

Strategic Planning for Park Acquisition A GIS Based Approach



Melissa Clark
City of Ann Arbor
Community Services, GIS

Abstract

Municipalities across the country are increasingly wrestling with issues resulting from urban sprawl and development. Thus, in order to maintain a high quality of life for their residents, acquiring additional parkland is a priority for many park departments. In some cases acquisitions are identified through non-strategic approaches, i.e. staff awareness of the parcels or interest initiated by the landowner. However, this reactive approach may result in haphazard acquisition of parkland and a disconnected park system. Thus, The City of Ann Arbor has utilized GIS to embark on a Strategic Planning Process for parkland acquisitions. Through GIS, vacant parcels were identified and ranked based on their suitability for acquisition as a park. A separate ranking schema was developed for each of the four types of parks (neighborhood parks, community/active recreation parks, urban parks, and natural areas). This process provides a strategic approach to ensure the viability of the park system.

Due to document size constraints analysis maps will only be shown during presentation.

City of Ann Arbor & Its Parks

Ann Arbor, Michigan is located in South-East Michigan about 45 miles west of Detroit. Ann Arbor is home to University of Michigan. It is the state's seventh largest city with a population of 114,024 as of the 2000 census, of which 36,892 (32%) are college or graduate students. Ann Arbor's largest employers are in the fields of education, high tech and biotechnology fields. The city is known for its political liberalism and its large number of restaurants and performance venues.



Figure 1: Ann Arbor Location Map¹

Ann Arbor is affectionately nicknamed "tree town" because of the dense forestation of its parks and residential areas. The city contains 147 city owned parks, ranging from small neighborhood parks to large recreation areas, with several large city parks and a university park bordering sections of the Huron River.

The City of Ann Arbor's parks system had its formal beginnings soon after the city's founding. The first park in the area, Hanover Square, was dedicated in 1836. By 1918 the park system had expanded to 122 acres including Douglas Park, Argo Park, Burns Park, Island Park, Riverside Park, and West Park. Ann Arbor has a long history of planning for parks, recreation, and open spaces with plans in 1920, 1939, 1952, 1962, 1978, 1981, 1988, 1994, 2000, and 2006. The current Park Recreation and Open Space (PROS) Plan² is intended to "facilitate the airing and evaluation of major issues, problems and potentials; the setting of priorities for the next five years; and the identification of the goals and objectives that reach far into the future" (PROS Plan Introduction). This document, *Strategic Planning for Park Acquisition* uses the foundation and goals that the PROS Plan has identified and builds upon it to create a strategic acquisition plan for the future.



Project Goal

The goal of this project was to first identify vacant parcels in the city that may be available for parcel acquisition, provide a framework for analyzing the park suitability of each vacant parcel, and provide a final ranking of vacant parcels to help guide park acquisitions. Both the park suitability and the final ranking were done for four types of parks (neighborhood parks, community/active recreation parks, urban parks, and natural areas).

¹ University of Michigan School of Social Work. "About Ann Arbor" <http://www.ssw.umich.edu/aboutAA/a2.html>

² City of Ann Arbor Parks Recreation and Open Space Plan. January 2006.

Analysis Techniques

The City of Ann Arbor has a wealth of information important to park planning available through GIS, including land parcel information, natural features information, and census data. Although a large amount of data is available, it is often hard to capitalize fully on such information. In this project, the abundance of available spatial information was employed to proactively guide park acquisitions. The analysis method used for this project was Multi Criteria Evaluation, a standard analysis method in GIS, used when dealing with a large number of different criteria with different data sources. Criteria measured at different scales are standardized and transformed, such that all factor maps are positively correlated with suitability. Factor weights are established and the factor scores are multiplied by the factor weights to determine a final score.

Identifying Vacant Parcels

The first step in this process was to identify vacant lands in the city. All parcels that were within the ultimate city boundary (parcels that may eventually be annexed into the city) were included in this analysis. This included parcels within the City of Ann Arbor's jurisdiction as well as township parcels. Vacant lands were determined as either 1) parcels that were identified as vacant in assessing data; 2) parcels greater than one acre and containing over half an acre of vacant land area (for parcels outside downtown area); 3) vacant parcels in the downtown area as described by the Ann Arbor Discovering Downtown (A2D2) report; or 4) developed lands that have high value for park land as determined by staff. First, assessing data was reviewed to determine the vacant parcels. Several fields within the assessing data indicated if a parcel is vacant or not: Property Class, Improvement Value, and Vacant or Improved. If any of these three fields indicated that the parcel was vacant, the parcel was determined to be vacant for the purposes of this study and included in the analysis. The next step was to identify larger parcels that were partially vacant. To do this using GIS, first the acreage of each parcel was calculated. Parcels that had acreage greater than 1.25 acres were pulled out and a new shapefile was created. These parcels were then reviewed individually to determine if they contained greater than half an acre of vacant land. Vacant land for the purposes of this step in the project was identified as land that was grassy or forested or land that was not paved or built. The vacant portion of these parcels was then outlined into a new shapefile and included in the analysis. By combining the vacant parcels identified from the assessing records and the vacant portions of the larger parcels, a complete database of vacant land in the City of Ann Arbor was created. This layer included 1233 parcels.

