SOUTH SIDE PARK GREENSPACE MANAGEMENT PLAN

South Side Local Development Company

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1.0 INTRODUCTION

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The Pittsburgh area is fortunate to have an abundance of greenspace. There are hardly any neighborhoods in the City of Pittsburgh or the surrounding suburbs that are not relatively close to a public park or extensive wooded lands. This greenspace is so abundant that it is often easy to overlook its importance. Not only does greenspace provide habitat for plant and animal species, it contributes greatly to the well-being of human communities. From an ecological perspective, greenspace provides the essence of life. It produces molecular oxygen and aids in the release of other life-giving gases into the biosphere. It filters soil and water, trapping toxins that threaten human health. From an intrinsically human-centered perspective, greenspace provides a refuge from the grind of daily life and by escaping our routine cares – even if only for a few moments – allows us to be renewed and refreshed. In short, greenspace increases our well-being tremendously and improves the quality of life in many ways, both physical and psychological.

As an outgrowth of planning efforts over the past five years, the South Side Local Development Company (SSLDC) is investigating strategies to improve South Side Park. The park, a 65-acre facility located on 18th Street and Mission Street, is one of the largest publicly-owned greenspaces on the South Side. It is an underutilized community resource, however, that is primarily functioning today as open space, a limited neighborhood recreational facility, and a pedestrian thruway.

But it could be much more—

Under the right circumstances, it could offer many recreation opportunities to both the surrounding neighborhood and the entire Pittsburgh area. Perhaps the *Master Site Plan: South Side Park* developed by Klavon Design Associates, Inc., in 2003, said it best: "South Side Park is a valuable amenity that has the potential to be a major draw to the community."

Unfortunately, the park lacks significant physical and perceptual connectivity with its surrounding neighborhoods and exhibits some serious – but correctable – environmental deficiencies. Although the park is still in good shape, without some type of environmental intervention, the park's deficiencies could have serious consequences. With the proper

intervention, however, the park could become a major neighborhood and regional asset like some of Pittsburgh's better known parks and recreational facilities.

To accomplish the goal of improving the park and making it an important part of the South Side's socioeconomic fabric and the natural environment, the SSLDC has assessed the environmental features of the park and analyzed the informal trail system within the park. This greenspace management plan is the culmination of initial planning efforts to restore South Side Park.

1.1 Purpose of the Plan

In partnership with a special South Sides Slopes Elm Street Committee, the SSLDC has undertaken the development of this plan. A major component of the SSLDC's organizational mission is to improve the quality of life throughout the South Side. Because restoration of South Side Park is consistent with that mission, the overreaching goal of this plan is to support a better quality of life on the South Side.

A goal is an ideal, the "articulation of values, formulated in light of identified issues and problems, toward the attainment of which policies and decisions are directed." (Dickey 1975) Thus, even though goals are abstract, they are still an outgrowth of problems and issues. Goals are often best illustrated as concepts or absolute conditions toward which a community or group can strive to achieve. Consequently, striving to obtain a better quality of life is an ideal goal.

On the other hand, objectives are points that can be reached or achieved. They are measurable ends, developed to help move a community toward its goals. The establishment of objectives is the first step in a product-oriented procedure. Objectives serve as specific guides for the development of plans and programs.

As a result, the specific objectives of this plan are to:

- Gather, analyze, and assess the environmental features of the park.
- Create a safe, accessible, sustainable trail system within the park, building on the existing informal trail system.

- Connect the existing programmed space (or activity areas) of the park.
- Develop a long-term management plan for the park.

All analytical tasks performed in support of the plan flowed from these objectives. It is hoped that each task, in some small way, brought the community closer to its goal.

1.2 Neighborhood Setting

The location of the park within the City of Pittsburgh is shown on Figure 1. At slightly more than 65 acres in size, the park is located about four blocks south of East Carson Street – South Side's main thoroughfare and business district. It is an enormous amount of greenspace situated within one of Pittsburgh's most densely populated communities. Existing amenities currently found within South Side Park include a football field, two softball/baseball fields, a playground, some sidewalks, informal walking trails and nature paths, basketball courts, and a closed ice skating rink.

Principal entrances to the park are found at 21st Street, 18th Street, St. Patrick Street, and Arlington Avenue. Photo 1 shows the 18th Street entrance to the park. There are several other minor entrances around the perimeter of the park. These minor entrances are informal points of entry, often nothing more than "holes in the fence" that allow users from adjoining residential properties easy access into the park. Figure 2 shows the park in its neighborhood context.

On three sides of the park, the east, south, and west, adjacent land use is residential, for the most part, comprised of single-family homes. Land use on the north side of the park is a mixture of industrial and institutional with a small amount of residential. In effect, the park is transitional space between the major commercial and industrial development found along East Carson Street and some of the residential neighborhoods of the community. The topography within the park also transitions from the South Side Flats area, the generally level land of the South Side settled in a rectangular grid fashion, and the Slopes, an area of steeper topography and a slightly more irregular settlement pattern.

There is great pride on the South Side, as evidenced by the condition of housing in the community and the long tenure of many residents. Homes found in the immediate area are generally small and well-kept. About 40 percent of the houses on the South Side are owner-

occupied. Recent trends have seen a rise in the conversion of single-family homes in the community to multi-residential units, testament to the South Side's attractiveness to renters, too. Generally, home values are greater in the Flats than on the Slopes. Photo 2 shows some of the homes surrounding the park on its southern end.

As is often the case with Pittsburgh neighborhoods, community boundaries are not always clear-cut, but, generally, the South Side is considered to be formed by the Monongahela River on the north, Arlington Avenue on the south, the Liberty Bridge on the west, and Beck's Run Road on the east. This area is approximately 964 acres, an area that represents nearly 7 percent of the City of Pittsburgh's land mass. Although the neighborhood is a mixture of commercial, industrial, institutional, and residential land uses, it is difficult to characterize the community. To some, the South Side is merely a commercial district with an eclectic mix of local businesses servicing daily neighborhood needs and unique shops providing a vibrant regional destination and lively nightlife. To others, it is a strong residential community, attractive to longtime residents and newcomers alike. To all who live or work there, or who simply visit occasionally, it is an interesting place worth preserving and improving.

At the year 2000 U.S. Census count, 10,733 people called the South Side home, approximately 3 percent of all Pittsburghers. About 21 percent of South Siders are 65 years of age or older, but the South Side retains a continuing appeal for younger families and approximately 45 percent of its residents are younger than 35 years of age. Many current residents grew up on the South Side, creating community cohesion and strong identification with their neighborhood.

In terms of racial diversity, the South Side lags behind the remainder of the city. Approximately 32 percent of the Pittsburgh population is considered a member of a minority population, but only 5.5 percent of the South Side population are minority (City of Pittsburgh 2006).

Other recreational facilities located on the South Side include the South Side Riverfront Park and Trail, South Side Market House Recreation Center, the Henry W. Oliver Bath House, Ormsby Pool, the Arlington Recreation/Kaufmann Center, and numerous playgrounds, ball fields, and tot lots. Of these important community assets, the South Side Riverfront Park and Trail is the only other facility on the South Side – besides South Side Park – that offers significant opportunities for outdoor, nature-related recreation. South Side Riverfront Park is an approximately five-mile linear stretch of greenspace located adjacent to the Monongahela River

(Figure 2). Activities available there include a boat launch, a riverfront hiking trail, and picnicking.

Though large by urban standards, South Side Park is not one of the largest parks in the area – though it is of sufficient size to be regionally important. By comparison, the largest parks in the city include Frick (455 acres), Schenley (417 acres), Highland (388 acres), and Riverview (287 acres) parks. These four parks are often referred to as Pittsburgh's great parks and are the principal assets in the city's green web. City parks of comparable size to South Side Park include Sheraden, McKinley, and Brookline Memorial.

1.3 Creation of the Park

The seeds of South Side Park were sown in 1934 when the city received a gift of land along St. Patrick Street and Quarry Street from the Frederick C. Renziehausen estate. Renziehausen's gift of 5.5 acres called for the creation of a new park, the Sophia Evert Playground #1. In 1948, the Pittsburgh City Planning Commission approved a plan to construct a 65 acre park in that area that would include the Sophia Evert Playground, nearby Arlington Playground (located at the corner of Sterling Street and Fort Hill Street, but not an actual part of the park today), and most of the property between. The new park would also include property to the north, crossing Mission Street and ending near Josephine Street. In an effort to make the park a reality, the city purchased an additional 9.5 acres of land. By the mid-1960s, the park had taken shape and pathways were built from the Arlington Ballfield area to the interior of the park. (The park's upper baseball field is named Arlington Ballfield which does cause some confusion with Arlington Playground.) The next 30 years saw improvements occur principally around the site of a skating rink located in the Flats area of the park and the park's three ball fields. The last major improvement at the park was at the Arlington Ballfield when playground equipment was removed, the ball field expanded, and a parking lot built. (Additional information on the history of the park area is found in Section 3.0 of this plan.)

1.4 Relationship of the Plan Participants

The major participants in the plan are the SSLDC, the City of Pittsburgh Department of Public Works (DPW), and the Elm Street District. Other valued stakeholders in the process are the

South Side Slopes Neighborhood Association, the City of Pittsburgh Planning Department, and City of Pittsburgh Department of Parks and Recreation (Citiparks).

The SSLDC is a 501 c(3), non-profit community development corporation, focusing on historic preservation and economic revitalization of the South Side. Its focus is to facilitate the further development of business, industry, and recreational opportunities within the South Side while enhancing residential and community life in the neighborhoods that make up this unique area. The organization provides professional guidance and technical assistance to the community through a wide range of services. Frequently, it acts as a conduit for real estate, commercial, workforce, and residential development efforts that might not come to fruition if the agency did not exist.

The Elm Street District is managed by the SSLDC in cooperation with an Elm Street Committee of residents from the Slopes. The Elm Street program is a funding/planning mechanism established by the Pennsylvania Department of Community and Economic Development (DCED) to address quality of life issues in residential districts located near successful commercial corridors.

The DPW is responsible for the physical content and infrastructure of the city's parks and open space. In that role, it serves as the actual property caretaker for all city-owned parkland. As such, it bears responsibility for maintenance activities within South Side Park.

The South Side Slopes Neighborhood Association is a community-based volunteer group that fosters cooperation and communication in the neighborhood. Major areas of interest for the organization include resolution of neighborhood problems, public safety, neighborhood beautification, home ownership, and creation of viable public space.

The Planning Department is responsible for citywide planning activities, especially in relation to land use, community facilities, and the structure of Pittsburgh's neighborhoods. A major component of that responsibility is providing guidance for a comprehensive greenspace plan and other environmentally sensitive quality of life issues throughout the city.

While not a full participant in the maintenance and care of the park, Citiparks is responsible for all city-sponsored activities occurring within the city's parkland and other city-owned recreational

facilities. It could become a key future player in the process. Its interest in South Side Park will become more important as the park is renewed and restored to fuller use.

2.0 UNDERLYING MANAGEMENT STRATEGY

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The planning process cannot occur in a vacuum. To be successful, it must be part of a continuing effort to guide the community. By building on past efforts, chiefly the master site plan and earlier community development initiatives, this greenspace management plan is, in effect, an extension of all that has come before it.

Plan development has also been guided by the motto of the Urban Greenspaces Institute: *In Livable Cities is Preservation of the Wild.* There is an intrinsic value in the natural environment that is difficult to define. But by preserving open space, especially urban parkland, we preserve a part of man's past that is tightly connected to the present and offers a bright promise for tomorrow.

And, of course, how could anything be more appropriate than preserving a park in Pittsburgh, one of America's most livable cities?

2.1 Relationship to the Master Site Plan

In 2003, the SSLDC commissioned a master site planning process to create a new vision for the park. Significant public involvement was a key component of the planning process, including steering committee meetings, community meetings, and a presentation to the Arlington Civic Council. The process also generated a high level of interest from the local news media.

Early in the process, a catalog of existing conditions was developed, including an examination of the park's entrances, pedestrian circulation, grassy areas, play areas, wooded areas, views, and water resources. Several management objectives, or guiding design principles, were proposed in the master site plan (Klavon Design Associates 2003) that dovetailed with the development of the current undertaking. Those objectives became the guiding principles for this greenspace management plan and are summarized here, including the following elements:

- Provide historic connections – "The park has a rich history which can be evoked in many ways through the design."
- Ensure sustainable design – "Minimize the destruction of existing ecosystems. Manage stormwater on site. Use sustainable materials."

- Create educational opportunities – "There are opportunities to learn about history, ecology, botany."

- Create a maintenance plan – "The park could be significantly improved simply through maintenance efforts."

- Maintain simple design concepts – "South Side Park is rich as it is."

In establishing the framework for the development of a greenspace management plan, the master site plan also provided several relevant recommendations for any subsequent effort. The following is not a complete list of the recommendations found in the master site plan, but the most germane to the development of a greenspace management plan:

- Trails – "Identify trails on city and county maps; provide various trail types to meet the various age groups and skill of users (i.e., natural rugged, as is, or improved with bituminous or limestone)."

- Geographic Information System (GIS) Mapping – "Link all further studies and plans to GIS."

- Natural Environment – "The lack of management in South Side Park has led to the evolution of potentially fragile ecosystems that should be identified and managed appropriately."

To assure that the needs of the community are met, the objectives and recommendations from earlier planning studies have been incorporated into the development of this plan.

2.2 Short and Long Term Benefits

Improvements within South Side Park will provide many recreational, environmental, community, and educational benefits. Opportunities for safe and appropriate recreational activities will be enhanced within the area. Activities such as walking, children playing, organized and impromptu ball games, photography, nature hunts, educational experiences and field trips, and picnicking – while occurring to some degree now – may increase in an improved and properly maintained park.

Improvements within the park will make it more attractive to a larger number of people, particularly South Side residents who are not neighbors of the park. Residents of other Pittsburgh neighborhoods looking for different environmental experiences may also come to

explore the park. New environmental and nature education programs may be developed by local schools and community groups. These future programs may subsequently convey the importance of the park's varied functions within the community.

Trail improvements may stimulate construction of critical local linkages to the growing regional trail network outside the park. Better connectivity of the existing trails will provide safe, public access to the relatively inaccessible portions of the park. The extension of the trail system may strengthen the (already strong) sense of community cohesion among South Side residents by showcasing "its park" to people living outside its neighborhoods.

Improvements within the park will reinforce the importance of urban greenspace to all South Side residents, regardless of whether or not they use the park. Control of invasive vegetative species will allow for better plant and animal diversity within the park. Improvements at the park may promote physical activity and be a catalyst for more healthy lifestyles.

2.3 Park Priorities

Over many years, several issues have arisen at the park and addressing any one of them alone could be a priority. Among these issues are lack of park patronage, connectivity inside the park and with the surrounding community, perception of a lack of safety, drainage, and vegetative character and diversity. In an effort to tackle the park's problems in an orderly fashion, however, the SSLDC and the Elm Street Committee have determined that the best first steps for restoring the park are to evaluate its resources (a process that begin in earnest with the development of the master site plan), create a park greenspace management plan, and improve upon the informal trail system that exists at the park now.

3.0 ENVIRONMENTAL INVENTORY

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An environmental inventory was conducted as the first step in assessing existing conditions at the park. The inventory primarily concentrated on the unprogrammed (or open) space of the park. Because the lack of connectivity within the park is a critical issue, the inventory was extended to all areas of the park. Evaluations of programmed space were not conducted, however, unless specific activity areas could significantly influence the proposed plans for the natural environment. The major park facilities are shown on Figure 3.

Inherent in the development of an environmental inventory is the search for sustainable solutions to the park's problems. Sustainable development can meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable solutions provide balance through the linked processes of planning, design, construction, operation, and maintenance. Sustainability assures a better quality of life for both present and future generations.

3.1 Natural Resources

The inventory of natural resources within the park identified aquatic features, flora, and fauna. Each resource was field identified, photographed, and mapped. This information was then used to analyze the park's natural environment and develop recommendations for maintaining sustainability. The natural features of the park are shown on Figure 4.

3.1.1 Aquatic Features

Due to the location of the park along a steep hillside, the aquatic features of the park are headwaters-type systems that provide an important function in the community. Functions provided by headwaters-type aquatic systems generally include aquatic or semi-aquatic macroinvertebrates and amphibians adapted to headwaters systems; retention and conversion of organic material deposited by surrounding upland vegetation; and sediment retention. When these systems are isolated, as in the park, they can support genetically isolated populations of species (Gomi *et al.* 2002).

The following aquatic features were observed within the park's boundaries:

Palustrine Wetlands

Wetlands are habitat features that are extremely important to the flora and fauna that have evolved to rely on these systems. As such, wetlands in an urban landscape, such as the South Side Park, are valuable resources that should be protected to the extent possible. The *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, *et al* 1979), define palustrine wetlands as a system of "non-tidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 5 percent." Palustrine wetlands provide a unique habitat feature that is continually threatened by anthropogenic activities including, but not limited to, development and its associated activities. All palustrine wetlands are landscape features that are protected under both federal and state laws.

Functions and values provided by palustrine wetlands could include groundwater discharge, groundwater recharge, floodflow alteration, sediment stabilization, sediment/toxicant retention, nutrient removal/transformation, production export, wildlife habitat, aquatic habitat, endangered species habitat, recreation, uniqueness/heritage, educational/scientific value, and visual quality/aesthetics. Wetlands that provide for the functions of groundwater discharge, groundwater recharge, and floodflow alteration generally provide the opportunity for the natural management of water quantity. Wetlands that provide for the function of sediment stabilization, sediment/toxicant retention, nutrient removal/transformation, and production export generally provide an opportunity for natural water filtration and subsequent water quality improvement. Wetlands that provide for the functions of aquatic habitat, endangered species habitat, and wildlife habitat provide the opportunity to support wildlife or threatened and/or endangered species. Wetlands that provide for the functions of recreation, uniqueness/heritage, educational/scientific value, and visual quality/aesthetics provide a function to people from an educational or recreational perspective.

Field investigations of the park identified 21 palustrine wetlands and nine groundwater seeps. Groundwater seeps were typically observed along the steep slopes of the park, primarily at the base of rock outcrop areas. The seeps are typically characterized by the evidence of water discharging from the ground but not having soil, hydrophytic vegetation, or a channel associated with them. The majority of the wetlands observed within the park are hillside seep-type wetlands, a few of which displayed characteristics of topographical depression-type features.

Other wetland types observed include toe-of-slope wetlands and closed topographical depression-type wetlands.

A cursory evaluation of the functions provided by the wetlands observed within the park was conducted. Hillside seep-type wetlands are typically associated with a groundwater discharge source and provide several functions, including the filtration of overland flow run-off from surrounding uplands that could be carrying sediments, toxicants, or nutrients. They provide food sources or other products that could be utilized by wildlife. They also provide a unique habitat feature for flora and fauna suited to life in seep-type habitats. In addition, these types of wetlands can provide a source of water for wildlife. Also, these wetlands are often found in association with stream channels.

Topographical depression-type wetlands typically collect and detain water. Therefore, these wetlands may provide an opportunity to settle out sediments, toxicants, or nutrients that may be carried in the water that flows into them. Because these wetlands may detain water, they provide a habitat feature that can be utilized by wildlife suited to wetlands that are periodically inundated, which could include waterfowl or amphibians.

Toe-of-slope-type wetlands provide somewhat of a blending of the features provided by seeps and topographical depression wetlands. This is due to the topographical position of these wetlands. They are typically located on a relatively flat area of ground at the base of a hill or similar feature. This change in topography between a hill and more level area of ground provides a good opportunity for groundwater discharge. The more level topography associated with these types of wetlands can provide an opportunity for detaining water discharging from seeps or flowing off of an adjacent hillside. Because of this characteristic, these wetlands may provide an opportunity to settle out sediments, toxicants, or nutrients that may be carried in the water that flows into them.

Table 3.1-1 characterizes the wetlands identified within the park boundaries.

TABLE 3.1-1
Southside Park Wetlands

Wetland Identification	Wetland Classification*	Wetland Type	Approximate Wetland Size (square feet)
W1	PEM	Hillside seep	300
W2	POW	Small pond	375
W3	PEM/PFO	Hillside seep / topographic depression	11,300
W4	PEM	Hillside seep	2,700
W5	PEM	Topographic depression	250
W6	PEM/POW	Toe-of-slope	120
W7	PEM	Topographic depression	1,000
W8	PEM	Hillside seep	200
W9	PEM	Hillside seep	2,500
W10	PEM	Hillside seep	750
W11	PEM	Hillside seep	1,000
W12	PEM	Topographic depression	100
W13	PEM	Hillside seep / topographic depression	1,500
W14	PEM	Topographic depression	100
W15	PEM	Topographic depression	50
W16	PEM	Topographic depression	225
W17	PEM	Topographic depression	375
W18	PEM	Topographic depression	160
W19	PEM	Topographic depression	100
W20	PEM/PSS	Topographic depression	5,600
W21	PEM	Hillside seep	3,000

* PEM – Palustrine emergent; PSS – Palustrine scrub-shrub; PFO – Palustrine forested; POW – Palustrine open water

Surface Waters

According to the Pennsylvania Code, Title 25, Chapter 87 *Surface Mining of Coal,* there are three stream types: perennial stream, intermittent stream, and ephemeral stream (Pennsylvania Code 2002). A perennial stream is defined as "a body of water flowing in a channel or bed composed primarily of substrates associated with flowing waters and is capable, in the absence of pollution or other manmade stream disturbances, of supporting a benthic macroinvertebrate community which is composed of two or more recognizable taxonomic groups of organisms which are large enough to be seen by the unaided eye." An intermittent stream is defined as "a body of water flowing in a channel or bed composed primarily of substrates associated with flowing water, which, during periods of the year, is below the local water table and obtains its flow from both surface runoff and groundwater discharges." An ephemeral stream is defined as "a water conveyance which lacks substrates associated with flowing waters and flows only in direct response to precipitation in the immediate watershed or in response to melting snowpack and which is always above the local water table." Generally, perennial and intermittent streams

are groundwater driven systems, for at least part of the year; ephemeral streams or drainages are wet weather systems that concentrate and convey run-off from rainstorms or snow melt.

