Preservation of Parks & Open Lands Strategy

We shall never achieve harmony with land, any more than we shall achieve absolute justice or liberty for people. In these higher aspirations, the important thing is not to achieve but to strive.

Aldo Leopold; 1887- 1948

Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to body and soul.

John Muir; 1838- 1914

Introduction

Dr. John Crompton of Texas A & M University once said "*all great cities in this world, where people want to live, have a great park system"* (Lewis, 2008). Parks and open lands can establish the image of a city and provide a much coveted amenity that has continuously shown among the top priorities in quality of life surveys. Among the numerous benefits that parks and open lands provide to communities are tourism opportunities and improved public health which make the preservation of open space a critical public investment.

On the climate front, parks and open lands have proven to lower temperatures generated in high intensity urban areas due to the ability of plants to absorb solar radiation and to the evapo-transpiration that occurs in green areas. Forested or densely planted areas can provide good protection from winds and as such become an effective climate control feature.

Research has shown that people display a preference for living close to open space and that open space amenities attract migrants to the city (Wu & Platinga- 2002). Parks and open lands can provide city and suburban residents with access to open space while saving local habitats and indigenous wildlife.

Research also emphasizes that cities and counties in Illinois that have attempted to institute Smart Growth Principles within their boundaries have not addressed open space preservation through large scale techniques such as environmental overlay and scenic preservation districts (Talen & Knaap, 2003). Such policies cannot be undertaken individually by a city or a county without difficulty in implementation. This is a role for a regional planning agency that has the capacity to integrate land use planning across boundaries. Agencies such as CMAP are well placed to study, propose and recommend actions for cities, counties and other open space-related bodies.

Defining Parks and Open Lands

This paper will address various aspects of parks and open lands, mainly it will identify the current status of parks & open lands in the region in terms of quantity, location, type and amenities, and assess their distribution and accessibility - status quo. In addition, we will explore the impacts that the status quo has at both the local and regional levels.

For the purposes of this report, we will explore parks and open lands separately in terms of definitions respective to the region. Open lands as a topic for Northeastern Illinois has been extensively explored through a collaborative and detailed exercise which culminated in the Green Infrastructure Vision (GIV), completed in March 2004. Fig. 1 illustrates this concept as well as shows the various classifications of open space.

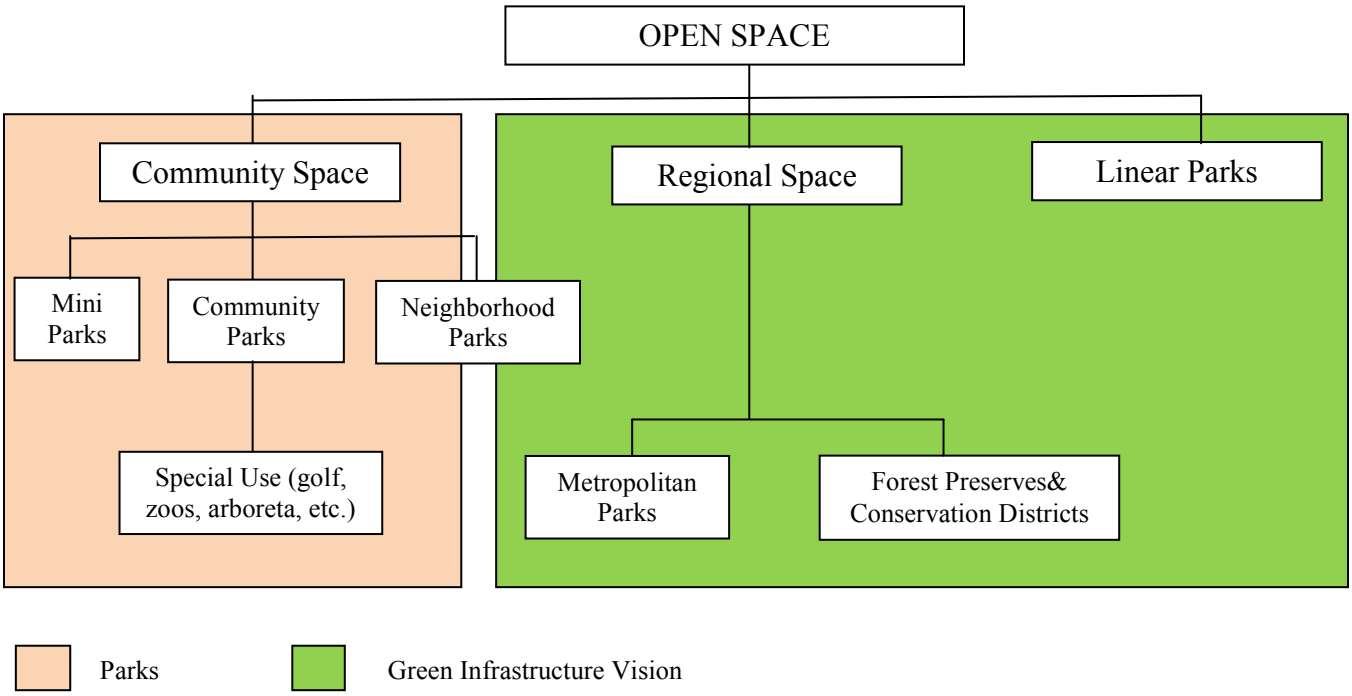


Fig 1: Organization of Paper on Parks and Open Lands vs. Green Infrastructure Vision.

Green Infrastructure Vision
(http://www.nipc.org/environment/sustainable/biodiversity/greeninfrastructure/)

The Northeastern Illinois region has been experiencing a steady decline in the natural areas and forest structures which have greatly affected the ecological systems (Chicago Wilderness, 1999). These findings were the impetus behind various planning efforts which culminated with the Green Infrastructure Vision. The goal of the GIV is to provide a regional map that reflects both existing green infrastructure- forest preserve holdings, natural area sites, streams, wetlands, prairies, and woodlands- as well as opportunities for expansion, restoration and connection.

CMAP is currently working with the Chicago Wilderness coalition to integrate this vision into the *GO TO 2040* Regional Comprehensive Plan. This effort will be completed by the end of June 2008. The final product will form the basis for describing open lands in the area and will recommend measures to acquire/protect/restore the identified sites. The GIV identified and mapped an interconnected network of land and water that supports biodiversity and provides habitat for diverse communities of native flora and fauna at the regional scale. These 'resource protection areas' cover 360,000 acres of land in the northeastern Illinois region.

Parks

Parks represent one of the foremost public amenity concerns in communities across the region. Parks and managed green space often share the magnetism of good schools to young families deciding where to settle. In fact, local referenda to preserve natural areas have often passed in communities that simultaneously voted against increased funding for schools. Conversely, parks can serve as social barriers that separate one community from another. However, with good planning, diligent maintenance and equitable programming, parks have been shown to yield mostly positive effects. Through an array of studies, they have been credited with raising property values, promoting good health, binding communities, and improving the natural environment. As this region continues to grow, parks will remain at the forefront of both public and private land–use decisions. To properly implement future parks, it is important that community officials and citizens understand the components and impacts of the local parks that already exist.

In addition to the above plan, the GIV report goes into considerable detail on the location and recommended actions to protect and restore the Resource Protection Areas identified in the planning process. This is discussed further in the *Integrating the Green Infrastructure Vision into the GO TO 2040 Plan* report (future link).

Tables A-C depict park classification according to the National Recreation and Parks Association (NRPA). For the purposes of this analysis, these three "types" and sub-categories will be referenced periodically to illustrate the general qualities and impacts of different parks in different environments. It bears repeating that neither these types, nor the circumstances under which they are found, are universal. However, as the above standards have been adopted nationally and are used to estimate adequacy of the provision of parks and open lands, we will utilize them as standards by which to compare the state of the region.

Also, the NRPA standards should not be the only guidelines to use in determining open space needs for the CMAP region. A community needs assessment utilizing anecdotal, qualitative and quantitative techniques should be implemented by the concerned agencies to identify their local requirements. In Chicago, for example, the highest rate of parks and recreational facilities per resident are found in areas where the more than half the residents are African-American (The Chicago Reporter, 2008). However, a detailed needs assessment might reveal that these facilities are not necessarily hospitable or in as good maintenance status as other areas in the city.

