lead paint and asbestos	30,000 sq. ft. masonary building, paved parking lot and grass covered.	northwest of Maumee River	Former gas station, used car dealership, located in an heavily industrialized area
1550344	Adams St	1315 Adams	43624	.239,.042	USEPA Assessment '03	Phase I, 2005 & II	Mannik & Smith	Bennett Enterprises, Barbhill Claude	auto sales and repair	Uptown Place LLC, Pashalis		USTs, ASTs, petroleum products, lead paint and asbestos	30,000 sq. ft. masonary building, paved parking lot and grass covered.	northwest of Maumee River	Former gas station, used car dealership, located in an heavily industrialized area
1550354	Adams St	1311 Adams	43624	.239,.042	USEPA Assessment '03	Phase I, 2005 & II	Mannik & Smith	Bennett Enterprises, Barbhill Claude	auto sales and repair	Uptown Place LLC, Pashalis		USTs, ASTs, petroleum products, lead paint and asbestos	30,000 sq. ft. masonary building, paved parking lot and grass covered.	northwest of Maumee River	Former gas station, used car dealership, located in an heavily industrialized area
1550647	Gas Station - Investigation Needed	1214 Jefferson										Gas Station - Investigation Needed			off of 12th St. (Safes, Locks and Keys), Image
1565948	Seagate Business Center	333 14th St.	43604			Subsurface Investigation, 1995	TolTest	Owens-Illinois		Kloster Research & Develop.		USTs, VOCs, benzene			
1600314	Gas Station - Investigation Needed	2630 Broadway										Gas Station - Investigation Needed			Empty (parking lot), Diacou Krypos, Lighthouse (bar) across street, Image
1600897	Gas Station - Investigation Needed	1009 Nebraska										Gas Station - Investigation Needed			Not Registered; Image
1606014	Warren-Sherman Lot 8	1910 N 14th St.	43604												
1609507	Gas Station - Investigation Needed	2060 Broadway										Gas Station - Investigation Needed			Tanks have product, Image
1620861	Gas Station - Investigation Needed	2702 Upton										Gas Station - Investigation Needed			not registered, Image
1627861	Edison Park	1821 Front		16.39		Phase I 2001	Hull & Associates, Inc.							Toledo Edison Co abuts southwest, Maumee river abuts northwest	
1627921	Edison Acme Plant	1819 Front	43605	63.5	USEPA Funded Assessment	Phase II, 2000	Hull & Associates	Ashland Inc.		ATB Holdong Inc.					
1631147	Southhard	509 Southhard Ave.	43624			Phase I, 2004	TTL	S. Cousino, TTE	Trucking company	Thomas Moore Sr	Vacant	ASTs, USTs	Occupied by two warehouse buildings and asphalt and concrete-paved areas		Former gasoline station and tire shop *No image
1631154	Southhard	517 Southhard Ave.	43624			Phase I, 2004	TTL	S. Cousino, TTE	Trucking company	Thomas Moore Sr	Vacant	ASTs, USTs	Occupied by two warehouse buildings and asphalt and concrete-paved areas		Former gasoline station and tire shop *No image

Brownfield Inventory List

Parcel #	Brownfied	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
1631157	Southhard	511 Southhard Ave.	43624			Phase I, 2004	TTL	S. Cousino, TTE	Trucking company	Thomas Moore Sr	Vacant	ASTs, USTs	Occupied by two warehouse buildings and asphalt and concrete-paved areas		Former gasoline station and tire shop *No image
1631169	Southhard	509 Southhard Ave.	43624			Phase I, 2004	TTL	S. Cousino, TTE	Trucking company	Thomas Moore Sr	Vacant	ASTs, USTs	Occupied by two warehouse buildings and asphalt and concrete-paved areas		Former gasoline station and tire shop *No image
1631171	Southhard	509 Southhard Ave.	43624			Phase I, 2004	TTL	S. Cousino, TTE	Trucking company	Thomas Moore Sr	Vacant	ASTs, USTs	Occupied by two warehouse buildings and asphalt and concrete-paved areas		Former gasoline station and tire shop *No image
1800364	Blucher - Bobby Howard	37 Blucher	43607	10.7, 3.4		File	N/A	Howard Bobby	Ind Whse/Manufacture	Howard, Bobby					No Image
1800547	Blucher - Bobby Howard	39 Blucher	43607	10.7, 3.4		File	N/A	Howard Bobby	Ind Whse/Manufacture	Howard, Bobby					No Image
1805337	Adam Wholesalers	830 N. Westwood Ave.	43615	12		Phase I, 1998; Phase II, 1999	TolTest	Thurner, Jyne TTE	Allen A. Smith Company	Hatfield, John JR TTE		UST,Soil contaminated with TPH, SVOCs, & RCRA metals; Groundwater contaminated with toluene, napthalene, SVOCs & RCRA metals	127,000 sq. ft. warehouse, paved parking-lot, grassy & wooded areas east of ware house		10,000 gallon fuel oil UST; smoke-stack, part of an old boiler, noted on site
1805377	Dorr & Westwood	1050 Westwood	43607	4.93	N/A	Brownfield Redevelopment Fund Community Assessment Intitive Applacation, 2008	TDOES	Yomac Properties	Commercial and office space	Group 2000 Westwood LLC	occupied	Contamination unknown, likely became contaminated with hazardous materials through a variety of industrial activities over the last 90 years.	91,684 Sq. Ft. building; asphalt-paved lot	Adjacent to University of Toledo	All sites currently for sale and Ann Arbor developer plans to purchase all four and renovate them simultaneously. *parcel 18-05378 listed address 980 Westwood in Aeris
1805378	Dorr & Westwood	1020 Westwood	43607	3.14	N/A	Brownfield Redevelopment Fund Community Assessment Intitive Applacation, 2008	TDOES	Bobby Howard Yomac Properties Yomac Propertis Paul Minor	Commercial and office space	Chicar Corp.	Vacant	Contamination unknown, likely became contaminated with hazardous materials through a variety of industrial activities over the last 90 years.	39,000 Sq. Ft. building, asphalt-paved lot	Adjacent to University of Toledo	All sites currently for sale and Ann Arbor developer plans to purchase all four and renovate them simultaneously. *parcel 18-05378 listed address 980 Westwood in Aeris
1805394	Dorr & Westwood	1230 Westwood	43607	4.72	N/A	Brownfield Redevelopment Fund Community Assessment Intitive Applacation, 2008	TDOES	Paul Minor	Commercial and office space	Plam Realty LTD	occupied	Contamination unknown, likely became contaminated with hazardous materials through a variety of industrial activities over the last 90 years.	49,121 Sq. Ft. building; asphalt-paved lot,	Adjacent to University of Toledo	All sites currently for sale and Ann Arbor developer plans to purchase all four and renovate them simultaneously. *parcel 18-05378 listed address 980 Westwood in Aeris
1805444	Hastings	1228 Hastings (two parcels)	43607	.79 & 0.83	N/A	File, AREIS on-line report	N/A	Villarreal, Richard K.	N/A	Pinnacle Holdings LTD	N/A	N/A	N/A	N/A	N/A
1806131		2211 Airport	43609									UST/AST, non hazardous waste		West side of Stickney ave, north or rail line operated CSX Trans.	
1807134	NL IND INC Bearings	715 Spencer	43609	7.195				Richard Conely			715 Spencer Corp				
1810451	SWIP - Shepherd	3904 Creekside	43612	5.48		Phase I, 1997 Update Phase I	Hull & Associates Hull & Associates	Kaye Shepherd J.D. Packing Company	Industrial	Hemisphere LTD II	industrial			Located 50 feet north and abuts the Tyler St. Landfill	
1810571	SWIP - Gorney / *Toledo Recycling North Property	56 Tyler Street	43612			Updated Phase I	Hull & Associates	unknown	Industrial	Hemisphere LTD	unknown	unknown		Located east of intersection of Lagrang & Sylvania Ave; north bank of Ottawa River	
1810708	Buckeye Cablevision	4102 Creekside Ave	43612	2	N/A	Appraisal	Erie Coast Appraisal Group, Inc.			Buckeye Cablevision	Transmitter tower, equipment storage	N/A	480 sq. ft. building, 1 story		
1811007	SWIP - Gorney / *Toledo Recycling North Property	4401 Creekside Ave.	43612	1.7		Phase I, 1997; VAP Phase II, 1998	Hull & Associates	Victory Steel	Industrial	Pheasant Run Development LLC	unknown	USTs		South of Dura Landfill, east by Otta River	
1814837	SWIP - Gorney / *Toledo Recycling North Property	56 Tyler Street	43612			Updated Phase I	Hull & Associates	unknown	Industrial	City of Toledo	unknown	unknown		unknown	
1816401	Old Conrail Row	4103 Lagrange St	43612	0.535				R&M Recycling	Recycling	Jonke Real Estate LLC					
1818327	Old Steel Plant/ A-1 Auto	4105 N Detroit Ave	43612					Richard McCune		YD Investments LLC					
1818686	Old Steel Plant/ A-1 Auto	4105 N Detroit Ave						Richard McCune		YD Investments LLC					
1819416	Old Steel Plant/ A-1 Auto	4105 N Detroit Ave								Willis Day Storage					
1824174	Gas Station - Investigation Needed	1712 Sylvania										Gas Station - Investigation Needed			Auto Service Garage, Image
1830741	Former L&L Plating	936 W. Central	43610	0.86	USEPA Assessment '06	Phase I, 2006	Environmental Consultants & Engineers	Restoration Management LLC L & L Plating	Chrome plating operation	WH Management LLC	Vacant	ASTs, release of hazardous chemicals associated with plating	Three story commercial/industrail building	Loacted on north side of W. Central and east of I-75 Exppessway	
1830861	Willys Park / Cellular One Site	1118 Central Ave				Limited Phase II, 1995	Engineering & Testing Services, Inc.	Gudelman, Norman and Feiga		Feiga Gudelman TR		Arsenic, cyanide, phthalate and trichoroethylene			Located 1/4 mile southeast of a known unregulated dump site
1830921	Willys Park / Cellular One Site	1118 Central Ave				Limited Phase II, 1995	Engineering & Testing Services, Inc.	Gudelman, Norman and Feiga		Feiga Gudelman TR		Arsenic, cyanide, phthalate and trichoroethylene			Located 1/4 mile southeast of a known unregulated dump site
1831011	Willys Park / Cellular One Site	1118 Central Ave				Limited Phase II, 1995	Engineering & Testing Services, Inc.	Gudelman, Norman and Feiga		Feiga Gudelman TR		Arsenic, cyanide, phthalate and trichoroethylene			Located 1/4 mile southeast of a known unregulated dump site