Generally the functions and values provided by surface water resources include habitat for aquatic species, baseflow for downstream waterways, floodflow detention and retention, water quality improvement, and recreation. The specific functions and values provided by streams differ from one stream to the next due to numerous factors, some of which include stream size, watershed characteristics, and surrounding land use to name a few. Due to the topographical position of the park, the streams within its boundaries are headwaters-type streams. Typically parks located with in an urban environment would be influenced by water quality degradation pressures such as run-off from surrounding uplands including lawns, parking lots, and roadways. Due to the forested component of the park, however, many of these factors likely do not have an influence as the surrounding upland areas provide a buffer against potential pollutant input to the streams. Once these streams flow away from the natural portions of the park, into storm water conveyance systems, these pressures will influence the waters originating in the park.

Field investigations of the park identified 15 groundwater driven streams and nine ephemeral drainages. Each of the streams identified within the park appear to originate within the park and are headwaters-type systems. All flowing surface waters observed in the park either dissipate and become diffuse before reaching a contributing waterway or they are collected and conveyed in underground pipes.

An attempt was made to determine a stream classification for the streams within the park. A few of the streams were difficult to classify as perennial or intermittent. Four streams, identified as S2, S4, S7, and S14 within project files and on GIS maps created in support of this plan, flow within channels that are better defined than the other streams in the park. These four streams could be considered perennial. Most of the other streams within the park appear to be intermittent. Common characteristics observed for these streams include a hydrology source (springs or wetlands), small size (approximately one foot wide and a few inches deep), and poorly defined channels and substrates. If a groundwater source was not identified within a channel and the substrates appeared to be poorly developed, these channels were classified as ephemeral.

Field samples were taken to determine the source of the springs and seeps, but the results proved to be inconclusive. Based on field observations, however, it is suspected that an abandoned brick springhouse found in the park is connected to the public water supply. This suspicion is supported by a field visit in which an abnormal quantity of dead worms were observed in the bottom of the springhouse. These worms may have perished due to elevated levels of chlorine in the water for a brief period of time. Also, the water flow through the springhouse did not appear to diminish, consistent with other springs and seeps within the park during the late summer months devoid of significant rainfall. Unfortunately, limited analytical testing did not show residual or free chlorine in the sample collected and analyzed in the field. Without additional investigation, it is difficult to determine the original source of the water supplying the springhouse as it appears to flow in through a terracotta pipe located at the bottom of the southern wall of the structure. The source of this water appears to feed other surface water features (wetlands, seeps and springs) in close proximity to the springhouse.

3.1.2 Flora and Fauna

Habitat types observed within the park include deciduous forest and herbaceous rangeland, or old field, habitats. Deciduous forest composes approximately 40 acres of park property. Herbaceous rangeland composes approximately 5 acres of the park property. The remaining portions of the park include paved ground, ball fields, and lawn areas that do not provide habitat for wildlife or opportunity for plant colonization.

In an effort to determine the presence of known threatened or endangered species or habitat provided by the park, a query of the Pennsylvania Natural Heritage Program's *Pennsylvania Natural Diversity Index Environmental Review Tool* was undertaken. As a result of this effort, it was determined that there are no known threatened or endangered species populations or habitats located within or surrounding South Side Park.

Flora

The dominant habitat type observed within the park is deciduous forest with some herbaceous rangeland making up a smaller percentage of the park habitat. Invasive plant species comprise a large amount of the species present in the park. In the forested portions of the park, Norway maple (*Acer platanoides*) is one of the more dominant tree species. Other tree species

observed include black locust (*Robinia pseudoacacia*), red oak (*Quercus rubra*), tulip-tree (*Liriodendron tulipifera*), tree-of-heaven (*Ailanthus altissima*), a mulberry species (*Morus* species), black cherry (*Prunus serotina*), and box elder (*Acer negundo*). Shrub species observed include privet species (*Ligustrum* species), exotic bush honeysuckle species (*Lonicera* species), and multiflora rose (*Rosa multiflora*). Vine species observed in the forested areas of the park include porcelain-berry (*Ampelopsis brevipedunculata*), Japanese honeysuckle (*Lonicera japonica*), oriental bittersweet (*Celastrus orbiculatus*), poison ivy (*Toxicodendron radicans*), a grapevine species (*Vitis* species), and bittersweet nightshade (*Solanum dulcamara*). Herbaceous vegetation observed in the forested areas include garlic mustard (*Alliaria petioloata*), Japanese knotweed (*Polygonum cuspidatum*), white-snakeroot (*Eupatorium rugosum*), jumpseed (*Polygonum virginianum*), pale jewelweed (*Impatiens pallida*), spotted jewelweed (*Impatiens capensis*), and common ragweed (*Ambrosia artemisiifolia*).

Hebaceous vegetation observed in the rangeland portion of the park include a goldenrod species (*Solidago* species), several grass species, queen-anne's lace (*Daucus carota*), red clover (*Trifolium pratense*), and common teasel (*Dipsacus sylvestris*). Vine species observed in the rangeland portions of the park consist of Japanese honeysuckle. Shrub species observed in the rangeland portions of the park consist of multiflora rose.

Fauna

Fauna refers to animal life that exists within a particular region or time. Habitat types observed within the park influence the wildlife species present within park boundaries. The most dominant habitat type present within the park is deciduous forest with some minor herbaceous rangeland. The forest area of the park was evaluated to determine if any habitat could be defined as forest "interior." Forest interior is a unique habitat feature that provides high quality habitat for species that require large forest tracts for a portion of their life cycle. The following description is taken from *A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area* (Jones *et al.* 2000).

> *Forest "interior" refers to the area in the center of a forest. It is surrounded by "edge." In the Critical Area, the forest area within 300 feet of a forest edge is considered "edge" habitat. "Interior habitat" is commonly defined as the forest area found greater than 300 feet from the forest edge. Interior habitat functions as the highest quality breeding habitat for FIDS (forest interior dwelling species).*

Measurement of the forested area on project mapping files determined that approximately 2 acres of the park's forestland could be considered forest interior. Due to the small size of this interior area, however, it is unlikely that it is functioning as forest interior habitat.

Wildlife species that utilize the park were assessed through visual observation. During field investigations several species of birds, mammals, and reptiles were observed, including the following:

- American robin (*Turdus migratorius*)
- Blue jay (*Cyanocitta cristata*)
- Chickadee species (*Poecile species*)
- Northern cardinal (*Cardinalis cardinalis*)
- Red-tailed hawk (*Buteo jamaicensis*)
- Fox squirrel (*Sciurus niger*)
- Groundhog (*Marmota monax*)
- Red fox (*Vulpes vulpes*)
- White-tailed deer (*Odocoileus viginianus*)
- Eastern garter snake (*Thamnophis sirtalis sirtalis*)

Domestic dogs and house cats were also observed to be roaming free throughout the park. Free roaming dogs and cats can play a significant role in wildlife composition in natural environments. The National Park Service (NPS) has noted that free roaming and leashed dogs can have serious impacts on wildlife through predation and harassment (NPS 2006). Additionally, in an article published by the National Audubon Society it was noted that, "Feral and free-ranging cats kill millions of native birds and other small animals annually; and birds constitute approximately 20-30 percent of the prey of feral and free-ranging domestic cats" (Roney Drennan 1998).

Other animal species are likely to be found within the park, though they were not observed. Animals that may be found in this type of environment may include the common raccoon (*Procyon lotor*), the Virginia opossum (*Didelphis virginiana*), or the gray squirrel (*Sciurus carolinensis*), to name a few. Salamanders and frogs are other animals that may inhabit the wet seeps, springs, and wetlands within the park, but were not observed.

3.1.3 Invasive Plant Species

Several species found in the park are considered by state and federal agencies to be noxious, invasive weeds. Plant species found in the park that are identified as noxious, invasive weeds include:

- Norway maple *(Acer platanoides*)
- Tree of Heaven (*Ailanthus altissima*)
- Garlic mustard (*Alliaria petioloata*)
- Japanese knotweed (*Polygonum cuspidatum*)
- Porcelain-berry (*Ampelopsis brevipedunculata*)
- Japanese honeysuckle (*Lonicera japonica*)
- Oriental bittersweet (*Celastrus orbiculatus*)
- Multiflora rose (*Rosa multiflora*)
- Privet species (*Ligustrum* species)
- Exotic bush honeysuckle species (*Lonicera* species)

Much of the information presented in the species profiles described below has been taken from the U.S. Fish and Wildlife Service's *Plant Invaders of Mid-Atlantic Natural Areas* (Swearingen *et al*. 2002). One of the treatment options for the control of the plants listed above involves chemical treatment with herbicide. This is an activity that should only be conducted by a licensed professional or an individual with experience conducting this type of activity. Manufacturer recommended application rates should always be closely followed when applying any type of herbicide treatment.

Norway Maple

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, "Norway maple has escaped cultivation and invades forests, fields, and other natural habitats. It forms monotypic stands that create dense shade and it displaces native trees, shrubs and herbs." This plant is a deciduous tree species that can grow to 90 feet in height. This tree flowers in the spring with fruits maturing by mid-summer. It spreads through vegetative means and seed dispersal. This tree can be mistaken for several native species, especially sugar maple. One key diagnostic feature

of this tree is “the presence of a milky white sap that oozes out of leaf veins and stalks when broken.” Typical measures to control this invasive plant can include manual, mechanical, or chemical techniques. Seedlings can be pulled by hand, larger trees can be cut to the ground or “girdled.” Chemical treatment utilizing glyphosate or triclopyr may also be effective.

Tree of Heaven

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, Tree of Heaven “is an extremely common tree in urban areas where it can cause damage to sewers and structures but poses a greater environmental threat because of its invasiveness in cultivated fields and natural habitats. A prolific seeder, Tree of Heaven grows vigorously, establishing dense stands that displace native plants. It produces chemicals that kill or prevent other plants from growing in its vicinity.” This plant is a deciduous tree that can reach 80 feet in height. It is a dioecious species, meaning that plants are either male or female. This tree flowers in June and by late summer the female trees develop fruit. Similar species include staghorn sumac (*Rhus typhina*), ash (*Fraxinus*) species, and black walnut (*Juglans nigra*). This plant produces a strong, offensive odor that can be utilized as a diagnostic characteristic.

To control this species, “correct identification of Tree of Heaven is essential. Native shrubs are often confused with it. Elimination requires diligence, due to its abundant seed production, high seed germination rate and vigorous vegetative reproduction. Targeting large female trees for control will help reduce spread by seed. Young seedlings may be pulled or dug up, preferably when soil is moist. Care must be taken to remove the entire plant including all roots and fragments as these will almost certainly re-grow. Extensive research has been conducted on herbicidal methods of control for Tree of Heaven, they include leaf, bark and cut stem applications.”

Garlic Mustard

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, “Garlic mustard invades areas disturbed by human activities and appears to be aided by white-tailed deer that prefer to eat native wildflowers and leave garlic mustard untouched. Garlic mustard displaces many native spring wildflowers such as spring beauty (*Claytonia virginica*), wild ginger (*Asarum canadense*), bloodroot (*Sanguinaria canadensis*), Dutchman's breeches (*Dicentra canadensis*), toothworts (*Dentaria* species) and trilliums (*Trillium* species) that occur in the same habitat.” This is a

biennial herb, meaning that it takes two years to complete its life cycle. As such the form of the plant differs from the first year to the second. The first year growth appears as a rosette of basal leaves that remain green throughout the winter. The second year growth, or flowering plant, ranges in height from 2 to 3 1/2 feet in height and forms a cluster of white flowers with four petals.

Control of this species requires a long-term diligent effort because the seed that is produced can survive for up to 5 years. "Hand removal of entire plants, including the roots, is effective for light, scattered infestations. Cutting flowering plants low to the ground in the spring will prevent flowering and thus seed production. Careful hand removal and bagging of plants with mature fruits can be done from June through August."

Japanese Knotweed

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, "[Japanese] Knotweed is commonly found near water sources, such as along streams and rivers, in low-lying areas, waste places and utility rights-of-way and around old home sites. It spreads quickly to form dense thickets that exclude native vegetation and greatly alter natural ecosystems. Japanese knotweed poses a significant threat to riparian areas, where it can survive severe floods and rapidly colonize scoured shores and islands. Once established, populations are extremely persistent. Japanese knotweed is an upright, shrubby perennial herb that can grow up to 10 feet in height. This plant is described as "bamboo-like" by many. The leaves are variable, but are typically 6 inches long by 3 to 4 inches wide and are egg shaped to triangular in form.

"Japanese knotweed is an extremely difficult plant to control due to its ability to re-grow from vegetative pieces and from seeds. Mechanical and chemical methods are most commonly used to eliminate it. Single young plants can be pulled by hand depending on soil conditions and root development. All roots and runners must be removed to prevent re-sprouting. Glyphosate and triclopyr herbicides have been used, applied either to freshly cut stems or to foliage."

Porcelain-Berry

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, "[Porcelain-berry] grows well in most soils, especially in pond margins, streambanks, thickets and waste places, where there is full sunlight to partial shade, and where it is not permanently wet. This climbing vine shades out native shrubs and young trees. Porcelain-berry grows and spreads quickly in open areas of the

urban landscape. The seeds of porcelain-berry germinate readily in the soil after natural or human disturbance." Porcelain-berry is a deciduous, woody vine that is in the grape family. The leaves are alternate, heart shaped and variable from somewhat lobed to deeply dissected. Clusters of greenish white flowers appear in summer and berries follow in the fall.

"Mechanical and chemical methods have been used successfully to control porcelain-berry infestations. Hand pruning in the fall or spring will prevent flower buds from forming the following season. Vines on trees can be cut to prevent seed formation and further damage to trees. Systemic herbicides are also effective."

Japanese Honeysuckle

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, "[Japanese honeysuckle] escaped cultivation to invade cultivated and natural areas where it grows vigorously, smothering most vegetation in its path, and girdles shrubs and young trees as it twines up to reach greater light. Its evergreen nature gives it an additional advantage, allowing it to grow when most other plants are dormant. Japanese honeysuckle is a vigorous bloomer and produces abundant seed dispersed by birds." Japanese honeysuckle is a climbing perennial vine with short stalked, opposite oval leaves. Very fragrant, tubular flowers appear in pairs along the stem at leaf junctures. These flowers are white to pink in color and fade to yellow as they age. Flowers occur from late April through July.

"Small populations can be controlled by hand removal of trailing vines. Over large areas, mowing twice a year can slow vegetative spread, however due to re-sprouting, stem density may increase. Japanese honeysuckle can be treated with glyphosate herbicide. Reapplication may be necessary."

Oriental Bittersweet

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, "Oriental bittersweet is an aggressive invader that threatens vegetation at all heights in forested and open areas. It grows over other vegetation, completely covering and killing other plants by preventing photosynthesis, by girdling, and by uprooting trees through excessive weight. In the Northeast, Oriental bittersweet appears to be displacing the native climbing bittersweet, *Celastrus scandens*, through competition and hybridization." Oriental bittersweet is a woody, deciduous vine with

alternate, finely toothed oval leaves. Clusters of small greenish flowers originate from the leaf axils and develop into yellow fruits that mature into a red-orange, fleshy fruit.

In controlling this species, it is important to accurately identify this plant as it can be easily confused with the native climbing bittersweet vine (*Celastrus scandens*). "Manual, mechanical and chemical methods can be employed to control bittersweet. Vines can be pulled out by the roots, cut repeatedly or treated with systemic herbicides. No biological controls are currently known for oriental bittersweet."

Multiflora Rose

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, "[Multiflora rose's] tenacious growth habit was eventually recognized as a problem on pastures and unplowed lands, where it disrupted cattle grazing, and, more recently, as a pest of natural ecosystems. It is designated a noxious weed in several states, including Iowa, Ohio, New Jersey, Pennsylvania and West Virginia." Multiflora rose is a thorny shrub with arching stems. It will form dense thickets that prohibit the growth of native vegetation. One key diagnostic feature of this plant is a pair of fringed stipules. A stipule is a leaf-like structure at the base of a leafstalk. It develops showy, white flowers in May which mature in summer to bright red rose hips (fruit).

To control this species, "(y)oung plants may be pulled by hand. Mature plants can be controlled through frequent, repeated cutting or mowing. Several contact and systemic herbicides are also effective in controlling multiflora rose. Follow-up treatments are likely to be needed. Two naturally occurring biological controls affect multiflora rose to some extent: a native fungal pathogen (rose-rosette disease) that is spread by a tiny native mite and a non-native seed-infesting wasp, the European rose chalcid."

Privet Species

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, "European privet occurs in scattered locations across the United States. Chinese and Japanese privet are found in the Southeast and Midwest. Border privet is found in most of the Northeast. Privets can invade floodplains, forests, wetlands and fields. Privets form dense thickets, out-competing native vegetation." Privets are fast growing, stout deciduous shrubs that are in the olive family. These shrub species can grow to 15 feet tall. Leaves are simple oval to elliptical and grow in pairs

opposite each other on the stem. Small white flowers appear at the end of the stem that mature to blue-black berries in late summer to fall.

"Small plants can be dug out. For larger plants, spray leaves with glyphosate herbicide or paint on freshly cut stumps."

Exotic Bush Honeysuckle Species

As described in *Plant Invaders of Mid-Atlantic Natural Areas*, "(e)xotic bush honeysuckles are relatively shade-intolerant and most often occur in forest edge, abandoned field, pasture, roadsides and other open, upland habitats. Woodlands, especially those that have been grazed or otherwise disturbed, may also be invaded by exotic bush honeysuckles." Exotic bush honeysuckles include armur, tartarian, Morrow's, and Bell's honeysuckles. "Morrow's honeysuckle and Bell's honeysuckle have the greatest habitat breadth and are capable of invading bogs, fens, lakeshores, sand plains and other uncommon habitat types." These plants are upright, deciduous shrubs that range from 6 to 15 feet in height. Leaves are elliptical to lance shaped with a smooth edge. Leaves occur opposite each other on the stem. Pairs of fragrant, tubular flowers typically occur early to late spring with fruit appearing in summer to fall.

"Mechanical and chemical methods are the primary means of control of exotic bush honeysuckles. No biological control agents are currently available for these plants. Hand removal of seedlings or small plants may be useful for light infestations."

3.1.4 Geology

The geologic features of the park were investigated *via* published research and a pedestrian reconnaissance on August 1, 2008 and October 7, 2008. The goal of this investigation was to obtain information on the natural geologic features of interest or concern in the park. Knowledge about the park geology can contribute to the awareness of natural or manmade features that affect the sustainability of development of the park.

The geologic setting of the park is relatively young in age exhibiting those characteristics of the late Pennsylvanian early Permian System most likely associated with the sedimentary rocks of the Dunkard Group. The blocky sandstone that outcrops near Bandi Shaum Field can be followed along its base to the skating rink before it disappears under soil cover (Figure 4). The plateau and Quarry Field rest upon the upper surface of this blocky sandstone of the

Waynesburg Formation. The Waynesburg Formation is approximately 140 feet thick and comprises the Waynesburg Coal through the base of the Washington Coal. The Waynesburg Sandstone generally is a suitable aquifer which appears to hold true in the park as numerous seeps and springs were identified during the field reconnaissance. The Waynesburg "A" Coal seam outcrops on a path just south of the BMX track, slightly northwest of the overlook off of the asphalt paved path. It appears that the coal seam follows in this elevation throughout the park as various coal fragments and associated coal-like debris can be observed as one walks along the park trails. In the past, local residents may have excavated small amounts of coal to fire kitchen stoves or the like.

The sedimentary rock layers that separate the respective sandstones and coal seams within the Waynesburg are comprised of siltstones and shales interbedded with sand lenses. These interbedded siltstone-shale units are consistent with the composition of the underlying or older Monongahela Group, which also exists at lower elevations within the park but is mostly obscured by float or debris that has fallen from higher elevations and by surface soils. Since it appears that a majority of the park has undergone numerous phases of excavation and landscaping projects, little, if any, of the original soil profile remains.