After creating the vacant parcel database, parcels were scored based on their suitability for acquisition as additional parkland in the City of Ann Arbor. The parcels were scored based on their suitability for one or more type of park- either a neighborhood park, community or active recreation park, urban park or plaza, or natural area. This was done because the characteristics suitable for one type of park, say a neighborhood park, differ greatly from characteristics needed for another type of park, say a natural area. Criteria developed to score or evaluate the suitability of the vacant parcels based on the characteristics required for the four different types of parks— neighborhood park, community or active recreation park, urban park or plazas, and natural areas- are outlined below.

Evaluation of Park Type I: Neighborhood Parks

Site Assessment for Neighborhood Parks

Neighborhood Parks		
<p>Neighborhood parks, ideally, should provide open space areas within approximately one-quarter mile of each resident. These parks are generally smaller in size and designed to attract a limited population. Parking is generally along the street. Typical amenities include a playground, basketball or tennis court, open grassy play areas, park benches and picnic tables and a walk to access each of the park amenities. These parks are usually not programmed. Examples of neighborhood parks include Meadowbrook, Windemere, Esch, Hollywood and Waterworks. (City of Ann Arbor PROS PLAN I-2).</p>		
GIS Evaluation Criteria	Points Awarded	Possible Points
<p>Service Area: Site serves Ann Arbor residents currently not within ¼ mile of an existing neighborhood park. Ideally every household in Ann Arbor should be within walking distance (¼ mile) of a neighborhood park.</p>		35
<p>Location: A.) Residential area surrounds the site for ¼ mile radius of the site. The score is based on the percent of surrounding ¼ mile radius that is residential, based on land use data. B.) Site has frontage on a low-volume residential street. Score is based on distance from high volume street.</p>	A.) B.)	10
<p>Access: A.) Easy and safe access for ¼ mile radius of site by sidewalk, trails, and low-volume residential streets without crossing streets with a high-volume of traffic, railroad, or other barriers. To evaluate this criterion the number of housing units that are safe and easily accessible without crossing barriers (i.e. major roads) will be calculated. B.) The site provides for multiple access points from low volume residential streets. C.) The site provides adequate street frontage</p>	A.) B.) C.)	20
<p>Potential for Park Development: A.) Site is <u>not</u> located in the floodplain or floodway. B.) Site is relatively flat, and does not contain other features that would impede the development of potential park amenities on site.</p>	A.) B.)	20
<p>Connectivity to Other Parks / Natural Areas: Site offers non-motorized connectivity to nearby parks; school sites, neighborhood and downtown, or creates a link to a network of connecting green corridors across the City.</p>		5
<p>Size:</p>		

STRATEGIC PLANNING FOR PARK ACQUISITION

¼ acre to 5 acres in size.		10
Total Points		100

Further Evaluation Criteria for Staff & LAC	Site meets Criteria	Site Does not meet Criteria
Adjacent Land Uses: Buffers provide separation from adjacent land uses, or the site provides for development of buffers.		
Utilities: Site offers access, or capacity for electricity, potable & irrigation water, and sewer/storm drain.		
Aesthetics: Level of noise, odor, area land uses are compatible with development and enjoyment of a park development.		
Configuration and Suitability for Neighborhood Park Development: The shape of the parcel and natural features make the site suitable for development of amenities including play structure, multi-purpose game court (unlighted), small multi-purpose open play area, internal trails/walkways, picnic area, sitting area, general open space.		
Zoning: Existing/potential zoning provides for park use.		
Easements: Existing easements provide for park development and use.		
Environmental Concern: Property is listed as a LUST site.		

Neighborhood Park Criteria

1. SERVICE AREA:

Areas Underserved by Neighborhood Parks. In an ideal system, every household should be within walking distance (¼ mile) of a neighborhood park (City of Ann Arbor PROS Plan F6). In order to score the vacant parcels based on this criterion, the underserved households, or those households that are currently not within walking distance to a neighborhood park, had to be determined. By using functions of GIS, the housing units not within walking distance of an existing neighborhood park were identified. Then, for each of the vacant parcels, the number of underserved households within walking distance to the vacant parcel was calculated. A score was given based on that number of housing units served and the higher the number of underserved households that the vacant parcel would serve, the higher the score for the vacant parcel.