Brownfield Inventory List

Parcel #	Brownfield	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
1831884	Manhattan Boulevard & Phillips Avenue	3500 Phillips Ave	48133	9.574		Phase I, 1998;	TDOES			Modern Bulder Supply	Retail		Utilized as a roadway since, 1940		Site consists of the intersection at Manhattan Blvd. and Phillips Ave. and extends east on Manhattan Blvd. to Windermere Blvd.
1832907	Old Jeep Plant	1000 Jeep Parkway	43610						millright shop						
1834377	Old Jeep Plant	1000 Jeep Parkway	43610						millright shop						
1835904	SWIP - Gorney / *Toledo Recycling North Property	4425 Creekside Ave.	43612	21		Phase I, 1997; VAP Phase II, 1998	Hull & Associates	Ron Gorney	Industrial	Toledo Recycling Co	unknown	USTs		South of Dura Landfill, east by Otta River	
1836787	Textileather	3729 Twining	43608	25.7				General Tire and Rubber Co		Textileather Corp					
1836789	Textileather	3729 Twining	43608	??				General Tire and Rubber Co		Truckland Ohio Holdings					
1837857	Autolite	1205-1239 Champlain	43604	3.35 (4.3)	USEPA Assessment '03	Phase I & II, 1999; Phase II, 2005	Midwest Enviro Consultants, Inc.; Mannik & Smith	Forfeited Land, Zepf Center	commercial/industrial	City of Toledo	Vacant	AST, USTs, PCBs and Asbestos		North side of Champlain St. between Chestnut St. and Magnolia St.	18-37858,18-37857-both parcels are shown as the same plot in Areis
1843214	Monroe Street	**3085** Monroe	43606	2	USEPA Funded Assessment	Phase I, 2000 Phase II 2002	ToITest, Hull & Associates	City of Toledo		Fifth Third Bank		PCBs,19 Drums of hazardous waste	Office space, warehouse		
1850461	Suspected Abandoned Gas Station	3121 Bancroft													Off of Middlesex, Image
1852387	Craft House	1515 West Bancroft St.	43606	4.13				D. Garrison, Trustee	Vacant	Greg Vnunk Successor Trustee	Vacant			Located southwst corner West bancroft & Auburn Ave.	18-52407, 18-52387 two listed both parcels are shown as the same plot in Areis
1857861	Gas Station - Investigation Needed	1805 Manhattan										Gas Station - Investigation Needed			Image
1861315	Beazer Coke	2563 Front St.	43605	10.9		File, inspections, 1988		City of Toledo	Industrial	Gradel Realty	Industrial	------	------	------	Need a copy of phase I & II
1861316	Beazer East	2563 Front Street	43605	48.5		Phase I; Phase II;			Industrial	Toledo-Lucas County Port Authority	Industrial				
1863184	Forest Cemetary	1704 Mulberry St.	43608	80.92				No record		City of Toledo					both parcels are shown as the same plot in Areis
1863411	Edison Acme Plant	957 Front	43605	63.5	USEPA Funded Assessment	Phase II, 2000	Hull & Associates	Ashland Inc.		ATB Holdong Inc.					
1863968	Streets, Bridges & Harbor Salt Piles	1338 N. Summit St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		A combined sewer outfall #26 for the City of Toledo is located on the southeast corner if the 1338 N. Summit St. Parcel
1864031	Streets, Bridges & Harbor Salt Piles	1456 N. Summit St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		only a portion
1864071	Edison Acme Plant	1552 Front	43605	63.5	USEPA Funded Assessment	Phase II, 2000	Hull & Associates	Ashland Inc.		ATB Holdong Inc.					
1867864	GE Energy	497 (former 405) Dearborn Ave	43605	2.43		Envir. Subsurface Investigation , 2005 Remedial Action Report, 2066	TTL, Amec		Former service center	GE Energy	Vacant	PCBs			GE property is located at 497 (former 405) Dearborn; Former service center
1867937	Gas Station - Investigation Needed	53 main St										Gas Station - Investigation Needed			BP, Image
1868182	Hirzel St.	1029 Hirzel St.	43605	3.4		Phase I, 2008	TDOES			City of Toledo	Vacant		Large portion of parcel covered by stone	Norfolk Southern Railroad is located on North & Northeast side of site	
1868804	Unitcast	1410 E. Broadway	43605	19.31				Moawad LTD		City of Toledo					
1869411	LOF Plants 4&8	1701 & 1769 E. Broadway	43605	43		SAP, PhaseI & II, Addition Phase II PA	ToITest, Hull & Associates	LOF Glass		Board of Education Toledo		UST, petroleum products, PCB's		Northeast corner of East Broadway and Oakdale Ave	
1871414	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871424	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871457	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871467	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871471	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871477	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				