The Commonwealth of Pennsylvania is currently considering legislation that will require the identification of and potential impacts of geologic hazards when land development occurs. South Side Park contains some of these geological hazards and their impacts have already been realized. One significant impact is the rock slide along the southern fence line of Bandi Shaum Field. A preliminary assessment of this particular rock slide indicates that it may have resulted from natural fractures within the sandstone to that expanded to the point of failure due in part to water passing through the fractures, freezing and thawing and then drying out. The diminishing cohesive strength of the rock caused the rock to fail and the resultant slide to occur. The exposed rock formations within the park appear to be weathering at an accelerated rate likely due to poor drainage conditions, uncontrolled stormwater runoff, and human intervention (i.e., excavation activities).

Conditions behind the skating arena are less than optimal. The base of the slope is filled with float and debris from the adjacent hillside to the south. Catch basins, stormwater conveyance structures, and drainage ditches are in poor condition or obstructed which prohibits the free flow of water from the roof drains and hillside. A number of seeps were observed in this area,

emanating from the base of the Waynesburg Sandstone immediately to the south of the ice skating arena and contributing to the flow of water along the rear wall of the skating rink.

The terrain of the park is steep for the most part. There are several areas of excavated terraces that make it possible for recreational areas throughout the park. Vertical cliffs are also present within the park, which allows for the potential for regulated outdoor rock climbing activities and rugged and challenging hiking and/or biking activities as well. The geologic structure of the park trends in a crescent shape much in line with the access from 21st Street to Quarry Field. Generally, the trail network tends to follow this same trend. It appears that the geologic structure of the park has dictated the development of the trail network in its current configuration. In essence, the major developed areas of the park are built on terraces that are underlain by substantial sandstone geologic units that are inherently sufficient in strength to sustain themselves and resist weathering and deterioration by natural forces. These terraces, given their locations and elevations, provide for spectacular views of downtown Pittsburgh and Oakland. Because of the steep relief, the valley on the southeastern side of the park is protected from encroachment of the neighborhood. It is also secluded from other portions of the park, however. The valley exists in this location due to a weakness or inconsistency that existed within the geologic formation which permitted its accelerated erosion resulting in the current configuration of the steep valley.

Excavation and grading within the park will require planning and a thorough assessment of the potential impacts from earth-moving activities. The steep terrain of the park significantly increases the risk of landslides and unwanted land movement should best management practices, engineering designs, and stormwater management planning efforts be ignored when developing programmed areas of the park.

3.2 Built Environment

As part of the environmental inventory, manmade features, such as buildings, water and sewer lines, and certain components of the park's drainage system were identified and mapped. The features of the built environment are shown on Figure 5.

3.2.1 Potential Historic Resources

The history of the project area was researched using maps, atlases, published secondary source histories, and oral interviews. Most of the documentary material is accessible through the Historic Pittsburgh Project website (http://digital.library.pitt.edu/pittsburgh/), a comprehensive collection of local resources that supports personal and scholarly research of the western Pennsylvania area. The website enables access to historic material held by the University of Pittsburgh's University Library System, the Library & Archives at the Heinz History Center, Carnegie Museum of Art, Chatham College Archives, and Pittsburgh History & Landmarks Foundation. The collections of the Pennsylvania Department of the Main Branch of the Carnegie Library of Pittsburgh were also reviewed, primarily to access Sanborn Map Company fire insurance maps. The project area was also field viewed in order to get a sense of the landform and topography and to photograph remnants of any historic resources.

The area that now encompasses South Side Park was converted to recreational uses beginning in the 1930s. For more than 150 years prior to that the site was intimately tied to the residential and industrial development of Pittsburgh's South Side. In the earliest days of Euro-American settlement, the land on which South Side Park is located was owned by the Ormsby family. The bulk of it was part of Ormsby's Villa, a 345-acre tract granted to John Ormsby on June 27, 1769. John Ormsby also owned neighboring parcels of 269 and 294 acres, while a relative, Oliver Ormsby (for whom Mount Oliver is named) held 370 acres (Houck 1914: Plate 17). John Ormsby's holdings would become part of the City of Birmingham, an area renowned for iron and glass manufacturing. In 1872, Birmingham would be annexed into the City of Pittsburgh, becoming its South Side.

The hills of South Side Slopes are underlain with coal seams, and the earliest available historic map showing the South Side Park area illustrates that coal was being mined in the vicinity of the park (Figure 6). At the southern edge of what is today the park, on Arlington Avenue, was the mouth of a coal pit. Leading from the mouth of the pit was a stretch of railroad track and then an inclined plane leading down the hill. At the base of the inclined plane the coal railroad resumed and continued down 21st Street to the Monongahela River. The railroad and inclined plane are identified as belonging to Keeling & Company (G.M. Hopkins Company 1872: Plate 116). According to city directories, Keeling & Company were coal dealers in operation as early

as 1859. At the base of the incline were coke ovens operated by Blackley Brothers, dealers in coal and slack coal (Diffenbacher 1881:124).

A road, identified as Quarry Run Road, also ran through the property. Surrounding the park area, the land had been gridded and platted for development, but the area that would become South Side Park was still at that time predominantly held in large tracts. Much of the land remained in the hands of the Ormsby Estate. Other owners included a Captain Yard, Mrs. H. Phillips, Keeling, and Simmons.

The Allegheny County atlases from 1876 (G.M. Hopkins Company 1876: Plate 76) and 1886 (G.M. Hopkins Company 1886: Plate 30) show less detail than the 1872 atlas and do not provide new information. By contrast, a Sanborn Fire Insurance map from 1893 (Sanborn Map Company 1893:54) shows that a good deal of development had occurred in what is today the area of the park. Much of it was concentrated on Quarry Road, which had become industrial in nature. On the east side of the road were two brickyards, one identified as the J. Keeling Brick Yard and the second, located 350 feet to Keeling's south, as the J.H. Benz Brick Yard. The J. Keeling Brick Yard featured four kilns and a large, one-story building labeled "Drying Floors." The J.H. Benz Brick Yard also featured four kilns, a dryer, an engine shop, and three unidentified outbuildings. Across Quarry Road from the J. Keeling Brick Yard were five slaughter houses, two residences, and a building marked "destroyed by fire." On the eastern extreme of the park was the St. Clair Incline, which ran from Salisbury Street (near Arlington Avenue) to Josephine Street. The incline, constructed in 1886, was 1,320 feet long, carried both passengers and freight, and operated at a relatively shallow, 12 degree angle (Pittsburgh Gazette Times 1908:339).

Development within the area of the park continued, as is evident from a Sanborn Fire Insurance map published in 1906 (Sanborn Map Company 1906:694, 685). Quarry Road, now known as Quarry Street, featured fewer industries and more residences. The J.H. Benz Brick yard, shown at its proper location at a sharp curve on Quarry Street, had closed. The physical plant of the J. Keeling Brick Yard had been taken over by the Sankey Brothers Brick Yard. At the time of the 1893 Sanborn map, Sankey Brothers had been located on South 18th Street above Quarry Road, but that area had subsequently been platted for residential development.

Sankey Brothers Brick Yard was established in 1861 by brothers William, John, and Thomas Sankey. Sankey Brother bricks were made not of clay but of callous stone or shale drawn from the South Side hillsides. The stone was pounded fine, turned into mud, and then pressed or cut into bricks (Pittsburgh Gazette Times 1908:289-290). In 1877, Sankey Brothers began making bricks by machine, one of the first companies in Pittsburgh to do so. At the turn of the twentieth century, Sankey Brothers claimed to be the largest manufacturers of bricks in Allegheny County. The Sankey brothers also maintained a separate company involved in real estate development which, in association with the South Side Planing Mill, built and owned more than one hundred houses on the South Side (Biographical Review Publishing Company 1897:120). At the Quarry Street site, Sankey Brothers had added a second bank of four kilns, two brick making machines, a steam drying building, and a few other buildings.

On the other side of Quarry Street, two of the five slaughterhouses remained. Also present were a vacant glass factory, many more houses than before, and, at the north end of the road, a brick coal building at Mission Street labeled Pittsburg Coal Company. A number of houses had been built on the east side of South 18th Street. The St. Clair Incline was still present, running down/parallel to Greeley Street. South of a bridge at Olcott Street (today Mission Street) were eight houses that would fall within the park's boundaries. At the south end of the park, west of Fernleaf Street, were two streets no longer in existence, Spruce and Pine, which also had houses built on them.

A series of maps from the 1916 Pittsburgh atlas (G.M. Hopkins Company 1916: Plates 7, 8, 10, 11) provides the most comprehensive picture of just how much building had occurred by the early twentieth century. Sankey Brothers Brick Yard remained and had been expanded slightly, with a third bank of kilns and three frame buildings added near Mission Street. The west side of Quarry Street was still a mixture of brick and frame industrial and residential buildings. More houses had been constructed on the southeast side of S. 18th Street (Figure 7). At the east edge of the park, there was a street identified as Ormsby Avenue, which paralleled the St. Clair Incline and Greeley Street. Greeley featured about 10 houses. At the south end of the park, Spruce Street was no longer marked, but houses were still present along it and Pine Street.

A Sanborn map published a decade later (Sanborn Map Company 1927:777, 778, 785) shows that little change had occurred. Sankey Brothers was still in operation. According to a local informant, Sankey Brothers had an aerial tramway that was used to move materials (Lotz,

personal communication 2008). The brick building was still located at Quarry and Mission streets, and a mixture of domestic and industrial buildings were located on the west side of Quarry Street. The two other businesses identified on the map were the Lesker Slaughter House and a bronze foundry.

Change began occurring to the area in the 1930s, when the park first began to be developed. A 1932 topographic map published by Allegheny County (Arthur 1932: Sheet 13) shows only businesses and industrial buildings, not houses. Sankey Brothers' buildings were still present, as was the St. Clair Incline. The incline, however, would close in 1935. The brick building at Quarry and Mission streets was shown as belonging to the Calig Steel Barrel Company. Calig Steel Barrel Company first appears in the Pittsburgh City Directory in 1930, with its address listed as 200-204 South 21st Street (R.L. Polk and Company 1930:474). Calig reprocessed 55-gallon metal industrial drums. A photograph taken of the Mission Street Bridge under construction in 1939 (Photo 3) shows Calig's brick building as two-stories high, two-bays deep, and seven-bays long. Because of the curve in the road, the buildings located behind it on Quarry Street are not visible. Across Quarry Street are low industrial buildings. These buildings are presumably the buildings associated with Sankey Brothers Brick Yard.

Development of South Side Park began in 1934 when Pittsburgh city government passed resolutions to create the Sophia Evert Playground #1 on 5.5 acres of land received from the estate of Frederick C. Renziehausen (Waddell, personal communication 2008). The land was located between 18th Street and St. Patrick Street. The stone and concrete block linear walls that remain in the park near the Quarry Field probably date from this era.

As industrial operations in the park area ended, the City moved to acquire more land for the park. Sankey Brothers' operation apparently ended around World War II. A local informant born in 1938 does not remember Sankey Brothers from his childhood. Instead, he remembers Calig Steel Barrel Company operating out of a corrugated metal building on the east side of Quarry Street in the late 1940s and early 1950s. Calig closed shortly thereafter (Lotz, personal communication 2008). The corrugated metal building was located near where the ice rink and tennis courts are found today. A view of Calig's physical plant is given on a Sanborn Fire Insurance map dating to *ca*. 1951. The brick building was no longer present, but houses and one industrial building remained on the west side of Quarry Street (Sanborn Fire Insurance

Company 1951:778). The foundation remains located today at the base of the hill supporting South 18th Street undoubtedly are related to these buildings.

In 1948, the City of Pittsburgh acquired through condemnation another 9.5 acres of land to the northeast of the Sophia Evert Playground #1 for use as a park, though little was done with the property until the 1960s. A number of other nearby parcels are marked "Future Extension" (Figure 8). The remaining land for the park was acquired through the early 1970s (Waddell, personal communication 2008). During this period, the houses on South 18th, Spruce, Pine, and Greeley streets were removed.

3.2.2 Potential Archaeological Resources

Background research on potential archaeological resources included a search of the on-line *Cultural Resources Geographic Information Systems* (CRGIS) database of the Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation (PHMC, BHP). No previously identified pre-contact or historic period archaeological sites are present within the park boundaries. The pre-contact period constitutes the time prior to Europeans coming to the area when only Native Americans were present. The period when Europeans and Euroamericans were first making contact with the Native Americans is called the Contact Period. The time period after Euro-American contact is considered the historic period.

The closest previously identified archaeological site is located approximately 1 mile to the northwest. Although a number of Indian paths converge in Pittsburgh, they do not cross the park or to the south side of the Monongahela River. The closest eighteenth century Indian village location recorded near the park is Shannopin's Town in present-day downtown Pittsburgh.

The park area exhibits soils and topographic landforms which could have been used or occupied by Native Americans; therefore, there is some potential for pre-contact period archaeological remains.

The Euro-American historic period land uses of the park are currently better known than those of the pre-contact period. Historic period maps show both residential and industrial land uses of park property, with multiple structures including inclines, railroad tracks, coke ovens, and

brickworks in the vicinity. Therefore, there is a high potential for the presence of archaeological remains associated with these historic period land uses in the park.

Pedestrian reconnaissance of potential archaeological resources was completed for the entire park. The park property is characterized by a large amount of steep slope area that is secondarily wooded in mixed deciduous forest and sparse undergrowth. A number of areas have been artificially benched to accommodate ball fields, an ice rink, and parking lots. Many ground benches that are not reflected on the topographic mapping were noted on the steep slopes throughout the park. They appear to have been artificially widened to accommodate past land uses. Hand augering was attempted on these benches to characterize the soils for their potential to contain intact sediments with pre-contact or historic period archaeological remains; however, most of the attempted auger borings met with rock or dense fill refusal. Every path and most of the benches that were examined showed cinders and broken rock fragments at the surface. Any soil brought up by the auger was disturbed/redeposited fill.

Prior to initiating fieldwork, local residents reported that there was an Indian mound in the park. The purported Indian mound is located on the plateau, at the edge of an artificially leveled area. Upon investigation, the “Indian mound” was found to be a large, somewhat linear bulldozed pile of topsoil and subsoil pushed to the edge of the plateau. Topsoil and subsoil had been removed to bedrock and pushed into this pile. Very sparse vegetation is growing through the cracks in the bedrock. Augering into the “mound” met with rock resistance in most places. The trees growing on this dirt pile are approximately 20-30 years old. No one interviewed appeared to know who removed and piled the soil or why. Nonetheless, this pile is not an Indian mound.

Older potential historic period resource locations that were examined included the mapped locations of several banks of reported coke ovens located in the northwest edge of the park across from the ice rink along a steep valley wall. This valley wall was examined for any historic structural elements resembling coke ovens, but none were found. The mapped location of the coke ovens is now a parking lot for the ice rink. What were thought to be coke oven remnants on the west valley wall are actually retaining walls used to stabilize the fill that South 18th Street is built on. All of the foundation remnants or retaining walls are made of poured concrete; most of the retaining walls contain numerous, evenly spaced piped weep holes for drainage. Coke ovens are constructed of fire bricks not concrete because the bricks provide more even heating and cooling during the coking process.

Impenetrable heavy vegetation is located along the base of this western steep bank from the ice rink north to Mission Street. Because of this heavy vegetation, the steep bank could only be examined from the top. Historically, a brickworks was located here. Parking lot paving covers all of the flat area where the brickworks would have been. The area containing the ice rink and the nearby parking lot was used by the brickworks. Off the northeast corner of the ice rink and up the slope, two brick piers with broken iron posts on their top surfaces were found, much like machine mounts. Another smaller brick pier was noted above the two lower piers on the steep slope. Their function is unknown, but their construction of brick probably means that they were part of the brickworks operation.

Above Quarry Field to the southeast on the hillside are two wall sections of cut stone that resemble walls built during the Works Progress Administration (WPA) era. Similar walls were also noted at the base of the stair walkway from the upper entrance to the park on South 18th Street to the ice rink below. The walls above the field appear to have been built for stabilization of the slope along a drainage area. Another drainage area, encountered on the same slope to the southwest, was channeled into a springhouse at the top of the slope and then drained down the slope through a large metal drain pipe that was stabilized in two places with poured concrete collars. The springhouse water was channeled into the springhouse along a brick lined and sloped race. The springhouse is also constructed of bricks that have been mortared with Portland cement and surface dressed.

A cistern was found in the center of the park on a bench on the steep slope at a drainage point. It was constructed of bricks and had a granite slab for a partial roof. Lower on the slope below this cistern were found a series of three concrete piers that were reported to serve as piers for an incline. Other more recent twentieth century structural resources are also found throughout the park. These include improved ball fields and their associated parking lots and roadways, stairways, retaining walls, sidewalks, walking trails, a Columbia Gas shed, and an ice rink.

Because the South Side Park property has been extensively used for industrial, residential, and recreational uses throughout the historic period, no undisturbed soils which would contain evidence in the form of artifacts or cultural features (e.g., pits, fire hearths) of pre-contact period Native Americans remain. However, there is one portion of the park, the location of the former brickworks, which may still retain some subsurface evidence of the brickworks operations.

3.2.3 Infrastructure

Stone walls located to the south of Quarry Field appear to have been constructed in an effort to provide control of stormwater runoff resulting from the upgradient neighborhood. Assessing their construction, the walls were to serve as the breastworks for stormwater detention ponds allowing for the regulation of water during and after rainfall. The water was to flow out from a restricted opening at the base of the wall near its center point. If the rainfall was of any significance, the restricted outlet would cause water to become impounded behind the wall. Overflow structures within the wall were placed in various areas to allow for the regulated discharge of excessive stormwater. The walls were constructed in such a manner that maintenance of the lower discharge was intensive and would have required weekly or even daily maintenance to remove dirt, debris, or other obstructions to the opening. It appears that maintenance of this type did not occur and sediment, dirt, and debris were allowed to collect and fill the void behind the walls. Currently, as stormwater reaches these walls it is diverted either over the top or to the sides of the walls where it eventually pools along the southern retaining wall of Quarry Field. There are catch basins bordering the field which discharge to an underground conveyance eventually exiting the park at 21st Street.

Field reconnaissance targeting surface features of buried utility conveyances revealed that the surface structures maintained by private utilities were in good condition. Stormwater conveyance features within the park for the most part were in poor condition, however. The condition of inlets ranged from good condition to poor. Most need to be cleaned out. Routine maintenance, rehabilitation and, in some cases, replacement is long overdue.

Inspection of underground conveyance piping and lines was not conducted as it was beyond the scope of this plan. Likewise, field location of buried utilities was not performed as it too was outside the scope of the plan.

3.3 Unique Features and Threats to the Park

Perhaps the most unique features of the park are its topography and the magnificent views of downtown and Oakland. The landscape within the park forms a transition between the Slopes and Flats. Nowhere is it more apparent than along the sandstone and shale face running southwest from Mission Street to the center of the park. At many locations, this face creates a

sheer cliff of significant proportion in the visual landscape, quite unexpectedly for first time visitors to the park. The face of this ridge is shown in Photo 4.

Standing at either the base or at the top of the cliff, visitors can experience a oneness with nature, a connection with something greater than oneself. Few places in the city offer quite the same experience at this scale. Although this sense of wonder is difficult to capture on film, it is illustrated in a limited extent by Photos 5 and 6.

The availability of views from the top of this ridge, especially in the area known as the plateau, is remarkable. Both downtown (Photo 5) and Oakland (Photo 6) can be seen clearly from the plateau. There are many magnificent views throughout the South Side Slopes, but most are on private property and few offer residents a place to gather and marvel at the beauty of the downtown skyline. The plateau, on the other hand, is on city-owned property in one of Pittsburgh's neighborhood parks. Can there be any place more public than a municipal park? If this one feature of the park had been capitalized on in the past, South Side Park would be as well known as Pittsburgh's great parks. It is quite easy to imagine the potential for festivals and annual events inside the park – organized around the plateau – when Pittsburgh schedules one of its excellent fireworks displays from downtown.

The plateau, an area of about 2-3 acres, also offers a valuable habitat for wildlife. As a wide meadow with ample water and ground cover, it is particularly attractive to small mammals and several species of birds. With only minor ecological improvements, the plateau could offer additional habitat for animals that find their way there and establish a presence. Of all the areas in the park, this meadow provides the best opportunities for biodiversity.

Although negative perceptions about safety and isolation in the park are perceived as threats to its existence – *how can people enjoy South Side Park if they feel unsafe* – the widespread establishment of invasive vegetative species throughout the landscape is the park's most serious threat. Photo 7 shows an area of the park completely covered in porcelain-berry, a plant that resembles wild grapevines and smothers native vegetation. Some invasive species are introduced intentionally, providing ornamentation or inexpensive means of providing groundcover. Too often, though, these species escape from their intended environment. Freed from their natural bounds, they proliferate in new, more habitable areas. Unfortunately, invasive species are choking the park, overtaking native species, eliminating native groundcover that

supports wildlife, and decreasing biodiversity. To some extent, they are slowly destroying an ecosystem that has been decades in the making.

