Biodiversity:
A Plan for the Village of Schaumburg







The Vision: To establish a broad policy of beneficial coexistence in which the region's natural heritage is preserved, improved, and expanded even as the metropolis grows.

- Chicago Wilderness

Prepared for the Village of Schaumburg by Applied Ecological Services, Inc.

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Schaumburg Biodiversity Recovery Plan
Village of Schaumburg
Cook County, Illinois

FINAL
May 2004
(AES #00-651)

Submitted to:

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ACKNOWLEDGEMENTS

The Village of Schaumburg contracted Applied Ecological Services, Inc. (AES) to prepare this Biodiversity Plan in accordance with the guidelines developed by Chicago Wilderness. The Planning Department coordinated the efforts between AES and the Village in this first-ever effort of a village to adopt the Chicago Wilderness Biodiversity Recovery Plan. Applied Ecological Services, Inc. prepared this plan under the direction of the Village Planning Department. The investigation was directed by Senior Ecologist Mark O' Leary, and Angela Sturdevant, Staff Ecologist, acted as project manager. Jason Carlson, GIS/Environmental Analyst, prepared greenway and natural resource inventory maps. Staff Ecologists Kara Miller and Steve Zimmerman, and Researcher/Technical Writer Iva McRoberts, prepared, finalized, and formatted sections of the report.

EXECUTIVE SUMMARY

The Village of Schaumburg (Village) completed a Comprehensive Plan in 1996 to guide growth in accordance with the Village motto: *Progress Through Thoughtful Planning*. The Comprehensive Plan addresses future land uses, lays out policy guidelines, and emphasizes the importance of preserving natural areas to achieve the goal of open space integrity. As a step toward implementing goals set forth in the Comprehensive Plan, the Village adopted the Chicago Wilderness Biodiversity Recovery Plan (hereafter referred to as CWBRP; Chicago Region Biodiversity Council, 1999) and began the process of developing its own Biodiversity Recovery Plan (hereafter referred to as the Plan). Schaumburg is the first Village to adopt the goals of the CWBRP.

The CWBRP includes recommendations for local governments to implement policy and to encourage citizens to protect and restore natural communities. These include the creation of comprehensive plans that identify land with high conservation value and provide restoration and management alternatives; implementation of programs to encourage the use of best management practices in sewage treatment and stormwater management; revision of zoning ordinances and subdivision regulations to encourage the protection of natural resources; and revision of the municipal code to allow and encourage the use of natural landscaping, among others.

The Schaumburg Biodiversity Recovery Plan provides specific guidance on maintaining, restoring, and preserving the integrity of open space per the Comprehensive Plan, and provides a framework for implementing the CWBRP objectives within the context of the Village. It is our hope that Schaumburg's Plan will serve as a model for other communities throughout the Chicago region.

Chicago Wilderness Biodiversity Plan Goals

Chicago Wilderness is composed of 163 member organizations including local governments, state and federal agencies, research and education institutions, private companies, and conservation organizations. The objective of Chicago Wilderness is:

> *to protect the natural communities of the Chicago region and to restore them to long-term viability, in order to enrich the quality of life of its citizens and to contribute to the preservation of global biodiversity.*

The Chicago Region Biodiversity Council established the following goals in 1999:

1. Involve the citizens, organizations, and agencies of the region in efforts to conserve biodiversity.
2. Improve the scientific basis of ecological management.
3. Protect globally and regionally important natural communities.
4. Restore natural communities to ecological health.
5. Manage natural communities to sustain native biodiversity.
6. Develop citizen awareness and understanding of local biodiversity to ensure support and participation.
7. Foster a sustainable relationship between society and nature in the region.

8. Enrich the quality of the lives of the region's citizens.

Scope of Work

The Village developed the following four goals in an effort to fulfill the mission of the CWBRP:

- *Create Biodiversity Plan* – conduct a detailed inventory of ecological areas and open spaces within the Village of Schaumburg and in adjacent communities that may hold potential for connectivity to establish baseline information on existing conditions, and to identify and evaluate biodiversity enhancement opportunities.

- *Address Residential and Corporate Applications of Biodiversity* – create manuals on native landscaping and protecting biodiversity for both residential and corporate developments.

- *Target Specific High Priority Sites as Identified by the Inventory* – map and rank ecological areas within the Village according to their current or potential contributions to biodiversity, and make recommendations for protection and restoration.

- *Ordinance Development* – revise codes and ordinances that impact biodiversity within the Village to be compatible with the CWPRP. These ordinances include Wetland Protection Overlay District; Landscaping and Screening; Protection of Existing Trees, Landscaping, Parkway Grading and Erosion Control; Tree Preservation; Weeds Declared Nuisance; and Definitions.

Project Approach

The **Ecological Assessment** section identifies representative natural communities within the Village. The assessment documents the flora and fauna of both terrestrial and aquatic habitats on open lands and includes a discussion of the potential presence of rare species.

The **Natural Area Restoration** section provides an introduction to the philosophy behind ecological restoration and management. Several common restoration techniques are described, as well as methods of maintaining and monitoring natural areas. This section also includes suggested performance standards, specifications, and cost estimates.

Using information from the Ecological Assessment, several **High Priority Sites** were identified. This section provides a closer look at the current condition of each site, assesses the impact of surrounding land use, and suggests a restoration and management plan.

The **Conservation Development Planning** section includes an overview of the principles behind conservation development. This section discusses the use of native landscaping and alternative stormwater management in new developments. Given that much of the Village is already developed, information is included on retrofitting commercial and residential areas as an important avenue for restoring native habitat.

Greenway Opportunities are discussed in the next section, as a way of connecting open spaces within the Village as well as to other natural areas in nearby municipalities. This

provides an opportunity to create larger tracts of natural areas, thus providing contiguous habitat for a wide variety of wildlife.

The section on **Funding Mechanisms** serves as a resource for both the Village and private organizations. Information is included on sources of funding for land acquisition, restoration activities, and education.

The final section gives an overview of the **Ordinance Review** process that the Village went through and highlights some of the major changes that were instituted.

One goal of this project was to generate **Educational Information** on the value of natural resource conservation and the role that both citizens and businesses can play. This culminated in the development of two manuals: the *Resident's Guide* and the *Business Guide*, which are included in Appendix A and B, respectively.

ECOLOGICAL ASSESSMENT

The following summarizes the results of the ecological assessment based on remotely mapped data that was verified and refined during 140 hours in the field. Eighty-one open space sites were mapped in the field and data was collected at 41 sites.

- 2,475 acres of open space were identified, or 20.1% of the land cover in the Village.
- Wetlands comprised 2.01% of the area in the Village. Most wetlands were associated with streams, ditches and depressional areas. Habitat and functional value of remaining wetlands was generally low.
- 2.4% of the village was comprised of forested areas including mesic upland, bottomland, and woodland/savanna communities. Most forested areas were in some state of degradation. The highest quality example of a remnant oak savanna was found at Oak Hollow Natural Area.
- Open water areas consisting of lakes, ponds, streams, and detention areas comprised 3.5% of the land cover within the Village. The lakes at Gray Farm Park and Prairie Park are the only major lakes within the Village. Several small ponds were observed. Most were degraded with the highest quality ponds occurring at District 54/Frost Park and Spring Valley Nature Sanctuary. Several streams including Salt Creek, Lancer Creek, and the West Branch DuPage River and their tributaries, were identified. Stream fauna is limited to those tolerant of degraded conditions. Detention was the most common open water category.
- Parkland (turf grass, agricultural land, old fields, prairie remnants, etc.) comprised 10.2% of the land use. Most of the parkland land use consisted of turf grass that provides negligible ecological functions. Remnant prairies with tremendous restoration potential were observed at District 54/Frost Park and at Gray Farm Park. Several areas in the Village are in the process of being restored to prairie, including parts of the Spring Valley Nature Center, the Municipal Center Grounds, and Oak Hollow Natural Area.
- Macroinvertebrate Biotic Index (MBI) and IEPA's Qualitative Stream Habitat Assessent Procedure (SHAP) values were measured at select stream locations. MBI and SHAP scores indicated that Salt Creek at Meacham Road had "good" water quality as well as habitat. Salt Creek at Spring Valley Nature Center exhibited "good" water quality but "fair" habitat. West Branch DuPage River and Lancer Creek had "fair" water quality based on MBI scores and "poor" to "fair" habitat based on SHAP scores.

- Invertebrate communities in open water communities were most biologically diverse in emergent wetlands, naturalized detention ponds, and rock-lined detention ponds. Detention ponds lined with turf grass, sheet piling, and marsh exhibited lowest diversity.
- Four state threatened or endangered animals occur within Schaumburg, including black-crowned night heron, yellow-headed blackbird, black tern, and common moorhen.

NATURAL AREA RESTORATION

This section of the Plan provides a framework for Natural Area Restoration and Management based on sustainable systems. Sustainable systems are characterized as follow:

- Stable soils.
- Predominance of sustainable populations of native plants.
- Quality water, at appropriate rates and volumes.
- Retention of nutrients, stormwater, soils, etc.
- Ecological components in appropriate compositions and locations to reflect the local evolutionary ecological history between plants, animals, hydrology, soils, and other factors.
- Capacity to change and adapt to disturbance, climatic swings, etc.
- Diverse plant and animal communities.
- A stewardship commitment exists between people and ecological resources.
- Funds and policies to improve and maintain ecological health, restoration, and a management and monitoring program exist.
- The restoration program is adaptable to new information.
- Ecological restoration practitioners use prudence, humility, and open eyes to learn from the ecological system, and not foreclose on future options or needs.

Management plans need to be flexible due to the variability inherent in natural ecological systems. Typically, a restoration and management plan is comprised of three phases:

Phase I: Testing and Education Phase – broadens understanding of restoration needs, options, and opportunities. Also increases local residents' knowledge and understanding of restoration issues.

Phase II: Remedial Phase – involves the major restoration and management tasks and consequently is usually the more expensive phase. Its focus is on returning the land to desired and sustainable biological and structural conditions.

Phase III: Maintenance Phase – represents the long-term management restoration program tasks associated with this project. This should be viewed as a routine maintenance program conducted annually at strategic times to achieve and maintain specific ecological and biological objectives in the subject properties.

Technical specifications were developed to provide direction for specific management tasks including Seeding, Herbaceous Perennial Planting, Tree and Shrub Planting, and Management.

HIGH PRIORITY SITES

Specific open space sites were ranked as low, medium, or high priority sites for restoration and protection based on how well each site reflected the cultural and natural attributes of natural areas as follows:

- Presence of remnant natural areas

- Restoration potential
- Existing restoration efforts
- Proximity to other natural areas (i.e. connectivity)
- Potential water quality benefits (ie. detention ponds discharging into creeks, riparian buffers, floodplain)
- Threat from development
- Ease of protection (i.e. ownership)

The above criteria therefore categorize the following sites as high priority sites:

- Motorola Corporate Campus
- Loeber Farm
- Polk Brach Park and Floodway
- Friendship Village/Olde Schaumburg Centre Park
- Municipal Center
- Salt Creek Corridor
- WGN Marsh
- Eagle Park/Ruth MacIntyre Conservation Area Park
- Gray Farm Park
- Oak Hollow Natural Area
- Woodfield Business Center
- Spring Valley Nature Sanctuary

CONSERVATION DEVELOPMENT PLANNING

In this section, AES developed Conservation Development Principals to guide future development. The following are cultural planning principles of conservation developments:

1. Environmental Protection and Enhancement
2. Nurture a Healthy Lifestyle
3. Create a Sense of Place
4. Create a Sense of Community
5. Foster Economic and Cultural Diversity
6. Construct a Convenient and Efficient Inter-Modal Transportation System
7. Encourage Energy and Resource Conservation
8. Promote Lifelong Learning and Education
9. Advocate Aesthetic Design and High Quality Construction
10. Economic Viability

In addition to the principles of conservation development described above, specific ecological principles should also be incorporated into the design of any conservation development:

1. Preserve the Integrity, Vitality, and Sustainability of Ecological Systems
2. Integrate Natural Resources with Development
3. Maximize Environmental Engineering Opportunities
4. Restore Disturbed Ecological Systems and Connect Natural Communities
5. Provide Buffering
6. Ensure Ecological Management and Monitoring
7. Enhance Ecological Education
8. Encourage the Use of Native Landscaping

GREENWAY OPPORTUNITIES

Greenways are linear tracts of land. They typically follow natural corridors such as stream and river ways, remnant prairie areas, forested lands, and wetlands. Greenways inherently connect a variety of habitats and land uses. From an ecological viewpoint, greenways are imperative for connectivity in order to physically link the pockets of fragmented natural areas to allow the movement of plants and animals and to avoid isolation.

Green infrastructure implies natural communities, such as wetlands, stream corridors, prairie remnants, and forest areas, which greatly enhance the quality of life within the community. Stream corridors can be employed as stormwater and flood management while providing scenic bike trails. Unused rail tracks can be converted into corridors for utilities while providing nature trails, space for recreation and habitat for wildlife.

The Village has roughly five areas with large parcels of connected open space that could be considered greenways. They are the West Branch Salt Creek riparian corridor, the Motorola corporate campus, the Woodfield Business Center wetland complex, the West Branch of the DuPage River, and the Lancer Creek corridor.

FUNDING MECHANISMS

Public and private organizations that administer various conservation and environmental programs are often eager to form partnerships and leverage funds for land acquisition, restoration, and environmental education. The Village can leverage private and public funds through partnership projects.

For purposes of this analysis, it was assumed that funds that might be leveraged fall into two relatively distinct categories. The first is existing grant programs, funded by a public agency or by other sources. These funds are available upon the submission of a qualified application. The Illinois Wildlife Preservation Fund is an example: the Village would submit a grant application to the program, and, if the proposed project meets the required criteria and if the funds appropriated have not been exhausted, a grant will be made for the specific project.

The second category, which can provide greater leverage, might be called “money to be found.” The key is to recognize that any given project may have multiple benefits. The Village may want to implement a specific project to protect natural areas and improve wildlife habitat. A potential partner may see that the same project will also provide another benefit such as improved water quality, increased water retention and source reduction, restored wetlands, protection of drinking water supplies, protection of open space or scenic vistas, archaeological features, areas of scientific or educational value, or opportunities for outdoor recreation. It is important to note and explore all of the potential project benefits from the perspective of potential partners and to then engage those partners. Partners may wish to become involved because they believe the project will achieve their objectives, even if they have little interest in the objectives of the Plan.

It is critically important to recognize that no one program has been identified that will simply match the overall investment of Schaumburg in implementing the Plan. Rather, partnerships are most likely to be developed in the context of individual and specific land acquisition or wetland restoration projects that are each a part of the Plan. Partners attracted to one acquisition may not have an interest in another located elsewhere for jurisdictional, programmatic, or fiscal reasons.

ORDINANCE REVIEW

As part of its effort to implement the goals of the CWBRP, the Village embarked upon the process of revising codes and ordinances that affect biodiversity within the Village.

The Village of Schaumburg Planning Department began the review process by identifying the following ordinances that could have an effect on biodiversity within the corporate limits:

- §90.60 Weeds Declared Nuisance
- §151.09 Protection of Existing Trees, Landscaping, Parkway Grading and Sedimentation and Erosion Control
- §151.13 Storm Sewer and Drainage Systems
- §154.135 Tree Preservation
- §154.136 Landscaping and Screening
- §154.196 Wetland Protection Overlay District
- §154.27 Definitions

AES assessed these ordinances within the context of Chicago Wilderness Biodiversity goals. General recommendations for revision were made for each ordinance. The Planning Department and AES then discussed these recommendations and opportunities and feasibility of recommended revisions. Based on this preliminary review, the Planning, Public Works, and Engineering Departments proposed revisions to all seven ordinances.

Following this initial review, AES completed a formal review and revision process concentrating on specific language and technical recommendations by red-lining each ordinance. The ordinances then went through another round of revisions by the Planning, Public Works, and Engineering Departments. This final version of the revised ordinances was presented to the Committee of the Whole, the Zoning Board of Appeals, and the Plan Commission for review. The Village Board then approved the revised ordinances.

1. INTRODUCTION

Purpose

In 1996, the Village of Schaumburg (Village) completed a Comprehensive Plan to guide the growth of the Village in keeping with the Village motto: *Progress Through Thoughtful Planning*. The Comprehensive Plan addresses future land uses and establishes policy designed to achieve five principal goals: economic viability, housing diversity, transportation efficiency, open space integrity, and character. The Plan stresses the importance of preserving natural areas for aesthetic and economic reasons to achieve the goal of open space integrity. As open space continues to shrink in the Chicago metropolitan area because of development pressure, it is vital to identify and protect existing natural areas and to wisely manage remaining open spaces.

As a step toward implementing the goals set forth in the Comprehensive Plan, the Village adopted the Chicago Wilderness Biodiversity Recovery Plan (hereafter referred to as CWBRP; Chicago Region Biodiversity Council 1999) and began the process of developing its own Biodiversity Recovery Plan (hereafter referred to as the Plan). This Plan not only provides specific guidance on maintaining, restoring, and preserving the integrity of open space per the Comprehensive Plan, but also provides the framework for implementing the objectives of the CWBRP within the context of the Village. The Village of Schaumburg is the first Village to adopt the goals of the CWBRP and to work to implement them Village-wide. It is our hope that Schaumburg's Plan will serve as a model for other communities throughout the Chicago region.

Project Area

The Village of Schaumburg is 26 miles northwest of downtown Chicago. The community has grown rapidly since its incorporation in 1956 and is now home to over 75,000 residents. The Village's 19-square miles are now almost completely developed. The Village has preserved several open spaces for the use of its residents, including the Robert O. Atcher Municipal Center Grounds, Olde Schaumburg Centre Park, and Plum Grove Park. In addition, in an effort spearheaded by the Village, the Schaumburg Park District has preserved several natural areas throughout Schaumburg including Spring Valley Nature Sanctuary and Spring Valley Heritage Farm.

Geologically speaking, Schaumburg has a varied past. Time and again, glaciers have crept into the Great Lakes Region from Canada, advancing and retreating, scouring the bedrock in one area and depositing the stones in another. The last glacier, the Wisconsin, scooped out the Lake Michigan basin and deposited the till known as the Valparaiso Upland where Schaumburg now lies. It is part of the Morainal Section and the Grand Prairie physiographic divisions (Fryxell 1927).

On top of those glacial deposits, some of the richest soil in the world has accumulated. Depending on climatic conditions, windblown silt and sediment from flooding were deposited here, determining the types and varieties of plants that were able to flourish. Historically, the native plant community in Schaumburg was tallgrass prairie, with pockets of savanna and woodland (Chicago Region Biodiversity Council, undated). Grasses such as big and little bluestem, Indian grass and blue joint grass dominated the prairie. Throughout the spring, summer, and fall the prairie was ablaze with the color of wildflowers such as prairie smoke, blazing star, aster, milkweed, coneflower, and wild indigo. During the dry season, wildfires

swept the prairie, rejuvenating the soil, invigorating the plants, and removing small trees and shrubs that would shade out the sun-loving plants (Kline 1997).

Groves of fire-tolerant bur and white oaks supported a diverse understory of grasses and flowering plants adapted to the whole range of dappled sun and shade. Open woodlands of oak, hickory, and black walnut were found on sheltered slopes where fire occurred less frequently.

This gradient of plant communities, from prairie to savanna to woodland, supported a rich diversity of animal life. Bison and elk roamed prairie-lands populated by prairie dogs, badgers, and coyotes. Five-lined skinks, fence lizards, and rough green snakes vied for insects among the grasses. Monarch butterflies clung to stalks of milkweed. Sparrows, bobolinks, and yellow-headed blackbirds declared their territories while red-tailed hawks and kestrels hunted from above.

Today this area is home to a growing suburban population that is putting pressure on the remaining open spaces. The Biodiversity Recovery Plan identifies those areas that contain high quality habitat or that exhibit good potential for restoration and provides recommendations on acquiring, restoring, and managing these areas.

Chicago Wilderness Biodiversity Plan Goals

The Village of Schaumburg has adopted the goals of Chicago Wilderness and is working to implement them Village-wide. Chicago Wilderness was formed in an effort to protect and restore natural areas in the Chicago region, an area covering portions of southeastern Wisconsin, northeastern Illinois, and northwestern Indiana. Chicago Wilderness is composed of 163 member organizations, including local governments, state and federal agencies, research and education institutions, private companies, and conservation organizations. The overall goal of this collaboration is

> *to protect the natural communities of the Chicago region and to restore them to long-term viability, in order to enrich the quality of life of its citizens and to contribute to the preservation of global biodiversity.*

Chicago Wilderness developed a Biodiversity Recovery Plan (CWBRP) in 1999 that outlines the steps necessary to achieve this goal (Chicago Region Biodiversity Council 1999). These are as follows:

1. Involve the citizens, organizations, and agencies of the region in efforts to conserve biodiversity.
2. Improve the scientific basis of ecological management.
3. Protect globally and regionally important natural communities.
4. Restore natural communities to ecological health.
5. Manage natural communities to sustain native biodiversity.
6. Develop citizen awareness and understanding of local biodiversity to ensure support and participation.
7. Foster a sustainable relationship between society and nature in the region.
8. Enrich the quality of the lives of the region's citizens.

The Biodiversity Recovery Plan includes recommendations for local governments to implement policy and to encourage citizens to protect and restore natural communities. These include the creation of comprehensive plans that identify land with high conservation value and provide restoration and management alternatives; implementation of programs to encourage the use of best management practices in sewage treatment and stormwater management; revision of zoning ordinances and subdivision regulations to encourage the protection of natural resources; and revision of the municipal code to allow and encourage the use of natural landscaping, among others.

Scope of Work

The Village of Schaumburg developed the following four goals in an effort to fulfill the mission of the CWBRP:

- *Create Biodiversity Plan* – conduct a detailed inventory of ecological areas and open spaces within the Village of Schaumburg and in adjacent communities that may hold potential for connectivity. The objective is to establish baseline information on existing conditions, and to identify and evaluate biodiversity enhancement opportunities. Ecological areas will be qualitatively analyzed, and opportunities for restoration and management will be recommended. Land uses and development opportunities and constraints will be identified and mapped. Conservation development opportunities will also be explored throughout this process.

- *Address Residential and Corporate Applications of Biodiversity* – create manuals on native landscaping and protecting biodiversity for both residential and corporate developments.

- *Target Specific High Priority Sites as Identified by the Inventory* – map and rank ecological areas within the Village according to their current or potential contributions to biodiversity. Make recommendations on site acquisition as well as restoration and management activities on land currently owned by the Village.

- *Ordinance Development* – revise codes and ordinances that impact biodiversity within the Village to be compatible with the CWPRP. These ordinances include Wetland Protection Overlay District; Landscaping and Screening; Protection of Existing Trees, Landscaping, Parkway Grading and Erosion Control; Tree Preservation; Weeds Declared Nuisance; and Definitions.

Project Approach

In developing the Biodiversity Recovery Plan, Applied Ecological Services, Inc. (AES) worked closely with the Village of Schaumburg to identify goals and refine the scope of work. AES used Geographical Information System (GIS) data provided by the Village and other sources, along with field data gathered through an ecological assessment, to map the natural resources in the Village. Sites were prioritized according to their current or potential contribution to biodiversity and recommendations were made on acquisition and management activities. Through a series of meetings with Village staff, AES presented the Biodiversity Recovery Plan and revised it to incorporate comments by Village staff. AES also worked with appropriate Village departments to recommend and review revisions to codes and ordinances that impact biodiversity within the Village.

The Biodiversity Recovery Plan is the end result of this process. It presents the results of the ecological assessment, describes high priority sites, and includes information on natural area restoration, conservation development planning, greenway opportunities, and funding mechanisms. It also includes guides that were created for both residential and corporate biodiversity applications. A summary of the ordinance review process is included. Further information on each section of the document is provided below.

The **Ecological Assessment** section identifies representative natural communities within the Village. The assessment documents the flora and fauna of both terrestrial and aquatic habitats on open lands and includes a discussion of the potential presence of rare species. This section includes descriptions of the ecological communities commonly found within the Village.

The **Natural Area Restoration** section provides an introduction to the philosophy behind ecological restoration and management. Several common restoration techniques are described, as well as methods of maintaining and monitoring natural areas. This section also includes suggested performance standards, specifications, and cost estimates.

Using information from the Ecological Assessment, several **High Priority Sites** were identified. This section provides a closer look at the current condition of each site, assesses the impact of surrounding land use, and gives a restoration and management plan overview with recommendations on future protection methodologies.

The **Conservation Development Planning** section includes an overview of the principles behind conservation development. This section discusses the use of native landscaping and alternative stormwater management in new developments. Given that much of the Village is already developed, information is included on retrofitting commercial and residential areas as an important avenue for restoring native habitat.

Greenway Opportunities are discussed in the next section, as a way of connecting open spaces within the Village as well as to other natural areas in nearby municipalities. This provides an opportunity to create larger tracts of natural areas, thus providing contiguous habitat for a wide variety of wildlife.

The section on **Funding Mechanisms** serves as a resource for both the Village and private organizations. Information is included on sources of funding for land acquisition, restoration activities, and education.

The final section gives an overview of the **Ordinance Review** process that the Village went through and highlights some of the major changes that were instituted.

One goal of this project was to generate **Educational Information** on the value of natural resource conservation and the role that both private citizens and corporations can play. This culminated in the development of two manuals: *Biodiversity: Resident's Guide for the Village of Schaumburg* and *Biodiversity: Business Guide for Commercial, Industrial and Municipal Development in the Village of Schaumburg*, which are included in Appendix A and B, respectively.

2. ECOLOGICAL ASSESSMENT

Overview and Methods

AES staff completed a thorough review, inventory, and assessment of existing ecological resources within the project area as follows.

1) Compile existing data: AES staff reviewed existing data prior to initiating fieldwork. AES utilized the Village's extensive GIS database and other resources including land use, zoning, wetlands, soils, and open space maps; aerial photography; anecdotal data; and various reports and studies that were available.

2) Remotely map data: Known natural resources and potentially important green corridors were identified and developed into base maps that were verified during fieldwork.

3) Field-verify land cover maps: AES staff divided the Village into three quadrats on aerial photograph base maps. Three AES teams consisting of two ecologists per team verified remotely mapped data in the field and modified the maps as necessary. Land cover and land use maps were refined.

4) Describe existing land cover and character in the field:
Mapped and field-verified open space resources were categorized as wetlands, forested communities, open water, parkland, or developed. Each community was described in more detail based on representative samples of each community type. Preliminary restoration potential was assessed for each community described. Opportunities for connectivity were identified. Additional opportunities and constraints for each open space resource were identified.

5) Assess aquatic areas: AES ecologists surveyed four streams and six open water wetland habitats within the Village. IEPA's Macroinvertebrate Biotic Index and Qualitative Stream Habitat Assessment Procedure were used to rate water quality and habitat. Details on methodology are included in the *Aquatic Areas* section below.

6) Assess faunal communities: Data was gathered from the Illinois Natural Heritage Database on the presence of threatened and endangered plants and animals in Schaumburg. Casual observations of the faunal communities were made during the field-verifying of open space resources. The presence of birds, butterflies, and mammals was noted at each inventoried site. Previous bird censuses were made available from the Audubon Society.

These tasks were completed during the summer of 2002. AES staff spent approximately 140 hours field-verifying and refining mapped data, and assessing and describing ecological communities. Eighty-one sites were mapped. Data was collected at 41 sites. The results of the ecological assessment are illustrated on the Natural Resource Inventory maps (Figure 1a, b, c, d, and e).

Overview of Ecological Conditions of Natural Resource Areas

The ecological communities were divided into five general categories or land cover types:

- *Wetlands* – those areas that have saturated soils or standing water for some part of the year and that are characterized by vegetation adapted to such conditions. Wetlands generally include marshes, sedge meadows, scrub shrub communities and similar areas.

- *Forested Communities* – areas dominated by mature trees, with varying degrees of canopy openness and understory vegetation. Forested communities include mesic upland forest, bottomland forest, and woodland/savanna.

- *Open Water* – includes lakes, ponds, streams, and detention ponds.

- *Parkland* – open, treeless areas dominated by grasses and/or herbaceous vegetation. This includes old fields, prairie remnants/restorations, and areas covered by turf grass.

- *Developed* – those areas that are covered by surfaces impervious to water, such as roads, parking lots, driveways, and buildings.

Each land cover category has subcategories that more precisely define specific vegetation characteristics. The distribution of land cover in the Village into each of these subcategories is summarized in Table 1. This includes only those open areas included in the ecological assessment (2,498 acres). The remaining areas (9,833 acres) were classified as developed based on aerial photos.

TABLE 1. Summary of land cover in the Village of Schaumburg.

Land Cover Classification	Number of Areas (n)	Total Area (acres)	Average Area (acres)	Percent Cover (%)
Wetlands				
Emergent	67	168.3	2.5	1.36
Emergent/Prairie	1	1.1	1.1	0.01
Emergent/Wet Meadow	2	1.4	0.7	0.01
Wet Meadow	20	30.2	1.5	0.25
Scrub Shrub	9	44.0	4.9	0.36
Wetland- Other	4	3.1	0.8	0.02
Forested Communities				
Mesic Upland	52	199.5	3.8	1.62
Bottomland	19	39.5	2.1	0.32
Woodland/Savanna	13	51.6	4.0	0.42
Open Water				
Lake	1	10.4	10.4	0.08
Pond	32	73.7	2.3	0.60
Stream	41	58.1	1.4	0.47
Detention	171	275.1	1.6	2.23
Detention/Emergent	2	7.6	3.8	0.06
Detention/Turf	5	9.2	1.8	0.07

Parkland				
Turf	175	934.7	5.3	7.58
Turf/Detention	4	16.8	4.2	0.14
Turf/Old Field	1	6.4	6.4	0.05
Old Field	50	253.7	5.1	2.06
Prairie Remnant/Restoration	14	43.2	7.6	0.35
Agricultural	2	7.8	3.9	0.06
Total	**714**	**2475.0[a]**	**3.7**	**20.07**
Total Area of Village (acres)		**12331.5**		

[a] Represents total area surveyed during Natural Resource Inventory.

In general, the vast majority of existing open space observed was in some state of degradation. The healthiest communities observed were in areas managed by the Schaumburg Park District. Virtually all of the remaining open space parcels could be improved from a biodiversity point of view. The following provides a brief overview of the condition of each of the defined land cover types listed above.

