

*"On the other hand, if you want as a treasure of sylvan scenery, alternative and supplementary to the treasures which you would have on your other properties, the grandeur of the forest depths in the dim seclusion of which you may wander musingly for hours, this you may find ready to your hand on the Iroquois Hill, and the beauty of the present forest there may be extended and increased and given diversity and made more interesting by processes which, judiciously organized and patiently pursued, will not be difficult or unreasonably costly.*

*Its landscape must be of a sequestered character, except that from its upper parts fine, broad, distant prospects are to be had, which by the removal of trees in some places, and the growing of low masses of foliage in others, can be made more sweeping and effective than they now are."—Excerpts from First Annual Report, Louisville Board of Park Commissioners, July 1891, prepared by F. L. Olmsted & Co., Landscape Architects*

*"Iroquois Park's isolation is an insult to the metropolitan region; the green slopes and great meadow at the top of the hill must be brought back into use by the community which they once served so well. So long as this enforced surgery continues, it breaks still further the connection between present and past, between use and decay, between this generation and the last. It stands now, overlooking and overlooked, in splendid neglect."—Grady Clay, "Observations on The Olmsted Memorial, Iroquois Park, Louisville, Kentucky" in "A National Memorial to Frederick Law Olmsted," (Louisville Community Design Center, July, 1985), p. 6.*

*"The most difficult thing for people to understand is the fragility of Iroquois Park."—Bebe Melton, President of the Board of Aldermen, City of Louisville, 1993*

*"Iroquois Park has some of the best scenery in Kentucky, but it's not accessible."—J.D. Turley*

*"It's a problem that the community sometimes responds to fads by placing popular sports in any open space. Better to concentrate active uses in a single area and preserve open spaces."—Comments from public forum, April 1992*

*"These parks are a critical asset to the city, no matter who designed them. It's important to invest in them—any citizen would agree!"—Phil Laemmle*

*"Too much traffic is concentrated in Iroquois Park. Why can't we open up the closed perimeter road? What's the use of having something if you can't use it?"—Comments from public forum, April 1992*

## Chapter 4 Iroquois Park

Prepared by Andropogon Associates, Philadelphia PA

### Renewal Strategy

Stormwater management and recreational access are the key issues to be addressed in renewing Iroquois Park. The presently dysfunctional circulation system needs to be reopened to the public, with careful monitoring and traffic management. Implementing a consistent maintenance and repair program for the park's drainage system, particularly along park drives, will allow further restoration of gullies, road edges, and woodland paths and bridle trails.

The drama of this park is its mature woodlands and scenic overlooks from the hilltop, and so the demonstration projects focus on Summit Field, the overlooks and one of the original Olmsted trails to the hilltop. Renewal of the park's primary historic landscapes will be achieved by the phased relocation of active recreation facilities from the hilltop and parkland edge along New Cut Road to an area near the amphitheater. These new facilities with reorganized parking will be set back from New Cut Road and extend south to Iroquois Pond.

The park's potential for environmental education, habitat monitoring and trail repair projects will depend upon the development of effective cooperative programs with the Jefferson County Memorial Forest, Jefferson County schools, the universities of Louisville and Kentucky, and such organizations as the Nature Conservancy and the Sierra Club.

## Key Master Plan Recommendations for Iroquois Park

### Lowland Forest Bridle Trails

Reconstruct park perimeter bridle trail, with drainage for trails in wet areas, and stabilization of eroded areas.

### Horse Stables Area

Provide facility, parking and landscaping improvements. Restore former wetlands, now filled.

### Upland Forest Paths

Repair woodland paths, close eroded rogue trails, and stabilize gullies.

### Olmsted Woodland Trail

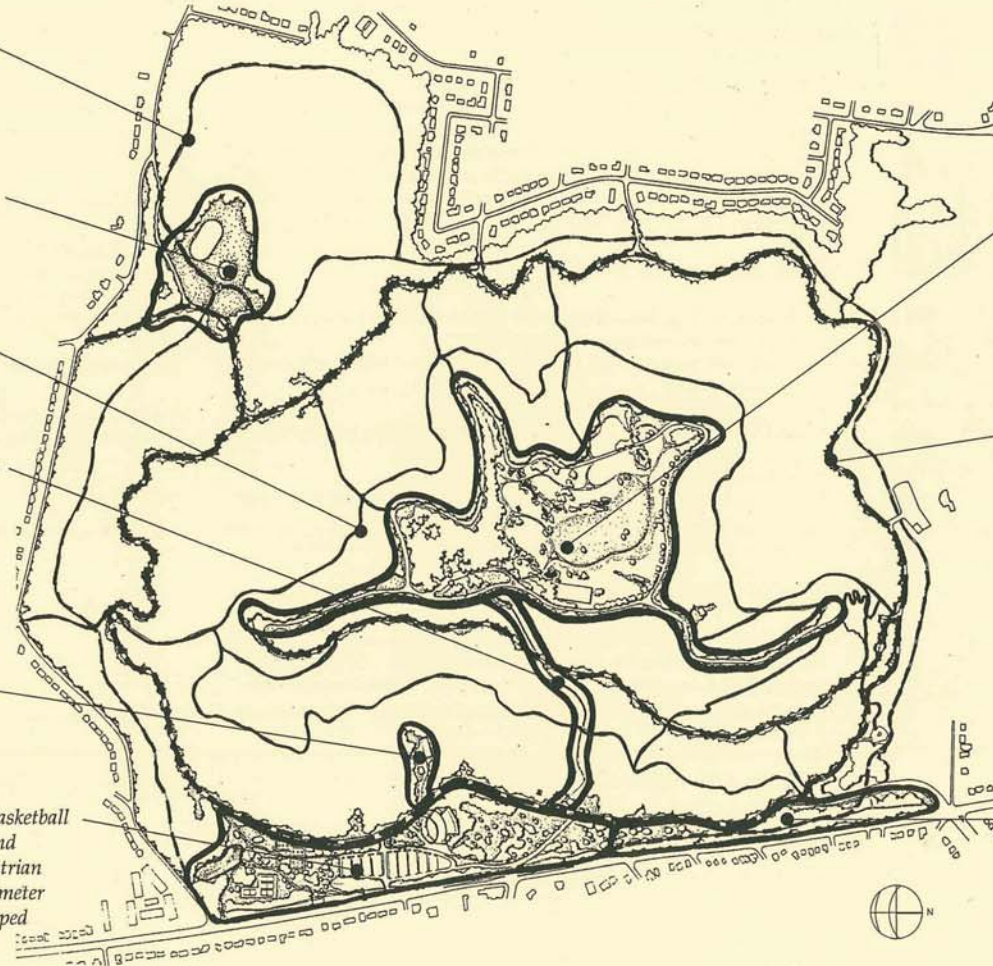
Repair stone steps, pathwork and drainage. Replant herbaceous ground layer and woodland vegetation and provide wayside shelters and interpretive overlooks.

### Maintenance Facility

Renovate parking and yard areas, with landscape screening and drainage improvements.

### Active Recreation & Parking

Restore park open spaces. Provide new tennis and basketball courts south of amphitheater. Reorganize parking and TARC service. Improve landscape setting and pedestrian circulation around amphitheater. Improve park perimeter paths, enhance Iroquois Pond and develop a landscaped buffer along New Cut Road.



### Summit Field & Overlooks

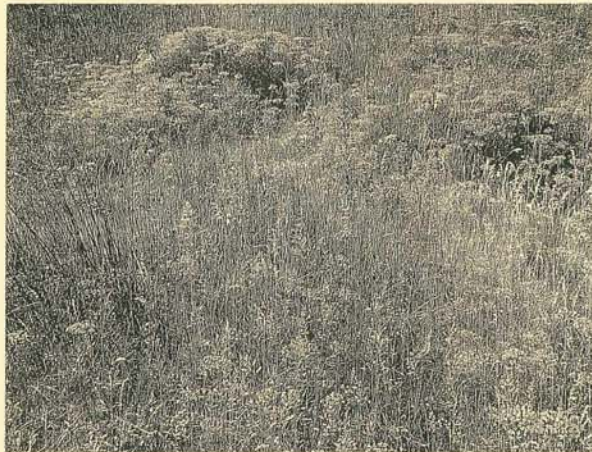
Install detention basins to control erosion, mitigate flooding and enrich wildlife habitat with oak savannah at Summit Field. Improve views from Northern and Southern Overlooks and restore vistas from Krupps Point and Panther Point. Stabilize vegetation and paths below overlooks.

### Rundill & Uppill Roads

Reconstruct park roads, drainage and road edges to address erosion, flooding and landscape protection. Install a safe, paved multi-use path along Rundill Road that does not degrade the environment.

### Parkland Perimeter

Restore park open spaces and paths and develop a landscaped buffer along New Cut Road.



(Top) View of existing Summit Field, with its great expanse of poorly established turf, which contributes to increased stormwater runoff in the downslope gullies. (Andropogon Associates, 1993)

(Bottom) View of enriched savannah/meadow. Such enrichment of Summit Field and the marginal areas along the forested slopes would mitigate stormwater runoff and be evocative of the original oak savannah proposed by Olmsted. (Andropogon Associates, 1993)

## Landscape Management

"This forest is an ancient one that has never been cleared. Some trees on the slopes are over 150 years old. . . . The beech forest on the flat is especially important and some trees here approach 200 years."—from "Natural Communities & Disturbance Analysis," prepared by Eco-Tech, Inc.

### Forest Management Issues

The slopes of Iroquois Park support the most diverse and well-developed forests in the region; however, extensive stormwater gullying on the steep and erodible slopes threaten much of the landscape. This is aggravated in places by off-trail trampling and vegetation damage resulting from vista clearance. Exotic shrubs are invading along roadways and other open areas. Forested wetlands at the base of the knob have been reduced in area by filling, with commensurate habitat losses.

### Forest Management Priorities

- Protect the large continuous forest tract as a baseline natural area of high diversity and natural history value.
- Stormwater management, beginning on Summit Field, with wetland retention areas.
- Gully restabilization on slopes.
- Stabilize bridle path, including bridges for traversing wetlands, and woodland paths.
- Protect and restore forested wetlands at base.
- Establish stable mixed tree and shrub communities at the vistas instead of shearing the tops off trees.
- Develop oak savannah and prairie margins on Summit Field.

### Woodland Management Issues

The areas cleared to maintain a sweeping open vista by shearing the tops off the trees compromise the only woodland areas in this largely forested park. Selected trees in the open woodland canopy should be maintained to frame the view and stable, mixed understory should be reestablished in order to manage for the views without destabilizing the slopes.

### Woodland Management Priorities

- Correct stormwater management problems prior to any efforts to restore a vista.
- Develop a sightline clearing demonstration area. Do not conduct further clearing until successful management can be demonstrated.

### Savannah/Meadow Management Issues

Savannahs covered much of central Kentucky just before settlement. These open landscapes with park-like stands of trees and tall grasses were maintained by Indian-set fires. The Knobs of the Outer Bluegrass, which includes Jefferson County, probably also supported ridgetop prairies at that time.

### Savannah/Meadow Management Priorities

- Summit Field offers an ideal opportunity to restore the oak savannah, not unlike the historic model, using prescribed burning as a management tool and major educational and interpretive feature of this park.

### Greensward Management Issues

The establishment of extensive turf areas on the top of the Knob has had devastating impacts on the forests and slopes of Iroquois Park and must be immediately remediated by eliminating turf and restricting greensward to the least area required.

### Greensward Management Priorities

- Relocate paved athletic facilities and immediately modify the mowing regimen to reflect the proposed cover types.

# Landscape Management Areas for Iroquois Park

**Lowland Forest**  
Forest management.

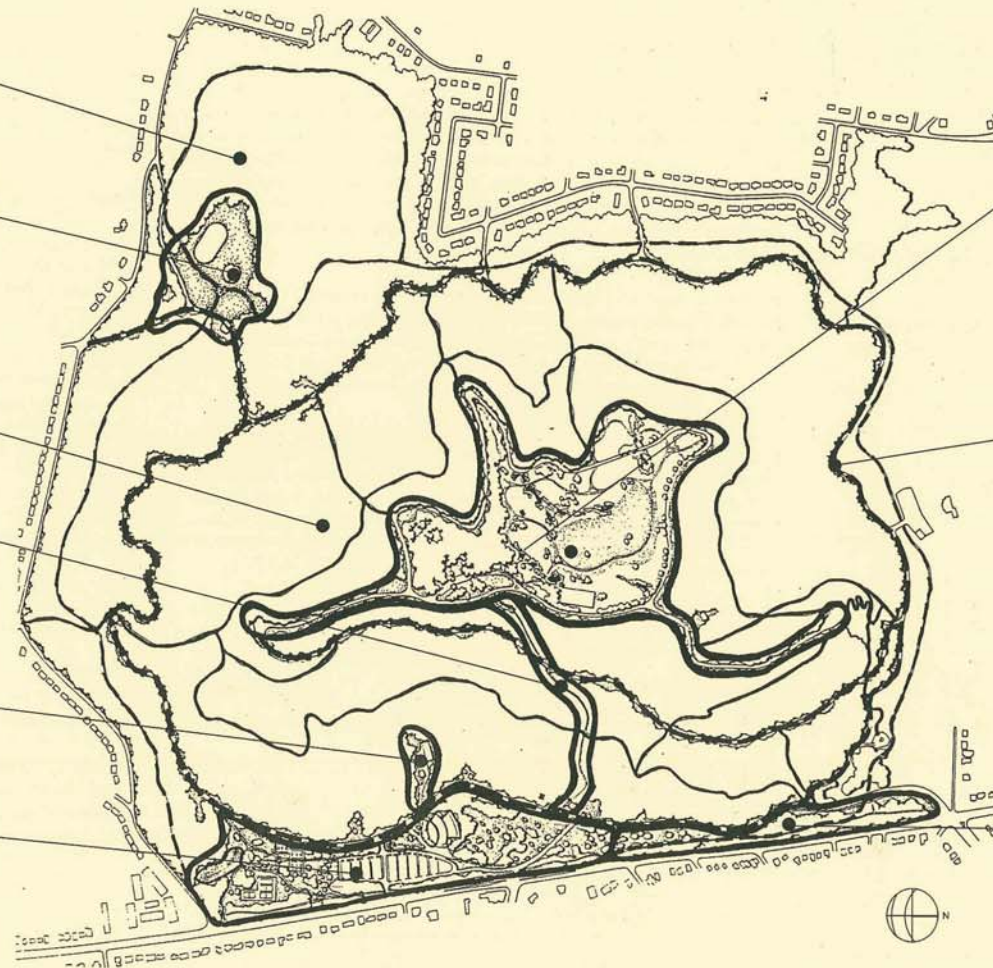
**Horse Stables Area**  
Forest and savannah/meadow management,  
with wetland habitat enrichment.

**Upland Forest Paths**  
Forest management.

**Olmsted Woodland Trail**  
Forest management.

**Maintenance Facility**  
Forest management, with  
landscape screening.

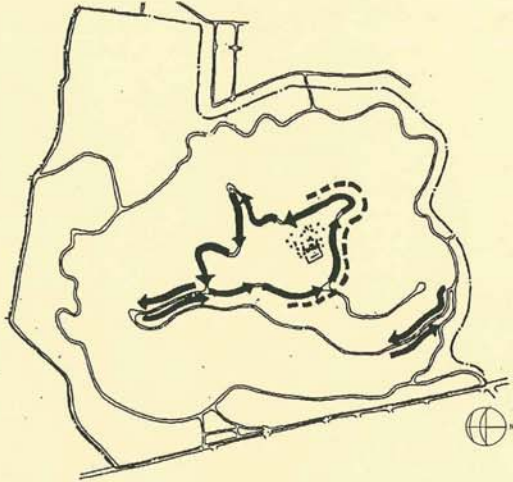
**Active Recreation & Parking**  
Greensward and forest management,  
Iroquois Pond habitat enhancement.



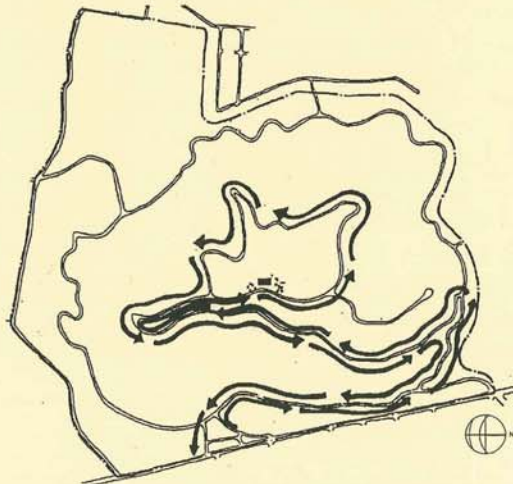
**Summit Field & Overlooks**  
Savannah/meadow management for Summit  
Field, with woodland management at over-  
looks and forest management along hilltop  
edges.

**Rundill & Uppill Roads**  
Forest management.

**Parkland Perimeter**  
Greensward and forest management.



For vehicular access to the hilltop, Toppill Road around Summit Field would be one-way, counterclockwise, with designated parking areas at the overlooks and near Jacob's Lodge. For special events, parallel parking would be permitted on Toppill Road.



For Winterfest, buses would pick-up passengers at the amphitheater parking lot and go around Summit Field with a stop at Jacob's Lodge. No vehicular access would be permitted.

## Infrastructure & Features

### Circulation and Parking

While there is clearly a need to reconcile Iroquois Park's dysfunctional circulation system, with numerous sections of roads closed to vehicles for over a decade, there was general agreement in the Iroquois Park Stewardship Committee that private vehicles should have access to the hilltop on a carefully limited basis. Hours of access would depend on available funds for supervisory and security personnel, and the desire to retain some vehicle-free access for walkers, runners and bicyclists. Rundill Road affords one of the most spectacular experiences of Kentucky's mature forests and deserves to be open to park users in a safe and accessible manner. Given the road width and adjacent fragile environments, widening this road to accommodate two-way traffic with a safe multi-use lane would be very costly. For this reason, the community may also wish to consider at some future time building a multi-use path.

For special, modestly sized events on the hilltop, vehicular access and parallel parking would be permitted on the hilltop's multi-use lane. Large events, such as Winterfest, would use the amphitheater parking area, with the public boarding buses to tour the hilltop—in this case, no vehicular access, except buses, would be permitted to the hilltop.

The amphitheater parking area would be reorganized and better integrated into a park setting for amphitheater, park, and TARC users. The Iroquois Amphitheater Association has also noted a need for better parking and landscaping, limiting traffic on Rundill Road during performances, improved drainage, structural repairs and design improvements to the amphitheater itself and immediate park setting. For large events, overflow parallel parking could also occur on Rundill Road.

Resolution and repair of the woodland paths would begin with the repair of the original Olmsted trail to the hilltop, beginning near the amphitheater and leading up the hill, with several stone step sections, to Jacob's Lodge. Other hilltop paths, as well as the bridle trails, will need detailed on-site review to determine the extent of their repair needs and specific alignment or closure requirements.

### Drainage and Utility Systems

There is a critical need to maintain and monitor the park's drainage system. A 1993 study by PDR Engineers, commissioned by Metro Parks, evaluated stormwater runoff on the west side of the park and its impact on the Iroquois Vista subdivision. Both areas have severe flooding problems and the results of the study can be generalized to the entire park. The study concluded that the poor condition of the park drainage system is gradually undermining the entire park infrastructure. Runoff, that cannot flow in its normal channel through culverts,

backs up, and creates alternate flow channels along road beds and through woodlands. Road beds are undercut causing pavement failure. New drainage routes through woodlands cause more erosion problems and force water into areas that can not accommodate the flow. The bridle trails have also been affected, and equestrians avoiding wet spots have created disturbed path areas that are more than fifty feet wide, damaging these mature woodlands.