In the worst case, widespread establishment of invasive species in the park also threaten human health and well-being. If left unchecked, many of the park's older trees could die and underbrush could disappear. A denuded landscape could be a catalyst for soil erosion and landslides, threatening the homes and public infrastructure that surround the park.

Another less clear and more difficult problem to define is the loss of ownership in the park – or to be more precise, a sense of ownership. Because few people feel the park belongs to them, few people are doing what's necessary to protect it. Thus, some parts of the park are primarily used for illegal drinking, dumping, and littering, rather than for its intended purpose. But with emphasis on the natural environment and a program of park improvements, the park can be renewed and a sense of ownership restored.

4.0 ANALYSIS OF EXISTING TRAIL SYSTEM

4.0 ANALYSIS OF EXISTING TRAIL SYSTEM

The existing trail system is a combination of formal and informal trails. Though it has no official designation, for purposes of this plan, the formal trail system consists of all paved trails in the park, a few short pieces of unpaved trails emanating from the paved trails, the central set of steps connecting the ice rink with Quarry Field, and short pieces of sidewalk around programmed space. The formal trails are located in two general areas of the park. The first area extends from the park's 21st Street entrance to Quarry Street and the 18th Street entrance. The second area begins at the Arlington Ballfield, follows Loop Road, and terminates at an overlook of Sterling Street.

The formal trails are supplemented by an extensive system of secondary paths. This secondary system is not as well defined as the main trails, but they play an important role in pedestrian circulation through the park. Many of these secondary paths, however, are primarily animal runs or wildlife corridors that are being utilized by people as trails. The trail network is shown on Figure 9.

4.1 Condition Assessment

Through the course of developing this greenspace management plan, each trail in the park was identified through actual field reconnaissance and mapped. Problem areas and general conditions were identified and noted for later analysis.

4.1.1 Formal Trail System

The first length of formal trail extends from the park's 21st Street entrance, past the skating rink, up a series of steps where it splits into two. The right side of the fork continues a short distance to the 18th Street entrance of the park. The left side also forks. The first side crosses a sidewalk along the north side of Quarry Field where it dead-ends as the topography steepens and the wooded landscape begins. The other side continues as a sidewalk along Quarry Street to a small playground located at the end of the football field. This trail is approximately 2,300 feet long.

Visitors to the park are unlikely to consider this an actual trail because, for the most part, it consists of sidewalks, steps, and parts of unused parking lots. But to many users of the park, this is the only trail they use, especially because it is used primarily by people walking dogs and other people cutting through the park as a shortcut between neighborhoods on the Slopes and Flats. Consequently, this trail should be a showcase of what the park has to offer, providing a gateway into the park experience, but, unfortunately, it isn't.

Overall, the condition of this trail is poor. The pavement is deteriorating and ill-defined; sidewalks are cracked; large chunks of concrete have separated on the steps, exposing reinforcing bars; large sections of the railing on the steps are missing; and litter is evident everywhere. The steps are shown in Photo 8.

Beginning near the Arlington Ballfield and extending to a turnaround area overlooking Sterling Street, the second formal trail is used by pedestrian, bike, and vehicular traffic. A small combination loop of unpaved and paved trail extension at the southern end of the park is only accessible by foot and bicycle. Another small extension to the east provides access to Salisbury Street. This trail is approximately 2,600 feet long.

The condition of this trail is very good, but its use for vehicular traffic, even to a limited extent, detracts from the park experience. The scale of this trail may be too wide for the park and it could function better with a narrower width. Photo 9 shows a section of this trail.

Neither of the formal trails are marked with a sign, tree blaze, or other type of trail demarcation. The lack of signage anywhere in the park is a major hindrance in attracting new visitors to the park.

4.1.2 Secondary Paths

For the most part, the secondary paths are steep and narrow, although some are situated on more gradual grades and provide sufficient walking width for one person. Only a few areas are wide enough for two people to walk side by side. None of these paths are marked as trails. Photo 10 shows a typical secondary path.

Many of the paths are experiencing drainage problems, are littered with cans or broken bottles, or have overhanging vegetation and other natural obstructions. Most of the secondary trails are dirt paths, but some are a mixture of gravel and waste fill from previous uses of the land. In some areas, all of the topsoil has been washed away and bedrock is exposed. In some locations, the paths are hardened, creating a combination of slippery conditions, additional drainage problems, and the possibility of serious erosion.

There are also many specific problem areas on the secondary path system. Chief among them is the path leading from behind the ice rink to the top of the ridge. This path is especially narrow throughout its climb up the steep hill. At some locations, it is very close to the long cliff's edge formed at the top of the sandstone/shale ridge. Although standing at the precipice can create a unique experience and offers an interesting view of the ridge from the top, the cliff's edge is a natural hazard. Unfortunately, this trail is one of the quickest ways to get to the upper half of the park from either 18th Street or the Flats. This location and other problem trail areas are shown on Figure 10.

A similar problem exists on a nearby parallel trail running from the north end of the skating rink's old parking lot to an area midway behind the parking lot. The problem is compounded here because the trail climbs the hill and dead-ends over loose, slippery sandstone. Photo 11 shows this area.

Further into the interior of the park, heading south from the plateau, where several paths enter the woods, severe erosion problems are occurring. Significant erosion is also occurring nearby to the east of this trail where several path branches come together.

There are also severe erosion problems on a central path running through the southwest quadrant of the park. Drainage problems are persistent on this path. A wetland has formed at its end, possibly because of the recurring drainage problems.

Despite the current problems, these secondary trails help people penetrate the park and could be used to create a unified circulation system. Park users wishing to experience nature have no choice now and do use them in this way. During the field studies leading up to the development of this plan, people were seen using these paths for photography, to pick flowers, and for quiet reflection.

It is important to note, however, that in one location, in the north central part of the park, an unapproved BMX trail has been constructed illegally. Although the BMX trail is an interesting place, it was not built with city permission, and because its construction dates back many years, no one knows who built it. Not only has the BMX trail caused soil erosion and drainage problems, it may be exposing the city to liability problems.

Many residents think the BMX trail is no longer in use, but that is not the case. New bicycle tire tracks have been observed on some of the more than dozen hill obstacles. Hand tools, such as shovels, spades, and a rake, have also been found hidden under a downed tree. The southern entrance path has been recently graded and three smaller humps recently built. Someone is obviously expanding the track, even as nearby residents believe its heyday is over. The continued use of the BMX trail offers a challenge to the park. Photo 12 shows a very small portion of the BMX track.

4.2 Connectivity

While it is fortunate that the park is crisscrossed by the secondary path system, a lack of connectivity between program areas still exists. There is no good way to cross through the park from east to west nor is it easy to take a circular walk around the perimeter of the park. The problem is especially acute in the southwest corner if visitors try to walk from Arlington Avenue to Quarry Field. During the height of summer, the trail in this area can become impassable because of thick vegetation and overgrowth. The lower end of the trail near the field is particularly steep and ends in a poorly drained area. It is difficult to emerge from the woods onto the open space surrounding the field without crossing wet areas.

Unfortunately, reliance on an informal trail system of secondary paths creates barriers and an unwelcoming experience for occasional users. A lack of marked, groomed trails connecting programmed spaces and allowing people to walk from one area to another restricts free-flow through the park. By failing to serve the need for adequate pedestrian flow from all parts of the park, the lack of connectivity also decreases safety and increases negative perceptions.

5.0 FINDINGS AND RECOMMENDATIONS

5.0 FINDINGS AND RECOMMENDATIONS

Through the course of the planning process and subsequent analysis, the following key findings have been identified:

- Invasive species are pervasive throughout the park and are a threat to the existing ecosystem. Without a program to control the spread of this unwanted vegetation, long-established native plants may be smothered or displaced. The loss of native species not only threatens wildlife habitat in the park, it poses a threat to the health of the surrounding community. There is an overwhelming need to begin a program of eradication and control of invasive species within the park. Figure 11 shows areas in the park where control of invasive species is most needed or has the best chance for success.

- The park's wetlands provide many benefits for wildlife and human health. Wetlands are nature's filtering system, trapping sediment and pollutants and recharging groundwater. They also slow stormwater runoff and provide a natural means of flood control. Wetlands attract a variety of animal species and offer important habitat for various birds, mammals, and insects. There is tremendous merit for providing enhancements to the park's wetlands and developing educational displays around them that explain their importance.

- Streams in the park provide similar benefits as wetlands, channeling stormwater runoff into primary courses and providing sustenance to wildlife. Natural streams are also attractive to mankind, offering a respite from the cares of daily life. Somehow, we feel connected to nature when watching a small brook as it tumbles downhill over rocks and fallen branches.

- There is a lack of pedestrian circulation creating limited use of the park's walking paths, only offering low to moderate recreational value to the community. The trail system is poorly marked, requires long overdue maintenance, and lacks connectivity. Consequently, new trails should be constructed within the park and existing trails groomed and improved, where appropriate.

- The park has some potential as a historic resource for the community, especially in terms of Pittsburgh's brickmaking industry. Little remains of the actual historic structures that were located within the park area; however, interpretive kiosks or displays at specific locations in the park could portray this story in an informative and educational manner.

- While there is always the possibility of finding archaeological artifacts in the park, the park should be considered a low-probability archaeological resource.

A series of recommendations have been developed based on our findings. The recommendations are presented within the framework of a phased six-year program. The park improvements program is organized around development of trails, control of the invasive species threatening the park, enhancement of the park's wetlands and streams, and establishing an interpretive program.

5.1 Park Improvements Program

Communities across the United States have worked hard to improve quality of life by developing trail systems. Greenways and greenway networks have left lasting environmental legacies in communities across the country. There is no reason why South Side Park should not continue to contribute to the quality of life on the South Side, but improvements are necessary to guarantee the sustainability of the park.

The park improvements program should begin by tackling the problem of invasive vegetative species, but the park's trails cannot be ignored either. Trail improvements will bring more people into the park and show visible progress to regular and occasional visitors alike. Building upon the existing trail system, constructing new trails, and making other enhancements to the existing informal trail network will provide better circulation. By controlling invasive vegetation in concert with trail improvements, the trails will showcase the natural beauty of the park.

The design of new trails is an important issue. Many walkers prefer a design that is softer than asphalt or concrete, such as crushed stone. While a width of 6-8 feet may be adequate for a walking trail, the minimum width of a bicycle trail should be 10 feet with at least a 2-foot wide shoulder on both sides. Other increases in design standards would be necessary to

accommodate bicyclists, including increases in sight distance, lesser grades (the ideal grade for bicyclists is less than 3 percent), and signage. All of this will increase costs in an environment of shrinking (or disappearing) municipal budgets. Thus, the plan for new trails suggests the park's trails be designed as pedestrian pathways that allow limited bicycle use.

New trails should be built to meet the needs of persons with disabilities. Design standards have been established through the Uniform Federal Accessibility Standards (UFAS) and the American with Disabilities Act Accessibility Guidelines (ADAAG) to ensure the civil rights of people with disabilities. Outdoor trail facilities should be accessible to the full range of potential users. Title II of the *American with Disabilities Act* (ADA) requires public entities that build sidewalks and trails to provide program access to existing facilities and to design and construct new facilities and altered facilities to be readily accessible to individuals with disabilities utilizing the applicable sections of the ADA Standards for Accessible Design or the UFAS.

Different levels of difficulty provide a variety of trail experiences within a single recreation area. Trails are designed at multiple difficulty levels. These levels are termed: Easier, Moderate, and Difficult. The composite of grades for trails use an average 5 percent grade for easier, 5-8 percent moderate, and 8-12 percent for difficult. In a trail environment, the rate of change in grade should not exceed 13 percent so as not to compromise the ground clearance of the footrests of wheelchairs or their anti-tip wheels. Well-designed switchbacks reduce the grade of a trail and make mobility easier for people with mobility disabilities.

Poor drainage can ruin a good trail so a minimum cross slope of 2 percent is suggested to provide adequate drainage. The need to make trails accessible to people using wheelchairs argues against a cross slope greater than 3 percent. Other considerations to ensure adequate drainage include sloping the trail in one direction rather than having a crown in the middle; providing a smooth surface to prevent ponding and ice formation; placing a ditch on the upside of a trail constructed on the side of a hill; and preserving natural ground cover adjacent to the trail to inhibit erosion.

Improvements to the park should be constructed through a multi-year program, concentrating on those improvements that offer the greatest opportunity to enhance the park and increase its popularity. Figure 12 illustrates the proposed improvement program.

Trail improvements and their related interpretative enhancements are summarized in Table 5.1-1 and shown with their respective program year on Figure 12. Each recommendation is also discussed in more detail in the text of the plan.

TABLE 5.1-1
Proposed Improvements

Program Year	Trails Development	Related Interpretative Program
1	Construct new trail from ice rink parking lot to plateau	Restore plateau area and erect displays explaining vista and meadow area
	Sign existing secondary paths as natural hazard areas	
2	Construct new trail from Quarry Field to Loop Road trail extension	Enhance wetland
		Erect display for WPA and importance of wetlands
3	Rehabilitate sidewalks & steps from 21st Street entrance to 18th Street entrance and north end of Quarry Field; install signage & trail markings	Erect display explaining South Side brickworks industry
4	Construct new trail from plateau to Loop Road	Clean sweep the entire park
5	Remove BMX track	None
6	Construct new trail stub from top of steps to wooded area	Enhance wetland and stream; erect display on aquatic resources
	Rehabilitate Loop Road and adjoining trail stub	

Program Year 1

During the first year of the proposed improvements program for the park, a new trail should be built from the ice rink parking lot to the plateau. Not only would this trail provide easy access to the plateau area, it would be the first leg of a route of trails circling the perimeter of the park – a trail that would eventually connect all of the functional areas of park activity and provide better pedestrian flow.

A new trail at this location need only be 8 feet in width. Because the grades would be minimal for this segment, a surface of crushed limestone could be utilized. Although a soft trail surface could be built at lower cost, a crushed limestone surface will hold up better and be less expensive to maintain over many years. Additionally, finely crushed stone will accommodate walkers, bicyclists, and persons using wheelchairs, as long as the surface is adequately

prepared and properly packed. Limestone also offers an appealing visual effect, especially within an urban context. The total length of this trail would be approximately 1,500 feet.

Coupled with the construction of this trail, enhancements for the plateau area should be programmed. These enhancements would include eradication of invasive species, selected pruning and trimming of trees and other vegetation at the edge of the plateau, erection of two educational displays, and wetlands and drainage improvements. Installation of two or three benches – set well back from the edge of the plateau, while not a necessity – would also make the area more appealing. Areas where invasive species are removed should be planted with native alternatives. Suggested species include goldenrod species (*Solidago* species), ironweed (*Vernonia gigantea*), some aster species (*Aster* species), or little bluestem (*Schizachyrium scoparium*). A few eastern red-cedar (*Juniperus virginiana*) trees could also be planted here to provide unique winter habitat and a food source.

Care must be taken in attempting to control the invasive species at this location, especially when pruning or trimming to improve the views of downtown and Oakland. Some of the park's heartiest native trees cling to the edge of the cliff. Those trees should be protected, even while others are taken down – there is sufficient opportunity here to accomplish that. It would also be beneficial to contact a local native plant society or conservation organization like the Western Pennsylvania Botanical Society or Western Pennsylvania Conservancy to assist with control of the invasive species and help train volunteers.

In terms of educational displays on the plateau, there are opportunities to explain both the magnificent vistas to the northwest and northeast (with the South Side in the foreground) and the distinctive habitat features of the plateau (that of a rangelend compartment within a forested area). From this perspective, the juxtaposition of the built and natural environments found here is a wonderful story to tell. The plateau, as it appears today, is shown in Photo 13.

Also, in this first year it is suggested that the two secondary paths behind the ice rink leading up the ridge be signed as natural hazards areas. This area should be left as it is, but not be used as a major path through the park. With proper signage, park users could still enjoy its vistas, but be warned to take safety precautions. Photo 14 shows an overhang formed on the path leading from the ice rink to the plateau.

Finally, during the first program year, control of the invasive species in the southeastern quadrant of the park should begin. Because the porcelain-berry is so thick and prevalent here, an area about 10 acres, it will take many years to control this plant. Efforts must begin to keep this plant from extending beyond the area it currently dominates. It is suggested that some resources, both financial and volunteer manpower, be programmed each year for eradication of porcelain-berry. At a minimum, herbicide should be applied to at least 2 acres, the land cleared of vines that are shading out existing trees, and new species planted. Suggested native plants for this area could include spicebush (*Lindera benzoin*), staghorn sumac (*Rhus typhina*), red maple (*Acer rubrum*), or pin cherry (*Prunus pensylvanica*).

Without a vigilant annual watch, however, the cleared land could be repopulated; but with a strong effort, success can be achieved. Persistence will be required to completely eradicate this species from the park. Even though top growth can be removed relatively easily, roots, pieces of roots, or seeds can remain viable for several years. It is these plant parts that provide the biggest problem when controlling invasive species.

Program Year 2

During the second program year, a new trail should be constructed at the other end of the park. This proposed trail would begin at the southeastern end of Quarry Field where an existing sidewalk dead-ends. The trail would then climb the hill gradually, first by crossing the woods parallel to the field, past the old stone walls on the hill above the field, then switch back. From there, the trail would begin a gradual climb up the hill, past the large wetland in the southern corner of the park, then turn east along a broad sweeping path until it reaches the existing stub path emanating from the Loop Road. Like the trail proposed for the first program year, the grade for this trail would be minimal enough to use a surface of crushed limestone to accommodate walkers, bicyclists, and persons using wheelchairs. Its width would also be 8 feet. The total length of this trail would be approximately 1,000 feet.

Construction of this trail would allow easy access from the two physiographic parts of the park – the Flats and the Slopes – via two trails, one at the northern end of the park and one at the southern. By connecting this new trail with the Loop Road, visitors would finally be able to walk from every activity area of the park to every other activity area on a groomed trail.

While the second new trail is being constructed, the large wetland in this quadrant of the park should be cleaned up and enhanced by removing trash in the area and providing additional plantings of native species. Currently, this quarter-acre feature is the best wetland in the park, but with minor enhancements, it could be even better. Not only will improvements here provide an interesting destination for nature walks or casual strolls, it will offer an educational opportunity. A display could be constructed here that provides information on wetlands and the special importance of wetlands in an urban setting. Photo 15 shows the wetland at this location.

By erecting another display along the trail near one of the stone walls, another educational opportunity will arise. Although it is still uncertain why the two stone walls were originally built, additional research may unveil the reason. At the very least, the walls provide an opportunity to discuss the history of the South Side during the Depression, the New Deal, and the legacy of the WPA.

Program Year 3

During the third program year, attention should be shifted to the existing pedestrian corridor on the western side of the park, from the 21st Street entrance to the 18th Street entrance to the park's terminus at the end of Quarry Street. While this corridor functions adequately now, pedestrian flow and use could be improved by clearly demarcating it as a pathway. At a minimum, signage and other types of markings could identify this corridor as a park trail. Improvements to the long set of concrete steps and the sidewalks could be extensive, depending on the actual type of repair needed by the time they are undertaken. The steps are showing extensive wear and deterioration now. About a quarter of the steps are sheered, cracked, or chipped. The concrete's steel reinforcing rods are exposed on many of the steps and the hand-railing is missing on about a third of the length. The total length of these proposed improvements is approximately 2,500 feet.

The more prudent alternative for this corridor may be to create a major park entrance at 21st Street, narrow the asphalted area between that entrance and the lower end of the steps, reclaim that space with native vegetation, limit parking to 8-12 spaces, remove the steps and replace them with a trail, and construct a new pathway through the lower end of the park. Without deciding on a fate for the ice rink, it is difficult to determine a straightforward course of action for

this area, however. This area is shown in Photo 16. Regardless of what happens at the ice rink, some rehabilitation of the sidewalks and repair of the steps are necessary.

Another educational display should also be erected near the ice rink. This display should present information on the old brickworks industry. With displays in the park on the natural environment, the history of the area, and the vistas observed from the South Side, a well-rounded educational experience would be available with a visit to the park.

Finally, there is a very nice stand of native tree species south of the plateau (shown as the smallest targeted control area on Figure 11). This stand should be protected, beginning with the removal of invasive species encroaching upon the area. Once invasive plants have been removed, this stand of trees should be expanded. This could be completed by clearing adjacent non-native vegetation and re-planting with the native tree species that occur in this specific area (primarily oaks and maples).

Program Year 4

By the end of the fourth program year, it would be possible to walk all the way around the park on a groomed or finished trail. A connecting trail should be built from the plateau to the Loop Road. This area is fairly steep and will present a challenge for construction. The most logical solution here, however, is to construct a series of switchbacks to overcome the steepness of the topography and lead walkers up the hill on a gentler grade. The total length of this trail would be approximately 800 feet.

By the fourth program year, it would be beneficial to organize a volunteer sweep of the park. There are many areas of the park where trash and debris have been left over the years, especially drink cans and broken bottles. A thorough cleanup of the park by teams of volunteers after significant progress on new trails has occurred could send a powerful message to the community that the park is an important resource and will be protected for years to come.