Brownfield Inventory List

Parcel #	Brownfield	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
1871484	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871487	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871491	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871614	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871811	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871841	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871851	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1871871	City of Toledo Warehouse District	The area is generally bound by Interstate 1-75 to the west, Anthony Wayne Trail	43602			Phase I; Phase II;			Commercial; Gas station; Industrial;		Commercial; Gas station; Industrial;				
1872177	City Park	210 City Park	43604	1.76				No record		GLS LEAS CO INC					
1872268	Consolidated Rail	415 Emerald	43602	7.801				No record		Toledo Lucas County Port Authority					
1872721	Ameritech, South/Western Landfill	103 South Ave	43609	2.6		Phase I, 1999	CTL Engineering, Inc.	Louise B. Collins Edmund Collins		Salazar Rudolpho	Vacant				
1876138	LOF I-75	I968 Miami St.	43605	37.07				River Road Redevelopment LOF		Toledo Gaming Ventures Inc.					
1876952	Redot	123 Oakdale	43605	2.2	USEPA Assessment '06	Vap work plan, Phase I, 2007; Phase II, 2008	Hull & Associates, inc.	River East Economic Revitalization Corp CSX Transportation		Redot Development LLC	Vacant	USTs,		Intersection Rail Roads run along boundaries of site	
1877527	Starboard side	1070 Miami	43605	0.4				No Record		City of Toledo					
1877935		3900 N. Summit								City of Toledo					
1877954	Bayview Wastewater Treatment	3900 N. Summit	43611	6.992		Sampling Analysis Plan	Hull & Associates	City of Toledo		Bay View Port Authority					
1885001	Gas Station - Investigation Needed	5004 Lewis										Gas Station - Investigation Needed			At Laskey, Image
1899023	Streets, Bridges & Harbor Salt Piles	0 Water St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		A combined sewer outfall #26 for the City of Toledo is located on the southeast corner if the 1338 N. Summit St. Parcel
1899025	Consolidated Rail	0 Emerald	43602					Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail					
1899329	Streets, Bridges & Harbor Salt Piles	0 Water St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		A combined sewer outfall #26 for the City of Toledo is located on the southeast corner if the 1338 N. Summit St. Parcel
1899332	Streets, Bridges & Harbor Salt Piles	0 Water St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		A combined sewer outfall #26 for the City of Toledo is located on the southeast corner if the 1338 N. Summit St. Parcel
1899334	Streets, Bridges & Harbor Salt Piles	1338 N. Summit St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		A combined sewer outfall #26 for the City of Toledo is located on the southeast corner if the 1338 N. Summit St. Parcel
1899335	Streets, Bridges & Harbor Salt Piles	0 Water St.	43611			Phase I, 2001; Phase II, 2001	TDOES	Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail			Site contain railroad tracks, relatively flat, a combined sewer outfall # 27		A combined sewer outfall #26 for the City of Toledo is located on the southeast corner if the 1338 N. Summit St. Parcel
2000301	William A. Mains	2852 South	43609	2.1				Gold Star Investments, Right Metal Fabricators	Industrial	Charles Sallah					
2000344	National Industrial Invest	3060 South	43609	4.56				Robert Irsay Co		National Industrial Investors LTD					

