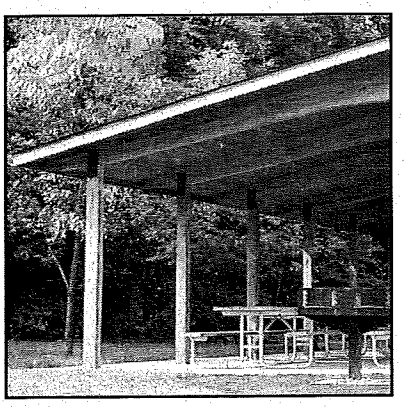
MASTER PLAN *for*
LYON OAKS COUNTY PARK






OAKLAND COUNTY PARKS AND RECREATION COMMISSION

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OAKLAND COUNTY PARKS

MASTER PLAN *for*
LYON OAKS COUNTY PARK

DECEMBER 1997

OAKLAND COUNTY PARKS AND RECREATION COMMISSION

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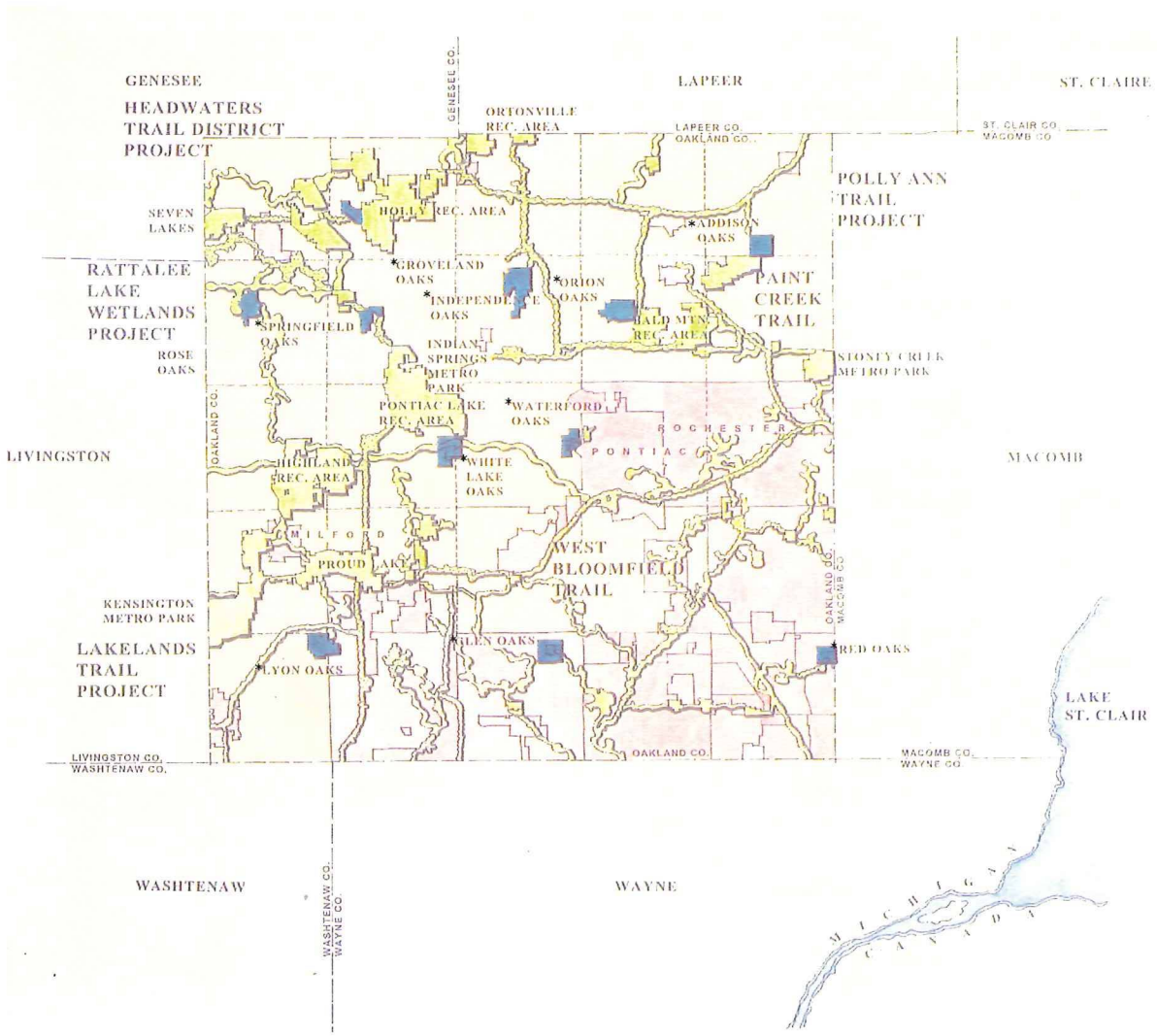


Recreational Context

Legend

- Public Conservation or Recreation Lands
- Oakland County Parks
- Existing Green Ways

INTRODUCTION

Lyon Oaks County Park, located in Lyon Township, is relatively new to the Oakland County Parks system, with the initial acquisition occurring in 1992. Subsequent to that purchase, the Oakland County Parks and Recreation Commission acquired additional acreage, including property in the City of Wixom, bringing the total holdings to 972 acres. Located in the southwest corner of the county, Lyon Oaks completes a uniform geographic distribution of county park land. Also within this vicinity, an extensive network of state and metro park land exists including Kensington Metro Park, Highland Recreation Area and Proud Lake State Park.

PURPOSE OF THE MASTER PLAN

The primary purpose of the Lyon Oaks County Park Master Plan is to provide the Oakland County Parks and Recreation Commission with a long-term framework for development of the park. The initial step in the development of such a plan is to identify recreational needs within the county parks system, as well as within the surrounding park vicinity, and to identify the recreational goals of the Commission and staff. The *1997 Oakland County Comprehensive Recreation Plan* identified several potential recreational uses for the site:

- Environmental education
- Hiking
- Picnicking
- Cross Country Skiing
- Golf

Undeveloped at this time, the park property consists of wooded wetlands, emergent wetlands, woodlands, active agricultural land, and reverting agricultural land, providing a great deal of ecological diversity in an area experiencing tremendous growth and land development. Thus, the need arises for a plan which balances recreational uses with preservation principles. A thorough review of recreational and regional context, cultural and historical implications, natural resources and sensitive habitat analysis, and recreational

uses and needs allows the development of a long-range plan which achieves such a balance.

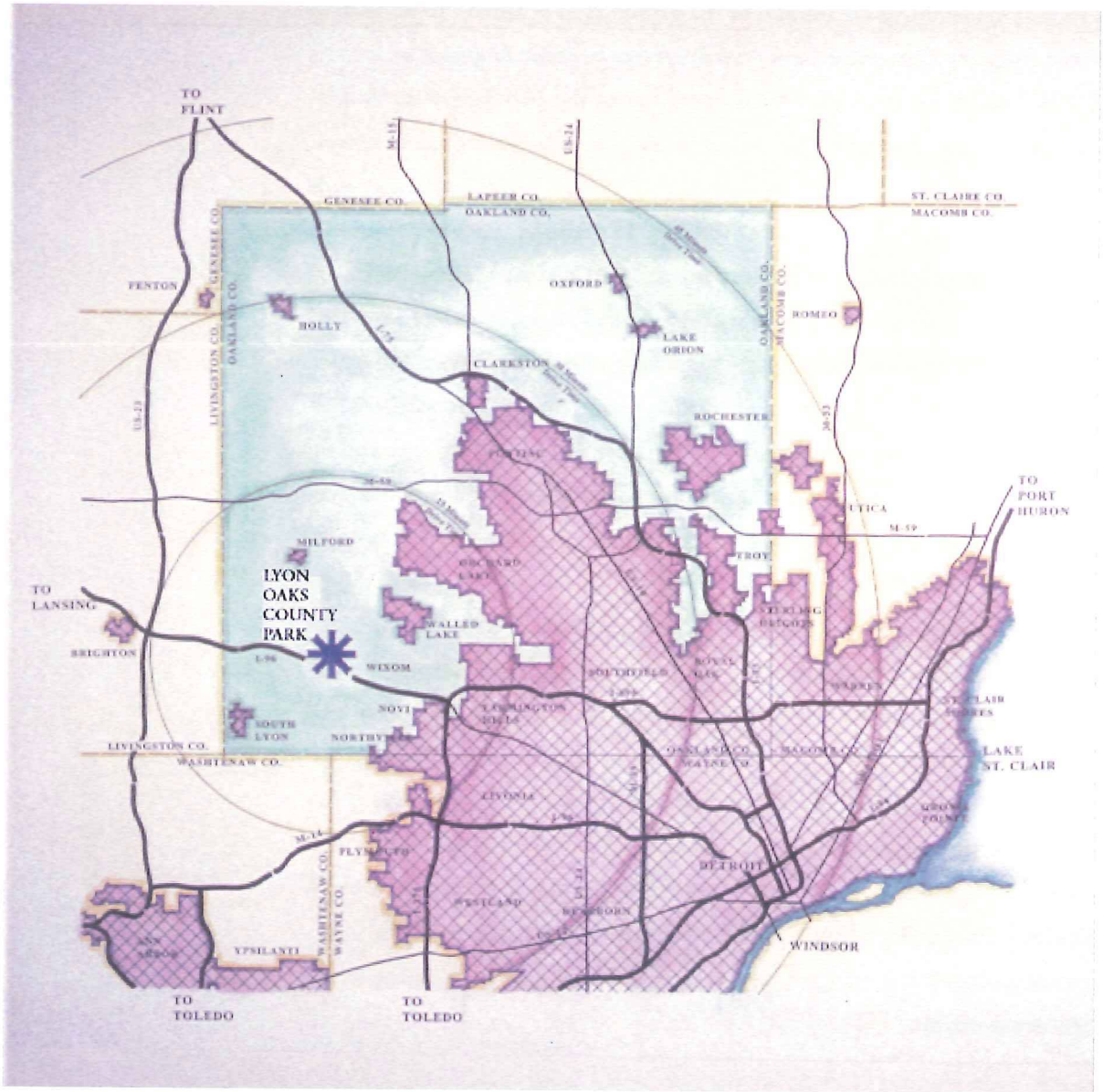
PLANNING PROCESS

Development of the Master Plan consists of three distinct phases: data collection, resource analysis, and design development.

The data collection phase consists of the gathering of information pertaining to the property from public and private sources in order to gain a better understanding of the existing physical condition of the park property. A substantial amount of information was obtained from Oakland County Development and Planning including land use/land cover, native landscape, soils inventory, and schematic wetlands mapping. In addition, prior to retaining a consultant for preparation of the Master Plan, the Oakland County Parks and Recreation staff developed an Historical Research Project, as well as a Natural Resources Inventory of the property consisting of information on vegetative communities, wildlife populations and their management. Additional information collected from other public and private sources includes surrounding land uses, utilities data, topographic mapping, vegetative inventory, and wetlands mapping.