Park Attributes:

The most fundamental attributes of a park refer to its size, siting, intensity of use, and quality of amenities. A good outline of these characteristics comes from the National Recreation and Park Association. The NRPA classifies parks into the following groups:

TABLE A. LOCAL/CLOSE-TO-HOME SPACE:

Name	Use	Service Area	Desirable Size	Acres/1,000 Population	Desirable Characteristics	Lake County IL Example
Mini Park (Tot Lots)	Specialized facilities that serve a concentrated or limited population or specific group such as tots or senior citizens	Less than 1/4-mile radius	1 acre or less	0.25 to 0.5 acres	Within neighborhoods and in close proximity to apartment complexes, townhouse development or housing for the elderly	Besley Park, Western Tot Lot, Highland Park Tot Lot
Neighborhood Park/ Playground	Area for intense recreational activities, such as field games, court games, crafts, playground apparatus area, skating, picnicking, wading pools, etc.	1/4-to-1/2-mile radius to serve a population up to 5,000 (a neighborhood)	15+ acres	1 to 2 acres	Suited for intense development. Easily accessible to neighborhood population - geographically centered with safe walking and bike access. May be developed as a school-park facility	O'Plaine Community Park, University Park, Washington Park, Vineyard Park
Community Park (Township Center)	Area of diverse environmental quality. May include areas suited for intense recreational facilities, such as athletic complexes, large swimming pools. May be an area of natural quality for outdoor recreation, such as walking, viewing, sitting, picnicking. May be any combination of the above, depending on site suitability and community need	Several neighborhoods 0.1-to-2-mile radius	25+ acres	5 to 8 acres	May include natural features, such as water bodies, and areas suited for intense development. Easily accessible to neighborhood served	Viking Park, Betty Russell Park, Bowen Park, Adler Park, Warren Township Center, Grant Township Center

Source: NRPA, 2004

TABLE B. REGIONAL SPACE:

Name	Use	Service Area	Desirable Size	Acres/1,000 population	Desirable Characteristics	Lake County IL Example
Regional/ Metropolitan Park (Forest Preserve)	Area of natural or ornamental quality for outdoor recreation, such as picnicking, boating, fishing, swimming, camping and trail uses; may include play areas	Several communities, 1-hour driving time	200+ acres	5 to 10 acres	Contiguous to or encompassing natural resources	Independence Grove, Greenbelt Forest Preserve
Regional Park Reserve (Illinois State Park)	Area of natural quality for nature-oriented outdoor recreation, such as viewing and studying nature, wildlife habitat, conservation, swimming, picnicking, hiking, fishing, boating, camping, and trail uses. May include active play areas. Generally, 80% of the land is used for conservation and natural resource management, with less than 20% used for recreation development	Several communities, 1-hour driving time	1,000+ acres: sufficient area to encompass the resource to be preserved and managed	Variable	Diverse or unique natural resources, such as lakes, streams, marshes, flora, fauna, topography	Illinois Beach State Park, Van Patten Woods, Chain-O-Lakes State Park, Morriane Hills State Park (McHenry), Lakewood (Forest Preserve)

Source: NRPA, 2004

TABLE C. SPACE THAT MAY BE LOCAL OR REGIONAL AND IS UNIQUE TO EACH COMMUNITY

Name	Use	Service Area	Desirable Size	Acres /1,000 Population	Desirable Characteristics	Lake County IL Example
Linear Park* (Greenway)	Area developed for one or more varying modes of recreational travel, such as hiking, biking, snowmobiling, horseback riding, cross-country skiing, canoeing and pleasure driving. May include active play areas	N/A	Sufficient width to protect the resource and provide maximal use	Variable	Built or natural corridors, such as utility rights-of-way, bluff lines, vegetation patterns, and roads, that link other components of the recreation system or community facilities, such as school libraries , commercial areas, and other park areas	Des Plaines River Trail, Millennium Trail, McClory Trail
Special Use	Areas for specialized or single-purpose recreational activities, such as golf courses, nature centers, marinas, zoos, conservatories, arboreta, display gardens, arenas, outdoor theaters, gun ranges, or downhill ski areas, or areas that preserve, maintain and interpret buildings, sites, and objects of archeological significance. Also plazas or squares in or near commercial centers, boulevards, parkways	N/A	Variable depending on desired size	Variable	Within communities	Waukegan Harbor, Veterans Memorial Plaza, North Point Marina, Waukegan BMX Park, Fairfield Park Disc Golf Course, Warren Township Skate Park

Source: NRPA, 2004

*: in this region we have greenways, which are green corridors designated to achieve multiple goals. Not all of them are designated for recreational travel. We also have the Northeastern Illinois Regional Water Trail Plan that designates about 500 miles of existing and proposed trails for canoeing and kayaking.

Previous Recommendations (NIPC Framework Plan)

The NIPC Framework Plan contained many implementation strategies that directly and indirectly addressed the preservation of parks and open lands. Among those listed that indirectly referenced this topic: Encourage Redevelopment, Reuse & Infill; and Promote Compact, Mixed-Use Development. Below is a list of the NIPC Framework Plan implementation strategies that directly addressed the preservation of parks and open lands:

1. Protect water resources
2. Protect and enhance biodiversity
3. Enhance and connect green areas

Overview of existing conditions in region

Institutional Conditions

In 1996, Illinois ranked 48th in the nation in the area of public recreation land per acre (Hoffman, 1996). In a more recent comparison to other Midwestern states, IL did not fare much better, at sixth of seven states in percentage of area and is last by a wide margin on a per capita basis (Figs. 2 & 3). In the 5 years from 1995 to 2000, the Chicago metropolitan region lost more than 140,000 acres of rural grasslands and wetlands. In the northeastern Illinois region, we are fortunate to have the Forest Preserve and Conservation Districts system that has been acquiring land to insure the retention and management of natural lands surrounding the Chicago metro area. In addition to the above, Park Districts as firmly established taxing bodies are also quite effective in securing and managing open lands whether they tend to be strictly recreational, for conservation purposes, or a combination of both.

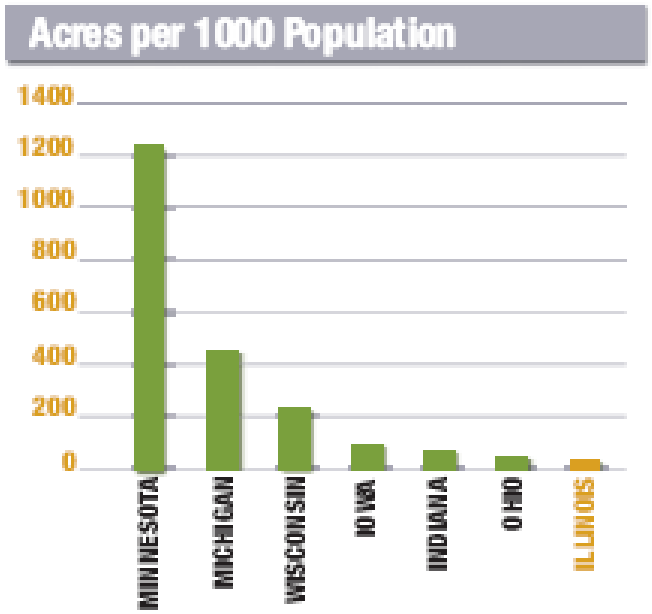


Fig. 2: Comparison of Parks & Open Lands in IL vs. other Midwestern States
Source: IL Environmental Council Education Fund, March 2007

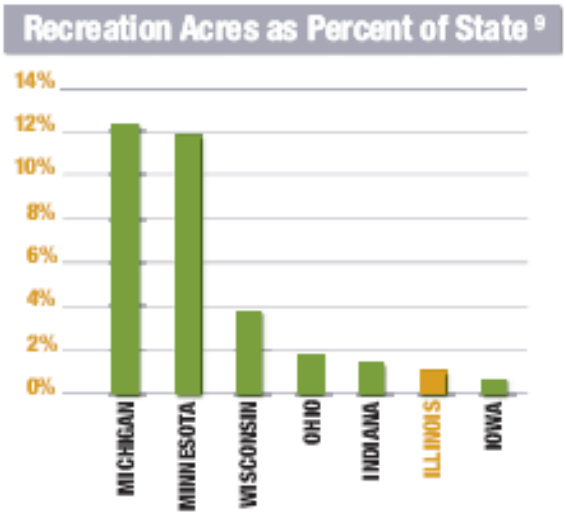


Fig. 3: Comparison of Recreation Areas in IL & other Midwestern States
Source: IL Environmental Council Education Fund, March 2007

In spite of the above established bodies, the state can clearly benefit from a concerted effort to increase open space that places it on par with the rest of the nation. The Illinois Department of Natural Resources (IDNR) has been the leader in open space acquisition and has greatly helped the region in achieving various parks and open lands objectives. However, for the past several years, IDNR has experienced major funding and budgetary cuts that have restricted it from carrying out this important task.

There are various organizations in the northeastern Illinois region that have been advocating for and actively acquiring (or assisting in the acquisition of) open space and natural areas. From the standpoint of the region, we are well-placed to insure that the population continues to enjoy the benefits of this asset, particularly if it is incorporated in regional plans such as the *GO TO 2040* Regional Comprehensive Plan. The growing population of the region, the changing demographics and the shrinking supply of open space (as identified by some park districts in their master planning efforts) necessitates a regional review to insure that supply of parks and open lands meets this changing demand in future planning. With a forecasted increase in population of 2.8 million in the NE IL region by 2040, development may continue to overcome open space. This is mainly due to the amount of land absorbed for new development, which frequently outpaces population growth. While the population in Chicago increased by 1% between 1970 and 1991, its urbanized area grew by 24% (IL Environmental Council, 2007).