Program Year 5

A critical area of the park is the BMX track and the secondary paths leading to it. Several issues associated with the past construction of the track haunt the park, including poor

drainage, soil denudation, and liability. There are two options for the track. The first is the easiest to accomplish – tear it out, fix the drainage problems in the area, and plant native species on the denuded soil. After tearing out the track, the area can be planted with native trees, shrubs, and herbs. This would also allow a larger tract of intact forestland to exist. Many wildlife species actually require larger forested areas, and by maintaining more wooded area, the park grounds will support more biodiversity. Conceivably, this alternative may also establish another unique habitat within the park – an added benefit of leaving the setting more natural and limiting human use there.

It is likely that some individuals may continue to use the area for "extreme" bike riding if something of significance isn't put in the track's place, however. Consequently, as another alternative, it is suggested that a new trail be constructed in the central part of the park through the BMX area, climbing gradually to the western edge of the Loop Road.

Program Year 6

The surface of the upper Loop Road is a mixture of asphalt paving and crushed, rolled stone aggregate. Although the road is in good shape, some rehabilitation will be necessary in the future. The road should be inspected, pavement repaired, and trail signage installed.

The road is narrow now and few vehicles use it. Serious thought should also be given to prohibiting vehicular traffic along this road altogether and reducing the road's width. Invasive vegetation should be removed along the road's length. Native vegetation should be planted along the loop where appropriate.

Invasive vegetation growing along the road's edges should be removed. A population of Japanese knotweed exists on both sides of the road. It is recommended to remove this stand of vegetation and re-plant the area with a quick growing alternative. This area is highly visible and work here by volunteers will allow "ownership" of the park. One suggested re-vegetation method for this area is seeding with annual ryegrass. Since re-treatment of this area (by mowing and hand pulling) will be necessary because Japanese knotweed re-sprouts quickly, planting grass will easily allow these types of re-treatments without adversely affecting re-planted broad-leaved plants.

Also during the sixth year of the park improvement program, a small trail extension of approximately 150 feet from the top of the principal steps to the wooded area should be built. The terminus of this trail is a small stream and wetland at the edge of the woods. The wetland should be enhanced and a display installed there on the importance of the park's aquatic resources. Photo 17 shows the wetland at this location.

5.2 Estimated Costs

Estimated costs for each year of the park improvements program are provided in Table 5.2-1. Table 5.2-1 is followed by three separate tables with more detail on each element of the proposed program of projects.

Costs provided in each table are preliminary estimates based on sketch planning methods. Sketch planning is a tool that allows several alternatives to be evaluated quickly and cost effectively. Estimates based on sketch planning techniques illustrate the potential benefits of projects while providing preliminary budget estimates. As such, the estimates presented here should be viewed as relatively conservative, utilizing information from similar projects as a guide, but without rigorous engineering design. All estimates in Table 5.2-1 are rounded to the nearest thousand dollars.

The estimated total cost of the six-year program is $552,000.

TABLE 5.2-1
Estimated Total Costs of Park Improvements Program

Year	Environmental Enhancements	Trail Development	Interpretive Program	Total Cost
1	Restore plateau area; porcelain-berry control	Construct new trail from ice rink parking lot to plateau; sign hazard areas	Displays for plateau	$69,000
2	Enhance wetland; porcelain-berry control	Construct new trail from Quarry Field to Loop Road trail extension	Displays for WPA and wetlands	$58,000
3	Porcelain-berry control; expand native stand of trees	Rehabilitate walking corridor from 21st Street entrance to 18th Street entrance and football field	Display on South Side brickworks industry	$250,000
4	Clean sweep the entire park; porcelain-berry control	Construct new trail from plateau to Loop Road	None	$42,000

TABLE 5.2-1 (continued)
Estimated Total Costs of Park Improvements Program

Year	Environmental Enhancements	Trail Development	Interpretive Program	Total Cost
5	Correct drainage & enhance wetlands through central corridor; porcelain-berry control	Remove BMX track	None	$104,000
6	Enhance wetland and stream	Construct new trail stub from top of steps to wooded area	Display for aquatic resources	$29,000
			Total	**$552,000**

The estimated costs to complete the environmental enhancements identified in the plan are shown in Table 5.2-2. The major elements of these projects are aimed at controlling invasive vegetative species, restoring habitat, and improving the natural beauty of the park. The total cost of this part of the program is $63,111.

TABLE 5.2-2
Estimated Costs of Environmental Enhancements in the Park

Year	Project Element	Units	Quantity	Cost/Unit	Total Cost
1	Restore plateau area				
	Herbicide application	Ac	3	$100	$300
	Landscaping	Ac	3	$5,000	$15,000
	Trees (native species)	Ea	10	$125	$1,250
	Shrubs (native species)	Ea	40	$75	$3,000
	Clean-up	Ac	3	$500	$1,500
	Porcelain-berry control*	Ac	2	$2,000	$4,000
	Mobilization	at 15% of all costs above			$3,758
	Total Environmental Enhancements: Program Year 1				**$28,808**
2	Enhance wetland				
	Herbicide application	Ac	1	$100	$100
	Landscaping	Ac	1	$5,000	$5,000
	Trees (native species)	Ea	5	$125	$625
	Shrubs (native species)	Ea	20	$75	$1,500
	Clean-up	Ac	1	$500	$500
	Porcelain-berry control*	Ac	2	$2,000	$4,000
	Mobilization	at 15% of all costs above			$1,759
	Total Environmental Enhancements: Program Year 2				**$13,484**
3	Porcelain-berry control*	Ac	2	$2,000	$4,000
	Native Tree Stand				
	Herbicide application	Ac	0.6	$100	$60
	Trees (native species)	Ea	40	$125	$5,000
	Mobilization	at 15% of all costs above			$759
	Total Environmental Enhancements: Program Year 3				**$9,819**

TABLE 5.2-2 (continued)
Estimated Costs of Environmental Enhancements in the Park

Year	Project Element	Units	Quantity	Cost/Unit	Total Cost
4	Clean sweep the entire park				$5,000
	Porcelain-berry control*	Ac	2	$2,000	$4,000
	Total Environmental Enhancements: Program Year 4				**$9,000**
5	Correct drainage & enhance wetlands in central corridor (near BMX track)				See Table 5.2-4
	Porcelain-berry control*	Ac	2	$2,000	$4,000
	Total Environment Enhancements: Program Year 5				**$4,000**
6	Enhance wetland and stream				$2,000
	Total Environmental Enhancements: Program Year 6				**$2,000**
Total Cost of All Environmental Enhancements					**$63,111**

*Porcelain-berry control includes application of herbicide, limited landscaping, and planting of some native trees and shrubs.

The estimated costs to complete the trail improvements and the related interpretive program elements identified in the plan are shown in Table 5.2-3. The assumptions used to determine these preliminary estimates include all new trails would be 8 feet wide trail; grubbing, clearing and sub-base preparation would be 10 feet wide; landscaping would be four feet on each side of new trails. All landscaping would be done using native species. The total cost of this part of the program is $144,557.

TABLE 5.2-3
Estimated Costs of New Trails

Year	Project Element	Units	Quantity	Cost/Unit	Total Cost
1	Construct new trail from ice rink parking lot to plateau				
	*Length: 1,500 ft *12,000 sq ft – top surface *15,000 sq ft – (base) *1,333 sq yd (1,666 sq yd) *0.28 ac (0.34 ac)				
	Clearing/grubbing	Sq yd	1,666	$0.45	$750
	Cut/fill	Cu yd	0	$15	$0
	Culverts	Ea	0	$1,300	$0
	Grading/sub-base	Sq yd	1,666	$4	$6,664
	Surface (prep & materials)	Sq yd	1,333	$3	$3,999
	Landscaping	Ac	0.28	$5,000	$1,400
	Signage	Ea	4	$200	$800
	Design	at 15% of all costs above			$2,045
	Sign natural hazard areas	Ea	4	$200	$800
	Displays for plateau	Ea	2	$12,000	$24,000
	Total Trail Improvements: Program Year 1				**$40,458**

TABLE 5.2-3 (continued)
Estimated Costs of New Trails

Year	Project Element	Units	Quantity	Cost/Unit	Total Cost
2	Construct new trail from football field to Loop Road trail extension				
	*Length: 1,000 ft *8,000 sq ft – top surface *10,000 sq ft – (base) *889 sq yd (1,111 sq yd) *0.18 ac (0.23 ac)				
	Clearing/grubbing	Sq yd	1,111	$0.45	$500
	Cut/fill	Cu yd	0	$15	$0
	Culverts	Ea	4	$1,300	$5,200
	Grading/sub-base	Sq yd	1,111	$4	$4,444
	Surface (prep & materials)	Sq yd	889	$3	$2,667
	Landscaping	Ac	0.18	$5,000	$900
	Signage	Ea	4	$200	$800
	Design	at 15% of all costs above			$5,777
	Displays	Ea	2	$12,000	$24,000
	Total Trail Improvements: Program Year 2				**$44,248**
3	Signage for existing walkways	Ea	6	$200	$1,200
	Displays	Ea	1	$12,000	$12,000
	Total Trail Improvements: Program Year 3				**$13,200**
4	Construct new trail from plateau to Loop Road				
	*Length: 800 ft *6,400 sq ft – top surface *8,000 sq ft – (base) *711 sq yd (889 sq yd) *0.15 ac (0.18 ac)				
	Clearing/grubbing	Sq yd	889	$0.45	$400
	Cut/fill	Cu yd	1,400	$15	$21,000
	Culverts	Ea	0	$1,300	$0
	Grading/sub-base	Sq yd	889	$4	$3,556
	Surface (prep & materials)	Sq yd	711	$3	$2,133
	Landscaping	Ac	0.15	$5,000	$750
	Signage	Ea	4	$200	$800
	Design	at 15% of all costs above			$4,296
	Displays	Ea	0	$12,000	$0
	Total Trail Improvements: Program Year 4				**$32,935**
5	No new trails				

TABLE 5.2-3 (continued)
Estimated Costs of New Trails

Year	Project Element	Units	Quantity	Cost/Unit	Total Cost
6	Construct new trail stub from top of steps to wooded area				
	*Length: 150 ft *1,200 sq ft – top surface *1,500 sq ft – (base) *133 sq yd (167 sq yd) *0.03 ac (0. 03 ac)				
	Clearing/grubbing	Sq yd	167	$0.45	$75
	Cut/fill	Cu yd	0	$15	0
	Culverts	Ea	0	$1,300	0
	Grading/sub-base	Sq yd	167	$4	$668
	Surface (prep & materials)	Sq yd	133	$3	$399
	Landscaping	Ac	0.03	$5,000	$150
	Signage	Ea	1	$200	$200
	Design	at 15% of all costs above			$224
	Displays	Ea	1	$12,000	$12,000
	Total Trail Improvements: Program Year 6				**$13,716**
Total Cost of All New Trail Improvements					**$144,557**

Table 5.2-4 shows renovations to existing trails or paths. Projects include renovation of the corridor from the 21st Street entrance to Quarry Street, removal of the BMX track, and rehabilitation of the Loop Road area. The total cost of this part of the program is $226,537.

TABLE 5.2-4
Estimated Costs of Trails/Walkways Renovations

Year	Project Element	Units	Quantity	Cost/Unit	Total Cost
3	Renovate walking corridor from 21st Street entrance to 18th Street entrance and north end of Quarry Field				
	Remove asphalt	Sq yd	4,444	$7	$31,108
	Remove steps/cut & fill	Cu yd	300	$20	$6,000
	New parking lot (12 spaces)	Sq yd	500	$40	$20,000
	Install walkway (flats area)	Sq yd	1,700	$7	$11,900
	Replace steps with walkway	Sq yd	300	$60	$18,000
	Landscaping	Ac	0.92	$5,000	$4,600
	Trees (native species)	Ea	15	$125	$1,875
	Shrubs (native species)	Ea	60	$75	$4,500
	Design	at 15% of all costs above			$14,697
	Total Trails/Walkways Renovations: Program Year 3				**$112,680**

TABLE 5.2-4
Estimated Costs of Trails/Walkways Renovations

Year	Project Element	Units	Quantity	Cost/Unit	Total Cost
5	Remove BMX track (0.70 ac)	Cu yd	4,000	$18	$72,000
	Culverts	Ea	4	$1,300	$5,200
	Landscaping	Ac	0.70	$5,000	$3,500
	Trees (native species)	Ea	15	$125	$1,875
	Shrubs (native species)	Ea	60	$75	$4,500
	Design	at 15% of all costs above			$13,061
	Total Trails/Walkways Renovations: Program Year 5				**$100,136**
6	Rehabilitate loop road and adjoining trail stub				
	Spot repairs	Sq yd	40	$150	$6,000
	Signage	Ea	6	$200	$1,200
	Clearing	Sq yd	2,181	$0.45	$981
	Landscaping	Ac	0.45	$5,000	$2,250
	Shrubs (native species)	Ea	20	$75	$1,500
	Design	at 15% of all costs above			$1,790
	Total Trails/Walkways Renovations: Program Year 6				**$13,721**
Total Cost of All Trails/Walkways Renovations					**$226,537**

No other projects have been proposed for the secondary paths crisscrossing the park. There should be some consideration to grooming the most popular of the secondary trails and placing a soft surface of mulch on them. If done with volunteer teams, the cost of improving the secondary trail network would be negligible.

5.3 Funding Strategies and Potential Funding Partners

Several funding partners may be available to help pay for park improvements. Included among the possible partners are the City of Pittsburgh Department of Public Works, Citiparks, the City Parks Conservancy, the Pennsylvania Department of Conservation and Natural Resources (DCNR), the Pennsylvania Department of Community and Economic Development (DCED), the Pennsylvania Department of Environmental Protection (DEP), local foundations and civic groups, and major South Side employers. Of this list, the primary funders are likely to be the City of Pittsburgh through the Department of Public Works or Citiparks, DCNR, and DCED.

DCNR provides grants and technical assistance for community conservation, parks and recreation, trails, and the preservation of greenspace, among other things. DCNR's primary grants program is the *Community Conservation Partnership Program*. Commonly referred to as C2P2, this program offers a wide range of funding opportunities. Grants are available to local

municipalities for community recreation projects related to the rehabilitation of public parks. They also may be used to develop feasibility studies and site development plans. Community grants usually require a 50 percent local match, but there are exceptions for some technical assistance grants and projects found eligible as small community projects. The maximum grant for these eligible projects is usually $40,000. Grant funds specifically for recreational trails projects are also available. Eligible applicants include federal and state agencies, local governments, and private organizations. Trail projects usually require a 20 percent local match and state participation is usually capped at $100,000. The local match can be provided through in-kind service or contributions, such as donations of funds, materials, services, or with the provision of new right-of-way. Maintenance and restoration of existing trails, development of trail linkages, and construction of new trails are all eligible projects.

Although it is a major funding resource for public parks, C2P2 will not be able to fund the entire program of projects at South Side Park. The demand for grants from C2P2 is enormous throughout the state. Over the past five years, less than 40 percent of the requests made for C2P2 funds were approved and many requests for worthwhile projects went unfunded.

DCED does not fund parks improvements, but it does fund certain aspects of recreation planning and provides grants and technical assistance for community revitalization and economic development. The fact that the park was included in an Elm Street District (a local funding mechanism of DCED) could be an early indication of DCED's willingness to participate in future funding partnerships.

While not a direct funder of park improvements either, DEP does provide funding for environmental restoration projects under its *Growing Greener* program. Eligible projects can include stormwater management, wetlands and stream enhancements, and vegetative plantings. Projects under this program are usually targeted for improving watersheds.

Local and national foundations may be interested in becoming a funding partner, especially if their money is leveraged against state grants. The Heinz Endowments, the Pittsburgh Foundation, and other local community foundations are potential partners, but other groups such as the Riverlife Task Force or Sustainable Pittsburgh may also be able to help the park by providing technical assistance, fundraising, or grantsmanship.

Other possible funding partners are the businesses located on the South Side. Many businesses invest in healthier lifestyles for their employees in different ways. Support of the park through trail development and educational programs is an excellent way to encourage employees to exercise more. With an improved park so close to their doorsteps, local businesses may help sustain the park in the future. With a major facility on the South Side, a health provider such as UPMC may be a natural partner for the park. Although UPMC has announced that it may close its hospital facility on Mary Street, less than two blocks from the park, over the next three to five years, it still has other major facilities and numerous service providers on the South Side. UPMC will always retain a significant presence in the area and there is still merit in pursuing it as a funding partner.

5.4 Schedule/Timeframe

The program of projects for the park, as presented in this plan, is based on a typical municipal improvements cycle of six years. This plan may seem ambitious, however, and many things must happen to accomplish it. There must be “buy-in” to the process where the ideas presented within the plan are disseminated throughout the community, discussed, modified, and accepted. That process has already started. The Elm Street Committee and South Side Slopes Organization have been updated periodically throughout the development of this plan. Future activities could include more meetings with these two groups, outreach to other community organizations, news releases, and individual meetings with potential funding partners.

Because the park is owned by the city, the municipal government will be the likely sponsor for state-funded grants and be required to provide any necessary local match. It is extremely important that the city commit to the goals of this plan. Although DPW has been involved in some of the preliminary tasks of developing this plan and other departments provided background information for the related technical studies, little progress on carrying out the program of projects will occur unless the city endorses the need for action. That will happen eventually because the city recognizes its important role as an environmental steward... but it could take time.

More mundane matters could slow progress, too. Additional analysis and documentation is necessary to carry out many of the projects proposed in this plan. Grant applications must be prepared, submitted to funding agencies, and approved. From a practical side, design drawings

and contract materials are required before any of the trail improvements can begin. Projects will have to be bid following the city's competitive procurement policies. This will also take time, but it will happen, too.

People will continue to use the park, however, with or without trail the trail improvements suggested in this plan, but the threat posed by the spread of invasive plant species must be met without delay. While the best solution for meeting this threat is a combination of government action and volunteer effort, there are plenty of opportunities for individuals and community groups to continue tackling this threat – as they already have been – without government financial assistance. It will take many, many years and a lot of hard work to eradicate all of the invasive species found in the park. But, of course, the best time to start is now.

6.0 REFERENCES

6.0 REFERENCES

The following references were used in the development of this greenspace management plan:

Abele, CPRP, Susan E. 2003. *Community Recreation and Parks: A Handbook for Pennsylvania Municipalities*. Pennsylvania Department of Conservation and Natural Resources. Harrisburg, Pennsylvania.

Allegheny County Division of Computer Services, Geographic Information Systems Group. 2000. Downloaded via Pennsylvania Spatial Data Access (PASDA) www.pasda.psu.edu. University Park, PA. July 16, 2008.

Anderson, J.R., E.L. Hardy, J.T. Roach, and R.E. Witmer. 1976. *Anderson Land Use/Land Cover Classification System, Geological Survey Professional Paper 964*. Washington, District of Columbia.

Arthur, U.N. 1932. *City of Pittsburgh Geodetic and Topography Survey*. Sheet 13. Department of City Planning, Pittsburgh, Pennsylvania.

Biographical Review Publishing Company. 1897. *Biographical Review: Containing Life Sketches of Leading Citizens of Pittsburg and Vicinity, Pennsylvania.* Volume 24. Boston, Massachusetts.

Boehmig, Stuart P. *Pittsburgh's South Side*. Arcadia Publishing. Charleston, South Carolina.

City of Pittsburgh Planning Department. 2006. *Census: Pittsburgh – A Comparative Digest of Census Data for Pittsburgh's Neighborhoods*. Pittsburgh, Pennsylvania.

Cowardin, L.M., V. Charter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States, Report No. FWS/OBL-79/31*. United States Department of the Interior, Fish and Wildlife Service, Washington, District of Columbia.

Dickey, John W. 1975. *Metropolitan Transportation Planning*. Scripta Book Company. Washington, District of Columbia.

Diffenbacher, J.F. 1881. *J.F. Diffenbacher's Directory of Pittsburgh and Allegheny Cities*. J.F. Pittsburgh, Pennsylvania.

Flink, Charles A., Kristine Olka, and Robert M. Searns. 2001. *Trails for the Twenty-First Century: Planning, Design, and Management for Multi-Use Trails*. Rails-to- Trails Conservancy. Washington, District of Columbia.

G.M. Hopkins Company. 1872. Borough of Saint Clair and Lower Saint Clair. *Atlas of the Cities of Pittsburgh, Allegheny, and Adjoining Boroughs.* Plate 116. Philadelphia, Pennsylvania.

G.M. Hopkins Company. 1876. Map of the Cities of Pittsburgh and Allegheny Showing the New Arrangements of the Wards. *Atlas of the Cities of Pittsburgh, Allegheny, and Adjoining Boroughs.* Plate 76. Philadelphia, Pennsylvania.

G.M. Hopkins Company. 1886. *Atlas of the Vicinity of the Cities of Pittsburgh and Allegheny, Pennsylvania.* Plate 30. Philadelphia, Pennsylvania.