After collection, the data is organized for interpretation and evaluation in the second phase of the plan development: resource analysis. During the resource analysis phase, qualitative determinations were made about the natural and physical resources of the property in order to define areas appropriate for recreation development and areas appropriate for preservation. When synthesized, the qualitative analysis of soils, vegetation, topography, wildlife populations, and wetlands began to direct the design alternatives for the park property. Also during this phase, a public workshop was held to present the information gathered and analyzed and to receive community input prior to design development.

The final step in the planning process is design development. The design development phase consisted of preparing a plan for recreation development which accomplished the goals of the Parks and Recreation Commission while balancing both development and preservation of the property's tremendous natural resources. Further, strategies for implementing, phasing and funding the design plan were developed as a part of this final step.



Regional Context

HISTORICAL CULTURAL PERSPECTIVE

Situated in the southwest portion of Oakland County, Lyon Oaks County Park comprises nearly 1,000 acres of land located in Section 1 and in the north one-half of Section 12, T.1N., R.7E. of Lyon Township, and in the west one-half of Section 6, T.1N., R.8E of the City of Wixom. Interstate 96 (I-96) delineates the south border of the park while Pontiac Trail and Old Plank Road define the north and west boundaries. The park is located about one-half mile southwest of the downtown business district of the City of Wixom. Given its proximity to I-96, Lyon Oaks benefits from excellent visibility, as well as accessibility, not only from the neighboring metropolitan Detroit area, but also from nearby Brighton and even Ann Arbor.

ROLE IN OVERALL PARKS SYSTEM

The Oakland County Parks and Recreation Commission operates eleven (11) parks, which range in size from 125 acres to 1,088 acres. As referenced previously, the *1997 Oakland County Parks and Recreation Master Plan* identified environmental education, hiking, picnicking, cross country skiing, and golf as the major potential activities for Lyon Oaks. These activities are not necessarily considered deficiencies in the overall parks system, as each is offered in at least two other Oakland County Parks, as well as neighboring municipal, metro and state parks. Instead, the 1996 Oakland County Parks Research Study identified these activities as five of the most used or most likely to be used facilities, services or activities. Further, these activities can be implemented while still maintaining the natural resources and diversity of the site, allowing it to remain one of the most pristine of the eleven county parks.

PARK CONTEXT

Lyon Oaks County Park is bordered to the west by large-lot rural residential land and to the north and east by light industrial uses, predominantly in the form of relatively new industrial parks developed to modern standards. Providing a very strong barrier to the south, I-96 allows a great deal of regional exposure for the park.

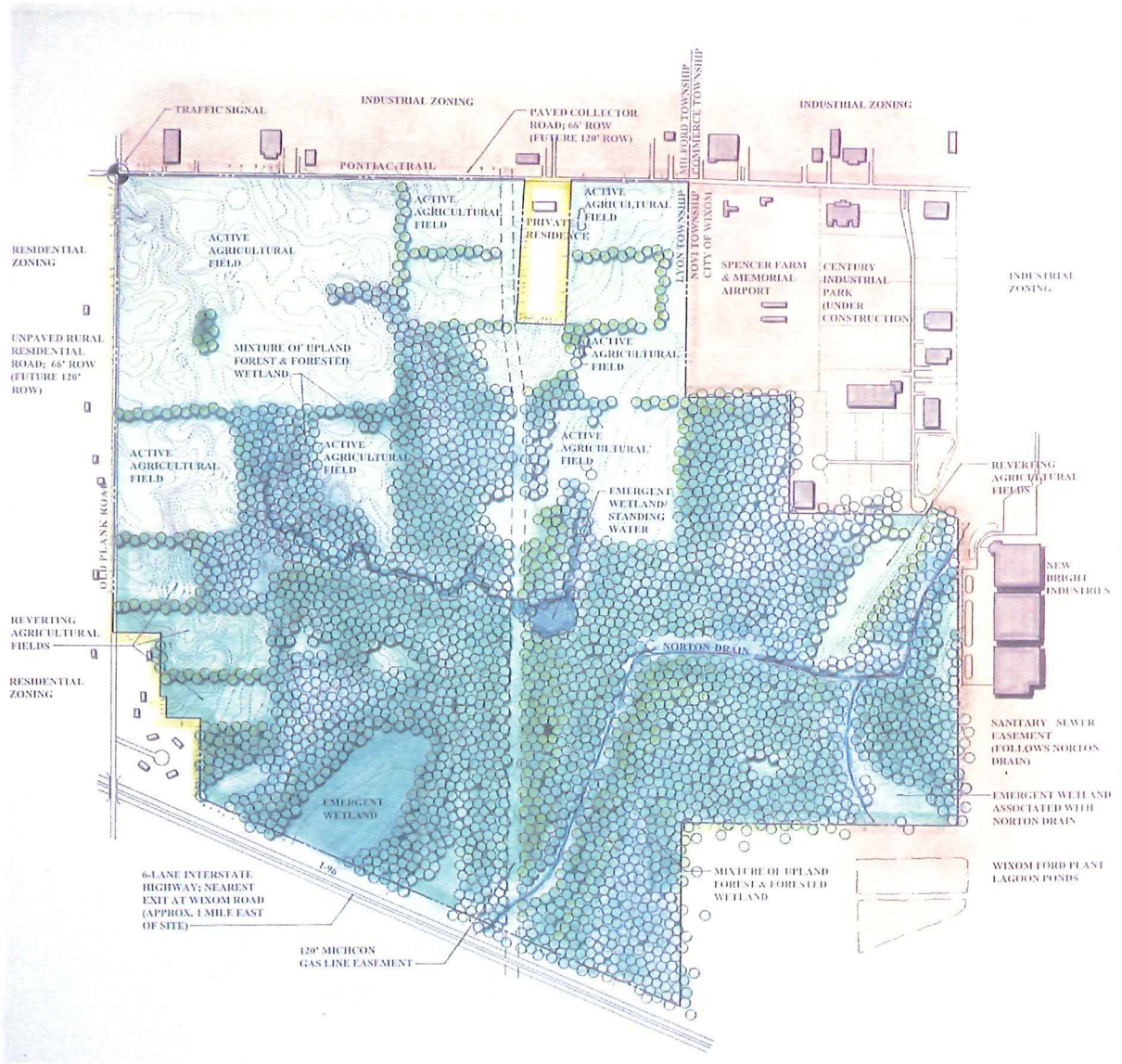
Located just northwest of the metropolitan Detroit population core, Lyon Township and the City of Wixom are approaching a period of tremendous population growth. The Southeast Michigan Council of Governments (SEMCOG) prepared population projections for the period from 1995 to 2020 showing populations in Lyon Township and the City of Wixom increasing by 86.9% and 74.4%, respectively. Compared to the projections for overall Oakland County of an 18.2% increase, Lyon Township and the City of Wixom are nearing a tremendous development trend, making the Lyon Oaks property increasingly valuable and essential as open space and recreation land.

Because of the very strong barriers existing to the north, south and west by Pontiac Trail, I-96 and Old Plank Road, potential for expansion is limited to an easterly direction. However, approximately half of the east property line is adjacent to existing industrial development, leaving only isolated areas of potential expansion. Specific locations for expansion include the outlot along the north property line, east along Pontiac Trail, and east along I-96. Acquiring the outlot along the north property line would provide for consistent ownership for over a mile along Pontiac Trail. Expanding east along Pontiac Trail would allow for acquisition of the historic Spencer Farm, yielding opportunities for cultural interpretation. Expanding east along I-96 would gain additional wooded area, most likely to supplement open space and nature interpretation.

PARK HISTORY

Early records of what is now the Lyon Oaks County Park property show that most or all of the first settlers on the property engaged in farming or other farm-related / agricultural activities. Prior to the Oakland County Parks and Recreation Commission's purchase of the land, the owners of the property held the land for over 100 years. The northern portion of the property was originally used as both pasture land and crop land. V. M. Spencer, one of the land owners, bought and sold beef and dairy cattle and sheep on the national and international level, through the midwestern show circuit. Cattle were transported to and from the shows and to other cattle breeders and farmers by plane. Thus, Spencer built an airstrip, the V. M. Spencer Memorial Airport, in 1949 for the transport of cattle. The airstrip and the historic Spencer farm buildings still exist just east of the Lyon Oaks property along Pontiac Trail.

The southern portion of the park property consists of mostly wooded wetlands and wooded uplands. The trees have been lumbered several times over the past century, leaving mostly new growth forested areas of varied quality. Records indicate that a Great Blue Heron rookery existed on the site since at least the 1930's. In 1984, the Oakland County Audubon Society, the Detroit Audubon Society, the Michigan Audubon Society, the Multi-Lakes Conservation Association and the Michigan Natural Areas Council identified the rookery on what is now the Lyon Oaks property as one of the largest Great Blue Heron nesting grounds in the state of Michigan. However, as part of their natural movement patterns, it appears that the rookery left the park property in approximately 1994. The possibility remains, nonetheless, that the herons may return if the habitat remains intact. The potential return of the herons is yet another reason to balance recreational development with preservation of the natural environment.