A study completed by Openlands Project in 1999 found that urban development in the Chicago region could expand 60 percent in the next 10 years and will more than double (1.2 million acres) in the next 30 years. IDNR used the model developed by Openlands to examine the potential impacts of urban development on natural resources in McHenry County which has an extensive amount of natural resources.

> *McHenry County could lose more than 10,000 acres of forest, 1,400 acres of wetlands, and 28,000 acres of urban and rural grasslands (some of which are parks and greenways) as well as a number of natural areas. Threatened natural resources include the high-quality Nippersink Creek subwatershed and rare fen communities along the Fox River. The Chain O' Lakes-Fox River watershed, which encompasses parts of McHenry, Lake, Cook, and Kane Counties, has the highest concentration of natural areas in all of Illinois (more than*

30 are in McHenry County). If not protected in some manner, these natural resources could be lost forever to urbanization.

(SCORP, 2004). See Fig. 3.

POTENTIAL LAND USE CHANGE IN MCHENRY COUNTY

Acres of Development	***Acres***	***Increase***
Current Built-Up Area	53,534	
High Risk of Development (next 10 years)	79,856	249 percent
Moderate Risk of Development (next 30 years)	60,525	362 percent
Current Land Use at High Risk		
Forest	10,406	
Wetlands	1,453	
Rural Grassland	19,046	
Urban Grassland	9,376	
Agriculture land	30,438	

Fig 4: Development Threats on Parks & Open Lands in McHenry County
Source: SCORP, 2004

The northeastern IL region has passed 1 billion dollars in referenda for open space acquisition for the past 10 years (The Conservation Foundation, 2007).

The following section discusses the provision of parks and open lands in the 7-county region of Northeastern Illinois. Many organizations acquire, manage and/or operate parks and open space including: Forest Preserve Districts, Conservation Districts, Park Districts, and Land Trusts.

County	Population	Acreage	% of County Land	Acres/1,000 Residents
Cook	5,303,683	68,303	11.2	13
DuPage	929,113	24,718	11.5	27
Kane	482,113	14,683	4.4	30
Kendall	79,514	1,050	0.5	13
Lake	702,682	25,190	8.4	36
McHenry	303,990	20,020	5.1	66
Will	642,813	16,913	3.1	26
Total	**8,443,908**	**170,877**		

Table D: Land Holdings by Forest Preserve and Conservation Districts
Source: Openlands, 2006

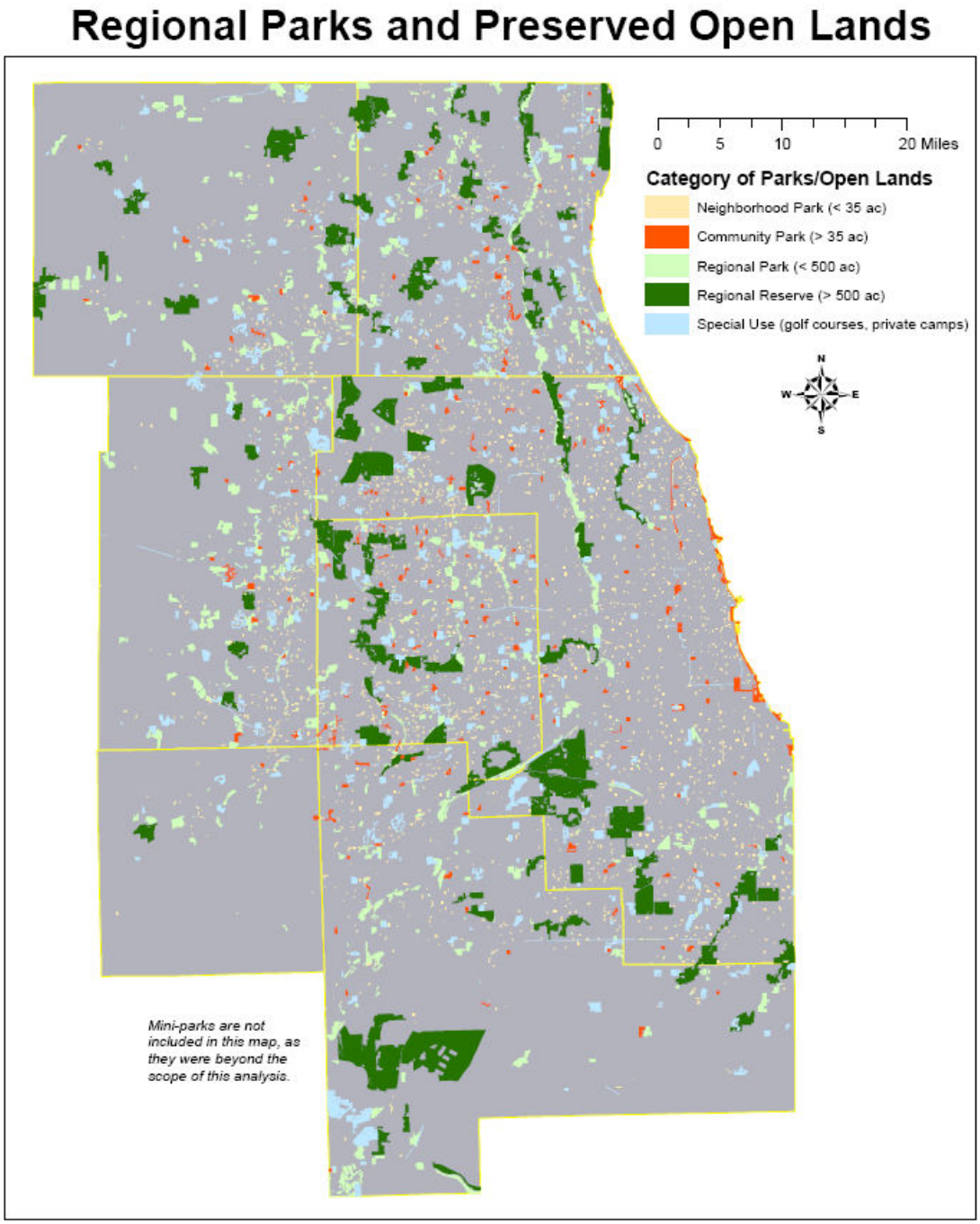
In addition to the seven Forest Preserve/Conservation Districts, the region has approximately 150 Park Districts. Federal and state lands, such as wildlife refuges, national forests, and nature preserves, constitute part of the parks and open lands in our region. Also, Land Trusts in the region acquire land, generally for subsequent holding by the above districts or other governmental entities, and may or may not manage the land. The northeastern Illinois region has approximately fourteen Land Trusts. The reasons for obtaining lands vary from protection of natural resources or farmland to insuring the continuity of scenic vistas (info obtained from a survey of the region's land trusts). Lands acquired by trusts may also remain in private ownership with stipulations on land use/development, e.g. through conservation easements.

Table E shows a sample of some of the open space in our region. Most open space in the region has a history and special value to the localities making them unique and therefore in need of special attention. Unfortunately, some parks are not well-maintained and this can lead to the perception of unsafe surroundings. Others may become areas for criminal and undesirable activities that may lead to abandonment of the park and the neighboring sites. Thus, while considering the amount of parks and open lands in the region, it is critical to evaluate the extent of their "usability" and their overall effect on their service radius.

Table E: A detailed Sample of Nationally/Regionally Significant Parks and Open Lands in Northeastern IL