Brownfield Inventory List

Parcel #	Brownfield	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
2004244	Kenneth Smith A Tr et al	60 N. Westwood	43607	1.32				Smith, Kenneth Trust		Smith Annette Et Al trust					
2004264	Sparton Chemical Property	110-210 N. Westwood Ave	43607	4.5		Phase I, 1999	Hazcorp		Food warehouse	City of Toledo					Plant was involed in formulating and blending, bulk chemical to produce water-based industrail & institutional cleaning
2005091	Leah Gedert	3820 South	43615	1.1				Leah Gedert		Kathleen Melanathy	Residence				
2005467	Northern Dist. Co.	4223 South	43615	10.48				Third Fjord Properties Inc		Northern Distributing Co					
2005634	Z&A	3455 Hill													Image
2005711	Cleveland Metals	2351 Hill Ave.	43607	4.64	N/A	ARIES online	N/A	H L R Enterprises	Ind Whse/Manufactue	L&M Toledo Properties, LLC					
2006631	J.G. & V.M. Schmuhl	3533 Marine	43609	0.474		Phase I	APAC 1	Martha Netterfield Allen Netterfield		Daniel W Frye			1,960 sq. ft. office space, 3,760 sq. ft. warehouse	1/2 North of Aiport Highway	
2006634	J.G. & V.M. Schmuhl	3525 Marine	43609	0.474		Phase I	APAC 1	Martha Netterfield Allen Netterfield		Daniel W Frye			1,960 sq. ft. office space, 3,760 sq. ft. warehouse	1/2 North of Aiport Highway	
2010086	Toledo Botanical Gardens	5403 Elmer Dr			N/A	File	N/A								Facts & grievance over demlish asbestos building, Image
2015131	Wenz Rd,	306 Wens Rd.	43615	6.67 6.66 6.67	N/A	File, ARIES on-line	N/A	Robert Dennis	Vacant lot	First Church of God	Vacant lot	N/A	Vacant lot		
2015141	Wenz Rd,	286 Wenz Rd.	43615	6.67 6.66 6.67	N/A	File, ARIES on-line	N/A	Robert Dennis	Vacant lot	First Church of God	Vacant lot	N/A	Vacant lot		
2015151	Wenz Rd,	296 Wenz Rd.	43615	6.67 6.66 6.67	N/A	File, ARIES on-line	N/A	Robert Dennis	Vacant lot	First Church of God	Vacant lot	N/A	Vacant lot		
2045057	JG Property Mngmnt	403 N. Westwood	43607	0.1				Jack & Margie Rogers		J G Property MGMT					
2052221	Gas Station - Investigation Needed	1310 Reynolds										Gas Station - Investigation Needed			Near Foodtown, Image
2094471	Pipe & Valve	4212 South	43615	9.53				No Record		Underground Pipe and Valve					
2097713	Dorr & Westwood	**2603 Dorr**	43607	0.97	N/A	Brownfield Redevelopment Fund Community Assessment Intitive Applacation, 2008	TDOES	Bobby Howard	Commercial and office space	Monroe Inc	occupied	Contamination unknown, likely became contaminated with hazardous materials through a variety of industrial activities over the last 90 years	7,098 Sq. Ft. building; asphalt-paved lot	Adjacent to University of Toledo	All sites currently for sale and Ann Arbor developer plans to purchase all four and renovate them simultaneously. *parcel 18-05378 listed address 980 Westwood in Aeris
2097857	Quick Glass & Mirror	1205 N. Westwood	43607	0.47				Ben Sayed		Sayco Properties LLC					
2204854	Alexis	205 W. Alexis	43612	3.8	USEPA Assessment '03	VAP Phase I, 2005	TDOES	Richard Johnson Harry Pownell	ED Lapointe, PC Transport, RJG Trucking, & Pownell Machine	Denniss & Randi McClintock	HLM Trucking, ED Lapointe, PC Transport, RJG Trucking & Stan Orway	Durms of oil & hydraulic fluid, multiple areas of dumping containing metal shavings, furniture, truck parts, stone & blacktop, and trash	Site contains two buildings and large semi tailers parking lot		2 USRs removed from site, 1993, no hazardous or toxic material on site
2204885	Willis Day	5405 Telegraph Rd	43612		In Progress										Image
2204901	Alexis	205 W. Alexis	43612	3.8	USEPA Assessment '03	VAP Phase I, 2005	TDOES	Richard Johnson Harry Pownell	ED Lapointe, PC Transport, RJG Trucking, & Pownell Machine	Denniss & Randi McClintock	HLM Trucking, ED Lapointe, PC Transport, RJG Trucking & Stan Orway	Durms of oil & hydraulic fluid, multiple areas of dumping containing metal shavings, furniture, truck parts, stone & blacktop, and trash	Site contains two buildings and large semi tailers parking lot		2 USRs removed from site, 1993, no hazardous or toxic material on site
2204921	ALK Enterprises	5717 Telegraph	43612	2.75				Telegraph Holdings LTD		ALK Enterprise INC					
2204934	Impact Stamping	5511 Telegraph Rd.	43612	11.5	Redeveloped Site			JGT Properties Inc		Joseph Correa					
2204944	Essex Group	5757 Telegraph	43612	1.01				ATB Holding Inc		HBW Properties LLC	Commercial - Instant oil change center			corner of Telegraph and Alexis	
2206494	Raceway Park	5707 N Detroit Ave	43612	6.6						Raceway Park Inc					No image
2206754	Telegraph	5200 Telegraph Rd	43612	5.36				Omnisource corporation		Omni Source Transport LLC					No image
2206901	Omni Source	5000 N Detroit Ave	43612												Image
2206957	Airport	5206 Detroit Ave rear	43615	21.8	USEPA Assessment '03	Phase I, 2005	Mannik & Smith	KTI properties, Kurtz Brothers, Ohio Specialties Mfg., Draco, G. Mavis and J. Keeler.	Commercial, undeveloped, and Vacant	Omnisource Corporation	Commercial, undeveloped, and Vacant	USTs, ASTs, muritic acid, and varios pile of household debri	Wood pallet manufacture, Omni-Source, covered with dirt trails and trees		3 USTs removed from site, 1995, No image
2206971	Omni Source	5000 N Detroit Ave	43615	10.64		Phase I, 2005	Mannik & Smith	Omni-Source, Kurtz Brothers, Ohio Specialties Mfg., Draco, G. Mavis and J. Keeler.	Commercial, undeveloped, and Vacant	Omni-Source, Kurtz Brothers, Ohio Specialties Mfg., Draco, G. Mavis and J. Keeler.	Commercial, undeveloped, and Vacant	USTs, ASTs, muritic acid, and varios pile of household debri	Wood pallet manufacture, Omni-Source, covered with dirt trails and trees		3 USTs removed from site, 1995, No image
2207021	Alexis Connection	5381 Stickney	43612	48.3		Phase I, 1999	Hull & Associates	New York Central RR	Farming	Bur-Bun Inc.	Vacant		Vacant parcel, triangular shaped, generally flat	Shantee Creek located on south side & Silver Creek is near the northern edge of site.	The site is bound on the west by the CSX railroad and, on the east by the Ann Arbor railroad tracks, petroleum pipelines located at the northern east of site - No Image
2207040	Stickney Tri - Kurtz	0 Stickney Ave	43615	21.26		Phase I, 2005	Mannik & Smith	Christian Scharer	Commercial, undeveloped, and Vacant	Judith Keeler	Commercial, undeveloped, and Vacant	USTs, ASTs, muritic acid, and varios pile of household debri	Wood pallet manufacture, Omni-Source, covered with dirt trails and trees		3 USTs removed from site, 1995, No image