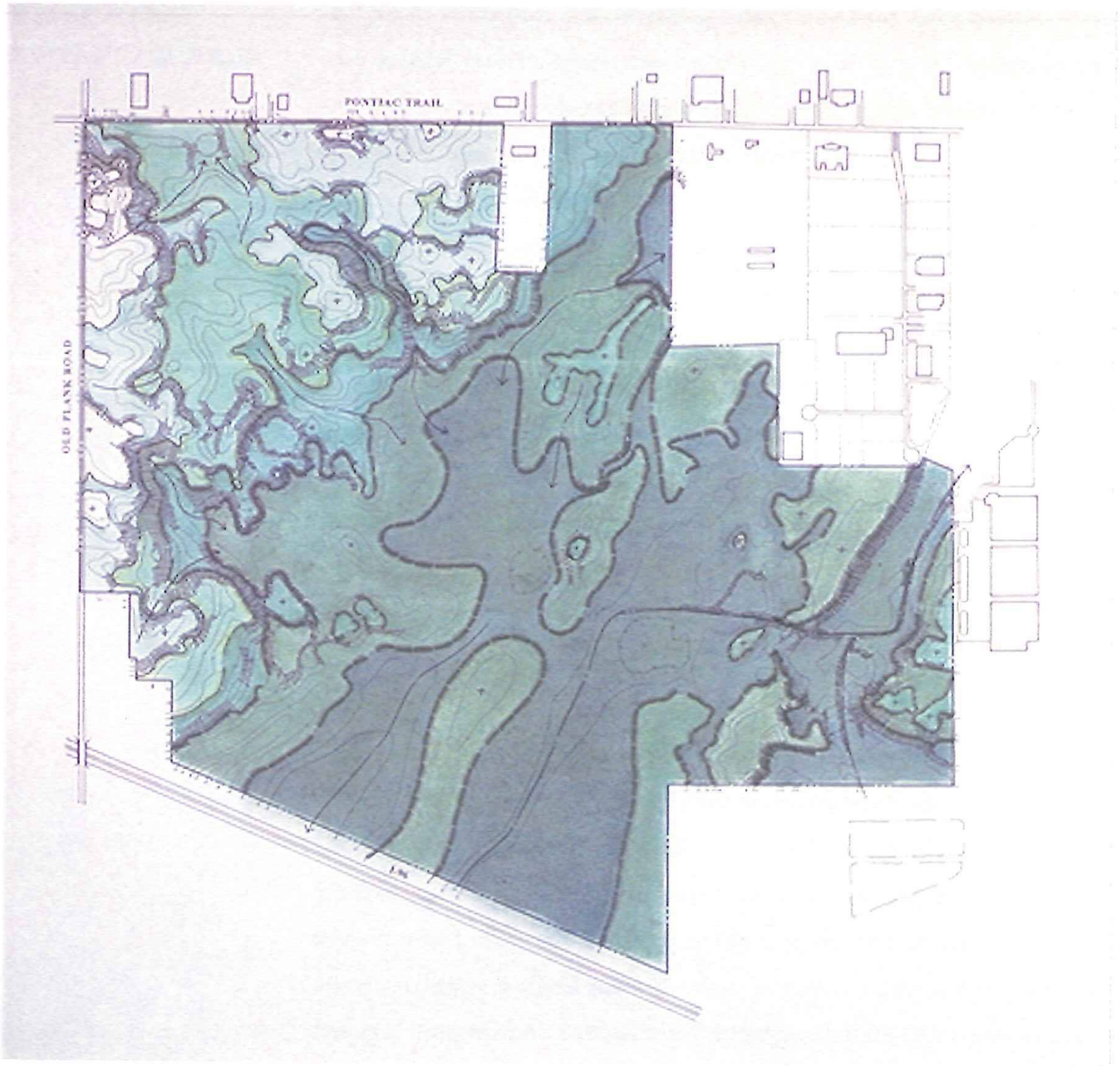
Existing Conditions

EXISTING CONDITIONS

Presently undeveloped, the Lyon Oaks County Park is comprised of a diversity of ecosystems, ranging from man-altered, active agricultural fields to pristine habitats supporting extensive wildlife and vegetative communities. The entire parcel is fenced, limiting public access to foot traffic only. Several vehicular gates exist along Pontiac Trail and Old Plank Road which are accessed by service personnel and farmers only. A small gravel parking lot and informational kiosk exists off of Pontiac Trail, which facilitates public access.

Due to the property's undeveloped state, the uses which presently occur on the site are limited to hiking and nature observation. Oakland County Parks presently allows restricted hunting of geese and bow hunting of deer on the property. Upon development of the site, hunting activities will require further restrictions due to conflicts with other uses on the property. Deer management will probably be necessary, though, in order to control deer overpopulation.

A significant drainage feature on the site is the Norton Drain, which is a man-made creek, under the jurisdiction of the Oakland County Drain Commissioner. Although the water level was low and the water flow was gradual at the time of the site visits, the channel is quite deep and eroded, indicating that the Norton Drain facilitates movement of a substantial amount of storm water runoff during wet periods. Adjacent to the Norton Drain is a sanitary sewer easement, in which a 30-36" sanitary sewer line is located underground. Owned by the City of Wixom, sanitary sewer facilities are available by either tapping the main line located on-site or by extending the existing lines associated with the adjacent industrial parks, assuming they are sized appropriately. Neither the City of Wixom nor Lyon Township offers a water distribution system, although Lyon Township is considering implementing both municipal water and sanitary sewer systems. Storm water runoff is currently managed by retention ponds required of developers in both communities. Private utilities, such as electric, gas, cable television, and telephone, are available in the area.



Topographic Analysis

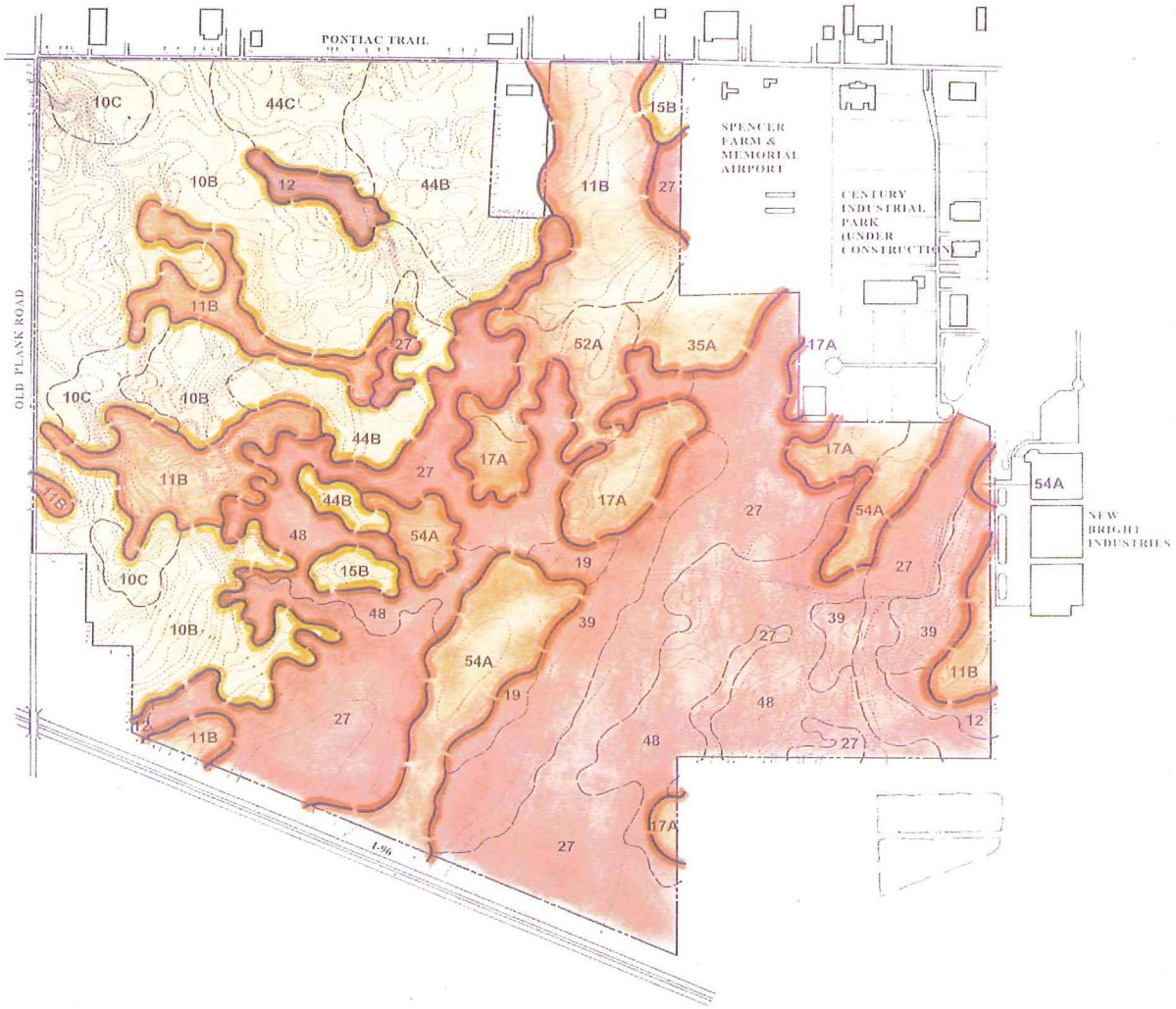
Legend

ELEVATION
28 - 34
34 - 40
40 - 50
50 - 60
60 - 70
70 - 80
80 - 84

The park property is bisected by a 120' MichCon gas line easement which runs north-south through the site. Within this easement are two large, high pressure gas transmission mains. Although the physical structure of the gas mains is underground, a somewhat significant swath of cleared vegetation exists in the utility corridor. In order to maintain access to the gas mains, development within the easement area should be limited and construction must conform to the requirements of MichCon. However, visual softening of the corridor can be achieved through tree plantings which supplement the existing vegetation and minimize the appearance of the rigid edges along the easement boundary.

TOPOGRAPHY

The topography of Lyon Oaks County Park is characterized by gently rolling and undulating terrain typical of glacial action. The highest elevation on the site is 984 feet at the northwest corner of the property near the corner of Pontiac Trail and Old Plank Road. The lowest elevation on the site is 928 feet located along the east property line where the Norton Drain leaves the site. The overall relief on the property is 56 feet. The surface varies dramatically with numerous swales and ridges radiating in many directions, ultimately draining into the extensive wetland network and the Norton Drain. Steep slopes, although present, are isolated and minimal in length. Adding to the sense of rolling character, the steep slopes will not discourage the nature of development intended for Lyon Oaks.



Soils Analysis

Legend

- Soils with minimal limitations to development
- Soils with moderate limitations to development
- Soils with severe limitations to development

Soils with Minimal Limitations to Development and Not Conducive to Wildlife / Wetland Habitat

Key	*Soil Type*	*Slope*
10B	Marlette Sandy Loam	0-6%
10C	Marlette Sandy Loam	6-12%
15B	Spinks Loamy Sand	0-6%
44B	Riddles Sandy Loam	0-6%
44C	Riddles Sandy Loam	6-12%