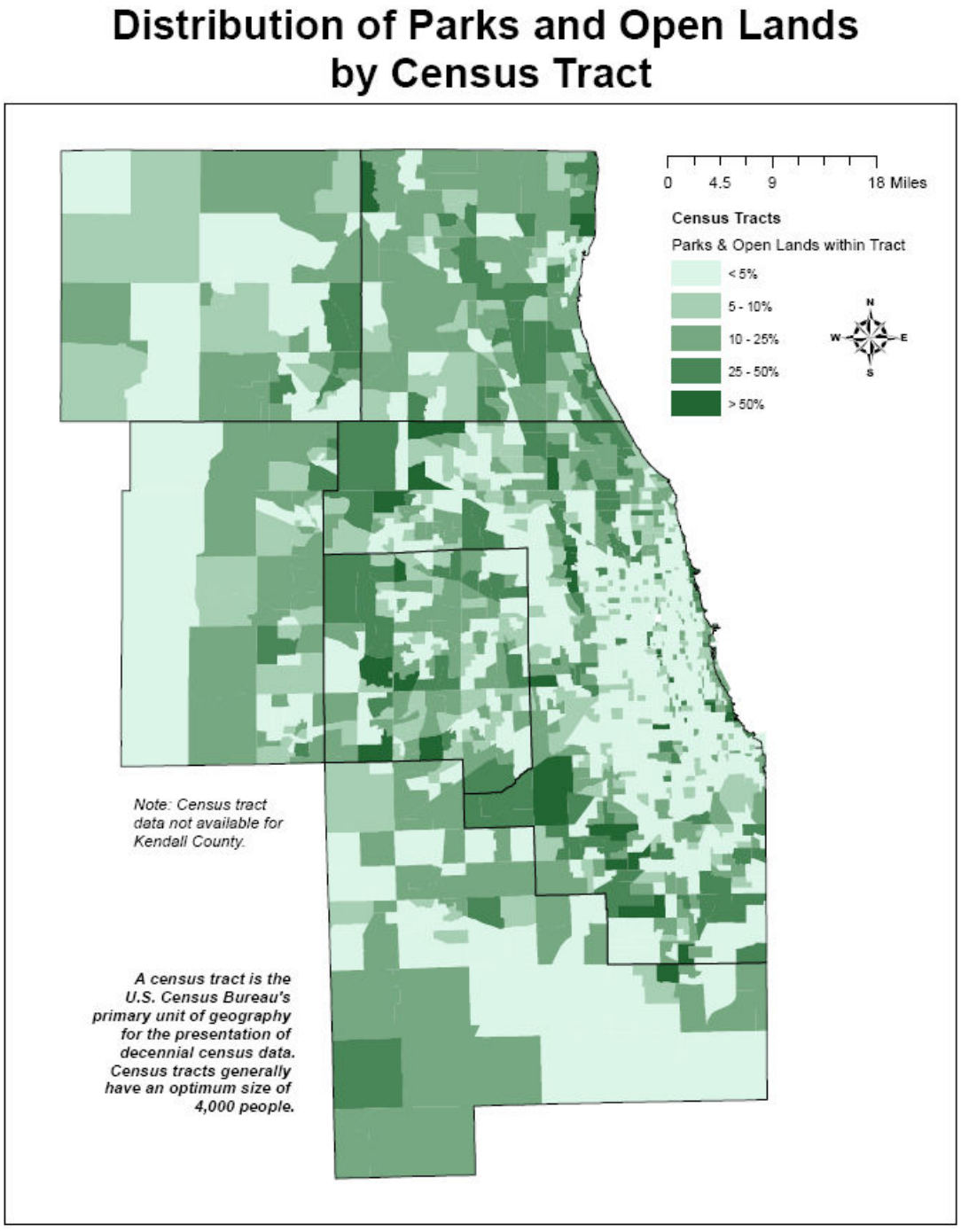
Name	Location	Acres	Ownership	Reason for Preservation	Story of Preservation
Midewin National Tallgrass Prairie	Will County	15,454	USDA Forest Service	Ecosystem – only tallgrass prairie preserve in the USA	Illinois Land Conservation Act (PL 104-106); transfer from US Army ownership to USDA Forest Service
Chain O' Lakes State Park	Lake and McHenry Counties	3,765	IDNR	Water Recreation; water quality protection; flood control of the Fox River; historic preservation; 80 acres – Turner Lake Nature Preserve (bog ecosystem)	State purchase in 1945 of 840 acres, expanded to include adjacent camp; State purchased adjacent historical farm
Lincoln Park	Cook County	1,212	City of Chicago	Originally a small public cemetery, converted to parkland by the city in response to public outcry; expanded for recreational purposes over time	City reserved original 60 acres in 1860, called Lake Park, plan for improvements developed after President Lincoln's assassination; 1869 – state created Lincoln Park Commission, park expanded; Chicago Park District established, park expanded again.
Waterfall Glen	DuPage County	2,721	Majority – DCFPD; one parcel leased from MWRD	Original reason – soil used to fill Lincoln Park area along lakeshore; later reasons – scenic, recreational (Old Oak Grove, Signal Hill, Rocky Glen), and habitat protection (Pine Plantations, Poverty Prairie).	Lincoln Park Commission purchased 107 acres in 1907; acquired by DCFPD in 1925, along with some detached surrounding areas; one area (Old Oak Grove) was traded to the federal govt in exchange for land to connect remaining areas and create one continuous land holding; 2,222 ac of federal surplus land (Argonne Lab) given to the district in 1973.
Dick Young Forest Preserve	Kane County	983	Kane Co. FPD	Wetland preservation (Nelson Lake Marsh), habitat protection, biodiversity	Original parcel first purchased by TNC, acquired by KCFPD in 1979, rest purchased from 1994-2002; the 172 ac surrounding the marsh dedicated in 1981 as an Illinois Nature Preserve.
Rollins Savana	Lake County	1,257	Lake Co. FPD	Ecosystem - Unique large uninterrupted size; soils, Mill Creek, Third Lake, wetland, oak savannas, prairies; recreation	Land acquisition - phased from 1988-1993 (received some grant from IDNR Open Lands Trust program); planning and restoration funded thru 1999 bond ref, IDNR grant
Glacial Park	McHenry County	3,105	McHenry Co. CD	Topography, hydrology, geology, ecosystem preservation; habitat protection, biodiversity; recreation.	In 1992, 400 ac in the core of park dedicated as Illinois Nature Preserve, with restoration of the stream channel from an agricultural ditch.
Hoover Forest Preserve	Kendall County	400	Kendall Co. FPD	Oak wooded bluffs, unique seeps, 300 native plant species	Was Boy Scout site, still retains its original use, largest preserve in Kendall County

It is also important to geographically portray existing parks and open lands in the region. In the following sections we will show distribution of parks and open lands by census tracts and identify the accessibility of open space to population served. This can form the basis for assessing regional needs for parks and open lands which in turn can lead to strategies and policies to insure sufficient and equitable open space provision. A further analysis with population projections can lead to a more refined evaluation of the future needs of the population and to more policy proposals.



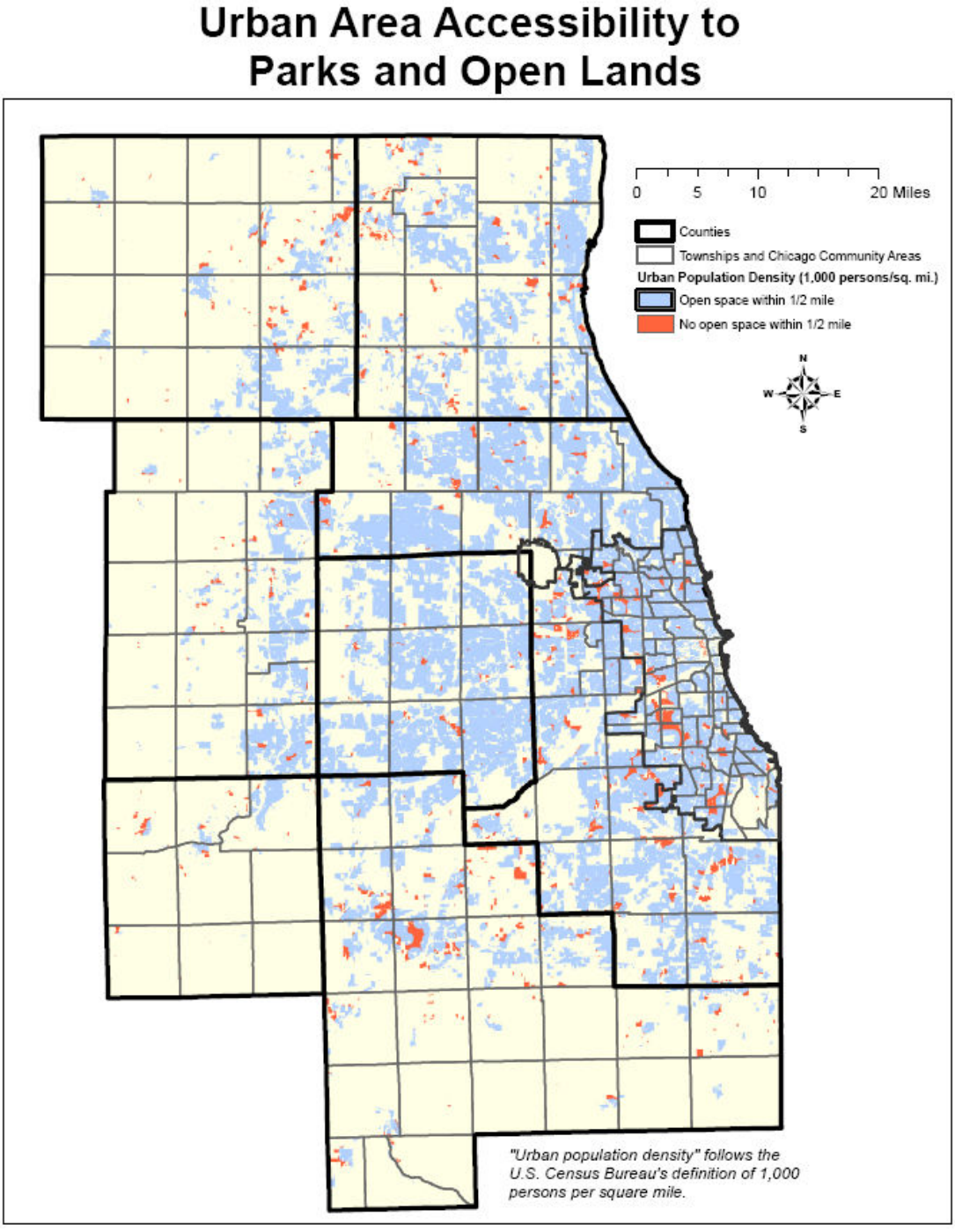
MAP 1 *Regional Parks and Preserved Open Lands*, portrays all the lands identified through the CMAP land use inventory as recreation or conservation land. All of the parks and preserved lands are categorized as neighborhood parks, community parks, regional parks, regional reserves, or special use lands, using NRPA guidelines. As demonstrated in the previous section, NRPA guidelines are based on use and amenities as well as size, but it was beyond the scope of this regional analysis to assess each

park's use and amenities; therefore, approximations, based on acreage and use (determined from CMAP's land use inventory), were used to classify. Furthermore, regional information on mini-parks or tot-lots was not available, so they have not been included in this analysis.