MSD and Metro Parks should work together to mitigate flooding of adjacent neighborhoods and reverse deterioration of the park, reconstructing a functional drainage system, including properly sized culverts and inlet/outlet structures. Drainage swales should be protected against erosion and cleared of silt and debris that hinder flow. Road shoulders should be frequently inspected for washouts and repaired when necessary.

### Facilities and Features

The reorganized amphitheater parking area would be set back from New Cut Road with a park perimeter landscape buffer, including a continuous multi-use path that would connect the path from the Southern Parkway entrance to Iroquois Pond and Rundill Road. A landscaped parking area would provide a parkland setting for the amphitheater. To the south of this parking area, an active recreation area includes new tennis and basketball courts—these would be relocated on a phased basis from the historic hilltop and the parkland entrance area along New Cut Road. It is recommended that the frisbee golf course be relocated to another park, since this activity is highly erosive and conflicts with proposed paths, facilities and enhanced habitats at Iroquois Pond. This popular sport draws players from throughout the metropolitan area, so an alternative location should be convenient and offer players all necessary amenities.

One of the major renewal projects to be addressed is installing stormwater detention basins on the hilltop, along with a section of gully repair, which would be monitored to assess its further use in the park. An oak savannah, with mown grass paths and an open center greensward, would provide environmental and aesthetic enrichment to Summit Field. Paths would link up to Jacob's Lodge, two picnic pavilions and interpretive lookouts. Culvert and storm drainage swale repairs would also take place along all park drives. All major vistas would be renewed, with demonstration stabilization planting on the banks below the Northern and Southern Overlooks to assess successful landscape management over time. The presently closed overlooks at Krupps and Panther Points would be reopened through careful and selective pruning to create "windows" to the view. All rough boulder and stonework at these overlooks would also be rebuilt, along with the accommodation for small parking areas.

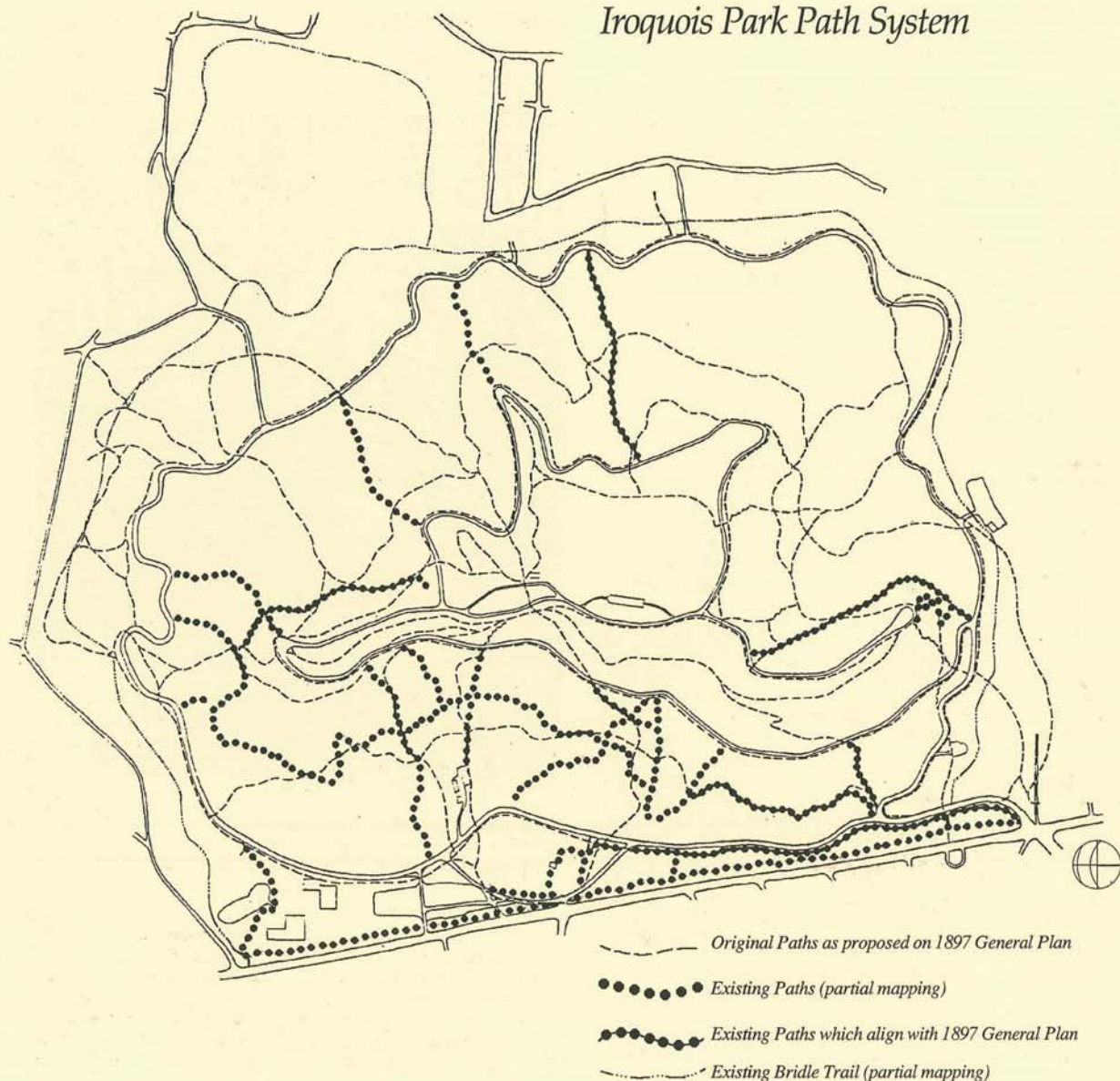
## Resolving Trail Issues

The steps to the Northern Overlook pose another serious drainage and erosion problem, which should be addressed in a comprehensive way. To construct a functional drainage system for these steps, which are deteriorated, settled wood railroad ties, it appears likely that the entire length of steps would have to be dismantled in order to install an underdrainage system of inlets and culverts. The cost of this reconstruction and repair should be evaluated against an alternative alignment. Both the master planning team and historians Charles Beveridge and Arleyn Levee recommend this approach. Alternative path alignments should evaluate the benefits of the Corbly Path on the 1897 plan, which starts south of the Southern Parkway entrance, crossing Rundill Road and Uppill Road, to the overlook with steep areas requiring steps. The steps "should be constructed using appropriate materials and in a style suitable to a scenic reservation."—from Charles E. Beveridge and Arleyn A. Levee, "Louisville's Olmsted Legacy: Cherokee, Iroquois and Shawnee Parks, A History," (1992), p. 103. If this alternative proves feasible, the parking area at the base of Uppill Road should be removed and the entire slope stabilization area of the old switchback route should be temporarily protected by fencing while the new plantings are taking hold. A new parking area is proposed off Rundill Road, with a new path link to the Corbly Path alignment.

There are two other critical trail issues that require detailed on-site review. The first is the potential alignment of a safe, paved multi-use path along Rundill Road that does not degrade the environment. While certain portions of Rundill Road are either closed to vehicles or are wide enough to accommodate a striped multi-use lane for recreation, the portion of roadway from the Northern Overlook to the Iroquois Vista subdivision is too narrow to accommodate two-way traffic and a multi-use lane. Also, due to the forested steep slopes on both sides of the road, the option of widening Rundill Road in this section would be prohibitively expensive, as it would require a substantial retaining wall and would degrade the park's fragile environment. Potential alignments for a multi-use path off Rundill Road should be reviewed.

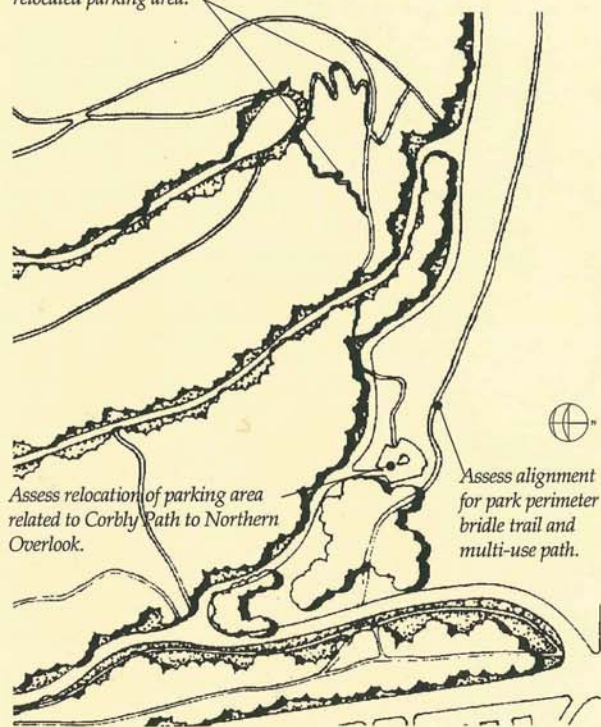
The second issue is the development of a park perimeter bridle trail, which will require trail realignment and reconstruction, including drainage infrastructure and stabilization of eroded areas. Present conflicts occur along the Iroquois Golf Course and along New Cut Road. The perimeter bridle trail, along with the alignment of a multi-use trail, should be integrated into the future plans for the golf course, the latter of which needs parking and maintenance area improvements, separation of tees and greens from park trails, and improved landscape screening from the park itself. The review of alternative alignments for both trails should be staked out in the field, reviewed with the Stewardship Council and Advisory Committee, and costed with schematic designs based on updated topographic surveys. It is recommended that horses and mountain bicyclists not be permitted to use the trails on the sloped forests above Rundill Road until trail repairs are implemented and there is agreement on trail use.

## Iroquois Park Path System

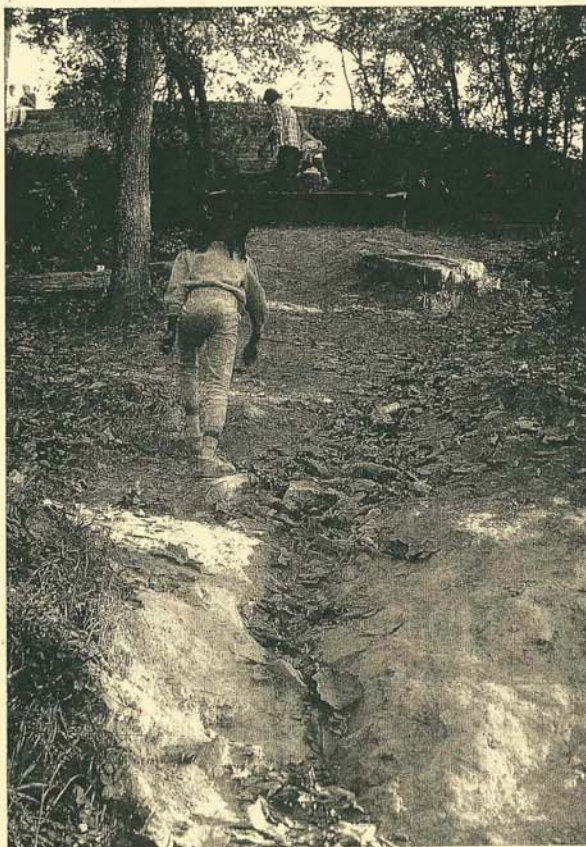


#### 4. Iroquois Park

Assess stabilization and repair of existing steps to Northern Overlook, with new drainage system, as well as alternative of renewing Corbly Path with relocated parking area.



Illustrative Master Plan for Iroquois Park, showing Northern Overlook, with existing switchback trail and steps in need of repair, along with a proposed alternate alignment—the Corbly Path described on the 1897 General Plan—to a new parking area off Rundill Road.



View of existing switchback trail to the Northern Overlook. Unfortunately, most visitors do not use the switchback trail, but prefer to go directly up hill, causing trampling and further erosion of the area. (Andropogon Associates, 1992)

## Renewal Projects

### Summit Field

The installation of detention basins on the hilltop will mitigate flooding in adjacent communities, reduce erosion and improve wildlife habitats. These detention basins and woody swales (with meadow and prairie edges) will not limit open space use and drainage gullies down the hillside will be stabilized. This will slow the runoff of stormwater and downhill flooding problems, and it will recreate the original prairie habitat of Burnt Knob, creating unique beauty in the Louisville area and providing educational opportunities. New paths through the Summit Field meadows will extend out from Jacob's Lodge and into the large open greensward in the center of the field. Two new picnic pavilions will replace existing shelters, along with observation and interpretation areas in the prairie. Handicapped access and lay-by parking would be introduced adjacent to Jacob's Lodge.

Program development for the hilltop will be an important element to renewing Summit Field. Potential programs were described in the 1986 *Master Plan for Iroquois Park*, prepared by the Louisville Community Design Center, and included: "a springtime kite-flying contest . . . events associated with Amphitheater events—such as the crafts fair held in conjunction with Kentucky Music Weekend—could be staged on the hilltop; a mini balloon race could be launched from the meadow, as were early Derby Festival races . . . the hilltop could be promoted as the site for senior picnics for high schools, for Bellarmine and Spalding graduating seniors; and the hilltop could be made available for senior-citizen and church picnics, much as it was in the past, and for office and corporate picnics."

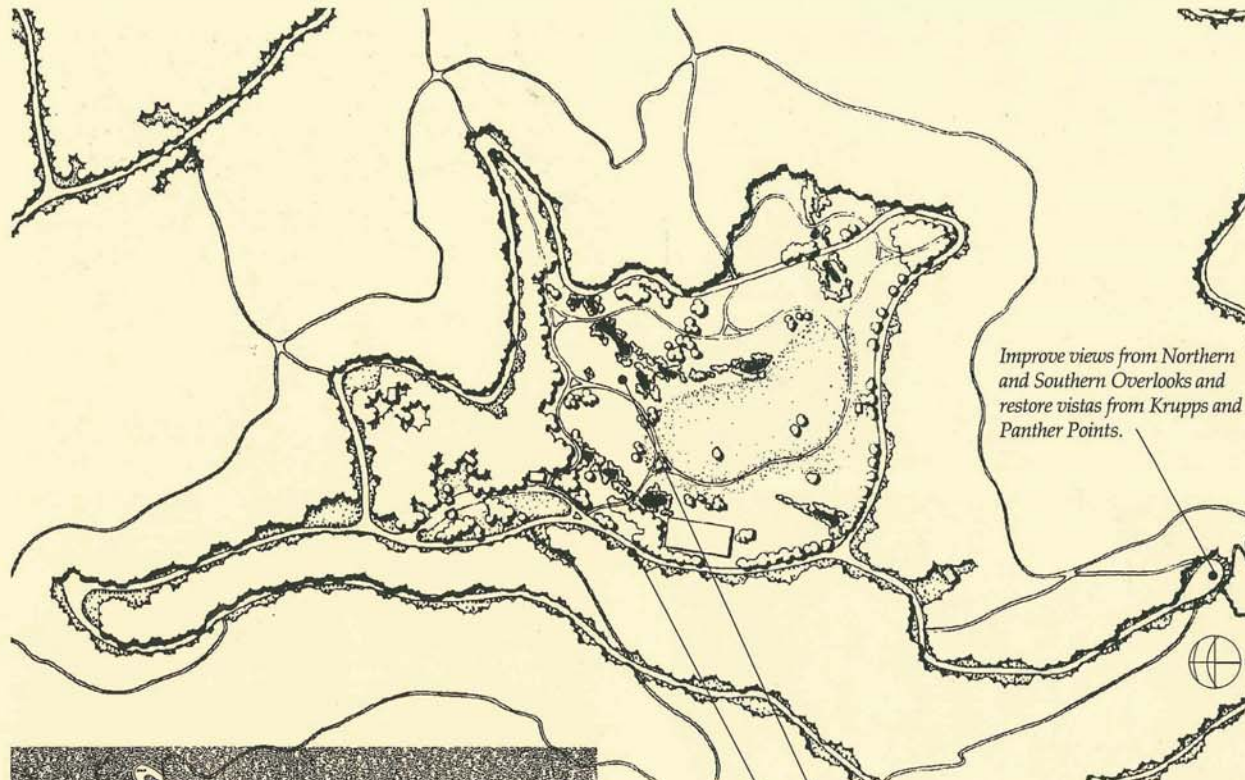
Another potential program idea is to develop the park's woodland and fields into a nature center. David Wicks, director of the Blackacre Nature Preserve in southeastern Jefferson County, asked: "Has any thought been given to building a nature center, either a new building or utilizing Jacob's Lodge? One could study both natural science and cultural history. . . . At Blackacre, we are completely booked and have a long waiting list. I feel the involvement of local schools in educational programs at Iroquois Park will do much to improve the image of the park, as well as reduce vandalism. . . . I submit this idea as president of the Kentucky Association for Environmental Education, coordinator of environmental education for the public schools, and director of Blackacre Nature Preserve."—from *Master Plan for Iroquois Park* (Louisville Community Design Center, 1986), p. 29.

In a recent conversation with David Wicks (October 1993), who is now co-director of the Center for Environmental Education at the University of Louisville, Mr. Wicks cited new potentials for programs at Iroquois Park: "One would think that a variety of internships at these schools—University of Louisville's Centers for Environmental Engi-

neering, Health, Policy and Education—could assist in the staffing of potential Iroquois programs, as well as project design and habitat monitoring. Given the funding for environmental education and interpretation programs at Jefferson County Memorial Forest, and the Waterfront Development Commission's funding for environmental education along the Ohio River, the potential for programs and interpretive centers at Shawnee, Iroquois and Cherokee parks could provide a continuity to the city's programs." Also, given that the Iroquois Initiative, in which the University of Louisville's School of Education programs are being transferred to Iroquois High School and Middle School, bringing 80% of Jefferson County's newly hired teachers to this area, the potential for environmental education programs at Iroquois Park should be great. This would involve high-school seniors and University students working in the park, staffing a nature center, and aid in the orientation of teachers. Mr. Wicks suggests that a certified teacher from the Jefferson County school system be assigned to assist in these programs.

Another possibility for protecting Iroquois as a nature preserve would be to dedicate a preserve area as part of the Kentucky Nature Preserve Commission. According to Hal Bryan, President, Eco-Tech: "The benefits are that areas dedicated as Nature Preserves will be protected and preserved from the whims of the future park administrators and politicians. Another benefit is that they have some expertise in prairie maintenance and controlled burns that would be available to you. . . . The KNPC presently has no money to share with the park and few people. Except for a steward who would spend some time instructing in management, work would be up to the park personnel or volunteers."

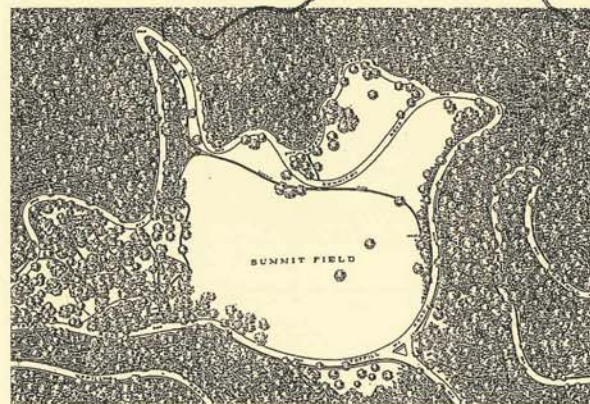
In terms of trail repair efforts, yet another program of merit was proposed: "We recommend that Metro Parks contact local Boy Scout and Girl Scout councils to explore the possibility of Iroquois benefiting as the site of community service projects for individual scouts earning rank, and for troop projects. More specifically, the scouts could undertake a long term program of trail development at Iroquois, advised by parks planners, foresters and administrators. Such a comprehensive, long-term undertaking would need to be well-structured, both to attract the involvement of the scouts and to do so in a way that maintains a long-term relationship between the scouts and the park. . . . To initiate such a relationship, Metro Parks could consider sponsoring a council-wide campout, known as a 'Camporee,' at the top of Iroquois Hill, during which time the scouts could engage in park improvement projects such as park cleanup and trail development."—from *Master Plan for Iroquois Park* (Louisville Community Design Center, 1986), p. 44.