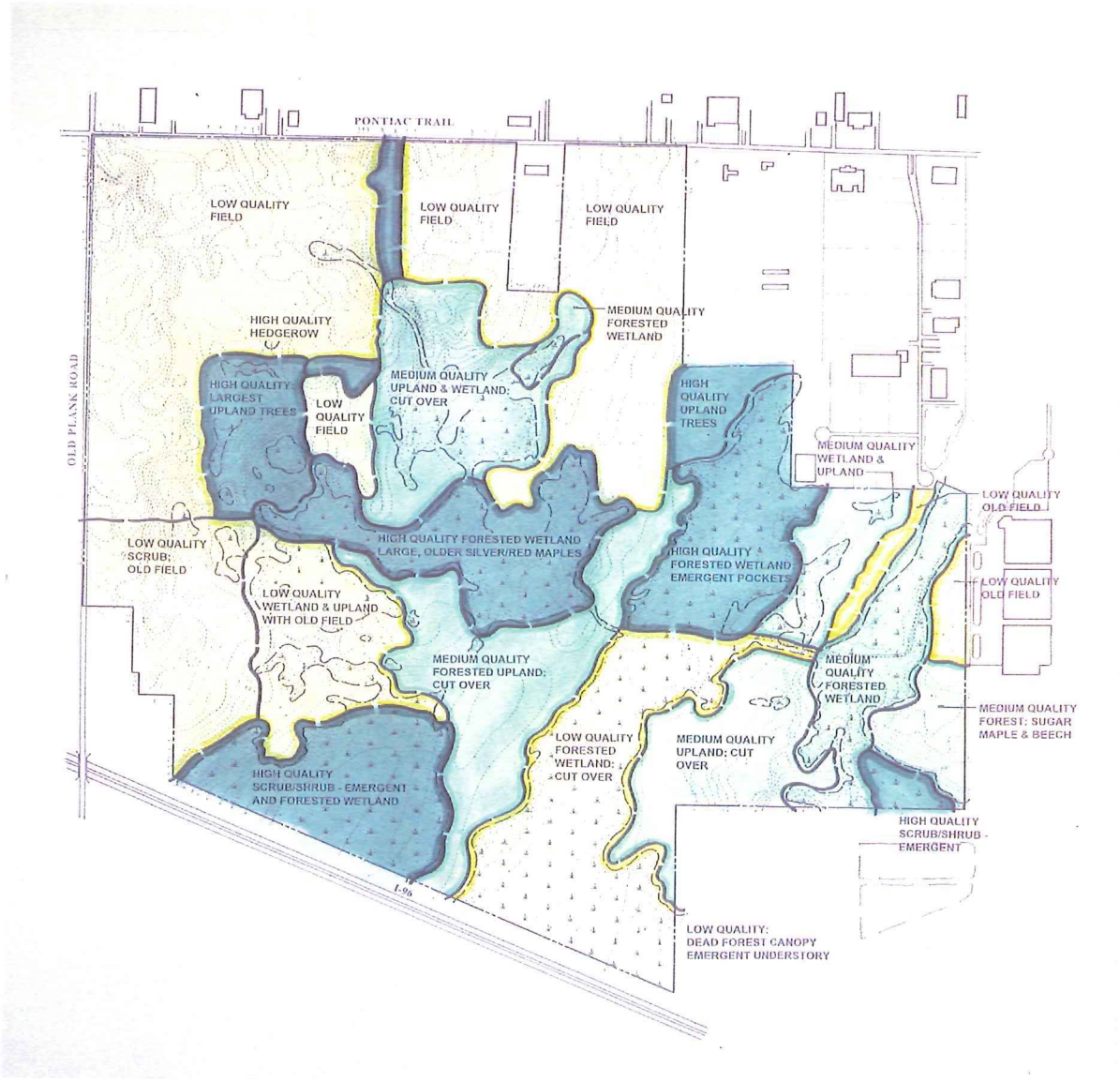
Soils with Moderate Limitations to Development and Wildlife / Wetland Habitat

11B	Capac Sandy Loam	0-4%
17A	Wasepi Sandy Loam	0-3%
35A	Thetford Loamy Fine Sand	0-3%
52A	Selfridge Loamy Sand	0-3%
54A	Matherton Sandy Loam	0-3%

Soils with Severe Limitations to Development and Conducive to Wildlife / Wetland Habitat

12	Brookston and Colwood Loams
19	Sebewa Loam
27	Houghton and Adrian Mucks
39	Granby Loamy Sand
48	Gilford Sandy Loam

The soils information for the Lyon Oaks County Park property was taken from the Soil Survey of Oakland County, Michigan, prepared by the United States Department of Agriculture Soil Conservation Service in cooperation with the Michigan Agricultural Experiment Station. The soil types have been analyzed to depict both development constraints and wildlife/wetland habitat constraints. The two categories have basically opposite requirements. In effect, soils with severe limitations for recreational development are actually very conducive to wildlife and wetland habitats. Soils having severe limitations for development are designated as such due to their loam and muck composition, high water table and very poor drainage capabilities. Conversely, soils having minimal limitations for development are designated as such due



Natural Features Analysis

Legend

- High Quality Vegetation
- Medium Quality Vegetation
- Low Quality Vegetation

to their sandy loam composition, stability and favorable drainage capabilities. Soils having moderate limitations for development are designated as such due to their moderate composition and drainage capabilities. These soils have the potential for development, but only with provisions to enhance their stability and drainage capabilities.

The soils on the Lyon Oaks site vary from those with minimal limitations for recreation development concentrated in the northwest area of the site to those with severe limitations for recreation development concentrated in the southeast area of the site, with moderately limiting soils lying between the two. The soils analysis begins to define the type of recreation activities that can be supported in certain areas of the property. Essentially, the soils in the southeast portion of the property are favorable for nature observation and interpretation because of their tendency to support wildlife communities and wetland habitats. Conversely, the soils in the northwest portion of the property are favorable for more intensive recreational development such as golf, water park activities and picnicking. Developing recreational activities which are appropriate to the specific soil type will not only reduce construction costs considerably, but will also result in a better adaptation of the activity on the site.

VEGETATION

The Lyon Oaks County Park property is comprised of several vegetation types of varied quality: wooded uplands, wooded wetlands, emergent wetlands, open field agricultural land, reverting agricultural land, and hedgerows adjacent to the agricultural land. Of course, quality of vegetation is subjective; for the purposes herein, high quality vegetation refers to that which should be preserved due to its high level of maturity and diversity, and its capability of supporting wildlife and plant habitats that would be of interest to users.

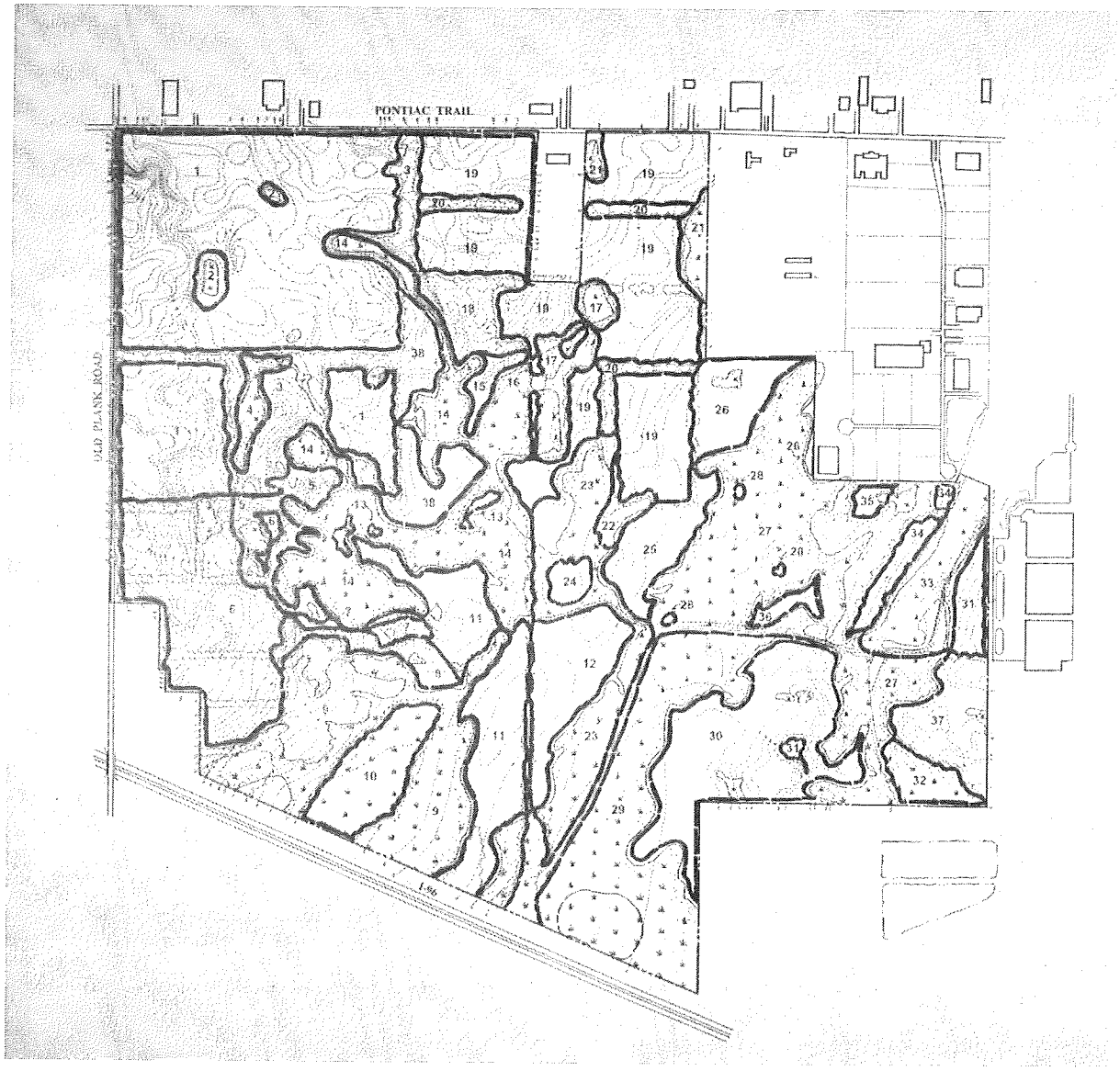
Specific to the Lyon Oaks property, low quality vegetation consists of old agricultural fields, forested wetlands which have been cut over, wetlands and upland dispersed with old agricultural fields, reverting agricultural fields, and dead forest canopy with emergent understory. Medium quality vegetation is

comprised of forested upland, forested wetland, upland and wetlands which have been cut over, and beech/maple forest. High quality vegetation consists of the largest upland trees, forested wetland, emergent wetland, forested wetland with emergent wetland pockets, and highly diverse hedgerows.

The high quality vegetation areas seem to be concentrated in the central area of the park property, with a few isolated areas located along the site's perimeter. The high quality vegetation tends to coincide with the extensive wetland network also concentrated in the central core of the site. This area is highly diverse and capable of supporting complex vegetative communities and wildlife populations. In terms of nature interpretation and ecosystem education, this high quality vegetation area of the site is ideal. Further, the area is somewhat removed from the man-altered perimeter of the site, yielding an appropriate context for nature observation.

The medium quality vegetation areas are somewhat evenly distributed throughout the eastern 2/3 of the site, intermixed with areas of high and low quality vegetation. Most vegetation areas identified as medium quality have been lumbered several times over the past century, leaving relatively young tree specimens and limited diversity. Many areas coincide with soils which are conducive to wildlife/wetland habitat development. Although designated as merely medium quality, they certainly have the potential to become high quality vegetation areas if the natural succession process is allowed to continue. Further, most of the medium quality areas are upland, allowing for access to the perimeter of the high quality areas, most of which are wetland, without disturbance to those sensitive ecosystems.