G.M. Hopkins Company. 1916. *Atlas of the City of Pittsburgh: South Side and Southern Vicinity of Pittsburgh (East Half).* Volume 6, Plates 7-11. Revised 1922 and 1928. Philadelphia, Pennsylvania.

Gomi, Takashi, Roy C. Sidle, and John S. Richardson. 2002. *Understanding Processes and Downstream Linkages of Headwater Systems.* Volume 52, Number 10, BioScience. American Institute of Biological Sciences. Washington, District of Columbia.

Harper, John A. and Christopher D. Laughrey. 1987. *Geology of the Oil and Gas Fields of Southwestern Pennsylvania: Mineral Resource Report 87*. Pennsylvania Department of Environmental Resources, Office of Resources Management Bureau of Topographic and Gelolgic Survey. Harrisburg, Pennsylvania.

Heiden, Nolan, Ph.D. 1974. *Goals and Objectives in the Planning Process*. Unpublished lecture notes. Indiana University of Pennsylvania. Indiana, Pennsylvania.

Houck, H. 1914. *Warrantee Atlas of Allegheny County, Pennsylvania.* Pennsylvania Department of Internal Affairs. Harrisburg, Pennsylvania.

Jones, Claudia, McCann, Jim, McConville, Susan. 2001. *A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area.* Critical Area Commission for the Chesapeake and Atlantic Costal Bays. Annapolis, Maryland.

Klavon Design Associates. 2003. *Master Site Plan: South Side Park*. Prepared for the South Side Local Development Company. Pittsburgh, Pennsylvania.

LaQuatra Bonci Associates, et al. *Pittsburgh's Regional Parks Master Plan: A New Ethic of Stewardship*. Pittsburgh, Pennsylvania.

Lotz, Ron, lifetime resident of the area. 2008. Telephone interview conducted September 3, 2008.

Marsh, William M. 1978. *Environmental Analysis for Land Use and Site Planning*. McGraw-Hill Book Company. New York, New York.

National Park Service. 2006. *Park News*. U.S. Department of the Interior. Washington, District of Columbia.

PAMAP Program. 2006. *Color Orthophotos of Pennsylvania*. PA Department of Conservation and Natural Resources, Bureau of Topographic and Geologic Survey. Middletown, PA. Downloaded via Pennsylvania Spatial Data Access (PASDA) www.pasda.psu.edu. University Park, PA. December 14, 2007.

Pennsylvania Code. *Title 25, Environmental Protection.* 2002. Pennsylvania Department of Environmental Protection. Harrsiburg, Pennsylvania.

Pennsylvania Department of Conservation and Natural Resources. 2007. *Creating Community Sustainable Parks: A Guide to Improving Quality of Life by Protecting Natural Resources.* Harrisburg, Pennsylvania.

Pennsylvania Department of Conservation and Natural Resources. 2006. *Invasive Plants in Pennsylvania.* Harrisburg, Pennsylvania.

Pennsylvania Department of Transportation, Bureau of Planning and Research, Geographic Information Division. 2008. *Pennsylvania Administrative State Roads*. www.dot.state.pa.us. Harrisburg, PA.

Pittsburgh Gazette Times. 1908. *The Story of Pittsburgh and Vicinity.* Pittsburgh, Pennsylvania.

Pittsburgh Water and Sewer Authority. Hutton, Bob, GIS Project Coordinator. Pittsburgh, Pennsylvania. Received August 07, 2008.

R.L. Polk and Company. 1930. *Polk's Pittsburgh City Directory*. Pittsburgh, Pennsylvania.

Roney Drennan, Susan. 1998. *Cats*. National Audubon Society. New York, New York.

Sanborn Map Company. 1893. *Sanborn Fire Insurance Map for Pittsburgh, Pennsylvania*. New York, New York.

Sanborn Map Company. 1906. *Sanborn Fire Insurance Map for Pittsburgh, Pennsylvania.* Volume 6:694. New York, New York.

Sanborn Map Company. 1927. *Sanborn Fire Insurance Map for Pittsburgh, Pennsylvania.* Volume 7:778. New York, New York.

Sanborn Map Company. 1951. *Sanborn Fire Insurance Map for Pittsburgh, Pennsylvania.* Volume 7:778. First published 1924; revised 1951. New York, New York.

Serra, Janice. 2008. *Where the Water Meets the Concrete: South Side Park Stream Daylighting Project*. Unpublished research paper. Pittsburgh, Pennsylvania.

South Side Local Development Company. 2004. *South Side Neighborhood Plan*. Pittsburgh, Pennsylvania.

Swearingen, J., K. Reshetiloff, B. Slattery, and S. Zwicker. 2002. *Plant Invaders of Mid-Atlantic Natural Areas*. National Park Service and U.S. Fish and Wildlife Service, Washington, District of Columbia.

United States Army Corps of Engineers. 1987. *Wetlands Delineation Manual,* Technical Report. Y-87-1, U.S. Army Corps of Engineers Waterways Experimental Station, Vicksburg, Mississippi.

United States Census Bureau. 2000a. *Census 2000 Summary File 1*. Washington, District of Columbia.

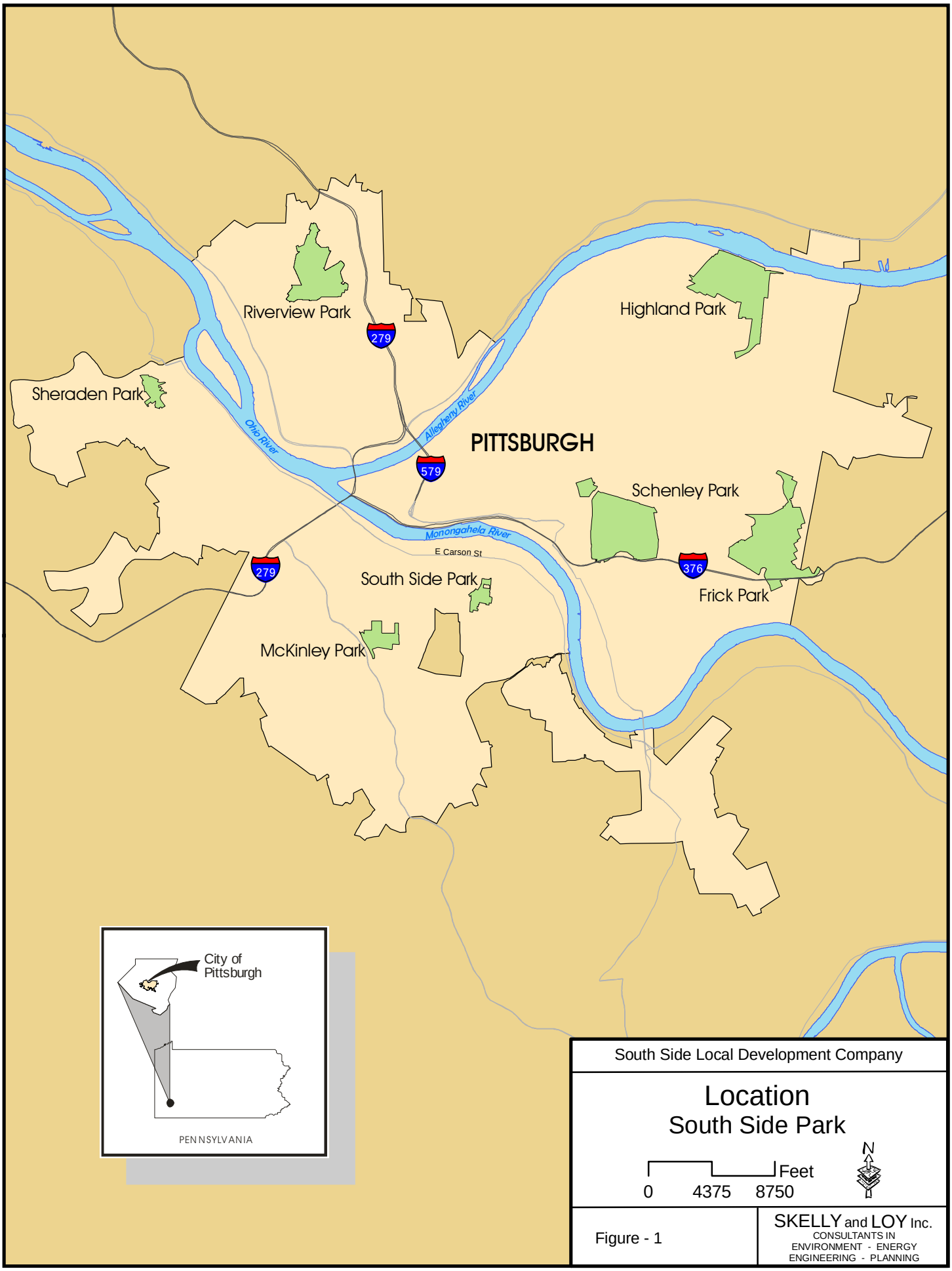
United States Census Bureau. 2000b. *Census 2000 Summary File 3*. Washington, District of Columbia.

Urban Greenspaces Institute. 2005. *Mission and Motto*. Portland, Oregon.

Waddell, Bill, City of Pittsburgh Real Estate Development. 2008. Telephone interview conducted October 31, 2008.

Young, Elaine, childhood resident of the area. 2008. Telephone interview conducted November, 2008.