Wetlands

- *Emergent* – permanently wet areas characterized by erect, rooted herbaceous wetland vegetation, such as cattail and bulrush.
- *Wet meadow* – areas with wet soils where standing water is only intermittently present, dominated by sedges, forbs, and grasses.
- *Scrub shrub* – wetlands characterized by shrubby woody vegetation, usually found in the transition zone between emergent wetlands and upland.

Wetlands are important for recharge of groundwater supplies, groundwater and surface water quality improvement, water storage, and wildlife habitat. Historically, a broad array of wetlands dotted the landscape, from emergent wetlands along lakeshores to wet meadows thriving on hillside seeps. These wetlands covered more than 8 million acres in Illinois, or 23% of the land. Over the past 200 years, over 90 percent of the wetlands in Illinois have been lost, drained or filled for agriculture and development (Suloway and Hubbell 1994).

Wetlands associated with ponds, streams, and depressional features constituted 2.01% of the land cover in the Village (Table 1). Wetlands in the Village varied from expansive cattail marshes to narrow linear wetlands along stream margins and channelized ditches. Overall, wetlands within the Village ranged from degraded wetland systems containing reed canary grass and cattails, to smaller, isolated higher quality sedge meadow remnants. In most wetlands, the dominant vegetation types observed were non-native reed canary grass, dense cattails, and extensive shrub thickets dominated by dogwood and willow.

All wetlands examined in the Village have been significantly modified. Wetlands that were historically driven by groundwater are now driven by surface runoff. Alterations in the water level dynamics, particularly the elevation and stabilization of water levels, have resulted from the construction of roads and ditches and the damming of streams. Stream down-cutting and ditching have lowered the groundwater level in wetlands. This allows for decomposition and the liberation of nitrogen, phosphorus, and other nutrients into waterways. Increased sediment, salt, and nutrient loading from decomposed wetland soils and from surrounding degraded uplands have caused a shift in the Village's wetlands from highly diverse habitats to monocultures of vegetation adapted to these conditions, such as non-native reed canary grass,

giant reed grass, and cattail. Wetlands now serve as depressional storage areas and provide some water quality benefits, but have in large part lost their value as wildlife habitat.

Emergent

Emergent wetlands are characterized by erect, rooted, herbaceous wetland plants growing in saturated soils. Standing water may or may not be present. These communities are most often located along the banks of lakes, ponds, and streams. They also occur in depressional areas where the soil is wet year-round. Common plant species include cattail, bulrush, arrowhead, common water plantain, sweet flag, iris, and cinnamon willow herb.



Emergent wetland at Woodfield Business Center

Emergent wetlands comprised almost 1.4% of the land cover in the Village and were the most common type of wetland (Table 1; mapped as 1a on Figures 1a-e). Due to hydrologic changes associated with development, most emergent wetlands observed consisted of cattail monocultures rather than diverse emergent habitat. A prime example of this can be found in the cattail marshes along the eastern shoreline of the pond at Gray Farm Park.

Wet meadow

Wet meadows are characterized by moist to saturated soils with standing water present for only brief to moderate periods during the growing season. This land cover type includes both sedge meadows and wet prairies. Sedge meadows are dominated by sedges, most commonly tussock sedge (*Carex stricta*), which forms the hummocks that make sedge meadows so distinctive. Grasses such as prairie cord grass and switch grass dominate in wet prairies. A number of graminoid species occur in both communities, including several sedges, dark-green bulrush, blue-joint grass, and wool grass. Forbs found in these areas include knotweeds, swamp loosestrife, water hemlock, marsh fern, joe pye weed, and beggar ticks. Historically, fire maintained these areas by preventing the invasion of woody plants. In the absence of fire, wet meadows are threatened by invasive woody growth from extensive shrub thickets of dogwoods, willows, and young cottonwood. Most wet meadows are now monocultures of reed canary grass, due to wildly fluctuating water levels and increased input of nutrients.



Sedge meadow adjacent to Sarah's Grove

While wet meadows were once common throughout Illinois, only small remnant areas remain, particularly along margins of emergent wetland areas transitional to adjacent uplands and in wetlands that have not been subjected to extreme hydrologic changes. In Schaumburg, wet meadows comprised only 0.25% of the land cover (Table 1; mapped as 1b on Figures 1a-e). Most of these were low diversity systems, dominated by reed canary grass. Eagle Park/Ruth MacIntyre Conservation Area Park contains a wet meadow characterized by reed canary grass, lake sedge, and late goldenrod that is adjacent to a large emergent wetland.

Scrub shrub

Scrub shrub wetlands are communities in transition. If left undisturbed, many emergent wetlands would gradually become invaded by woody vegetation, eventually becoming scrub shrub wetlands. Thus scrub shrub wetlands historically were often found in the transition zone between emergent wetland and upland. The cessation of fire and draining of wetlands that accompanied European settlement encouraged the spread of woody vegetation into wetlands and the conversion of emergent wetlands and wet prairies to scrub shrub wetlands. These communities are characterized by woody vegetation less than 20 feet tall, accounting for at least 30% of the vegetation present. Plant species composition varies depending on the length of inundation. In temporarily to seasonally wet areas, willows and red-osier dogwood are common. In semi-permanently flooded areas, buttonbush is a common native shrub.

Scrub shrub wetlands accounted for 0.36% of the land cover in the Village (Table 1; mapped as 1c on Figures 1a-e). A large expanse of scrub shrub wetland, containing willow, box elder, cottonwood, sugar maple, reed canary grass, and purple loosestrife, was observed at Busse Park and Margaret A. Connelly Park.



Scrub shrub community at WGN Marsh

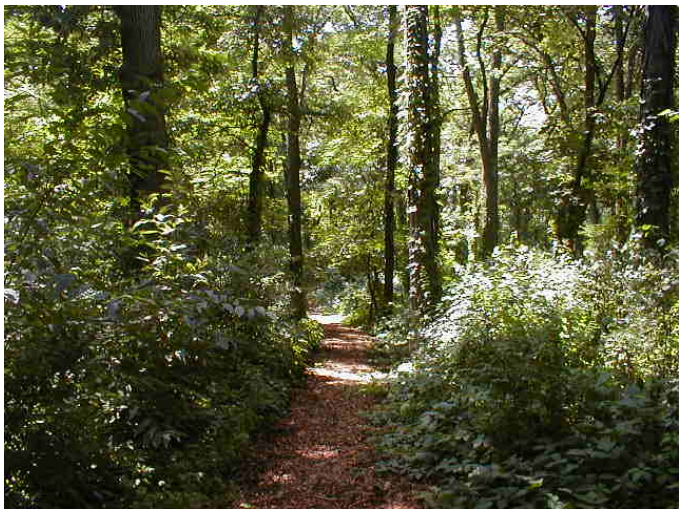
Forested Communities

- *Mesic upland* – fire-sensitive community with a closed canopy and sparse understory.
- *Bottomland* – seasonally flooded community of wetland trees.
- *Woodland/savanna* – fire-maintained communities with a grassy understory.

Forested lands, largely of the deciduous forest type, covered approximately 2.4% of the Village (Table 1). Historic forests of the region dotted the landscape, ranging from drier oak savannas to forests dominated by sugar maple and ash on moister sites associated with bodies of water and rougher terrain (CRBC undated). All forested systems have been dramatically altered in the past 100-125 years by intensive logging episodes, grazing, fragmentation due to extensive clearing for agricultural and, more recently, residential development, absence of fire, and invasion by exotic plant species. The present degraded condition of forested communities is widespread and has directly contributed to the decline of the region's aquatic systems. Several types of forested communities were identified in the Village.

Mesic upland forest

The dense forests of the eastern United States were rather rare in the Chicago region historically. The most common forests in this area were most likely composed of fire-tolerant black maple and red oak (CRBC undated). Other forested areas were located along streams or in ravines that were protected from fire and featured silver maple, American elm, and ashes. Many of these mesic forests were cleared for agriculture and development. Those remaining were heavily degraded by grazing farm animals and invasion of exotic plants.



Mesic upland forest at Friendship Village

Mesic forest represented only 1.6% of the land cover in the Village (Table 1; mapped as 2a on Figures 1a-e). It was primarily confined to isolated pockets on rougher terrain. White oak, silver maple, black walnut, basswood, Siberian elm and green ash were the dominant tree species. In many locations, the forest understory was overgrown with common buckthorn, honeysuckle, multiflora rose, or other shrub and tree species. This has prevented the growth of diverse, soil-stabilizing ground cover vegetation and has led to erosion and loss of the native seed bank. Non-native plant species such as garlic mustard and creeping charley have invaded in several shade suppressed locations. Other areas classified as mesic forest were young disturbed forests characterized by Siberian elm, green ash, and silver maple that have developed on old fields or previously logged areas. A prime example of this was observed at Village in the Park, where a young disturbed forest covered the upper edge and slopes of a ravine, with bottomland species in the valley.

Bottomland forest

Bottomland forests are seasonally flooded wetland communities adjacent to lakes and streams. They are commonly dominated by a canopy of young-growth cottonwood, silver maple, box elder, willows, black ash, swamp white oak, and American elm with a woody and herbaceous vine component of riverbank grape, Virginia creeper, poison ivy, and nightshade. Areas that experience frequent disturbance by flooding or have become shade-suppressed can be devoid of ground cover vegetation or support a low-diversity, sparse ground cover of native and non-native herbaceous species, including wild rye, sedges, and nettles.



Bottomland forest at Loeber Farm

Areas in the Village that historically may have functioned as floodplain communities no longer experience the same flooding frequency and duration as they did in the past. This is due in part to

the stabilizing of regional and local hydrologic systems by dam installation, to the down-cutting of streams through increased runoff following intensive agricultural land use in the past, and other land development activities. Stream down-cutting elevates riparian areas above the stream level resulting in de-watering of the soil. Reed canary grass often becomes well established in these drained wetland soils in open areas. Riparian areas consisting of previously saturated peat and muck soils can experience increased decomposition rates following de-watering, thus leading to the release of significant amounts of formerly bound nutrients to downstream systems.

These forests comprised 0.32% of the land cover in the Village (Table 1; mapped as 2b on Figures 1a-e). A typical degraded bottomland forest was observed along the creek at Loeber Farm. The understory was heavily grazed by horses and was shade suppressed, and the dense canopy was comprised of bur oak, box elder, green ash, and hawthorn.

Woodland/savanna

Historically, oak savannas were open communities of drier morainal ridge tops, dominated by fire-tolerant, "open-grown" species including northern pin oak, bur oak, and white oak, and a diversity of native forbs, grasses, and sedges in the understory. Woodlands were dominated by oaks and hickories, growing more closely together than savanna trees, but still allowing enough light to support a diverse understory. Most oak savanna and woodland systems have experienced severe degradation due to grazing of the understory and the cessation of fire, which allowed the invasion of fire-sensitive trees and shrubs such as box elders, ashes, and sugar maples. This has resulted in the development of a closed canopy, overstocked with these early-successional tree species. Ground cover vegetation now varies from open areas where dense invasion by smooth brome, blue, and quack grasses has occurred, to shade-suppressed areas with a sparse, low-diversity ground cover. Some areas have relatively diverse ground cover vegetation along stand edges and in light gaps, where remnant native vegetation persists.



Remnant oak savanna at Sarah's Grove

The erosion of topsoil in shade-suppressed areas has further resulted in the loss of the long-lived seeds, roots, tubers, bulbs, and other plant propagules of native species from the soil seed bank. In many of the savanna sites, substantial die-back was observed on lower branches of the oaks due to the dense shading caused by the overstocked canopy.

The deterioration of these oak savannas and woodlands has followed a process of degradation documented by previous studies throughout the Upper Midwest. This inventory suggests that the identified trends are occurring in the Village of Schaumburg. This includes a precipitous decline in breeding bird richness and native vascular plant species richness, and severe erosion. The opportunity for restoring these systems continues to decline over time, due to erosion and loss of the soil seed bank.

Savannas and woodlands represented approximately 18% of the mapped forest cover, but only 0.4% of the total cover of the Village (Table 1; mapped as 2c on Figures 1a-e). The highest quality example of a remnant oak savanna was found at Oak Hollow Natural Area.

Open Water

- *Lake* – large body of water deep enough that rooted plants grow only along the shore.
- *Pond* – shallow body of water with rooted plants growing throughout.
- *Stream* – running water environment that may flow intermittently or permanently.
- *Detention* – man-made basin designed to store stormwater that may have permanently standing water.

Information on the ecological health of aquatic habitats is included in the section on Aquatic Areas below.

Lake

There are few natural lakes in the Village, comprising only 0.08% of the land cover (Table 1; mapped as 3a on Figures 1a-e). The greatest concentration of lakes in the Chicago Wilderness region is to the north, in Lake County. The largest lakes in the Village are found at Gray Farm Park and Prairie Park. The ecological health of lake systems is imperiled largely due to the deterioration of surrounding upland communities. Uplands, which before major land use changes provided an important buffering function for wetland and aquatic systems, have become important sources of elevated runoff, sediment, nutrient, and salt loads. This condition has contributed to the invasion of plants adapted to enriched and saline conditions such as cattail, giant reed grass, and Eurasian water milfoil.



Lake at Gray Farm Park

Pond

Small ponds dot 0.6% of the landscape of the Village, a result of the glaciers that once covered the land (Table 1; mapped as 3b on Figures 1a-e). Some ponds in the Village are man-made, perhaps originally created as farm ponds or small reservoirs. Most ponds originally sported clean, clear water and healthy fish and aquatic insect communities. However, as the area became more populated and developed, upland buffers were disturbed or destroyed. Like lakes, most ponds are now subject to elevated runoff, sediment, nutrient, and salt loads. As ponds have filled with sediment, in many cases



Pond at Oak Hollow Natural Area

emergent wetland plants have closed in on areas of open water, eventually covering the entire pond. Relatively good quality ponds were found at the District 54 Nature Center and the Spring Valley Nature Sanctuary.

Stream

A small number of streams, including Salt Creek, Lancer Creek, and the West Branch DuPage River and their tributaries, were identified in the Village. Streams account for only 0.47% of the land cover in the Village (Table 1; mapped as 3c on Figures 1a-e). As with most waterways in areas with developed uplands, these creeks are subjected to increased surface water runoff carrying heavy nutrient-rich sediment loads, road salts, and hydrocarbon-based contaminants. Increased discharge rates have caused serious down-cutting and stream bank erosion. Present water quality conditions can no longer support the diversity and number of fish and aquatic invertebrates previously known to these systems. Species are now limited to those tolerant of degraded conditions, as evidenced by the stream studies described below (see section on *Aquatic Areas*).



Stream at Lancer Creek Park

Detention

The most common open water features in the Village were detention ponds constructed to manage stormwater runoff from developed land (67% of open water features, Table 1; mapped as 3d on Figures 1a-e). Both wet and dry detention ponds were observed. Dry detention ponds are turf-lined basins that fill with water during rainstorms. Most wet detention ponds in the Village, where standing water is permanently present, were surrounded by turf grass. In some detention ponds, turf extended to the water's edge. In others, the edge was lined with riprap. Neither turf grass nor riprap allow for a substantial amount of runoff to infiltrate into the soil before reaching the detention pond. Only in a very few ponds was native vegetation used to stabilize the slopes. Native vegetation not only provides habitat for wildlife, it also enhances infiltration of water and traps sediments. A good example of a detention pond in need of retrofitting was found at Terada Park, where turf grass extends to the edge of a severely eroded shoreline. Several detention ponds surrounded by natural vegetation were observed at the Woodfield Business Center.



Naturalized detention pond at Woodfield Business Center



Degraded detention pond northeast of Village Convention Center site

Parkland

- *Turf* – mowed grass, usually Kentucky bluegrass.
- *Old field/fill* – former agricultural fields or fields disturbed by land development, characterized by non-native grasses and forbs.
- *Prairie remnant/restoration* – grasslands supporting a diversity of native grasses and wildflowers, maintained by fire.

Turf

Turf grass represented the highest proportion of the land cover (7.8%) in Schaumburg (Table 1; mapped as 4a on Figures 1a-e). The majority of the landscaping associated with developed land in the Village consisted of turf grass, typically Kentucky bluegrass, and formal landscaped beds. Parks, golf courses, and corporate campuses represented the largest areas of turf grass in the Village. Turf was also commonly observed around detention ponds. Turf grass provides little in the way of wildlife habitat and its shallow root systems do not encourage infiltration of rainwater. The ability of turf grass to infiltrate water is more akin to a parking lot than a prairie.



Primrose Lane and Bode Road

Old field/fill

Old fields were found throughout the Village and represent the second most prevalent land cover type, at 2.06% (Table 1; mapped as 4b on Figures 1a-e). All old fields observed were dominated by introduced grasses and forbs. Many of the plant species found are typical of weed species found in disturbed agricultural soils or invading following disruption of the soil systems by other land development activities. Dominant plant species of old field sites included many non-native, cool-season grasses, such as quack grass, smooth brome grass, Kentucky bluegrass, fescue, orchard grass, foxtail, and timothy. Non-native broad-leaved forbs found in old fields included dandelion, plantains, thistles, wild carrot, wild parsnip, sweet clovers, and others. Native plant species found in old field settings were those most tolerant of disturbance, such as ragweed, fleabane, Canada goldenrod, hairy aster, avens, common milkweed, and a few additional species. Over time, if left unmanaged, fallow fields will experience invasion by shrubs and saplings. Woody plants invading into the old fields included wild black cherry, green ash, box elder, elm, cottonwood, and brambles. Shrubs



Old field in Polk Brach Floodway

associated with wetter sites included dogwood, sandbar willow, and black willow. Large old field communities were observed at the District 211 Property.

Prairie remnant/restoration
Upland prairie vegetation was once the dominant cover type in the Village, occupying drier ridge tops and intergrading with oak savanna and mesic forest communities (CRBC undated). Fires swept the land, keeping the prairies open by killing saplings and stimulating germination of prairie seeds. Historically, prairies supported a diverse mix of native grasses and forbs. Most prairies were dominated by tall grasses such as big and little bluestem, Indian grass, porcupine grass, and prairie panic grass. A variety of forbs were also common, including goldenrods, prairie dock, rattlesnake master, butterfly weed, purple coneflower, and savanna blazing star.


Prairie at Spring Valley Nature Center

The western spread of agriculture converted vast acreages of prairie to productive farmland. Prairies that remained were altered by the suppression of fire that accompanied the settlers. This allowed the invasion of woody plants and converted many prairies to woodland and forest. Today the prairie is virtually extirpated from the Village, except for small remnant patches and scattered small populations of prairie species along edges of roads, old fields, and under oak savannas. Prairie remnants and restoration areas comprised only 0.35% of the land cover in the Village (Table 1; mapped as 4c on Figures 1a-e). Remnant prairies with tremendous restoration potential were observed at the District 54 site/Frost Park and at Gray Farm Park. Several areas in the Village are in the process of being restored to prairie, including parts of the Spring Valley Nature Center, the Municipal Center Grounds, and Oak Hollow Natural Area.

Developed
The majority (79.9%) of the land in the Village was classified as developed. Only natural areas are indicated with shading on Figures 1a-e; developed areas are not shaded. Residential housing, including both single family and multi-family dwellings, comprises the majority of the development in the Community Center (Village of Schaumburg 1996). Industrial development, commercial, and office uses dominate the northeast (Regional Center) and southwest (Irving Park Road Region) portions of the Village. Retail development is focused along the major thoroughfares, including Roselle Road, Meacham Road, and Golf Road.

The majority of the landscaping on developed lots consists of turf grass and formal landscaped beds containing a variety of cultivated forbs, shrubs, and trees. This type of vegetative cover provides habitat of little value to wildlife and does little to infiltrate runoff from adjacent impervious surfaces. In addition, fertilizers and pesticides are commonly used to maintain traditional landscaping. These pollutants run off the landscape with rainwater and contribute to pollution of streams and lakes.

Aquatic Areas

Methods

One way to assess the ecological health of aquatic resources is to survey the aquatic macroinvertebrate communities. On July 31 and August 15, 2002, AES ecologists conducted qualitative aquatic macroinvertebrate surveys using the Illinois Environmental Protection Agency (IEPA) Bureau of Water Sampling Methods for 2001 on four stream reaches and six different open-water wetland habitats within the Village of Schaumburg and adjacent connecting communities (Figure 2).

At stream survey sites, AES ecologists utilized a biological index developed and used by the IEPA called the Macroinvertebrate Biotic Index (MBI) (IEPA 1987). The MBI is used to rate water quality using sample density and macroinvertebrate taxa tolerance to pollution. Indices of biotic integrity are valuable because aquatic biota integrate cumulative effects of sediment and nutrient pollution (Ohio EPA 1999). In conjunction with stream surveys, AES ecologists assessed stream habitat conditions using the IEPA's Qualitative Stream Habitat Assessment Procedure (SHAP) (IEPA 1994). The IEPA developed the SHAP for streams and rivers in Illinois to evaluate lotic habitat considered important to biotic integrity.

A biological index for assessing open-water wetland habitats in Illinois has not been developed. Therefore, AES ecologists used macroinvertebrate data collected from open-water sites to determine differences in biodiversity and density as related to different habitat conditions. Results of this investigation allowed AES ecologists to determine which open-water wetland habitats best support macroinvertebrate biodiversity and density.

Stream Surveys

AES ecologists conducted two macroinvertebrate surveys in Salt Creek: one at Meacham Road (SC1) and a second at Spring Valley Nature Sanctuary (SC2). A third site was established on Lancer Creek (LC) at Lancer Creek Park. The fourth survey was conducted on the West Branch of the DuPage River (WBDR) at its intersection with Springinsguth Road (refer to Figure 2 for location of stream survey sites). Macroinvertebrates were collected following the IEPA's macroinvertebrate sampling methods for 2001 (IEPA, unpublished). All macroinvertebrates were identified to the family level and the data was assessed using the MBI. The MBI is calculated by multiplying the number of organisms collected, or sub-sampled, by their family tolerance value, summing the products, and dividing by the total number of organisms collected, or sub-sampled (IEPA 1987). Organisms of greater tolerance to organic pollution are assigned a greater value, on a scale from 1.5 to 11. A higher MBI value represents a greater degree of organic pollution in the stream and generally lower biological diversity and integrity.



Macroinvertebrate sampling site at Salt Creek – Meacham Road

Table 2 correlates the MBI score with water quality. Table 3 presents the MBI scores for each stream survey site. Salt Creek-Meacham Road and Salt Creek-SVNS exhibited "Good" water quality while West Branch DuPage River and Lancer Creek had "Fair" water quality. Streams

classified as “Good” likely possess *little* organic pollution while streams classified as “Fair” probably possess *some* organic pollution.

TABLE 2. Water quality correlation to Macroinvertebrate Biotic Index Score.

Macroinvertebrate Biotic Index	Water Quality
< 6.0	Good
6.1-7.5	Fair
7.6-8.9	Poor
> 9.0	Very Poor

Source: http://dnr.state.il.us/orep/inrin/ecowatch/

TABLE 3. Macroinvertebrate Biotic Index at four stream survey sites.

Site	MBI	Water Quality
Salt Creek-Meacham Road	5.3	Good
Salt Creek-SVNS	5.5	Good
W. Branch DuPage River	6.3	Fair
Lancer Creek	6.2	Fair

Note: Tolerance values placed on macroinvertebrate families are based on those developed by the IEPA.

Table 4 presents the MBI scores, taxa richness, sample density, and percent composition of indicator taxa for each survey site. In general, the four sites possessed somewhat different macroinvertebrate communities (see Appendix C for Macroinvertebrate Log Sheets). Survey results reveal that Salt Creek-Meacham Road and Salt Creek-SVNS exhibited a lower MBI score than West Branch DuPage River or Lancer Creek and therefore probably possess slightly better water quality. Each site also supported a different number of taxa and sample density. In general, Salt Creek-Meacham Road and Salt Creek-SVNS supported a higher percentage of the intolerant mayflies and caddisflies compared to West Branch DuPage River or Lancer Creek. At the same time, the percent of “other taxa” was high at West Branch DuPage River and Lancer Creek. “Other taxa” usually consist of more tolerant organisms.

TABLE 4. MBI score, taxa richness, sample density, and percent composition of indicators for stream survey sites within the Village of Schaumburg.

	Salt Creek-Meacham Road	Salt Creek-SVNS	W. Branch DuPage River	Lancer Creek
MBI	5.3	5.5	6.3	6.2
Taxa Richness (# species)	7	11	16	8
Sample Density (per 3.1m^2)	893	530	462	525
Percent Composition of Indicators				
% mayflies (*Ephemeroptera*)	4.5	1	5.8	0
% stoneflies (*Plecoptera*)	0	0	0	0
% caddisflies (*Tricoptera*)	37.5	50	0	1
% bloodworms	0	0	0	0
% aquatic worms	0	0	0	0
% other taxa	58	49	94.2	99

To assist in differentiating the influence of water quality from the influence of habitat on macroinvertebrate biodiversity and density, AES ecologists evaluated the habitat at each of the four stream survey sites using the Qualitative SHAP. The SHAP is composed of 15 metrics that can be categorized into three habitat quality categories including substrate and in-stream cover, channel morphology and hydrology, and riparian and bank features. Each of the 15 metrics is scored individually and then summed to provide the total SHAP score. The best possible score is 198.

SHAP evaluates the characteristics of a stream segment, as opposed to the characteristics of a single sampling site. It is generally used in the same area where fishery, water quality, or macroinvertebrate samples are collected. The length of a stream reach surveyed varies by stream size but must include at least one riffle/pool sequence. These survey methods allow for comparison among sites. The Michigan DNR (1991) has developed scoring categories for site comparability assessments using SHAP (Table 5).

TABLE 5. Percent similarity categories for site comparability assessments.

Habitat Quality Category	Percent Similarity (SHAP Score, out of 198)
Excellent (Very Similar to Reference Site)	≥ 90% (178-198)
Good (Slightly Different)	75-89% (148-177)
Fair (Moderately Different)	60-74% (119-147)
Poor (Substantially Different)	≤ 59% (≤ 118)

Source: Michigan DNR, 1991

Table 6 lists SHAP scores at each macroinvertebrate survey site (see Appendix C for SHAP calculation data). Scores ranged from a high of 151 (Good) at Salt Creek-Meacham Road to a low of 107 (Poor) at West Branch DuPage River. Salt Creek-SVNS and Lancer Creek received "Fair" SHAP scores. Salt Creek-Meacham Road received a "Good" SHAP score; therefore, the reach should support a highly diverse macroinvertebrate community provided that water quality is "Good". Salt Creek-SVNS and Lancer Creek received "Fair" SHAP scores and should therefore support at least somewhat diverse macroinvertebrate communities if water quality is at least "Fair". West Branch DuPage River's "Poor" SHAP score suggests the reach may not be capable of supporting a diverse macroinvertebrate community.

TABLE 6. Habitat metrics and habitat quality categories for the qualitative Stream Habitat Assessment Procedure (SHAP).

Metric	Salt Creek-Meacham Road	Salt Creek-SVNS	W. Branch DuPage River	Lancer Creek
Substrate and In-stream Cover	**68/80**	**50/80**	**59/80**	**73/80**
1. Bottom Substrate	18/20 = Excellent	14/20 = Good	16/20 = Excellent	19/20 = Excellent
2. Deposition	7/12 = Good	8/12 = Good	7/12 = Good	11/12 = Excellent
3. Substrate Stability	15/16 = Excellent	11/16 = Good	12/16 = Good	15/16 = Excellent
4. Instream Cover	10/12 = Excellent	7/12 = Good	9/12 = Good	9/12 = Good

5. Pool Substrate	18/20 = Excellent	10/20 = Fair	15/20 = Good	19/20 = Excellent
Channel Morphology/Hydrology	**44/80**	**37/80**	**20/80**	**35/80**
6. Pool Quality	8/16 = Good	5/16 = Fair	3/16 = Poor	8/16 = Fair
7. Pool Variability	6/16 = Fair	6/16 = Fair	4/16 = Poor	4/16 = Poor
8. Channel Alteration	7/8 = Excellent	6/8 = Good	4/8 = Fair	6/8 = Good
9. Channel Sinuosity	6/12 = Fair	6/12 = Fair	2/12 = Poor	4/12 = Fair
10. Width/Depth Ratio	9/16 = Good	8/16 = Fair	4/16 = Poor	8/16 = Fair
11. Hydrolic Diversity	8/12 = Good	6/12 = Fair	3/12 = Poor	5/12 = Fair
Riparian and Bank Features	**39/48**	**31/48**	**28/48**	**26/48**
12. Canopy	12/12 = Excellent	10/12 = Excellent	10/12 = Excellent	11/12 = Excellent
13. Bank Veg. Protection/Stability	14/16 = Excellent	8/16 = Fair	11/16 = Good	8/16 = Fair
14. Immediate Land Use	5/8 = Good	6/8 = Good	2/8 = Poor	2/8 = Poor
15. Flow-Related Refugia	8/12 = Good	7/12 = Good	5/12 = Fair	5/12 = Fair
SHAP Score/ Habitat Category	**151/198 = 76% (Good)**	**118/198 = 60% (Fair)**	**107/198 = 54% (Poor)**	**134/198 = 68% (Fair)**

Combining the MBI and SHAP scores at each survey site helps determine whether water quality or available habitat is limiting macroinvertebrate biodiversity. Because Salt Creek-Meacham Road exhibited “Good” water quality and “Good” habitat conditions, it is likely sufficient to support a highly diverse macroinvertebrate community. However, Salt Creek-Meacham Road was found to support low diversity but a high percentage of intolerant taxa. Deposition/embeddedness of fine sediments may be decreasing biodiversity in this stream reach.



Macroinvertebrate sampling site at Salt Creek – SVNS

Salt Creek-SVNS exhibited “Good” water quality and “Fair” habitat conditions. This site is likely able to support a moderately diverse macroinvertebrate community. Although the macroinvertebrate community was found to be highly diverse and exhibited a relatively high percentage of intolerant taxa, average to low scores for most of the 15 SHAP metrics likely limits the establishment of a highly diverse macroinvertebrate community in this reach.

West Branch DuPage River received a “Fair” water quality score and “Poor” habitat score; therefore, this stream reach is likely to support a macroinvertebrate community of only fair quality. Although the macroinvertebrate community was found to be diverse, many of the taxa

were either tolerant or are most often found in lentic systems. Both organic pollution and degraded habitat, including poor channel morphology and hydrology, may limit the establishment of a more biologically diverse macroinvertebrate community in this reach.