Score		Number of Vacant Parcels
0	0 Underserved Housing Units	665
1	1 - 10 Underserved Housing Units	238
2	11 - 20 Underserved Housing Units	80
3	21 - 50 Underserved Housing Units	106
4	Over 50 Underserved Housing Units	144

2. LOCATION:

A. Residential Area: Neighborhood parks primarily serve people that live in the area. Most of the area surrounding a neighborhood park should be residential. Using GIS the percent of residential land, based on land use data, within a ¼ mile circular radius of each vacant parcel was calculated. The higher the percent residential land the higher the score.

Score		Number of Vacant Parcels
0	0 Percent	12
1	1 – 25 Percent	173
2	26 – 50 Percent	362
3	51 – 75 Percent	393
4	75 – 100 Percent	293

B. Residential Location. Neighborhood parks should be located, if possible within a neighborhood, away from major roads. This increases safety and creates a more pleasant park atmosphere. Parcels were given a score based on their distance from a major road.

Score		Number of Vacant Parcels
0	Next to Major Road	372
1	Within 200 ft of Major Rd	332
2	Within 500 ft	208
3	Within 750 ft	110

4	Not within 750 feet of Major Rd	211
---	---------------------------------	-----

3. ACCESS:

A. Number of people that can access: A site should have safe and easy access for ¼ mile radius of site by sidewalk, trails, and low volume residential streets without crossing streets with a high-volume of traffic, railroads, or other barriers. To evaluate this criterion the number of housing units that are safe and easily accessible without crossing barriers was calculated.

Score		Number of Vacant Parcels
0	0 Housing Units in Walking Distance	256
1	1 - 10 Housing Units in Walking Distance	196
2	11 - 20 Housing Units in Walking Distance	70
3	21 -50 Housing Units in Walking Distance	187
4	Greater than 50 Housing Units in Walking Distance	524

B. Number of access points: Parcels are more valuable for neighborhood parks if they have multiple access points. The number of access points for each parcel was calculated.

A point file was created with a field for parcel id. Each vacant parcel was looked at individually and a point was created for each road that the vacant parcel had frontage on. Once the point was created the parcel id number was assigned to each point. The point shapefile was summarized on parcel id to get total number of access points per parcel

Score		Number of Vacant Parcels
0	No Access Points	10
2	1 Access Point	1030
3	2 Access Points	170
4	3 or more Access Points	23

C. Street Frontage: Street frontage allows for easier access for park users. It also allows for more “eyes” on the park increasing safety, and lowering crime and vandalism.

The Systems Planning Department in the City of Ann Arbor has spent a considerable amount of time in creating a street frontage layer. This layer is a line file that has the street frontage in feet for all of the parcels in the city. In ArcView 3.2 this file was joined to the vacant parcel shapefile. The street frontage was added to the vacant parcel file. The vacant parcels that did not have frontage joined to them were looked at individually and the frontage was measured using the measure tool.

Score		Number of Vacant Parcels
0	0 Feet Street Frontage	106
1	1 - 100 Feet Street Frontage	399
2	101 - 300 Feet Street Frontage	347
3	300 - 1000 Feet Street Frontage	270
4	Greater than 1000 Feet Street Frontage	111

4. Potential for Park Development:

- A. **Floodplain & Floodway:** Having a park in the floodway or floodplain can have environmental benefit by adding a buffer in the event of a flood. As stated in the PROS Plan, a public park is often a good use for floodplain areas, since occasional flooding can be taken into account in the design and use of a park (PROS PLAN F9). However, if the entire parcel is located in floodway it may impede the potential for development of park amenities.

Score		Number of Vacant Parcels
0	100% Floodplain	12
1	76% - 99% Floodplain	16
2	51% - 75% Floodplain	12
3	26% - 50% Floodplain	34
4	0% – 25% Floodplain	1159

- B. **Slope:** If the site consists primarily of steep slopes, it will greatly hinder the ability to develop any park amenities on the site. Therefore, the ideal characteristic for a vacant parcel for a neighborhood park is to have relatively flat parcel. This criterion was scored based on the GIS topography data for the parcel.

Five foot contour lines were used to create a digital elevation model (DEM) for the city using ArcGIS 3d Analyst extension. From the DEM, the slope was calculated and areas over 10% slope were selected and exported to a separate shapefile. The vacant parcel layer was clipped to include just areas of high slope. The area was calculated using xtools. The clipped layer .dbf was joined back to the original vacant parcel layer .dbf and percent steep slopes were calculated.

Score		Number of Vacant Parcels
0	76% - 100% Steep Slope	90
1	51% - 75% Steep Slope	127
2	26% - 50% Steep Slope	197
3	1% - 25% Steep Slope	361
4	0% Steep Slope	458

5. CONNECTIVITY TO OTHER PARKS/OPEN SPACES:

Connectivity is a priority of the parks system. One of the highest recommendations emerging from the PROS Plan is enhancement of non-motorized connectivity between major parks, neighborhoods and nearby parks, downtown and neighborhoods, as well as creating a network of connecting green corridors across the City (PROS Plan F5). Connectivity was measured by looking at whether the potential parcel is adjacent to or within walking distance of community destinations.