The low quality vegetation areas are mostly concentrated in the northern and western areas of the park property, where farming of the land is taking place or has taken place in the past. Isolated areas of low quality vegetation also exist in the core of the site, mainly as a result of fairly recent logging operations



DETAILED VEGETATION STUDY

leaving somewhat barren, albeit wet, land. These areas are characterized by very little mature vegetation and limited diversity due to their man-altered state. Although the areas designated as low quality vegetation are of limited use in terms of nature observation and interpretation, the upland areas are particularly appropriate for more intensive recreational activities such as golf and picnicking. By suitably developing the low quality vegetation areas, the high quality vegetation areas can remain intact, thereby sustaining the more fragile ecosystems.

Due to the complexity of the Lyon Oaks site, a more detailed vegetation study was necessary in order to designate specific areas of potential nature study, as well as specific areas in which development can take place without detracting from the overall character of the park. The following list coincides with the Detailed Vegetation Study.

1. Comprised of active agricultural fields with healthy soybean crops in 1997. Crops are rotated regularly.
2. Comprised of isolated wet regions within the active agricultural fields. Dominant species are scrub willow (*Salix*) and dead elm snags (*Ulmus*).
3. The most diverse upland area on the property, includes several sections of high quality hedgerow. Having the most older trees on the property, this area does not appear to have been logged as recently as some other areas. Of greatest interest is the presence of very old white oak (*Quercus alba*) and red oak (*Quercus rubra*) with dbh (diameter at breast height) of over 3'. Other species include black cherry (*Prunus serotina*), shagbark hickory (*Carya ovata*), red maple (*Acer rubrum*), black walnut (*Juglans nigra*), bitternut hickory (*Carya cordiformis*), basswood (*Tilia americana*), and witch hazel (*Hamamelis virginiana*).
4. A scrub-shrub wetland with a significant amount of standing water. This area is of high quality due to its species diversity, offering food for wildlife. Dominant species include swamp white oak (*Quercus bicolor*), green ash (*Fraxinus pennsylvanica*), buttonbush (*Cephalanthus occidentalis*), and silver maple (*Acer saccharinum*).

5. A low quality vegetation area comprised of both wetland and upland. Species diversity is low and the young age of most trees appears to be the result of past logging operations. The dominant species is American elm (*Ulmus americana*) with saplings of green ash.
6. A reverting agricultural field. Dominant species include White ash (*Fraxinus americana*) and box elder (*Acer negundo*) saplings within meadow areas.
7. A reverting agricultural field. Goldenrod (*Salidago sp.*) and black cherry saplings are the dominant species.
8. An upland area of low diversity which appears to have been lumbered recently. Red maple and prickly ash (*Robinia psuedoacacia*) are the dominant species.
9. A forested wetland system with an over story of silver maple, red maple, green ash, and American elm. The understory is mostly green ash and swamp white oak. Groundcover species include sensitive fern (*Onoclea sensibilis*) and stinging nettle (*Urtica dioica*). Area number 9 also includes a central upland area which exhibits shagbark hickory and basswood. Overall diversity is high, designating this area as ideal for interpretive uses, especially due to its adjacency to an emergent wetland (see area number 10), thus having two community types within close proximity.

10. A large emergent wetland dominated by cattail (*Typha*) and Joe-pye-weed (*Eupatorium maculatum*). Inclusions of scrub-shrub wetland dominated by willow and dogwood (*Cornus*) are also present.
11. An upland area with an overstory dominated by red oak and black cherry. The understory is mostly sugar maple (*Acer saccharum*) and basswood. There are a few trembling aspen (*Populus tremuloides*) and sassafras (*Sassafras albidum*). An open field area dominated by upland grasses also exists at the southern end of this area near the interstate.
12. An upland area which includes hop-horn beam (*Ostrya virginiana*), American hornbeam (*Carpinus caroliniana*), some very large bur oaks (*Quercus macrocarpa*), sugar maple, basswood, young shagbark hickory, and hack berry (*Celtis occidentalis*).
13. Comprised of small sections of emergent wetland found within a larger forested wetland system. Dominant vegetation includes cattail, Joe-pye-weed and water hemlock (*Cicuta sp.*).
14. An extensive forested bottomland wetland. Dominant species include silver maple, red maple, American elm, and swamp white oak, some of which are very mature. Other species include green ash and bur oak. The terrain in this area is very hilly and evidence of hydrology exists in the form of water marks on trees and standing water pockets.
15. An upland area consisting of healthy, mature red and white oak and basswood.
16. Comprised of emergent wetlands which lie within the utility corridor. The dominant species within the wetland areas are sedges and cattails. The balance of the utility corridor is upland with the dominant vegetation being blackberry (Rubus sp.), aspen saplings, and Queen Anne's lace (*Daucus carota*). However, where the Norton Drain crosses the corridor and south toward the interstate, the vegetation changes to an emergent wetland and scrub-shrub community dominated by cattail and silky, gray, and redosier dogwood.
17. Comprised of two wetland areas having deep standing water. Green ash and American elm are dominant canopy species. Water marks on these trees were as high as 18 inches.
18. A low quality upland area dominated by young trees growing from stumps of past lumbering. Red maple, sugar maple and basswood are the dominant species, with a few older white oaks interspersed throughout the area.

19. Comprised of active agricultural fields with healthy hay crops in 1997.
20. Comprised of lower quality upland hedgerows. American elm, winged sumac, and black cherry are the dominant species.
21. An emergent wetland which is part of a larger system extending beyond the property line. Area is dominated by cattails and sedge species.
22. A low quality forested wetland with only young American elm and red maple species.
23. A forested wetland system which includes an intermittent stream and the plain area adjacent to the Norton Drain. Tree species include swamp white oak, pin oak (*Quercus palustris*), and green ash. Most of the elm in the area are dead or dying. Some

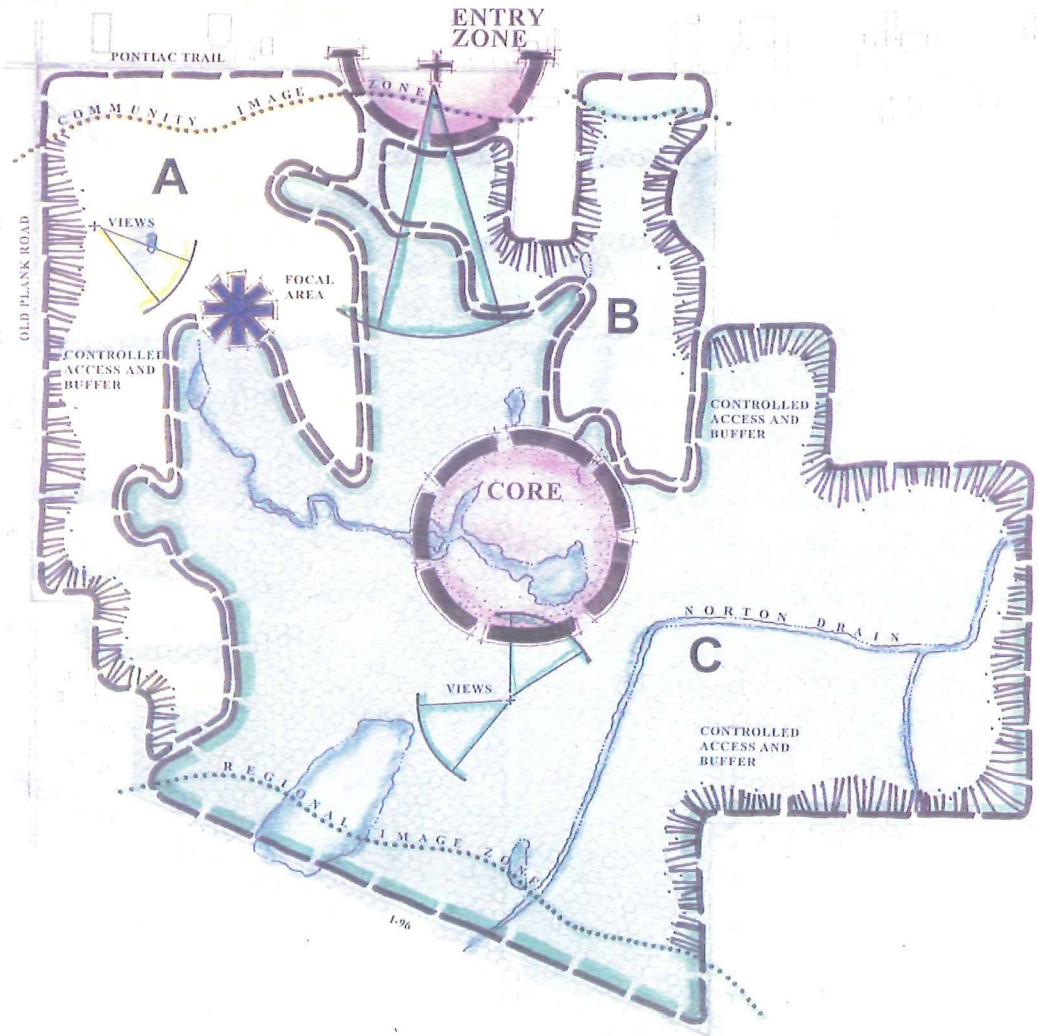
clearweed (*Pilea pumila*) and jewelweed are found along the drain banks.

24. An emergent wetland dominated by cattail and willow trees. There is standing, stagnant water in this area. Many ducks were seen in this area.
25. A medium quality upland area. Tree species include white oak, basswood, shagbark hickory, and black cherry. The canopy in this area is very dense, yielding limited understory or groundcover vegetation.
26. A high quality upland area with a substantial diversity of mature, healthy trees. Some species include red and white oak, basswood, shagbark hickory, white ash, prickly ash, and trembling aspen. Red tailed hawks were sighted in this area.
27. A forested wetland, dominated by mature silver maple. Other trees include green ash, American elm and eastern cottonwood (*Populus deltoides*).
28. Comprised of small emergent wetland sections dominated by boneset (*Eupatorium perfoliatum*) and reed canary (*Phalaris arundinaceae*).
29. A forested wetland with many dead and dying trees. American elm, green ash and silver maple are the dominant species. A portion of this area near the interstate exhibits a fairly open canopy with a ground layer dominated by reed canary grass. Significant standing water is present in some areas.
30. An upland area dominated by basswood, sugar maple, and American beech (*Fagus grandifolia*). This area includes some small depressional areas dominated by swamp white oak and ostrich fern (*Matteuccia struthiopteris*).
31. Comprised of reverting agricultural fields. Aspen, box elder, hawthorn (Crataegus sp.) saplings (1-6 years old), and Queen Anne's lace are the dominant plant species in this area.
32. An emergent wetland associated with the Norton Drain. Dominated by cattail, this area exhibits inclusions of scrub-shrub areas dominated by gray, silky and redosier dogwood.
33. An emergent and scrub-shrub wetland exhibiting gray, silky and red-osier dogwood as the dominant species.
34. A one to two-year fallow farm field dominated by Queen Anne's lace and bull thistle (*Cirsium vulgare*).
35. An older fallow farm field which is reverting to forest. Species present include box elder, hawthorn and autumn olive.