Lancer Creek exhibited “Fair” water quality and “Fair” habitat conditions. Collectively, these data suggest the stream reach should support a macroinvertebrate community of moderate quality. Survey results indicated the stream reach supports low diversity with a relatively high percentage of tolerant taxa. It is likely that both organic pollution and poor habitat features including channel morphology, hydrology, and riparian and bank features limit a biologically diverse macroinvertebrate community.

Open-Water Wetland Surveys

AES ecologists conducted macroinvertebrate surveys in six different open-water wetland habitats. These included a rock-lined detention pond (RLD), emergent wetland (EW), marsh (M), naturalized detention pond (ND), sheet pile detention pond (SPD), and turf-lined detention pond (TLD) (refer to Figure 2 for location of open-water wetland sites). These surveys were conducted to determine differences in macroinvertebrate biodiversity and density as related to habitat conditions. AES ecologists performed twenty dip-net jabs from all available habitat types within each open-water wetland. A qualified Staff Ecologist identified all macroinvertebrates to the family-level, assessed the taxa richness and density of each sample, and compared the results among sites. An assessment index equivalent to the MBI and other invertebrate biotic indices does not exist for Illinois lentic, or open-water, systems.

Table 7 presents macroinvertebrate taxa richness and density for each open-water wetland (see Appendix C for Macroinvertebrate Log Sheets). The emergent wetland and naturalized detention pond exhibited the highest taxa richness (biodiversity), while the turf-lined detention pond and sheet pile detention pond had the lowest taxa richness. The rock-lined detention pond and marsh habitats supported moderate taxa richness. Although the emergent wetland supported 16 taxa, it had a low sample density (89/3.1m^2). Conversely, the turf-lined detention pond had only 6 taxa but exhibited the highest sample density (700/3.1m^2). This difference can be attributed to the high density of water boatman (*Corixidae*) collected in the turf-lined detention pond while species density in the emergent wetland was distributed evenly among taxa. The naturalized detention pond supported the second highest taxa richness and sample density. Additionally, 53% of the naturalized detention pond sample consisted of relatively intolerant mayfly (*Ephemeroptera*) and scud (*Amphipoda*) families.

TABLE 7. Macroinvertebrate taxa richness and sample density at each open-water wetland.

	Rock-lined Detention Pond	Emergent Wetland	Marsh	Naturalized Detention Pond	Sheet Pile Detention Pond	Turf-lined Detention Pond
Taxa Richness (# species)	10	16	9	11	7	6
Sample Density (per 3.1m^2)	318	89	35	474	40	700

The results of the open-water wetland macroinvertebrate surveys indicate that the emergent wetland, the naturalized detention pond, and the rock-lined detention pond supported the most biologically diverse communities respectively. The turf-lined detention pond, the sheet pile detention pond, and the marsh supported the least biologically diverse communities respectively. The emergent wetland, the naturalized detention pond, and the rock-lined detention pond probably supported more diverse macroinvertebrate communities compared to the three other sites due to the amount and diversity of food and habitat available in these systems.



Macroinvertebrate sampling site at WGN Marsh (emergent wetland)

Faunal Communities

Natural Areas and Rare Species

The Illinois Natural Heritage Database provides information on the presence of the state's threatened and endangered plants and animals, exceptional natural communities, and special geological features. The database was developed to assist resource planners, including land use planners and engineers, conservationists, and regulatory authorities, in setting management priorities in areas where special species or habitats exist. The database contains information gathered during the Illinois Natural Areas Inventory conducted in 1976-1978 as well as recent information collected by IDNR biologists, resource managers, and volunteers. Because some observations are made by volunteers, the database cannot guarantee the presence, absence, or condition of many special species or habitats documented in Illinois. To assist users, the database includes the Township, Section, and Range in which the species or special habitat was observed.

Results from the database search for the Village of Schaumburg are presented in Table 8. According to the database, wetland habitats within Sections 18, 19, and 25 of Township 41N, Range 10E are inhabited by three state endangered birds: the black crowned night heron, yellow-headed blackbird, and black tern. Section 19 of Township 41N, Range 10E supports the state threatened common moorhen. In addition to information gathered from the Illinois Natural Heritage Database, the U.S. Fish and Wildlife Service (USFWS) was contacted for information regarding the presence of federally listed species. According to the USFWS, there are no records of federally listed species within the Village of Schaumburg.

TABLE 8. State threatened and endangered species in Schaumburg, according to Illinois Natural Heritage Database.

Township	Range	Section	Species	Status*
41N	10E	18	Black-crowned night heron (*Nycticorax nycticorax*)	SE
41N	10E	18,19, & 25	Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	SE
41N	10E	19	Black tern (*Chlidonias niger*)	SE
41N	10E	19	Common moorhen (*Gallinula chloropus*)	ST

SE = State Endangered
ST = State Threatened

Faunal Community Assessment
While much of the remaining natural areas in the Village are degraded, there is great diversity of animal life. The presence or absence of certain animal species can be indicative of the quality of the habitat at a site. Most of the animals seen are typical of urban settings. These include white-tailed deer, fox, squirrels, and Canada geese.

The following are descriptions of the faunal communities at selected sites:

The Audubon Society conducted a bird census at the WGN Marsh from 1998 to 2000 (Chicago Audubon Society 2000). A total of 81 species was recorded over that time, most of which are typical of wetland and open water habitat. Two state endangered species, the osprey and the upland sandpiper, and a state threatened species, the pied-billed grebe, have been observed at this site. This indicates that the WGN Marsh contains a wide variety of good quality wetland and open water habitat. Several upland species were also recorded, associated with the remnant savannas along the edge of the marsh.

A bird survey conducted by AES ecologists in May 2002 at the Spring Valley Nature Sanctuary recorded 30 species. Many woodland warblers were observed, indicating that good woodland habitat is available. The area near the visitor's center is home to many bird species commonly found in prairie and wetland habitat. Chorus frogs were also heard in this area.

AES ecologists observed a variety of bird species in the District 54/Frost Park woodland. A black-crowned night heron, a state endangered species, was sighted here. Even though the woodland has been invaded by woody invasive species such as buckthorn, woodland wildflowers are surviving in the understory and the quality of the habitat is such that it can support a thriving bird community.

3. NATURAL AREA RESTORATION

Introduction

Without human intervention and conscientious land stewardship, biodiversity and the general ecological health of natural areas within the Village will continue to decline. The previous section highlighted the trends that are occurring in the various ecological systems within the Village. The goal of this Plan is to identify restoration and management needs and define restoration and management strategies that can reverse these trends. The impact of human activities since settlement coupled with the curtailment of naturally occurring events (such as wildfires) have changed the ecological balance and character of the Village. Some of these impacts will have lasting effects, while others can be addressed to forestall further degradation and help ensure a sustainable and healthy landscape for future generations.

The spectrum of opportunity for reversing the trend in the quality and vitality of the Village's natural resources is quite broad. At a minimum, a certain amount of human intervention will be required to simply avoid continued degradation. At the other end of the spectrum, achieving a historic landscape quality can perhaps be approached in some cases – although it is unrealistic to expect that a pre-settlement landscape can be replicated given the impacts to the land and water over the years since settlement began.

The framework presented here suggests that the Village seek to achieve a sustainable landscape. A sustainable landscape is defined as the point at which the Village can indefinitely maintain a defined acceptable level of resource quality within the context of human development and uses of the land. Sustainable systems are characterized by the following factors:

- Stable soils.
- Predominance of sustainable populations of native plants.
- Quality water, at appropriate rates and volumes.
- Retention of nutrients, stormwater, soils, etc.
- Ecological components in appropriate compositions and locations to reflect the local evolutionary ecological history between plants, animals, hydrology, soils, and other factors.
- Capacity to change and adapt to disturbance, climatic swings, etc.
- Diverse plant and animal communities.
- A stewardship commitment exists between people and ecological resources.
- Funds and policies to improve and maintain ecological health, restoration, and a management and monitoring program exist.
- The restoration program is adaptable to new information.
- Ecological restoration practitioners use prudence, humility, and open eyes to learn from the ecological system, and not foreclose on future options or needs.

Individual and community values, support of Village officials, and financial resource commitment will ultimately define the extent to which restoration and management programs are implemented within the Village.

The philosophical basis of this plan is heavily reliant on careful and efficient implementation of the programs detailed herein. The philosophy is focused on maintaining ecologically viable biological communities within the context of a disturbed landscape.

Vascular vegetation in this project is being used as a surrogate for environmental health and quality. The assumption is that if the vascular vegetation communities are restored, wildlife opportunities and human enjoyment benefits will be realized.

Adaptive Management

Management plans need to be flexible due to the variability inherent in the ecological systems addressed by a plan. Plans change over time in response to new data and derived insights. For these reasons, this plan should be viewed as a starting point in an ongoing process that relies on monitoring to provide feedback on program effectiveness and to evaluate the need for changes. This process of evaluation, adjustment, refinement, and change is adaptive management and is fundamental to future management, maintenance, and restoration.

Typically, a restoration and management plan is comprised of three phases:

- *Phase I: Testing and Education Phase* – broadens understanding of restoration needs, options, and opportunities. Also increases local residents' knowledge and understanding of restoration issues.
- *Phase II: Remedial Phase* – involves the major restoration and management tasks and consequently is usually the more expensive phase. Its focus is on returning the land to desired and sustainable biological and structural conditions.
- *Phase III: Maintenance Phase* – represents the long-term management restoration program tasks associated with this project. This should be viewed as a routine maintenance program conducted annually at strategic times to achieve and maintain specific ecological and biological objectives in the subject properties.

1. Testing and Education Phase

This Biodiversity Plan has been developed as part of the Testing and Education Phase. The Plan includes an assessment of Schaumburg's natural resource needs and opportunities and contains guidance for public officials and private citizens on how to protect and restore natural areas.

2. Remedial Phase

The remedial phase uses a variety of restoration techniques to restore ecological systems, such as fire and hydrology, and to get native vegetation communities to the point where they will be sustainable with regular maintenance. Tasks undertaken during this phase may include reducing introduced non-native and other undesirable trees and brush, removing debris and substrate fill areas, addressing erosion and contamination problems, and other general tasks. In some projects this phase may involve planting of native plants, altering stormwater runoff from offsite locations, and other tasks.

The period of time required to conduct the remedial restoration phase depends on the level of effort required, condition of the ecological systems, opportunities and constraints (i.e. access, weather, biological response), and level of funding available for the program.

3. Maintenance Phase

After significant investments in human energy and funding are expended to achieve initial goals in the remedial phase, restoration shifts to a low-intervention program. This is less

costly and provides an excellent opportunity for long-term community and student involvement.

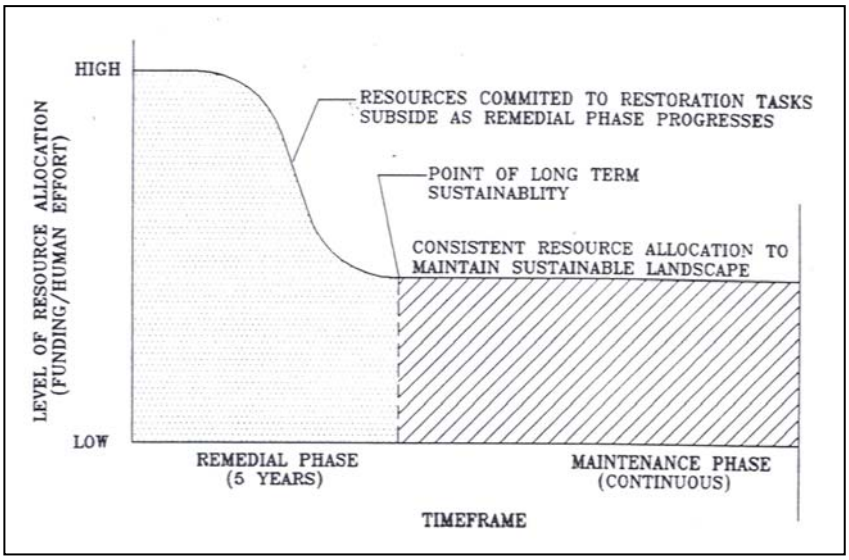
Once established, the maintenance phase is guided by both regular management techniques and by strategies implemented on a rotational basis through identified subunits. The Village would be divided into ecological units and sub-units that are convenient to manage (i.e., prescribed burning units demarcated by existing hiking trails that serve as safe fire breaks, and so forth).

Restoration Tasks

The restoration and management plan includes specific tasks required to meet performance criteria and achieve improvements to the ecological systems in the Village. These include:

- Reduce non-native shrubs and trees.
- Reduce non-native ground cover vegetation both in the forested areas and in open fields.
- Reduce overstocked canopy of native, early successional trees.
- Enhance opportunities for growth of native ground cover vegetation.
- Reintroduce native plant material.
- Enhance opportunities for ecological buffers between developed properties and natural resource areas (i.e. vegetation buffers, detention ponds, etc.)
- Remove various debris (i.e. piles of logs, litter, debris delivered as flotsam during floods, man-made structures, etc.).
- Restore fire and hydrology where possible.

The restoration work tasks are consistent between the remedial and maintenance phases. The primary distinction between the two phases lies in the intensity of the work involved to achieve a set of objectives and the use of one restoration technique over another. For example, the initial removal of buckthorn in a given forested area may require substantial effort during the remedial phase (i.e. brushing, herbicide application). Under the maintenance phase, removal of buckthorn will still be necessary, but it would require substantially less effort to eliminate because it is more consistently kept under control. The following graph illustrates how the level of restoration effort lessens as the management plan moves from the remedial into the long-term maintenance phase.



Level of restoration effort

Restoration Techniques

There are a number of specialized yet straightforward techniques used to carry out the specific restoration tasks listed above. The following provides an overview of the techniques that are used most often. Of the techniques listed, prescribed burning is the single most useful and important management method required for restoration. The other restoration techniques and strategies are most often used to prepare a site for prescribed burning or as a means to reintroduce proper conditions and species into sites. It is important to underscore that these techniques are used as part of a well-thought-out program that considers scientific practicality, costs, and safety.

Prescribed Burning
Prescribed burning is generally defined as:

> *the highly controlled use of fire under optimal weather and environmental conditions to achieve specific ecological objectives.*

Fires started by indigenous people and natural causes have played an important role in the evolution and maintenance of many biological systems throughout North America. It is now realized just how essential the role of fire is in maintaining grasslands, wetlands, savannas, barrens, and numerous forest types. Prairies and savannas exist almost entirely because of fire. Fire kills saplings, keeping the prairies open and free of trees and shrubs. Fire also stimulates germination of many prairie seeds. The blackened, warmed soil encourages the early growth of grasses and forbs.

It is now realized that fire suppression can result in gross changes in the aspect, appearance, and ecological functions of natural systems. Fire suppression is often followed by a decline in the richness and diversity of native plants and animal species, increased litter, shading, phytotoxin build-up in substrates, decreased availability of essential nutrients and increased homogeneity in habitat structure and spatial heterogeneity. Reduced nutrient cycling and increasing domination by a few species often results. In some ecosystems, shifts in wildlife and increases in shade tolerant and less flammable plant species accompany fire suppression.



Prescribed burning has been the primary management tool in prairies, but only recently have efforts been made to use fire for the maintenance and restoration of other ecological systems. No other technique comes close to the impact that this naturally occurring phenomenon has on restoring and preserving natural ecological systems. It is a fundamental component of the restoration program to which there is no reasonable substitute. Conducted by trained personnel, prescribed burning has proven to be safe and efficient.

Weeding and Brushing
Preparation of the site so that prescribed burning can be introduced will be necessary in some locations given the extent to which invasive species have established themselves. Weeding

and brushing are the primary techniques used where dense brush and little combustible fuel occur. Manual reduction of existing dense shrub growth is required to open these areas. Once open, prescribed burning can be used. This will be especially successful if native ground cover vegetation regeneration responds directly to the reintroduction of fire.

If the use of fire is hampered in areas with non-native cool season grasses, alternatives to consider to facilitate the eventual use of fire include:

- Very careful and discriminate use of herbicides – used where the evergreen growth of cool season grasses does not carry fire. Direct plant contact with a wick applicator and the herbicide Rodeo or Roundup provides quick and safe initial control of grasses.
- Low mowing of the grasses (0.5 to 1 inch height) – can reduce green foliage and, after drying, litter can be used as a fuel to carry a fire.

Herbicide is generally applied to cool season grasses after they have reached a height of 5 to 8 inches and display a new flush of green, actively growing foliage. It is applied at prescribed rates by trained and licensed field specialists. On larger pieces of property, wick applicators with adjustable boom heights are very useful for "wicking" plants.

Careful oversight of the process is critical regardless of the method used. Although the herbicides used are incorporated into plant tissues within several hours after application, and wick application (in contrast to spraying) involves a very small quantity of herbicide, the areas that are treated should be field labeled and guarded to restrict human use for the first couple hours after application. The herbicides used, such as Roundup, have very low toxicity to humans and wildlife and will not present a threat when used properly.

Prescribed fire usually follows 5-15 days after the herbicide treatment or after the mowed grasses are dry enough to burn, which varies depending on weather conditions.

Seed Harvesting and Disbursement/Planting

Reintroduction of vegetative species will likely be required in areas where natural seed banks are lacking or in areas offering little opportunity for self-regeneration. In these instances, it is recommended that reintroduction be generally limited to species that have historically occurred in the area.

In some cases, the use of non-native vegetative species may be warranted. An example of this is display gardens with plant species that may or may not have historic relevance. Another example is the use of short-lived non-native species (i.e., annual rye grass) that may assist in stabilizing badly eroding slopes. The key point is to understand the use of these plant species and their propensity for getting out of control, as is the case with buckthorn.

Plant propagation and the introduction of seeds and plants of local species should continue concurrently with other management and restoration strategies to achieve restoration objectives. Observations suggest some native soil seed banks are present within the Village and are vital to restoration programs. But to restore these and other areas, additional seeds from native species (either propagated and cultivated for seed production or wild-picked seeds) should be gathered or produced in ample quantity and quality to enable prompt introduction during the early years of restoration.

For species that are no longer present in the area, appropriate locations should be identified for seed harvesting, propagation, cultivation and eventual introduction purposes. As much as

possible, seeds should come from areas close to the site of introduction. The bounds for collection for any introduction program are typically limited to the physiographic province (i.e., natural area division) of the recipient location.

Restoration Approach Associated with Ecological Systems

The restoration techniques listed above, as well as other appropriate practices, can be used to achieve specific improvements to natural resources within the Village. The following table provides an overview of restoration and management approaches related to the ecological systems defined in the previous chapter. Please see the next section for technical requirements of specific practices.

Ecological System and Condition	**Overview of Restoration and Management Activity**
Wetlands In all but a few locations, wetlands are seriously deteriorated through excessive nutrient loading from urban stormwater systems and other sources. Although not investigated in this study, the ecological changes observed suggest that the surface water chemistry and perhaps shallow/ground water chemistry have been significantly altered by the addition of high levels of macro-nutrients. Additional study of nutrient loading and remedies for this occurrence is recommended if a higher quality, more diverse wetland ecosystem is to be achieved.	Several plant species (i.e. purple loosestrife, cattails, and reed canary grass) require special management attention. The purple loosestrife (a noxious weed) population in the area poses a growing threat and will require management as it further invades the wetlands. <u>Management/Restoration Practices:</u> 1) Prescribed burning on a regular (1-3 year) rotation. 2) Spray herbicide treatment to reduce existing persistent non-native/undesirable grasses. 3) Seeding with locally collected native plant seeds where native species seed banks are not present or do not respond to the above treatments. 4) Monitoring and reporting of results.
Old Fields/Prairie Remnants A very high proportion of non-native grasses and other non-native plants provide little opportunity for native ground cover species to establish or persist, or to flower and reproduce, and thus many species have steadily declined. In some areas, the growth of shrubs and saplings has shaded out native prairie plants. There is serious doubt that many native species, except those with long-lived soil propagules, will continue to survive under these conditions.	Because non-native grasses and other aggressive perennial plant species are dominating many of these areas, establishing and spreading desirable native ground cover species will not occur without management. <u>Management/Restoration Practices:</u> 1) Remove shrubs and stumps and other non-burnable vegetation. Herbicide treatment to reduce existing persistent non-native grasses. Mowing may also be necessary. 2) Prescribed burning on a regular (1-3 year) rotation.

	3) Seeding with locally collected native plant seeds where native species seed banks are not present or do not respond to the above treatments. 4) Inter-seeding of native prairie grasses and forbs in old fields conducted by no-till drilling or scattered by hand after prescribed burning. Tillage is not recommended as this could stimulate the seeds of weed species. 5) Monitoring and reporting of results.
Forested Communities The ground cover vegetation system in most of the forested communities has collapsed and is represented by only a few shade tolerant species. The combined influence of shading by young trees and European buckthorn has contributed to the decline of the native soil-stabilizing vegetation. Ground cover vegetation in these stands varied from shade suppressed areas with an overstocked canopy to areas where dense invasion by buckthorn has occurred. The impact of species like buckthorn represents a major threat to soil stability in the forested communities. The lack of ground cover due to the excessive canopy closure tends to accelerate overland flow of water, resulting in poorer water quality in downstream areas. Lack of oak regeneration and virtual dominance by older age classes of oaks is a major ecological concern. The dominant oaks are beginning to reach pathological maturity and will begin to degenerate rapidly. This is very problematic because older trees do not regenerate vegetatively.	Managing the invasive, non-native plant species and stabilizing the soils through the reintroduction of native species at the ground level are critical to restoring the forested communities. <u>Management/Restoration Practices:</u> 1) Herbicide treatment and manual reduction of undesirable introduced shrubs (i.e. European buckthorn). 2) Prescribed burning on a regular (1-3 year) rotation. 3) Seeding with locally collected native plant seeds where native species seed banks are not present or do not respond to the above treatments. 4) Stimulation of oak regeneration through the introduction of acorns and oak seedlings. 5) Monitoring and reporting of results.

Lakes, Ponds and Streams Shoreline vegetation was shade-suppressed similar to the ecotonal areas (transition zones between plant communities) along wetland margins. Aquatic plants have invaded sediment depositional areas in the lakes.	The assessment of the aquatic areas indicates that the lakes, ponds, and streams are fundamentally changing due to the upstream ecological conditions previously defined as well as municipal storm water management practices. It is recommended that additional study be given to storm water management to determine if there are ways in which the quality of the water entering these systems can be improved and the quantity reduced.

Ecological Monitoring and Reporting

The process of ecological monitoring provides important and regular data on the effectiveness of the restoration program. Effectiveness is to be judged against the original (and new) goals and measurable objectives designed for the project. Goals are generally refined during project design phases and over time as project performance is measured.

Monitoring should use standard methods of measurement and provide a systematic record of key variables that directly or indirectly measure the ecological system and restoration performance. Monitoring for most variables can utilize study transects which can be permanently field marked. Repeating the sampling methods for vegetation over several years will provide measures of the response of the vegetation community to restoration treatments.

Photographic monitoring, including color slides and color video coverage of the restoration process and results, is useful. Permanently installed photographic stations can be identified and regularly visited during the course of the restoration process. This documentation, when coordinated with vegetation monitoring (also birds, insects, etc.), will be immensely useful in development of interpretative and educational materials.

The monitoring program should focus on measurement of the following variables:

- Effectiveness of management/restoration strategies on vascular vegetation
- Erosion control effectiveness and sedimentation rates
- Attainment of the management/restoration goals and objectives
- Public perception of the restoration program results
- Visual conditions and changes that occur once restoration and management programs are implemented

Every year during the remedial phase, a report should be prepared for the restoration program. This report should detail all tasks, labor, costs, and locations and dates of all management and restoration efforts undertaken. The report should also detail monitoring data collected, to identify trends in the status and condition of the ecological variables. Public perception information, such as that generated in association with demonstration projects, may best be reported in memorandum format (if surveying is intermittent) or perhaps as a separate report if a standard (survey form) program for assessment of perception is implemented. Generally, a detailed technical analysis and summary of all the previous data should be completed every 5 years.

Performance Standards

Performance standards are often developed as a way to quantify progress toward restoration goals and objectives. These should be developed on an individual basis for each ecological community. The following are some examples of vegetation performance standards for emergent/open water, wet prairie, mesic prairie, and savanna/woodland communities.

Emergent/Open Water

- By the end of the fifth year, 80% of the species installed shall be present, and at least 60% of the total cover shall be native species.
- Total vegetation cover within emergent/open water zones shall be at least 60% by the end of year five.
- Total reed canary grass cover shall not exceed 20%.
- Total cattail cover shall not exceed 40%.

Wet Prairie

- By the end of the fifth year, 80% of the species installed shall be present, and at least 60% of the total cover shall be native species.
- By the end of the third through the fifth year, total vegetation cover within the wet prairie shall be at least 90%.
- Total reed canary grass cover shall not exceed 10%.
- Total cattail cover shall not exceed 40%.

Mesic Prairie

- By the end of the fifth year, 80% of the species installed shall be present, and at least 60% of the total cover shall be native species.
- Total vegetation cover within mesic prairie zones shall be at least 90% by the end of the third through the fifth year.
- Total reed canary grass cover shall not exceed 10%.

Savanna/Woodland

- During year one, reduce woody plant cover so at least 60% of the available light can reach ground layer vegetation.
- Non-native woody vegetation shall not exceed 10% total cover.
- By the end of the fifth year, 80% of the species installed shall be present, and at least 60% of the total cover shall be native species.

Technical Specifications

See the maintenance and management schedules above to determine when and why to apply the practices defined below. These specifications are designed to be used to solicit bids or quotes from contractors for maintenance work. However, much of the content also applies to on-site maintenance personnel.

SITE WORK
SECTION A – SEEDING

PART 1. GENERAL

1.1 DESCRIPTION

A. This section includes installation of seed, with several seed mixes included as examples.

1.2 RELATED SECTIONS

B. Herbaceous Species Removal, Soil Preparation, Herbaceous Perennial Planting, Tree and Shrub Planting, Soil Bioengineering.

1.3 QUALITY ASSURANCE

A. Qualifications of workmen: provide at least one person who shall be present at all times during execution of this portion of the work, who shall be thoroughly familiar with the type and operation of equipment being used. Said person shall direct all work performed under this section.

B. Standards: all materials used during this portion of the work shall meet or exceed applicable federal, state, county and local laws and regulations. All seed shall be free from insects and disease. Species shall be true to their scientific name as specified.

1.4 SUBMITTALS

A. Materials: Prior to delivery of any materials to the site, submit to the Village a complete list of all seed to be used during this portion of the work. Include complete data on source, quantity and quality. This submittal shall in no way be construed as permitting substitution for specific items described on the plans or in these specifications unless approved in writing by the Village.

B. Equipment: Prior to commencement of any work, submit to the Village a written description of all mechanical equipment and its intended use during the execution of the work.

C. After the work is complete submit to the Village “as-built” plans including a listing of all species installed, and quantities installed. Mark in red ink on the original planting plan any field changes or deviations from the original plans.