Improve views from Northern and Southern Overlooks and restore vistas from Krupps and Panther Points.

Install detention basins to control erosion, mitigate flooding and enrich wildlife habitat with oak savannah and more than one mile of walking paths.

Stabilize roadway edge and adjacent drainage swales and stripe for multi-use lane around Summit Field.

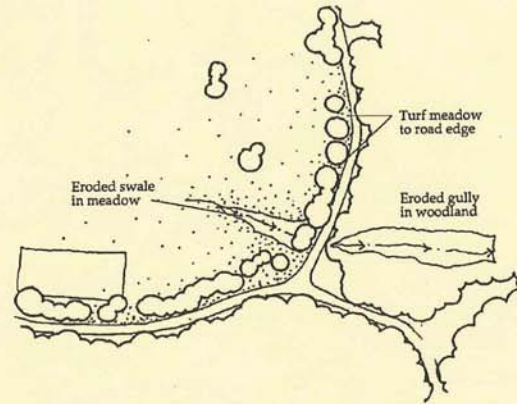
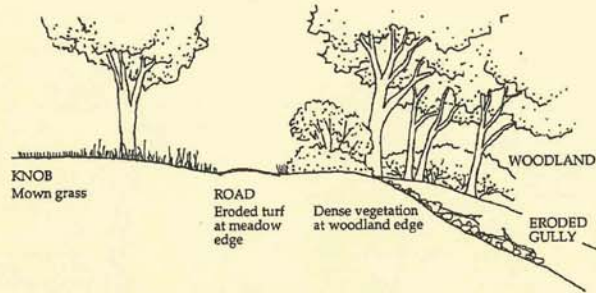


Summit Field, from *General Plan for Iroquois Park, Louisville, Kentucky, December 1, 1897* by F.L. Olmsted and J.C. Olmsted, Landscape Architects. (Courtesy Archives, FLONHS)

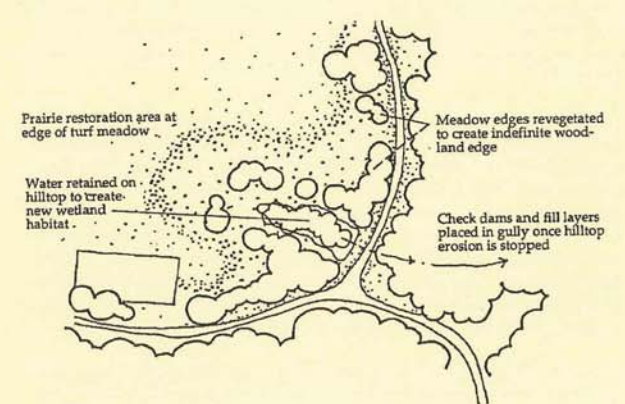
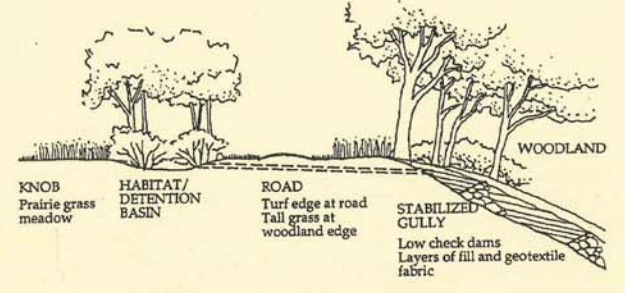
*Illustrative Master Plan for Iroquois Park, showing proposed renewal of Summit Field.*



4. Iroquois Park



Summit Field, existing conditions.



Summit Field, proposed landscape management.

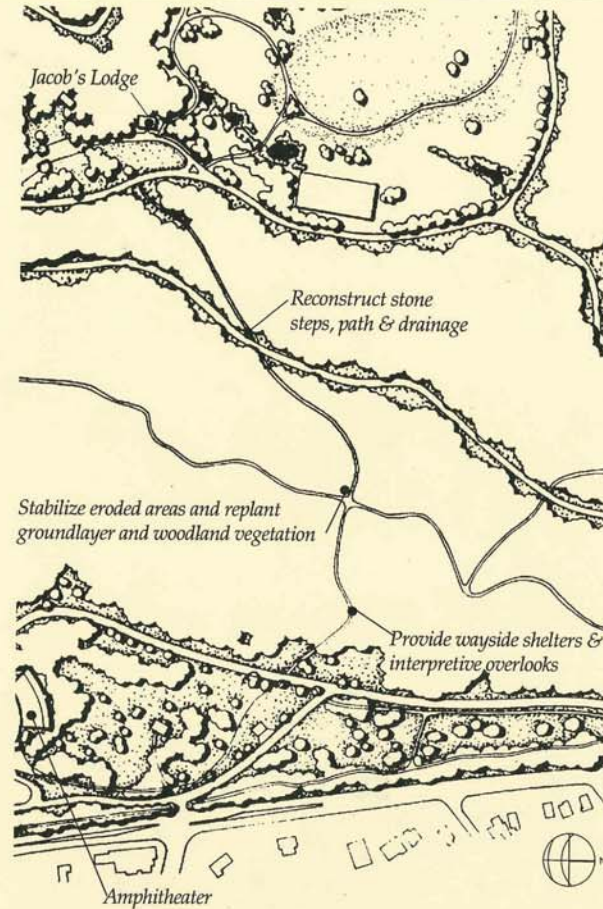
(Top) Savannah at Summit Field, Iroquois Park. (Andropogon Associates, 1993)

(Bottom) Historic view of woodlands and savannahs along park drives, Iroquois Park. (Yearbook of the Board of Park Commissioners of Louisville, Kentucky, 1918, from private collection, C. Birnbaum)



*Panorama of proposed oak savannah at Summit Field, with detention basins and stormwater swales stabilized in woody vegetation. Enriched margins of prairie can be experienced along new paths, which connect to other park features and the large open greensward for passive recreation and special events. (Rendering by Colin Franklin, Andropogon Associates)*

#### 4. Iroquois Park



*Illustrative Master Plan for Iroquois Park's Olmsted Woodland Trail.*

(Top) Historic Olmsted path to hilltop, connecting the amphitheater area to Jacob's Lodge, with artistically laid stonework in need of artistic masons to properly restore them. (Andropogon Associates, 1992)

(Bottom) Portion of historic Olmsted path to hilltop where erosion and gullies have occurred. These areas will need a stabilized base and path material, as well as stormwater management into the adjacent forest. (Andropogon Associates, 1992)

#### *Olmsted's Woodland Trail to Summit*

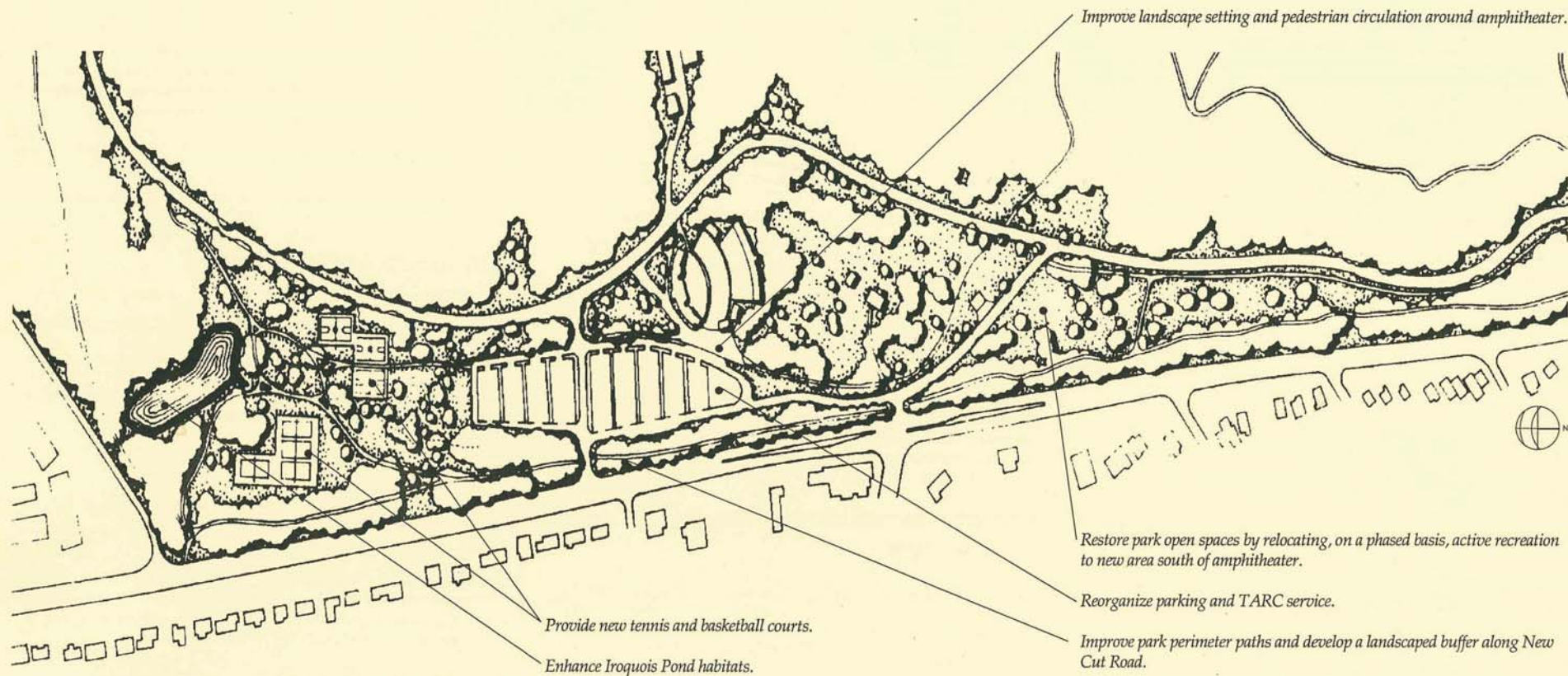
The main historic woodland trail connecting the hilltop to the amphitheater area will be reconstructed, with stone steps relaid according to time-honored craft traditions, and drainage infrastructure installed. At key points along the paths there will be places to sit and learn from interpretive signage about the rare ecology of this place. Pending the implementation of trail repair programs, other original trails could be reclaimed and reestablished to take visitors from park perimeters uphill to Summit Field and the magnificent overlooks of the surrounding countryside and downtown Louisville as well as around the hill.

Given that many of the woodland paths are no longer following original historic alignments, specific on-site review of these path alignments should be undertaken to determine closure or repair needs. The reintroduction and repair of the perimeter path around the hillside woodlands would afford the experience of the variety of plant communities of this forest and should be an integral part of any nature center program.

#### *Parking and Active Recreation Improvements near the Amphitheater*

This project includes new and relocated sport facilities, improved parking, paths and landscape improvements in the amphitheater area to renew the parkland setting along New Cut Road. The existing basketball and tennis courts conflict with this setting and would be relocated on a phased basis to a new active recreation zone south of the amphitheater toward Iroquois Pond. The reorganized parking area and active recreation zone would also be set back from New Cut Road so that a safe park perimeter path and landscaped parkland edge could be reintroduced. This would connect the path leading from the Southern Parkway entrance all the way to Iroquois Pond, where it would reconnect with Rundill Road. Opening up a section of Rundill Road for major performances or events could accommodate parallel parking on pavement for overflow parking needs.

This park renewal project would also address landscape and drainage improvements, so that the amphitheater is given a proper park setting and current drainage and flooding problems can be mitigated. With needed architectural and structural improvements to the amphitheater itself, this project could help provide a more profitable future and function to this facility.



*Illustrative Master Plan for Iroquois park, showing portions of amphitheater area, with proposed reorganized parking and new active recreation area near Iroquois Pond. A park perimeter buffer of landscaping and multi-use path is also proposed, which would renew the parkland setting along New Cut Road.*

#### 4. Iroquois Park

The demonstration projects for the parks and parkways strike at the heart and soul of each park's original vision and design intent, while responding to contemporary needs.

For Iroquois Park, the environmental enhancement of Summit Field and reopened overlook vistas will renew one of Olmsted's greatest open spaces, along with drainage infrastructure improvements to the park's fragile drainage system. The renewal of the Olmsted Woodland Trail and park drives will also allow pedestrian and vehicular access to the park. Thus, the proposed demonstration projects for Iroquois Park include project areas 1 through 4.

## Project Areas for Iroquois Park

### 1. Summit Field & Overlooks

- Install detention basins to control erosion, mitigate flooding, and enrich wildlife habitat with oak savannah and 1.3 miles of new paths.
- Improve views from Northern and Southern Overlooks and restore vistas from Krupps and Panther Points; stabilize vegetation and paths below overlooks.
- Stabilize 2 miles of roadway edge and adjacent drainage swales, with inlet and culvert improvements, and striping and signage for multi-use path around Summit Field.
- Provide electrical and security phone system improvements and traffic protections and signage for monitored vehicular access to Summit Field and for special events, such as Winterfest.

### 2. Olmsted Woodland Trail

- Initiate infrastructure crew to evaluate and repair stone steps, pathwork and related drainage; stabilize eroded areas; replant herbaceous ground layer and woodland vegetation; and provide wayside shelters and interpretive overlooks on Olmsted Woodland Trail from amphitheater to Jacob's Lodge.

### 3. Forest Preserve Interpretation & Management

- Monitor performance of pathwork, drainage, and stabilization by infrastructure crew on Olmsted Woodland Trail in order to refine repair strategy for other woodland trails and eroded areas.
- Inventory plant communities in woodlands and assess bridle and woodland trail conditions in order to prioritize repair, alignment and management areas.
- Develop education program with Metro Parks, local institutions and environmental groups to conduct volunteer projects to repair trails, stabilize eroded areas, interpret the forest preserve, and educate park users on responsible stewardship.

### 4. Rundill & Uppill Roads

- Stabilize 5 miles of roadway edge and adjacent drainage swales, with inlet and culvert maintenance and reconstruction, stabilized outfall channels, and restoration of adjacent disturbed areas and eroded stream channels.
- Work with MSD to improve overall park drainage to receiving stormwater management system.

### 5. Lowland Forest Bridle Trails

- Reconstruct 4.3 miles of park perimeter bridle trail.
- Install a safe, paved multi-use path along Rundill Road that does not degrade the environment. Trail alignment and reconstruction includes drainage infrastructure and stabilization of eroded areas.

### 6. Upland Forest Paths

- Repair more than 5 miles of woodland paths, as well as eroded rogue trails and gullies.

### 7. Active Recreation & Parking

- Restore park open spaces.
- Provide new tennis and basketball courts south of the amphitheater.
- Reorganize parking and TARC service.
- Improve landscape setting and pedestrian circulation around the amphitheater.
- Improve park perimeter paths, enhance Iroquois Pond and develop a landscaped buffer along New Cut Road.

### 8. Horse Stables Area

- Provide facility, parking and landscaping improvements.
- Repair and restore former wetlands, now filled.

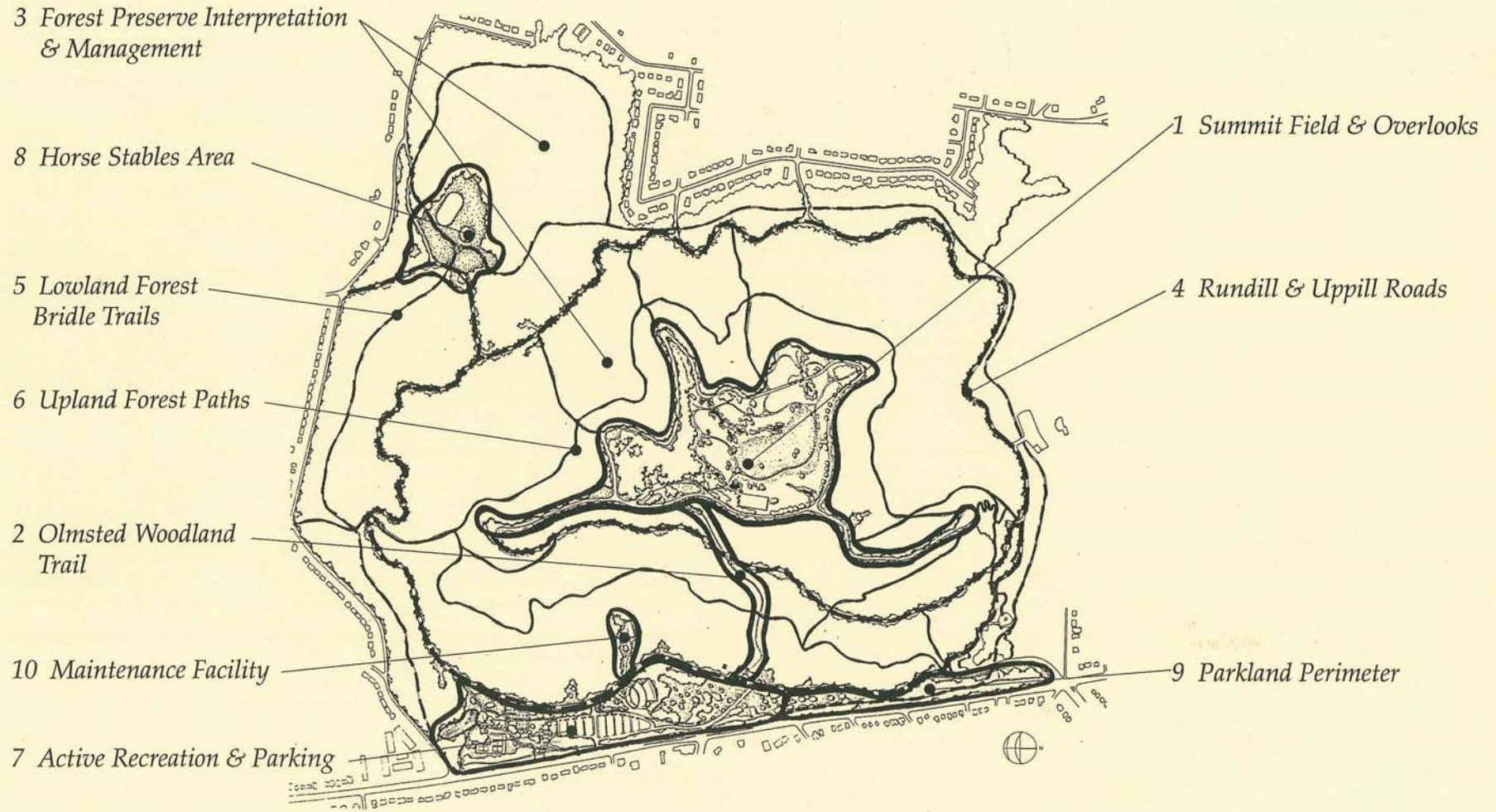
### 9. Parkland Perimeter

- Restore park open spaces, with park perimeter paths, picnic areas and a landscaped buffer along New Cut Road.

### 10. Maintenance Facility

- Improve maintenance facility area, with landscaped screening and yard areas to accommodate equipment and storage areas for landscape management and infrastructure crews.
- Improve drainage and buildings in facility area.