Brownfield Inventory List

Parcel #	Brownfied	Address	Zip Code	Acrage	Funding	Work Completed	Contractor	Previous Owner	Previous Use	Current Owner	Current Use	Contamination	Site Description	Landmarks	Notes
2207057	Omni Source	5325 Stickney Ave	43612	18.9		Phase I, 2005	Mannik & Smith	Omni-Source, Kurtz Brothers, Ohio Specialties Mfg., Draco, G. Mavis and J. Keeler.	Commercial, undeveloped, and Vacant	Hope Realty		USTs, ASTs, muritic acid, and varios pile of household debri	Wood pallet manufacture, Omni-Source, covered with dirt trails and trees		3 USTs removed from site, 1995, No image
2207071	Omni Source	5225 Stickney Ave	43612	10.8		Phase I, 2005	Mannik & Smith	Omni-Source, Kurtz Brothers, Ohio Specialties Mfg., Draco, G. Mavis and J. Keeler.	Commercial, undeveloped, and Vacant	G. Mavis TTE	Commercial, undeveloped, and Vacant	USTs, ASTs, muritic acid, and varios pile of household debri	Wood pallet manufacture, Omni-Source, covered with dirt trails and trees		3 USTs removed from site, 1995, No image
2207072	Airport	5261 Stickney Ave	43612	8.6		Phase I, 2005	Mannik & Smith	Omni-Source, Kurtz Brothers, Ohio Specialties Mfg., Draco, G. Mavis and J. Keeler.	Commercial, undeveloped, and Vacant	Draco Investments	Commercial, undeveloped, and Vacant	USTs, ASTs, muritic acid, and varios pile of household debri	Wood pallet manufacture, Omni-Source, covered with dirt trails and trees		3 USTs removed from site, 1995
2207151	Airport	5047 Stickney Ave	43612	12.6		Phase I, 2005	Mannik & Smith	Omni-Source, Kurtz Brothers, Ohio Specialties Mfg., Draco, G. Mavis and J. Keeler.	Commercial, undeveloped, and Vacant	Hope Realty	Commercial, undeveloped, and Vacant	USTs, ASTs, muritic acid, and varios pile of household debri	Wood pallet manufacture, Omni-Source, covered with dirt trails and trees		3 USTs removed from site, 1995
2207164	Airport	5109 Stickney Ave	43612	26.4		Phase I, 2005	Mannik & Smith	Omni-Source, Kurtz Brothers, Ohio Specialties Mfg., Draco, G. Mavis and J. Keeler.	Commercial, undeveloped, and Vacant	Ohio Specialties Mfg.	Commercial, undeveloped, and Vacant	USTs, ASTs, muritic acid, and varios pile of household debri	Wood pallet manufacture, Omni-Source, covered with dirt trails and trees		3 USTs removed from site, 1995
2207802	Detroit to Laskey	4848 N Detroit Ave	43612	5.276				Jimmie Hamblin		Patricia Ann Hamblin TR					
2207811	Detroit to Laskey	4848 N Detroit Ave	43612	0.215				Jimmie Hamblin		Patricia Ann Hamblin TR					
2208021	New Hortizons Reality	434 Matzinger	43612	3.008				Timberstone Construction Inc.		211 Investments INC					
2208051	AM.L.T. Services	454 Matzinger	43612	2.966				Tuna Properties, LLC	Ind. wharhouse	211 Investments INC					
2208078	XXKEM	4015 Stickney Avenue	43612	3.07		Phase I; Phase II;			Industrial;	City of Toledo					No image
2208133	Stickney Tri - Kurtz	0 Stickney Ave	43611	0.149				Jack Allen Lawrence		City of Toledo					
2208211	Lay industries	4500 N. Detroit	43612	11.1				Lay Kenneth J SR TTE		Brad S Smith Co Et Al					
2208263	Commercial Property	315 Matzinger	43612	24.37				Corp. Porperty Assoc TES 6A C.A.		IBC Inc.					Photo
2212003	Ohio National Guard	4455 Secor	43623	5.84	N/A	Phase I, 2001; Limited Phase II ESA, 2001	Mannik & Smith		Reserve and training center	Valencia Holdings	Storage facility for the City of Toledo	USTs, sheen on water, Asbestos & lead paint	Contains 5 brick buildingswith flat & asphalt shingles totaling 44,246 sq. ft.; 18,000 sq. ft. asphalt paved parking lot	Predominantly residential and commercial use around site; Tifft Ditch is located on site.	3.18 acres of land not developed, zoning and floodplain issues, Image
2241201	Dial Corporation	6120 N. Detroit Ave.	43612	0.822				ARPC Toledo LLC		Arlington Rack and Packaging Co					
2270037	Cherrywood Auto	5840 N Detroit Ave	43612	9.77				V/Gladieux Enterprises		Lousville Title Agency					
2275887	Raitt Corp	1336 Matzinger Rd.	43612	10.27				No Record		Raitt Corporation					
2275996	Stickney Tri - Kurtz	0 Stickney Ave	43612	22.79				Propane Continental Inc		Crestline Paving and Excavating Co					
2280574	Short Freight Lines	1045 Matzinger Rd.	43612	2.5				Short Freight Lines		RAK Services					
2284207	Gas Station - Investigation Needed	4665 Detroit Ave										Gas Station - Investigation Needed			Corner of Det. And California, 3 places, Image
2299097	Stickney Tri - Kurtz	0 Stickney Ave	43612	??				Michigan Interstate Rail		Ann Arbor Acquisition Corp					
2299100	Stickney Tri - Kurtz	0 Stickney Ave	43612	??				Michigan Interstate Rail		Ann Arbor Acquisition Corp					
2299121	Stickney Tri - Kurtz	0 Stickney Ave	43612	??				Michigan Interstate Rail		Ann Arbor Acquisition Corp					
2303047	Gas Station - Investigation Needed	2501 Laskey										Gas Station - Investigation Needed			Auto Dealer (Tremainsville and Douglas), Image
2322501	Buckeye Investment	1052 Matzinger	43612	3.29				Heidtman Steel Products	Ind Lt Mfg	Buckeye Investment Prperties					
2611771	Detroit Lead Recyclers	5715 Angola	43615	1.36				Detorit Lead Recyclers		C.H. &R.B. Limited					
2611774	Detroit Lead Recyclers	5715 Angola	43615	1.41				Detorit Lead Recyclers		C.H. &R.B. Limited					
4433044	Matlack Trucking Co	1728 Drouillard	43616	2.6				Super Service Inc		Thayer Road LLC					
8399001	Stickney Tri - Kurtz	0 Stickney Ave	43611	??				Consolidated Rail Corp.		Pennsylvania Lines LLC C/o Norfolk Southern Rail					