PART 2. PRODUCTS

2.1 DRY PRAIRIE SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	OUNCES/ACRE
Asclepias syriaca	Common milkweed	0.50
Aster novae-angliae	New England aster	1.50
Desmodium canadense	Showy tick trefoil	2.00
Heliopsis helianthoides	False sunflower	1.00
Monarda fistulosa	Wild bergamot	2.00
Oenothera biennis	Common evening primrose	1.00
Penstemon digitalis	Bearded foxglove	1.00
Ratibida pinnata	Yellow coneflower	4.00

Rudbeckia hirta	Black-eyed Susan	8.00
Solidago rigida	Stiff goldenrod	5.00
Andropogon scoparius	Little bluestem grass	120.00
Bouteloua curtipendula	Side oats gramma	120.00
Avena sativa	Seed oats	800.00

2.2. MESIC PRAIRIE SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	OUNCES/ACRE
Andropogon gerardii	Big bluestem grass	80.00
Asclepias syriaca	Common milkweed	0.50
Aster novae-angliae	New England aster	1.50
Carex scoparia	Sedge	5.00
Desmodium canadense	Showy tick trefoil	2.00
Elymus canadensis	Canada wild rye	48.00
Heliopsis helianthoides	False sunflower	1.00
Monarda fistulosa	Wild bergamot	2.00
Oenothera biennis	Common evening primrose	1.00
Panicum virgatum	Switch grass	16.00
Penstemon digitalis	Bearded foxglove	1.00
Ratibida pinnata	Yellow coneflower	4.00
Rudbeckia hirta	Black-eyed Susan	8.00
Solidago rigida	Stiff goldenrod	5.00
Sorghastrum nutans	Indian grass	24.00
Vernonia fasciculata	Ironweed	0.25
Avena sativa	Seed oats	800.00

2.3 WET-MESIC PRAIRIE SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	OUNCES/ACRE
Andropogon gerardii	Big bluestem grass	80.00
Angelica atropurpurea	Angelica	0.25
Asclepias syriaca	Common milkweed	0.50
Asclepias incarnata	Swamp milkweed	0.50
Aster novae-angliae	New England aster	1.00
Aster puniceus	Marsh aster	0.50
Calamagrostis canadensis	Blue joint grass	4.00
Carex scoparia	Pointed broom sedge	32.00
Carex hystricina	Bottlebrush sedge	4.00
Cicuta maculata	Water hemlock	0.10
Desmodium canadense	Showy tick trefoil	2.00
Elymus canadensis	Canada wild rye	16.00
Epilobium glandulosum	Northern willow herb	0.10
Glyceria striata	Fowl manna grass	1.00
Helenium autumnale	Sneezeweed	1.00
Juncus effusus	Common spike rush	1.00
Liatris pycnostachya	Prairie blazing star	0.50
Lobelia siphilitica	Great blue lobelia	0.20

Lycopus americanus	Common water horehound	0.10
Mimulus ringens	Monkey flower	0.05
Monarda fistulosa	Wild bergamot	2.00
Panicum virgatum	Switch grass	2.00
Penstemon digitalis	Bearded foxglove	1.00
Pycnanthemum virginianum	Common mountain mint	0.25
Rudbeckia laciniata	Wild golden glow	0.25
Scirpus atrovirens	Dark green rush	1.00
Scirpus lineatus	Red bulrush	0.50
Scirpus validus creber	Great bulrush	1.00
Silphium perfoliatum	Cup plant	2.00
Spartina pectinata	Prairie cord grass	2.00
Teucrium canadense	Germander, Wood sage	0.10
Thalictrum dasycarpum	Purple meadow rue	1.00
Verbena hastata	Blue vervain	2.00
Echinochloa crusgalli	Barnyard grass	6.00
Avena sativa	Oats	640.00
Phleum pratense	Timothy	6.00

2.4 WET PRAIRIE SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	OUNCES/ACRE
Andropogon gerardii	Big bluestem grass	80.00
Angelica atropurpurea	Angelica	0.25
Asclepias incarnata	Swamp milkweed	0.50
Aster novae-angliae	New England aster	1.00
Aster puniceus	Marsh aster	0.50
Calamagrostis canadensis	Blue joint grass	4.00
Carex scoparia	Pointed broom sedge	32.00
Carex hystricina	Bottlebrush sedge	4.00
Cicuta maculata	Water hemlock	0.10
Elymus canadensis	Canada wild rye	16.00
Epilobium glandulosum	Northern willow herb	0.10
Glyceria striata	Fowl manna grass	1.00
Helenium autumnale	Sneezeweed	1.00
Juncus effusus	Common spike rush	1.00
Liatris pycnostachya	Prairie blazing star	0.50
Lobelia siphilitica	Great blue lobelia	0.20
Lycopus americanus	Common water horehound	0.10
Mimulus ringens	Monkey flower	0.05
Panicum virgatum	Switch grass	2.00
Pycnanthemum virginianum	Common mountain mint	0.25
Rudbeckia laciniata	Wild golden glow	0.25
Scirpus atrovirens	Dark green rush	1.00
Scirpus lineatus	Red bulrush	0.50
Scirpus validus creber	Great bulrush	1.00
Silphium perfoliatum	Cup plant	2.00
Spartina pectinata	Prairie cord grass	2.00
Teucrium canadense	Germander, Wood sage	0.10
Thalictrum dasycarpum	Purple meadow rue	1.00

Verbena hastata	Blue vervain	2.00
Echinochloa crusgalli	Barnyard grass	6.00
Avena sativa	Oats	640.00
Phleum pratense	Timothy	6.00

2.5 EMERGENT SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	OUNCES/ACRE
Acorus calamus	Wild calamus	1.00
Alisma subcordatum	Common water plantain	12.00
Bidens cernua	Nodding bur marigold	5.00
Calamagrostis canadensis	Blue joint grass	5.00
Carex scoparia	Pointed broom sedge	16.00
Carex hystricina	Bottlebrush sedge	4.00
Echinochloa crusgalli	Barnyard grass	6.00
Epilobium glandulosum	Northern willow herb	0.05
Eupatorium maculatum	Spotted joe pye weed	2.00
Eupatorium perfoliatum	Common boneset	6.00
Glyceria striata	Fowl manna grass	2.00
Helenium autumnale	Sneezeweed	1.00
Iris virginica shrevei	Blue flag	0.50
Juncus effusus	Common spike rush	1.00
Leersia oryzoides	Rice cut grass	0.50
Lobelia siphilitica	Great blue lobelia	0.05
Mimulus ringens	Monkey flower	0.10
Polygonum pensylvanicum	Smart weed	16.00
Rumex orbiculatus	Great water dock	1.00
Sagittaria latifolia	Common arrowhead	1.00
Scirpus americanus	Chairmaker's rush	0.50
Scirpus atrovirens	Dark green rush	2.00
Scirpus validus	Great bulrush	0.50
Sparganium eurycarpum	Common bur reed	2.00

2.6 SAVANNA SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	OUNCES/ACRE
Corylus americana	Hazelnut	16.00
Quercus alba	White oak	80.00
Quercus macrocarpa	Bur oak	80.00
Quercus rubra	Red oak	80.00
Carex pensylvanica	Pen sedge	1.00
Carex rosea	Wood sedge	1.00
Bromus pubescens	Woodland brome	2.00
Hystrix patula	Bottlebrush grass	2.00
Elymus virginicus	Virginia wild rye	6.00
Elymus canadensis	Canada wild rye	8.00
Aquilegia canadensis	Wild columbine	0.50
Smilacina racemosa	False Solomon’s seal	2.00

2.7 LOW GROW NATIVE GRASSLAND MIX

SCIENTIFIC NAME	COMMON NAME	LBS/ACRE
Andropogon scoparius	Little bluestem	10
Avena sativa	Seed oats	50
Bouteloua curtipendula	Side oats gamma	10
Phleum pratense	Timothy	10
Lolium multiflorum	Annual rye	10

2.8 MATERIALS

A. All grass species shall be supplied as pure live seed. Submit to the Village lab germination test results.

B. Seed of all species native to northeastern Illinois shall be from within a 150-mile radius of the project site.

PART 3. EXECUTION

3.1 METHOD

A. Seeds shall have proper stratification and/or scarification to break seed dormancy for spring planting.

B. All legumes shall be inoculated with proper rhizobia at the appropriate time prior to planting.

C. Seeding shall be preferentially conducted as a late fall dormant seeding (after November 1) or in early spring (as soon as the soil is free of frost and in a workable condition but no later than July 15).

D. All seed shall be preferentially installed with a rangeland type grain drill or no-till planter, such as by Truax, or equivalent as approved in writing by the Village.

E. If soil is too wet to install seed as described in 3.1D above, a mechanical broadcast seeder, such as by Cyclone, shall be used. Hand broadcasting of seed may also be employed. Within 24 hours, or as soon as site conditions permit, broadcast seeded areas shall be rolled or dragged perpendicular to the slope.

F. Within seven days of seeding, install an erosion control blanket or hydroseed for erosion control.

G. If area to be seeded was treated with herbicide, seeding shall occur no less than 14 days after herbicide application.

3.2 CLEAN-UP, REMOVAL AND REPAIR

A. Clean up: the work area shall be kept free of debris by the Contractor. After seed installation is complete, clean up any remaining materials, debris, trash, etc. Avoid driving over seeded areas to minimize disturbance

B. Removal: after work has been completed remove any tools, equipment, empty containers, and all other debris generated by the Contractor.

C. Repair: repair any damages caused by the Contractor during completion of the work described in this section.

3.3 INSPECTION

A. After completion of seeding, the Contractor shall schedule with Village a provisional acceptance inspection of the work.

3.4 ACCEPTANCE AND GUARANTEE

A. Provisional acceptance: the work shall be considered 90% complete after all seed has been installed and the Contractor has completed all required clean up, removal, and repair as described in 3.2 of this section.

B. Final acceptance: the work shall be considered 100% complete after the Contractor has met or exceeded the performance standards given in 3.4D of this section, and completed all required clean up, removal, and repair as described in 3.2 of this section.

C. The Contractor shall guarantee seeded areas will meet or exceed the following performance criteria one full growing season after provisional acceptance: 70% plant cover, seedlings of three planted grass/sedge species found, and seedlings of three planted forb species found.

D. The Contractor shall guarantee seeded areas will meet or exceed the following performance criteria two full growing seasons after provisional acceptance: 80% plant cover, 5% cover by planted native grass/sedge species, 10% cover by planted forb species, and 20% of planted species are found.

E. The Contractor shall guarantee seeded areas will meet or exceed the following performance criteria one full growing season after provisional acceptance: for Mesic Prairie Seed Mix, 70% plant cover, seedlings of three planted grass/sedge species found, and seedlings of three planted forb species found; for Low Grow Native Grassland Mix, 70% plant cover, seedlings of two seeded species found.

F. The Contractor shall guarantee seeded areas will meet or exceed the following performance criteria two full growing seasons after provisional acceptance: for Mesic Prairie Seed Mix, 80% plant cover, 5% cover by planted native grass/sedge species, 10% cover by planted forb species, and 20% of planted species are found; for Low Grow Native Grassland Mix, 80% plant cover, seedlings of all seeded species found.

END OF SECTION A

SITE WORK
SECTION B – HERBACEOUS PERENNIAL PLANTING

PART 1. GENERAL

1.1 DESCRIPTION
A. This section includes installation of live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants.

1.2 RELATED SECTIONS
A. Soil preparation, Seeding, Tree and shrub planting, Soil bioengineering.

1.3 QUALITY ASSURANCE
A. Qualifications of workers: provide at least one person who shall be present at all times during execution of this portion of the work, who shall be thoroughly familiar with the type and operation of equipment being used. Said person shall direct all work performed under this section.
B. Standards: all materials used during this portion of the work shall meet or exceed applicable federal, state, county and local laws and regulations. All live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be free from insects and disease.

1.4 SUBMITTALS
A. Materials: Prior to delivery of any materials to the site, submit to the Village a complete list of all live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants to be used during this portion of the work. Include complete data on source, quantity and quality. This submittal shall in no way be construed as permitting substitution for specific items described on the plans or in these specifications unless approved in writing by the Village's representative.
B. Equipment: Prior to commencement of any work, submit to the Village a written description of all mechanical equipment and its intended use during the execution of the work.
C. After the work is complete submit to the Village "as-built" plans including a listing of all species installed, and quantities installed. Mark in red ink on the original planting plan any field changes or deviations from the original plans.

PART 2. PRODUCTS

2.1 DRY PRAIRIE SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	PLANTS/ACRE
Carex pensylvanicum	Pennsylvania sedge	500

2.2. WET-MESIC PRAIRIE SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	PLANTS/ACRE
Iris virginica shrevei	Blue flag iris	250
Lythrum alatum	Winged loosestrife	25
Mentha arvensis villosa	Wild mint	25
Phlox glaberrima interior	Marsh phlox	25
Physostegia virginiana	Obedient plant	25
Spartina pectinata	Prairie cord grass	250

2.3 WET PRAIRIE SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	PLANTS/ACRE
Iris virginica shrevei	Blue flag iris	250
Lythrum alatum	Winged loosestrife	25
Mentha arvensis villosa	Wild mint	25
Phlox glaberrima interior	Marsh phlox	25
Physostegia virginiana	Obedient plant	25
Spartina pectinata	Prairie cord grass	250

2.4 EMERGENT SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	PLANTS/ACRE
Acorus calamus	Wild calamus	250
Iris virginica shrevei	Blue flag	250
Sagittaria latifolia	Common arrowhead	250
Sparganium eurycarpum	Common bur reed	250

2.5 SAVANNA SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	PLANTS/ACRE
Carex pensylvanica	Pen sedge	500
Carex rosea	Wood sedge	500
Geranium maculatum	Wild geranium	100
Helianthus strumosus	Woodland sunflower	500

2.6 MATERIALS

A. Live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be from within a 150-mile radius of the project site. Species shall be true to their scientific name as specified.

PART 3. EXECUTION

3.1 METHOD

A. Planting of all live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be completed after May 15 but no later than July 15.

B. All live herbaceous plants shall be potted, two year old nursery grown stock unless approved in writing by the Village.
C. All live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be approved by the Village prior to installation.
D. Provide healthy, vigorous live herbaceous perennial plants; provide freshly dug tubers, bulbs, and dormant rootstocks of herbaceous perennial plants. Do not use materials that have been in cold storage for longer than 45 days.
E. Deliver live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants to project site after preparations for planting have been completed.
F. Live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be packed in such a manner as to insure adequate protection against wind damage, desiccation, and other physical damage while in transit.
G. If planting is delayed more than four hours after delivery, keep plants in refrigerated container or set plants in shade protected from weather and mechanical damage, and keep moist and cool.
H. Live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be installed in 0-6" depth of water.
I. Emergent live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be clustered into groups of 75-125 individuals of the same species.
J. Dry prairie, wet-mesic prairie, wet prairie, and savanna live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be clustered into groups of 75-125 individuals of randomly mixed species from the species lists given in PART 2 of this section.
K. All live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be adequately healed in to prevent desiccation.
L. All groupings of live herbaceous perennial plants, tubers, bulbs, and dormant rootstocks of herbaceous perennial plants shall be protected from wildlife herbivory on all four sides by 36-48" high fencing attached to wooden stakes. The Contractor shall submit shop drawings, including a materials list, to the Village for approval prior to installation. Said fencing shall be removed by the Contractor one full growing season after installation or as otherwise directed by the Village.
M. If planting into an area treated with herbicide, plant materials shall be installed not less than 14 days after herbicide treatment.

3.2 CLEAN-UP, REMOVAL AND REPAIR

A. Clean up: the work area shall be kept free of debris by the Contractor. After the work is complete, clean up any remaining materials, plant containers, debris, trash, etc. Avoid driving or walking over planted areas to minimize disturbance.
B. Removal: after work has been completed remove any tools, equipment, empty containers, and all other debris generated by the Contractor.
C. Repair: repair any damages caused by the Contractor during completion of the work described in this section.

3.3 INSPECTION

A. After completion of planting and fencing, the Contractor shall schedule with the Village a provisional acceptance inspection of the work.

3.4 ACCEPTANCE AND GUARANTEE

A. Provisional acceptance: the work shall be considered 90% complete after initial planting and construction of fencing, and after the Contractor has completed all required clean up, removal, and repair as described in 3.2 of this section.

B. Final acceptance: the work shall be considered 100% complete after the Contractor has met or exceeded the performance standards given in 3.4C of this section, completed all required clean up, removal, and repair as described in 3.2 of this section, and removed fencing as described in 3.1L of this section.

C. The Contractor shall guarantee planted areas will meet or exceed the following performance criteria one full growing season after provisional acceptance: 75% survivorship of all planted material, with representatives each species planted.

END OF SECTION B

SITE WORK
SECTION C – TREE AND SHRUB PLANTING

PART 1. GENERAL

1.1 DESCRIPTION
A. This section includes planting of trees and shrubs.

1.2 RELATED SECTIONS
A. Soil preparation, Seeding, Herbaceous perennial planting, Soil bioengineering.

1.3 QUALITY ASSURANCE
A. Qualifications of workmen: provide at least one person who shall be present at all times during execution of this portion of the work, who shall be thoroughly familiar with the type and operation of equipment being used. Said person shall direct all work performed under this section.
B. Standards: all materials used during this portion of the work shall meet or exceed applicable federal, state, county and local laws and regulations. All plant materials shall be free from insects and disease. Species shall be true to their scientific name as specified.

1.4 SUBMITTALS
A. Materials: Prior to delivery of any materials to the site, submit to the Village a complete list of all trees and shrubs to be installed during this portion of the work. Include complete data on source, quantity and quality. This submittal shall in no way be construed as permitting substitution for specific items described on the plans or in these specifications unless approved in writing by the Village.
B. Equipment: Prior to commencement of any work, submit to the Village a written description of all mechanical equipment and its intended use during the execution of the work.
C. After the work is complete submit to the Village “as-built” plans including a listing of all species installed, and quantities installed. Mark in red ink on the original planting plan any field changes or deviations from the original plans.

PART 2. PRODUCTS

2.1 SAVANNA SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	PLANTS/ACRE
Celtis occidentalis	Hackberry	50
Corylus americana	Hazelnut	100
Quercus alba	White oak	100
Quercus macrocarpa	Bur oak	100
Quercus rubra	Red oak	50
Prunus serotina	Black cherry	50
Tilia americana	Basswood	50

2.2 WETLAND SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	PLANTS/ACRE
Cephalanthus occidentalis	Buttonbush	variable
Cornus racemosa	Gray dogwood	"
Sambucus canadensis	Elderberry	"
Viburnum trilobum	Highbush cranberry	"

2.3 MATERIALS

A. Mesh seedling protection shall be 24" tall, photodegradable plastic, with a 5-year life span, or equivalent with written approval by the Village.
B. Trees and shrubs shall be from within a 150-mile radius of the project site.
C. All trees shall be minimum 2" diameter balled and burlapped or container grown, unless approved in writing by the Village.
D. All shrubs shall be 3' to 4' in height, balled and burlapped or container grown, unless approved in writing by the Village.

PART 3. EXECUTION

3.1 METHOD

A. Planting of trees and shrubs shall be completed as soon as the soil is free of frost and in a workable condition but no later than July 15.
B. All trees and shrubs shall be approved by the Village prior to installation.
C. Provide healthy, vigorous, freshly dug plant materials. Do not use materials that have been dug more than 30 days in advance.
D. Deliver trees and shrubs to project site after preparations for planting have been completed.
E. Trees and shrubs shall be packed in such a manner as to insure adequate protection against wind damage, desiccation, and other physical damage while in transit.
F. If planting is delayed more than four hours after delivery, keep plants in refrigerated container or set plants in shade protected from weather and mechanical damage, and keep moist and cool.
G. Trees and shrubs shall be clustered into groups of randomly mixed species from the species lists given in PART 2 of this section. Individual shrubs shall be planted six to eight feet on center. Individual trees shall be planted 16 to 18 feet on center.
H. Seedling protection shall be installed around every tree and shrub within seven days of planting. Seedling protection shall be secured to the ground with a 3/8"x36" bamboo stake and plastic cable tie. Seedling protection shall not be removed by the Contractor unless directed by the Village.
I. If planting into an area treated with herbicide, plant materials shall be installed not less than 14 days after herbicide treatment.

3.2 CLEAN-UP, REMOVAL AND REPAIR

A. Clean up: the work area shall be kept free of debris by the Contractor. After the work is complete, clean up any remaining materials, plant containers, debris, trash, etc. Avoid driving or walking over planted areas to minimize disturbance.
B. Removal: after work has been completed remove any tools, equipment, empty containers, and all other debris generated by the Contractor.

C. Repair: repair any damages caused by the Contractor during completion of the work described in this Section.

3.3 INSPECTION

A. After completion of the work, the Contractor shall schedule with the Village a provisional acceptance inspection of the work.

3.4 ACCEPTANCE AND GUARANTEE

A. Provisional acceptance: the work shall be considered 90% complete after initial planting and installation of seedling protection, and after the Contractor has completed all required clean up, removal, and repair as described in 3.2 of this section.

B. Final acceptance: the work shall be considered 100% complete after the Contractor has met or exceeded the performance standards given in 3.4C of this section, and has completed all required clean up, removal, and repair as described in 3.2 of this section.

C. The Contractor shall guarantee planted areas will meet or exceed the following performance criteria one full growing season after provisional acceptance: 100% survivorship of all planted species.

END OF SECTION C

SITE WORK
SECTION D – MANAGEMENT

PART 1. GENERAL

1.1 DESCRIPTION

A. This section includes the management of planted areas, including prescribed burning, herbicide application, and mowing.

1.2 QUALITY ASSURANCE

A. Qualifications of workmen: provide at least one person who shall be present at all times during execution of this portion of the work, who shall be thoroughly familiar with this type of work and the type of materials being used. Said person shall be competent at identification of plant materials to be removed and to be preserved. Said person shall also direct all work performed under this section.

B. Standards: all materials used during this portion of the work shall meet or exceed applicable federal, state, county and local laws and regulations. The use of any herbicide shall follow directions given on the herbicide label. In the case of a discrepancy between these specifications and the herbicide label, the label shall prevail.

1.3 SUBMITTALS

A. Materials: Prior to delivery of any materials to the site, submit to the Village a complete list of all materials to be used during this portion of the work. Include complete data on source, amount and quality. This submittal shall in no way be construed as permitting substitution for specific items described on the plans or in these specifications unless approved in writing by the Village's representative.

B. Licenses: Prior to any herbicide use the Contractor shall submit to the Village a current copy of the State of Illinois commercial pesticide applicator's license, with certification in the appropriate categories, for each person who will be applying herbicide at the project site. A copy of each commercial pesticide applicator's license must be maintained on site at all times during completion of the work.

C. Equipment: Prior to commencement of any work, submit to the Village a written description of all mechanical equipment and its intended use during the execution of the work.

D. After the work is complete submit to the Village an annual report summarizing management activities completed during the past calendar year by the Contractor.

E. Permits: Prior to the commencement of any prescribed burning, the Contractor shall submit copies of all required open burn permits (IEPA, Cook County, Village Fire Prevention Bureau) to the Village.

PART 2. PRODUCTS

2.1 MATERIALS

A. Herbaceous species to be removed in areas without standing water or saturated soils shall be treated with Glyphosate, N-(phosphonomethyl) glycine, trade name Roundup or equivalent as approved in writing by Village.

B. Other chemicals with specific effects may also be used including, pre-emergent, broadleaf, and grass-specific herbicides.
C. Herbaceous species to be removed in areas with standing water or saturated soils shall be treated with Glyphosate, N-(phosphonomethyl) glycine in a form approved for aquatic applications such as Rodeo or equivalent as approved in writing by Village.
D. Herbicide to be used for treating woody species shall be triclopyr: 3,5,6-trichloro-2-pyridinyloxyacetic acid, butoxyethyl ester, trade name Garlon or equivalent as approved in writing by the Village.

PART 3. EXECUTION

3.1 METHOD - HERBICIDE APPLICATION

A. The Contractor will treat all undesirable perennial and biennial species with an approved herbicide. Herbicide application instructions given on the label shall be followed at all times.
B. Undesirable perennial and biennial species include all vascular species not native to northeastern Illinois, as published in Plants of the Chicago Region (1994).
C. The list of species includes but is not limited to, sweet clover, alsike clover, reed canary grass, Canada thistle, Kentucky bluegrass, purple loosestrife, European buckthorn, glossy buckthorn, and European brome grass.
D. Care shall be taken not to affect surrounding vegetation. The Contractor may be required to replant any vegetation affected by herbicide outside of targeted species.
E. A supply of chemical absorbent shall be maintained at the project site. Any chemical spills shall be properly cleaned up and reported to the Village within 24 hours.
F. The Contractor shall maintain copies at the project site of all current pesticide applicator's licenses, herbicide labels, and MSDS's (Material Safety Data Sheets) for all chemicals utilized during completion of the work.
G. Herbicide may be applied using a backpack sprayer, a hand-held wick applicator, a glove wick, or a vehicle mounted high-pressure spray unit depending on the stability of the ground conditions, need for accuracy, and scale of the work required.

3.2 METHOD - MOWING

A. During the Growing Season: The Contractor shall mow all native seeded areas to a height of 8-12" after vegetation in said areas reach a height of 24" and before non-native species go to seed during the first two growing seasons after planting.
    1. Mowing will eliminate annual weed species such as ragweed, foxtail, and Russian thistle if implemented before seed dispersal.
    2. A tractor mounted "flail" mower may be used for larger areas. Hand held weed whips may be used in smaller areas. Standard lawn tractors or mowers are not allowed unless they can be adjusted to the minimum height.
    3. Remove clippings from the site if cut vegetation creates a solid mat of vegetation on the surface of the ground. Clumps exceeding one square foot and ½" in depth must be spread uniformly or removed from the site.

B. During the Dormant Season: If directed by the Village, the Contractor shall mow dormant native vegetation to a height of 3" and remove clippings from site.
   1. It is preferred that dormant vegetation be removed in late spring.
   2. Clippings may be removed from the site for aesthetic reasons.
   3. Removing clippings annually for a number of years may reduce the fertility of the soils and encourage weeds.

3.3 METHOD – PRESCRIBED BURNING

A. If allowed, prescribed burning shall be the primary method of long-term ecological management and weed control of restoration and naturalized planting areas. Burning shall be conducted annually after the second full growing season for a period of three years.

B. Thereafter, prescribed burning will be conducted at irregular intervals during spring or fall so that on average, the site is burned once every 4 to 6 years.

C. Prior to the commencement of prescribed burning, the Contractor shall compile a burn plan that outlines acceptable environmental parameters to conduct a burn. The parameters must include temperature, humidity, wind speed and wind direction. In addition, the burn plan must include the number of persons conducting the burn, their level of training, safety equipment used, other technical equipment used in conducting the burn, emergency procedures, and a list of the names and phone numbers of emergency agencies (fire department, police department, etc.).

D. The burn plan must be submitted and approved by the Village's representative and any pertinent regulatory agencies before work can proceed.

E. The Owner of the burn property is responsible for determining if neighboring property owners must be notified and for conducting the notification procedure in writing or verbally as deemed necessary.

F. The Contractor shall apply for and receive all required permits prior to the commencement of prescribed burning.

3.4 METHOD - PRUNING

A. Pruning shall be completed using standard nursery practices.

B. Cuts on large woody limbs shall be perpendicular to the growth of the limb.

C. Cuts shall be immediately distal to a branch or internode.

3.5 DETHATCHING

A. If areas are neither mown nor burned for a period of 5 years, the site must be mown and dethatched using a rake or other dethatching implement, to remove built up duff.

B. Thatch shall be raked and removed from the site.

3.6 CLEAN-UP, REMOVAL AND REPAIR

A. Clean up: the work area shall be kept free of debris by the Contractor. At no time shall empty herbicide containers, trash, or other material be allowed to accumulate at the project site. All tools shall be kept in appropriate carrying cases, tool boxes, etc. Parking areas, roads, sidewalks, paths and paved areas shall be kept free of mud and dirt.

B. Removal: after work has been completed remove tools, empty containers, and all other debris generated by the Contractor.

C. Repair: Repair any damages caused by the Contractor during completion of the work described in this Section. Said damages may include, but are not limited to,

tire ruts in the ground, damage to lawn areas, damage to trails, etc. The Contractor shall be liable for remedying damages to plant materials and property at no cost to the Village caused by Contractor negligence during completion of the work.

3.7 INSPECTION

At the request of the Village, the Contractor shall schedule an inspection with the Village to review the work completed by the Contractor pursuant to this section.

3.8 ACCEPTANCE AND GUARANTEE

A. Final acceptance: Each management task shall be considered 100% complete after the Contractor has complied with all parts of this section and the work has been accepted by the Village.

END OF SECTION D

Cost Estimates

The following are several cost estimates for individual restoration tasks. These cost estimates are for comparison only. Actual costs must be calculated for each project.

Task	**Unit Cost**
Seeding	$2,000/acre
Plant plugs	$3.50 each
Brushing	$3,000-$7,000/acre
Herbiciding	$500/acre
Mowing	$200-$600/acre
Burning	$3,000-$10,000/acre
Vegetation monitoring	± $3,000/site/year
Detention pond retrofit	$50/linear foot
Streambank stabilization/restoration	$100/linear foot
Debris jam removal from stream	$500/debris jam

4. HIGH PRIORITY SITES

The Natural Resource Inventory Maps (Figure 1a-e) identify and delineate plant communities found throughout Schaumburg, ranging from cattail marshes, to large expanses of turf, to upland forests. There is a wide gradient of ecological health. Field investigators found few examples of high quality resources. This condition is not unique to Schaumburg and should not be taken to mean that ecological conservation is not worthwhile. Rather, the Village is blessed with natural resource features that must be protected and managed if they are to be sustained over time and are to remain defining elements of the Village.

This chapter describes methods used to identify and prioritize important open space resources. High priority sites are further described in terms of their existing ecological health, restoration potential, and proposed measures for protection including natural area management and site acquisition.

Methods

The categories listed below were used to rank each site as low, medium, or high priority. These categories were used because they reflect cultural and natural attributes of natural areas.

- Presence of remnant natural areas
- Restoration potential
- Existing restoration efforts
- Proximity to other natural areas (i.e. connectivity)
- Potential water quality benefits (ie. detention ponds discharging into creeks, riparian buffers, floodplain)
- Threat from development
- Ease of protection (i.e. ownership)

AES weighted each open space observed and described during the natural resource inventory using the categories listed above (Table 9). Each site was given a value of 0, 1, or 2 for each of the seven categories listed above. These values were assigned according to the following criteria for each category:

Presence of remnant natural areas: Remnant natural areas are defined as pockets of relatively high quality native plant communities that persist from pre-European settlement. These would include prairie or oak-hickory woodland remnants.

0 = none present
1 = N/A
2 = one or more remnant areas present

Restoration potential: The restoration potential considers the degree of difficulty and likelihood of success of converting an existing resource to an indigenous natural community.

0 = Low (very little existing natural resource base – e.g. detention pond lined with riprap or sheet piling)
1 = Medium (degraded natural resource base – e.g. detention pond with turf slopes, box elder woods)

2 = High (e.g. remnant natural areas that can be enhanced)

Existing restoration efforts: Existing restoration efforts include any prior work that has been completed to enhance or restore an existing resource to a healthier indigenous community.

0 = none
1 = N/A
2 = one or more existing restoration efforts

Connectivity: Connectivity weights the relative value of an existing open space site when taken in the context of all of the open space parcels within the Village. Sites that are small and isolated were weighted as less important than sites that would expand an existing open space.

0 = small, isolated site
1 = larger, isolated site; adjacent private sites
2 = large site, adjacent to other protected site(s)

Potential water quality benefits: This category weights a site based on its importance for improving water quality. Riparian buffers were valued as very important for water quality.

0 = none
1 = indirect benefit (e.g. detention pond discharging into creek)
2 = located in creek corridor or floodplain (e.g. riparian buffer)

Threat from development: Sites already protected from development were ranked low. Sites under threat of development were ranked high.

0 = protected natural area (e.g. public park, conservation easement)
1 = possible future threat from development
2 = imminent threat from development

Ownership: This category weights a site according to the number of owners and the type of owner. The purpose of this category is to get a feel for how difficult it would be to protect an open space site. Large sites with large tracts of public ownership were weighted highly because public agencies might be more inclined to protect their sites for purposes of biodiversity than private owners. Sites with multiple private owners were ranked the lowest. We have found that it is much more difficult to negotiate protection measures with multiple private landowners than it is to negotiate protection of a large publicly owned parcel.

0 = several privately owned parcels
1 = single private owner
2 = publicly owned

Sites with total scores of 9-14 were considered high priority. Sites with scores of 4-8 were considered medium priority and sites with scores of 0-4 were considered low priority. For example, a site with a remnant natural area that has high restoration potential and is threatened by future development would be ranked as higher priority than a similar site that is already owned by the Park District.

Please note that this is just one method for prioritizing sites. This ranking does not preclude the preservation of other sites that we did not consider. We did not consider any existing grassroots efforts to protect an open space site because we didn't know of any. If any such efforts are

under way, we propose that these sites be considered very strongly, simply because they have the champions to support them.

TABLE 9. Site priorities worksheet.