To determine community destinations, community services employees were polled to determine destinations that they walk to or which destinations they know that community members walk to. Each vacant parcel was given a score based on the number of destinations that are within a quarter mile walking distance of the parcel.

Score		Number of Vacant Parcels
0	0 Destinations within ¼ mile	778
1	1 Destinations within ¼ mile	209
2	2 - 3 Destinations within ¼ mile	187
3	4 - 5 Destinations within ¼ mile	48
4	6-7 Destinations within ¼ mile	11

6. SIZE:

Size is an important characteristic for neighborhood parks. A neighborhood park should be at least 0.25 Acres (Park, Recreation, Open Space and Greenway Guidelines, NRPA). Thus, if a vacant parcel is less than 0.25 acres, it would not be suitable for a neighborhood park.

Using xtools in ArcView the area of each vacant parcel was calculated. For parcels that are partially vacant only the part that is vacant is used for the area calculation.

Score		Number of Vacant Parcels
0	Less than 0.25 acres	426
1	Greater than 5 acres	79
2	2 – 5 acres	150
3	1 – 2 acres	254
4	0.25 – 1 acre	324

Score Weighting Matrix

Establishing criteria weights is a critical part of the scoring process for vacant parcels. Each criterion is not equally important in the sighting of a neighborhood park and therefore addition of the scores would not be appropriate. It was decided that the total possible score would be 100. After discussions with staff and the Park Advisory Committee members the following weights were determined:

Criteria	Weight (out of 100)
Service Area	35
Location	10
Access	20
Park Development	20
Connectivity	5
Size	10

There were several steps in determining the final score. First, for the criteria where there were more than one factor for each vacant parcel the scores were summed and then divided by the total possible score for that factor to get a total criteria score for that parcel that was between 0 and 1. The lower scores are, the less desirable the parcel was. For example, for the criterion location there are two factors: residential area and residential location (which each are on a scale of 0 – 4). The scores for these factors were summed to get a summed score that is between 0 – 8. The sum was then divided by the total possible score, which is 8 in this example, to get the total criteria score between 0 – 1. If there were not multiple factors for the criteria (if there was only one measurement for the criteria) then the score for that criteria for each vacant parcel was divided by total possible score for that criteria (4) to get a total criteria score between 0 – 1. The score for each criteria was multiplied by the criteria weight. This value was summed for all of the criteria to get a total score for each parcel between 0 – 100.

Evaluation of Park Type II: Community (Active Recreation) Parks

Site Assessment for Community (Active Recreation) Parks

<p>Community (Active Recreation) Park Community open spaces serve the greater Ann Arbor community by offering diverse recreation opportunities in a more natural setting. These spaces are often much larger than neighborhood parks, accommodating greater numbers of people for a variety of uses. These spaces should be accessible by public transportation but also have parking and amenities such as restrooms and shelters. These open spaces should be distributed as evenly as possible throughout planning areas of the City. Typical features include swimming pools, ice rinks, softball fields, picnic shelters and playground areas. Examples include Fuller Park, which contains a swimming pool, soccer fields, play area, small natural area, parking and restrooms, and Buhr Park, which includes a skating rink, play area, tennis courts, swimming pool, softball fields, trails and parking.</p>		
GIS Evaluation Criteria	Points Awarded	Possible Points
<p>Service Area: Site serves residents within a 1-mile radius that are currently not being served by an active recreation park.</p>		20
<p>Location: Site has frontage on a high-volume arterial / collector street.</p>		10
<p>Access: A.) Site has multiple access points to accommodate significant amount traffic into and out of the park to a major arterial street / roadway. Site access by sidewalk or trails is desirable. Points are given for a site also located on a bus route, or on bike route. Most users will travel by automobile. B.) The number of people served, based on the housing units within a 1-mile biking or 2-mile driving / public transit radius will be calculated.</p>	A.) B.)	10
<p>Size: 5 acres to 15 acres (or larger)</p>		25
<p>Connectivity to Other Parks/Natural Areas: Site offers non-motorized connectivity to nearby parks; school sites, neighborhood and downtown, or creates a link in a network of connecting green corridors across the City.</p>		5
<p>Suitability for Active Recreation: The site has characteristics for mixed use park and contains a mix of open space suitable for park development (i.e. playfields) and natural areas for other types of active or passive recreation. a) site is has enough flat lands for park development –land for about two soccer fields (about 3 acres) preferable</p>		30

STRATEGIC PLANNING FOR PARK ACQUISITION

<p>Floodplain/Floodway/Water Management: Site is not located in the flood plain, floodway and is not designated for detention or water management is compatible with development and use as a park site.</p> <p>A.) Site is located in the floodplain/floodway</p>	<i>No Score</i>	<i>No Score</i>
<p>Total Points:</p>		100