36. An upland island dominated by basswood, shagbark hickory, and black cherry. Groundcover is generally lacking.
37. An upland area of sugar maple, American beech, basswood, and red maple of all sizes.
38. A low quality forested upland which has been lumbered in the past. Young hawthorn, black cherry, white oak and shagbark hickory are common in this area, with a few larger specimens of these species also present.

WETLANDS

Intermingled with its rich upland habitat, the Lyon Oaks site is characterized by an extensive network of wetland habitat and hydrology. Approximately forty percent of the property has been identified as wetland, with the vast majority located in the central core of the site and radiating in all directions. This wetland habitat is comprised of forested wetland, emergent marshes and an occasional open water pond, as well as riparian wetlands which are associated with the Norton Drain. Much of the wetland habitat is characterized by a fluctuating water table evidenced by water marks as high as 18 inches on tree trunks in some areas. The open water pond areas vary in size and depth throughout the year based on rainfall characteristics of the given season. Although their occurrence is occasional on the site, the open water pond areas feature a rich diversity of plant and wildlife habitat, making them ideal locations for observation and interpretation. Preservation and enhancement of these aquatic ecosystems will sustain the existing wildlife habitats currently found on the site, as well as attract wildlife species not found on the site.



Site Analysis

SITE ANALYSIS

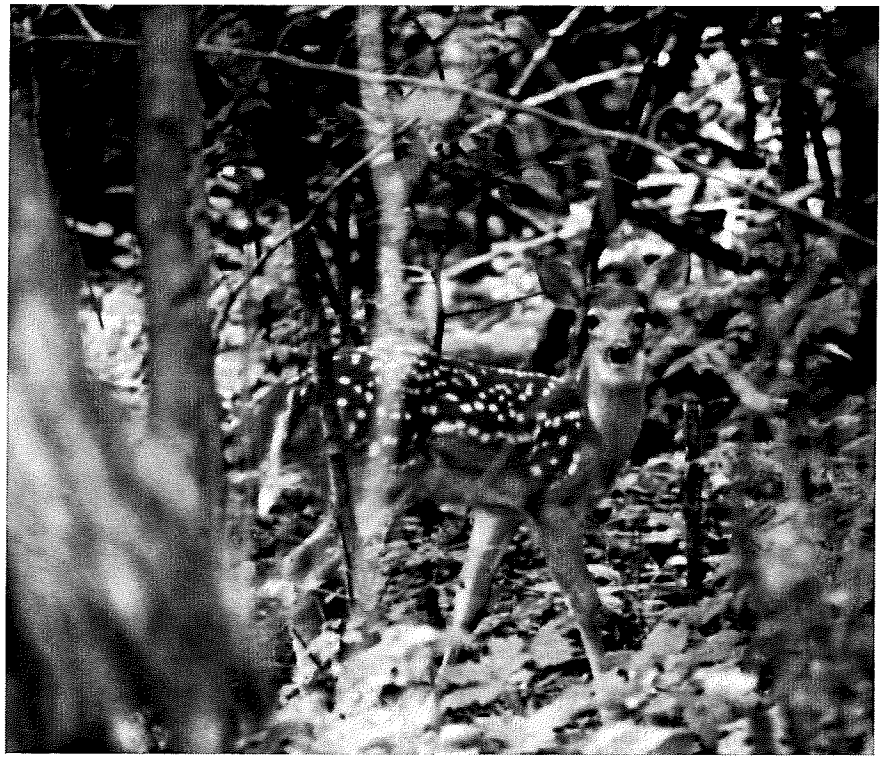
The site analysis is the culmination and synthesis of all data collection, research and examination. The summary which results is a planning tool which directs the Master Plan design and ensures the best possible adaptation of uses on the site.

The Lyon Oaks site benefits from exceptional regional and community exposure due to its proximity to Interstate 96 and Pontiac Trail. Due to this, the property lines adjacent to these thoroughfares have been identified as Regional and Community Image Zones. These zones offer the opportunity to portray a positive image to passersby, thereby drawing users to the park from both the community and regional population. The perimeter of the site adjacent to the residential and light industrial land uses has been identified as a buffer zone for and from those dissimilar land uses. The entry zone has been located on Pontiac Trail, centralized on the park property. As a collector road, Pontiac Trail is more appropriate for an entrance to a major park than Old Plank Road, which is presently an unpaved, primarily residential road. Further, the entry zone identified yields exceptional views into the property.

Study of the physical and natural features of the property results in the identification of regions of similar character. These regions have been identified as Zone A, B and C.

ZONE A

Zone A is the Open Field Zone, which is primarily the portion of the site currently or recently farmed. Zone A is characterized by moderately rolling to flat terrain and is sharply defined by hedgerows and surrounding wooded areas. Located in the northwest quadrant of the site, at the corner of Pontiac Trail and Old Plank Road, Zone A benefits from very strong community exposure. As an upland area of the property, the soils, drainage and topography in Zone A are very suitable for recreational development. Further, Zone A is adjacent to one of the highest quality vegetative areas of the site, allowing for focal areas of the wetland and woodland areas.

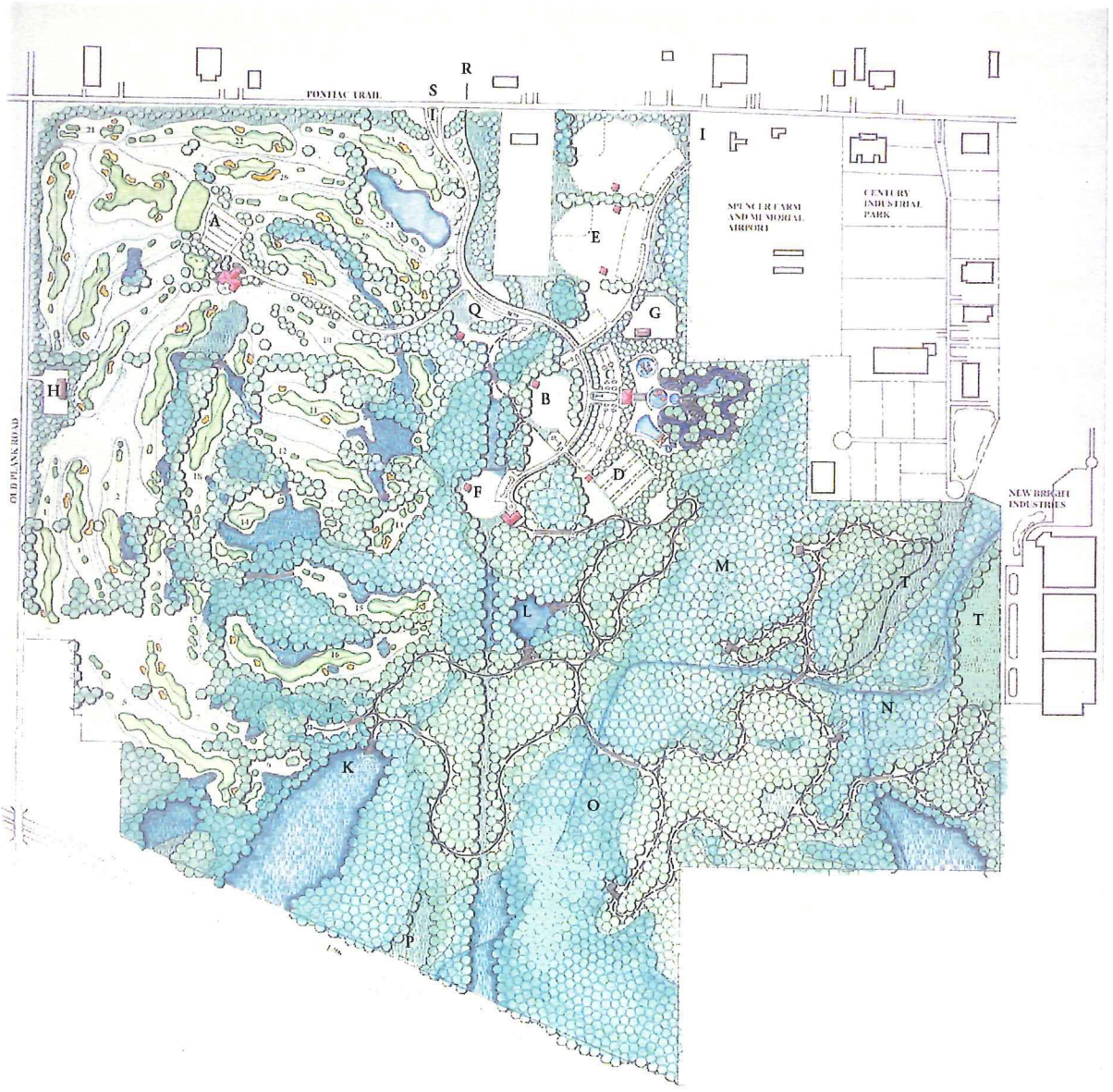


ZONE B

Zone B is the Compartmentalized Field Zone. Similar to Zone A, Zone B is a portion of the site currently or recently farmed. However, Zone B is comprised of much smaller agricultural "rooms." Zone B is characterized by moderately rolling to flat terrain and is sharply defined by hedgerows and surrounding wooded areas. Zone B is predominantly remote from Pontiac Trail. This remoteness and compartmentalized character yield a more intimate sense of scale to Zone B. The soils and drainage in Zone B are designated as moderate for development with minimal limitation from slope. Zone B's adjacency to the Core Area provides access to the highly diverse wetland and woodland habitats of the site.

ZONE C

Zone C is the Woodland Zone, which is the most fragile zone on the site. Comprised of emergent wetlands, wooded wetlands, wooded uplands and occasional pockets of open water, Zone C is clearly the most diverse area of the site, making it ideal for woodland, wetland and wildlife observation. The poorly drained soils in this zone yield developmental constraints for most recreation development, other than interpretive uses. Although Zone C is disrupted by a 120' wide gas line easement, creative planting design can be implemented to conceal the corridor effect. Zone C benefits from good exposure to Zones A and B, providing those areas access to the edges of the zone. Perhaps most importantly, Zone C contains the Core area. Due to its centralized location and bowl-like configuration, the Core area will attract users to experience its diversity and naturalness. Within Zone C is the previous habitat for the great blue heron nesting ground. Preservation of this zone may facilitate their future return.