Site Name	Site ID	Community Type	Remnant Natural Area	Restoration Potential	Existing Restoration efforts	Connectivity	Water Quality Benefits	Threat from Development	Ownership	TOTAL SCORE	Description	Ownership	Wetland Overlay District
NORTHEAST													
Village in the Park	NE1	emergent, young disturbed woods w/upland & bottomland	2	2	0	1	1	0	0	**6**	Young disturbed woods behind apt. building. Upland species on edge/slopes, bottomland species (sycamore) in middle of ravine. Ravine needs to be brushed.	private	N
Motorola Property	NE2	wetland, pond, detention pond, turf	2	2	2	1	2	0	1	**10**	North side of property. Naturalized detention pond w/emergent wetland. Using *Gallerucella* beetles for loosestrife control. Detention pond surrounded by turf. Potential for native landscaping.	private	N
Motorola Property	NE3	young disturbed woods, old field, detention pond, turf	0	1	0	1	2	0	1	**5**	South side of property. Young disturbed woods adjacent to old field habitat. Detention pond surrounded by turf. Potential for native landscaping.	private	N
Loeber Farm	NE4	mesic upland, bottomland, pond, creek, old field (horse pasture)	2	1	0	1	2	2	1	**9**	Horse pasture w/cool season grasses, bottomland forest along creek (some good trees), severely degraded grazed understory, degraded water quality in creek, pond w/bare shore.	private	N

Site Name	Site ID	Community Type	Remnant Natural Area	Restoration Potential	Existing Restoration efforts	Connectivity	Water Quality Benefits	Threat from Development	Ownership	TOTAL SCORE	Description	Ownership	Wetland Overlay District
Tower Road Pond	NE6	detention pond, riprap shoreline	0	1	0	0	2	0	0	**3**	Large detention pond with riprap on shoreline, then turf.	private	N
Woodfield Business Center (East)	NE7	emergent, wet meadow, scrub shrub, naturalized detention pond, old field	2	2	2	2	1	0	1	**10**	Emergent, prairie/sedge meadow, scrub shrub wetlands, 2-tiered retaining wall on S edge. Interpretive sign on W side shows sedge meadows. Naturalized detention pond.	private	Y
Woodfield Business Center (Basswood Road-West)	NE8	emergent, wet meadow, detention pond, old field	2	2	2	2	1	0	1	**10**	Emergent cattail wetland with willow and box elder. Sedge meadow invaded by reed canary grass - good restoration potential. Disturbed area adjacent to wetland planted with native species. Small naturalized detention pond.	private	Y
Woodfield Business Center (West)	NE9	emergent wetland, naturalized detention pond, old field	2	2	2	2	1	0	1	**10**	Naturalized detention pond recently planted with natives. Emergent wetland dominated by cattail and Phragmites; Salix interior at margins. Old fields.	private	Y
Valley Lake Drive (south)	NE10	wet meadow, mesic upland woodland, old field, detention pond	2	1	0	1	1	0	0	**5**	Young disturbed woods w/little restoration potential. Detention pond w/riprap and turf. Small wet meadow (reed canary grass, cattail, sedges, cattails, bulrush, loosestrife).	private	N

Site Name	Site ID	Community Type	Remnant Natural Area	Restoration Potential	Existing Restoration efforts	Connectivity	Water Quality Benefits	Threat from Development	Ownership	TOTAL SCORE	Description	Ownership	Wetland Overlay District
Woodfield Business Center (West, cont'd)	NE11	naturalized detention pond	2	2	0	2	1	0	1	**8**	Two naturalized detention ponds with cattail, purple loosestrife, arrowhead, river bulrush on fringe. Planted prairie buffer.	private	Y
SOUTHEAST													
Salt Creek corridor	SE2	creek	2	2	0	2	2	1	0	**9**	Creek (from Water Rec. Plant) corridor w/willow, box elder, cottonwood, black walnut, buckthorn, elm, hackberry, black locust. Good restoration potential. Turf berm to N could be restored to prairie.	1 private owner, MSD of Chicago	N
Olympic Park	SE3	emergent wetland, turf	0	2	0	1	2	0	2	**7**	Newly made playing fields; could do prairie buffers on surrounding trails. High profile - potential for native landscaping.	SPD	N
WGN Marsh (Partipilo Property)	SE4	emergent, wet meadow, scrub shrub, pond	2	2	0	1	2	0	2	**9**	Large wetland/pond complex. Cattail, loosestrife, reed canary grass wetland. Very shrubby, but good restoration potential. Turn upland into prairie/savanna. Connect to Ned Brown Forest via bikepath overpass.	public (natural gas pipeline)	N

Site Name	Site ID	Community Type	Remnant Natural Area	Restoration Potential	Existing Restoration efforts	Connectivity	Water Quality Benefits	Threat from Development	Ownership	TOTAL SCORE	Description	Ownership	Wetland Overlay District
Busse Park, Margaret A. Connelly Park	SE5	emergent, scrub shrub, pond, detention pond	0	1	0	1	2	0	0	**4**	Cattail wetland bordered by scrub shrub (willow, box elder, cottonwood, reed canary grass, loosestrife, sugar maple) and ponds on E & W. Large expanse of open space - possible trail system throughout.	SPD, private	N
detention pond	SE6	detention pond, turf	0	1	0	0	1	0	1	**3**	Detention pond lined with turf. Five foot buffer w/1.5 ft. tall fence (goose control?). Little erosion, clear water, fish in pond.	private (1 owner)	N
Polk Brach Park	SE7	emergent, scrub shrub, turf, old field	0	2	0	2	2	0	2	**8**	Degraded emergent/scrub shrub wetland, old field sideslopes herbicided & weedwhacked. Good potential for restored aquatic/emerg w/prairie sideslopes. Turf & playground, pavillion.	SPD	Y
North Polk Brach Floodway	SE8	creek, upland scrub shrub, detention pond, turf	0	2	0	2	2	1	1	**8**	Degraded upland scrub shrub, detention pond, creek through site. Potential to create wetland biofiltration area.	private (1 owner)	Y

Site Name	Site ID	Community Type	Remnant Natural Area	Restoration Potential	Existing Restoration efforts	Connectivity	Water Quality Benefits	Threat from Development	Ownership	TOTAL SCORE	Description	Ownership	Wetland Overlay District
Polk Brach Floodway	SE9	emergent, wet meadow, upland scrub shrub, pond, old field	2	2	2	2	2	0	2	**12**	Old failed mitigation site managed by Schaumburg Park District. Doing planting/seeding, enhancement of remnants, loosestrife biocontrol. Potential for wetland biofiltration area.	SPD	Y
Friendship Village, Olde Schaumburg Centre Park, Sarah's Grove	SE10	emergent, weedy mesic upland, remnant oak/hickory, wet maple woods, detention pond, old field	2	2	2	1	1	1	1	**10**	Detention pond w/unmowed buffer, stable banks. Wet woods (maple) grading to mesic (walnut) w/native understory, remnant oak/hickory woodland. Restoration - control garlic mustard, daylilies, buckthorn, black locust. COVER OPEN WELL! Sarah's Grove to south has remnant oak/hickory woodland.	private (1 owner) & SPD	N
Robert O. Atcher Municipal Center Grounds	SE11	scrub shrub, degraded oak woodland, prairie planting, detention pond, bottomland, creek, turf	2	2	2	2	2	0	2	**12**	Prairie planting around detention pond (little native grass cover). Woody invasion into prairie - need to burn. Degraded oak woodland, bottomland forest along creek. Woodland interpretive trail. High profile site, educational opportunities.	public (VOS)	N

Site Name	Site ID	Community Type	Remnant Natural Area	Restoration Potential	Existing Restoration efforts	Connectivity	Water Quality Benefits	Threat from Development	Ownership	TOTAL SCORE	Description	Ownership	Wetland Overlay District
SOUTH-CENTRAL													
Lancer Creek Park	SC1	bottomland, creek, sheet pile detention pond, turf, old field	0	1	0	1	2	0	2	**6**	Degraded creek w/very steep banks, runs through wooded corridor (box elder, cottonwood, willows). Creek needs to be restored. Turf grass with some old field vegetation. Sheet pile detention pond lined with turf.	SPD	N
School District 211 Property	SC2	old field, degraded woods, detention pond, creek	0	2	0	1	2	1	2	**8**	Large old field, possible site of future high school. Could restore to dry prairie & wet woods if high school is not built.	public (Dist. 211)	N
School District 54 & YMCA (Frost Park)	SC3	wetland edge, mesic upland, prairie remnant, pond	2	2	0	1	1	1	1	**8**	Prairie remnant surrounded by mesic upland. Tremendous restoration potential. Prairie/wetland edge on N side of pond.	public (Dist. 54) & private (YMCA)	N
Eagle Park, Ruth MacIntyre Conservation Area Park	SC4	emergent, wet meadow, pond, turf, scrub shrub	2	2	0	1	2	0	2	**9**	Long corridor of emergent wetland and wet meadows (reed canary grass, lake sedge, late goldenrod). Good restoration potential. Detention pond to W, scrub shrub to E. Possibly buried creek/storm sewer.	public	N

Site Name	Site ID	Community Type	Remnant Natural Area	Restoration Potential	Existing Restoration efforts	Connectivity	Water Quality Benefits	Threat from Development	Ownership	TOTAL SCORE	Description	Ownership	Wetland Overlay District
W. Branch DuPage River	SC5	creek	2	1	0	1	2	0	0	**6**	Creek w/eroded banks, probably historically channelized. Shade suppressed understory (honeysuckle, green ash, reed canary grass, willow, box elder, garlic mustard, brome grass, elderberry).	public/ private	N
Freedom Park	SC6	reed canary grass ditch, white cedar planting, dry detention basin, turf	0	1	0	1	1	0	2	**5**	Park with turf grass. Reed canary grass swale could be restored to wet prairie/emergent w/ mesic prairie buffer. White cedar woodland, needs buckthorn control. Heavily compacted trails.	public	N
SOUTHWEST													
Walnut Greens Golf Course	SW1	lake, turf	0	0	0	1	2	0	2	**5**	Golf course with lake in the middle. Lake - shoreline erosion, riprap, surrounded by turf.	SPD	N
Sheffield Ridge Park	SW2	dry detention basin, turf, cottonwoods	0	1	0	1	1	0	2	**5**	Park with turf grass, cottonwoods, rolling hills, dry detention basin. Potential prairie restoration.	SPD	N
Golf/Knollwood Park	SW3	turf, dry detention basin	0	1	0	1	0	0	2	**4**	Park with baseball fields, playground, mowed lawn, dry detention basin.	SPD	N

Site Name	Site ID	Community Type	Remnant Natural Area	Restoration Potential	Existing Restoration efforts	Connectivity	Water Quality Benefits	Threat from Development	Ownership	TOTAL SCORE	Description	Ownership	Wetland Overlay District
Gray Farm Park	SW4	emergent wetland, pond, detention basin, turf, prairie remnant	2	2	2	1	2	0	2	**11**	Park with playground, mowed lawn, large pond (abundant algae). Moderate diversity in emergent zone (shallow cattail marsh), but also Phragmites, purple loosestrife, reed canary grass, etc. Potential prairie/wetland restoration for water quality improvement.	SPD	N
Veterans Park	SW5	detention pond, turf	0	1	0	1	2	0	2	**6**	Park with ball fields. Large detention pond with cattail, purple loosestrife, willow, water knotweed, rice cut grass - shoreline erosion, surrounded by turf. Smaller detention pond to N, turf to edge, shoreline erosion.	SPD	N
Prairie Park	SW6	emergent wetland, pond	0	1	0	1	2	0	2	**6**	Park with large detention pond. Emergent wetland (reed canary grass, cattails) on E side of pond.	SPD/ private	N
Primrose Lane detention	SW7	emergent wetland, dry detention basin (turf)	0	1	0	0	2	0	2	**5**	Dry detention basin with turf. Emergent wetland (cattail, spike rush, curly dock) at inlet & outlet. Potential for mesic prairie/wetland restoration for water quality improvement.	SPD	N
Levitt Park	SW8	ditch (wetland), turf	0	1	0	0	2	0	2	**5**	Ditch with cattail, purple loosestrife, cottonwood, willow, elderberry. Mowed lawn surrounding area.	SPD	N

Site Name	Site ID	Community Type	Remnant Natural Area	Restoration Potential	Existing Restoration efforts	Connectivity	Water Quality Benefits	Threat from Development	Ownership	TOTAL SCORE	Description	Ownership	Wetland Overlay District
Odlum Southwest Neighborhood Park	SW9	emergent wetland, detention pond, turf	0	1	0	0	1	0	1	**3**	Park with ball fields. Detention pond with emergent wetland (willows). Could create buffer to improve water quality.	private (Towne Place West)	N
Towne Place	SW 10	emergent wetland, detention pond, prairie restoration	2	2	2	0	1	0	1	**8**	Detention ponds with emergent wetlands (cattail, Phragmites, willow, water lily). Slope is prairie restoration (4-5 yrs old).	private	N
Terada Park, Volkening Park	SW 11	detention pond, turf	0	1	0	1	1	0	2	**5**	Detention ponds with severe shoreline erosion, turf to shoreline. Could create emergent zone, mesic prairie buffer.	SPD (Terada) private (Volk.)	N
Oak Hollow Natural Area	SW 12	emergent, wet meadow, scrub shrub, oak savanna, prairie restoration	2	2	2	1	0	0	2	**9**	Prairie, sedge meadow, and oak savanna restoration underway. Interpretive signage present. High restoration potential.	SPD	N
NORTHWEST													
Ray Kessell Park	NW1	detention pond, turf edges	0	1	0	0	2	0	2	**5**	Detention pond with turf on edges & spike rush. Potential for cheap retrofit (gentle slopes, little bank erosion, no hard banks)	SPD	N

High Priority Sites

Following is a summary of each high priority site.

Motorola Corporate Campus
Site number: NE2, NE3
Map section: NE
Overall size: 350 acres

Overall Site Characteristics: This is the site of Motorola's International Headquarters, and contains corporate offices, a training center, a museum, a daycare, and extensive parking lots. Much of the landscaping consists of mown turf grass, traditionally landscaped beds, tree and shrub plantings, and conventional detention ponds. A remarkable feature of the site is the large emergent wetland surrounding the naturalized detention pond in the northwest corner of the property. Motorola is actively managing this site for wildlife habitat. A young disturbed woods in the southwest corner of the property also has good restoration potential. Native landscaping could be used throughout the property to link the natural areas to more public spaces.

Overview of the Ecological Systems on the Site:

Wetlands: Existing wetlands include an emergent wetland dominated by cattails, common reed, and purple loosestrife. Some cottonwoods, weeping willow, and sandbar willow are also present.

Forested Communities: Early successional woods containing Siberian elm, maple, cottonwood, box elder, white mulberry, and willow.

Open Water: One detention pond lined with riprap, one detention pond lined with turf, one naturalized detention pond.

Old Field/Prairie: Old field vegetation includes Hungarian brome, field thistle, Canada goldenrod, bluegrass, reed canary grass, tall boneset, and other common old field species.

Impacts of Surrounding Land Uses: Potential impacts from de-icing material used on adjacent roads. No other impacts known.

Restoration and Management Overview: The restoration potential of this site is high. The emergent wetland is currently being managed, including the use of *Gallerucella* beetles for purple loosestrife control. The young woods could be restored to a prairie or savanna structure, using selective brushing and herbiciding. This site could serve as a demonstration project for the use of native landscaping in a corporate setting and for detention pond retrofits. The potential for community outreach and educational opportunities is unlimited.

Suggestions for future consideration: We recommend that the Village encourage Motorola to develop native landscaping and detention pond retrofit demonstration projects on this property.

Loeber Farm
Site number: NE4
Map section: NE
Overall size: 34 acres

Overall Site Characteristics: This site is a privately owned horse farm with pasture lands and a creek running through the property. Bottomland trees are found along the creek, which is highly degraded. The understory has been heavily grazed. This site is interesting because of its large size and potential use for recreation or restoration.

Overview of the Ecological Systems on the Site:

Wetlands: Wetlands consist of a bottomland forest along the creek.

Forested Communities: Bottomland forest species along creek. Mesic woodland trees (oaks and hickories) are found in the upland, with an understory of grazed cool season grasses.

Open Water: The creek is severely degraded by down-cutting, under-cutting, woody debris, sedimentation, and poor water quality. The water surface of the pond is covered with duckweed and the pond itself is fringed with reed canary grass, sandbar willow, weeping willow, corkscrew willow, and riverbank grape.

Old Field/Prairie: Horse pasture lands with cool season grasses.

Impacts of Surrounding Land Uses: None known.

Restoration and Management Overview: If this property were no longer used as a horse farm at some point in the future, the site could potentially be restored to oak savanna, bottomland woods, and prairie. The creek could be restored through streambank stabilization and other measures to improve the water quality and wildlife habitat. The opportunities for educational, recreational, restoration, and conservation development uses are tremendous.

Suggestions for future consideration: We recommend that the Village guide any future development on this property to be sensitive to the environmental resources onsite.

Woodfield Business Center
Site number: NE7, NE8, and NE9
Map section: NE
Overall size: 67.5 acres

Overall Site Characteristics: The Woodfield Business Center contains a complex of naturalized detention ponds, emergent wetlands, and sedge meadows that are protected from further development. Interpretive signage provides information on the sedge meadows (site N8). This large open area has a variety of uses, including stormwater management, wildlife habitat, greenway corridor, educational, recreational, and aesthetic.

Overview of the Ecological Systems on the Site:

Wetlands: Emergent wetlands dominated by cattail and common reed, with willow and box elder along the edges. Sedge meadow invaded by reed canary grass. Scrub shrub wetlands.

Forested Communities: None.

Open Water: Naturalized detention ponds, one recently planted with natives (N10).

Old Field/Prairie: Old field

Impacts of Surrounding Land Uses: None known.

Restoration and Management Overview: The naturalized detention ponds have been planted with native plants and continue to be managed. Additional management could target the reed canary grass and common reed and increase native plant diversity.

Suggestions for future consideration: Restoration and management activities should be continued and expanded. Additional interpretive signage would increase the educational value of the complex.

Polk Brach Park and Floodway
Site number: SE7, SE8 and SE9
Map section: SE
Overall size: 58.3 acres

Overall Site Characteristics: North Polk Brach Floodway (E8) and Polk Brach Floodway (E9) are contiguous naturalized sites along Salt Creek. Polk Brach Park (E7) is an active recreation site. While the biological diversity of these sites is low, they form important buffers along the creek. Polk Brach Floodway and Polk Brach Park are both owned by the Schaumburg Park District. North Polk Brach Floodway is owned by a single developer. This makes these three sites important candidates to provide for a contiguous greenway, connecting with Spring Valley Nature Sanctuary to the south.

Overview of the Ecological Systems on the Site:

Wetlands: Consist of primarily weedy wetland vegetation and habitat commonly found around degraded creeks and ponds.

Forested Communities: Consists of scrub-shrub habitat.

Open Water: Consists of Salt Creek and adjacent detention ponds.

Old Field/Prairie: Open areas are dominated by old field vegetation or turf grass.

Impacts of Surrounding Land Uses: The frequently fluctuating hydrology and constant weed source of the creek limits the restoration potential of adjacent wetlands.

Restoration and Management Overview: Restoration should focus on creating deep-rooted native wetland and prairie habitat, particularly along the stream.

Suggestions for future consideration: These three sites, along with the Spring Valley Nature Sanctuary and the Village Municipal Grounds, represent an important greenway in the Village. We recommend that the Schaumburg Park District investigate the possibility of acquiring the North Polk Brach Floodway parcel, or zone this parcel to limit its development. The Polk Brach Floodway could be further managed to restore native plant diversity and improve its role as a riparian buffer.

Friendship Village, Olde Schaumburg Centre Park
Site number: SE10
Map section: SE
Overall size: 42.9 acres

Overall Site Characteristics: The Friendship Village property consists of a variety of upland and wetland habitats, the most important being remnant oak-hickory woodland. An adjacent parcel, Olde Schaumburg Centre Park, is owned by the Village of Schaumburg, which makes this an ideal site for management and long-term protection and preservation. On the south side of Schaumburg Road is Sarah's Grove, a 2.3-acre oak-hickory woodland.

Overview of the Ecological Systems on the Site:

Wetlands: The most important wetland consists of a cattail marsh surrounded by a band of silver maple. A native sedge meadow or wet prairie seed bank may persist in the zone between the cattails and silver maples.

Forested Communities: A remnant oak-hickory woodland on Friendship Village property as well as the same community within Sarah's Grove are the highest quality natural areas on site. Some selective woody brush removal was evident on the Friendship Village site.

Open Water: The primary open water feature consists of a large retention pond surrounded by turf grass.

Old Field/Prairie: None present.

Impacts of Surrounding Land Uses: Schaumburg Road bisects the historically contiguous oak-hickory woods. Wetlands have likely been drained using tiles.

Restoration and Management Overview:
Management of the oak-hickory woods should be continued, using a combination of selective woody brush removal, herbiciding weeds, reintroducing the natural fire regime, and supplemental seeding and planting as necessary. Wetlands could be managed by herbiciding weeds, disabling drain tiles as practical, and reseeding.

Two new retention ponds with native buffers will be created as part of a recently approved expansion of Friendship Village. As part of that project, the buffer around the existing pond will be converted to native vegetation.

Suggestions for future consideration: If implemented, the restoration and management recommendations described above would greatly enhance the quality of the natural resources on site, restoring health to a valuable remnant of the historic oak-hickory woodlands characteristic of the area. This area should be protected from further development and should be included in the overlay protection district. Olde Schaumburg Centre Park is already a protected natural area.

Municipal Center
Site number: SE11
Map section: SE
Overall size: 58.1 acres

Overall Site Characteristics: The Municipal Center includes a variety of habitats including detention pond, creek, restored prairie, old field, scrub-shrub woodland, degraded oak woodland and turf grass. This site is heavily used for recreation and community events. This site is valuable for a number of reasons including its relatively large size and the presence of a waterway. Perhaps the most important role of this site is to serve as a high profile and symbolic area to conduct and showcase ecological restoration.

Overview of the Ecological Systems on the Site:

Wetlands: Wetlands consist of planted emergent areas along the edge of the detention pond and degraded riparian forest along the creek.

Forested Communities: Forested communities consist of degraded riparian and mesic woodland, degraded oak woodland, and scrub-shrub vegetation. Restoration of the woodlands is currently underway.

Open Water: Open water communities consist primarily of the detention pond and creek. Improvements to the pond and creek were begun in 1996, to stabilize the pond shoreline, plant emergent plantings along the shoreline, and restore riffles to the creek.

Old Field/Prairie: Most of the non-woody open space is dominated by turf grass or pasture grass. Native prairie restoration is underway in some locations.

Impacts of Surrounding Land Uses:
Degraded vegetation communities on site are consistent with urban communities.

Restoration and Management Overview:
If practical, non-woody areas of turf and pasture grasses could be converted to mesic prairie. Degraded woody and scrub-shrub communities could be restored to mesic woodland. Existing creek, woodland, and prairie restoration should be continued.

Suggestions for future consideration: This site is Village-owned and is thus already protected. Existing efforts to restore the creek, woodland, and prairie communities should be continued and even expanded. Educational signage could be used to explain the ongoing restoration process.

Salt Creek Corridor
Site number: SE2
Map section: SE
Overall size: 7.8 acres

Overall Site Characteristics: The West Branch of Salt Creek runs through this small corridor as it leaves Fox Run Golf Links to the west and before it flows through the Water Reclamation Plant. Bottomland forest trees fill the corridor along the creek. This site exhibits high restoration potential. It is also contiguous with a golf course, making it important as a potential green corridor.

Overview of the Ecological Systems on the Site:

Wetlands: None present.

Forested Communities: Bottomland forest in riparian corridor, including willow, box elder, cottonwood, black walnut, buckthorn, elm, hackberry, and black locust.

Open Water: West Branch of Salt Creek.

Old Field/Prairie: Berm covered with turf to the north of the creek.

Impacts of Surrounding Land Uses: The creek flows through Fox Run Golf Links in Elk Grove Village, where it collects runoff potentially contaminated with herbicides, pesticides, and fertilizers, before entering this site.

Restoration and Management Overview: The bottomland forest could be restored through selective brushing. The turf-covered berm to the north could be restored to prairie.

Suggestions for future consideration: The Village could investigate the possibility of acquiring the privately owned parcel (approximately 5 acres). Two other small parcels are owned by the Chicago Metropolitan Water Reclamation District. Together, these properties fill a gap in the Salt Creek greenway that ultimately connects the Spring Valley Nature Sanctuary and Fox Run Golf Links to WGN Marsh and Ned Brown Forest Preserve.

Whether or not acquisition is possible, the Village could work with Elk Grove Village and Fox Run Golf Links to enhance the creek corridor through the golf course to minimize the effects of non-point source pollutants. The Village could also encourage Fox Run Golf Links to pursue Audubon certification for environmentally sensitive golf courses.

WGN Marsh
Site number: SE4
Map section: SE
Overall size: 8.9 acres

Overall Site Characteristics: This property is a large wetland/pond complex. The wetland is very shrubby, but has good restoration potential. There is potential to restore the surrounding upland to prairie/savanna. The majority of the marsh is outside the Village boundaries, but a portion known as the Partipilo parcel, approximately two-thirds of which is wetland, is within Village boundaries.

Overview of the Ecological Systems on the Site:

Wetlands: Emergent wetland dominated by cattail, purple loosestrife, and reed canary grass.

Forested Communities: None present.

Open Water: Large pond surrounded by emergent wetland.

Old Field/Prairie: None present.

Impacts of Surrounding Land Uses: Interstate 290 acts as a barrier between this property and Ned Brown Forest Preserve.

Restoration and Management Overview: The wetland has been invaded by shrubs and non-native species, but could easily be restored. Previous management activities have included herbiciding purple loosestrife. Upland areas could be restored to prairie/savanna.

Bikepath overpasses are proposed to connect to Ned Brown Forest Preserve and Olympic Park, expanding the opportunity for recreational uses on the site.

Suggestions for future consideration: The extensive wetlands on site limit development possibilities. The site would best be used for recreation and/or restoration purposes. The wetlands should be restored to improve native habitat and the site should be protected long-term, possibly through appropriate zoning. Recreational use of the site and proposed connections to Ned Brown Forest Preserve and Olympic Park should be pursued. The site could also be used for educational or conservation demonstration projects. The Village should consider either annexing the WGN marsh or collaborating with the county to undertake these projects.

Eagle Park, Ruth MacIntyre Conservation Area Park
Site number: SC4
Map section: SC
Overall size: 42.9 acres

Overall Site Characteristics: This Park District site contains a long corridor of emergent wetland and wet meadows adjacent to a large detention pond. The wetlands have been invaded by reed canary grass, but there is relatively high native diversity and the site shows excellent restoration potential.

Overview of the Ecological Systems on the Site:

Wetlands: Emergent wetland and wet meadows (reed canary grass, lake sedge, late goldenrod).

Forested Communities: Scrub shrub community.

Open Water: Detention pond with turf grass sideslopes.

Old Field/Prairie: None present.

Impacts of Surrounding Land Uses: Non-point source pollutant runoff from roads and residential yards.

Restoration and Management Overview: The wetlands have been invaded by reed canary grass, but there is relatively high native diversity and the site shows excellent restoration potential.

Suggestions for future consideration: Recreational and educational uses of the Park could be enhanced by restoration of the wetlands. The turf slopes of the detention pond should be retrofitted with a native vegetation buffer as a demonstration project to the public.

Gray Farm Park
Site number: SW4
Map section: SW
Overall size: 67.3 acres

Overall Site Characteristics: This Park District site contains a large expanse of open space nestled in a residential area. The park and playground provide recreational opportunities to local residents, while the large emergent wetlands bordering the pond are potential restoration areas for improving water quality and wildlife habitat.

Overview of the Ecological Systems on the Site:

Wetlands: Moderate diversity in emergent zone (shallow cattail marsh), but also common reed, purple loosestrife, reed canary grass, and other invasives.

Forested Communities: None present.

Open Water: Large pond with abundant algae.

Old Field/Prairie: Turf grass areas, prairie remnant.

Impacts of Surrounding Land Uses: None known.

Restoration and Management Overview: No restoration is currently underway.

Suggestions for future consideration: We recommend that the wetland be restored for water quality and wildlife habitat improvement. Invasive species should be herbicided. The prairie remnant could be enhanced and unused turf grass areas could be restored to prairie. Educational signage could be installed to explain the restoration projects to the public.

Oak Hollow Natural Area
Site number: SW12
Map section: SW
Overall size: 16.9 acres

Overall Site Characteristics: This Park District site contains a variety of natural communities. Restoration efforts are underway in prairie, sedge meadow, and savanna areas and interpretive signs are present. This provides an excellent opportunity for environmental education.

Overview of the Ecological Systems on the Site:

Wetlands: Emergent/sedge meadow dominated by reed canary grass.

Forested Communities: Oak woodland, with woody brush removal in some places.

Open Water: Small pond.

Old Field/Prairie: Planted prairie.

Impacts of Surrounding Land Uses: None known.

Restoration and Management Overview: Prairie, sedge meadow, and savanna restorations are underway. There is good potential for further restoration.

Suggestions for future consideration: Restoration efforts should be continued and opportunities for involving and educating the public should be explored.

Spring Valley Nature Sanctuary
Site number: SVNS
Map section: SE
Overall size: 135 acres

Overall Site Characteristics:
The Spring Valley Nature Sanctuary is owned by the Schaumburg Park District and includes a Visitor Center, the Volkening Heritage Farm, and 135 acres of preserved open space. Staff and volunteers work on ecological restoration projects year-round. A trail system allows access to the prairies, woodlands, wetlands, and streams. There are educational programs and exhibits on the environment and local history.

Overview of the Ecological Systems on the Site:

Wetlands: Wetland being invaded by reed canary grass.

Forested Communities: Forested riparian buffer along creek.

Open Water: Large pond along Schaumburg Road and West Branch of Salt Creek.

Old Field/Prairie: Several remnant/restored prairies, including wet prairie, mesic prairie, and dry hill prairie. Also large areas of old field vegetation.

Impacts of Surrounding Land Uses: None known.

Restoration and Management Overview: A vegetation transect study completed in 2001 assessed the condition of the ecological communities and recommended restoration and enhancement activities.

Suggestions for future consideration: This site is being actively managed and monitored, and several studies on the progress of restoration have already been done. For this reason, we did not assess this site as part of the natural resource inventory. The Spring Valley Nature Sanctuary is clearly one of the natural gems in Schaumburg and we recommend that restoration and management continue as in the past. Trail systems could be extended through the greenway along the West Branch of the Salt Creek to the Municipal Center and Polk Brach Floodway.

5. CONSERVATION DEVELOPMENT PLANNING

Introduction

In urban and suburban areas, the preservation of natural open space enhances the quality of our lives by making our communities more enjoyable places to live, work and play. Ecologically healthy open spaces are also critical to improving biodiversity in urbanizing areas by providing substantial wildlife habitat and water quality benefits.