Further Evaluation Criteria for Staff & LAC	Site Meets Criteria	Site does not meet Criteria
<p>Adjacent Land Uses: Buffers provide separation from adjacent land uses to accommodate lighted facilities and scheduled/organized activities with large numbers of park users.</p>		
<p>Utilities: Site offers access, or capacity for electricity, potable & irrigation water, and sewer/storm drain.</p>		
<p>Aesthetics: Level of noise, odor, area land uses are compatible with development and enjoyment of a park development.</p>		
<p>Configuration and Suitability for Community (Active) Park Development: The shape of the parcel and natural features make the site suitable for development of amenities including multiple lighted athletic fields, lighted game court, internal trails/walkways, large-group picnic shelters, recreation center, and significant off-street parking.</p>		
<p>Zoning: Existing/potential zoning provides for park use.</p>		
<p>Easements: Existing easements provide for park development and use.</p>		

Active Recreation Criteria

1. SERVICE AREA.

According to the PROS Plan, it is ideal to have every resident within biking distance (1 mile) of larger recreational facilities, such as those with playfields or courts. As previously stated, in order to score the vacant parcels based on this criterion, the underserved households were determined. By using functions of GIS, the housing units not within biking distance to an existing park were identified. Then, for each vacant parcel the number of underserved households within biking distance was calculated. A score was given based on that number and the higher the number of underserved households that the vacant parcel would serve, the higher the score for the parcel.

Score		Number of Vacant Parcels
0	0 - 50 Underserved Housing Units	23
1	51 - 1500 Underserved Housing Units	26
2	1501 - 2500 Underserved Housing Units	18
3	2501 - 3000 Underserved Housing Units	11
4	Over 3000 Underserved Housing Units	3

2. LOCATION

Located near Major Road: Active recreation parks should be located, near a high volume arterial or collector street. The scoring for this criteria was boolean; if a parcel is on a major road it received 4 points and if it is not it received 0 points

Score		Number of Vacant Parcels
0	Not on a Major Road/Collector Street	28
4	On a Major Road/Collector Street	79

3. ACCESS.

A. Transportation Accessibility: Active recreation parks will primarily be accessed through biking, public transportation, or automobile. It is important that these parks are close to major roads, bike lines or public transit. A parcel was scored highest if it is accessible to all three types of transportation (score of 4), scored less high if it is accessible to only two types of transportation (score of 3), scored low if it is only accessible to one (score of 2), and minimally scored if it is accessible by only minor roads (score of 1). If it is not accessible at all it was given a score of zero.

Score		Number of Vacant Parcels
0	Not Accessible	0
1	Accessible by minor roads	14
2	Accessible to 1 types of transit	12
3	Accessible to 2 types of transit	11
4	Accessible to 3 types of transit	41

- B. **Convenient Location:** The number of people served by an active recreation park needs to be evaluated. Residential density influences the amount of land in parkland ((PROS plan F-15). For this criterion the number of housing units within a 1-mile biking distance and a two-mile driving/public transit distance was calculated.

Score		Number of Vacant Parcels
0	0 to 500 Housing Units in Biking Distance	19
1	501 to 1500 Housing Units in Biking Distance	12
2	1501 to 2500 Housing Units in Biking Distance	15
3	2501 to 3500 Housing Units in Biking Distance	20
4	3501 to 9746 Housing Units in Biking Distance	13

Score		Number of Vacant Parcels
0	0 to 3500 Housing Units in Driving/Public Transit Distance	19
1	3501 to 6500 Housing Units in Driving/Public Transit Distance	15
2	6501 to 8500 Housing Units in Driving/Public Transit Distance	16
3	8501 to 12000 Housing Units in Driving/Public Transit Distance	18
4	12001 to 30000 Housing Units in Driving/Public Transit Distance	11

4. **SIZE.** Size is an important characteristic for an active recreation park. An active recreation park should be at least 5 acres (Park, Recreation, Open Space and Greenway Guidelines, NRPA). Any vacant parcel less than 5 acres was not evaluated as a potential active recreation park.

Score		Number of Vacant Parcels
0	Less than 5 acres	0
1	5 – 7.5 acres	32
2	7.5 – 15 acres	17
3	15 – 35 acres	15
4	35 or more acres	15

5. **CONNECTIVITY TO OTHER PARKS/OPEN SPACES.** Connectivity is a priority of the parks system. One of the highest recommendations emerging from the PROS Plan is enhancement of non-motorized connectivity between major parks, neighborhoods and nearby parks, downtown and neighborhoods, as well as creating a network of connecting green corridors across the City (PROS Plan F5). Connectivity was measured by looking

at whether the potential parcel is adjacent to or within walking distance of community destinations.