# Project Areas for Iroquois Park



## Inventory and Analysis Summary

The following areas of concern were inventoried and analyzed by the Andropogon Associates master planning team in the fall of 1992:

### Natural Resources

- Fragile, erosion-prone geology threatens one of the most mature woodlands in the region.
- Stormwater damage from open knob and roads, along with trampling of paths and gullies by park users is threatening woodlands.
- Filling of wetlands and dumping.
- Sensitive areas disturbed by dumps, fill, and dump access roads.
- Landscape management practices (such as brush-hogging bridle trails and "flat-topping overlook trees") create further disturbance of woodlands.

### Infrastructure and User Conflicts

- No path hierarchy—most paths go straight up hill and are severely eroded by equestrians, mountain bicyclists and walkers.
- Dysfunctional access, parking and circulation along Rundill and Uppill Roads.

### Historic Resources

- Loss of path hierarchy of easy and moderate walking paths up hill; woodland experience is less accessible.
- Overlook vistas are completely overgrown or managed unattractively.
- Lower park area uses are intense and built-up, changing park character; additions are also incompatible with park landscape.
- No formal review process with MSD (process now in development) regarding stormwater management related to historic landscape character.
- No formal review process with Public Works regarding parking, signage, traffic, paving and road striping standards related to historic landscape character.

## Park Survey

From the interviews and public forums held in 1991 and 1992, by Susan Rademacher, Executive Director of the Louisville Olmsted Parks Conservancy, and The Halvorson Company, the following issues were identified and ranked by participants—representing both users and non-users.

### Major Features of the Park as the Public Sees Them

The hilltop is this park's unique feature, primarily for the breathtaking views of the surrounding countryside, as well as for the expanse of Summit Field, which is a good site for picnics. Currently this feature is underused because access is limited to pedestrians and bicyclists, with public transit provided only on summer weekends and during fall foliage season. Hilltop basketball and tennis courts receive medium use in summer, as does the play equipment. Many people hike the woodland slopes, which bear a handsome and mature forest. Hiking diminishes in winter, but the hilltop is the focal point for Winterfest, a holiday festival of lights and entertainment in December.

The base of Jacob's Knob, along New Cut Road, is an intensely developed zone. Its components of amphitheater, playground, shelter house, tennis courts, basketball courts, frisbee golf course and "Tarc 'n Ride" lot comprise the second most important feature of the park. People use this zone intensively in warm weather, while the courts are used year-round. Leading away from this area, around the east side of the knob, is a portion of Rundill Road that is currently used only for walking and jogging. It is well-used year-round and perceived as quite safe.

Hikers and serious runners come to Iroquois from the entire metropolitan area, as do audiences for the amphitheater. Recreational facilities and the Rundill Road walking section are used primarily by neighbors of the park. This park has the only rental stables in the city for horseback riding, and so attracts people from all over. The frisbee course is another such draw.

### Projects Suggested by the Public

- Limit parking areas to New Cut Road side of park.
- There were mixed opinions on whether Rundill Road and Uppill Road should be open or closed to vehicles.
- Fix up trails to explore the woods; improve bridle trails.
- Provide concession stands.
- Make more and better use of Amphitheater in programming and layout.
- Provide more active recreation to bring all generations into the park.

- There were mixed opinions on whether the frisbee golf course should be retained or removed from the park.
- Separate playground from basketball courts.

### Programs Suggested by the Public

- Provide security and monitoring of use to inhibit cruising; keep restrooms safe and vandal-free; bring back park rangers.
- Provide controlled but convenient access to top of Jacob's Knob.
- Improve maintenance and management of woodlands; need foresters.
- Keep the park peaceful and clean; improve safety for small children; hire resident manager.

## Historic Landscape Analysis

Prepared by Landscapes, Westport CT

As interest in public parks emerged in Louisville in the late 1880s, Mayor Jacob secured the lands of Burnt Knob to the south of the city and began to develop them as a park. Known initially as Jacob's Park, he built an entrance drive and rustic bridges prior to the Olmsted design. This steep hill with a level summit was a forested reserve with expansive views from its heights. The original park boundaries encompassed the hill and a surround of relatively narrow forested and open land that was later expanded to encompass to the north an existing Beech woods and to the east a rolling segment that became a golf course. The 1897 General Plan for Iroquois Park, by F.L. & J.C. Olmsted, Landscape Architects, incorporated some early park improvements by Mayor Jacob, and focused on the development of park drives and trails to access the landscape. The design sought to conserve the native woodlands, augmenting plantings around the edges of the hill, on the summit and along drives and trails and provide long scenic vistas from the outlooks.

### Iroquois Park Historic Landscape Types

Iroquois Park is a unique geological and ecological feature of the Louisville region. It was reserved as park land primarily for the scenic quality of its overlooks and the value of its forested hillside. The Olmsted design treated it as a scenic reservation, to be conserved and made accessible and enjoyable, rather than dramatically changed. Iroquois Park Historic Landscape Types Plan [1] shows the difference between this relatively enclosed landscape and the more open landscapes of Cherokee and Shawnee Parks. The majority of the Iroquois Park acreage is a forest on steep slopes with smaller areas of greensward, mixed turf with shade trees, tree groves, woodland glades and level woodland on its outer edges. Some lower areas of the park were former pasture lands that were planted as open groves on the outside of the lower circuit drive, Rundill Road.

The Olmsted design sought to provide some sense of separation of the park from the urban surroundings by developing mixed woody border plantings and by increasing the density of park edge woodlands. The Olmsted design provided for a broad open area on the top of the hill at Summit Field. An open grove at the south end of Summit Field gave shade for picnicking and strolling while two small shelter buildings served park user needs.

The circulation system designed for the park included an extensive network of pedestrian paths, bicycle ways, and drives with electric rail drop off points in three locations at park edges. The Olmsted firm recognized the need to provide pedestrian paths, varying in steepness, for people of all abilities. Some of these were constructed and several remain, although they are generally in poor condition today. The

lower circuit drive at the base of Burnt Knob separates the slopes of the hill from the rolling lands of the edge. The level to rolling park land outside the circuit drive included more open areas of greensward with trees and of woodland. Areas along this drive, on the uphill side where storm water flowed downhill at spaced intervals, were developed as small, open forest glades with ferns and wildflowers, and a few informally arranged shrubs and trees. Some of these attractive glades remain today, although significant deterioration from drainage in the flow gullies is evident along Rundill and Uppill Drives.

### Iroquois Park Spatial Organization

Iroquois Park Spatial Organization Plan [2] graphically portrays the scenic vistas, dense mixed woody border plantings, forests and woodlands that create visual enclosure and block views through, and the scenic vistas that provide broad views beyond the park to the surrounding areas. Uppill Drive to Summit Field is punctuated by four dramatic overlooks that afford sweeping vistas over the surrounding city and countryside. Historic photographs indicate a more open landscape with framed distant views that have become both enclosed and more broadly opened at varying vista points today. The broad open area of Summit Field allowed internal views from drives across the field and penetrating into the tree groves. Areas of open internal views to one or both sides of Rundill Drive alternated with sections enclosed by forest and woodlands. In general Iroquois Park was enclosed by the forest, woodland and border plantings, with relatively limited open landscape areas of greensward.

### Historic Zones & Character of Iroquois Park

The essential character of Iroquois Park is defined by six zones, four of which were incorporated in the F.L. & J.C. Olmsted General Plan. These zones are shown on the Iroquois Park Historic Zones Plan [3] and are described as follows: (1.) the sloping forest that covers the hillsides of Burnt Knob is a unique woodland experience for an urban environment, through this forest the Uppill Road winds providing access to the four dramatic overlooks at South Lookout or Panther Point, West Lookout or Observation Point, Krupps Point, and North Lookout; (2.) the Summit Field at the top of the hill is a large open space at the top of the city; (3.) the perimeter of the park on level to rolling topography was intended for bicycle riding and walking in both open areas and woodland. This area now contains active recreation facilities, parking and a large amphitheater; (4.) the woodland edge, narrow in some places and wide in others, was a visual buffer separating the park from the city surround; little edge buffer remains today; (5.) the Beech Woods was added to the park boundaries and contains the Riding Stable and related parking and riding ring today as well as the remaining woods; (6.) the Golf Course area was also added to the park along the north side extending the park boundary and providing an open, rolling area of landscape.



4. Iroquois Park

BOARD OF PARK COMMISSIONERS OF THE CITY OF LOUISVILLE, KY.

GENERAL PLAN  
FOR  
IROQUOIS PARK

SCALES  
0 10 20 30 40 50 FEET  
0 10 20 30 40 METERS  
F.L. and J.C. Olmsted, Landscape Architects  
Boston, Mass.  
1st. December 1897.

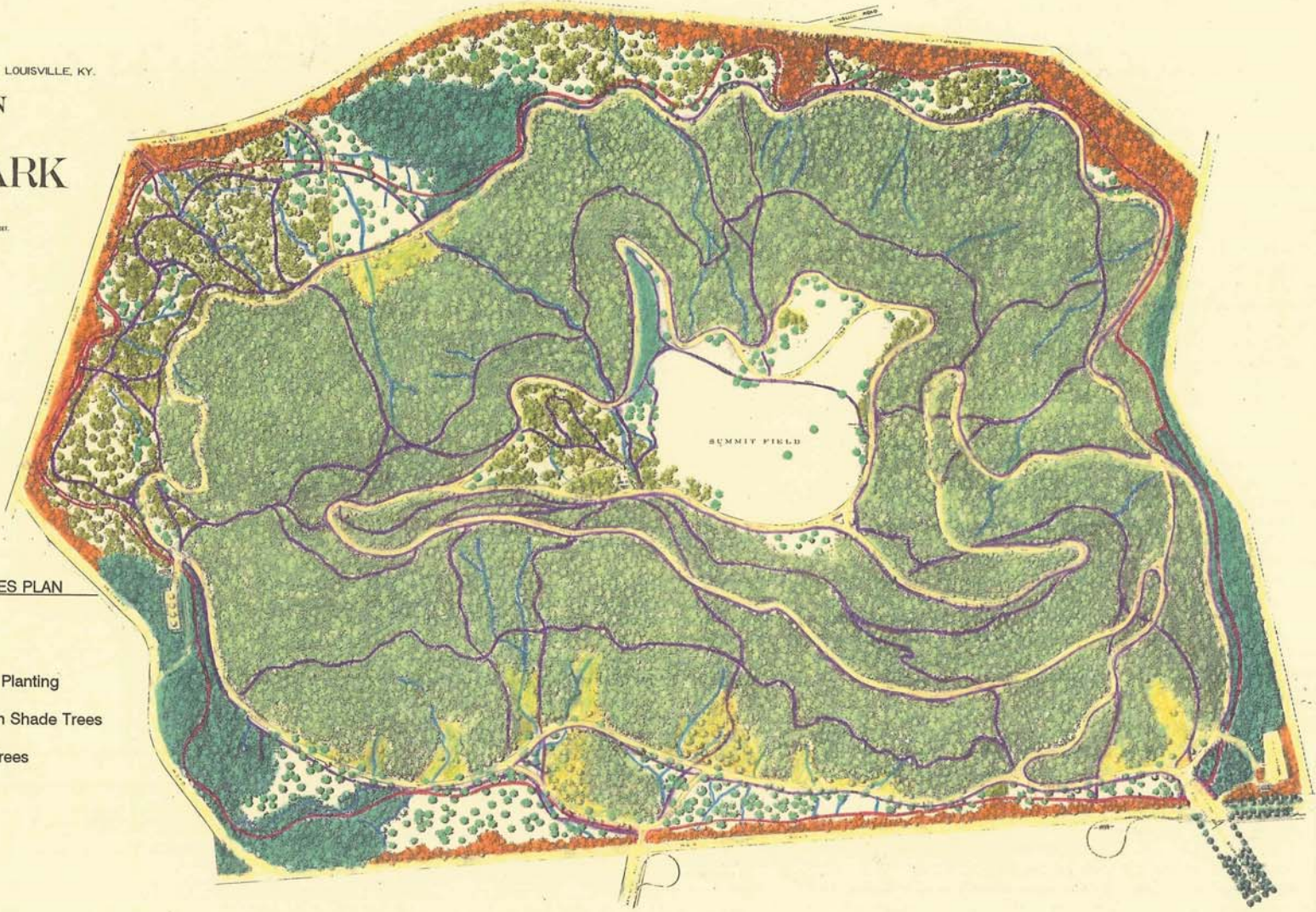
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NOTES  
1. THE GENERAL PLAN OF IROQUOIS PARK WAS PREPARED BY F. L. AND J. C. OLMSTED, LANDSCAPE ARCHITECTS, BOSTON, MASS., IN 1897.  
2. THIS PLAN IS A REVISION OF THE GENERAL PLAN OF IROQUOIS PARK, PREPARED BY LANDSCAPES, INC., IN 1993.  
3. THE PLAN IS BASED ON THE GENERAL PLAN OF IROQUOIS PARK, PREPARED BY F. L. AND J. C. OLMSTED, LANDSCAPE ARCHITECTS, BOSTON, MASS., IN 1897.  
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IROQUOIS PARK LANDSCAPE TYPES PLAN

- Forest
- Forest
- Glade
- Woodland
- Mixed Woody Border Planting
- Greensward
- Mixed Turf with Shade Trees
- Tree Groves
- Parkway and Street Trees
- Creek
- Drive
- Pedestrian Path
- Bicycle Path



1. Iroquois Park Historic Landscape Types Plan, color coding of vegetation types and circulation, prepared by Landscapes, 1993, overlaid on General Plan for Iroquois Park, Louisville, Kentucky, December 1, 1897 by F.L. and J.C. Olmsted, Landscape Architects. (FLONHS)

BOARD OF PARK COMMISSIONERS OF THE CITY OF LOUISVILLE, KY.

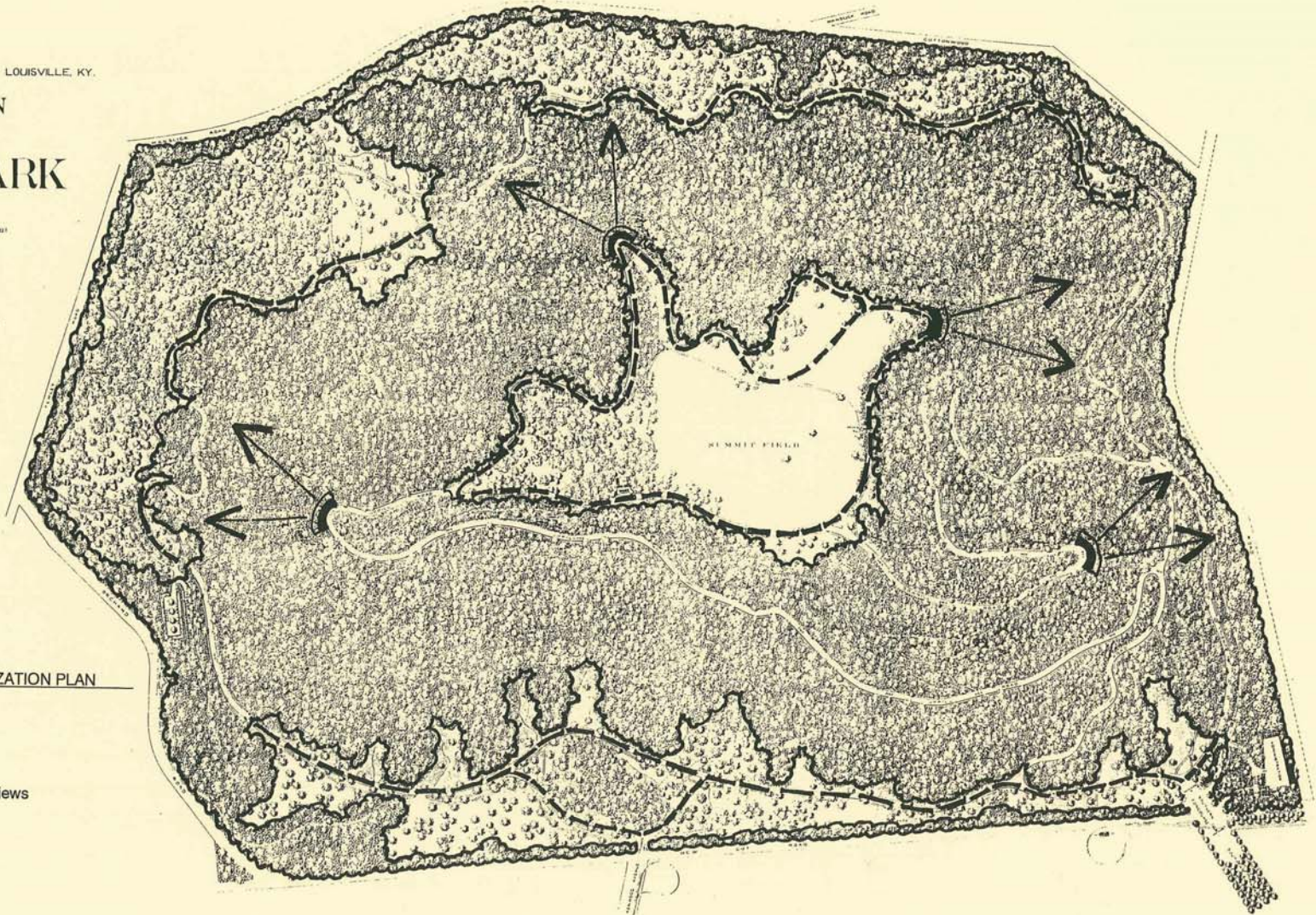
# GENERAL PLAN FOR IROQUOIS PARK

SCALES  
  
 R.L. and J.C. Olmsted, Landscape Architects  
 Brookline, Mass.  
 Jan. December, 1897.

BOARD OF PARK COMMISSIONERS  
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GEORGE FRANK & FRED CO., ENGINEERS  
 115 W. MAIN STREET, CINCINNATI, OHIO

NOTES  
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## IROQUOIS PARK SPATIAL ORGANIZATION PLAN



Scenic Vista  
 Internal Park Views  
 Visual Barrier

2. Iroquois Park Spatial Organization Plan, prepared by Landscapes, 1993, overlaid on General Plan for Iroquois Park. (FLONHS)

4. Iroquois Park

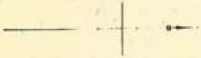
BOARD OF PARK COMMISSIONERS OF THE CITY OF LOUISVILLE, KY

GENERAL PLAN  
FOR  
IROQUOIS PARK

SCALES  
1" = 100' (Horizontal)  
1" = 100' (Vertical)  
P.L. and A.C. DICKER, Landscape Architects  
Brookline, Mass.  
1st. December, 1907.