PONTIAC TRAIL
OLD PLANK ROAD
SPENCER FARM AND MEMORIAL AIRPORT
CENTURY INDUSTRIAL PARK
NEW BRIGHT INDUSTRIES
A
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Master Plan

MASTER PLAN

The Master Plan is the culmination of the previous data collection, resource analysis, plan determinants, and program elements into a comprehensive design plan which illustrates the long-range development strategy of the park. The analysis of the park property confirmed that the projected recreational uses outlined in the *1997 Oakland County Comprehensive Recreation Plan* were indeed feasible on the site. Those uses identified are environmental education, hiking, picnicking, cross country skiing, and golf. Further discussion with the parks staff yielded additional potential activities to consider such as horse back riding trails, archery range, man-made lake, and water park. Upon further examination of the site and feasibility studies of the combined uses, the determination was made that the Lyon Oaks site would support the addition of a water park and an archery range to the program elements identified in the Comprehensive Recreation Plan. The water park is a recreational use that is in very high demand at other Oakland County Parks. Further, the site's adjacency to industrial park development makes it an ideal setting for a water park, as surrounding uses are not terribly incongruous with such a recreational use. The archery range is a program element that is not presently provided at other Oakland County Parks. However, it was determined to be an appropriate use on the site considering that wildlife management will probably still be allowed on the site to control the wildlife populations. Following is a description of the activities programmed in the Master Plan.

GOLF COURSE (A)

A twenty-seven hole golf course is proposed on the western portion of the site. The course occupies the land immediately adjacent to Old Plank Road and Pontiac Trail, providing good community exposure. Taking advantage of the man-altered open agricultural fields as well as the reverting agricultural fields, the twenty-seven holes have been routed along the perimeter of the wetlands providing for a diverse experience for the golfer, ranging from open to wooded holes, with varying degrees of carry over the wetlands. Three and sometimes four sets of tees are arranged per hole to provide for different levels of play, ranging from novice to expert.

Scorecard Information

Hole	Par	Yardage	Hole	Par	Yardage	Hole	Par	Yardage
1	4	390	10	4	435	19	4	400
2	4	340	11	4	400	20	5	505
3	4	350	12	4	390	21	3	150
4	4	415	13	3	160	22	4	415
5	5	515	14	4	350	23	4	405
6	3	170	15	4	340	24	3	190
7	4	380	16	5	540	25	4	320
8	3	200	17	3	180	26	5	550
9	5	525	18	5	510	27	4	395
Total	36	3285		36	3305		36	3330

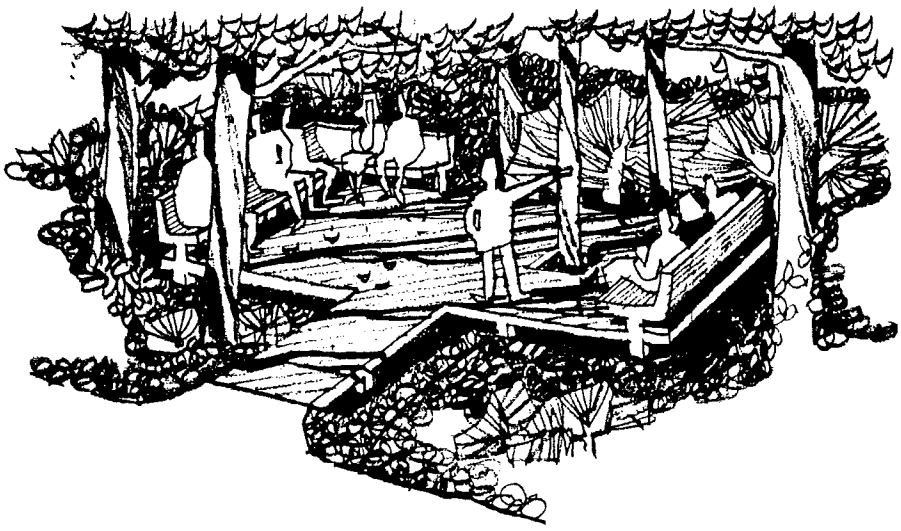
The access drive to the clubhouse branches off the main entrance drive to the park prior to reaching the park contact station. This allows the golfer to avoid being delayed in the queue line for the other day use activities requiring a pass or entrance fee. Green fees will be handled directly at the pro shop. The drive follows the edge of the 23rd hole and irrigation pond providing exceptional exposure to the course.

A practice range and practice green are provided for warm up and for those with time restrictions prohibiting a full round of golf. Other site amenities include parking, cart storage, pro shop and clubhouse. It is not envisioned at this time that banquet facilities will be provided; however, smaller groups may be accommodated for outings. A phased development is anticipated with eighteen holes initially being constructed with the back nine to follow at a later date.

The cart path system for the golf course can accommodate cross country skiing in the winter months when adequate snowfall amounts occur. A significant portion of the course is in the open areas of the site, which are characterized by gently rolling terrain. This terrain will yield more challenging cross country skiing than the flatter areas of the site. While the majority of the course is located in the open areas, some portions of the golf course, and hence its cart path system, meander around and even penetrate the western wooded edge of the property. These portions of the trail would be of high interest to cross country skiers who want to experience a more secluded, wooded setting.

NATURE TRAILHEAD (F)

A Nature Trailhead Facility is shown at the terminus of the main road. The facility is located within one of the smallest active agricultural fields surrounded by woods, providing an intimate setting for the facility. The facility serves as the trailhead for all of the proposed nature trails and interpretive study. Trail types recommended include asphalt surfacing for the trails on




NATURE
TRAIL
a
b
c
d
e

the west side of the main north-south wetland paralleling the Norton Drain; crushed aggregate limestone, for the trails on the east side of the wetland; and boardwalks where crossing the narrowest parts of the wetland. Trail widths of up to ten feet are suggested. Identification and directional signage should be installed once the trails have been named and routed. Cross country skiing could take place on these trails during the winter months when adequate snowfall amounts occur. The routings indicated in this document are schematic in nature and should be staked in the field by appropriate professionals, prior to construction.

The scale of the proposed nature building should be phased in over time, reflecting the nature of the activities programmed for the site. Initially, a protected gathering area with restroom facilities should be constructed with the intent to expand as the role of this facility becomes better defined within the Oakland County Parks System. The initial architectural design should be carefully considered to allow for this growth and adaptation.

EMERGENT WETLAND OVERLOOKS (K/L)

An enlarged boardwalk area has been indicated both at the emergent wetland adjacent to I-96 near the south end of the site (K) and the emergent wetland adjacent to the Trailhead (L). Access to these overlooks is from the upland paved trails, making them potentially barrier free. These areas provide opportunities for group or individual study of the ecosystem. Interpretive signage should be provided for the study of wetland plant communities including cattail, Joe-pye-weed, willow, and dogwood; as well as wildlife habitats known to frequent the area such as white tail deer and ducks.

FORESTED WETLAND OVERLOOKS (M/N)

Overlooks have been provided within the canopy of the forested upland areas, with views into the forested wetlands. Similar in nature to the emergent wetland overlooks, an enlarged area for group and/or individual appreciation, should be provided. Interpretive signage should be provided identifying typical tree species such as green ash, American elm, and eastern cottonwood.

The interpretive signage should also explain the complex forested wetland ecosystem.

OPEN WATER FORESTED WETLAND OVERLOOK (O)

The opportunity to study the riparian wetland associated with the Norton Drain and additional forested wetland is provided at this location. Again an appropriately designed platform should be provided to enable group/ individual study.

WATER PARK (C)

The edge of the site along the industrial development, yet still accessible by car, is programmed for the possibility of a water park. Approximately 22 acres are set aside for activities including a children's water play area, group raft ride, water slide, wave pool and lazy river. These activities are in extremely high demand in the county and other immediately adjacent areas of surrounding counties. Nestled into the wooded edge and abutting the industrial properties, the use blends nicely and is well distanced from single family residential areas. Other site features include parking, a bathhouse /concession building and a sun bathing deck.

ARCHERY RANGE (D)

A thirty-station archery range is located between the Water Park and the Nature Trailhead. Geared towards the competitive archer, the facility offers target shooting up to 100 yards, with a 100-foot buffer beyond the range. Amenities at the archery range site include parking, a starter pavilion and gathering area for fellow archers.

DAY USE PICNIC AREA (B)

Picnicking is provided in an area of existing hedgerows, irregular wooded areas, and small agricultural fields. The diversity provides for informal recreation spaces, both open and wooded picnic sites, as well as separation for intimate gatherings. Several small parking areas are provided to get people closer to the picnic grounds. Picnic pavilions are scattered along the wooded edge providing sites for shelter from the rain and sun. Informal recreation spaces are available within the area allowing for pick-up games and other activities.

CORPORATE PICNIC AREA (E)

Approximately thirty acres of land have been set aside for a Corporate Picnic Area. The area is divided into parcels by existing hedgerows providing the ability to have several smaller corporate picnics simultaneously or one large corporate picnic accommodating up to 3,000 people. Three pavilions are shown providing for a variety of events. The access drive to the Corporate Picnic Area is a spur off the main entrance drive to the park, also serving as access to the maintenance area for the day-use portion of the park, as well as future access to the adjacent property, should it be purchased. Parking is envisioned on the grass, to accommodate various size groups, with access points identified by signage. Informal recreation, such as pick-up softball, can be accommodated on the relatively flat terrain.

MAINTENANCE AREA (G/H)

A maintenance area of approximately four acres (H) has been shown along Old Plank Road, on the western edge of the Golf Course. This facility is envisioned to provide for all of the maintenance of the Golf Course, as well as the initial maintenance area for the Day Use portion of the Park. A second

maintenance area, also approximately four acres, has been reserved adjacent to the proposed water park for development as the park grows and maintenance needs increase. An alternative site for the second maintenance facility could be the 13-acre outlot along the north property line, should the parks system acquire it.

CENTENNIAL SPENCER FARM AND MEMORIAL AIRPORT (I)

Immediately adjacent to the Corporate Picnic Area lies a sixty-acre centennial farm known as the Spencer Farm. Although a large portion of the original 285 acres has been sold (some of which to the Oakland County Parks and Recreation Commission), the original farm buildings and the V. M. Spencer Memorial Airport remain just east of the park property along Pontiac Trail. Spanning three generations of Spencers, the centennial farm and Airport provides a rich cultural heritage to the area, which is presently undergoing tremendous modern development.