Over the past half-century, conventional development practices have transformed undeveloped open spaces into large parcels of predominantly impervious surfaces. Within these developments, roads, driveways, housing units and turfgrass lawns dominate. Open space – "natural area" open space in particular – is rare. Frequently referred to as "urban sprawl", these conventional developments reduce and fragment the acreage of natural areas within close proximity to our communities. They vastly increase the volume of stormwater runoff and they funnel untreated stormwater runoff into engineered systems that lead directly to downstream water resources.

The cumulative effect of this design strategy has been that native plant communities have been replaced with monocultures of invasive, non-native plants. Wildlife populations that depend on contiguous, healthy ecological habitats have declined in both number and species diversity. And aquatic ecosystems have been degraded to the point that many native fish and aquatic organisms have disappeared from our river systems, not to mention bird, mammal and amphibian species that inhabit river corridors.

In the past few years, many communities have become acutely aware that our development practices have contributed measurably to loss of biodiversity, degraded water quality, flood damages, etc. And they are now beginning to explore alternative development practices designed to ameliorate the problems common in our urban environments. Integral to these development strategies is the incorporation of ecological systems and ecologically restored open spaces within the built environment; i.e., "Conservation Development."

One key objective in designing alternative conservation developments is to create opportunities to infiltrate stormwater into the ground before it becomes contaminated surface runoff that damages water resources and contributes to flooding. Since the most efficient infiltration and stormwater treatment systems are created by native vegetation communities – prairies and wetlands in particular – these natural communities are also highly prized from a biodiversity perspective.

Natural communities of prairie and wetland vegetation feature deep root systems that help direct stormwater to groundwater resources. They also provide food and shelter for many wildlife species, some of which are entirely dependent on individual native plant species. For example, the Karner blue butterfly's sole source of food is the lupine plant. Healthy wetlands are among the most bio-diverse ecological communities on earth; healthy prairie systems feature several hundred plant species with associated beneficial insects, birds, mammals and other organisms that comprise the web of life.

Ecology aside, the realization that native vegetation communities provide economically valuable services has contributed to a heightened interest in the establishment of Conservation Developments. This new development concept favors alternative design strategies and

ecologically restored open spaces that intertwine with the "built" environment to offer a multitude of benefits and win-win opportunities for all. Benefits include much-appreciated aesthetic open spaces (and attendant increases in property values), improved wildlife habitat and increased biodiversity, and reduced costs of initial construction as well as long-term, low-cost stormwater management.

When planned and implemented from a "land ethic" perspective, Conservation Development offers a seamless transition from the built environment to the natural one. Human needs are met while healthy ecological systems are sustained.

So, what are some of the essential features of a Conservation Development? Critical features include the following:

- In residential developments, lot sizes are reduced and housing units are clustered to allow for large expanses of preserved or restored ecological open spaces. Using this design concept, residential lots are juxtaposed adjacent to open spaces – offering views and access to natural areas that add value to personal properties.

- Impervious surfaces are minimized to allow for expanded open spaces and preserved, or restored, ecological systems that provide natural stormwater management functions.

- Traditional storm sewer systems, including curb and gutter and deep detention basins, are avoided where possible. Alternatively, stormwater is "managed" using natural drainage and infiltration areas such as swales or filter strips planted with native vegetation that are designed to function as a Stormwater Treatment Train©.

- Native plant communities are enhanced (if existing) or restored/created (if not existing) to provide infiltration functions offered by their deep root systems and evapotranspiration functions offered by aboveground plant structures.

- During construction, soil disturbance (grading) is minimized and Best Management Practices (BMPs) are followed to maximize erosion/sediment control and to facilitate the establishment of natural vegetation systems.

Attractive features can be designed into residential housing projects such as trail systems in natural areas and traditional neighborhood design features that incorporate pedestrian-friendly site layouts, like front-porch housing designs, sidewalks, and rear-loaded garages. Watershed-sensitive commercial or corporate development projects can also integrate trail systems, passive recreation opportunities and education with ecological areas to maximize the potential of sites designed for biodiversity and water quality enhancement.

Cultural Planning Principles

Prairie Crossing in Grayslake, Illinois, a national model for conservation development, employs the following ideals in the continued success of cultural development within the community:

1. *Environmental Protection and Enhancement* – Protect, preserve, enhance and restore ecological systems. Responsible stewardship provides the fundamental underpinning for all conservation developments.

2. *Nurture a Healthy Lifestyle* – Create a living environment that provides for human needs and values, ranging from interpersonal social connections to human connections with the natural environment.

3. *Create a Sense of Place* – Create opportunities for the community to develop a positive and memorable sense of place and time.

4. *Create a Sense of Community* – Foster good citizenship and a commitment to the common good.

5. *Foster Economic and Cultural Diversity* – Encourage economic diversity by providing a complementary mix of housing options. Foster cultural diversity by welcoming and celebrating cultural differences.

6. *Construct a Convenient and Efficient Inter-Modal Transportation System* – Seek to enhance transit options that offer alternatives to personal automobiles. Options to consider range from convenient mass transit to interconnected walkways and bicycle paths.

7. *Encourage Energy and Resource Conservation* – Seek to enhance energy efficiency in homes through energy-efficient designs. Reduce dependence on resources through efficient planning layouts (e.g., roads), use of recycled building materials, and by relying more on natural systems rather than built systems (e.g., storm sewers).

8. *Promote Lifelong Learning and Education* – Promote continuous learning by incorporating social spaces and interpretive areas into development plans.

9. *Advocate Aesthetic Design and High Quality Construction* – Promote design and construction standards that result in structures that enhance and reflect the community.

10. *Economic Viability* – Encourage economic opportunities, such as an organic farm, that reflect and support the community's vision.

Land Planning Principles

In addition to the principles of conservation development described above, specific ecological principles should also be incorporated into the design of any conservation development:

1. *Preserve the Integrity, Vitality, and Sustainability of Ecological Systems*
   a) Ecological systems serve as the basic underpinning for all development strategies. Preservation of existing systems begins with an inventory and assessment of natural resources, conducted by a qualified ecologist.

2. *Integrate Natural Resources with Development*
   a) Minimize grading and landform changes to protect natural features.

b) Integrate natural resources within the "built" environment as aesthetic and functional elements of the development.
c) Enhance quality of life by providing human access and trail connections to the natural areas.
d) Provide a seamless integration of natural resource areas with parks and greenways.

3. *Maximize Environmental Engineering Opportunities*
   a) Apply environmentally sensitive stormwater management and water quality approaches to reduce a reliance on conventional built structures and man-made systems such as storm sewers.
   b) Emphasize water quality strategies and control stormwater runoff through the use of Best Management Practices (BMPs) such as open channels, bio-retention areas, filter strips, and Stormwater Treatment Train© concepts.
   c) Minimize soil disturbance and erosion during construction by employing BMPs for erosion and sedimentation control.

4. *Restore Disturbed Ecological Systems and Connect Natural Communities*
   a) Restore degraded ecological systems and integrate them into the overall ecological plan.
   b) Reconnect natural resource remnants with restored natural communities.

5. *Provide Buffering*
   a) Provide adequate buffers between the built environment and sensitive ecological systems.

6. *Ensure Ecological Management and Monitoring*
   a) Prepare and implement restoration, management, monitoring, and protection plans as part of the development planning process. These plans should be an integral part of the community's planning process.
   b) Clearly define responsibilities for implementation and monitoring of plans.
   c) Prepare covenants for homeowners and homeowner associations, including a handbook of Best Management Practices for Homeowners and legal restrictions that govern the management of common open spaces. Require homeowners to preserve the natural environment, and prohibit homeowners from degrading the environment (e.g., dumping yard debris and contaminants on public open space, encroaching yards and structures into ecologically-sensitive areas, etc.).

7. *Enhance Ecological Education*
   a) Develop an ecological education plan and make it available to the community.
   b) Clearly define the role of community members in preserving the natural environment, and provide education to facilitate their roles.

8. *Encourage the Use of Native Landscaping*
   a) Encourage landscaping with locally native plant material around homes, businesses, and corporate campuses to foster a stronger relationship with nature.
   b) Encourage employment of "energyscaping" techniques using native vegetation to promote energy efficient practices. For example, deciduous trees and shrubs can be planted on the south side of a building to provide shade in summer, while evergreens planted on the north side act as a wind break in winter.

Native Landscaping

In the U.S., 30 million acres have been converted from a pre-settlement natural condition to turfgrass lawns. We don't usually look at lawns as "ecological systems," but if we did, we'd see they are dominated by non-native plant and animal species, and only a very small number of these. A lawn may feature 10-15 actual plant species; a native prairie features hundreds. Obviously, biodiversity suffers when we follow the conventional lawn paradigm of yard landscaping.

In contrast to our biologically barren and high maintenance lawns, native plant communities, such as wetlands, prairie, or savanna, are immensely diverse, productive systems. These native landscapes are seasonally dynamic, and provide year-round food and cover for a variety of wildlife. While we may not be able to re-create the biodiversity of these systems in our backyard, in fact, we all can make worthwhile contributions by landscaping our properties with native plants.

Why use native landscaping?
For many reasons, really, including biodiversity objectives. Here are some things to consider regarding native habitats:

1. Traditional planning, landscaping and development resulted in the replacement of native with non-native plant species, loss of habitat, habitat fragmentation, habitat degradation, and/or habitat destruction. Most threatened, endangered, and rare species have become so because of this loss of habitat.

2. Healthy native ecosystems perform many functions necessary for sustainable living. In addition to providing wildlife habitat, these ecosystems act as ecological filters and sponges, clean water and air, reduce and store stormwater, stabilize soils, protect shorelines, recharge groundwater aquifers, insulate roots of trees and other perennial plants, etc.

3. Native ecosystems also provide many less tangible values to human quality of life (e.g., beautiful aesthetics, connection to nature, passive recreation, etc.).

4. Native landscape projects don't need to be large to have a positive impact. Even a small backyard butterfly garden can provide a beautiful amenity and much-needed native habitat.

5. Rain gardens offer a wonderful opportunity to bring beautiful native plants into a landscape while also benefiting stormwater management. Rain gardens are discussed more in the *Resident's* and *Corporate Guides* developed in conjunction with this plan.

6. Native landscapes are not "no maintenance"; they are, however, low maintenance. Careful initial planning followed by weed management the first few years of establishment is critical to a successful project.

Guidelines for a successful native landscaping project
Here are some basic guidelines that can help you create a beautiful, functional, and successful native landscape:

1. Define your **target communities** (e.g., dry, mesic, or wet prairie; emergent wetland; savanna, etc.), evaluating existing site conditions (e.g., light, moisture, soils, etc.), and considering the "look" you want to achieve.

2. Develop a **seeding/planting plan** using planting zones, species lists, etc. Choose native plant species appropriate for the anticipated site conditions, keeping in mind height, time of flowering, color, texture, wildlife value, etc. This plan can be tailored to best utilize available funds. Seeding is much less expensive than installing live plants, but seeding requires more patience. For many projects a combination of seed and live plants are used.

3. Conduct appropriate **site preparation.** This may require herbiciding of weeds, especially exotic/invasive species, tillage, or a combination of these measures. Inadequate site preparation may result in erosion/sedimentation, abundant/persistent weeds, and a less successful project overall.

4. **Implement the plan**, and adjust your activities as necessary if field conditions warrant a deviation from the plan.

5. **Conduct weeding** diligently for the first 2 to 3 years. Native plants direct most of their energy into root growth in the first year or two. Thus, weeding helps to reduce competition for sunlight by the above-ground plant parts of weedy species.

6. **Water** new plantings initially to ensure healthy establishment. Native plants generally don't require watering after the first few months.

7. **Don't fertilize.** Native plants generally don't require fertilizer; in fact, applying fertilizer can actually encourage the growth of weeds.

8. **Monitor, manage, and adapt.**

Alternative Stormwater Management

Through urbanization and agricultural drainage, we have dramatically altered the way the landscape handles runoff. Agricultural drainage with tiles and ditches contribute immense amounts of fertilizer-, pesticide-, and sediment-laden water to our stream and river systems. In urban areas, engineered systems designed to funnel water downstream, detain it, or retain it, have not been able to prevent flooding problems, nor have they benefited downstream water quality. It is clear that farmland drainage and traditional urban stormwater systems have contributed greatly to our muddied, eroded streams, poor water quality in nutrient-rich lakes, and the degraded fish and wildlife habitats that typically exist in our riparian corridors.

Whether on a watershed scale or on any specific site, alternative stormwater management systems can be designed using natural systems (such as prairies and wetlands) to clean the water before it reaches the waterways, mitigate flooding impacts, and provide healthy fish and wildlife habitat. In short, alternative stormwater management uses healthy natural landscapes to provide a higher quality of life in our communities. This approach is central to the design process in conservation development. Alternative stormwater management systems often utilize native vegetated swales, prairies, wetlands, and sometimes ponds, to:

1. Reduce the rate and volume of runoff from the site
2. Improve on-site and downstream water quality
3. Enhance infiltration and groundwater recharge
4. Decrease infrastructure development costs by minimizing to the extent possible curb, gutter, and storm sewer systems, and by minimizing impervious surfaces by narrowing road widths.

Basic principles of alternative stormwater management

1. You can't control where the rain falls, but you can often control what it hits, where it goes, and how fast it travels.
2. There are alternatives to curbs, gutters, detention ponds, and other conventional techniques. These techniques can decrease the rate and volume of stormwater runoff while increasing water quality.
3. Stormwater is easier to manage close to where it falls or originates.
4. A reduction in impervious surfaces increases infiltration and evapotranspiration.

On a watershed scale, alternative stormwater management principles provide opportunities to restore degraded wetlands, with a host of downstream benefits. They also offer opportunities to stabilize our stream systems, increasing and improving habitat for fish, birds and other wildlife.

Innovative hydrologic studies, sound ecological planning, and active involvement of local communities are the hallmarks of successful projects with goals for environmentally sensitive stormwater management.

Alternative stormwater applications and techniques

Alternative stormwater management can take many forms and can be applied in any setting: natural, rural, suburban, or urban. Sometimes, particularly when space is very limited, these alternative approaches are combined with conventionally engineered stormwater management techniques. The following lists provide some alternative stormwater management techniques that have proven effective in various settings.

<u>Large-scale techniques:</u>

- Bioretention/biofilter wetlands/ponds, forebays (which allow larger solids and course organic material to settle out before entering the wetland)
- Wetland restoration/creation
- Permeable pavement systems and materials

<u>Small-scale techniques:</u>

- Native landscaping
- Rain gardens
- Rain barrels
- Downspout disconnection, where permitted
- Weep walls (infiltration systems along retaining walls)
- Vegetated swales (infiltration and/or bioretention)
- Dry wells/infiltration cells/trenches
- Sunken parking lot islands and tree boxes
- Remove curb & gutter
- Green (vegetated) roofs
- Permeable pavement systems and materials
- Break up unnecessary impervious areas

- Deep aeration

The Village has adopted alternative stormwater management ordinances that require or provide incentives for these techniques. These ordinances were developed to target existing problem areas (e.g., portions of the community that are subject to flooding), new development projects, or re-development projects. The objective is to manage on-site all stormwater generated on the property whenever and wherever possible.

Further information on several alternative stormwater management techniques is available in *Biodiversity: Resident's Guide for the Village of Schaumburg* and *Biodiversity: Business Guide for Commercial, Industrial and Municipal Development in the Village of Schaumburg*, included as Appendix A and B, respectively.

Retrofitting Existing Developments

All of the native landscaping and alternative stormwater management guidelines described above can be applied to redesign or retrofit existing residential and commercial developments in order to adhere to the principles of this Plan. However, existing developments typically present more constraints and limitations that affect the extent to which conservation development principles can be achieved.

General guidelines for applying conservation development principles to existing developments:

1. Reduce and/or break-up impervious surfaces by converting unnecessary or excess areas to vegetation (e.g., parking spaces, asphalt, etc.).
2. Reduce amount of turf area by converting excess areas to native vegetation.
3. Increase amount of native plant species, including boulevard trees, gardens, and ornamental plantings.
4. Remove problematic plant species and replace with native species.
5. Restore degraded habitats.
6. Provide native buffers around all water bodies at a minimum width of 25 feet.
7. Employ alternative stormwater management techniques where possible by increasing vegetated conveyance swales and enhancing infiltration capacity where possible.
8. Provide education and information to the people who live or work in the development regarding the changes and improvements implemented.

Retrofitting landscaping
Existing landscaping can be converted to a more natural state by using native vegetation. Areas to consider converting include excess areas of turf lawn, exotic species-dominated gardens, and exotic ornamental plantings.

Vast acres of the Village consist of turf that is seldom used. These areas can be replaced with prairie grasses and wildflowers. Parking lot islands – often costly to maintain – can be converted to low maintenance native plantings of prairie and savanna vegetation. Short, low-growing prairie grasses, such as little bluestem and grama grasses, provide a lush native cover and can be used in parking lot islands. Gardens can be converted from exotic species to locally native plants. Native trees and shrubs can be added to, or replace, exotic ornamental plantings. The addition of wooded groves to former lawn areas provides structural diversity and enhanced habitat for birds and other wildlife. Diverse native trees, shrubs, grasses, and wildflowers bring beauty to these areas and enhance people's connection with nature.

Retrofitting ponds

A native upland buffer can usually be established around existing stormwater ponds. However, establishing healthy native vegetation along the shorelines of existing storm water ponds may provide particular challenges in some developments. In many cases, the existing hydrologic conditions of the pond create conditions unfavorable to the establishment of a diverse, healthy, native shoreline. Ultimately, however, all water bodies should have at least some unmaintained (not mowed or chemically treated) vegetation adjacent to them in order to reduce erosion and sedimentation, reduce contaminant loading, provide wildlife habitat, and provide natural goose control.

<u>General guidelines for retrofitting storm water ponds:</u>

1. Determine existing hydrologic conditions of the pond (characteristics of contributing watershed, water quality, amount of water level fluctuation, or "bounce", associated with storm events).
2. If existing conditions can support a diverse, native shoreline, retrofit using principles of this plan.
3. Regardless of whether or not existing conditions can support diverse, native shoreline community, investigate opportunities to make the pond more ecologically "healthy" and its hydrologic regime more "natural" by implementing alternative stormwater management techniques in the contributing watershed (e.g., enhancing filtration and infiltration opportunities, constructing forebay wetlands for holding and filtering stormwater, etc.).

Additional information on retrofitting ponds and installing native landscaping can be found in *Biodiversity: Business Guide for Commercial, Industrial and Municipal Development in the Village of Schaumburg* (Appendix B).

6. GREENWAY OPPORTUNITIES

Introduction

Though the term “greenway” is relatively new, the concept has been in existence in the United States since the mid-1880s when greenways were used strictly for recreation. In recent decades, greenways have taken on a larger definition as a component of a multifunctional green infrastructure that can mesh with stormwater, road, recreation, and utility needs that pervade in any community. Green infrastructure implies natural communities, such as wetlands, stream corridors, prairie remnants, and forest areas, facilitating municipal needs while greatly enhancing the quality of life within the community. Stream corridors can be employed as stormwater and flood management while providing scenic bike trails. Unused rail tracks can be converted into corridors for utilities while providing nature trails, space for recreation and habitat for wildlife.

What is a Greenway?

Simply put, greenways are linear tracts of land, sometimes known as environmental corridors. Composed of natural vegetation, they typically follow natural corridors such as stream and river ways, remnant prairie areas, forested lands, and wetlands. Greenways inherently connect a variety of habitats and land uses, flowing from farm field to suburban stream.

A Bit of Science
From an ecological viewpoint urban greenways are vital to biotic communities, which need them for survival. Ecologists think in terms of systems, energy flow, and species interactions. They study the impacts of water cycles, hydrologic and hydraulic conditions, climate, and successional regimes.

Ecologists research historic conditions, locally adapted species, the potential for intrusion of non-native species, and impacts resulting from human activities. They consider water quality and habitat characteristics, including width and length of required habitat for target species. They think about the composition and quality of riparian forest communities, associated avian, insect and aquatic communities, human impacts, and other factors. In urban systems, ecologists think in terms of greenways. Greenways are imperative for connectivity within the web of life in urban areas, as they physically link the dots of fragmented nature.

The scientific basis behind the biological rationale for re-connecting ecosystems is called the “Island Biogeography Theory” which was recently discussed by author Peter Friederici in the Winter 2003 issue of *Chicago Wilderness* magazine. Essentially, researchers observed in the 1960s that oceanic islands of smaller size and those separated by greater distance, tended to sustain fewer species of plants and animals, relative to larger islands or to those in close proximity.

So, Bigger is Better?
Nearly without exception, the more land available for ecological greenways, the better they will function and the better will be their “ecological health”. Larger parcels, particularly when connected to other large parcels, display a greater richness in species diversity and have greater potential to sustain rare species that have very specific ecological requirements.

Meadowlarks that are not uncommon in rural areas require at least 20 acres of grassland. Thus, in Schaumburg, inside the far surburban fringe, they are rare. Other grassland birds find even less habitat in Schaumburg. Upland sandpipers require grassland habitat of more than 100 acres. Many woodland birds also have large habitat size requirements. Wood thrushes need forested parcels larger than thirty acres to sustain successful breeding populations.

In urban areas, however, even where greenway development and expansion is desired by both wildlife and humans, bigger may not always be possible. Where corridors are constricted by existing development, it may not be feasible in some areas to widen the environmental corridor. It is sometimes possible to make it *longer*. River corridors are obvious passageways for many wildlife species. And providing connections between disjointed reaches of stream corridor or patches of natural areas will enable many species to travel more freely. Greenway connections not only help provide additional food sources and shelter for species, they also help broaden the gene pool, improving disease resistance and survivability.

If wider is better – but not possible – how narrow is too narrow? Well, it depends. To a bluejay, a narrow treeline is enough protection to avoid the sharp-shinned hawk. A fencerow is enough for the fox to trot alongside in its nocturnal ramblings.

It is not enough, though, for many of the more sensitive species with greater conservation significance. Environmental corridors with a high degree of "edge effect" produce high rates of mortality for sensitive species, while opportunists such as jays, crows, raccoons, opossums – even domestic dogs and cats – take advantage of, for example, low-nesting birds. Birds that are able to tolerate the edge effect are, not surprisingly, species that are more common to us: species such as starlings, cowbirds, house sparrows, robins and mourning doves.

So, how narrow is too narrow? It depends on a) what is possible, physically and structurally, within confined suburban areas, b) the ecological possibilities, given specific site constraints, c) the goals of the greenway preservation and restoration program, d) the restoration potential of degraded water and land resources, e) adjacent human development impacts, f) recreational priorities, and g) the cost/benefit ratio.

Schaumburg Greenway Potential

The Village of Schaumburg has roughly five areas with large parcels of connected open space that could be considered greenways. They are the West Branch Salt Creek riparian corridor, the Motorola corporate campus, the Woodfield Business Center wetland complex, the West Branch of the DuPage River, and the Lancer Creek corridor (Figure 3).

West Branch Salt Creek Greenway

As a tributary to the Des Plaines River, Salt Creek is an important ecological preserve within the Village. The Spring Valley Nature Sanctuary has stewarded well its natural lands. The Polk Brach Floodway, to the north of the Sanctuary and owned by the Schaumburg Park District, holds potential for restoration to enhance biodiversity. These properties are connected to the Municipal Center grounds where restoration has been underway for several years. An internal study done several years ago by the Village identified opportunities for extending the greenway west of the Municipal Center grounds through Abrahamsen and Applegate Parks to the Town Center.

Salt Creek continues on through Fox Run Golf Links in Elk Grove Village, past WGN marsh, before flowing through Ned Brown Forest Preserve on the east side of I-294. The possibility exists of creating a system of trails throughout the greenway. Additional biodiversity benefits could be achieved if Fox Run Golf Links were to pursue Audubon certification for environmentally sensitive golf courses.

Motorola Corporate Campus
The Motorola campus is a large tract of traditionally landscaped open land that offers important ecological opportunities. Although not linear in shape, the Motorola campus is of such size that ecosystem and greenway functions could be sustainably restored on the property. The campus, because of its size, could provide ecological corridors to nearby open spaces, such as the Village Convention Center site across Meacham Road.

Woodfield Business Center Wetlands
The large wetland complex at the Woodfield Business Center features a few scattered populations of native plants including several naturalized detention ponds that have been planted with native species along their edges. However, the majority of this important site is dominated by monoculture patches of non-native reed canary grass, common reed and cattail. Current conditions do provide habitat for certain bird species, such as the red-winged blackbird. However, natural wetlands with high diversity of native plants are capable of providing for greater biodiversity in wildlife, including associated beneficial insects. Expanding wetland restoration at the Woodfield complex can enhance ecosystem functions while also serving as a connection to nearby open spaces, such as Village in the Park.

West Branch, DuPage River
Although the reach of the West Branch is not long in the Village, it offers ecological restoration potential on public properties in the river corridor. Parks where restoration could improve greenway functions are Jaycee Park and Dooley Park. In these parks, turfgrass areas along streambanks can be converted to native vegetation streamside buffers. These buffers not only help enhance stream water quality, they provide cover and protection for wildlife using the river system. Additionally, unused areas of turfgrass in these parks can be converted to native prairie or oak savanna communities to begin enlarging Schaumburg's biodiversity inventory.

Lancer Creek Corridor
Along Lancer Creek, a tributary to Salt Creek, degraded streamside conditions can be restored to buffer the stream and enhance environmental corridor functions in Lancer Creek Park. Under-utilized turfgrass areas at Lancer Creek Park could also be converted to native vegetation to encourage biodiversity, create a "firefly park" or butterfly garden, and other projects. Lancer Creek flows through the northeast corner of the School District 211 property just before leaving the Village. The greenway along the creek corridor could be expanded by restoring prairie and woodland on the District 211 property, providing the opportunity for creation of a trail system throughout.

Humans in the Environmental Corridor

To consider the ecology of biotic communities in the urban greenway without considering the impact of the human community is to ignore a critical, undeniable component of the ecology of urban environmental corridors.

Aldo Leopold's "Land Ethic" bears repeating here. Leopold wrote in *Sand County Almanac* (1949):

> All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in the community, but his ethics prompt him also to cooperate….
> The land ethic simply enlarges the boundaries of the community to include soils, waters, plants and animals, or collectively – the land….
> In short, a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for the fellow-members, and also respect for the community as such.

Clearly, according to Leopold, and as we have observed in the 50 years since he penned The Land Ethic, the human and natural communities are intertwined.

On the landscape, human and natural communities come together in a wide variety of specific points of contact. One point of contact is with our feet – trail systems. Another is the point of contact with our lifestyles – homeowner practices, development and engineering practices – especially on adjacent lands but even on further distant upland areas within a watershed.

Trail Systems
Ecologically speaking, trail systems are carriers of species, both plant and animal. They are our pathways to explore and reconnect with the natural world, especially in urban areas.

Trails both benefit and harm natural systems. Harm comes not only because trails introduce the human element where it can negatively impact sensitive species, but also from the potential that trails open pathways for exotic invasive species to invade into new areas. Benefit comes from the way a well-designed trail system keeps people "on the road" rather than going off-trail through sensitive vegetation communities. Benefit also comes from the trail usage by wildlife and the ability for trails to facilitate important movements of a wide variety of wildlife species.

Other Human Impacts
Because of the high density of impervious surface in the Village, natural patterns of drainage have been dramatically altered. Typical suburban stormwater management systems create some of the greatest impacts on greenway corridors. Because of the highly altered landscape in Schaumburg, stormwater management is important to the West Branch of Salt Creek, the West Branch of the DuPage River, Lancer Creek, the Woodfield Center wetland complex and other water resources. Ecologically-sensitive stormwater management systems can be applied, even in upland areas, to filter contaminants and sediments and cleanse stormwater runoff before it reaches the streams.

Homeowners who build rain gardens to treat their rooftop runoff can have a significant collective impact on improving water quality in the Village. Commercial businesses can have even greater impacts as they attempt to treat parking lot and rooftop runoff before releasing it to stream systems.

In many residential and commercial developments, detention basins occupy a large portion of the open space. These are difficult to mow, generally unattractive, ecologically barren, and if they hold water, are usually a haven for Canada geese which can be a nuisance in large numbers. These detention basins could all be restored to native vegetation communities that would provide a network of dispersed habitat for birds and beneficial insects. In addition, lawn

mower emissions would be reduced and geese would not concentrate in or near detention ponds.

Additional information on alternative stormwater management techniques and retrofitting detention ponds can be found in *Biodiversity: Resident's Guide for the Village of Schaumburg* and *Biodiversity: Business Guide for Commercial, Industrial and Municipal Development in the Village of Schaumburg* (Appendix A and B, respectively).

7. FUNDING MECHANISMS

Public and private organizations that administer various conservation and environmental programs are often eager to form partnerships and leverage funds for land acquisition, restoration, and environmental education. In this way, funds invested by Schaumburg could be doubled or tripled, although actual dollar amounts are difficult to measure.

Funding

For purposes of this analysis, it was assumed that funds that might be leveraged fall into two relatively distinct categories. The first is existing grant programs, funded by a public agency or by other sources. These funds are available upon the submission of a qualified application. The Illinois Wildlife Preservation Fund is an example: an applicant will submit a grant application to the program, and, if the proposed project meets the required criteria and if the funds appropriated have not been exhausted, a grant can be made.

The second category, one that can provide greater leverage, might be called "money to be found." The key is to recognize that any given project may have multiple benefits. Schaumburg may want to do a specific project to protect natural areas and improve wildlife habitat. A potential partner may see that the same project will also provide another benefit such as improved water quality, increased water retention and source reduction, restored wetlands, protection of drinking water supplies, protection of open space or scenic vistas, archaeological features, areas of scientific or educational value, or opportunities for outdoor recreation. It is important to note and explore all of the potential project benefits from the perspective of potential partners and to then engage those partners. Partners may wish to become involved because they believe the project will achieve their objectives, even if they have little interest in the objectives of the Biodiversity Plan.

It is not uncommon for an exciting and innovative project to attract funds that can be allocated at the discretion of project partners. When representatives of interested organizations gather to talk about a proposed project, they are often willing to commit discretionary funds simply because the proposed project is attractive, is a priority for the agency, or will help the agency achieve its mission. In this way, a new partnership is assembled.