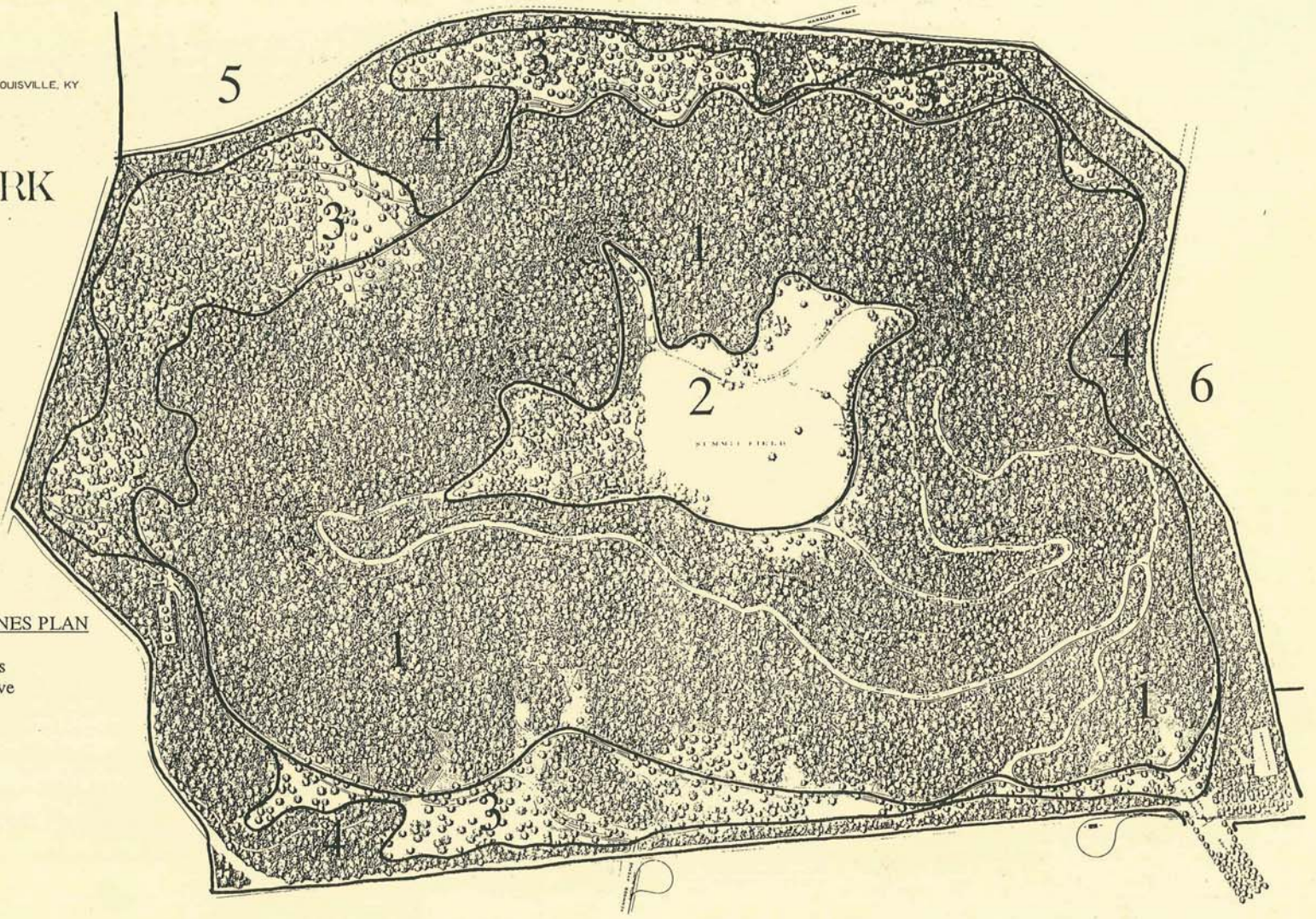
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GEOLOGICAL ENGINEERS & SURVEYORS  
W. H. WILSON, President, Civil Engineers

NOTES  
1. THE PARK IS TO BE MAINTAINED AS A FOREST.  
2. THE SUMMIT FIELD IS TO BE MAINTAINED AS A FIELD.  
3. THE PERIMETER IS TO BE MAINTAINED AS A PERIMETER.  
4. THE WOODLAND EDGE IS TO BE MAINTAINED AS A WOODLAND EDGE.  
5. THE BEECH WOODS ARE TO BE MAINTAINED AS BEECH WOODS.  
6. THE GOLF COURSE IS TO BE MAINTAINED AS A GOLF COURSE.



IROQUOIS PARK HISTORIC ZONES PLAN

- 1 • Sloping Forest & Outlooks
- 2 • Summit Field & Oak Grove
- 3 • Park Perimeter
- 4 • Woodland Edge
- 5 • Beech Woods
- 6 • Golf Course



3. Iroquois Park Historic Zones Plan, prepared by Landscapes, 1993, overlaid on General Plan for Iroquois Park. (FLONHS)

The character of Iroquois Park is embodied in the forests and woodlands which open onto dramatic scenic vistas [4]. In discussions among the project team, the essential nature of this park was seen as the forest-overlook-summit experience that is unique to this scenic reservation. The park provides a near wilderness experience, in concert with the Olmsted concept of shedding urban life and its confines and being rejuvenated by a breadth of landscape.

#### *Iroquois Park As-Built Condition*

The area of Iroquois Park is noted as 676.4 acres in 1913. In this section early views and a 1928 aerial view are used to understand the nature of the park as-built and in use during the early part of the twentieth century. Unfortunately, only the northern portion of the park is shown in the aerial photo included as [5], but even this is helpful. The as-built condition of the park is discussed using the six park zones introduced above.

The sloping forest that covers the hillsides of Burnt Knob was a pre-existing resource. This woodland was preserved while Rundill and Uppill Drives were constructed. These drives followed the General Plan to a great degree with one segment of Rundill Drive unbuilt and none of Downhill Road constructed. The pattern of the as-built drives is shown on the annotated version of an Olmsted office circulation plan for Iroquois Park. The quality of the forest through which these drives passed is shown in several period views. The forest had a deciduous canopy and a native understory in some areas and a mix of deciduous and evergreen trees with understory in others. The Olmsted office sought to revegetate the forest edges. Warren Manning, Superintendent of Planting, planted and scattered seed and planted seedlings with limited success. Natural regeneration proceeded over the years and the forest matured. The 1928 aerial view shows segments of drive with the forest trees directly abutting while other areas, especially at the edges of the north overlook, show bare drive margins. The four overlooks—South Lookout or Panther Point, West Lookout or Observation Point, Krupps Point, and North Lookout—are labeled on the annotated circulation plan. Historic correspondence, compiled in the documentary research report, discusses an approach to forest thinning that may have relevance for vistas: "In thinning, some care should also be had for vistas. Such openings should not be made as a rule by the removal of fine trees, but rather the removal of one or two poor trees or a few branches."

A series of pedestrian paths was planned for hilltop access and partially carried out. The 1928 aerial view shows several converging paths in the northeast corner of the park proceeding uphill from Rundill Road, paralleling the North Overlook to the west, and running up to Summit Field. The full extent of the pedestrian system is unclear although stone steps proceed uphill from Uppill Road at several points [6]. The heavy rains of the 1937 storm caused a 350 foot slide on the east side of the Burnt Knob. The drive was originally built on top of clay soils over a shale bed. The drive was reconstructed for 460 feet by cutting into the

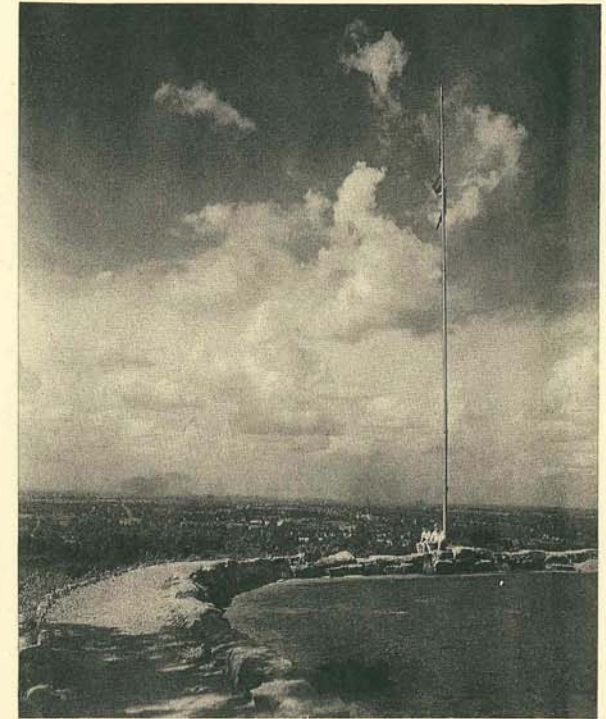
hillside further and installing 690 feet of French drains. Accounts also note that the bridle paths were repaired after this storm.

Summit Field is a large open space at the top of the city. This open hilltop may have been caused by fire that periodically destroyed the woody vegetation. The Olmsted General Plan retained the opening with some shaping of the edges through the planting of oak trees. The portion of the aerial shows an open expanse. No additional views from the historic period verify the as-built condition. The shape and vegetation of Summit Field today still reflect the spatial organization shown on the General Plan so that it can be assumed that the as-built condition is a continuum with the original plan and the existing condition. One piece of correspondence indicates that in 1899 transplanting of trees from "some place close at hand" could supplement the growth in areas of park construction disturbance. Other guidance indicates that plantings should match those nearby. In addition one quote, drawn again from the documentary research report, refers directly to Summit Field plantings: "In the open space at the summit of the hill, Oaks should be planted from fifty to two hundred feet apart. The trees should be in irregular groups, not in rows, and large holes should be prepared for them." At least one rustic lodge provided visitor services on Summit Hill.

The park perimeter extended beyond the hillside slopes on level to rolling topography. This area of former pasture land and woodland was shaped with additional plantings to form open groves. The 1928 aerial view shows this open grove landscape in the northeast corner and along the eastern side of the park in a spatial organization that mimics the General Plan. Drives in this perimeter area are within a more open landscape. The grading of the drive margins shaped the park lands. Correspondence from 1899 indicates that the Circuit Drive was planted to roses at regular intervals and that "It would be better to fill in between these roses with *Rosa setigera* (prairie rose) and other shrubs in such a manner as to secure a mass of foliage" (DR p. 292). The 1928 aerial view shows a path system between the park boundary and Rundill Road that mimics the alignment planned for the bicycle path. This path could have been developed for bicycles or for bridle or pedestrian use. Remnants of it exist today.

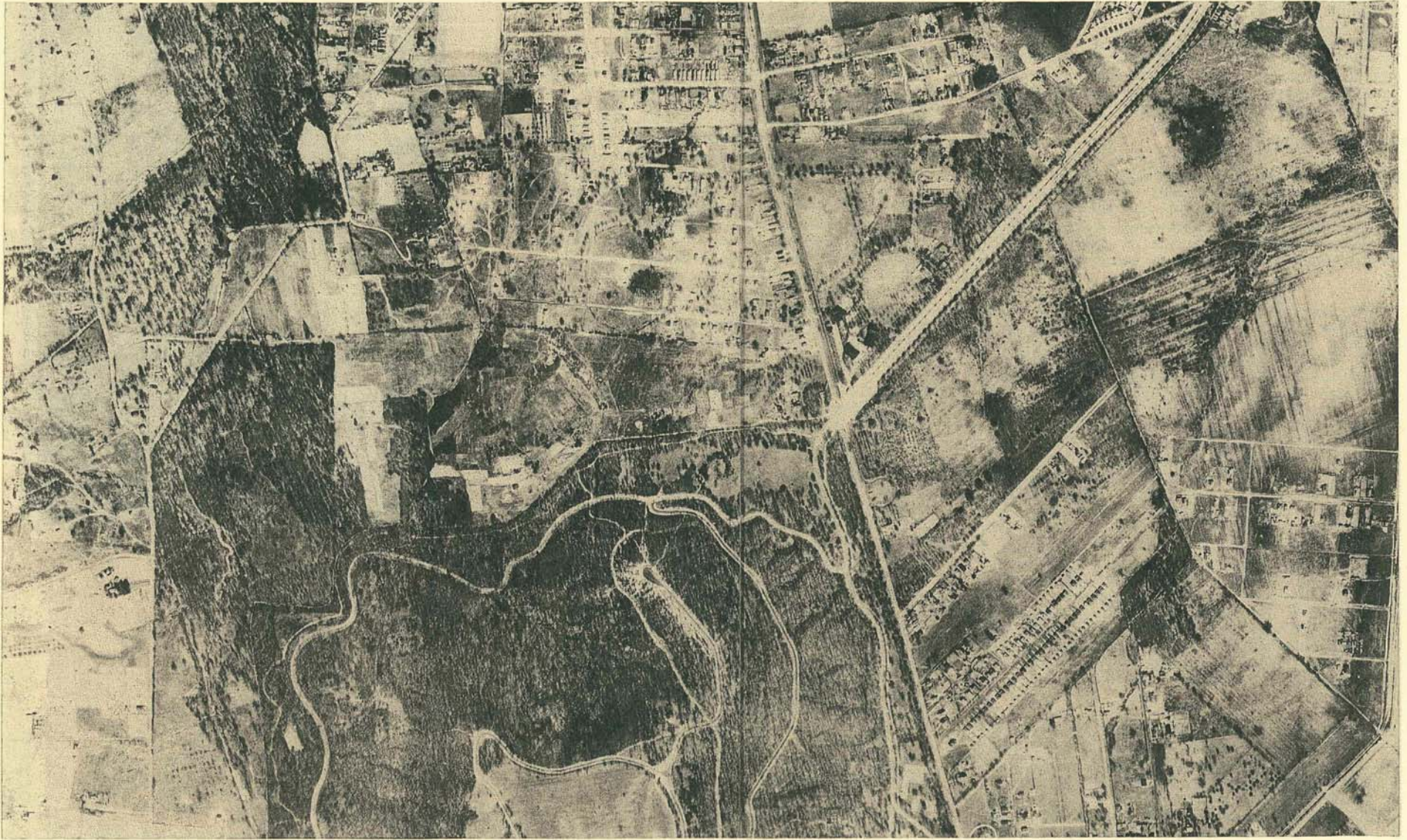
Near the park boundary a woodland edge was developed to provide a visual barrier to the surrounding city. This dense edge planting is again seen in the northeast corner and eastern side of the park in the 1928 aerial view. The dark color of the area may indicate a mixture of deciduous and evergreen plantings. This buffer is narrow in some places and wide in others as shown in the aerial view. The as-built condition of the edge buffer throughout the balance of the park perimeter is not documented.

One park addition was the Beech Woods on the southwest corner. It included an American beech woodland and a wetland area. This area does not appear to have been incorporated into the park design, but was integrated into the park and used by park visitors. The Olmsted



4. View over surrounding city from Northern Overlook in Iroquois Park; note irregular stone wall and pedestrian path in foreground, c. 1938. (University of Louisville, Photographic Archives, Caufield & Shook Collection)

4. Iroquois Park



5. 1928 Aerial view of northern half of Iroquois Park. (Bowman Park Aero Co. Incorporated)

firm commented on Fenley Woods indicating that: "The newly graded slopes should be covered with trees and shrubs like those already growing in the adjacent forest. A few trees should be scattered in the upper part of the slope from ten to twenty feet apart and the ground between them planted with Sour Wood, Wahoo, Dogwood, Haw., etc., the lower part of the slope can be covered with Maple-leaved Viburnum, Bitter Sweet, Moon Seed and masses of native herbs collected with the sod and used to cover the surface in place of grass." They discuss at several points within this correspondence the desire to thin and manage the woodlands for "one or two species. . . selected to predominate in each place instead of having the selection a much mixed one" (See documentary research report for these quotes, pp. 292-3).

The Golf Course area was also added to the park along the north side. The 1928 aerial view shows farm fields in the area extending the park boundary and adding an open, rolling area of landscape.

#### *Iroquois Park Existing Conditions*

The park today retains all its principal features to a substantial degree. Visual references for current conditions are the 1990 aerial photograph, the current survey and current views of the park. The following text is again organized by park zones sequentially in the following paragraphs.

The woodlands on the slopes of Burnt Knob are retained in a mature form with a depleted understory. Uppill Road provides pedestrian and mini-bus access to the four overlook points and remaining vistas from these points. West Lookout or Observation Point is open to an expansive city view with the woody plants unattractively trimmed at an even height below eye level, while Krupps Point is entirely overgrown. In the late 1980s the North Lookout area witnessed the construction of a multi-level concrete platform and a wood timber edged path running down the slope to the road. This path construction area is experiencing considerable erosion and soils are unstable along and beside the path. Other drainage gullies through the woodlands are also eroding. In general the woodlands have grown taller with tree canopies extending over the formerly open Uppill Road. The shrub and flowering tree layers shown in historic views are not obvious today.

Summit Field is a large open space of mown turf. The trees around the field have grown up enclosing views out from the edges while a broad sky canopy is open overhead. Views of Summit Field show a drainage swale in the turf in the foreground and the mature edge trees in the background. Four tennis courts are located on the east edge. Jacob Lodge, a restroom facility, and two picnic pavilions are located in the tree groves of the south end of Summit Field. Private vehicles are no longer allowed to traverse Uppill Road to reach the summit.

The perimeter of the park has absorbed active and group recreation facilities over the years. The remaining green areas of the level to rolling topography are a combination of open greensward with a few trees, tree groves and woodlands. A small pond has been developed in the southeast corner, while tennis courts, a large parking lot, a small parking area, a playground, a frisbee golf course and the Iroquois Amphitheater have been added to the eastern park perimeter. A continuous pedestrian path winds through this perimeter area on an alignment that follows the Olmsted bicycle path route in part. In recent years portions of Rundill Road were closed to private vehicles with access allowed only on certain drive segments. Pedestrians can use the closed portions of the drive and walk to the overlooks and Summit Field on Rundill and Uppill drives.

The former visual buffer of woodland is no longer present along the eastern edge of the park but is found as woodland in other portions of the perimeter. Much of the Beech Woods area remains. A portion of this woodland and wetland was developed as a Riding Stable and related parking and riding ring/arena, which filled a portion of the wetlands. Horses are rented at the stable for use in Iroquois Park. The former cinder bridle paths in the park perimeter and hillsides are in poor condition today. The Golf Course area along the north side of the park includes eighteen holes, a clubhouse and a parking area. The depth of planting between Rundill drive and the golf course and parking area varies and is too narrow to provide a visual screen in some places.

#### *Iroquois Park Planning Issues*

There are several issues facing Iroquois Park that have preservation implications. The degradation and loss of function of the park pedestrian and bridle path system needs to be resolved to improve access and comply with ADA. The question of private vehicle access to the park to experience the woodland drives by car requires planning to balance access and use pressures. Changes to park vegetation over time including maturation and loss of canopy trees, blockage of vistas, depletion of understory, depletion of visual buffer and the need to protect fragile plant communities all require planning and management effort. Drainage from Burnt Knob moves quickly downslope causing scouring and erosion in many areas and damaging the park drives. Erosion is especially severe around the zig-zag path to the North Overlook. Drainage needs to be managed more effectively. Over time the perimeter of the park has become cluttered with buildings, parking lots and recreation facilities. Future site planning for these facilities should seek to incorporate these uses in a more compatible manner. Transportation should continue to be provided to the summit for those who do not wish to or are not able to walk, on a more regular basis. The resources of Iroquois Park require detailed consideration of remaining historic features and current and future uses and management with an intention to retain historic fabric, recapture historic character, and serve contemporary needs simultaneously.