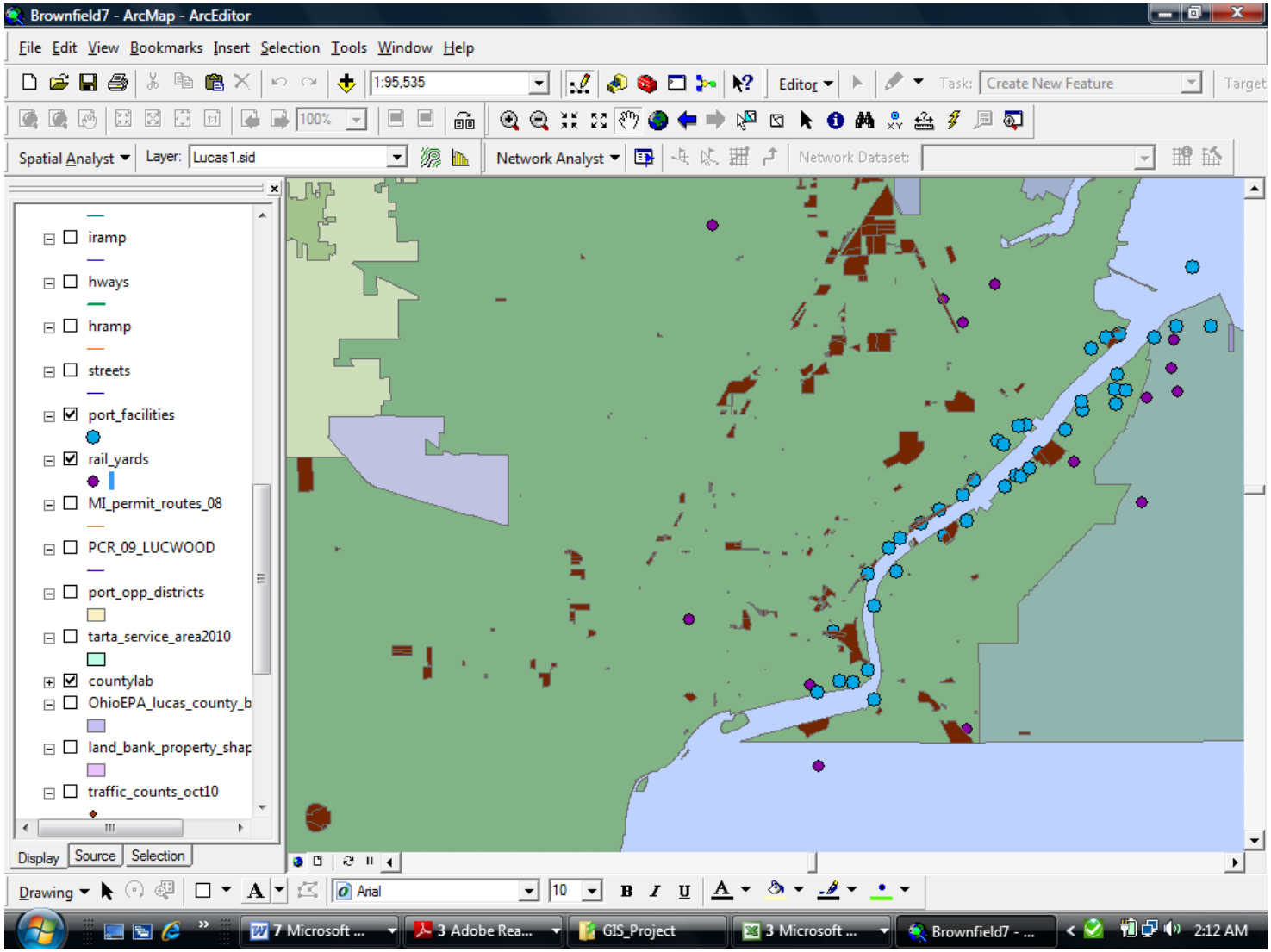

Figure A.1 – Rail yards (purple) Port facilities (blue)