FIGURES



South Side Local Development Company

Location
South Side Park

0 4375 8750 Feet

N

Figure - 1

SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING

South Side Local Development Company

Neighborhood Setting

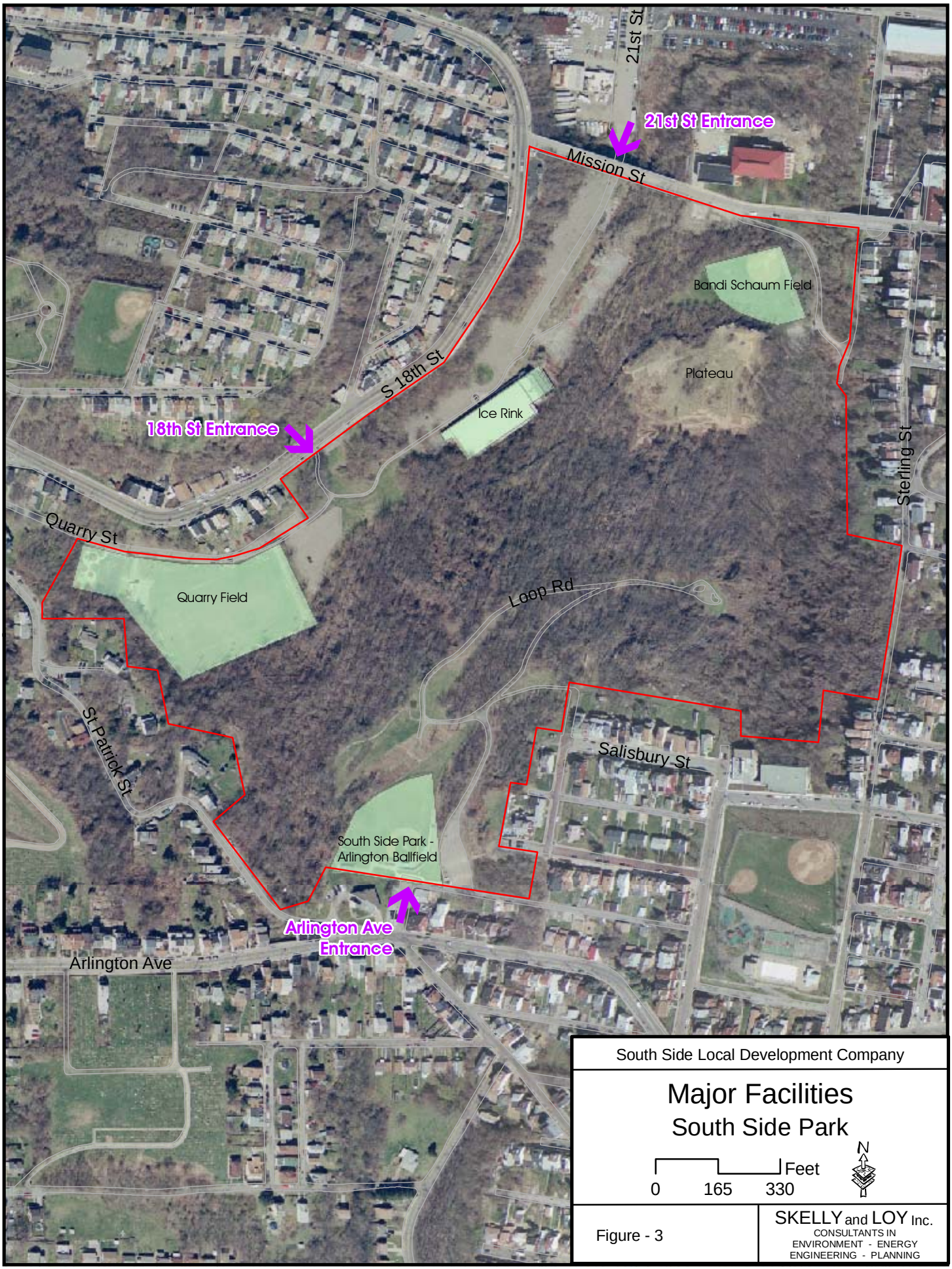
South Side Park

0 370 740 Feet

N

Figure - 2

SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING



South Side Local Development Company

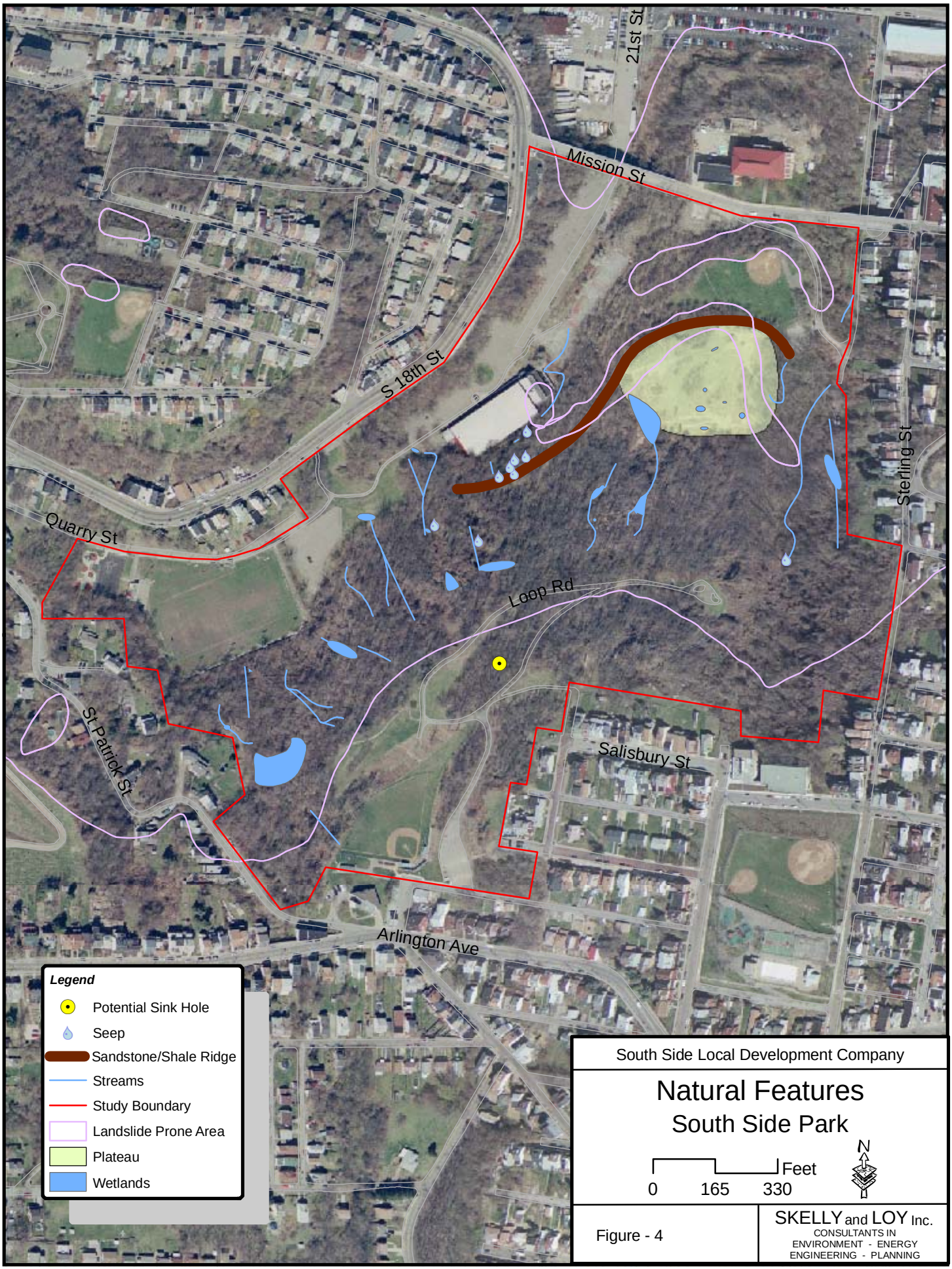
Major Facilities
South Side Park

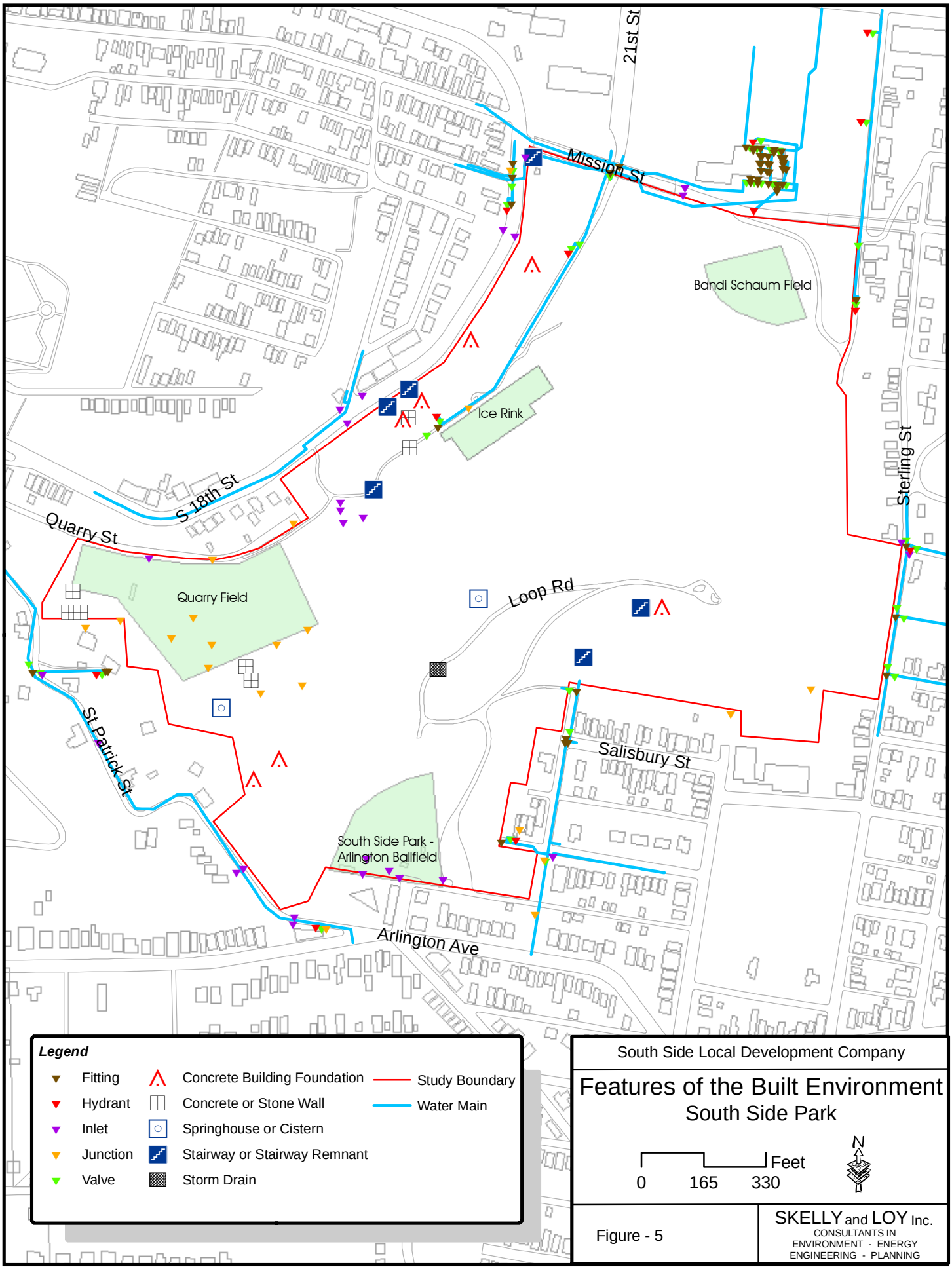
0 165 330 Feet

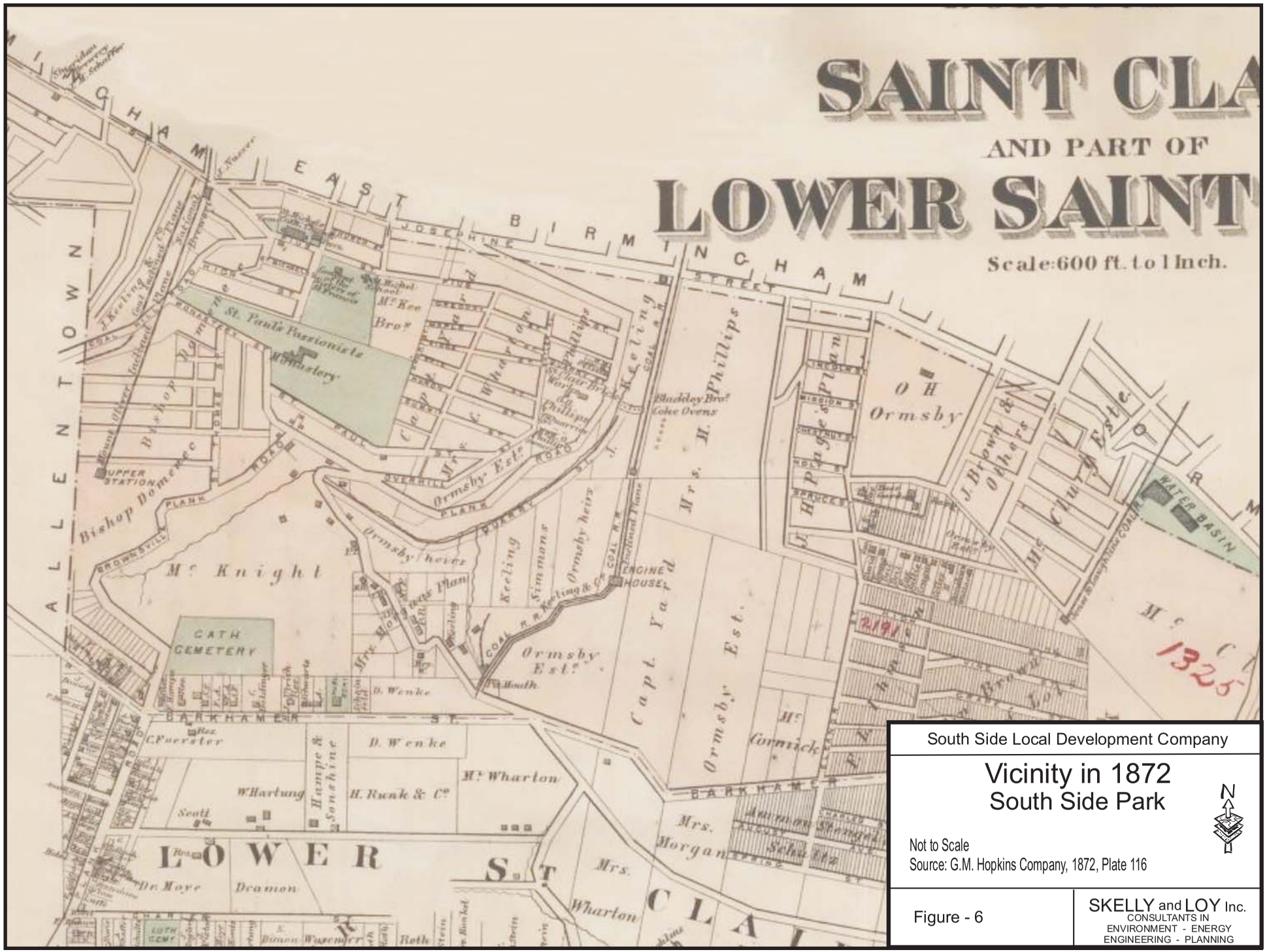
N

Figure - 3

SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING


21st St
Mission St
S 18th St
Sterling St
Quarry St
Loop Rd
St Patrick St
Salisbury St
Arlington Ave
Legend
Potential Sink Hole
Seep
Sandstone/Shale Ridge
Streams
Study Boundary
Landslide Prone Area
Plateau
Wetlands
South Side Local Development Company
Natural Features
South Side Park
0
165
330
Feet
N
Figure - 4
SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING


21st St
Mission St
Bandi Schaum Field
Ice Rink
S 18th St
Quarry St
Sterling St
Quarry Field
Loop Rd
St Patrick St
Salisbury St
South Side Park -
Arlington Ballfield
Arlington Ave
Legend
Fitting
Hydrant
Inlet
Junction
Valve
Concrete Building Foundation
Concrete or Stone Wall
Springhouse or Cistern
Stairway or Stairway Remnant
Storm Drain
Study Boundary
Water Main
South Side Local Development Company
Features of the Built Environment
South Side Park
0
165
330
Feet
N
Figure - 5
SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING



South Side Local Development Company

Vicinity in 1872
South Side Park

Not to Scale
Source: G.M. Hopkins Company, 1872, Plate 116

Figure - 6

SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING

Plate 7

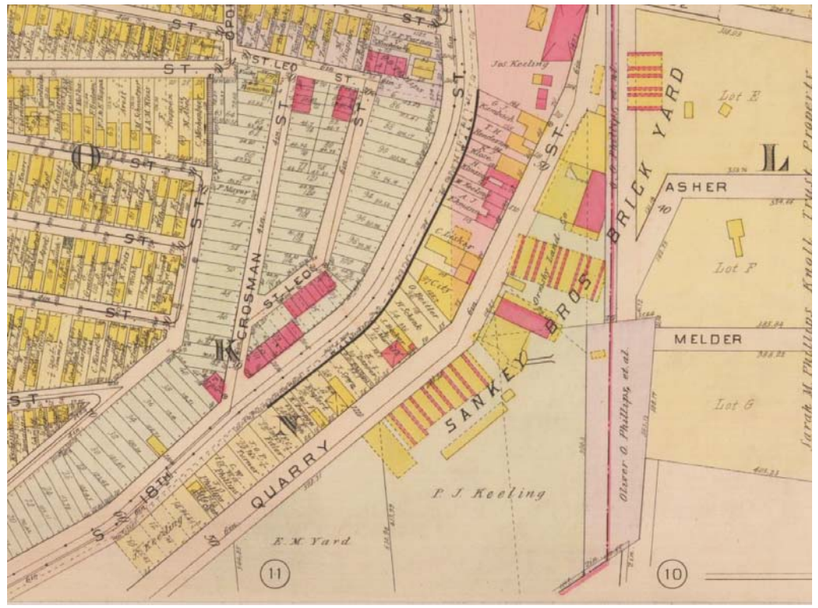


Plate 8

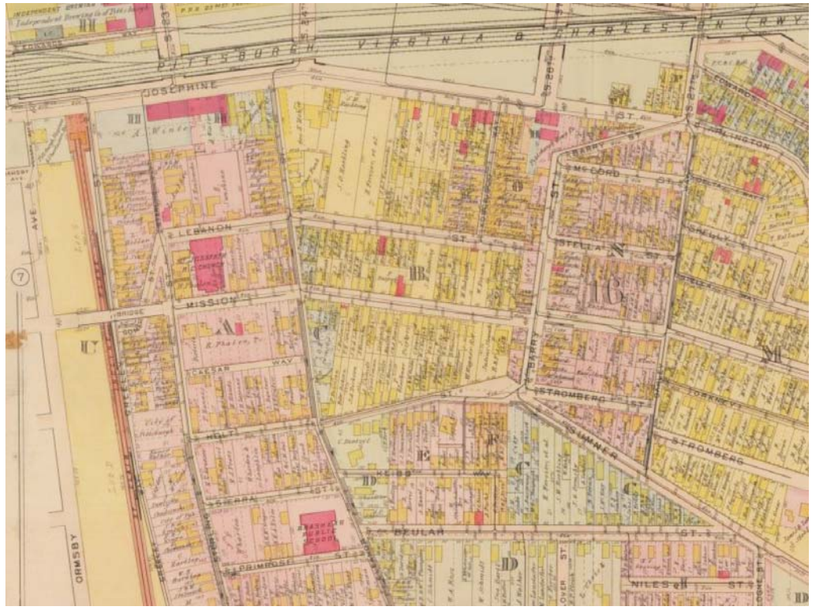


Plate 10

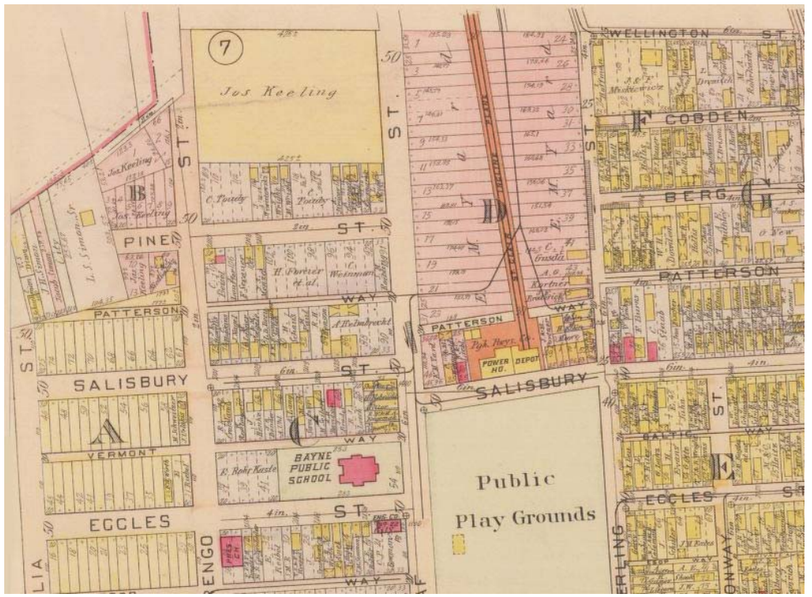
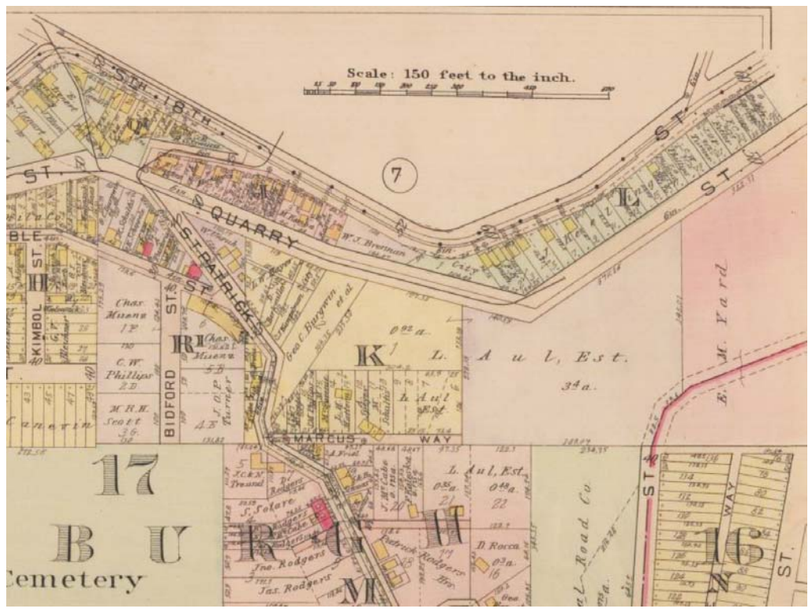