6. Stone steps leading to woodland path from Uppill Drive, Iroquois Park. (University of Louisville, Photographic Archives)

## Natural Communities & Disturbance Analysis

Prepared by Eco-Tech, Inc., Frankfort KY

### Introduction

Iroquois Park is located in the southwestern portion of Louisville, Jefferson County, Kentucky. The entire park is depicted in the south-eastern quadrant of the USGS Louisville West Quadrangle. Iroquois Park is virtually surrounded by urban and suburban development. The park is bounded on the east by New Cut Road, on the southeast by Park Road, on the south by Palatka Road, on the west by Manslick Road and several associated subdivisions and on the north by urban lots and residences located along Stolz Avenue and Huntoon Avenue. Iroquois Park lies primarily on New Albany shale of Devonian Age. According to preliminary work by the local U.S.D.A. Soil Conservation Service, it has a highly erodible mantle of loess, a wind-blown glacial deposit, on both the top and slopes of the knob. Most of Iroquois Park is clothed in uneven-aged, intact second growth forest. Much of the forest cover can probably be classified as "old growth" due to the large numbers of very large trees, the numerous dead snags and fallen logs scattered throughout the park, the abundant evidence of natural tree gap regeneration that has continued over a very long period of time, the lack of exotic and weedy plant species out in the forest (away from trails and roads), and the generally intact and distinct assortment of forest types that vary with changes in slope and aspect. The major open and disturbed sections of the park include much of the top of the main ridge ("Burnt Knob"), currently maintained as a large meadow, the cleared and mowed section in the southwest around the riding stable, the golf course at the northern end of the park and the open fields with scattered trees that border New Cut Road on the eastern side of the park. Some erosional features have appeared at various locations in the park due to human foot traffic, horse travel, the maintenance of trails by vehicles, the construction and maintenance of vista areas, and rapid water runoff during storm events. Some of these areas have been reclaimed but many have not. A few sites in Iroquois Park have been impacted by the dumping of trash, wood debris and fill material or by the cutting of the tops of trees to provide scenic vistas. Several paved roads, riding trails and foot trails meander through the woodlands—the edges of these provide invasion routes for a wide variety of early successional species of exotic and native weedy trees, shrubs and herbs. As a rule, these species have not been able to spread into the adjacent forests as of yet and their impact to Iroquois Park has been minimal. Wildlife surveys in the park during this inventory have thus far been minimal. The vertebrate collections housed at the University of Louisville include a few specimens that have been collected over the years at Iroquois Park.

The following species are represented there:

Amphibians and Reptiles—Streamside Salamander, Slimy Salamander, Northern Fence Lizard, Midwest Worm Snake, Eastern Milk Snake,

Northern Copperhead (nearby) and Eastern Box Turtle.  
Mammals—Gray Squirrel.

Our own observations and collecting efforts have yielded the following:

Amphibians and Reptiles—Streamside Salamander, Slimy Salamander, Zigzag Salamander, Ravine Salamander, Upland Chorus Frog, Northern Spring Peeper, Five-line Skink, Ground Skink, Northern Ringneck Snake, Common Snapping Turtle and Eastern Box Turtle.

Mammals—Short-tailed Shrew, Eastern Mole, White-footed Mouse, Gray Squirrel, Raccoon, Opossum, Gray Fox and White-tailed Deer. Iroquois Park offers potential habitat for a number of rare species that are known from the Louisville area and Jefferson County. The Kentucky State Nature Preserves Commission (KSNPC) rare species database offers a single record for the rare native crabapple (*Malusioensis*) from an upper slope woodland on the eastern side of the park. There is also an old record for Kirtland's snake (*Clonophis kirtlandii*), a species under consideration for federal protection, from a site just south of the park boundary along the stream which drains the pond located near the junction of Park Road and New Cut Road. Iroquois Park appears to offer some excellent potential roosting sites (in old snags and under the bark of shagbark hickories) for federal endangered Indiana bats (*Myotis sodalis*) and the state listed species of special concern, northern long-eared bats (*Myotis septentrionalis*). The open woodlands and fields on Burnt Knob may support a remnant colony of federal endangered running buffalo clover. All of these species require special field efforts at certain times of year to document their occurrence in the area.

### Plant Communities

#### Blackjack Oak — Post Oak Forest

This distinctive forest community forms narrow strips just below the crest of Burnt Knob in areas with southern, southwestern or western exposure. The dominant trees are dense to sparse, thickety stands of stunted blackjack oak (*Q. marilandica*) and post oak, most of which are probably quite old even though their trunks mostly measure less than 12 inches dbh and they tend to stand less than 30 feet tall. Interspersed with these are a few small chestnut oaks (*Q. montana*), white oaks (*Q. alba*), Virginia pines (*P. virginiana*) and eastern red cedars (*Juniperus virginiana*). The soils underlying these trees tend to be very dry, shaley and easily erodible. Severe erosion has taken place in several areas that receive foot traffic from people and white-tailed deer. Large chunks of flint were observed embedded in eroding soil just below the southernmost park vista—whether these were naturally occurring or had been brought there by Native Americans could not be determined. The most common herbs seen in this community type in fall surveys were pussy toes (*Antennaria plantaginifolia*), oldfield cinquefoil (*Potentilla simplex*) and Short's aster (*Aster shortii*).

#### Chestnut Oak Forest

Stands of pure or nearly pure chestnut oak form distinctive continuous bands on the steepest portions of most of the southern, southwestern and western exposures in the park. Chestnut oak forest generally lies immediately below the blackjack oak—post oak community, and also occupies much of the uppermost slopes where that community is poorly developed or absent. The individual trees in the chestnut oak forest tend to be small (to about 16 inches dbh) and widely spaced with low spreading crowns. Occasional groups of white oaks, Virginia pines and eastern red cedars are sometimes scattered among the chestnut oaks. Soils in this forest type are extremely erodible, and their occurrence on very steep slopes makes them extremely vulnerable to damage from foot travel. Some of the most eroded areas seen on the entire park were in the chestnut oak forest at the extreme southern end of Burnt Knob, with some of the erosion obviously attributable to human traffic and some perhaps of natural origin. At the southern end of Burnt Knob, a few disturbance indicator species such as black locust (planted?) and an exotic grass (*Miscanthus sinensis*) were invading the eroding slopes.

Herbaceous plants that seemed characteristic of the chestnut oak community at Iroquois Park included dittany (*Cunila oreganoides*), white top aster (*Sericocarpus asteroides*), silverrod (*Solidago bicolor*), gray goldenrod (*Solidago nemoralis*), goat's-rue (*Tephrosia* sp.) and ebony spleenwort (*Asplenium platyneuron*). Many of these grew at the edges of eroded bands and old trails from carpets of mosses (mostly *Leucobryum* sp.) and lichens.

Much of the forest that remains at the top of Burnt Knob consists of mature chestnut oak as well. These trees are growing in open, park-like stands and tend to be much larger in all respects than the chestnut oaks on the steep, dry slopes. Many exceed 20 inches dbh. Scattered among the chestnut oaks on the top are a few large white oaks and northern red oaks. The ground cover here appears to be regularly mowed; miscellaneous low weeds and grasses grow under and between the trees.

The only ground skink (*Scincella lateralis*) that was seen in the park during the present inventory was found in the chestnut oak forest on the south slope of Burnt Knob.

#### Oak — Hickory Forest

Mature oak-hickory forest predominates on many of the middle and lower slopes of Iroquois Park. On the south and west facing hillsides, this forest type occurs just below the chestnut oak forest, extending from the point where the slopes begin to flatten down to the base of the hill. The oak-hickory community also occupies most of the east facing slopes in the park, where it generally ranges from the crest to the bottom of the hill.

Although the species composition of this community tends to vary somewhat with both aspect and steepness, the dominant trees include

white oak, northern red oak and chestnut oak interspersed with shagbark hickory (*Carya ovata*) and pignut hickory (*C. glabra*). Among the oaks, white oak and chestnut oak are more prevalent on the slopes facing west, southwest of south while northern red oak is a stronger component on slopes that face east and northeast. The larger oaks are mostly in the 30 to 36 inch dbh range; most of the large hickories are in the 24 to 30 inch dbh range.

Flowering dogwood and greenbrier (*Smilax* spp.) form the dominant understory in the oak-hickory community here; redbud tends to be prominent in the drier, more open sections and has, along with Devil's walking stick (*Aralia spinosa*), become well established where roads and trails have created gaps in the overstory canopy. Common woodland herbs include Christmas fern and white snakeroot.

Five-lined skinks (*Eumeces fasciatus*) were observed commonly on oak-hickory forest slopes at Iroquois Park; most were living on snags and fallen logs. Several slimy (*Plethodon glutinosus*) and zigzag (*P. dorsalis*) salamanders were found under logs and chunks of sloughed bark. The skulls of white-footed mice (*Peromyscus leucopus*), pine voles (*Microtus pinetorum*) and short-tailed shrews (*Blarina brevicauda*) were found in old beer and soft drink bottles that had been thrown over the side of the hill by park users. The exfoliating bark of shagbark hickory trees and the fairly numerous dead snags present in this forest type provide excellent habitat for summer maternity colonies of the federal endangered Indiana bat. During the summer of 1991, the authors captured lactating female Indiana bats in mist nets set over a small stream at the base of a forested slope in the northeastern section of Louisville, about ten miles from Iroquois Park. During that same year, bat biologists caught additional Indiana bats that were foraging in low-lying woodlands near the Ohio River in Breckinridge County, about 30 miles west of the park. These bats were fitted with tiny transmitters and tracked to their roost trees, some of which were near the top of a knob in an oak-hickory forest virtually identical to that which adorns the slopes of Iroquois Park.

#### Sugar Maple Forest

Extensive stands of sugar maple forest can be found in three areas within Iroquois Park. Two of these are located on very steep slopes—one in the upper section of a large north-facing cove located immediately to the south of the golf course, and another in the head of a smaller cove that faces to the east. The other sugar maple area is located on a very gentle slope in the lower section of a southwest-facing cove to the east of the riding stable area.

Many of the sugar maples in these stands are fairly large trees (to about 24 inches dbh) along with a few dead snags. The north-facing cove stand has a few big (30 inches dbh) northern red oaks and white oaks, and the stand near the riding stable has a few beech trees and yellow poplars of moderate size (to about 24 inches dbh). Pawpaw forms a dense understory in the more open sections of this forest type.

#### Mixed Forest — Oak, Yellow Poplar, Sugar Maple, Beech

This forest community occurs on some of the north- and northeast-facing hillsides on the northern portion of Iroquois Park. Many of the trees are quite large, in the 24 to 36 inches dbh range, and the dominant species are a mixture of northern red oak, white oak, yellow poplar, sugar maple and beech with a few scattered sweet gums (*Liquidambar styraciflua*), hickories and other trees. Pawpaw is a conspicuous understory tree here; other understory species include slippery elm and red maple (*A. rubrum*).

At Iroquois, this community seems to represent an interdigitation between the beech-yellow poplar forests of the lowlands, the sugar maple woodlands of some of the coves and the oak-hickory forests that predominate on most of the lower slopes.

Zigzag salamanders were found under logs in this forest type at Iroquois Park.

#### Beech - Yellow Poplar Forest

This distinctive community occurs in the lowlands in the vicinity of the riding stable, along Palatka Road and along Park Road in the southern and southwestern portions of Iroquois Park. American beech is by far the most common and conspicuous tree here. Many large old beech trees are in the 36 to 48 inch dbh range; snags and downed trees can be seen throughout the forest; and the numerous younger beech of varying age show that the community is maintaining itself through natural regeneration. Included within this beech forest is a strong component of yellow poplar with the largest of these reaching 30 to 40 inches dbh. Mature trees of other species can be found here as well in a few places. Large white oaks, northern red oaks and sweet gums occur just north of the riding stable where the oak-hickory forest of the lower slopes grades into the beech-yellow poplar lowlands. A few large sycamores and cottonwoods grow along the stream channels located north and west of the riding stable. Sugar maple can be seen on some of the relatively high ground just to the north of Palatka Road, although most of the trees of this species are only of sapling size.

The understory of the beech-yellow poplar forest in the park is well developed. Pawpaw forms dense patches in the broad openings between the trunks of the larger trees, and spicebush stands are scattered about in the forest. The spring herbaceous flora is outstanding—huge colonies of goldenseal (*Hydrastis canadensis*), some containing hundreds of plants, are present along with such wildflowers as spring beauty, bent trillium (*Trillium flexipes*), mayapple (*Podophyllum peltatum*) and spring coral-root orchid (*Corallorhiza wisteriana*). In summer, beech-drops (*Epifagus virginiana*) grow in profusion under the mature beech trees. Stinging nettle is also abundant in the rich, moist soils throughout this area, providing a food supply for the caterpillar of the red admiral butterfly. The many dead and downed logs that are found throughout this forest

type provide excellent habitat for a wide variety of small vertebrates. Short-tailed shrews and white-footed mice were captured here, as were slimy, zigzag, ravine (*Plethodon richmondi*) and streamside (*Ambystoma barbouri*) salamanders, eastern box turtles (*Terrapene carolina*), northern ringneck snakes (*Diadophis punctatus edwardsii*) and a half-dozen kinds of land snails. The Iroquois Park population of ravine salamanders represents a new range extension westward for that species and may prove to have some biogeographical significance.

A gray fox (*Urocyon cinereoargenteus*) was observed in a stand of mature beech near the riding stable, and fox droppings were noted on fallen logs on several occasions.

Seasonal and permanent pools of water located in the beech-yellow poplar forest provide breeding sites for several kinds of frogs. Northern spring peepers (*Pseudacris c. crucifer*) were found at one temporary pond at the base of an uprooted tree and upland chorus frogs (*Pseudacris triseriata feriarum*) were found in the partially-filled wetland area located to the southeast of the riding stable. Both frog species may disappear from Iroquois Park unless dependable breeding habitat for them can be restored. A single common snapping turtle (*Chelydra serpentina*) was found in a seasonally flooded stream bottom near the riding stable.

The numerous large snags that are scattered throughout the beech-yellow poplar forest would appear to provide excellent summer roosts for Indiana bats. One factor that may limit the chances for their occupation of Iroquois Park, however, is the general lack of available drinking water.

#### Disturbed Communities

Several interesting community features that show mixtures of natural and human influences at Iroquois Park should be highlighted. These are briefly discussed below:

##### Burnt Knob

The eastern and northern sections of Burnt Knob (bordering the mowed fields) contain three features of general biological interest.

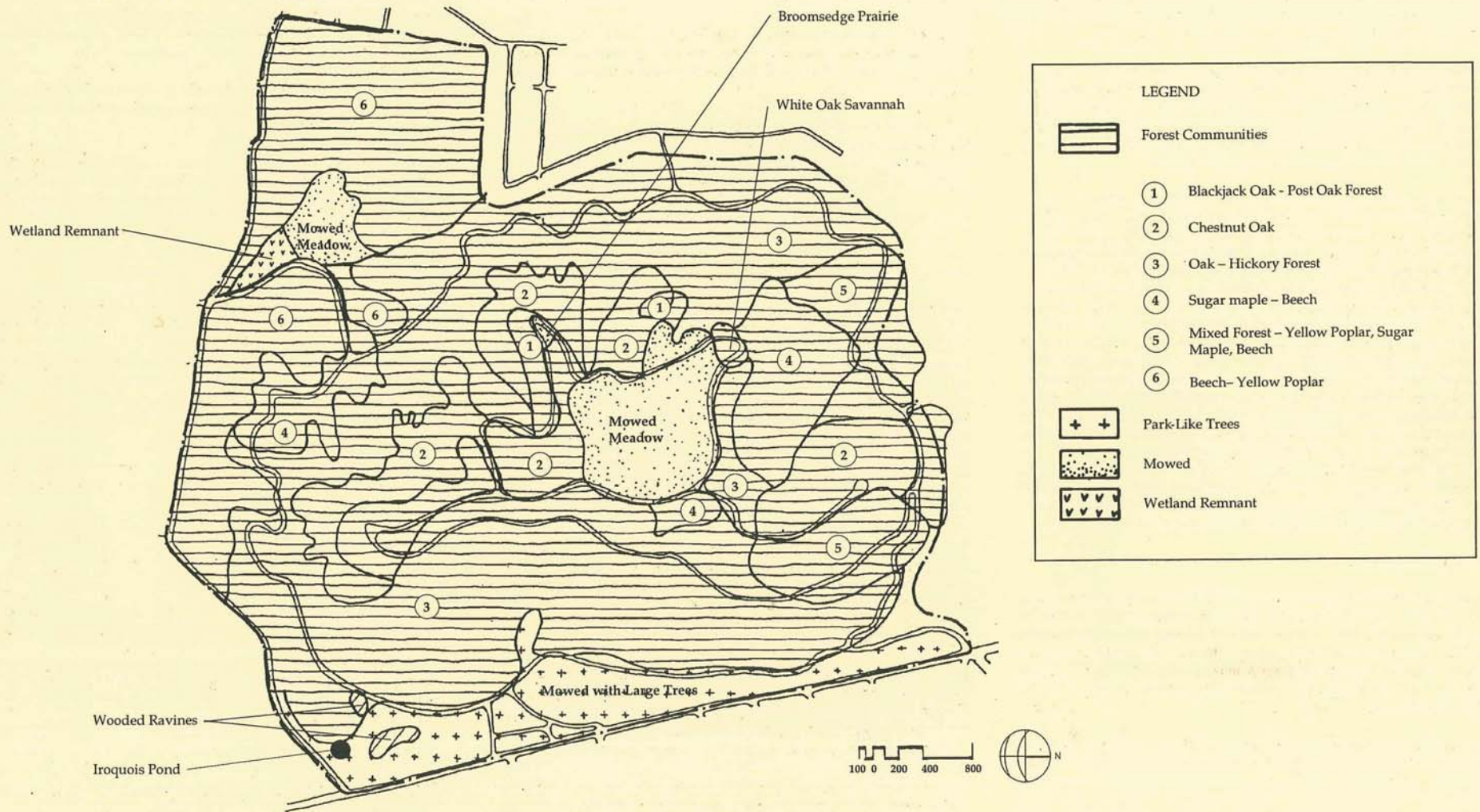
The first is a tongue of unmowed field that extends due west from the highest point on Burnt Knob appears to offer an excellent opportunity for creating or restoring a prairie community in Iroquois Park. The name "Burnt Knob" suggests that such a community might have occurred there in the past, maintained by fire, and the broad and spreading crown of many of the larger trees on the crest of the ridge indicate that they grew in an open savannah-like situation at one time. The suppression of fire in the park, combined with the invasion of many exotic weeds and the mowing regime now practiced there, would have eliminated most prairie plants from the area in a relatively short time.



4. Iroquois Park

*Iroquois Park: Plant Communities*

Prepared by Eco-Tech, Inc., Frankfort KY



The second is the extreme northwestern corner of Burnt Knob which contains what may be a remnant of the original vegetation of that area. This area might be termed a "white oak savannah." Several huge white oaks, widely spaced, harbor very few understory trees. The ground beneath them supports a large colony of silverrod, a goldenrod that prefers open prairie-like sites that have developed on acid soils, and may have a variety of other prairie remnant herbs as well.

The third is the presence of several large pin oaks along the margins of the mowed fields may indicate that a perched water table exists in the northwestern section of the top of Burnt Knob.

#### *Riding Stable Wetlands*

Two small wetland areas are located near the Iroquois Park riding stable. Both have been highly degraded. The largest of the two lies a few hundred feet southeast of the riding stable along the easternmost of the two paved roads that provide park access from Palatka Road. The section of wetland nearest the riding stable has been filled in with soil and rubble and is now a degraded field that supports a variety of rather noxious weeds. The section closer to the access road contains mounds of dumped concrete, asphalt, rubbish and soil—these serve as islands of degradation in what otherwise would be a nice wet meadow community. This particular wet meadow provides the only breeding habitat for upland chorus frogs available in the entire park, and it is on the verge of being destroyed. It offers an excellent opportunity for a small-scale wetland restoration project. The other wetland is located in the southwestern corner of the clearing adjacent to the riding stable. It contains a mixture of fescue and sedges, and is maintained by mowing. It, too, offers restoration opportunities—a small shallow pond could be developed there that could serve as a breeding site for amphibians and a source of water for park wildlife.

#### *Park Road Snail Pond (Iroquois Pond)*

The only good pond that we were able to find at Iroquois Park is located in the southeast corner of the park near Park Road. This pond was casually sampled for aquatic macroinvertebrates in April and sampled in more detail in late October. The most outstanding feature of this pond is the large and diverse assemblage of aquatic mollusks that occurs there. Large populations of two species of pouch snails (*Physa* spp.) two kinds of ram's horn snails (*Helisoma anceps*, *Planorbella trivolvis*) finger-nail clams (*Sphaerium* sp.) and the Chinese giant snail (*Cipangopaludina sinensis*)—an exotic species known only from a few places in Kentucky—were found at this pond. The pond is literally choked with aquatic vegetation including broad-leaved cattail, elodia and coontail; these plants provide a stable and abundant food base that sustains the aquatic snail populations.