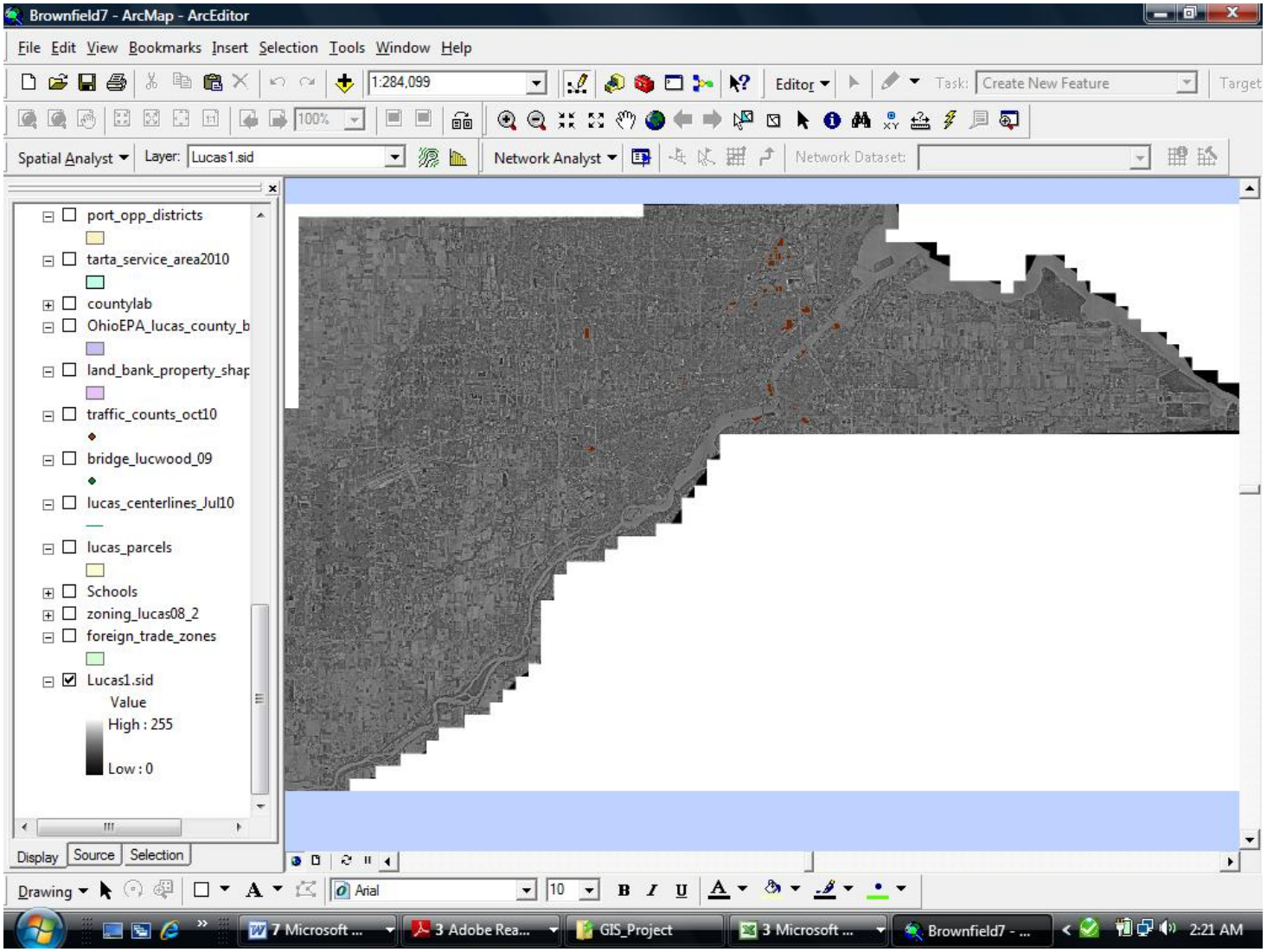

Figure A.2 – Lucas County with the digital orthophoto layer active

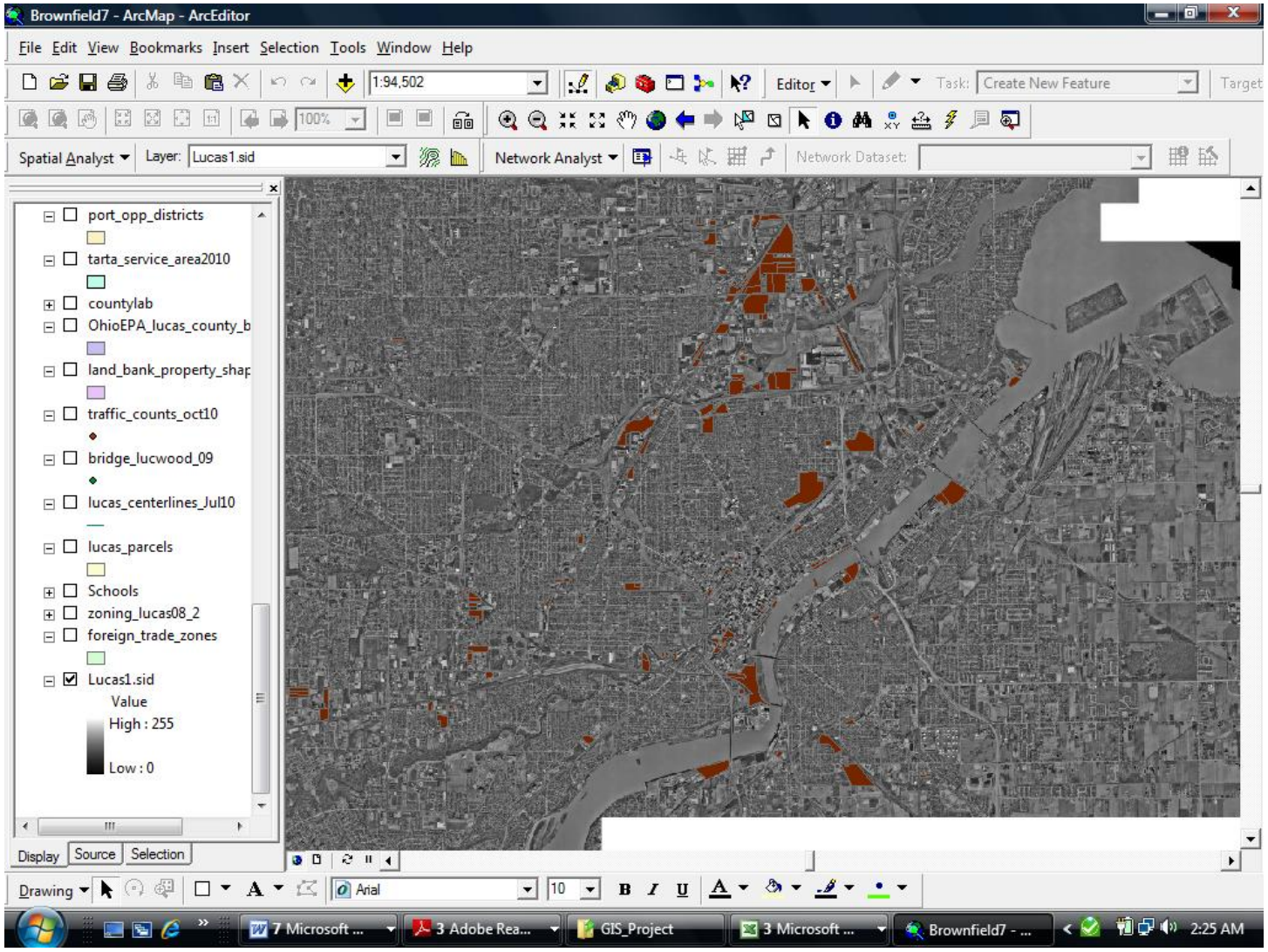

Figure A.3 – Zoom in of digital orthophoto layer

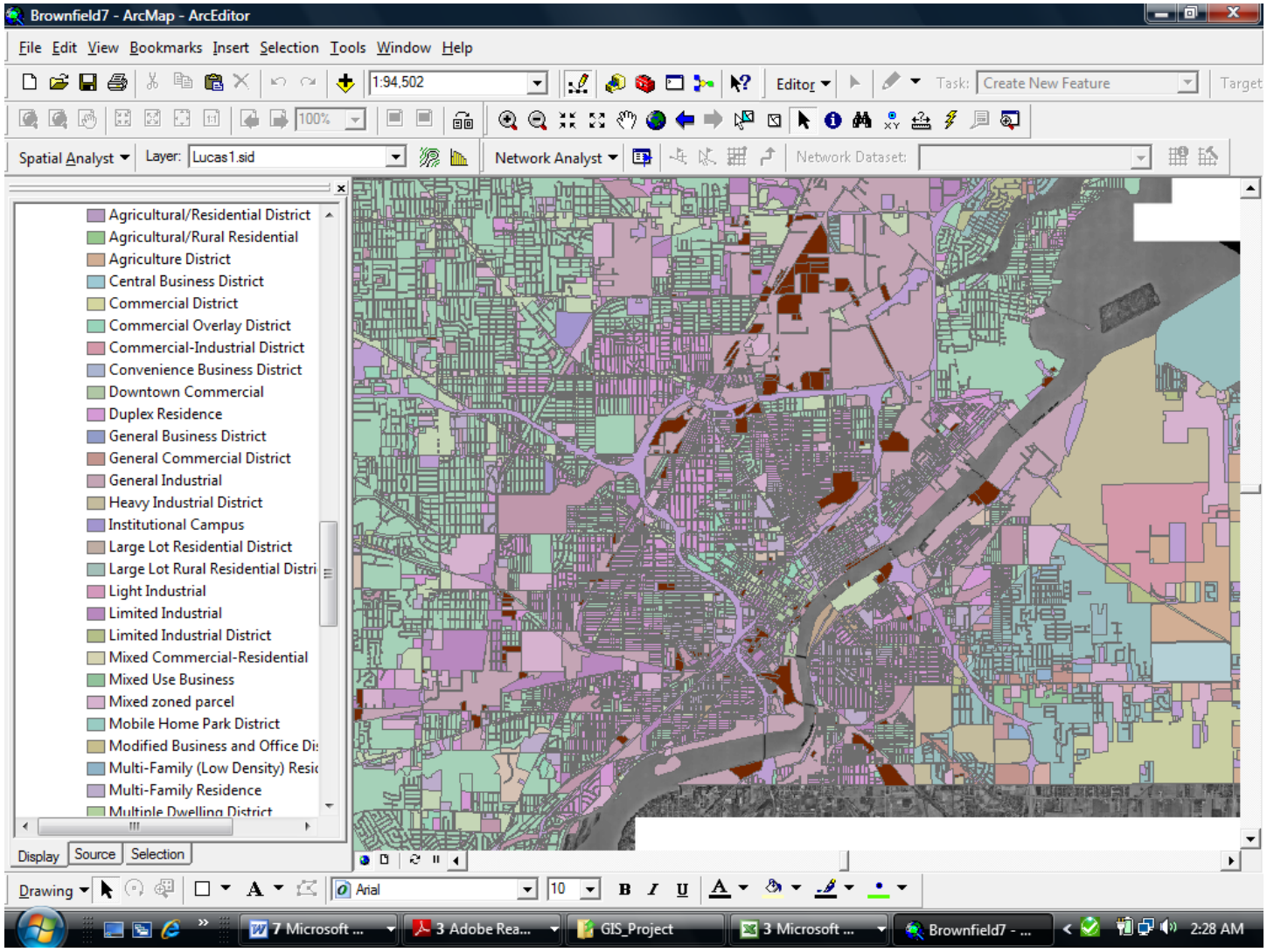