Score		Number of Vacant Parcels
0	0 Destinations within ¼ mile	53
1	1 Destinations within ¼ mile	17
2	2 Destinations within ¼ mile	6
3	3 Destinations within ¼ mile	2
4	4 Destinations within ¼ mile	1

6. SUITABILITY FOR ACTIVE RECREATION:

The site has characteristics for mixed use park and contains a mix of open space suitable for park development (i.e. playfields) and natural areas for other types of active or passive recreation. This was measured by determining if a site is had enough flat lands (0 – 3% slope) for park development – it is preferable to have enough land for about two soccer fields (about 3 acres).

Score		Number of Vacant Parcels
0	Less than 3 Acres Flat Land	10
2	3 to 10 Acres Flat Land	36
4	10 or More Acres Flat Land	33

Score Weighting Matrix

Establishing criteria weights is a critical part of the scoring process for vacant parcels. Each criterion is not equally important in the sighting of an Active Recreation park and therefore addition of the scores would not be appropriate. It was decided that the total possible score would be 100. After discussions with staff and the Park Advisory Committee members the following weights were determined:

Criteria	Weight (out of 100)
Service Area	20
Location	10
Access	10
Size	25
Connectivity	5
Suitability	30

The scores were assigned using the same procedure that was used for neighborhood parks. The score for each criteria converted to a score between 0 and 1. This score was multiplied by the weight. The weighted scores were summed to get a total score for each vacant parcel between 0 & 100. The higher the score the more desirable the parcel.

Evaluation of Park Type III: Urban Parks/Plazas

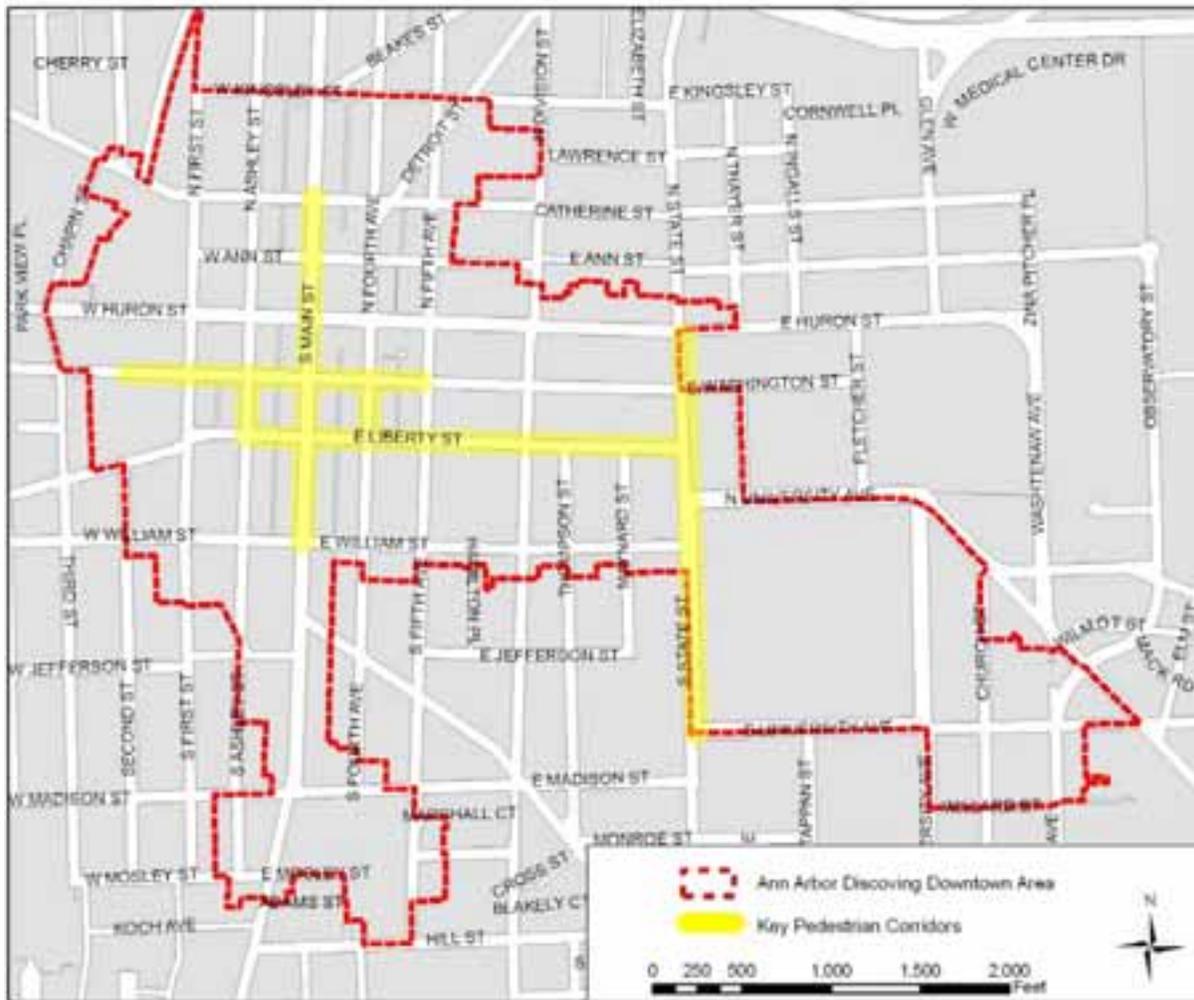
Urban Parks and Plazas provide open space and pedestrian oriented amenities in the downtown area where the surrounding population includes high-density residential and commercial districts. These areas are defined by the presence of a significant infrastructure, a greater formality and furniture to serve a greater density of people at peak times. The plazas are generally the smallest type of park in the system and are designed to integrate with the urban setting. Plazas are characterized by harder materials such as concrete, contained flowerbeds and a lack of open grassy areas and play equipment. Residents and downtown employees utilize these areas as a gathering space for eating and work breaks and often serve as a location for public art and performances. They ideally function in concert with the surrounding businesses, especially restaurants and cafes, where a cooperative effort energizes the physical space. These small open spaces become increasingly important as the density of the residential population continues to increase. Examples of urban plazas in Ann Arbor include Liberty Plaza, Sculpture Plaza and Hanover Square.