MAP 2 *Distribution of Parks and Open Lands by Census Tract*, is an approximate representation of the distribution of parks and open lands by population density. Census tracts are an accepted unit of geography for equalizing density throughout the region. In densely populated areas, tracts are much smaller, whereas in sparsely populated areas, tracts are very large. By totaling the acreage of parks and open lands within each tract and dividing it by the total acreage of the tract, a percentage of land that is parks or open lands within each tract can be determined. This percentage is displayed on the map.

The tracts with the highest percentage of parks and open lands seem to ring the more densely populated area, reflecting where most of the forest preserves are located. However, it is interesting to note that both the highly populated areas and the further suburbs have similar percentages of parks and open lands per tract.



MAP 3 *Urban Area Accessibility to Parks and Open Lands*, is an approximate representation of how much of the region's population lives within ½ mile of a park or open lands. This map only represents the population categorized as living within the "urbanized area" as defined by the U.S. Census Bureau, i.e. 1,000 persons per square mile.

It is interesting to note that several of the areas without a park in a ½ mile radius are located at the periphery of the urbanized area. Upon some initial review, many of these lands are in unincorporated land, thereby explaining the lack of municipal parks or open lands.

This map does not account for physical accessibility barriers to reaching parks and open lands, e.g. active rail-lines between an area and an open space.

Identification of potential areas of impact

Environmental Benefits

Intuitively, parks and preserved lands have a positive effect on the environment. What could be more "environmentally-friendly" or "green" than preserving parkland and open space? Benefits like improved water quality and air quality, increases in biodiversity and habitat protection, and reductions in greenhouse gases (GHG), are all inherent in a strategy that protects and preserves land. However, the specifics of these environmental benefits, and the mechanisms behind them, are often less obvious. Furthermore, environmental benefits are often difficult to quantify and may not receive as much consideration as those which are easily quantifiable. This section attempts to identify and describe these key environmental effects, as well as the potential drawbacks or challenges of preserving parks and open lands region-wide.

Improved Air Quality
Trees are called the earth's lungs. Not only do they provide oxygen for us to breathe, but they clean the air of many pollutants harmful to humans. Open space has an overall positive effect in the improvement of urban ventilation. By protecting open space and creating parks, trees and other vegetation are also preserved and protected, often planted. This vegetation plays a significant role in improving air quality in the region.

According to the Illinois Annual Air Quality Report, which utilizes standards established by the Clean Air Act, portions of the region are currently in nonattainment for ozone and particulate matter less than 10μg (PM-10). In order to meet these standards, the Illinois Environmental Protection Agency (IEPA) works to regulate point-source and area-source emitters, like power plants and dry cleaners, as well as mobile sources like vehicles. In addition to these regulations, the preservation of open space and creation of parks can assist in meeting the Clean Air Act standards.

In an area with 100% tree cover, such as contiguous forest stands within parks, trees can remove from the air as much as 15% of the ozone, 14% of the sulfur dioxide, 8% of the nitrogen oxide, and 0.05% of the CO (Sherer, 2006). Another benefit from parks and open space is the capacity that leaf cover and vegetation have for filtering air pollutants such as dust, gases and soot (Givoni, 1991). This is both an environmental and public health benefit that is significant to highly urbanized areas like the northeastern Illinois region.

Open space may be used as a noise barrier or buffer zone when the need for noise control arises due to the proximity of incompatible uses (e.g. frequently-travelled highway next to a residential area). In such

case, a linear open space with tree cover may serve to reduce the noise as well as the pollution emitted from the highway.

Climate Change – Reduced GHG, Heat-Island Effect

There is a rising interest in limiting our greenhouse gas emissions and becoming more energy efficient, both regionally and globally, in order to deal with climate change. Natural lands like forests, grasslands, and parks are key assets in this effort, whether they are large preserves serving as carbon "sinks," or small local neighborhood parks helping cool their environs.

> In a study focused on the greater Chicago region, "trees in leaf season removed an average of 1.3 tons/day of carbon monoxide (CO), 4 tons/day of sulfur dioxide (SO2), 4.6 tons/day of nitrogen dioxide (NO2), 11.9 tons/day of ozone (O3), and 9.8 tons/day of particulate matter less than 10 microns (PM10) ."
>
> *– McPherson, 1994*

Temperatures in urban areas have increased by about 0.5-3.0°C over the last 100 years. This is termed "heat island effect" and can exacerbate air pollutant problems and lead to increased energy use and greenhouse gas emissions. Typically, electricity demand in cities increases by 2-4% for each 1°C increase in temperature. Researchers estimate that 5-10% of the current urban electricity demand is spent to cool buildings just to compensate for the increase in urban temperatures (Akbari et al, 2001). Trees and parks can offset or even reverse the heat-island effect, both directly and indirectly. Planting trees has the direct effect of reducing atmospheric CO_2 because each individual tree directly sequesters carbon from the atmosphere through photosynthesis. According to a study focused on the greater Chicago region, 1 acre of tree cover absorbs 2.2 tons of carbon per year (McPherson et al, 1994).

Planting trees in cities also has an indirect effect on CO_2 by reducing the demand for energy, and thereby reducing emissions from power plants. Parks and trees can reduce building energy use by lowering summertime temperatures, shading buildings during the summer, and blocking winter winds. According to a study focused on the region, increasing tree cover by 10% could reduce total heating and cooling energy use by 5-10% (McPherson et al, 1994). Furthermore, trees and vegetation can improve the ambient atmospheric temperature through evapotranspiration in the summer and their wind-shielding effect in the winter. Both these direct and indirect benefits of energy savings from vegetated parks and open space translate into reductions in CO_2 and greenhouse gas emissions.

> One study estimated that, in the Chicago region, the impacts of a large-scale tree planting program could potentially cool the ambient air temperature by up to 1.4□C. *– Taha et al, 1996*

It is interesting to note that the two criteria pollutants for which the region is in nonattainment, ozone and PM-10, are both related to temperature. Ozone is created at elevated temperatures, and PM-10 tends to stay mixed in the atmosphere longer in hotter weather (USEPA website, 2008). The vegetation within parks and natural lands plays a major role in lowering temperatures and sequestering carbon in developed areas. Forests, grasslands, and other naturally vegetated lands in the U.S. absorb an estimated 20-46% of total U.S. greenhouse gas emissions (USEPA 2008). Without preservation, these parks and natural lands could be developed and the carbon sequestration, energy-savings, and cooling benefits would be lost.

Improved Water Quality and Stormwater Management

Preserving open lands and creating parkland preserves natural processes of infiltration and limits imperviousness, both of which are intimately linked to stormwater management and water quality. A study from 1993 by the Illinois State Water Survey estimated the value of open space for floodplain

storage, including wastewater reclamation, pollution abatement and aquifer recharge as more than $52,000 per acre in the Chicago region (IL Environmental Council, 2007).

As the amount of imperviousness increases in a watershed, the velocity and volume of stormwater runoff increases, which can have several environmental impacts: increased flooding, erosion, and pollutant loads in receiving waters; decreased groundwater recharge and level of water table; altered stream beds and flows; and impaired aquatic habitat. Research has verified the strength of this correlation between the amount of imperviousness in a drainage basin and water quality, with an accepted 10% imperviousness threshold, above which water quality becomes impaired (Schueler, 2000).

There is also a correlation between the location of development, or impervious surfaces, within a watershed and water quality. In a natural landscape, stormwater that isn't infiltrated runs off into waterways, but not without travelling first through vegetated stream banks, thereby being slowed down and filtered. When a watershed is developed, however, stormwater is usually piped through sewer systems and paved drainage ditches. As this occurs, it is funneled together, picking up velocity and pollutants along the way, and emptied in one flush at the end of the pipe, usually directly into a stream. The pollutants flow directly off the road or parking lot, without any opportunity for filtration, and the speed of the water scours the stream bed, causing erosion and often leading to flooding downstream (Brabec, 2002). Riparian buffers can prevent some of these deleterious impacts. By creating buffers around streams and waterbodies, stormwater can be infiltrated, filtered, and slowed before entering waterways. They help allow the hydrological cycle to function more naturally (Lehner et al, 1999).

Researchers have attempted to pinpoint a size or distance threshold at which buffers are most effective, with variable results. The general rule seems to depend on the size of the drainage basin, with larger basins requiring larger buffers (Brabec, 2002). There is evidence to suggest that protection of headwaters has a larger impact because upstream disturbances carry over more stream miles (Maxted and Shaver, 1998).