The snail pond appears to be the only reliable, permanent source of drinking water for some of the wildlife that occurs in Iroquois Park, including the bats. Any plans that include the rehabilitation of this pond

and its conversion into a fishing resource should include a preliminary survey to determine whether or not Indiana bats, or any other rare bat species, depend upon the pond as a drinking water source.

#### *Roadside and Trailside Plants*

Most of the woodland communities of Iroquois Park are mature and intact and have been able to maintain their integrity and resist invasion by weedy species and exotics. Each foot trail, riding trail, road corridor, artificially managed vista, mowed field, waste area, or eroded slope has the potential to serve as a focal point for the invasion of native and non-native kinds of weeds, vines, shrubs and trees that can, in time, displace native plant communities and species.

A listing of some of the native and exotic weedy plants that have gained a foothold in one or more of the disturbed habitats at Iroquois Park include:

Trees—mimosa, tree-of-heaven, black locust, hackberry, sassafras, loblolly pine, white mulberry, black cherry, redbud and Chinese elm.

Shrubs and vines—blackberry, Chinese yam, shrub honeysuckle, smooth sumac, staghorn sumac, multiflora rose, Japanese honeysuckle, privet and bittersweet.

Herbs and Forbs—chicory, mockstrawberry, wormwood, broom sedge, foxtail, fescue, ground cherry, yarrow, Queen Anne's lace, periwinkle, sweet clover, red clover, white clover, partridge pea, tall goldenrod, gray goldenrod, *Miscanthus sinensis*, ground ivy.

#### *Disturbance*

##### *Vista Areas*

At both the northern and southern ends of Burnt Knob, trees growing immediately below the observation areas have repeatedly been mechanically topped over the years to provide park visitors with panoramic views from the summit. This practice has produced a very unnatural look—so unnatural that it is almost jolting in comparison with the pristine appearance of so much of the rest of Iroquois Park. Tree species which were part of the original forest communities at these sites and that have been topped include northern red oak, white oak, chestnut oak, post oak, blackjack oak, and eastern red cedar. The dry steep shale soils of both of the vista areas tend to support only stunted trees to begin with; if not topped mechanically, they would form natural flat topped canopies at heights of 30 to 35 feet above the ground.

The clearing of all trees from slopes located immediately below the vista, and the subsequent reclamation of these slopes with fescue, has created a focus of infection for such weedy species as tree-of-heaven, black locust, black cherry, sassafras, Japanese honeysuckle, blackberry and

tall goldenrod. Some of these—particularly black locust and honeysuckle—have begun to invade downslope into the oak forests.

Two additional problems with the vista areas directly involve the impacts of park visitors. Trash—generally in the form of discarded aluminum cans, bottles and food wrappers—is distributed below the stone walls at each vista. Trash cans have been provided near the vistas but evidently these are not located conveniently enough for most visitors to actually use them. Finally, unplanned trails made by visitors have resulted in the development of severe erosion problems on the steep slopes at both vistas. The erosion is most serious at the south vista—an area that is not seen by most park visitors. At the north vista, a walkway designed for use by visitors zigzags its way from a small parking area up to a stone overlook at the top of the hill. Here, many visitors take short cuts and walk straight up the slope, rather than use the walkway resulting in an erosion problem that is sure to increase in severity as time passes. [Note: only three of eleven visitors whom the authors observed climbing from the parking area to the vista on two different days actually followed the walkway—all others cut straight uphill].

The authors have encountered sets of old stone steps that apparently served to provide hiking access to Burnt Knob from below. These still receive some use, and are not beset by erosion problems. They also tend to take visitors straight up the hill rather than along a meandering path, greatly reducing opportunities for visitors to take short cuts that might create erosion problems.

#### *Riding Trails*

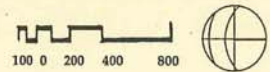
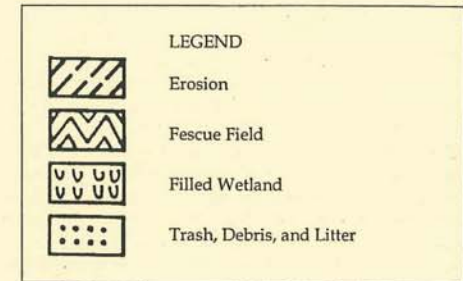
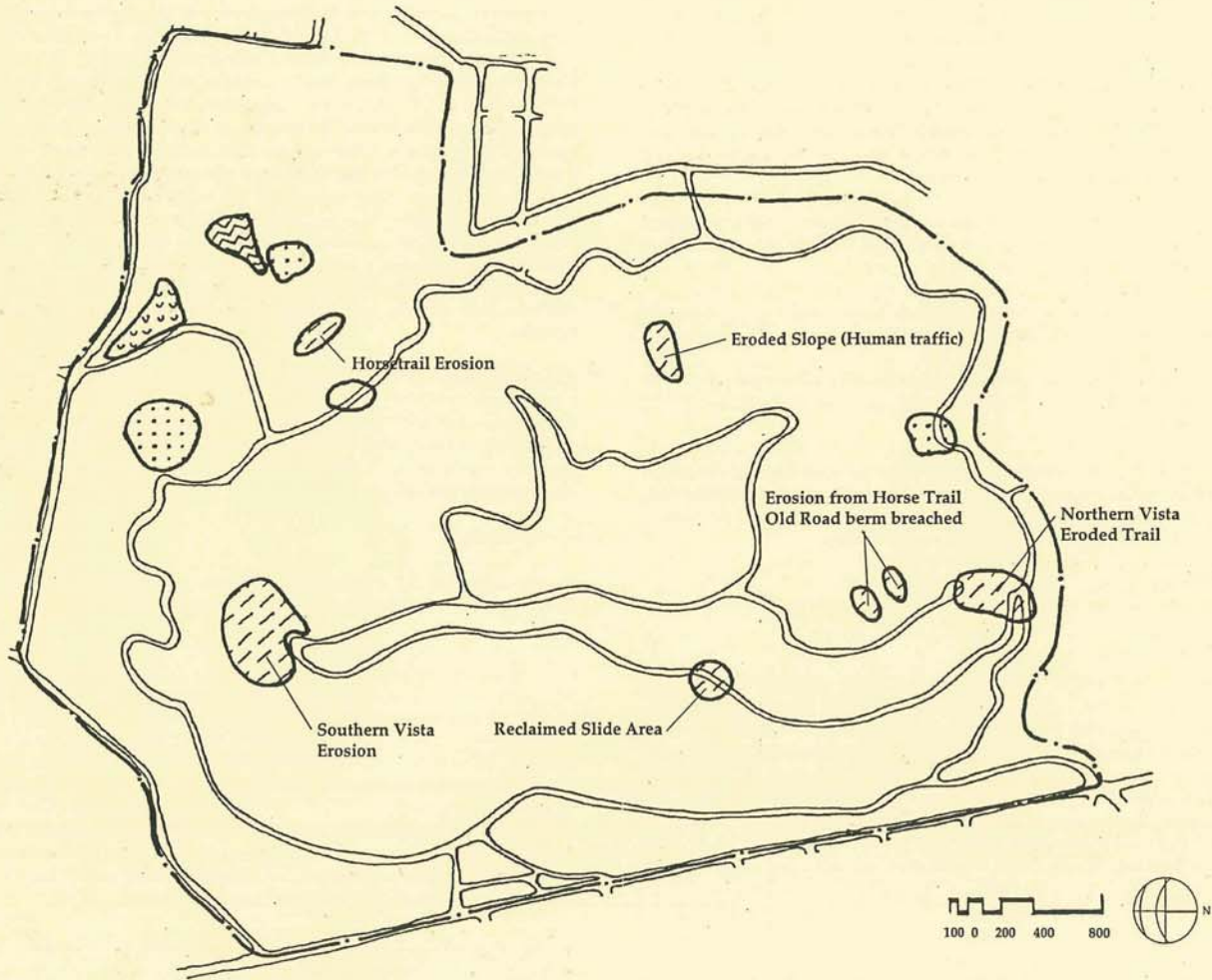
Most of the horseback riding trails in the park seem to be in fairly good shape. Problem areas have been noted, however, in several places.

The trail that winds through the beech-yellow poplar forest community to the south and west of the riding stable crosses a number of wet areas, and these tend to create maintenance problems at least during wet weather. In several places, a small bulldozer or similar tracked vehicle has apparently been used to grade and smooth the riding trails—a solution that is temporary at best but one that also forces riders to go to the very edge of the trail or into the adjacent woods to avoid having their horses walk in tracked vehicle ruts. This results in a gradual widening of the trail and brings about an increase in erosion, an increase in the invasion of riding trail corridors by exotic plants and a loss of the ambience that comes from riding single file along a narrow winding trail through a pristine section of an ancient forest.

A similar problem has been observed on a gentle slope in the oak-hickory forest just to the north of the riding stable. Here, both tire ruts and tracked vehicle ruts created by trail maintenance are forcing riders to ride at the edges of, or off of, maintained trails. Erosion here is beginning to expose some tree roots in a few places.

### Iroquois Park: Disturbance

Prepared by Eco-Tech, Inc., Frankfort KY



A riding trail that follows or parallels an old road bed and extends to the top of the hill near the northern end of the park (above the golf course) is creating some minor erosion problems. Water has breached the downhill side of the road bed in several places, sending sediment down over the side of the hill and creating some small gullies.

#### Intermittent Stream Channels

At least eight stream channels presently carry stormwater runoff from the crest of Burnt Knob down the hillsides to the park lowlands. Some of these have become deeply eroded gullies; much of the rain that falls on the top simply runs off since there are no ponds or check dams to slow it down. Most of these channels have become repositories for trash that has been tossed over the side of the hill over the years. In addition to the usual cans, bottles, and plastic, some of the stream channels contain old barrels, chunks of metal and concrete, broken and discarded picnic tables and benches, and other unsightly debris.

#### Iroquois Park Dump

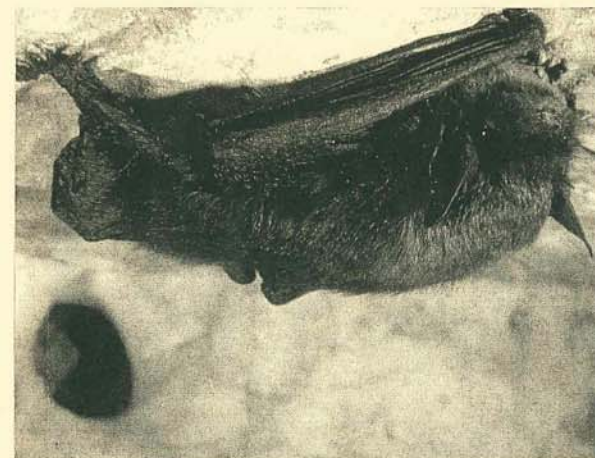
A large dump is located in a patch of mature forest on a low ridge near the base of the slope above Palatka Road. Two dumpsters are here, along with several piles of broken concrete, and row after row of dead tree trunks and limbs that have been piled up by a bulldozer. Although the large trees here have not been damaged, there is no understory here and most of the ground in the active portion of the dump is exposed to direct rainfall and erosion. During one visit to the site, several white-tailed deer were observed feeding on oyster mushrooms (*Pleurotus ostreatus*) that were growing from some of the fallen trees.

#### Summary and Recommendations

- This is a base line natural area of high diversity and utmost importance to urban Louisville.
- The forest is an ancient one that has never been cleared. Some trees on the slopes are over 150 years old and might have gotten older except that steep slopes are unstable substrata for large trees. The beech forest on the flat is especially important and some trees here approach 200 years.
- Zones of vegetation exist in distinct bands from the summit down.
- At the time of settlement, the summit was probably a fire-maintained savannah with prairie remnants.
- Erosion, the result of paths and associated water, is a serious threat to the steep, shaley slopes.
- Control of erosion should begin at the top with detention basin ponds and/or wetlands. Water should be slowed by checks in most intermittent, side slope watercourses.
- Horse trail maintenance is being done with a truck and small dozer (or some other track vehicle). They grade the wet spots periodically and create an inhospitable surface for riders. As a result horses circumvent the wet spots which widens the trail and increases the

problem. The trail should be routed around wet spots or more bridges should be built to cross them.

- Trash is a perpetual park problem. A large (1-2 acre) dump of woody debris and household items lies near mid-slope above the horse trail. The north slope is adorned with rusted metal barrels, picnic tables and assorted trash. Almost every major drainage channel from the top has distributed the wastes of civilization near the top of its descent.
- Exotic shrubs are beginning to be a problem at Iroquois. They are invading from the top down and along roadways. Shrub honeysuckle, privet and periwinkle are the worst culprits.
- The beech forest could support an interpretative trail, but the horse trail suffers from the same maintenance mentioned above.
- Fill material has been placed in wetland areas near the horse stable, resulting in a lack of breeding places for once abundant frogs, salamanders, toads, etc.
- These wetlands should be restored or, perhaps more cost-effectively, could be created in the wet fescue field between the stables and the beech woods.
- There is an excellent opportunity on the summit for one or more prairie restorations. A small *Andropogon* community exists here where it is not mowed, which suggests that such an effort would be successful.
- The vistas need to be established with stable shrub communities near the crest rather than simply lopping off the tops of canopy trees. This must be a slow, ongoing effort to minimize slope damage. Another option is to build an overlook structure and let natural forest vegetation proceed.
- One important role of Iroquois Park is as an urban nature center with a carefully managed program to minimize disturbance.
- Fallen trees in the forest should be left where they fall.
- Paths that go to the top through the steep, wooded slopes should be stabilized, with stone steps.
- Trash cans should be placed at vistas to reduce litter.
- More investigations of the unique natural resource that is Iroquois is warranted. The park should be made available to qualified, interested students. It is an ideal place to study the area's original vegetation and the effects of aspect and slope.
- Because it is an isolated island of habitat, faunal investigation should be undertaken with care so that the existing animals are not adversely affected.
- Especially important are additional surveys for the rare foraging bats and other small mammals of this relic community. An additional necessary survey is for the federally endangered running buffalo clover on Burnt Knob.



Indiana bat—The exfoliating bark of shagbark hickory trees and the fairly numerous dead snags present in this forest type provide excellent habitat for summer maternity colonies of the federal endangered Indiana bat. During the summer of 1991, the authors captured lactating female Indiana bats in mist nets set over a small stream at the base of a forested slope in the northeastern section of Louisville, about ten miles from Iroquois Park. During that same year, bat biologists caught additional Indiana bats that were foraging in low-lying woodlands near the Ohio River in Breckinridge County, about 30 miles west of the park. These bats were fitted with tiny transmitters and tracked to their roost trees, some of which were near the top of a knob in an oak-hickory forest virtually identical to that which adorns the slopes of Iroquois Park. © Eco-Tech, Inc. Photo by John MacGregor, 1992)

## Infrastructure & Facilities Inventory

Prepared by PDR Engineers, Inc., Louisville KY

### Key Issues

#### Drainage

Drainage is one of the major infrastructure issues in Iroquois Park. Runoff from the hillsides and Burnt Knob create drainage and erosion problems in the park and for property owners all around the park perimeter—the Melody Road and Norway Drive area on the west side, the Hontoon Avenue area on the northeast side, and the New Cut Road and Kenwood Drive area on the east side are particular areas of concern. There are also drainage problems in the area near the horse stables. The area was swampy at one time and there has been some partial filling.

Drainage structures are inadequately designed, sized and maintained to channel and control the volume and speed of the runoff. Attempts by Metro Parks to install rip-rap at pipe outlets generally have not been successful in reducing water velocity. Attempts to mortar the rip-rap stones together into a mat have failed. Water gets below the stone mat, erodes the soil, collapses the mat and creates an unsightly mess without reducing water velocity or adjacent erosion.

The meadow area on Summit Field makes a significant contribution to the volume of runoff. Drainage problems within the park and the surrounding areas are caused by the geology and topography of the park and the undersized and poorly maintained park drainage infrastructure. MSD-maintained drainage inlets, which ultimately receive runoff from the park, are also undersized in some areas.

The poor condition of the park drainage system is gradually undermining the entire park infrastructure. Runoff that cannot flow in its normal channel through culverts backs up and creates alternate flow channels along road beds and through woodlands. Road beds are undercut causing pavement failure. New drainage routes through woodlands cause more erosion problems and forces water into areas that can not accommodate the flow.

There has also been jurisdictional confusion regarding drainage improvements, particularly in the area around the park. A December 3, 1991 Memorandum of Understanding between Louisville Department of Public Works, Metro Parks and MSD states that the Parks Department is responsible for local park drainage systems and MSD is responsible for perimeter and through-drainage problems. These cannot be easily separated and, in given situations, there is a conflict regarding the identity of the responsible agency.



Erosion at steps to the Northern Overlook. (PDR Engineers, 1992)

#### Erosion

Erosion is another major issue in Iroquois Park. The soil type, site geology and topography cause the park area to be prone to erosion. Erosion problems are directly related to the drainage issues since primary erosion areas are located at drainage channels. Erosion causes the inlets to the cross drains at Rundill Road to "silt up," creating overland flow off the hill in many areas.

Walking paths, horse trails and the frisbee golf course are other primary erosion areas. In these "high traffic" areas, vegetation is trampled, which causes the subgrade to be exposed and unprotected, leading to erosion. In particular, the walking trail from the lower road to the Northern Overlook is a cause of major erosion problems, both along the walking path and the hillside adjacent to the path. Hikers, taking shortcuts around switchbacks in the trail, trample vegetation leading to erosion on the hillside.

Given the unstable geology of the park, landslides have occurred along Uppill Road. However, while landslides have been a problem, the vast majority of erosion is judged to occur at natural drainage swales (formed by the topography of the land) and along the trails.

#### Traffic Flow and Parking

Park user access to the top of the hill and traffic flow along Rundill Road are major problems. Uppill Road was closed in the early 1980s due to a landslide and was kept closed because of heavy traffic and safety problems. Buses now provide the main access to the top of the hill on weekends during the summer season.

Portions of Rundill Road were closed because of similar traffic and safety problems. The open section of Rundill Road (from Southern Parkway around the north side of the park to Iroquois Parkway on the west side) is used by commuter traffic. The closed section of Rundill Road is popular with walkers, joggers and bike riders. However, the public is mixed on the issues of opening Rundill Road to traffic.

Parking is a problem in the lower areas of the park, particularly at the trail to the Northern Overlook and at the lower playground.