Figure A.4 – Lucas County zoning layer active

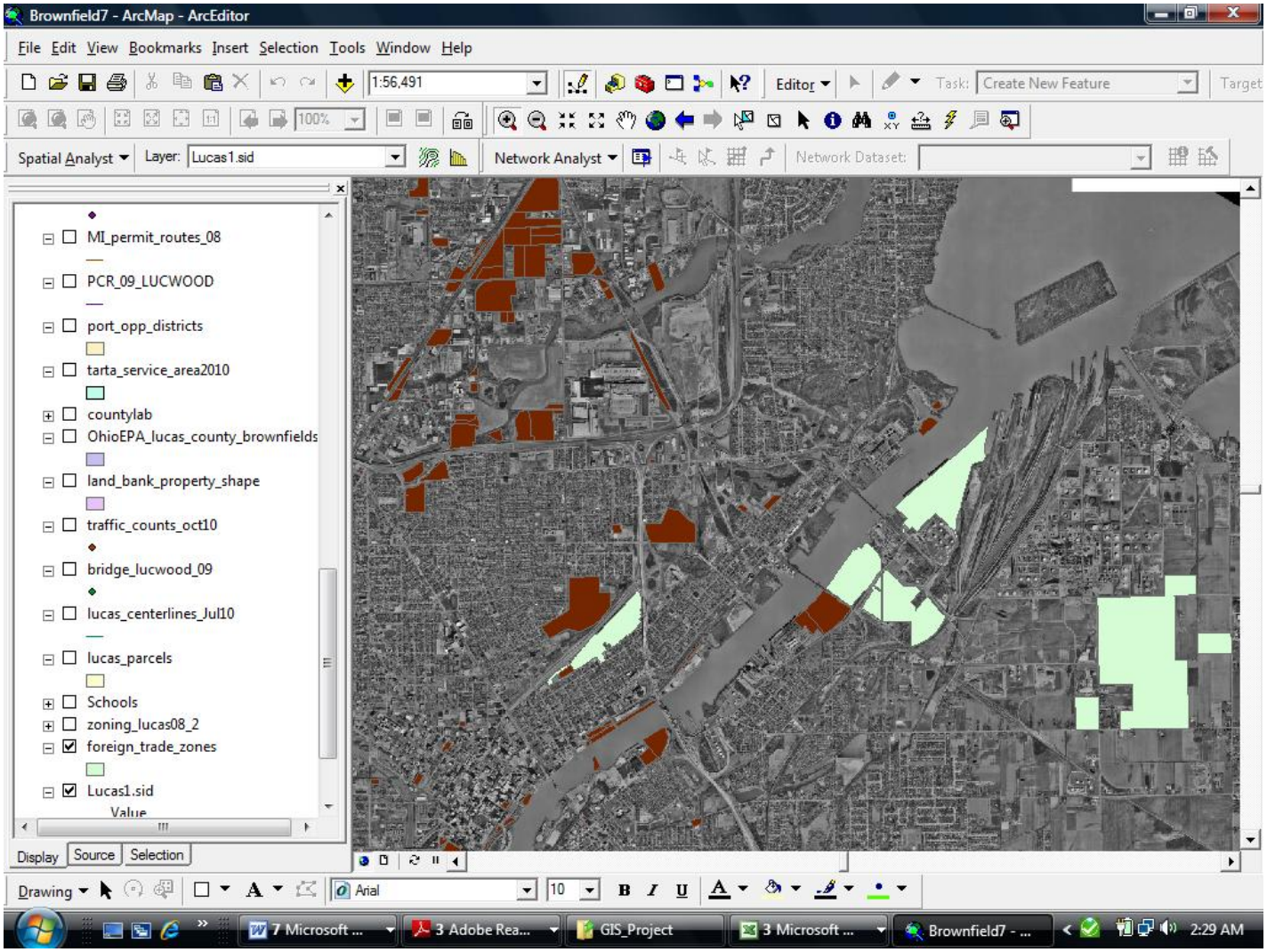

Figure A.5 – Activate foreign trade zone layer (light green) next to brownfields

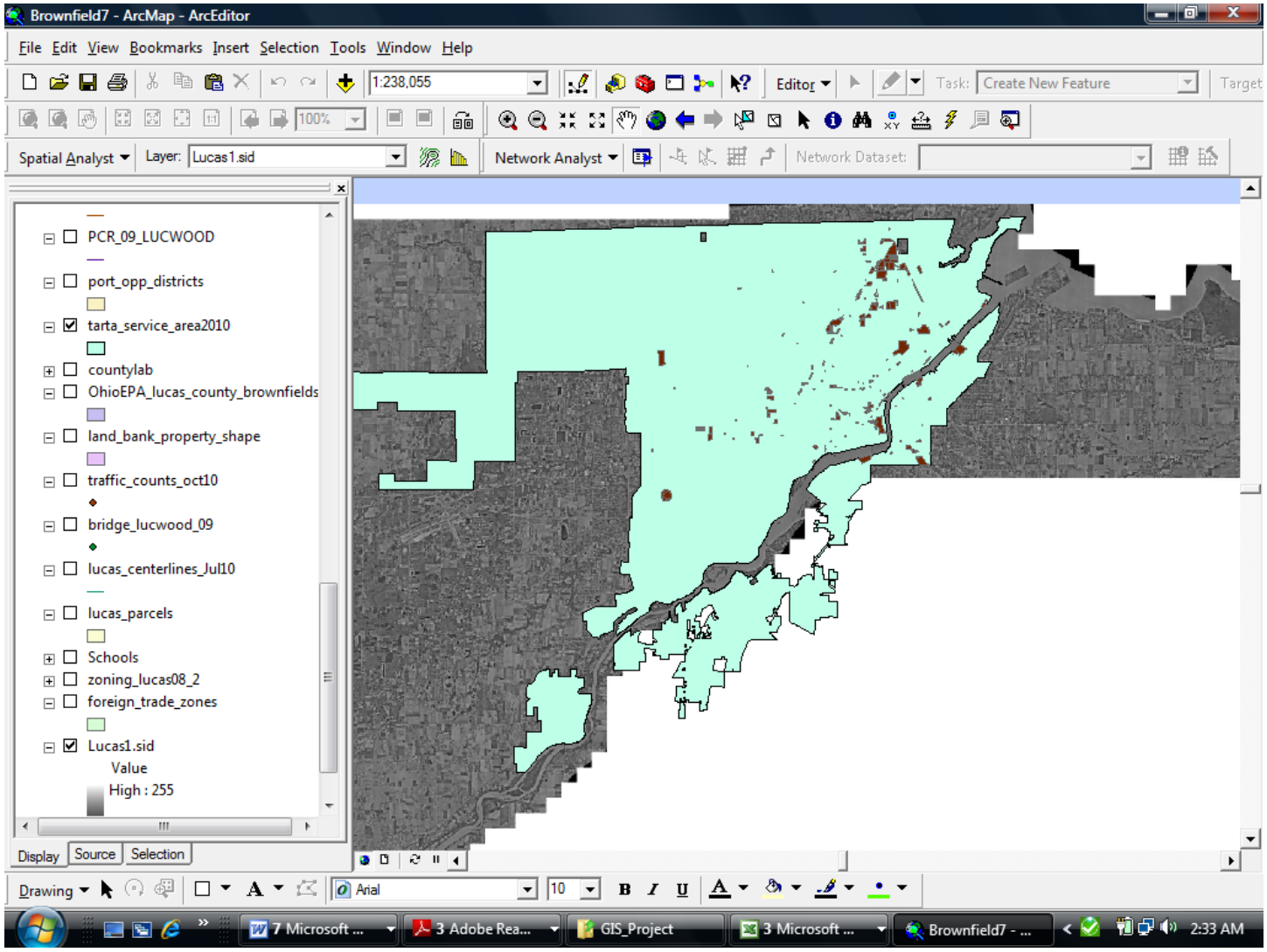

Figure A.6 – TARTA service area