Des Plaines River Corridor
Made up of several Lake County and Cook County Forest Preserves, the Des Plaines River Corridor travels along its namesake river forming a nearly continuous stretch of open space for almost 50 miles. Although the motivations behind protecting the different preserves that make up the corridor are varied, it is clear from the concentration of parks around the river that protecting water quality seems to be a major goal.

Preserving open space and creating parks and greenways are key tools to limit imperviousness and create riparian buffers in a watershed. These programs are often the specific means of implementing larger growth management goals, but can also been seen as one of the most cost-effective means for reducing and managing stormwater runoff and protecting water quality (Schueler, 2000). By focusing efforts to preserve and protect open space to those lands around waterways, water quality goals can coincide with growth management goals. These riparian lands are often targeted for open space protection for other reasons – they offer good habitat or are aesthetically appealing – but they help protect water quality as well, serving as buffers for stormwater runoff, or preserving natural infiltration processes. Conversely, efforts to protect water quality can drive land preservation. Municipalities may utilize tools such as down-zoning, open space requirements, conservation subdivisions/design, or transferring development rights in order to improve their water quality, all of which can result in natural lands being preserved.

In more urban areas, where imperviousness is much higher than 10%, parks and open space can also play a role in stormwater management and water quality. They can provide natural infiltration benefits, especially if they are vegetated with mature trees – natural pollution filters. Depending on the species

and soil conditions, trees can absorb a considerable amount of water, as well as water-polluting nitrates, phosphorus, and potassium, and keep it out of the flow toward the storm sewer (American Forests website). Furthermore, urban parks can be locations for structural best management practices (BMPs) that assist with stormwater, such as constructed wetlands, detention/retention ponds, or rain gardens. These BMPs help slow and store stormwater, allowing it to slowly infiltrate into the ground or runoff into sewer systems, but at a slower rate, and with some natural filtration (Schueler, 2000). This helps prevent the receiving waterbody from being "shocked" by pollutants or higher temperature runoff after a storm. The traditional method of collecting stormwater runoff transfers the water as efficiently as possible into a system of gutters, sewers, and drainage ditches. A more modern approach is to move water slowly through cities, allowing for on-site infiltration thereby minimizing flooding, and maintaining water quality.

The City of Chicago is very forward-thinking in this approach, currently working to implement a "green alley" system *<link to Conservation Design Paper>* which would allow rainwater to soak into the ground in the alleyways, subsidizing green roofs throughout the city, among other programs (City of Chicago website). Furthermore, the City has partnered with architecture and engineering firms to investigate the concept of "eco-boulevards," a series of 50 ribbons of open space running across the city, replacing pavement with green space and parks and wetlands, treating waste and storm water (UrbanLab website).

Biodiversity and Habitat Protection

As land is preserved throughout the region, a key environmental benefit is the protection of unique habitat and regional biodiversity. Wildlife and vegetation depend on undisturbed natural areas for food, shelter, and reproduction, often in ways that humans have not always recognized. However, we are beginning to learn about the interconnectedness of the ecosystems of which we are a part, and how it is beneficial for us to protect and preserve habitat and biodiversity within the region.

In the past, "worthless" wetlands were drained or forest stands cleared to make way for farming and development, destroying essential habitat, and wiping out populations. This weakens the natural communities interconnected with these habitats and in turn, weakens regional biodiversity. Without efforts to preserve lands critical to protecting biodiversity, the lands that have been preserved will start to lose their ecological value as invasive species and unchecked populations outcompete (Biodiversity Recovery Plan, 1999). Therefore, it is reasonable to assert that protecting sites with high biodiversity value is a justifiable way to protect and enhance the value of large public investments already made for preserved land.

The value of biodiversity is difficult to quantify, but researchers have categorized these values into how people benefit from them. The first is direct-use values, where people directly consume or use species for their benefit, such as pharmaceuticals, medicinal plants, agricultural genetics, or fisheries. Another benefit category is ecosystem services, or the conditions through which natural processes sustain human life, such as nutrient cycling, pollination of crops. A third category of benefits are those which improve recreation and aesthetics, such as hiking, camping, fishing, bird watching, or photography. Finally, and most difficult to value, is the benefit of "existing" or the willingness people would pay to have something not become extinct (Chicago Region Biodiversity Council, 1999). These more qualitative benefits are difficult to measure, but are important aspects and benefits of land preservation more generally. Furthermore, these benefits illustrate how protecting and preserving natural lands for more

traditional reasons – habitat protection, conservation, recreation, water quality – often overlap with biodiversity goals.

People Act "Greener"

A less definable environmental benefit of preserving parks and open lands is the idea that having access to parks and natural lands "reminds" people to act more environmentally responsible. Land preservation can change behavior.

An example of land preservation changing behavior is commuting. A 1997 study found that a third of the users of the Iron Horse Regional Trail in California were using it for transportation purposes – commuting to work or school, or traveling to shopping areas and restaurants (Trails and Greenways website). This suggests secondary air quality benefits.

Volo Bog

Volo Bog is an example of unique habitat that has been protected in order to preserve biodiversity. Located in western Lake County, Volo Bog has been protected since 1958 through efforts of The Nature Conservancy and local citizen activism, it is currently a National Natural Landmark. The bog is significant because it exhibits all stages of bog succession, and boasts a wide variety of plant and animal life. It also offers educational programs, trails, and picnicking

This "green" consciousness is reflected in the growing eco-tourism industry, of which land preservation is the driving factor. The U.S. Fish and Wildlife Service estimates that in 1995 nearly 25 million visits to over 100 national wildlife refuges generated an estimated $245 million from non-consumptive uses only e.g. excluding hunting and fishing (US Dept of State website). Residents of the Chicago area use local parks an average of 46 times per person per year (SCORP, 2004). Furthermore, eco-tourism has helped several communities realize the economic benefits of promoting land preservation and parks, and prompted additional preservation and conservation measures. Catering to eco-tourists can also translate into building green, serving locally-grown fare, saving energy, and other "earth-friendly" tactics.

Challenges:

Although the effects to the environment often seem obvious, there are several challenges to utilizing parks and land preservation as a strategy to promote environmental benefit. Determining how environmentally beneficial a park or preserve is depends on a few key factors– its size, location, and use.

The size of parks and open lands within an urban area determines the climatic benefits. A greater impact on the overall urban climate will be had from a large number of small parks spread throughout, rather than from a small number of large parks (Giovni, 1991). Additionally, open space outside of the city does not greatly affect the climate within the urban realm. Furthermore, a park utilized for high-intensity uses like recreation, likely has limited vegetation and trees, thereby diminishing air quality benefits.

Size, location, and use of the preserved lands also determine water quality benefits. Often, the most critical lands, such as the floodplains, or riparian buffers, have already been developed or the vegetation on these lands has been influenced by development (e.g. streams running through agricultural lands), and the effects of the buffer are seriously diminished. Furthermore, some municipalities have ordinances protecting riparian buffers or open space from certain uses or development, but not sufficiently enough to constitute natural areas with water quality benefits (e.g. recreational fields, golf

courses, or agricultural land which all usually rely on fertilizers, a water pollutant; or even greenway trails which may provoke pet waste or litter problems).

Another challenge is that it is difficult to utilize parks for water quality benefits because they are often intensely used, with space at a premium. Advocating for a constructed wetland is an uphill battle if constituents are more interested in a ball field, a picnic area or a golf course. Soil compaction is also a problem in urban parks, with park lawns and paths having the same imperviousness as pavement, and severely limiting any infiltration (Schueler, 2000).

Furthermore, although the region has made substantial advances and investments in preserving open space, sustaining biodiversity has not always been a priority. This is likely due to the fact that the natural pathways and "green infrastructure" that different species rely upon does not follow anthropogenic boundaries like property lines or municipal jurisdictions. It is difficult to assemble all of the stakeholders together to preserve these lands. Prioritizing land for biodiversity value may sacrifice other benefits like recreation.

Negative Effects:
Despite all the potential environmental benefits of preserving parks and open lands, they can actually cause some secondary and tertiary negative effects.

Parks, like any major attraction, may draw people from a large catchment area, resulting in many driving from far distances. Or preserved lands or parks may be located in such a way that causes drivers to take a longer, convoluted route to their destinations. Therefore, it is important to take this into consideration when making land use decisions. Parks and preserved lands must be planned in coordination with other systems.

Furthermore, depending on how intensely they are utilized, parks and preserved lands may end up harming some of the natural features they were intended to protect. Campgrounds and picnic areas can get overrun with vehicles, waste, and noise; ball fields and golf courses often rely on intense fertilization; even dirt paths can get so packed down they act like impervious surfaces. These amenities are often located in sensitive environmental areas, near streams or wetlands, so their impacts are that much more damaging.