# Iroquois Park: Facilities Matrix

Prepared by PDR Engineers, Inc., Louisville KY

Structures

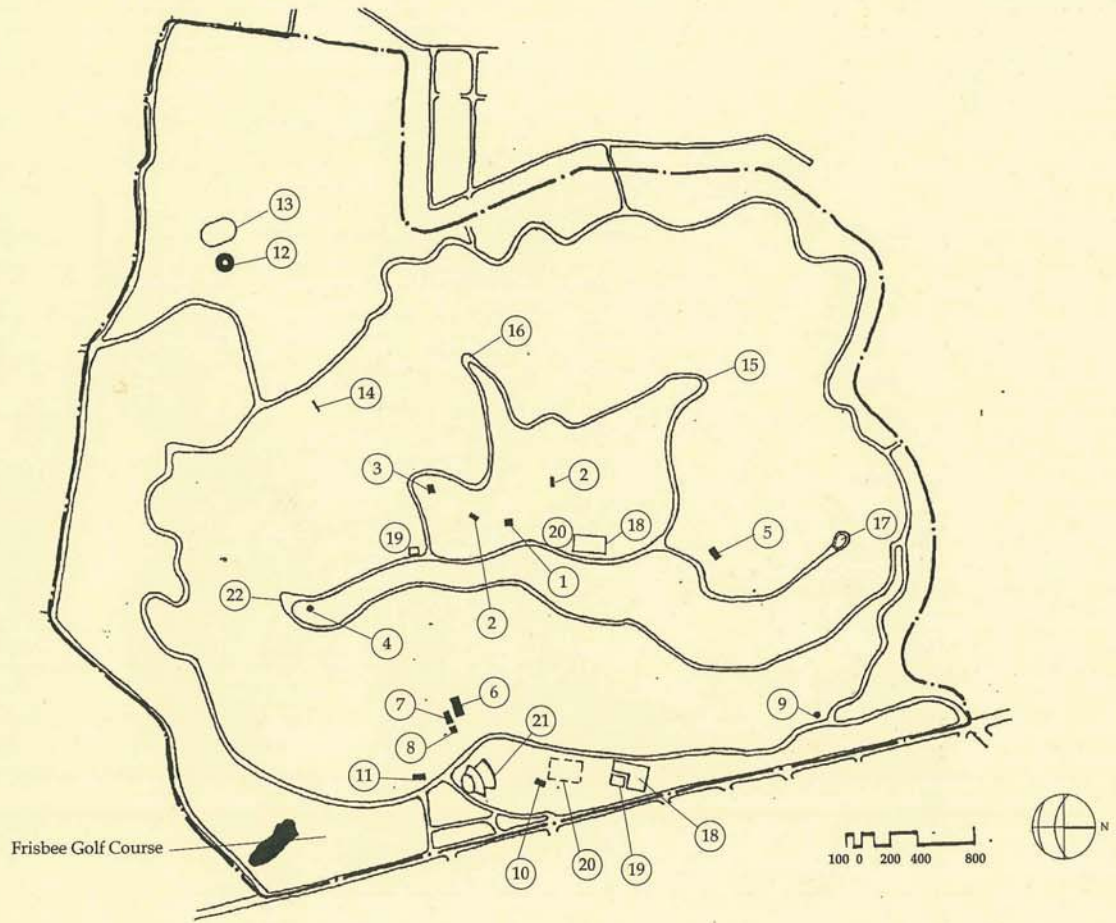
Struct	Type or Name	Usage/ Time Period	Purpose	Condition							Restrooms			Remarks
				Roof	Walls	Ceiling	Drainage	Electric	Plumbing	Present	Hdcp	Condition		
#1	Jacob's Lodge	Heavy during summer months	Pavilion & restroom	OK	Graffiti problems	OK	OK	OK	OK	Yes	Yes	OK	Building was renovated in 1986 can be reserved	
#2	Picnic Pavilion (2 str.)	Moderate - weekends	picnic shelter	OK	some steel corrosion	N/A	OK	N/A	N/A	No	N/A	N/A		
#3	Timber Pavilion	Moderate - weekends	picnic shelter	OK	OK	N/A	OK	N/A	N/A	No	N/A	N/A		
#4	Gazebo	Moderate	Picnic Shelter	OK	N/A	N/A	N/A	OK	N/A	No	N/A	N/A	power used during Winterfest	
#5	Picnic Pavilion	Moderate	Picnic shelter	OK	N/A	N/A	OK	N/A	N/A	No	N/A	N/A		
#6	Maint Building	Daily	Maintenance, storage, & work area	poor - leaks, sags	OK	N/A	water runs into building	OK	Unknown	Unknown	N/A	N/A	water runs down hill and into building	
#7	Brick Struct.	Daily	Foreman Off. work room, supply stor.	Bad has been shored	OK	unknown	OK	OK	poor - slow draining	Yes	Yes	OK	roof may contain asbestos	
#8	Caretaker House	Daily	Home for Caretaker	poor	OK	OK	OK	old	poor - slow draining	Yes	No	OK	may have asbestos shingles	
#9	Open Shelter	seldom	picnic shelter	Fair - moss on shingles	N/A	N/A	OK	N/A	N/A	No	N/A	N/A	may have asbestos shingles	
#10	Sunny Hill Shelter	Heavy - summer	picnic shelter, restrooms	OK	vandalism on wood framing	N/A	water run down hill in restm	Lighting is poor	OK	Yes	No	OK	can be reserved	
#11	Open Shelter	Moderately summer	picnic shelter	OK	N/A	N/A	OK	N/A	N/A	No	N/A	N/A		
#12	Horse Stable	Heavy - weekends	Board Horses	OK	Fair Deteriorate Appearance	N/A	OK	OK	OK	Yes	No	OK	leased to private group	

Playgrounds/ Athletic Fields

Item	Use	Franchised Use	Amount of Usage	Condition	Lights?	Remarks
Tennis Court @ Bottom of Hill	Tennis (4 courts)	None	Heavy	good	Yes	
Tennis Court @ Top of Hill	Tennis (4 courts)	None	Moderate use mainly on weekends	good	No	
Basketball Court @ Bottom of Hill	Casual Basketball	None	Heavily used daily	OK	Yes	Too close to playground area, complaints about language, etc.
Basketball Court @ Top of Hill	Casual Basketball	None	Heavily used weekends	OK	No	should be screened from road
Frisbee Golf Course	Frisbee Throwing	Two Tournaments per year sponsored by Frisbee Assoc.	Moderate usage	Erosion problems at Baskets	No	
Playground @ Bottom of Hill	swing sets, modular units	None	Heavy use Daily	good	No	
Playground near Jacob's Lodge	swing sets, modular units	None	Moderate use weekends	good	No	There are 2 playground areas
Archery Range	Target shooting	None	Moderate use	Fair	No	

### Iroquois Park: Facilities

Prepared by PDR Engineers, Inc., Louisville KY



LEGEND	
① Jacob's Lodge	⑫ Horse Stable
② Picnic Pavilion	⑬ River City Arena
③ Timber Pavilion	⑭ Archery Range
④ Gazebo	⑮ Krupps Point
⑤ Picnic Pavilion	⑯ Panther Point
⑥ Maintenance Building	⑰ Northern Overlook
⑦ Brick Structure	⑱ Tennis Courts
⑧ Caretaker House	⑲ Basketball Courts
⑨ Open Shelter	⑳ Playground
⑩ Sunny Hill Shelter	㉑ Iroquois Amphitheater
⑪ Open Shelter	㉒ Southern Overlook

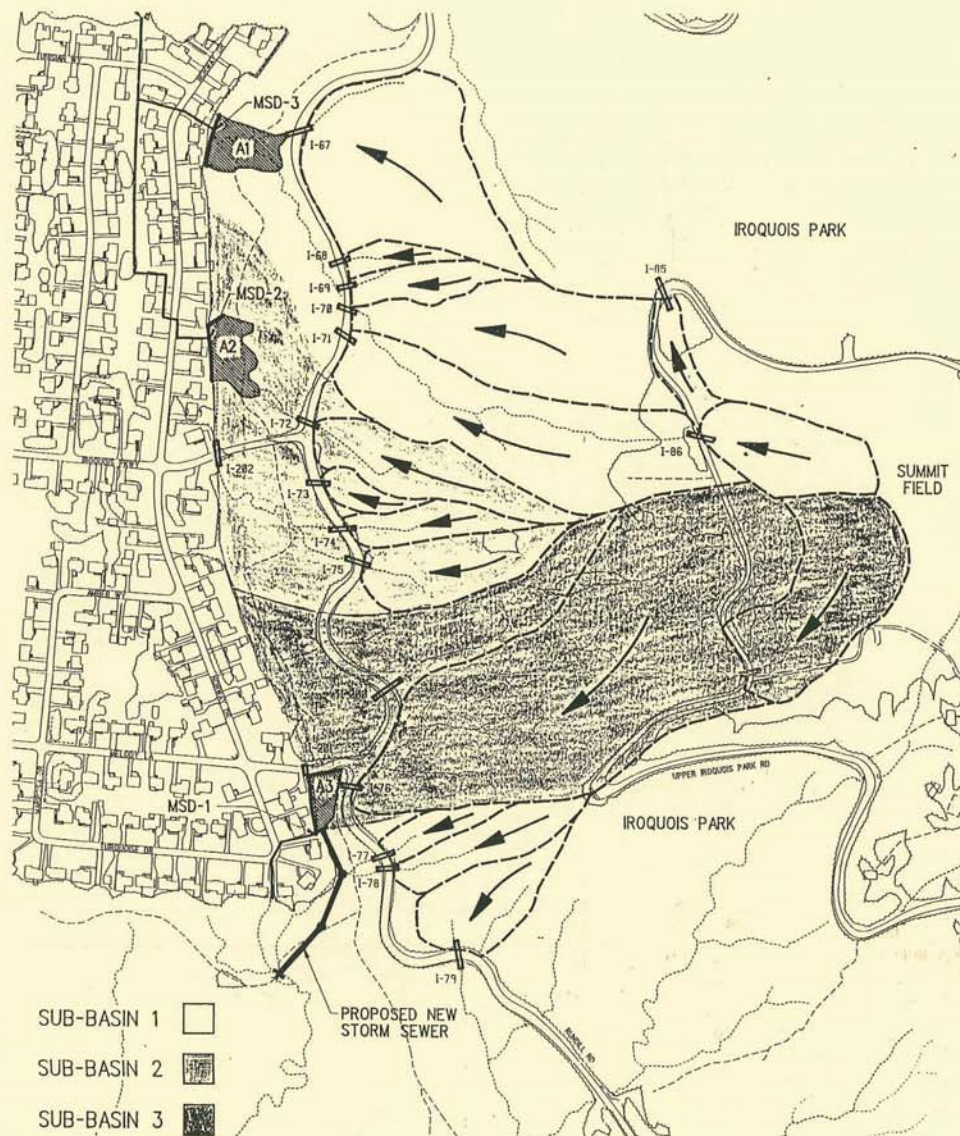
## Iroquois Park: Drainage Infrastructure

In a preliminary drainage study of the western portion of Iroquois Park, prepared by PDR Engineers in August 1993, it was recommended that Metro Parks strategy be a combination of the following:

1. A top of hill detention basin to slow stormwater runoff from Summit Field and reduce erosion in the main hillside swale.
2. Drainage swale improvements to reduce erosion. Installing gabion check dams may help slow runoff; however, their operation over time should be monitored to determine their effectiveness.
3. Provide new, properly sized cross drains under Rundill Road, with proper inlet and outlet structures. Stabilize road edges and adjacent drainage swales.
4. Improve routing of drainage swales to MSD's inlets.

"Work within the park should be undertaken to prevent further damage to the park infrastructure; however, because of the increased flood potential, Metro Parks should not undertake drainage improvements without a corresponding improvement in the MSD maintained system. Absent of MSD improvements, mini retention ponds can be placed on park property to retain excess stormwater runoff. The mini retention ponds will require berms to be installed and some regrading to achieve adequate storage areas. The retention ponds design could be such that water is retained only during storm events. They could be removed entirely as improvements are made to the MSD system."—from "Iroquois Park Drainage Study at Iroquois Vista Subdivision," prepared by PDR Engineers, Inc. for Metro Parks, August 1993.

It should be noted that, upon review, it was suggested that Metro Parks pursue MSD in obtaining the needed drainage infrastructure to the MSD system, so that the above retention ponds, in the lower woodlands, would not be required—the siting of these ponds and the potential disturbance to existing forests was deemed problematic and, given the joint agreement of agency responsibilities for drainage, it was advised that this problem should be resolved by MSD and Metro Parks.

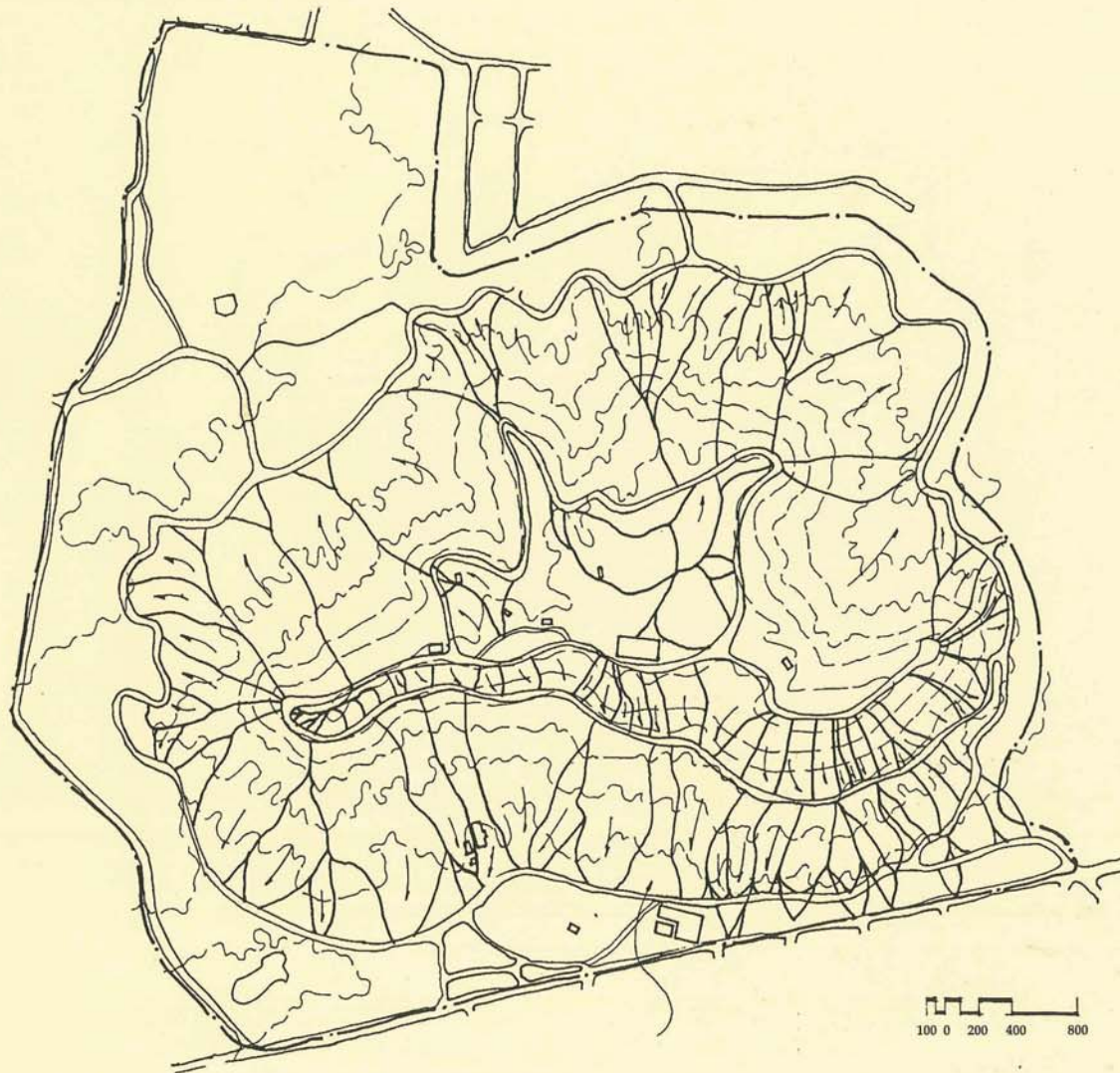


Plan showing western portion of Iroquois Park and culvert and inlet improvements required along Rundill Road. (PDR Engineers, Inc., 1993)





### Iroquois Park: Watersheds

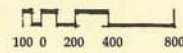
Prepared by PDR Engineers, Inc., Louisville KY

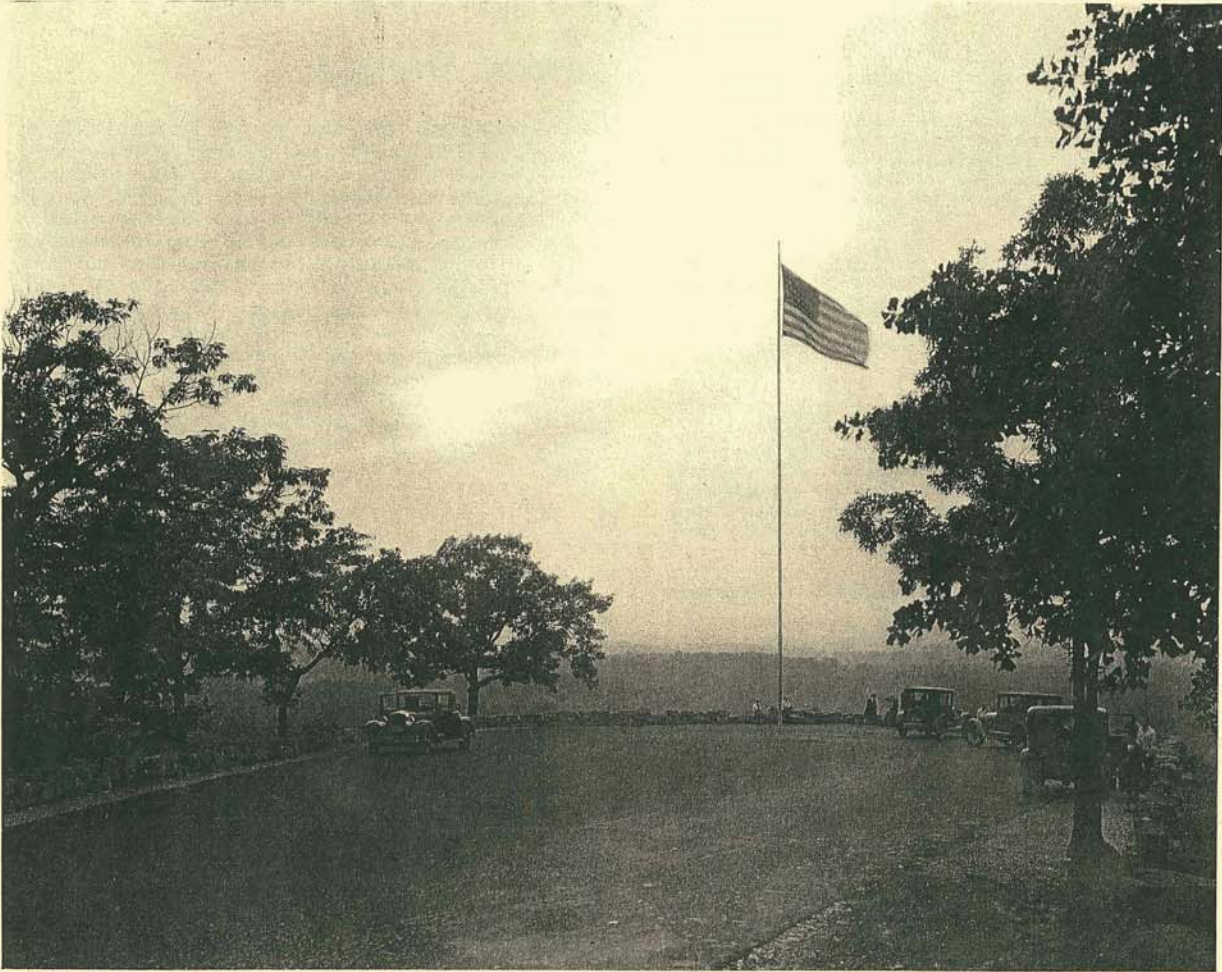


LEGEND

 Watershed boundary

 Direction of drainage flow





Historic view of Northern Overlook, Iroquois Park, c. 1930s. (University of Louisville, Photographic Archives, Caufield & Shook Collection)