An excellent example of "money to be found" is represented by the funding requirements of the North American Wetlands Conservation Act (NAWCA). Funds can be allocated and spent by any number of partners to achieve goals of a specific project to protect waterfowl habitat. Protected habitat may also provide source reduction, create recreational opportunities, or simply assure open space and scenic vistas. Those partners can be, and often are, both public and private entities. When partners discuss a proposed project, various partners recognize that they have discretionary resources that can be allocated and accounted for in a manner that will attract and leverage the maximum NAWCA grant of one million dollars.

Leveraging and Partnerships

It is critically important to recognize that no one program has been identified that will simply match the overall investment of Schaumburg in implementing the Biodiversity Plan. Rather, partnerships are most likely to be developed in the context of individual and specific land

acquisition or wetland restoration projects that are each a part of the Biodiversity Plan. Partners attracted to one acquisition may not have an interest in another located elsewhere for jurisdictional, programmatic, or fiscal reasons.

Almost any land or water conservation project ultimately requires the support of those who live nearby if it is to be successful over the long run. Local neighborhood associations, homeowner associations, and similar groups interested in open space, preventing sprawl or protecting wildlife habitat and scenic vistas, may be strong partners with the Village on specific sites. Those organizations should be contacted in the context of specific individual projects.

It is equally important to note that the development of partnerships that will leverage funding or goodwill can be, and typically is, a time-consuming process. In many cases, it takes more time and effort to develop partnerships that will leverage support for a project than it does to negotiate with the landowners for the acquisition of the property. Each acquisition or restoration project will be different; each will raise different ecological, political and financial issues, and each will in all likelihood attract different partners. It is also likely that the process will not be fully replicable. That is, each jurisdiction or partner will have a different process and different requirements.

A key task in leveraging additional funds is to assign responsibility to specific staff for developing relationships with individual agencies and organizations, recognizing that the funding opportunities might not be readily apparent. With some exceptions, it will not be adequate simply to write a proposal or submit an application; more often, funding will follow a concerted effort to seek out and engage specific partners for specific projects, fitting those projects to the interests of the agencies and organizations. Successful partnerships are almost always the result of one or two enthusiastic individuals who believe that engagement in this process is in the interests of their agency.

Partnerships are also possible, and probably necessary, that will leverage assets other than money. By entering into partnerships with some agencies, organizations, or even neighborhood groups, Schaumburg will leverage valuable goodwill, an increased “green” perception of the Village by the media and members of the public, and relationships that have the potential to lead to funds and other support, including political support, from secondary sources.

The programs described in the following pages do not include all possible partners. Rather, they are programs deemed most promising and of greatest interest to Schaumburg. It is highly likely that as the Biodiversity Plan is developed, publicized, and implemented, many additional partners and programs will be identified.

The Schaumburg Biodiversity Plan is an exciting, cutting-edge initiative by a large suburban municipality, and as such it will attract attention from public agencies, the media, conservation and environmental organizations, and private funding sources. When all is said and done, partners want to be able to say to the people and public bodies that fund them that they had a hand in implementing a successful and innovative program. This is the strongest motivator for leveraging additional funds: partners want to be associated with progress and success.

Partner/Leveraging Opportunities

A list of leveraging opportunities and potential partners for financial or technical assistance is provided below.

1. Chicago Urban Resources Partnership
   Technical Assistance and Grants Program
   - Eligible projects include those in the Chicago metro area that restore or enhance natural ecosystems through local community based partnerships, emphasis on citizen involvement and education.
   - Deadline varies.
   - Requires 1:1 matching funds or in-kind services.
   - Contact the partnership at 312-353-2473 for more information.

2. Chicago Wilderness
   - Eligible projects include natural areas enhancement, education, and research that focus on biological diversity to the Chicago region. Projects must include two or more Chicago Wilderness Partners.
   - Deadline is January.
   - Required 1:1 matching funds or in-kind services.
   - Contact Chicago Wilderness at 312-346-8166, ext. 30 for information.

3. Ducks Unlimited
   MARSH (Matching Aid to Restore State Habitats) Program
   - The goal of the MARSH Program is to restore or enhance wetland habitat for waterfowl conservation locally (Milwaukee) and elsewhere in Wisconsin, the Midwest, and Canada.
   - The program encourages partnerships with other game organizations, including Pheasants Forever and Wisconsin Wildlife Association.
   - Application deadline is not provided.
   - Requires 1:1 matching funds.
   - Contact Mike Monfils or Gildo ("Jeedo") Tori at 734-623-2000.

4. Illinois Department of Natural Resources
   Conservation 2000-Ecosystems Program
   - The goal of the Ecosystem Project Grants Program is to provide funding for partnership projects that maintain and enhance the ecological and economic conditions of the region. Funds for projects are awarded on a competitive basis to applicants from designated ecosystem partnership areas.
   - Eligible projects fit into one of the following categories: resource economics, habitat, outreach, research or capital.
   - In addition to project funds, the Ecosystems Program provides financial and technical support to ecosystem partners.
   - Deadline is February.
   - Contact IDNR at 217-782-7940 or see website at http://dnr.state.il.us/orep/c2000/ecosystem.

Division of Wildlife Resources Special Funds Application (Habitat, Furbearer, and Pheasant Funds)

- Habitat improvement or land acquisition/protection projects funded by Habitat Fund, Furbearer Fund or Pheasant Fund. Projects must preserve, protect, acquire or manage wildlife for future generations – by benefiting wildlife either directly or indirectly.
- Habitat, research, or education projects are considered.
- Cost-share not required, but preferred.
- Deadline is December 31.
- Contact Office of Resource Conservation – Special Funds 217-782-2602; e-mail specialfunds@dnrmail.state.il.us.

Ecowatch Network

- Through programs such as RiverWatch, ForestWatch, PrairieWatch, WetlandWatch, and UrbanWatch, adult volunteers, high school science teachers, and students monitor rivers, forests, prairies and more.
- Contact http://dnr.state.il.us/orep/c2000/ecowatch/.

Forestry Development Act Program

- Administers the Forestry Development Cost-Share Program, which provides funding for land owners that manage forests for environmental, social and economic benefits and/or for timber production.
- Forests must be at least 100 feet wide. Landowners must own at least 5 acres of contiguous land in the state.
- Application includes a Forest Management Plan prepared by person(s) other than the applicant, submitted to and approved by the District Forester.
- 75% cost-share provided for tree planting, site preparation, vegetation control, fire breaks, fencing and thinning and pruning.
- Can be combined with federal FDA programs.
- Contact IDNR at 217-782-7481 or the county District Forester.

Illinois Bicycle Path Grant Program

- Provides financial assistance to eligible government agencies for the acquisition, construction and rehabilitation of public non-motorized bicycle paths.
- Deadline is March 1.
- 50% match required.
- Contact IDNR at 217-782-7481.

Illinois Migratory Waterfowl Stamp Fund

- Provides for the acquisition of public lands and/or the development of habitat to attract and support waterfowl. Eligible projects must directly or indirectly benefit waterfowl hunting in Illinois. Projects involving education or research are not eligible.
- Deadline is December 31.
- Contact specialfunds@dnrmail.state.il.us for information.

Illinois Nature Preserves Commission Program (INPC)

- The mission of the INPC is to assist private and public landowners in protecting high quality natural areas and habitats of endangered and threatened species in perpetuity, through voluntary dedication or registration of such lands into the Illinois Nature Preserves System. The Commission promotes the preservation of these significant lands and provides leadership in their stewardship, management and protection.

- Contact http://dnr.state.il.us/INPC/programs/programstest.htm.

Illinois Trails Grant Program

- Provides funding to acquire, develop, and maintain trails for public recreational uses.
- Deadlines are March 1 and May 1.
- 50% match required.
- Contact IDNR at 217-782-7481.

Illinois Wildlife Preservation Fund

- Eligible projects include those that deal with habitat enhancement, endangered and threatened species.
- Deadline is April 16.
- Match preferred but not required.
- Contact IDNR at 217-785-8774.

Land and Water Conservation Fund (LWCF)

- A state-financed grant program that provides funding assistance to local government agencies for acquisition and/or development of land for public parks and open space.
- A similar program to OSLAD.
- Contact www.dnr.state.il.us/ocd/newoslad1.htm.

Off Highway Vehicle Recreation Trails

- Grants are available to provide financial aid to develop parks and trails that are open and accessible to the public.
- Contact IDNR at 217-782-7481 or www.dnr.state.il.us/ocd/newohv2.htm.

Office of Water Resources Small Projects Fund

- Provides assistance to rural and smaller urban communities to reduce stormwater related damages by alleviating local significant drainage and flood problems.
- The Office of Water Resources Division of Planning does initial surveys and makes recommendations for flood control or acquisition projects for local flood problem areas. If a project is warranted, the Division coordinates planning and funding and provides project design.
- Can contribute up to $75,000 financial assistance on small projects.
- Contact IDNR Office of Water Resources (IDNR-OWR) at 217-782-4637.

Open Land Trust Fund Grant (OLT)

- Grants are available to local governments to acquire land from willing sellers for open space and resource based outdoor recreation.
- Contact IDNR at 217-782-7481 or www.dnr.state.il.us/ocd/newolt2.htm.

Open Space Lands Acquisition and Development Program (OSLAD)

- Eligible projects include money for acquisition and development of public parks and open space. For example, the Salt Creek Greenway Association received $136,000 in 2000 to acquire 2.75 acres.
- Deadline is July 1.
- Funding up to 50% of project costs; $750,000 maximum for acquisition projects; $400,000 maximum for development/renovation projects.
- Contact IDNR at 217-782-7481.

Private Land Wildlife Habitat Management Fund

- A technical assistance program for private landowners that provides plans, field equipment, plant materials, and labor to develop, implement and maintain wildlife habitat management practices that require

specialized training, equipment or resources which would otherwise be unavailable to landowners.
- Eligible land is privately owned and is at least 0.25 acre in urban areas and 1 acre in rural areas.
- Contact IDNR at 217-782-6384.

Private Waters Program
- Free field inspections and technical advice on fish habitat, fish population management, water quality, vegetation control, streambank stabilization, and habitat development in impounded waters and streams.
- Contact IDNR at 217-782-6424.

Recreation Trails Program
- Provides financial assistance to federal, state and local government agencies and not-for-profit organizations for the acquisition, development, rehabilitation, and maintenance of public motorized and non-motorized recreational trails.
- Minimum 20% non-federal match.
- Deadline is March 1.
- Contact IDNR at 217-782-7481.

Snowmobile Grants
- Financial assistance for the acquisition and development or rehabilitation of public snowmobile areas, trails, and facilities.
- Contact www.dnr.state.il.us/ocd/newsnow2.htm.

Trees, Shrubs and Seedlings at No Cost Program
- The goal of the Trees, Shrubs and Seedlings at No Cost Program is to encourage private landowners to increase wildlife habitat and erosion control functions by reforesting their land.
- Provides seedlings at no cost to landowners with an IDNR approved management plan.
- Contact the District Forester, or IDNR at 217-782-2361.

Urban and Community Forestry Grant Program
- The purpose is to create or enhance local forestry programs in communities with a local forestry ordinance.
- Deadline is May 12.
- 50% match required.
- Contact IDNR Regional Administration at 815-625-2968.

5. Illinois Department of Transportation

Illinois Transportation Enhancement Program (ITEP)
- Eligible projects include those that support alternative modes of transportation (including trails) and that preserve visual and cultural resources, landscaping beautification.
- Call for deadlines.
- Local 20% match required, 50% match for land acquisition.
- Contact IDOT at 1-800-493-3434 or www.dot.state.il.us/opp/iltep.html.
- Not accepting applications until reauthorization legislation is passed.

6. Illinois Emergency Management/Federal Emergency Management Agency

Flood Mitigation Assistance Program
- Provides grants to communities for projects that reduce the risk of flood damage to structures that have flood insurance. Communities must be

enrolled and in good standing with the National Flood Insurance Program (NFIP).

- Provides funding for mitigation planning and mitigation projects implemented pursuant to a plan. Eligible projects include relocation or acquisition of structures and underlying real property subject to flood damage for open space uses.
- Provides up to 75% of project costs, 25% match required.
- Contact is the Illinois Emergency Management Agency (IEMA) at 217-782-8719.

Hazard Mitigation Grant program

- Provides funds for long-term hazard mitigation measures after a major disaster declaration. It has traditionally funded acquisition or elevation of flood damaged buildings.
- Covers 75% of total project costs.
- Contact is the Illinois Emergency Management Agency (IEMA) at 217-782-8719.

7. Illinois Environmental Protection Agency

Illinois Brownfields Redevelopment Grant Program

- Offers grants worth a maximum of $120,000 each to municipalities to inventory and investigate brownfields properties. Grants may be used to perform environmental site assessments and prepare cleanup plans, but cannot fund actual cleanup activities.
- Grant recipients are required to share in any grant award through a 70/30 match.
- Contact www.epa.state.il.us/land/brownfields/index.html.

Illinois Brownfields Redevelopment Loan Program

- Offers low interest loans to support efforts by local governments and private parties to clean up brownfields sites that have already been assessed for contamination. These cleanups take place under the Illinois EPA's voluntary Site Remediation Program. The loans will pay for limited investigation, remediation, and demolition costs at brownfields sites.
- The maximum loan amount for any single loan application is $500,000.
- Contact www.epa.state.il.us/land/brownfields/index.html.

Illinois Brownfield Technical Assistance Program

- Representatives from the Office of Brownfields Assistance are available to assist cities in the revitalization of abandoned properties, vacant factories, and closed gas stations. They will explain cleanup options, regulatory program requirements, and environmental liability status. In addition, they can assist municipalities in securing public and private financial assistance and guide potential grant and loan recipients through the brownfields cleanup and redevelopment process.
- www.epa.state.il.us/land/brownfields/index.html.

Illinois Clean Lakes Program

- Financial assistance available for lakes over 20 acres with public access.
- Application deadline is August 31 (pre-approval) and October 31 (final approval).
- Requires 40% match for phase I, 50% local match for phase II.
- Contact IEPA at 217-782-3362.

Lake Education Assistance Program

- Eligible projects include educational programs on inland lakes and lake watersheds.
- Maximum funding of $500 is reimbursed after completion. Deadlines are September 30 and January 31.
- Contact IEPA at 217-782-3362.

Non-point Source Management Program (Section 319 Grants)

- Eligible projects include controlling or eliminating non-point pollution sources.
- Application deadline is August 1.
- Requires 40% non-federal matching funds or in-kind services.
- Contact Illinois Environmental Protection Agency (IEPA) AT 217-782-3362, or www.epa.state.il.us/water/financial-assistance/non-point.html.

Priority Lake and Watershed Implementation Program (PLWIP)

- This program supports lake protection/restoration activities at "priority" lakes where causes and sources of problems are apparent, project sites are highly accessible, project size is relatively small, and local entities are in a position to quickly implement needed treatments.
- Contact www.epa.state.il.us/water/conservation-2000/plwip.html.

Water Revolving Fund: Wastewater and Drinking Water

- Two programs that provide low interest loans to units of local government for the construction of wastewater or community water supply facilities.
- Deadline is March 31.
- Contact http://www.epa.state.il.us/water/financial-assistance/index.html for detailed contact information.

8. Des Plaines River Ecosystem Partnership

Ecosystems Program

- Provides funding, technical and field assistance for educational, research, habitat protection or habitat improvement projects in Illinois that cover at least one IEPA watershed.
- Requires the applicant to form an Ecosystem Partnership comprised of approximately 12-20 stakeholders.
- Contact the Ecosystems Program at Ecoprg@dnrmail.state.il.us.

9. National Fish and Wildlife Foundation

Challenge Grants

- NFWF awards challenge grants for natural resource conservation projects. Priority areas are: wetland conservation, conservation education, fisheries, neotropical migratory bird conservation, conservation policy, and wildlife and habitat.
- NFWF promotes public/private sector partnerships.
- Requires minimum 1:1 non-federal match.
- Pre-proposal deadlines are July 1 and November 15.
- Contact NFWF 202-857-016, e-mail info2nfwf.org, or http://www.nfwf.org.

Wildlife Links

- Cooperative program that funds cutting edge research, management and education projects that will help golf courses become an important part of the conservation landscape. Areas of interest include: management and design techniques for increasing biodiversity on golf courses;

management guidelines for specific species; research to determine habitat characteristics that serve as corridors or barriers on golf courses; monitoring research to determine habitat characteristics that serve as corridors or barriers on golf courses, monitoring wildlife habitat conservation programs on golf courses; effects of golfer and maintenance activities on wildlife. The United States Golf Association provides $200,000 annually to fund these grants.

- Proposals should indicate that golf courses will be formal partners.
- Maximum request $25,000/year multi-year proposals accepted.
- Pre-proposal deadline is July 16.
- Contact Katie Distler NFWF202 857-0166, for more information http://www.nfwf.org.

10. National Park Service

Rivers and Trails Program

- Provides technical assistance to help local communities achieve conservation objectives. It provides no direct funding.
- Contact Mark Weaver at 414-297-3617.

11. River Network

Watershed Assistance Grants Program

- Eligible projects include community-based partnerships that conserve or restore watersheds.
- Deadlines are February 18 and June 15.
- Grant amounts range from $4,000-30,000.
- Contact River Network at 503-241-3506 or www.rivernetwork.org.

12. The Conservation Fund

Eastman Kodak American Greenways Awards Program

- Provides small grants for greenway and trail projects that can be used for all appropriate expenses needed to complete a greenway project (planning, technical, legal and other costs).
- Grants range from $500-2,500.
- Deadline is in June.
- Contact Denise Swol, American Greenways Coordinator, at 703-525-6300 or dswo@conservationfund.org.

13. U.S. Army Corps of Engineers

Aquatic Ecosystem Restoration program (Section 206)

- Section 206 gives the Corps authority to carry out an aquatic ecosystem restoration and protection project if the project will improve the quality of the environment, is in the public interest and is cost effective.
- Federal funds may be used for feasibility studies, planning, engineering, construction, supervision and administration.
- Federal cost-share of up to $5 million available.
- 35% non-federal cost-share required.
- Contact Planning Division Chief, Chicago District Corps at 312-353-6400.

Project Modifications for Improvement of the Environment (Section 1135)

- Section 1135 gives the Corps authority to review water resource projects constructed by the Corps and determine the need for modifications to

improve the quality of the environment. The objective is to restore ecosystem structure, function and dynamic processes to a less-degraded, more natural condition.
- Federal funds may be used for feasibility studies, planning, engineering, construction and supervision.
- Federal cost-share of up to $5 million available.
- 25% non-federal cost-share required.
- Contact Planning Division Chief, Chicago District Corps, 312-353-6400.

Small Flood Control Projects (Section 205)
- Section 205 gives the Corps authority to develop and construct small flood control projects.
- Federal funds may be used for feasibility studies, planning, engineering, construction, supervision and administration.
- Federal cost-share of up to $5 million available.
- 50% non-federal cost-share required for feasibility study. 35% non-federal cost-share required for project costs.
- Contact Planning Division Chief, Chicago District Corps at 312-353-6400.

14. U.S. Department of Agriculture (Natural Resource Conservation Service)

Conservation Reserve Program
- Pays farmers not to farm their highly erodible land for a period of 15 or 30 years (or permanently) and provides 75% cost-sharing for vegetation establishment and/or habitat restoration.
- Contact local NRCS office, or Pat Leavenworth or Alison Jones Pena at 608-276-8732 (Madison, WI).

Environmental Quality Incentives Program
- Promotes conservation practices and environmental quality on agricultural land by providing financial and technical help to assist farmers with installation or implementation of structural and management practices.
- Provides up to 75% cost share for certain conservation practices up to 450,000 for a maximum term of ten years.
- Contact Anthony Esser, National EQIP Program Manager, at 202-720-1840.

Watershed Protection and Flood Prevention (Small Watershed Program)
- Provides assistance to address resource and related economic problems on a watershed basis. Eligible projects include watershed protection, flood prevention, water supply, erosion and sediment control, wetland creation and restoration, fish and wildlife habitat enhancement, and public recreation.
- Limited to watersheds with < 250,000 acres.
- Technical assistance and cost sharing (amount varies) for implementation of NRCS-authorized watershed plans. Technical assistance on watershed surveys and planning.
- Continuous sign-up, contact NRCS at 815-338-0049.

Wetland Reserve Program
- Property owner enrolls agricultural land with restorable wetlands, land adjacent to wetlands, wetlands restored under state or federal programs. Conservation Reserve Land or riparian areas in Wetland Reserve.

- 100% cost-share is provided for permanent easements. USDA will cost-share 75% of the average cost of establishing essential restoration practices within the easement for 30-year easements and restoration agreements.
- Continuous sign-up, contact NRCS at 815-338-0049.

Wildlife Habitat Incentives Program

- Property owner enrolls private land to develop and improve wildlife habitat.
- Cost-share of up to 75% of the cost of installing wildlife practices.
- Technical assistance for establishing habitat development projects.
- Continuous sign-up, contact Pat Leavenworth at 608-276-8732.

15. U.S. Environmental Protection Agency

Brownfields Economic Redevelopment Initiative

- Projects include those involving redevelopment of industrial sites perceived as environmentally unsuitable.
- Pilot projects awarded up to $200,000 over two years.
- Contact 1-800-424-9346 or visit http://www.epa.gov/brownfields/ for more information.

Community Based Environmental Protection

- Projects include those that use community-based approaches for environmental protection for energy, land use, brownfields, open space and wetlands.
- Projects have a 20% match requirement.
- Contact USEPA Hotline at 1-800-621-8431 or directly visit the internet site at http://www.epa.gov/ecocommunity/.

Environmental Education Grants

- Eligible projects include environmental education activities such as curricula design or dissemination, designing or demonstrating educational field methods, training educators, or fostering international cooperation.
- Varying application deadlines usually run the middle of November.
- Requires a minimum of 25% matching funds or in-kind services.
- Contact US Environmental Protection Agency (USEPA) at 312-353-5789.

Five-Star Restoration Challenge Grant Program

- Grant funding is available for community-based wetland and riparian areas restoration projects. The program combines environmental enhancement with employment opportunities for economically disadvantaged youth.
- Public and private entities may apply for grants averaging $10,000/project.
- Application deadline in February.
- Encourages community partnerships that contribute in-kind or matching funds for the grant.
- Contact John Pai, USEPA, at 202-566-1350; pai.john@epa.gov or Abigail Friedman, NACo, at 202-942-4225; afriedman@naco.org; or http://www.epa.gov/owow/wetlands/restore/5star/.

Wetlands Program Development Grant

- The purpose of the Wetlands Program Development Grant is to assist state, tribal and local government agencies in their wetlands protection,

management and restoration efforts. Grant funds can be used to develop new wetland programs or refine existing programs.
- Requires a public participation work plan.
- Requires minimum 25% match from non-federal sources.
- Contact EPA Wetlands Protection Hotline at 800-832-7282, or http://www.epa.gov/owow/wetlands/grantguidelines/.

Lake Education Assistance Program (LEAP)
- The program provides funding up to $500 for school and other not-for-profit organization participation in lake/lake watershed related educational field trips and activities. It might also fund the attendance of individuals at lake/lake watershed related seminars and workshops.
- Contact www.epa.state.il.us/water/conservation-2000/leap/index.html.

16. U.S. Fish and Wildlife Service

Flexible Funds
- Provides relatively small amounts of funds from up to five separate programs to good projects on private lands to restore fish and/or protect wildlife habitat.
- A 1:1 match is preferred.
- Deadline is end of September.
- Contact Steve Kufrin at 612-713-5447.

North American Wetlands Conservation Act
- Eligible on-the-ground projects include acquisition, restoration, creation and/or enhancement of wetlands and wetland-associated uplands. Partnerships are encouraged. Conservation easements are required.
- Application deadline varies.
- Requires 1:1 non-federal match, maximum grant amount is $50,000.
- Contact Small Grants Coordinator, N. American Waterfowl & Wetlands Office, USFWS, at 703-358-1784; or email this address: R9ARW_NAWWO@MAIL.FWS.GOV.

Northeastern Illinois Wetlands Conservation Account
- Eligible projects include restoration, enhancement, and/or replacement or wetland functions and values which have been degraded or destroyed as a result of activities conducts in violation of the Clean Water Act. Other eligible projects include those that promote understanding, appreciation, and stewardship of wetlands. Permanent land protection and federal/state mitigation plan required on all project sites. Project partnerships encouraged.
- Past project funding has ranged from $650-200,000.
- Application deadlines vary, need to call.
- Matching funds preferred (1:1 cash, goods or in-kind) but not required.
- Contact USFWS at 847-381-2253 for information.

Partners for Fish and Wildlife
- Provides financial assistance for restoration of degraded wetlands and other important fish and wildlife habitats such as grasslands, streams, and riparian habitats, and technical assistance for designing the restoration plans.
- 100% of the cost is provided for up to 10 years on private lands.
- Funded projects are often partnered with the Wetland Reserve Program (NRCS).

- Contact Jim Ruwaldt at 608-221-1206 or james_ruwaldt@fws.gov.

Waterfowl Production Areas

- Provides 100% of the FMV for acquisition of 100-acre or larger existing or restorable wetlands open to hunting, fishing, and trapping. This program does not guarantee receipt of local permits required to restore wetlands.
- Contact Steve Lenz at 920-387-0336.

17. U.S. Forest Service

Urban and Community Forestry

- Provides technical assistance to state forestry agencies, local and tribal governments and the private sector improve natural resource management of trees, forested lands, and open spaces in urban areas and community settings. No funds are provided.
- Contact Richard Rideout at 608-267-0843 (WDNR) or Lisa Burban (Forest Service) at 651-649-5245.

18. Illinois Department of Commerce and Community Affairs Bureau of Energy and Recycling

Energy Affordable Housing Program

- Provides technical assistance and grants to not-for-profit developers to help pay for energy efficient improvements for new and rehabbed housing.
- www.commerce.state.il.us/com/energy/make_house_affordable.html.

Illinois College Assistance Program for Recycling

- Technical assistance provided to public universities and community colleges on recycling and waste reduction planning and implementation, grant writing review and market availability.
- Contact 217-557-1187.

Illinois Recycling Grants Program

- Grants to help communities divert recycled materials from disposal in landfills.
- Contact www.illinoisbiz.biz/com/recycling/com_program_illinois.html or 217-524-0933.

Illinois School Recycling and Waste Reduction Program

- Grant applications are solicited from Illinois public school districts, Chicago District #299 public schools, and Illinois non-public elementary and secondary schools to increase recycling and waste reduction efforts.
- Contact www.illinoisbiz.biz/bus/gri/grants_recycle_waste.html or 217-524-1838.

Recycling Industry Modernization Program

- Technical assistance provided to Illinois manufacturers for modernization of recycling, source reduction, and waste reduction.
- Contact www.illinoisbiz.biz/com/recycling/grants_guidelines.html or 217-785-2638.

Recycling Market Development Program

- Grants available to purchase or convert equipment to manufacture products from recycled commodities and to purchase and test recycled products.
- Contact www.illinoisbiz.biz/com/recycling/bus_program_market.html or 217-785-2006.

Technologies and Practices Demonstration Program

- Provides financial assistance to develop innovative ideas in recycling and waste reduction.
- Contact www.illinoisbiz.biz/com/recycling/bus_program_tech.html or 217-785-2808.

Illinois Community Energy Programs

- A variety of programs to improve energy efficiency and educate consumers on wise energy usage, including grants.
- Contact http://illinoisbiz.biz/bus/gri/grants_energy.html.

Renewable Energy Grant and Rebate Program

- Provides grants and rebates to owners of eligible renewable energy systems to capture power from the sun, wind, water, and biogas from decomposing waste.
- Contact www.illinoisbiz.biz/com/energy/alternate.html.

Small Business Energy Assistance Program

- Provides energy information and technical assistance to small businesses.
- Contact http://illinoisbiz.biz/com/energy/commercial.html.

19. Miscellaneous Technical Sources

Wells Drilled to Produce or Explore for Water

- Illinois State Geological Survey – Locating the best place to drill a well for a new municipal water supply. Free assistance includes preparation of a written report. Geological exploration in the field with sophisticated geophysical techniques requires reimbursement of costs.
- Contact www.isgs.uiuc.edu/isgsroot/isgshome.html.

Waste Management and Research Center/ Pollution Prevention Program

- The Waste Management and Research Center assists Illinois industries, businesses, and citizens to reduce and manage waste. WMRC services include: laboratory services, information services, research funding and technical assistance.
- Contact http://128.174.142.232/.

Illinois Clean Energy Community Foundation

- The Foundation provides financial support and other assistance for programs and projects throughout Illinois that benefit the public by
- preserving and enhancing natural areas and wildlife habitats in Illinois communities.
- Contact www.illinoiscleanenergy.org.

Illinois Conservation Reserve Enhancement Program (CREP)

- The CREP program provides incentive payments and technical assistance to farm owners who plant grasses and trees, restore wetlands to reduce top soil loss, improve water quality, and enhance wildlife habitat in the Illinois River basin.
- Contact 217-785-8774.

Illinois State Geological Service (ISGS)

- Created in 1905, the ISGS provides scientific information to government, business, and the public. Research and service programs encompass geologic mapping, water and mineral resources, environmental and engineering geology, geochemistry, and education. Geological mapping and other forms of technical assistance and advice are available from ISGS on topics such as: preliminary environmental assessments of

chosen sites; locating and protecting groundwater resources; locating and conserving mineral and energy resources, including limestone, sand and gravel, oil and gas or coal; avoiding geological hazards such as landslides or abandoned underground mines; protecting existing wetlands and developing new ones, and understanding the relationships between geology and natural and man-made habitats. Depending on the level of assistance needed, cost reimbursement may be required.

- Contact www.isgs.uiuc.edu/isgsroot/isgshome.html.

Illinois Natural Resources Geospatial Data Clearinghouse

- Available data include U.S. Geological Survey digital orthophoto quarter-quadrangle maps covering the entire state; digital raster graphic files of U.S. Geological Survey 7.5-minute topographic maps of the entire state; Year 2000 orthophotography maps of the Des Plaines River Watershed; digital components of selected Illinois Geologic Quadrangle maps; statewide coverages of many geological, topographic and political maps. Many coverages are available for download at no cost; some must be purchased.
- Contact www.isgs.uiuc.edu/nsdihome/ISGSindex.html.