Potential Indicators:
Stormwater quality (percentage of imperviousness; amount of pollutants removed; IBI scores)

Air quality (amount of pollutants removed; number of trees planted)

Greenhouse gas emissions (amount of CO_2 removed; temperature decrease; amount of energy used)

Biodiversity (acres of habitat; number of species)

Human behavior (decreased VMT; increased biking, walking as transportation mode; increased visitors, revenue from eco-tourism)

Conclusion:

The environmental effects of parks and open lands are usually the driving factor behind their preservation, and rightly so. The benefits on air and water quality, climate change, biodiversity and habitat protection, and human behavior are proven and pronounced. However, there are significant challenges to promoting open space preservation as a tool to protect the environment, as many of these environmental benefits are difficult to measure and quantify. Furthermore, it is important to realize that not all parks are equally beneficial, and the location, size, and uses of the preserved lands all play a role in how they impact the environment.

Quality of Life

Properly designed open space, specifically urban parks, may help in creating social ties and a sense of community in an area. This is significant in lower income areas as the parks provide an alternative recreation and entertainment outlet that might not otherwise be available to that sector of the population. According to a 2002 poll by the Illinois Association of Park Districts, more than 80 percent of residents, in Chicago and collar counties, said that they visited a park in the past year, averaging more than a dozen visits (IL Environmental Council, 2007).

Public Health Benefits:
The public health benefits of parks are substantial. Researchers claim that higher concentrations of community recreational areas like "public parks, play spaces, hiking/biking trails and exercise facilities" can cause a 25 percent increase in the number of people who are physically active at least three times a week (Ewing, 2006). In another study, subjects who regularly used their local parks were "nearly three times as likely as others to achieve recommended levels of activity, regardless of how it was measured" (Giles-Corti, 2005). Greenways also yielded positive results, prompting an increase in exercise among 55 percent of survey respondents that used a new trail in southeastern Missouri. Greenway users in Indiana reported similar increases (Gies, 2006). Parks even bridge gaps between public health and social equity by providing exercise facilities to low-income residents who may find gym fees prohibitive (Gies, 2006).

Often, access to parks goes beyond promoting physical activity. A study of hospital records over 10 years revealed that "patients with tree views had shorter hospitalizations, less need for painkillers, and fewer negative comments in the nurses' notes, compared with patients with brick-wall views" (Sherer, 2006). In a study of Chicago public housing residents living in architecturally identical buildings, researchers found that residents living near vegetation "were significantly more effective in managing their major life issues than were their counterparts living in barren environments" (Kuo, 2001). Similar psychological benefits have been seen across geographies and in various demographic groups (Bedimo-Rung, 2005).

Community Character:
Parks can also foster community among nearby residents. Another study of Chicago public housing residents found that "compared to residents living adjacent to relatively barren spaces, individuals living adjacent to greener common spaces had more social activities and more visitors, knew more of their neighbors, reported their neighbors were more concerned with helping and supporting one another, and had strong feelings of belonging" (Kuo et al., 1998). According to another expert, "Urban boundary parks like Warren Park [in Chicago's West Ridge community area] may provide the kind of setting to nurture healthy interracial and ethnic relationships, especially among children and young adults" (Gobster, 2001). In fact, parks can even be a form of cultural expression, as demonstrated by Ping Tom

Park in Chicago's Chinatown neighborhood. Here, park designers spent time interviewing local residents and reviewing traditional Chinese garden design to develop a park that was truly representative of its community. Well-planned parks can also build social capital not only by providing central meeting places or cultural cohesion for surrounding neighborhoods, but also by modeling healthy behavior, like exercise, to the community at large (Bedimo-Rung et al., 2005).

The community-building aspect of parks can translate directly to issues of safety and social order. Recreational facilities provide "at-risk" youth with safe venues to socialize; places where they occupy time that might otherwise be spent on the streets. For example, some communities have benefited from "midnight basketball" programs that allow youths a late-night alternative to "finding trouble" (Sherer, 2006). The Success Through Academics and Recreational Support Programs (STARS) in Fort Myers, Florida was credited with a 28 percent drop in juvenile arrests when it began in 1990. Under this program, the city also built a recreation center within one of its low-income neighborhoods. In addition to serving as a crime deterrent to youths, it was also correlated with a spike in grades at the local schools. Social costs aside, building parks is a far lesser fiscal strain than building prisons and expanding police forces (Trust for Public Land, 2005).

Independence Grove

Once a gravel quarry between the unincorporated fringes of Libertyville and Waukegan, Independence Grove was reclaimed as a 115-acre lake and recreation center beginning in the late 90s. Now part of the Lake County Forest Preserve vast open space network, Independence Grove surveyed as the preserve's most popular park in 2003 – just two years after it opened (Waukegan News Sun, 2003). Aside from its winding trails, boat rentals, swimming beach and popular fishing spots, this "crown jewel" of the county's park system offers a series of banquet halls, plazas, and even an amphitheater to provide locals with multiple venues for family reunions, wedding receptions and other gatherings.

Potential Challenges:

Accessibility is another important characteristic that may determine the success of parks and open lands. This is particularly important when planning for youth, the elderly and disabled persons. Studies indicate that people and parks should be no farther than five minutes apart by foot in dense areas or five minutes apart by bicycle in less dense sections. But, as Harnik (2006) highlights, it is not enough to measure access purely from a map. Park planners must account for significant physical barriers such as un-crossable highways, streams and railroad corridors or heavily trafficked thoroughfares. Some studies indicate that the lack of sidewalks or pedestrian crossings may prevent elderly or disabled people from accessing the park, even when close by.

When planning for youth, a study done by *Frank et al* reveals that the correlation between walking for transportation and proximity to parks varies according to the age group, but the most consistent indicator of young people's walking for transportation at all ages was having multiple recreation uses or open spaces within 1 kilometer of their homes (2007).

Negative Effects:

It should be noted that while parks can help bind neighborhoods into legible communities, they can also work to unravel that cohesion if poorly maintained. According to research in Chicago's West Ridge community area, "perceptions of fear and safety and experiences or expectations of discomfort and physical harm resulted in reports of lowered use and displacement in time or space by one group due to another's presence, and spatial segregation of users in a park." It continues, "Additional research identified that, even if interracial and ethnic tensions do not exist, lower-income minority neighborhoods may not have access to quality open space environments like upper-income majority neighborhoods do"

(Gobster, 1998). This last point is disputed in the literature. While some research claims inequity among races and socio-economic classes (Powell et al., 2004), another study, albeit from Australia, denies the existence of such disparities (Timperio et al., 2006). In Chicago, African-American neighborhoods actually have more parks than those of other racial groups, but historically, have not been funded in equal proportion to the parks in upper-income white communities (The Chicago Reporter, 2008). This emphasizes the importance of addressing maintenance and operations needs when planning park facilities.

Poorly designed and unused parks and open space may attract criminal activity which tends to be associated with the surrounding neighborhoods.

Potential Indicators:
Public Health: Obesity Rates, Levels of Physical Activity, Psychological Health, Crime Rates, Neighborhood Cohesion

Community Character: Crime Rates, Academic Achievement, Neighborhood Cohesion, Tourism, Property Values

Conclusion:
Parks and open lands are a nearly undisputed asset to quality of life in areas where they are well-maintained and equitably distributed. They promote physical and psychological heath as well as close community ties. Building on these fundamental assets, parks have also been correlated with lower crime, increased racial and ethnic tolerance, and even higher grades in children who live near recreation facilities. However, a major caveat of these benefits is they require well-maintained and populated park space to be realized. Largely abandoned parks that are not kept up can have an adverse effect on local communities.

Economic Benefits

Parks and open space are often evaluated by levels of conserved land or recreational facilities. Less obvious benefits can be found in municipal revenues and the balance sheets of nearby businesses. Well-planned parks and open lands are linked to increased property values, more efficient use of public resources, and healthier local economies where implemented. In short, public parks are often financial assets.

Land Value:
In 25 studies of properties surrounding parks, 20 correlated the parks' presences with increased property values (Sherer, 2006). According to a 2001 survey by the National Association of Realtors by Public Opinion Strategies, 50 percent of respondents said they would pay 10 percent more for a house located near a park or open space. There is a close relationship between housing prices and proximity to urban environmental amenities (Wu & Platinga- 2002). However, the opposite is true of properties near poorly maintained parks (Sherer, 2006). The greatest home value premiums seem to occur within 800 feet of a park (Nicholls, 2004). Results also vary depending on the size of an open area, purpose and whether it is located in the city or the suburbs.

There is also some debate among experts concerning the economic impacts of different kinds of parks. One study claims, "In our full sample, we find that proximity to special parks and golf courses has a positive effect on home value, while proximity to regular parks and cemeteries has a negative effect on

home values. The sizes of these areas all have a positive effect on home value, however. The unintuitive result, which other studies are unable to detect, indicates that the various dimensions of open space may have differing effects on home value. Specifically, we find that proximity to parks generates negative externalities. Holding proximity constant, however, size generates positive externalities" (Anderson and West, 2002).

We conclude that land value increases with proximity to open space depending on the size and state of the space. In Chicago, the large, amenity-rich Millennium Park has been attributed with a $1.4 billion boost to local residential development and millions more in tourist dollars (Goodman Williams Group, 2005). Golf courses have shown the most consistent and significant positive impact on property values of any open space type (Nicholls, 2004).

