EXECUTIVE SUMMARY

This report presents screening tools to evaluate and identify brownfield sites that can be economically cleaned up and redeveloped as mixed-income residential and/or mixed-use communities using smart growth principles. GSG Consultants, Inc. (GSG) developed the screening t

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1. INTRODUCTION

The City of Chicago Department of Environment retained GSG Consultants, Inc. (GSG), to develop screening tools to evaluate and identify brownfield sites that can be economically cleaned up and redeveloped as mixed-income residential and/or mixed-use communities using smart growth principles.

1.1 OBJECTIVES

The objectives of this project were to develop screening tools for brownfield site selections using knowledge and experience gained from previous residential development of brownfield sites, and to provide guidelines for the redevelopment of brownfield sites using smart growth principles.

1.2 PROJECT METHODOLOGY

GSG collected the information provided in this report from various technical documents and publications prepared by the U.S. Environmental Protection Agency (U.S. EPA), the City of Chicago, non-profit organizations, and advocate groups. GSG also collected information from various web sites of the City of Chicago, U.S. EPA, non-profit organizations, and related industries.

1.3 REPORT ORGANIZATION

This report comprises the following sections:

- **Section 1.0 – Introduction**
  This section presents a brief description of the objectives of the project, methodologies utilized to develop the information included in this report, and a brief description of the brownfield process in the City of Chicago.
- **Section 2.0 – Brownfield Redevelopment Screening Tools**
  This section presents remediation examples of residential redevelopment of former brownfield site projects, lessons learned from these projects, and provides screening tools and procedures for future site selections.
- **Section 3.0 – Smart Growth Principles**
  This section presents an overview of smart growth principles and provides guidelines for the redevelopment of brownfield sites using some of these principles.

1.4 BROWNFIELDS VERSUS SMART GROWTH

A brownfield property is defined by the U.S. EPA as "a real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." In a broader definition, brownfield properties can be defined as abandoned, idled, or underutilized residential, industrial, and commercial lands or buildings in already developed urban or suburban areas, where expansion or redevelopment is complicated by real or perceived contamination or intangible factors related to the site's location that can add cost, time, or uncertainty to the redevelopment.

Smart growth is a development that serves the economy, the community, public health, and the environment. Smart growth connects the development to the improvement of the quality of life in the community by creating jobs; building strong neighborhoods with a range of housing, commercial, and transportation options; and achieving healthy communities that provide families with a clean environment. Redevelopment of existing buildings and land, including contaminated brownfield sites, has been pursued since the early 1990s, and is a separate activity from the smart growth initiatives. However, both share the same goals of providing economic growth, creating jobs, and creating a healthy environment.

1.5 BROWNFIELD ACQUISITION AND CLEANUP PROCESS

The City of Chicago evaluates brownfield sites based on access and control, cleanup cost-estimates, and developmental value. If a brownfield site has industrial, commercial or residential development potential, the City of Chicago acquires the site through one or more of the six primary methods, which are described below:

- **Negotiated Purchase:** The City of Chicago may negotiate directly with a property owner to purchase a p

- **Lien Foreclosure***:* The City of Chicago may hold and foreclose on municipal liens against brownfield sites. These liens could include demolition liens, environmental liens, and garbage liens.
- **Settlement:** The City of Chicago may accept land as part of a legal settlement agreement.
- **Denotation:** The City of Chicago may accept land denotation from private and other government agencies.

The City of Chicago conducts a pre-acquisition screening that designates which sites will likely need a Phase I Environmental Site Assessment (ESA) and/or Phase II ESA y Tj12 0 0 12 417.4k12 Tj12Ts2 1.1

2. BROWNFIELD SCREENING TOOLS

This section provides screening tools to evaluate brownfield sites based on experience gained from previous residential redevelopment of brownfield sites in the City of Chicago.

2.1 CHICAGO BROWNFIELD RESIDENTIAL REDEVELOPMENT PROJECTS

The City of Chicago has completed numerous brownfield redevelopment projects for industrial, commercial and residential properties. Site investigation and remediation costs varied, based on the site's historic uses, nature of contaminants present at the site, and nature of the proposed redevelopment. This section provides examples of residential redevelopment of brownfield sites, and provides discussion of lessons learned from those development projects.

CHA Henry Horner Homes Redevelopment – The site consisted of two parcels; the east parcel was located at 150 North Hermitage and the west parcel was located at 2215 West Lake Street. The east and west parcels were 4.7 and 6.5 acres in size, respectively. The east parcel was formerly occupied by automobile garages, stores, barns and a church prior to 1963. By 1963, the parcel was occupied by two Chicago Housing Authority (CHA) buildings and a parking lot. The parcel was surrounded by industrial and commercial properties. The west parcel was formerly occupied by residential properties, commercial stores, a picture-frame factory, a church, a welding shop, and an automobile garage until sometime in the early 1970s when the CHA constructed two mid-rise buildings at the parcels. The site investigation activities revealed the presence of impacted soils with several polynuclear aromatic (PNA) constituents above the Illinois EPA Tier 1 Soil Remediation Objectives (SROs) for residential properties throughout both parcels. Lead and arsenic were also detected in some soil samples collected from the east and west parcels at a coact06j12 0 0 12 51etected in a coact06jlso detected in so Tm59i0o1rn activ tl