To relieve development pressures on valuable open space, the City sought a Smart Growth approach to land use that would direct development where it could provide the most benefit, namely in the Ann Arbor city core. In May of 2005, the Downtown Development Strategies Project was initiated. One of the products of this project was the *Downtown Development Strategies Final Report*. The report provides a recommended vision and policy framework for downtown Ann Arbor. Strategies were developed to implement the recommendations. Several strategies address parks and open space in the downtown core. These include:

- Encourage the creation of new public spaces within the downtown and rehabilitation of existing spaces, including indoor public meeting and performing arts space.
- Encourage development of new public spaces near the downtown including a review of and action on the recommendations of the Greenway Task force, which shall include finding recommendations for proposed Allen's Creek Greenway.
- Reconsider the parkland-per-capita calculation for downtown.
- Encourage sensitive edge development along new open space acquisitions and developments

Providing open space in an urban setting involves more than just developing vacant land, it requires creating public open spaces, which can be as simple as a bench and a planting, or as grand as the main street corridor. The Downtown of Ann Arbor is well developed and there are very little (if any) parcels within the city that would be in a prime location for acquisition. Therefore, a GIS analysis of vacant parcels was determined to be of little use in strategically planning for this type of park. Instead, it was determined that creating urban public open space should be incorporated into the development review process, such that as land is developed or redeveloped, it incorporates public open space characteristics. New development or redevelopment plans for the downtown area should incorporate features to create "park-like" setting, enhance pedestrian friendly corridors, and/or provide gathering places. Through conversations with park staff, the Downtown Development Authority, and city planners, three criteria were developed as the most important criteria for successful development of an urban park or open space.

1. **SIZE:** Size is an important characteristic for Urban Parks/Plazas. With urban park/plaza bigger is not always better. Some of the most vibrant and well used urban Ann Arbor parks are small in size. For example, sculpture plaza is a actively used park but is small, with a size of only 0.09 acres. The largest size appropriate for an urban park or plaza would be 1.25 acres.
2. **IMMEDIATELY ADJACENT USES:** Adjacent landuses affect the use and success of a urban park or plaza. There should be a high density of active uses that draw pedestrian foot traffic to the area. Also, the high density of uses would increase the “eyes on the park” increasing the perception of safety and decreasing crime.
3. **CONNECTIVITY & LOCATION:** Connectivity is a priority of the parks system. One of the highest priority recommendations emerging from the PROS Plan is to enhance non-motorized connectivity between major parks, neighborhoods and nearby parks, downtown and neighborhoods, as well as creating a network of connecting green corridors across the City (PROS Plan F5). Within downtown, creating open space though pedestrian corridors is a high priority, as well as locating parks/plazas in the central corridors of downtown.



Evaluation of Park Type IV: Natural Areas

Site Assessment for Natural Areas

<p>Natural Areas The classification of Natural Areas and Preserves provides for greater protection of the City's most significant natural resources as well as the devotion of a greater amount of resources to their protection.</p>
<p>GIS Evaluation Criteria</p>
<p>Wetland Percent of parcel in the wetland will be calculated</p>
<p>Floodplain & Floodway Percent of parcel in floodplain and floodway will be calculated</p>
<p>Woodlands Percent of parcel with woodland will be calculated.</p>
<p>Huron River Adjacent to the Huron river will be noted.</p>
<p>Huron River Tributary Location on the Huron River will be noted.</p>
<p>Size The size of each parcel will be calculated</p>
<p>Connectivity Location within habitat corridors will be noted</p>
<p>Topography The percentage (by area) of land in high slopes will be noted</p>
<p>Further Evaluation Criteria for Staff & LAC</p>
<p>Measures of Biological Diversity:</p>
<p>Presence of Rare or Unusual Species:</p>
<p>Presence of Native Species/Few Invasive Species:</p>

Natural Areas and Preserves

PROS Plan Definition: The classification of Natural Areas and Preserves provides for greater protection of the City's most significant natural resources as well as the devotion of a greater amount of resources to their protection.