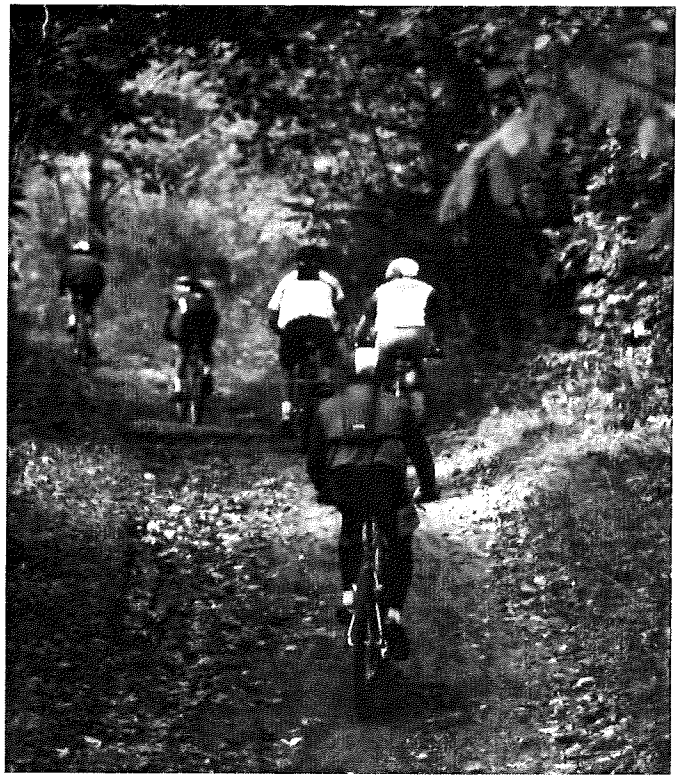
As a long-range program element, the parks system should consider the acquisition of the Spencer Centennial Farm as an interpretive and/or working farm program. The adjacency of the property, as well as its historic implications to the Lyon Oaks property, provides an ideal opportunity for the parks system to preserve an agricultural use, which is an abruptly diminishing resource in Oakland County.

COMFORT STATION (J)

A Comfort Station has been strategically located to double for the Nature Program and the Golf Course. Adjacent to the Emergent Wetland Overlook (K) and between the sixth green and seventh tee, a rest stop is provided for both programs.

REGIONAL PARK SIGN (P)

I-96 carries a substantial amount of vehicular traffic, exposing the Lyon Oaks southern boundary to both local and regional travelers. The location and scale of the existing sign could be amended to further catch the eye of passers-by, providing tremendous visibility of the park.



MAIN ENTRY SIGN (P)

A boulevard entrance allows for placement of a main entrance sign in a well landscaped entry zone. Views from the entry drive of the twenty-third green surrounded by the irrigation pond will provide good exposure of the golf program to the general users of the park.

CONTACT STATION (Q)

The contact station has been located just beyond the entrance to the Golf Course, along the main park drive. A station similar to other Oakland County Park contact stations should be established here for collection of user fees, as well as providing for personal contact with the park administration. A boulevard section of road is indicated to provide for control of incoming and outgoing traffic. A well landscaped setting for the station will serve as a first impression of the park.

BIKE TRAIL INTERFACE (R)

As a part of the Oakland County Greenway Vision, an extensive bike trail and greenway network is in the planning and development stages throughout the county. These trails would interface with the statewide network of trails currently being planned and developed in adjacent counties and throughout Michigan. The Lakeland Trails Project, which is most near Lyon Oaks, is scheduled to be constructed in 1998 and will provide bikers access to Lyon Oaks. An interface to this extensive trail system should be provided within the Lyon Oaks site. Shown on the Master Plan is a paved bike trail leading from the Pontiac Trail right-of -way to the Nature Trailhead. The bike path enters the park at the contact station, as the sole point of entry to the site.

Meadow Grass Development (T)

An opportunity presents itself on the far eastern edge of the site to develop several acres of Meadow Grasses on the upland areas. This program could be completely managed by the parks system, or by one of the environmental groups in the area, involving hands-on opportunities to learn and manage these systems. Interpretive signage could be displayed with an outdoor classroom for observation.

IMPLEMENTATION STRATEGY

The implementation strategy for the Lyon Oaks Master Plan must be one which is practical, taking into account realistic phasing and funding practices, as well as following appropriate permit and review guidelines. The following is a breakdown of the overall project into a series of phases, which yields projects which can be more realistically implemented within the known budget constraints.

PHASING

The implementation phasing of the Lyon Oaks Master Plan program is based on the premise of providing a comprehensive range of activities in as many of the use areas as possible in the first phase. As this requires a significant portion of the infrastructure to be built, it will also be the most costly phase. The elements of Phase One include the main entrance drive, sign and contact station; eighteen holes of golf with appropriate support elements, such as the clubhouse, maintenance area, parking lot, practice range and practice green; the day use picnic area; the archery range; the corporate picnic area; the nature trailhead and the beginnings of a trail system with some signage; and improvements to the regional park sign. In each of these areas the parks system can develop to a level that suits the budget. For example, the parking areas may be constructed of gravel with paving occurring in a subsequent phase, or picnic areas may be established with or without pavilions/restrooms. Buildings constructed in the first phase should be designed to allow for expansion of the program in subsequent phases.

The second phase of development would include the potential of a waterpark; further development of the trail system including signage and paving of gravel trails constructed as part of phase one; the addition of several overlook stations complete with interpretive signage; and the addition of a paved bike trail connection from the regional system. With the exception of the waterpark, this phase will deal with amending the elements constructed in phase one, or dealing with maintenance issues which are directly related to the phased implementation process. Providing walks where intense use is eroding the turf, or paving gravel trails are common second phase elements.

The third phase is geared toward dealing with an increase in park users by expanding the capacity of several of the elements. This phase would include the addition of nine holes of golf; several new waterpark elements; a second maintenance facility for the day use portion of the park; the development of a meadow; and provisions for additional overlook stations to the interpretive program. Expansion of the park program to include the Spencer Centennial Farm as an interpretive program is also included in this phase, but not estimated. This phase may develop into several smaller phases depending on the growth rate of the outlying areas.

FUNDING

Funding opportunities for the implementation of the master plan vary based on program elements. It is not likely that a grant could be accessed for the development of the golf course, but may be more likely for the development of an interpretive program. Several sources of grant money include the following:

Michigan Natural Resources Trust Fund

The Michigan Natural Resources Trust Fund is administered by the Department of Natural Resources and can be used to acquire land or rights to land; protect land because of its environmental importance or scenic beauty; and develop public recreational facilities. A 25% local match is required, and minimum and maximum grant sizes vary for development projects and acquisition projects. Development projects range from $15,000 to $500,000.

Recreation Improvement Fund

Created from State fuel tax revenue, the Recreation Improvement Fund provides approximately $750,000 per year for development of non-motorized trails. This program is also administered by the Department of Natural Resources.

Intermodal Surface Transportation Efficiency Act (ISTEA)

The ISTEA program establishes a fund for Transportation Enhancement Activities with 10% set aside for the provision of non-motorized facilities, transportation aesthetics, mitigation of water pollution due to highway runoff, and historic preservation. This federal money is allocated by the Michigan Department of Transportation (MDOT). Funds under this program could be utilized for development of the connection to the regional bike trail system. This program is awaiting approval from the legislature to authorize additional funding.

Review Process

Implementation of the master plan should include the permitting process required by the Soil Erosion and Sedimentation Control Act and the Wetlands Protection Act. Additionally, the Americans with Disability Act requires that a portion of the park improvements be accessible. All grant opportunities will be enhanced and the natural resources of the park will be protected by providing accessible and environmentally-sensitive design. Therefore, it should not be considered a hindrance to adhere to the regulations of these acts.

Lyon Oaks County Park lies within the jurisdictions of Lyon Township and the City of Wixom. Good communications and review of proposed improvements should be encouraged. Valuable input from the surrounding residents and officials was received during the master plan development.

COST ESTIMATE

	Phase 1	*Phase 2*	*Phase 3*
A. Golf Course (350 Acres)			
18 Holes (with Practice Area and Green)	$4,820,000.00		
9 Holes			$1,800,000.00
Clubhouse and Cart Storage	$955,000.00		
Site Development	$855,000.00		
Periphery Landscape Development		$100,000.00	
Signage	$5,000.00		
B. Day Use Picnic Area (30 Acres)			
Parking Areas (3)	$126,000.00		
Pavilions with Restrooms (2)	$110,000.00		
Pavilions without Restrooms (1)	$30,000.00		
Boardwalk	$45,000.00		
Informal Paths	$30,000.00		
Picnic Tables	$35,000.00		
Trash Receptacles	$5,000.00		
Landscape Development	$50,000.00		
Signage	$5,000.00		
C. Water Park (22 Acres)			
Water Park and Site Development		$5,000,000.00	$3,000,000.00
D. Archery Range (5 Acres)			
Starter Pavilion	$15,000.00		
Site Development	$100,000.00		
Target Area	$10,000.00		
Picnic Tables	$2,500.00		
Trash Receptacles	$1,000.00		
Landscape Development	$50,000.00		
Signage	$2,500.00		

	Phase 1	*Phase 2*	*Phase 3*
E. Corporate Picnic Area (30 Acres)			
Pavilions without Restrooms (3)	$90,000.00		
Access Drive (gravel)	$165,000.00		
Informal Recreation	$30,000.00		
Grass Parking	$0.00		
Signage	$5,000.00		
F. Nature Trailhead (500 Acres)			
Trailhead Building (1500 SF)	$150,000.00		
Site Development	$143,000.00		
Landscape Development	$20,000.00		
Hard Surface Trail System		$150,000.00	
Soft Surface Trail System	$200,000.00	$145,000.00	$170,000.00
Boardwalks (8 total)	$170,000.00	$185,000.00	$175,000.00
Signage	$15,000.00	$20,000.00	$15,000.00
G. Maintenance Area-Day Use (4 Acres)			
Building			$315,000.00
Site Development			$28,000.00
Landscape Development			$15,000.00
H. Maintenance Area-Golf Course (4 Acres)			
Building	$431,000.00		
Site Development	$28,000.00		
Landscape Development	$15,000.00		
I. Centennial Spencer Farm (285 Acres)			
Acquisition (not included)			$0.00
Program Development (not included)			$0.00
J. Comfort Station		$30,000.00	
K. Emergent Wetland Overlook (1)			
Decking/Seating	$45,000.00		
Interpretive Signage	$3,000.00		

L. Emergent Wetland Overlooks (2)	*Phase 1*	*Phase 2*	*Phase 3*
Decking/Seating	$90,000.00		
Interpretive Signage	$6,000.00		
M. Forested Wetland Overlooks (2)			
Decking/Seating			$90,000.00
Interpretive Signage			$6,000.00
N. Forested Wetland Overlooks (1)			
Decking/Seating		$45,000.00	
Interpretive Signage		$3,000.00	
O. Open Water Forested Wetland Overlook (1)			
Decking/Seating		$45,000.00	
Interpretive Signage		$3,000.00	
P. Regional Park Sign			
Sign	$25,000.00		
Landscape Development	$15,000.00		
Site Lighting	$2,000.00		
Q. Contact Station			
Entry Drive Site Development (paved)	$1,200,000.00		
Building	$20,000.00		
Landscape Development	$50,000.00		

	Phase 1	*Phase 2*	*Phase 3*
R. Bike Trail Interface			
Bike Trail		$65,000.00	
S. Main Entry Sign			
Sign	$10,000.00		
Landscape Development	$50,000.00		
Lighting	$12,000.00		
T. Meadow Grass Development			$75,000.00
Phase Total	$10,242,000.00	$5,791,000.00	$5,689,000.00
PROJECT TOTAL			**$21,722,000.00**

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