Department of Environment. The Sanborn map collection consists of a uniform series of large-scale maps, dating from 1867 to the present and depicting the commercial, industrial, and residential sections of cities and towns in the United States. The maps normally show individual building "footprints," complete with construction details such as building material (brick, adobe, frame, etc.), height, number of stories, chimneys and elevators, use of structure (dwelling, hotel, church, etc.), and street address. Other features shown in Sanborn Maps include lot lines, street widths, water pipes, hydrants and cisterns, and fire-fighting facilities. The maps also indicate the presence of USTs since they were originally produced for insurance underwriters who used them to determine risks and to establish premiums. Aerial photographs should be reviewed only if no Sanborn maps are available for a specific area of the City of Chicago. In general, Sanborn maps should be available for a majority of the City of Chicago. Acquiring records of UST installation, removal, and building violations should also be included

GSG has developed a numerical scoring system for the above two steps, based on the potential presence of contamination and the cost to perform remediation at the site. Figure 1, Preliminary Screening Matrix, presents a summary of the Preliminary Screening process.

Figure 1 - Preliminary Screening Matrix		
Maximum Score	**Screening Task**	**Scoring Guide**
1	**Historic Uses (Site and Adjoining Properties for Last 100 Years)**	
	a. Industrial Site	25 points
	b. Dry Cleaning Facility	20 points
	c. Service Station	15 points

process. If the site score exceeds 60 points (out of a maximum 100 points), the site should be removed from further consideration for redevelopment. A remediation cost estimate should be developed upon the completion of the Preliminary Screening process. The remediation cost estimate should include the following two components:

a. **Pre-development Remediation:** This should include the cost for the removal of debris stockpiles, drums, USTs, hazardous building m


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All sites except Parnell Place received a score lower than 60 during both screening tasks. This suggests that Henry Homes, Columbia Pointe, and Safe Homes for Kids were suitable for economical residential redevelopment. The Parnell Place received a score of 70 and 65 for Task A and Task B Screenings, respectively. The site would have been placed on a low priority for redevelopment. Appendix A, Brownfield Screening Matrix, presents a copy of the brownfield screening tools for

availability of prime farm and ranch lands. Environmental benefits include reducing air pollution, attenuating noise, providing erosion control, moderating temperature, preventing flood damage, and protecting animal and plant habitats.

7. **Strengthen and direct development towards existing communities –** Smart growth directs development towards communities already served by infrastructures, seeking to utilize the resources that existing neighborhoods offer and to maintain the value of public and private investment. By encouraging development in existing areas, where commercial, transit, and other amenities exist, communities benefit from a stronger tax base, closer proximity of jobs and services, increase efficiency of already developed land and infrastructure, reduced development pressure in fringe area. In addition, the process of increasing development in existing communities can maximize the use of existing impervious surfaces, and improve local and regional water quality, and create opportunities for more transportation options, which lower vehicle miles traveled and ultimately improve

jobs nearby to avoid lengthy daily commutes. Mixed land use should include several components in a single building or building complex. Mixed land use should be planned when a new development comprises more than 20 households and there is no retail-commercial area within 0.5 acres. Retail-commercial can be either located on the first floor of a building or along major streets, while residential households can be located above the first floor and along side streets. When a building contains retail-commercial and residential units, the project should include a minimum of 80% of the square footage of the first floor for retail or office uses, while the remaining 20% can be used for residential purposes. The ground floor of the building should also be located close to the street and have 80% of the street side available for pedestrian uses. Pedestrian uses are defined as those required for daily public uses such as retail, restaurants, or services. Pedestrian uses should be located as close as possible to the street as setbacks permit; however, the width of sidewalk should be at least 12 feet along major streets and 6 feet along side streets.

- **High-Density Dwelling in Appropriate Locations -** Density is generally defined as the amount of residential development permitted on a given parcel of land. It is typically measured in dwelling units per acre; the larger the number of units permitted per acre, the higher the density. Higher density offers several advantages such as convenient amenities, walkable communities, reasonable taxes, and improved air quality. However, poorly designed high density may backfire and create problems for residents. Therefore, density should be increased only in appropriate locations such as near businesses and commercial districts; along bus routes; and near train stops. The minimum density of sites located along bus routes should be six to eight (6-8) households per acre, and fifteen to twenty (15-20) households per acre within a 0.5-mile radius of train stops and business/commercial districts.

- **Access to Open or Green Spaces –** The presence of open space and parks encourage residential development in general since they provide recreational opportunities for the new development. Brownfield sites should be evaluated for the presence of open and/or green spaces within 0.25 miles of the site. The open space should be connected with the Brwonfield site by sidewalks since the majority of green space visitors are children. If there is no green space within 0.25 miles of the site, and the proposed development is more than 20 households or 3 acres in size, a minimum 5% of the proposed development should be deducted for a park in addition to the standard requirements for green space.

- **Located in Interconnected and Walkable Community -** Dense development with good connections to homes, shops, schools, and offices allow people to choose an alternative to

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Figure 4 - Site Specific Smart Growth Evaluation (Cont'd) Description	Scoring Guide	Scoring for Site
Bike route location		-
Less than ¼ mile (5 points)	5	
¼ mile to 1/2 mile (4 points)	4	
½ mile to 3/4 mile (3 points)	3	
More than 1 mile (0 points)	0	
Parking		

based on the average household income of the community. Additionally, new development should provide a mix of housing types and sizes (townhomes; studios; 1-bedroomw i38drouent

APPENDIX A

BROWNFIELD SCREENING MATRIX

APPENDIX B

SMART GROWTH PRINCIPLES

APPENDIX D

CITY OF CHICAGO PLANNED DEVELOPMENT ZONING ORDINANCE