The Nature Preserve designation signifies that these are the highest quality natural areas within the City and thus deserve the highest level of protection. A preserve designation, therefore, imposes a series of regulations concerning the degree and type of use of the site, and also indicates that the park warrants a greater expenditure of the limited financial and personnel resources to devote to maintaining the site's natural ecosystems. For example, in a preserve, trail size may be limited to less than 6', bicycles may not be allowed, pets may be banned or highly restricted, and development would be very limited.

Natural Areas are sites that are less intact ecologically. These are sites where the expenditure of resources will mainly be used to restore, rather than to preserve, the natural ecosystems present. These sites, however, *are* highly restorable ecologically and may either encompass an entire park area, such as Bird Hills Park, or only be located in part of a park, such as the forested portion of Sugarbush Park. The type of maintenance, consequently, will potentially vary depending on the size, location and quality of the area.

Both Nature Preserves and Natural Areas are managed by Natural Area Preservation to improve their ecological integrity. Typical activities for this purpose include invasive plant removal, prescribed burning and seeding or planting of native species. These activities may be performed by the City or by volunteers acting under the guidance of City staff. Wildlife inventory information about birds, butterflies, frogs and salamanders are collected to help guide management decisions. The activities that are typically performed on an annual or biannual basis in each of the natural areas are listed in the Current Natural Area Management Activities table. The table generally indicates more management activities in parks with higher quality natural areas and fewer activities in parks with lower quality open space.

Much of the public feedback to the PROS Plan included a desire to protect high quality natural features. For the Natural Areas portion of this strategic park acquisitions plan, a database of natural features present on vacant parcels was created (the 8 evaluated features are listed on the next page) but there was no ranking or scoring of these parcels, because, while GIS provides information about the natural features present, it does not offer information on the quality of flora and fauna. Thus, this stage provided a tool to aid Natural Area Preservation staff in identifying vacant land that they wanted to do further field based investigation of the quality of the flora and fauna on.

It is worth noting that during the discussions of natural areas, there was significant interest in incorporating unprogrammed open space into the city's park system. This could be an excellent use of small low quality parcels, especially if the parcels are in an area of the city that is in need of unprogrammed open space or if the open parcels are connected to other parks in the city.

1. PERCENT WETLAND. Wetlands provide many benefits including providing cleaner water in lakes and streams, recharging our groundwater supplies, retarding runoff, giving us protection from flooding and greatly reducing erosion, and providing habitat for wildlife species.
2. PERCENT FLOODPLAIN & FLOODWAY. As stated in the PROS Plan, a public park is often a good use for floodplain areas, since occasional flooding can be taken into account in the design and use of a park.
3. PERCENT WOODLAND. Woodlands provide habitat for a wide variety of plants and animals. Percent of parcel with woodland was calculated.
4. ADJACENCY THE TO HURON RIVER. Each parcel was given a score based on its adjacency to the Huron River. As stated in the PROS Plan: The Huron River is the dominant natural feature of our City. Its accessibility and environmental quality are integral to our quality of life. Acquisitions along the river and its tributaries that protect or enable better public use of this asset should be highly rated in any evaluation.
5. PROXIMITY TO THE HURON RIVER TRIBUTARIES. According to the PROS Plan there is a great interest in completing connections along the Huron River corridor and connecting the major tributary watersheds that cross the City and pass through several existing parks on their way to the river (PROS Plan F5).
6. SIZE: Each parcel was given a score based on acreage. For a Natural Area it is preferable to have larger acreage.
7. CONNECTIVITY: One of the highest priority recommendations emerging from the PROS Plan is to enhance non-motorized connectivity between major parks, neighborhoods and nearby parks, downtown and neighborhoods, as well as creating a network of connecting green corridors across the City (PROS Plan F5). For Natural Areas not only is it important to increase connectivity for citizen use, but it is vital to connect habitat and create natural corridors.
8. TOPOGRAPHY: Topography can provide for diverse animal and vegetation complexes. By keeping areas of high slope in a natural state you can decrease erosion (and the environmental damage associated with erosion).

Contact Information:

**Melissa Clark
GIS Specialist
Community Services
City of Ann Arbor
100 N. Fifth Avenue
PO Box 8647
Ann Arbor, MI 48107-8647
Phone: (734) 994-8113**

e-mail: mclark@ci.ann-arbor.mi.us