Plate 11



South Side Local Development Company

Vicinity in 1916

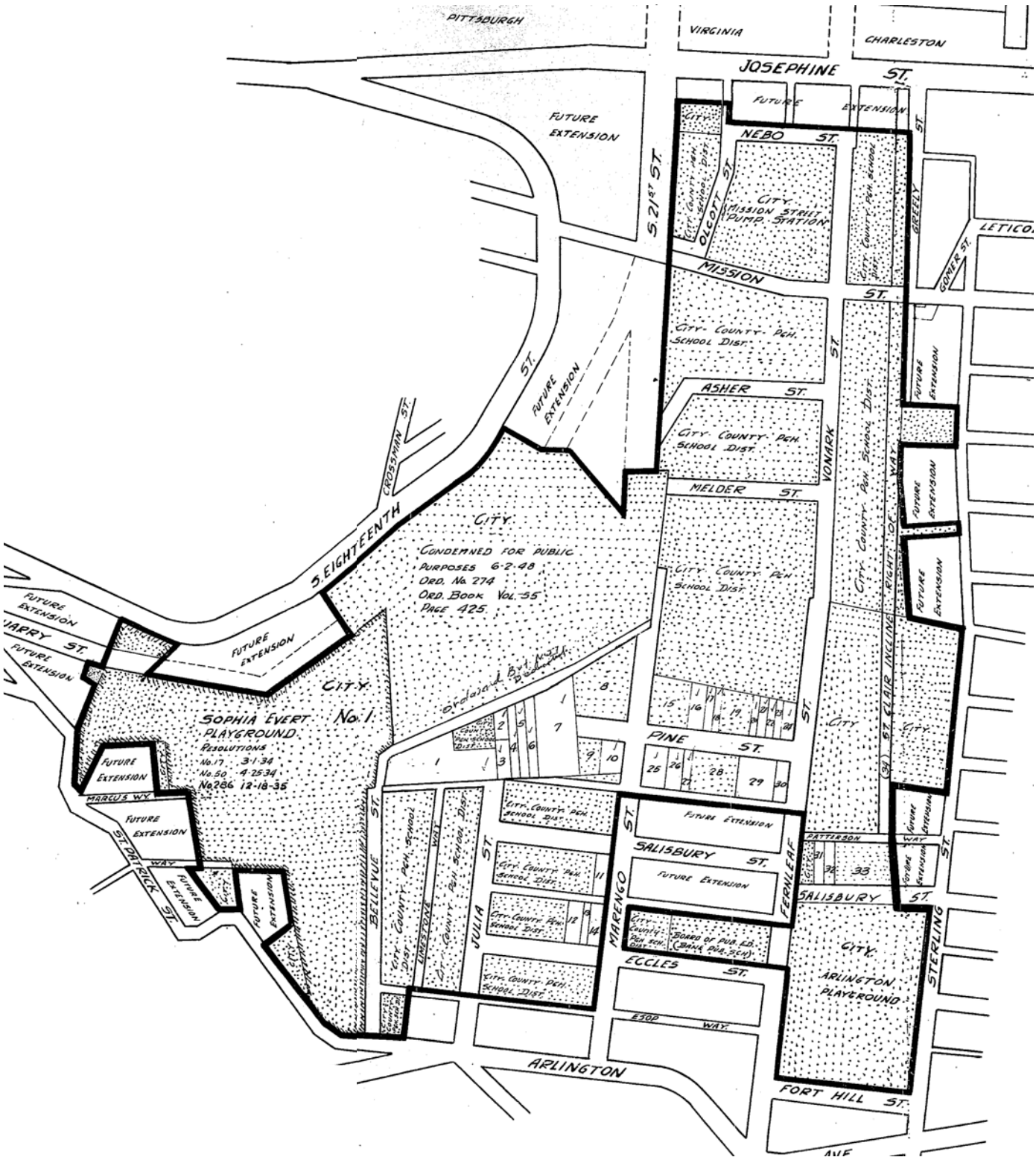
South Side Park

N

Not to Scale
Source: G.M. Hopkins Company, 1916

Figure - 7

SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING



South Side Local Development Company

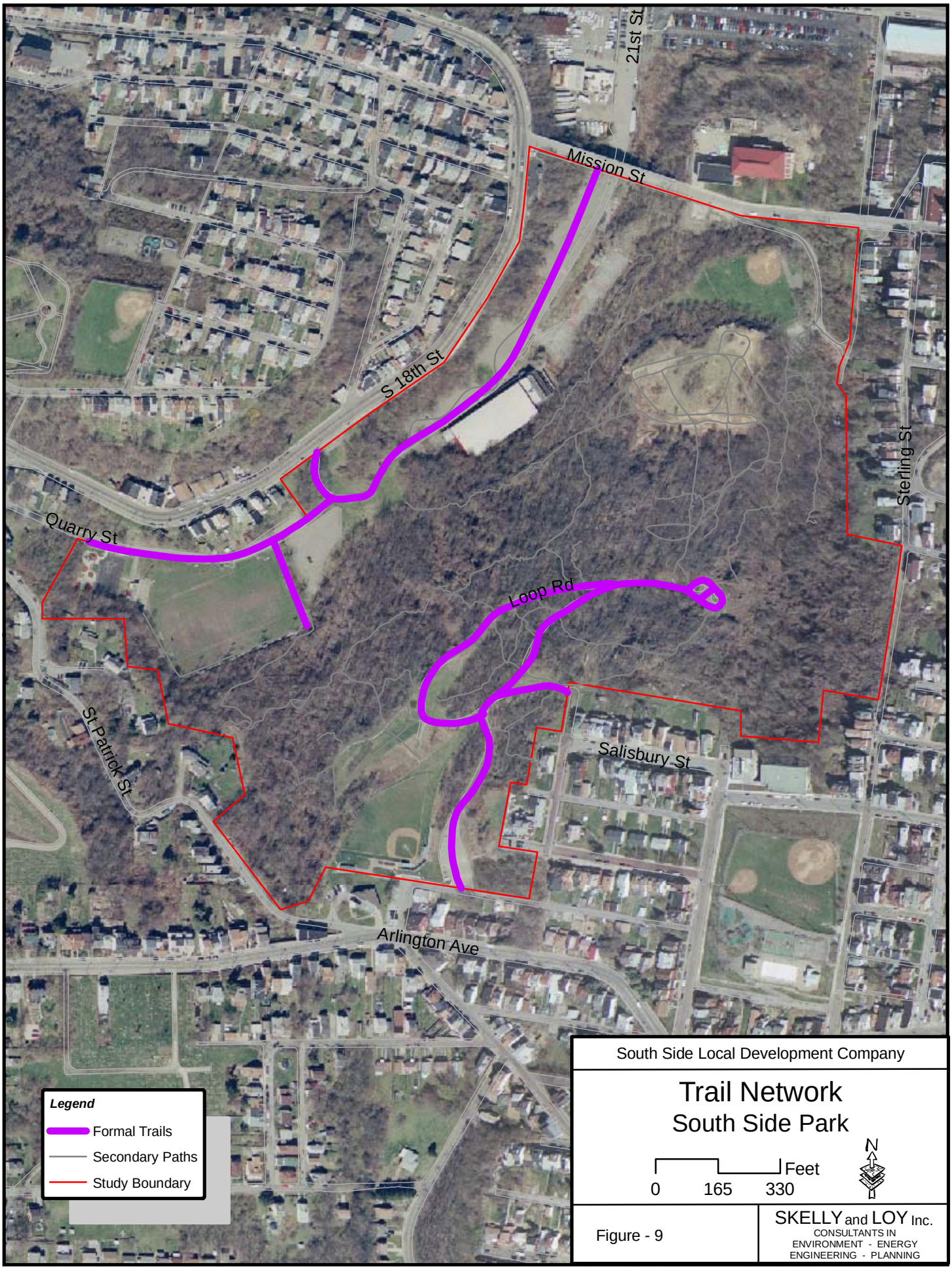
Vicinity in 1962
South Side Park

N

Not to Scale
Source: Department of City Planning, City of Pittsburgh

Figure - 8

SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING



South Side Local Development Company

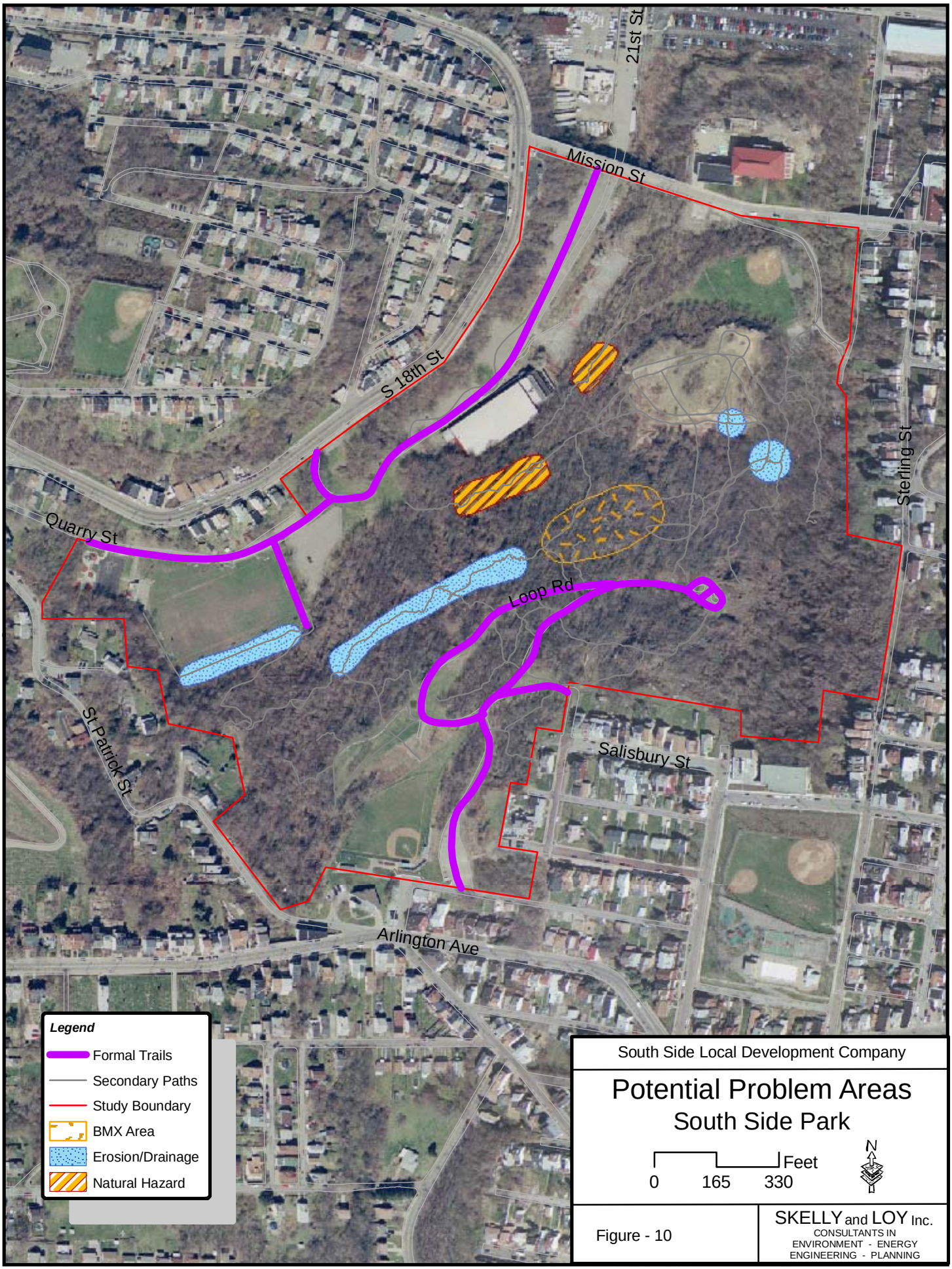
Trail Network
South Side Park

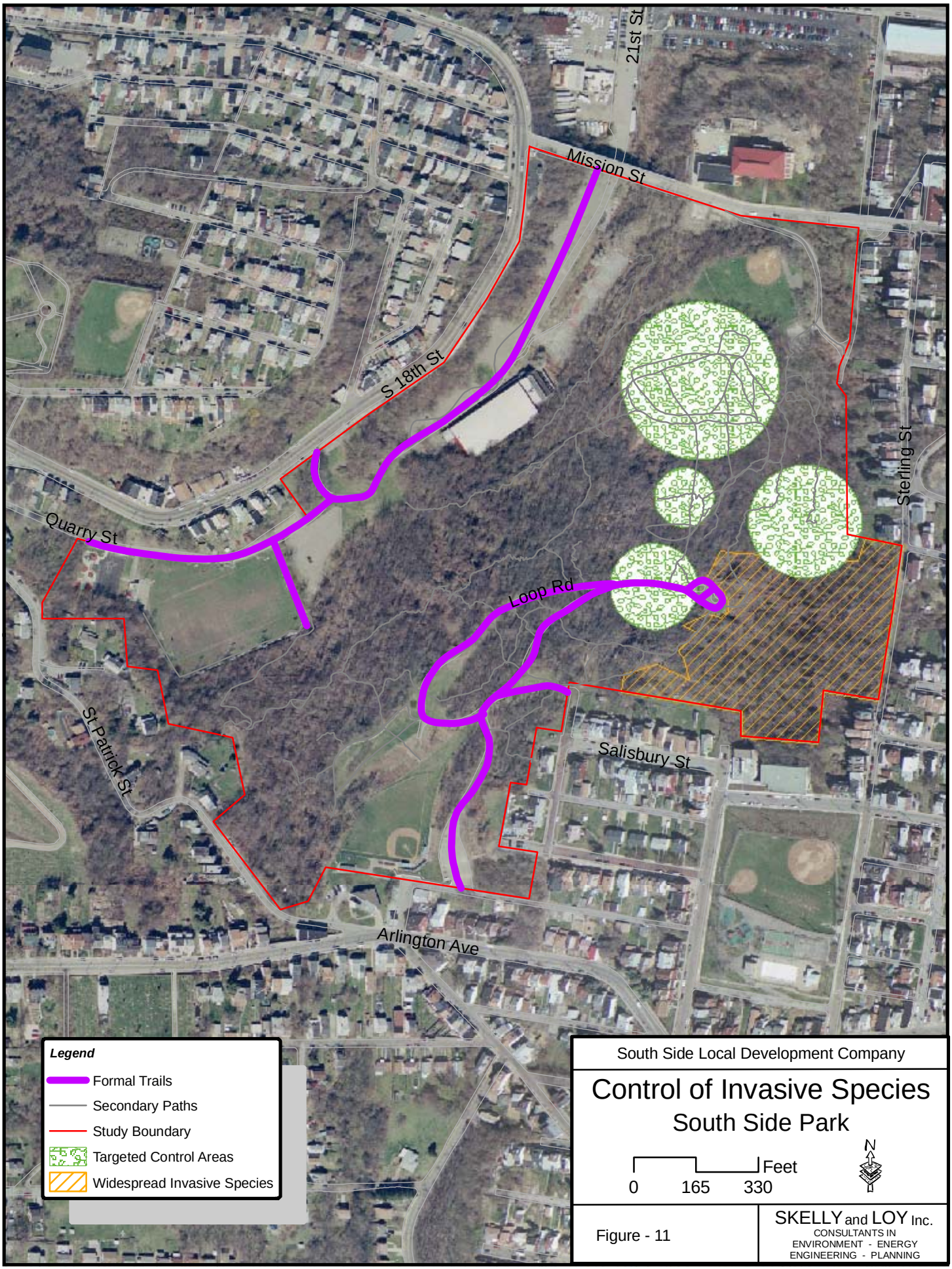
0 165 330 Feet

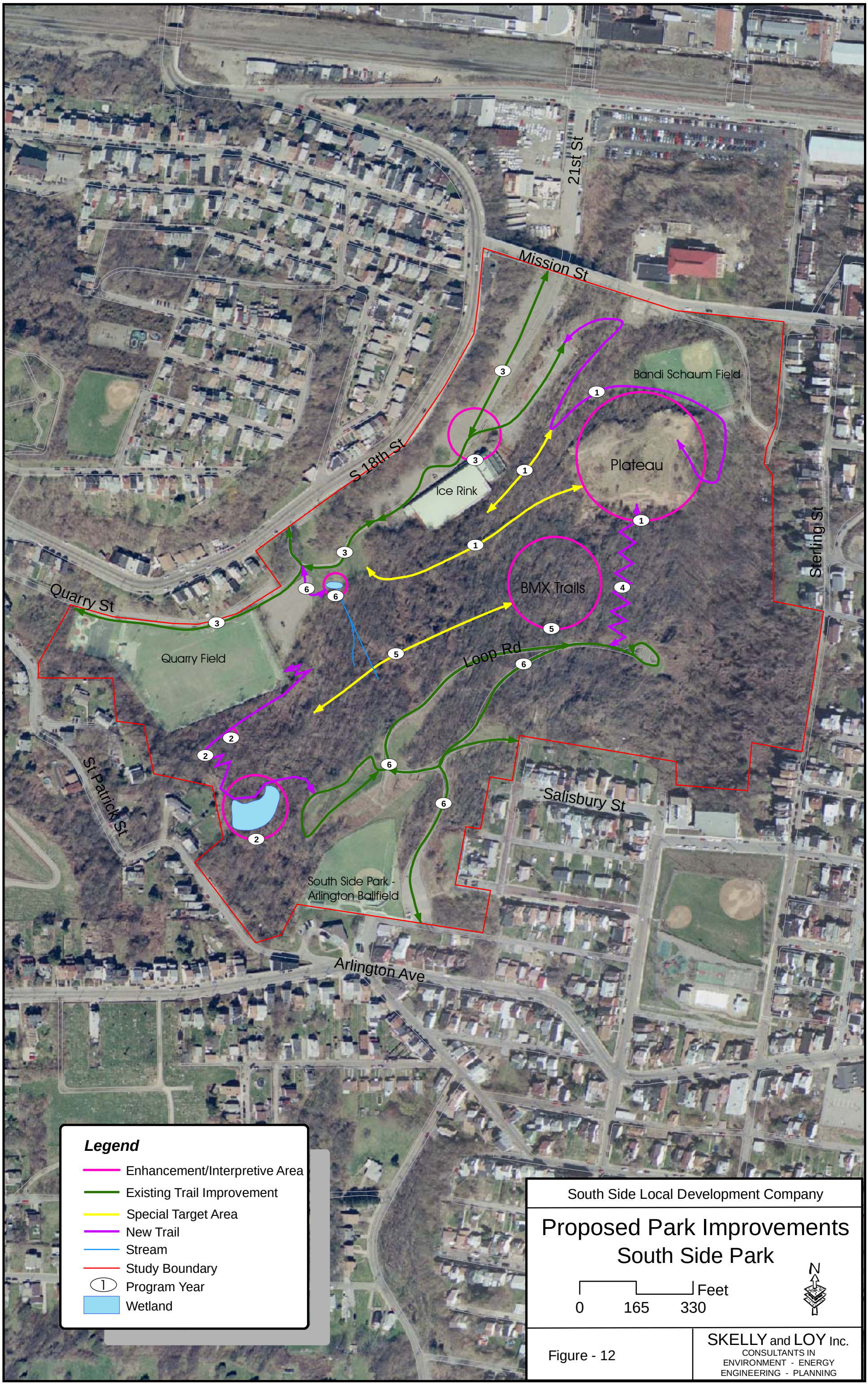
N

Figure - 9

SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING


21st St
Mission St
S 18th St
Sterling St
Quarry St
Loop Rd
St Patrick St
Salisbury St
Arlington Ave
Legend
Formal Trails
Secondary Paths
Study Boundary
BMX Area
Erosion/Drainage
Natural Hazard
South Side Local Development Company
Potential Problem Areas
South Side Park
0
165
330
Feet
N
Figure - 10
SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING


21st St
Mission St
S 18th St
Sterling St
Quarry St
Loop Rd
St Patrick St
Salisbury St
Arlington Ave
Legend
Formal Trails
Secondary Paths
Study Boundary
Targeted Control Areas
Widespread Invasive Species
South Side Local Development Company
Control of Invasive Species
South Side Park
Feet
0
165
330
N
Figure - 11
SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING


21st St
Mission St
Bandi Schaum Field
S 18th St
Ice Rink
Plateau
Sterling St
Quarry St
BMX Trails
Quarry Field
Loop Rd
St Patrick St
Salisbury St
South Side Park -
Arlington Ballfield
Arlington Ave
Legend
Enhancement/Interpretive Area
Existing Trail Improvement
Special Target Area
New Trail
Stream
Study Boundary
Program Year
Wetland
South Side Local Development Company
Proposed Park Improvements
South Side Park
Feet
0
165
330
N
Figure - 12
SKELLY and LOY Inc.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING

PHOTOGRAPHS

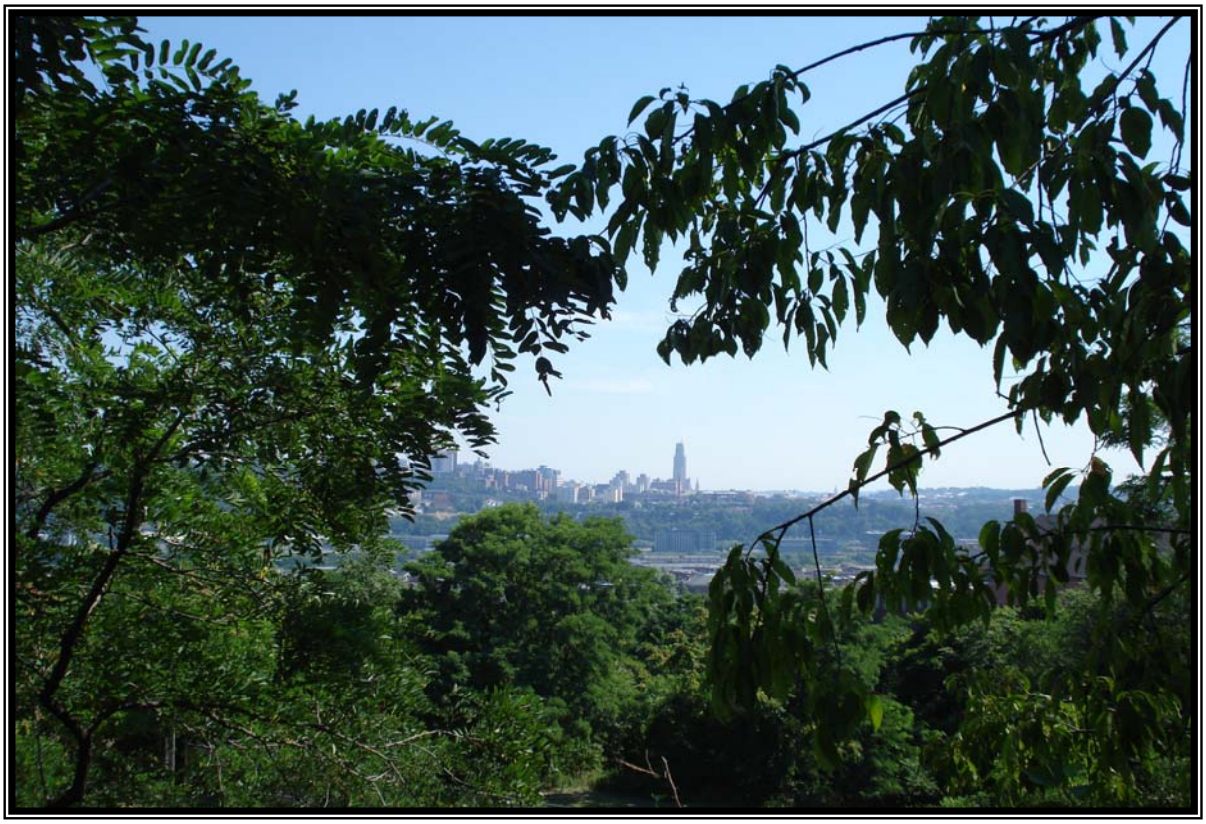
Photograph 1

Photograph 2

Photograph 3

Photograph 4

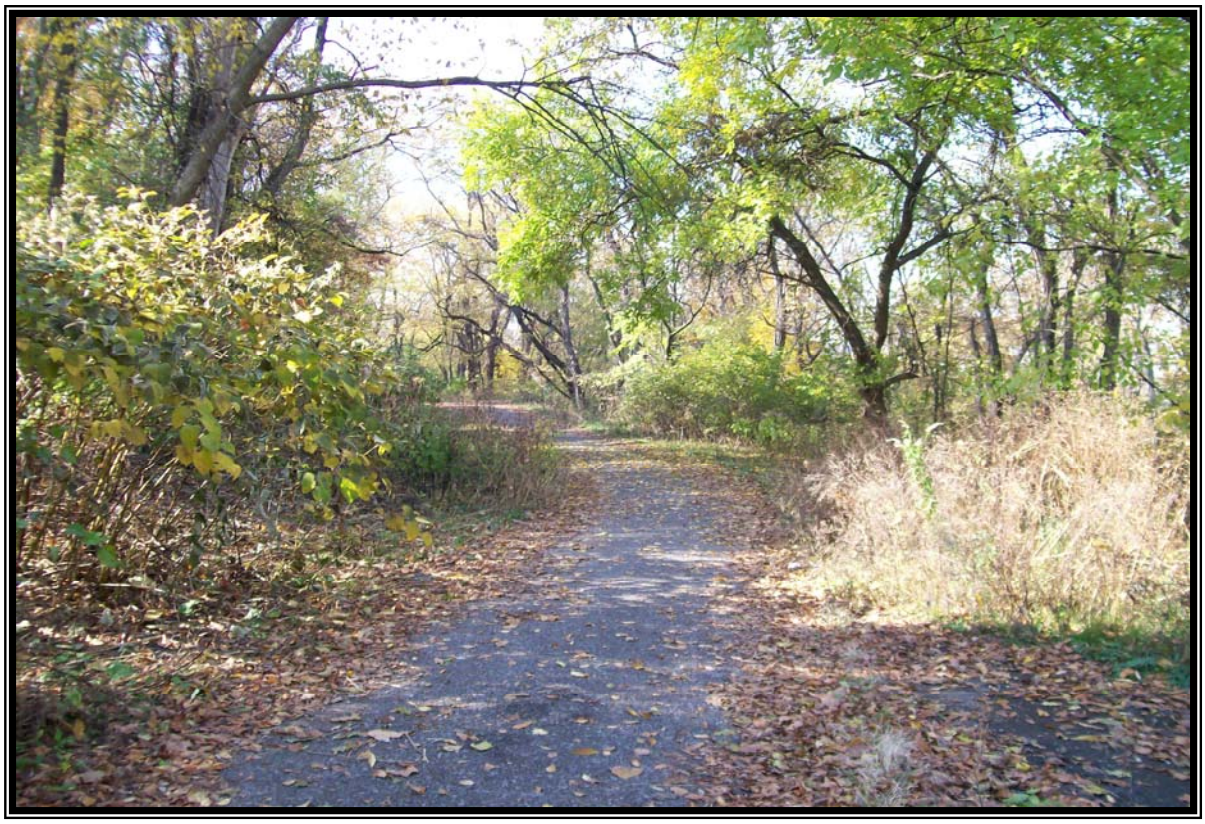
Photograph 5



Photograph 6

Photograph 7

Photograph 8



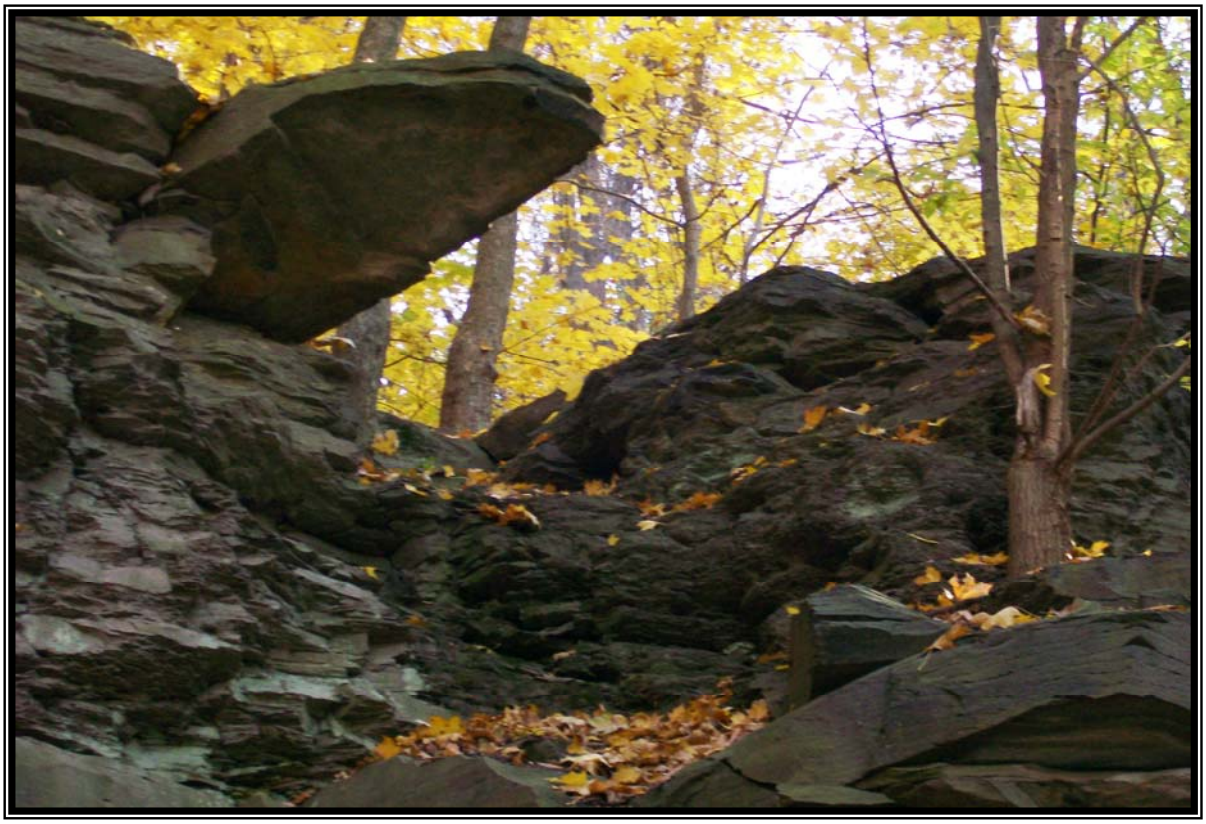
Photograph 9

Photograph 10

Photograph 11

Photograph 12

Photograph 13



Photograph 14

Photograph 15

Photograph 16

Photograph 17