Office of Pollution Prevention -Technical Assistance Services

- Office of Pollution Prevention (OPP) employs a staff of field engineers and technical specialists that conduct pollution prevention (P2) opportunity site visits at industrial and local government facilities. The site visits are designed to help facility operators identify ways to conserve resources, take advantage of less polluting raw materials, improve housekeeping practices and increase process efficiency. OPP also places student interns at facilities around the state to help research and develop P2 projects during the summer.
- Contact http://www.epa.state.il.us/p2/tech-assistance.html.

8. ORDINANCE REVIEW

Introduction

Previous chapters evaluated the health of natural communities in Schaumburg, discussed opportunities and techniques for preservation and restoration, and identified high priority sites. It is important that the Village protect these high priority natural areas before they disappear. Land acquisition and preservation by conservation organizations is one method of accomplishing this. Another approach to protecting the integrity of natural areas is through local zoning and subdivision regulations.

As part of its effort to implement the goals of the CWPRP, the Village embarked upon the process of revising codes and ordinances that affect biodiversity within the Village. This chapter provides an overview of the ordinance review process and highlights some of the major changes that were recommended. Copies of the revised ordinances are available from the Village of Schaumburg Planning Department.

Methods

The Village of Schaumburg Planning Department began the review process by identifying the following ordinances that could have an effect on biodiversity within the Village:

- §90.60 Weeds Declared Nuisance
- §151.09 Protection of Existing Trees, Landscaping, Parkway Grading and Sedimentation and Erosion Control
- §151.13 Storm Sewer and Drainage Systems
- §154.135 Tree Preservation
- §154.136 Landscaping and Screening
- §154.196 Wetland Protection Overlay District
- §154.27 Definitions

AES assessed these ordinances within the context of Chicago Wilderness Biodiversity goals. General recommendations for revision were made for each ordinance. The Planning Department and AES then discussed these recommendations and opportunities and feasibility of recommended revisions. Based on this preliminary review, the Planning, Public Works, and Engineering Departments revised all six ordinances.

Following this initial review, AES completed a formal review and revision process concentrating on specific language and technical recommendations by red-lining each ordinance. The ordinances then went through another round of revisions by the Planning, Public Works, and Engineering Departments. This final version of the revised ordinances was presented to the Committee of the Whole, the Zoning Board of Appeals, and the Plan Commission for review. The Village Board then approved the revised ordinances.

Results and Discussion

The following is a summary of the major changes that were made to each ordinance.

§90.60 Weeds Declared Nuisance
This ordinance was revised to include a definition of noxious weeds per the Illinois Noxious Weed Law (505 ILCS 100). This definition was broadened to include exotic plant species and invasive exotic plant species. Natural landscapes were exempted from the provisions of this ordinance, as they are addressed in §154.136 Landscaping and Screening (O)(1) Natural Landscapes.

§151.09 Protection of Existing Trees, Landscaping, Parkway Grading and Sedimentation and Erosion Control
The Erosion, Sedimentation, and Dust Control section (G) of this ordinance was revised to take into account the latest best management practices (BMPs) to filter and infiltrate runoff. As part of this, the preservation of natural watercourses, wetlands, and high quality natural areas, as well as their restoration, is strongly encouraged. Also encouraged are alternative, ecologically sound stormwater management strategies such as natural drainage measures, natural detention basins, natural landscaping, reduced impervious surfaces, and permeable pavement. The list of approved tree species was broadened to include native savanna species such as shagbark hickory, American hazelnut, white oak, bur oak, and black oak. Undesirable non-native trees were removed from the list.

§151.13 Storm Sewer and Drainage Systems
This ordinance was revised to amend the current requirement that all retention ponds utilize sod or rip-rap to stabilize pond banks. The amendment will permit the use of deep-rooted native landscaping for stabilization, which will also mitigate sedimentation and pollution.

§154.135 Tree Preservation
This ordinance was revised to allow selective woody brush removal as part of ecological restoration efforts. The list of approved trees for replacement for unauthorized removal of trees designated for preservation (Section (D)(1)(c)) was removed from this Article, as Public Works installs all replacement trees.

§154.136 Landscaping and Screening
This ordinance was revised to encourage landscape designs that promote sustainability, reduce irrigation requirements, and utilize effective on-site stormwater management techniques. This includes the addition of a subsection on Natural Landscaping within the (O) Innovative Landscaping section, which provides guidance for the use of native vegetation in planned landscapes and details the requirements of the newly created natural landscape permit for single-family residence homeowners. Performance standards for permitted natural landscapes were developed to aid in the enforcement of ordinance requirements.

This ordinance now requires the use of BMPs in the design and landscaping of detention and retention facilities as part of the NPDES program. The use of alternative stormwater management techniques, such as rain gardens, vegetated swales, filter strips, and wetlands, to slow stormwater runoff, increase infiltration, and enhance water quality is encouraged.

§154.196 Wetland Protection Overlay District
Originally, the wetland overlay district on which this ordinance is based was comprised of three maps that identified wetlands in selected areas of the Village. As part of the review process, the overlay district was broadened to include additional environmentally sensitive aquatic sites. This new “Wetlands, Streams, and Aquatic Resources Protection Overlay District” was created based on the findings of the natural resource inventory conducted by AES and is available from the Village of Schaumburg Planning Department.

§154.27 Definitions
This section was revised to include definitions of new terms introduced in the previously discussed ordinances.

Figure 2.
Natural Resource Inventory
Macroinvertebrate Sampling Locations,
Village of Schaumburg

Site ID	Site Name
SC1	Salt Creek 1
SC2	Salt Creek 2
WBDR	West Branch DuPage River
LC	Lancer Creek
RLD	Rock-lined Detention
EW	Emergent Wetland
M	Marsh
ND	Naturalized Detention
SPD	Sheet-pile Detention
TLD	Turf-lined Detention

Legend

- *Village of Schaumburg*
- *Stream*
- *Open Water*

Macroinvertebrate Site

- *Wetland Survey Site*
- *Stream Survey Site*

AES Project: 00-651
Field Study By: m.o., p.s.
Mapped By: j.l.c.
Project Manager: a.s.
Date: 12.18.03
Source: Aerial: Village of Schaumburg
Land Cover: Applied Ecological Services, Inc.

N

TLD
RLD
ND
WBDR
EW
SC2
SC1
LC
SPD
M

Springinguth Road
Schaumburg Road
Roselle Road
Higgins Road
Plum Grove Road
Meacham Road
Golf Road
Weathersfield Way
Wise Road
Elgin-O'Hare Expressway

53
90
72
290
53

0.5 0 0.5 1 1.5 Miles

Applied Ecological Services, Inc.

Village of Schaumburg
Progress Through Thoughtful Planning

Figure 1e.
Natural Resource Inventory
Village of Schaumburg
Northwest Section

Legend

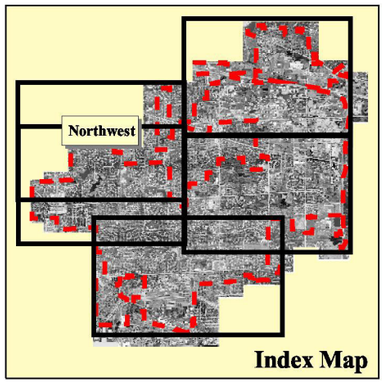
- *Village of Schaumburg*
- *AES Site Location* (N11)
- *Park*

Land Cover

- *1a: Emergent*
- *1b: Wet Meadow*
- *1c: Scrub Shrub*
- *1d: Wetland-Other*
- *2a: Mesic Upland*
- *2b: Bottomland*
- *2c: Woodland/Savanna*
- *3a: Lake*
- *3b: Pond*
- *3c: Stream*
- *3d: Detention*
- *4a: Turf*
- *4b: Old Field/Fill*
- *4c: Prairie Remnant/Restoration*
- *4d: Agricultural*

N

AES Project: 00-651
Field Study By: m.o., p.s.
Mapped By: j.l.c.
Project Manager: a.s.
Date: 12.18.03
Source: Aerial: Village of Schaumburg
Land Cover: Applied Ecological Services, Inc.



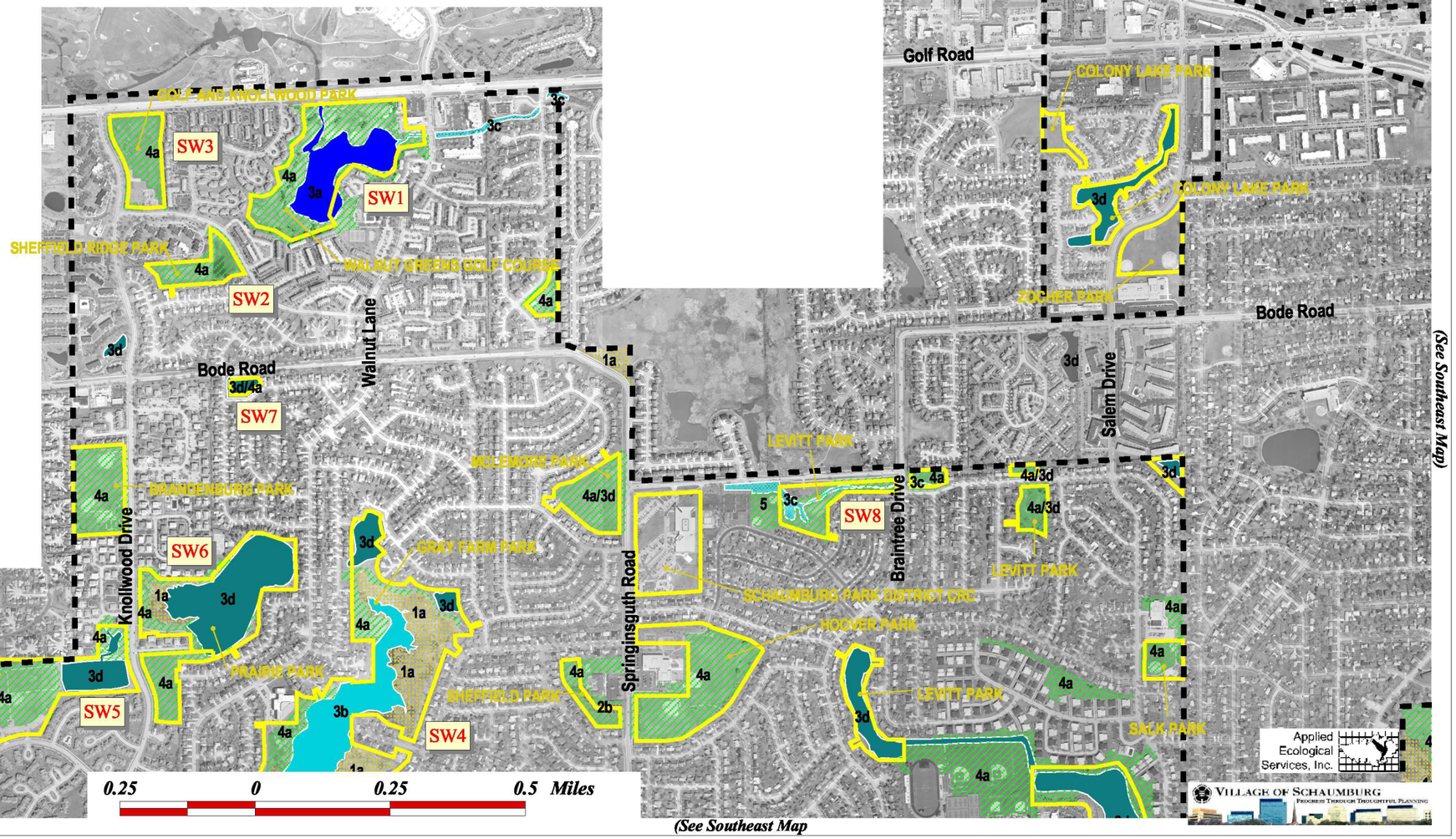
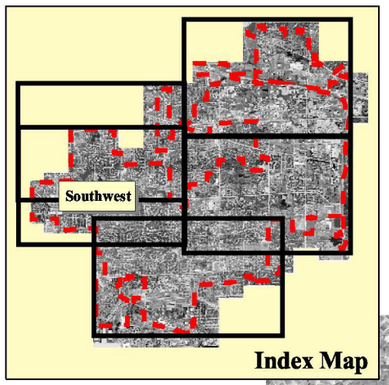


Figure 1d.
Natural Resource Inventory
Village of Schaumburg
Southwest Section



Legend

- *Village of Schaumburg*
- *AES Site Location* (N11)
- *Park*

Land Cover

- *1a: Emergent*
- *1b: Wet Meadow*
- *1c: Scrub Shrub*
- *1d: Wetland-Other*
- *2a: Mesic Upland*
- *2b: Bottomland*
- *2c: Woodland/Savanna*
- *3a: Lake*
- *3b: Pond*
- *3c: Stream*
- *3d: Detention*
- *4a: Turf*
- *4b: Old Field/Fill*
- *4c: Prairie Remnant/Restoration*
- *4d: Agricultural*

N

AES Project: 00-651
Field Study By: m.o., p.s.
Mapped By: j.l.c.
Project Manager: a.s.
Date: 12.18.03
Source: Aerial: Village of Schaumburg
Land Cover: Applied Ecological Services, Inc.

(See Northwest Map)

(See Southeast Map)

(See South Central Map)

0.25 0 0.25 0.5 *Miles*

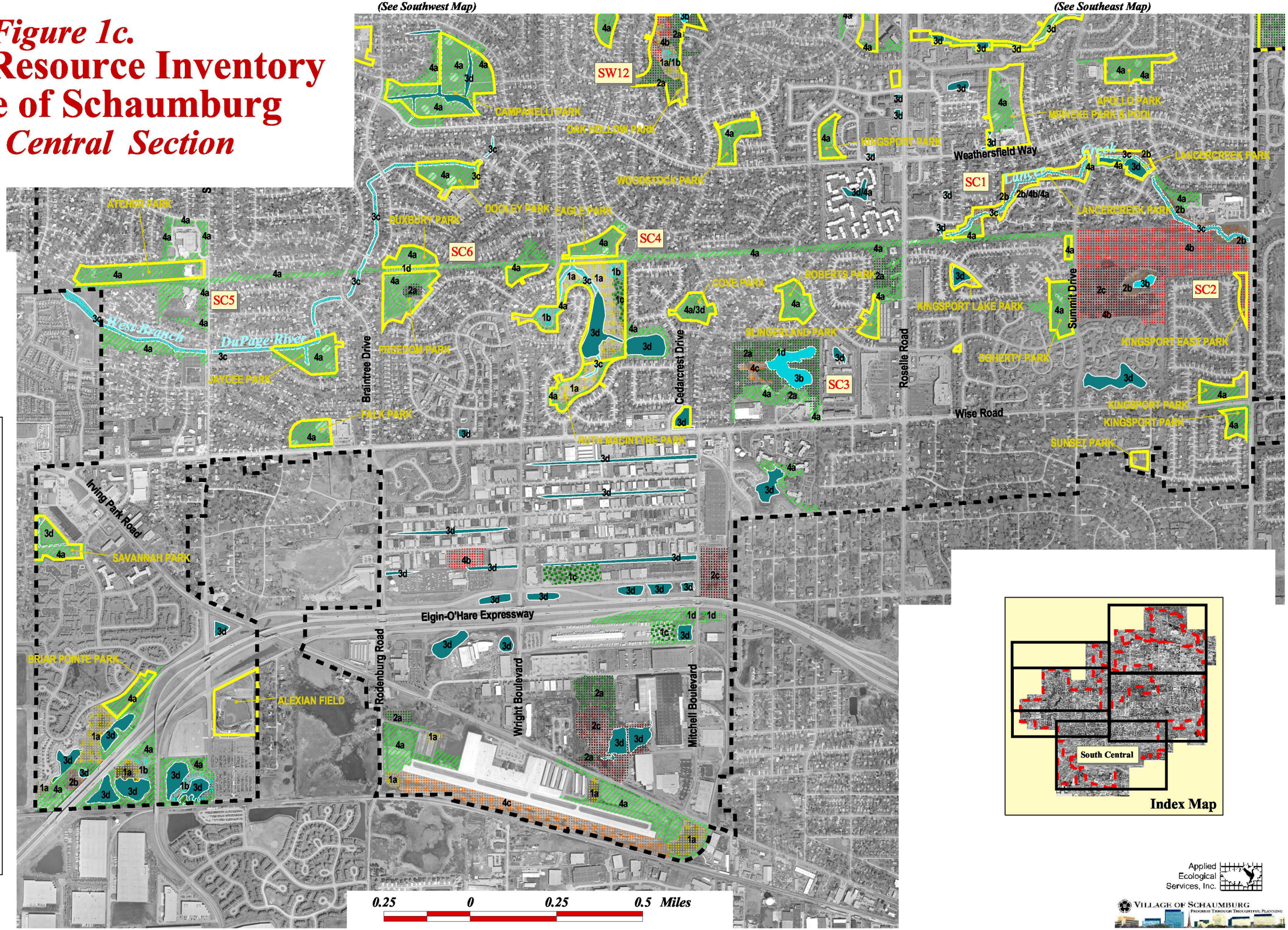
Applied Ecological Services, Inc.

VILLAGE OF SCHAUMBURG
PROGRESS THROUGH THOUGHTFUL PLANNING

Figure 1c.
Natural Resource Inventory
Village of Schaumburg
South Central Section

(See Southwest Map)

(See Southeast Map)



Legend

- *Village of Schaumburg*
- *AES Site Location* (N11)
- *Park*

Land Cover

- *1a: Emergent*
- *1b: Wet Meadow*
- *1c: Scrub Shrub*
- *1d: Wetland-Other*
- *2a: Mesic Upland*
- *2b: Bottomland*
- *2c: Woodland/Savanna*
- *3a: Lake*
- *3b: Pond*
- *3c: Stream*
- *3d: Detention*
- *4a: Turf*
- *4b: Old Field/Fill*
- *4c: Prairie Remnant/Restoration*
- *4d: Agricultural*

N

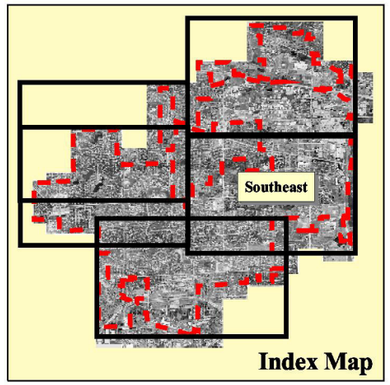
AES Project: 00-651
Field Study By: m.o., p.s.
Mapped By: j.l.c.
Project Manager: a.s.
Date: 12.18.03
Source: Aerial: Village of Schaumburg
Land Cover: Applied Ecological Services, Inc.

Index Map

Applied Ecological Services, Inc.

Village of Schaumburg
Progress Through Thoughtful Planning

Figure 1b.
Natural Resource Inventory
Village of Schaumburg
Southeast Section



Legend

- *Village of Schaumburg*
- N11 *AES Site Location*
- *Park*

Land Cover

- *1a: Emergent*
- *1b: Wet Meadow*
- *1c: Scrub Shrub*
- *1d: Wetland-Other*
- *2a: Mesic Upland*
- *2b: Bottomland*
- *2c: Woodland/Savanna*
- *3a: Lake*
- *3b: Pond*
- *3c: Stream*
- *3d: Detention*
- *4a: Turf*
- *4b: Old Field/Fill*
- *4c: Prairie Remnant/Restoration*
- *4d: Agricultural*

N

AES Project: 00-651
Field Study By: m.o., p.s.
Mapped By: j.l.c.
Project Manager: a.s.
Date: 12.18.03
Source: Aerial: Village of Schaumburg
Land Cover: Applied Ecological Services, Inc.

(See Northeast Map)

(See Southwest Map)

(See South Central Map)

Applied Ecological Services, Inc.

VILLAGE OF SCHAUMBURG
PROGRESS THROUGH THOUGHTFUL PLANNING

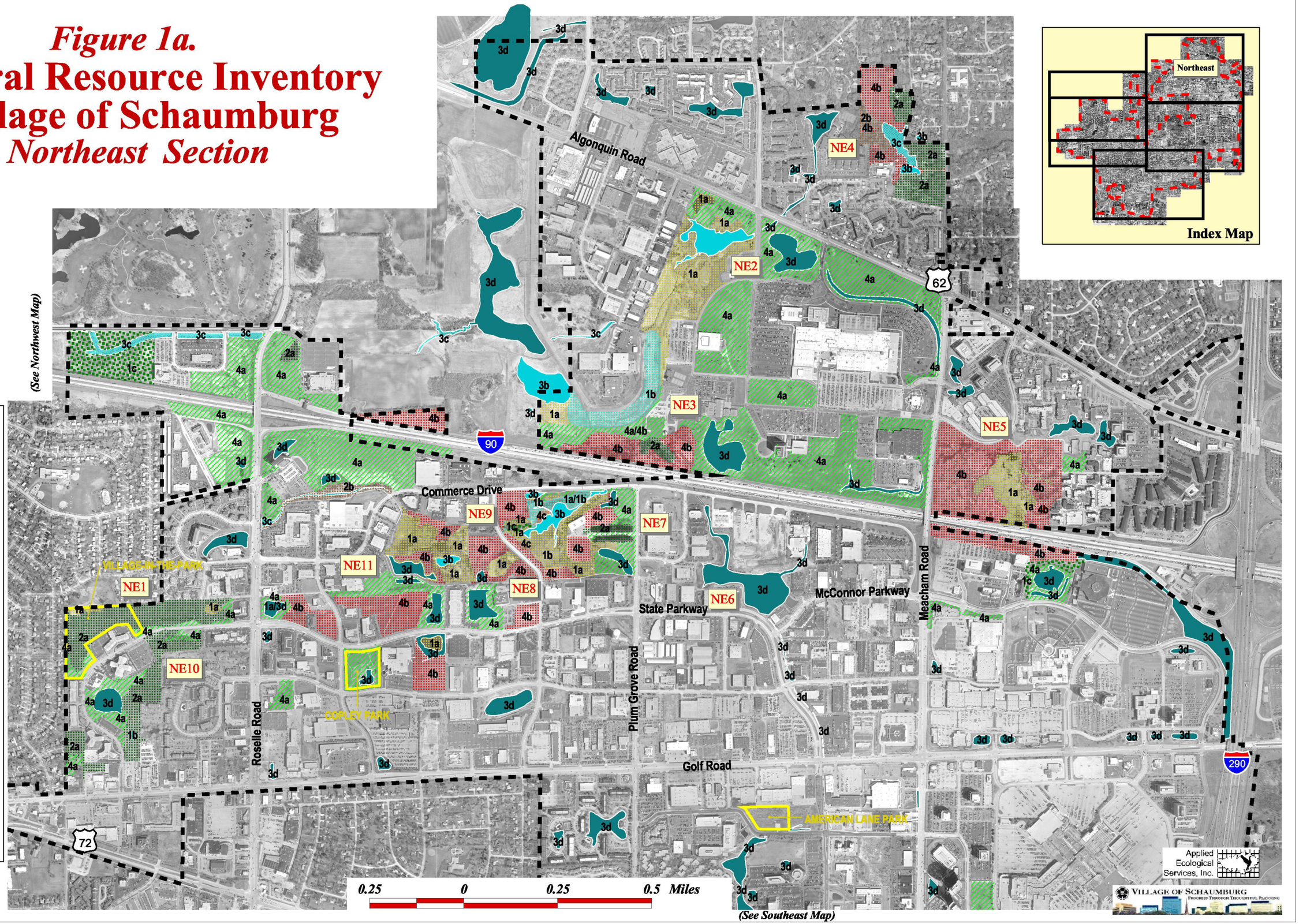
Woodfield Road
National Parkway
Plum Grove Road
Meacham Road
Schaumburg Road
Roselle Road
Summit Drive
Cedarcrest Drive
Weathersfield Way
Salt Creek
Linear Creek
72
290

SE1 SE2 SE3 SE4 SE5 SE6 SE7 SE8 SE9 SE10 SE11 SVNS SW12 SC1

SCHAUMBURG GOLF CLUB
FOLK / BRACH ATHLETIC COMPLEX
FOLK / BRACH PARK
FOLK / BRACH FLOODWAY
BUSSE PARK
CONNELLY PARK
OLYMPIC PARK
SPRING VALLEY NATURE SANCTUARY
MWRD
ABRAHAMSEN PARK
APPLEGATE PARK
APOLLO PARK
MEINEKE PARK & POOL
LANCERCREEK PARK
SARAH'S GROVE PARK
OAK HOLLOW PARK
TIMBERCREST PARK
WOODSTOCK PARK
KINGSPORT PARK

0.25 0 0.25 0.5 Miles

Figure 1a.
Natural Resource Inventory
Village of Schaumburg
Northeast Section



Legend

- *Village of Schaumburg*
- *AES Site Location* (NE1)
- *Park*

Land Cover

- *1a: Emergent*
- *1b: Wet Meadow*
- *1c: Scrub Shrub*
- *1d: Wetland-Other*
- *2a: Mesic Upland*
- *2b: Bottomland*
- *2c: Woodland/Savanna*
- *3a: Lake*
- *3b: Pond*
- *3c: Stream*
- *3d: Detention*
- *4a: Turf*
- *4b: Old Field/Fill*
- *4c: Prairie Remnant/Restoration*
- *4d: Agricultural*

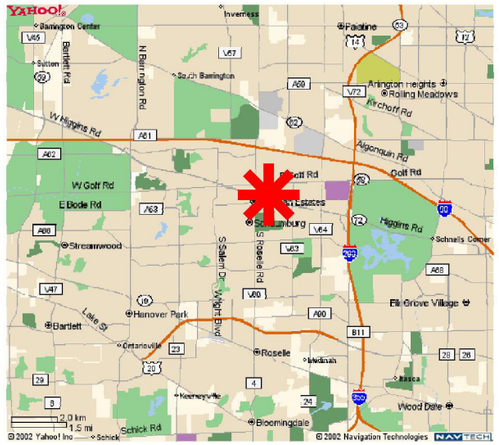
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AES Project: 00-651
Field Study By: m.o., p.s.
Mapped By: j.l.c.
Project Manager: a.s.
Date: 12.18.03
Source: Aerial: Village of Schaumburg
Land Cover: Applied Ecological Services, Inc.

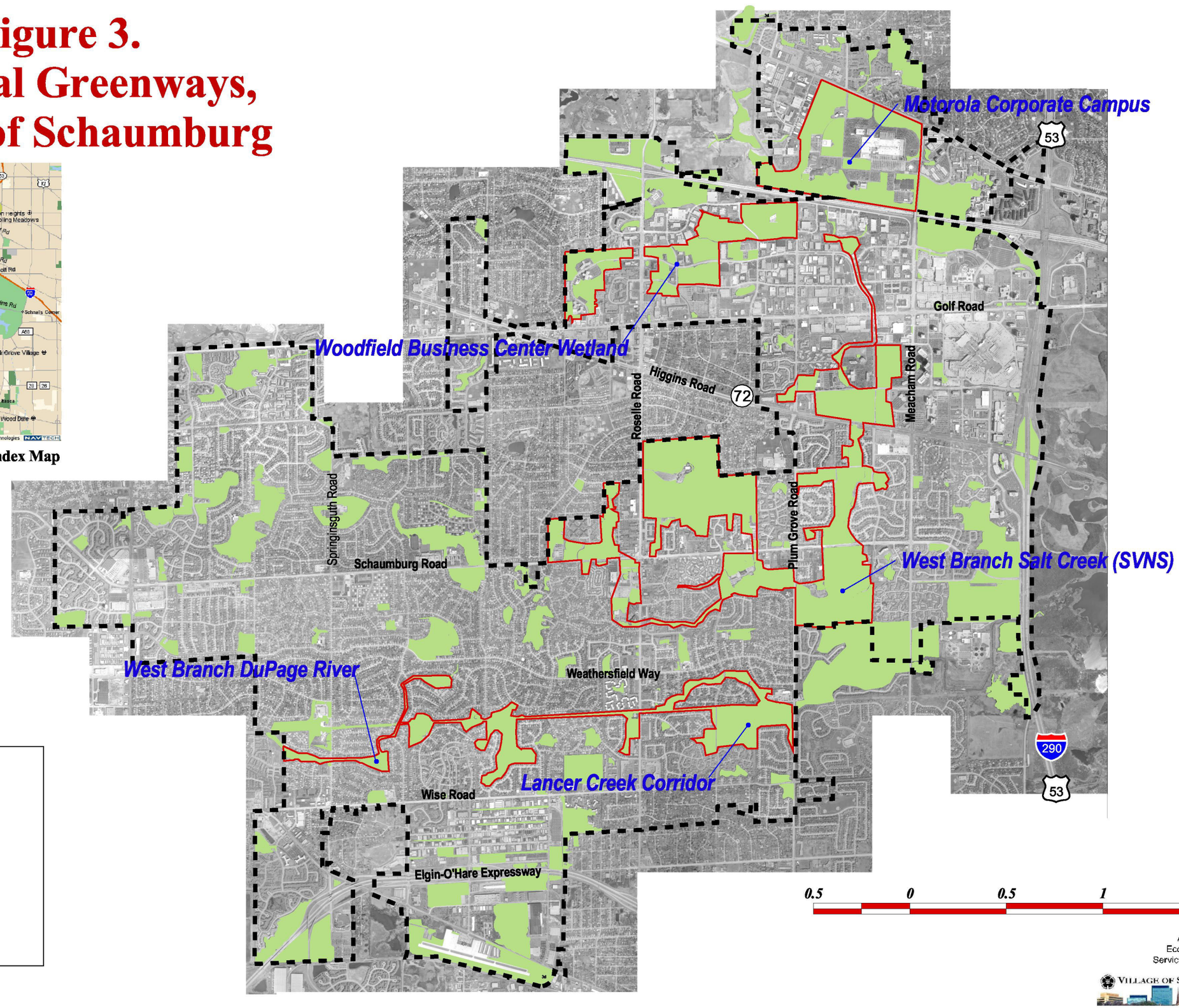
Applied Ecological Services, Inc.

VILLAGE OF SCHAUMBURG
PROGRESS THROUGH THOUGHTFUL PLANNING

Figure 3.
Potential Greenways,
Village of Schaumburg



Index Map



Legend

- *Village of Schaumburg*
- *Potential Greenway*
- *Inventoried Natural Resource*

AES Project: 00-651
Field Study By: m.o., p.s.
Mapped By: j.l.c.
Project Manager: a.s.
Date: 12.18.03
Source: Aerial: Village of Schaumburg
Land Cover: Applied Ecological Services, Inc.

N

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Village of Schaumburg
Progress Through Thoughtful Planning

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