Additionally, property value increases due to greenspace have been seen in neighborhoods of every income level (Sherer, 2006). However, there are distinct challenges that can come with parks for low-income areas. According to a paper by the Community Open Space Partnership, "although increasing the aggregate property tax base is generally viewed by municipalities as a positive thing, increasing the property value of homes designed for young families or low-income individuals can make it more difficult for a community to meet its need for these types of residential units. There is a need for recognition that goals for equity in distribution of green space may be at odds with affordable housing.

Millennium Park

Millennium Park was proposed by Mayor Richard M. Daley in the late 1990's. He directed his staff to place a music venue over the active railroad tracks and surface parking in the space occupied by Millennium Park. Everyone was excited about the park until the costs began to escalate – corporate sponsors began making requests for exhibits in the park. As corporate sponsors were accommodated their donations increased. The City of Chicago contracted with Goodman Williams Group and URS Corporation to complete an Economic Impact Study of Millennium Park. The study findings determined that the total value of residential development attributable to Millennium Park is $1.4 billion. The report also found that new retail facilities have opened in the year following the opening of Millennium Park. Hotels have used the park as a marketing device and have been able to command higher room rates since the park has opened. Restaurants have also noticed that sales have increased during summer evenings since the park has opened.

This may suggest a need for addressing this matter at a policy level. In order for communities to best take advantage of the property price increment that results when a new park is built, the park, its shape, amenities, and location, and the uses planned for the surrounding area should be designed together to maximize the overall social, economic, environmental, and quality-of-life benefits to a community" (Community Open Space Partnership).

GRP:

Land aside, parks and open space have also proved beneficial to labor and capital. One study states that parks and conservation areas in Illinois compose a $3 billion industry that employs 62,900 people who earn a collective $621.8 million in wages and benefits. These include 4,000 construction jobs, which pay a total of $185 million. This accounts for $16.7 million in state income taxes. Illinois businesses, suppliers and contractors capture about 73 percent of park agency annual spending, or $347 million (Economics Research Associates, 2005). "According to the 2001 National Survey of Fishing, Hunting, and Wildlife Associated Recreation, while participation is down somewhat, these activities still make a significant contribution to the state's economy: more than $4 billion dollars in economic output, 42,000 jobs, and $315 million in state and local taxes" (Tale F). Other states have relied just as heavily on

parks and open space to provide a solid economic engine. According to one study in Texas, the incremental increases in state revenue caused by local parks represented $171.6 million a year. This was seven times more than the funding proposed by a parks task force (Perryman Group, 2006). Many park jobs also provide a gateway into the working world for local youth who find employment as camp counselors, lifeguards and maintenance workers. In Chicago, the Garfield Park Alliance embraces this with a two-year docent program for area high school students (Walker, 2004).

Costs/New Infrastructure:
Literature has consistently shown that residential development does not ensure thicker tax rolls. In fact, the American Farmland Trust (AFT) claims that, in the 70 communities that it studied, the ratio of tax revenue generated by residential development to service costs for those parcels was 1:1.16. That ratio shifts to 1:0.35 when applied to parcels of open land (Sielski and Frank, 2003). The extensive infrastructure and services that residential developments require is a central reason for this cost disparity. In many areas, promoting open space conservation not only avoids or minimizes these costs, it can also improve municipal bond ratings, which allows governments to borrow more at lower rates (Fausold and Lillieholm, 1996). For infrastructure that must be built, whether the immediate area is developed or not (e.g. reservoirs, pump stations, ventilation shafts, etc.), additional provisions must be made for access routes, security, and other considerations (Urban Services).

Infill/Greenfield/Brownfield Development:
By encouraging open lands throughout the region, local officials can not only conserve existing greenspace, but also promote new parks and natural areas on formerly built-out sites. According to a report by the Trust for Public Land, "Outmoded facilities like closed shipyards, underutilized rail depots, abandoned factories, decommissioned military bases and filled landfills can be converted to parks (*link to Infill Snapshot)*. Sunken highways and railroad tracks can be decked over with parkland. Denver even de-paved its old airport to restore original land contours and create the city's largest park" (Harnik, 2006). In Chicago, the abandoned Bloomingdale rail line is currently being adapted into a greenway for the public.

Following a decades-long decline of manufacturing jobs, many cities across the country are deciding to "grow" by shrinking – that is, they are reducing their built environments to meet the needs of smaller populations. Nationally, Richmond, Virginia and Youngstown, Ohio are each attempting this strategy. In these cities, entire blocks are being cleared to make way for new parks and green space (El Nasser, 2006).

Brownfield conversion into green space is also a possible attempt at encouraging openlands (*Link to Brownfields White Paper)*. The economic benefits of converting Brownfields into green space are similar to those of any new park; however the cost to complete the conversion is generally more. The number one obstacle limiting the conversion is high costs and lack of funding (DeSousa, 2006). Within the region, Waukegan has initiated a strategy to phase out much of the aging industrial infrastructure near its downtown to make way for new residential, retail and recreational construction – including an increase in public open space (Zawislak, 2005, www.waukeganvision.com). The City of Chicago has also converted brownfields into open space. One example is the Ping Tom Park located in the Chinatown neighborhood. The Chicago Park District acquired 12 acres of old rail yards in the early 1990's to build the park.

Setbacks/Negative Effects:
While well-maintained parks have been proven to boost the value of properties nearby, those that have not been kept up can have a deleterious effect on property values (Harnik, 2006). If parks are under-

attended and ill-maintained, they can negate other positive residual effects like tourist spending. Also, as mentioned under the infrastructure evaluation measure, infrastructure that must be built in undeveloped areas (e.g. reservoirs, pump stations, ventilation shafts, etc.), can require additional provisions like access routes, security, and other considerations (Urban Services).

While an open space policy insures that some land is safe from bulldozers, it creates incentives for more land development, specifically from the residential sector (Wu & Platinga- 2002). This is a counter argument to the one that states that open space policies control growth. When public open space is placed outside the city it may cause leap-frog development due to the development of the nearby areas for residential purposes.
Since leap frog development (arising from proximity to open space in an urban setting) tends to increase average commuting per household, this may result in reductions in total land rent (Wu & Platinga-2002). Alternatively, cities may expand to encompass open space when the location is close to the city limits and when the open space offers significant amenities to city residents.

Potential Indicators:
Land Value: Property Value, New Construction, Services/Amenities, Aesthetics/Community Character

GRP: Employment, Income, Consumer/Tourist Spending, Property Value/Tax Bases

Costs/New Infrastructure: Amenities/Services, Land-Use Decisions, Property Value/Tax Bases

Infill/Greenfield Development: Redevelopment vs. New Construction, New Infrastructure, Transportation Modes, Property Values/Local Economics

Conclusion:
Well-sited and maintained parks are a common economic boom to local communities. They increase nearby property values and invite tourism. They create jobs and inject capital into the regional economy. They minimize service costs to a municipality and replace moldering and unsightly industrial sites. However, parks and open lands may also cause costly "leapfrog" development and consequently, increased commutes. Like the maintenance requirement to ensure positive outcomes for quality of life, parks must also be thoughtfully laid out to reap all of their potential economic benefits.

Strategies to Address Preservation of Parks and Open Lands

The projected population and development increases that will take place in the northeastern Illinois region might be the greatest threat to the provision of Parks and Open Lands. This will result in increases in land prices which might pose an additional hurdle to the acquisition of open space. In addition, the changing demographic patterns will necessitate a shift in the approach to determining the needs of open space users.

There are various measures that the Northeastern Illinois region can undertake to insure the preservation of parks and open lands for its growing communities. These measures can be adopted at various levels, ranging from the regional to the neighborhood levels:

- State Initiatives:

The state of Illinois has provided funding for the acquisition and management of parks and open lands through various programs. Due to budgetary cuts, these programs have not enabled sizable increases in

open space during recent years. Reinstating this funding for open lands would insure that the state would continue to meet the need for open space that arises from an ever increasing population.

- Regional Initiatives:

Through a regional agency like CMAP, parks and open lands preservation organizations in the area can agree to adopt a unified plan that addresses the needs of the region as a whole as well as the various localities. Together, these bodies can collaborate in achieving their goals and insuring the sustainability of their efforts.

- County and Local Initiatives:

Forest Preserve, Conservation Districts, Park Districts, and municipalities that provide park services in the region have been successful in gaining funding through referenda for better provision of parks and open lands. This serves dual purposes, gaining funding for open space while gauging public interest and support for these lands. This approach should continue as it has proven its success. Districts should insure that their facilities are well maintained and welcoming to the public. Additionally, these districts should consider conducting a Needs Assessment to evaluate their current status in terms of provision of parks and open lands as well as assess the needs of their population and region for additional amenities. Such studies are excellent ways to engage the public and to gather information and anecdotal evidence of how a community's satisfaction with existing facilities and the willingness to fund needed improvements (Barth, 2008).

The above are general strategies that will be detailed further in the *GO TO 2040* plan and designed to accommodate specific community needs and situations.