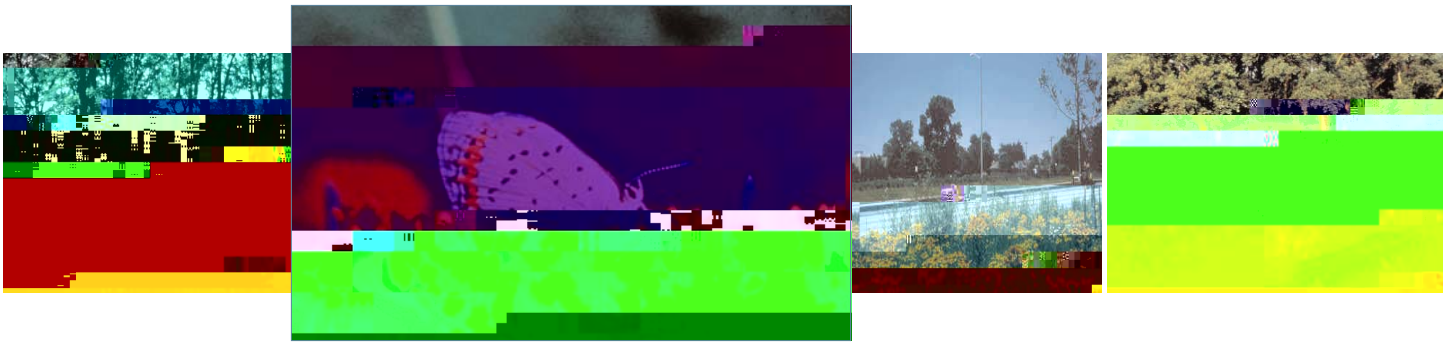

northeastern illinois planning commission

This project has been funded in part by the United

PURPOSE OF THIS SOURCE BOOK

In recent years, a new look in landscaping, commonly known as natural landscaping, has been gaining enthusiastic acceptance across the country. Natural landscaping is an aesthetically exciting, ever-changing tapestry of hardy, primarily native plantings well adapted to the local climate and soil. It provides a cost effective alternative to conventional turf grass lawns.

Natural landscaping minimizes the environmentally detrimental effects of pesticides and fertilizers, as well as the noise pollution and the emission of air-polluting substances from lawn-maintenance equipment. It virtually eliminates the need to use water for irrigation, as is required for turf grass lawns. While not maintenance free, natural landscaping requires less time and money for ongoing maintenance than conventional landscapes.

Homeowners and developers alike are beginning to appreciate the environmental, economic and aesthetic benefits of natural landscaping.

Local officials are in a position to advocate natural landscaping and bring its benefits to their communities. Local governments demonstrate the benefits by using native plant materials on government owned and managed lands.

Government officials can amend comprehensive plans and adopt ordinances to promote the appreciation and use of natural landscapes. Citizen education about the benefits of natural landscaping can provide a powerful incentive, especially if government officials can point to demonstration projects of their own.

This Source Book will:

* Explain the basic principles and benefits of natural landscaping;
* Demonstrate the feasibility of using natural landscaping successfully in the region;
* Provide information regarding the ways that local officials as community leaders can encourage the use of natural landscaping;
* Identify ways to avoid pitfalls that could result in poorly implemented natural landscaping;
* Describe tools and techniques; and
* Provide direction to other sources of information and expertise.

This guidebook was originally prepared by theNIPC)e not n

CHAPTER 1: NATURAL LANDSCAPING

Rattlesnake Master

I. What is Natural Landscaping?

Natural Landscaping is the physical modification of outdoors to serve the needs of people by planting, altering the contours of the ground, and building structures and amenities such as pedestrian ways, paths and picnic areas.

Native landscaping, Natural landscaping, and Beneficial landscaping

Natural landscaping is a relatively new term. Other terms in current use mean much the same thing and are somewhat interchangeable. The terms are discussed in the context of the Midwestern United States.

Native landscaping refers to the use of plants—for example, prairie, woodland and wetland plants—that flourished in northeastern Illinois prior to its occupation by settlers from eastern North America and Europe.

Natural landscaping implies the use of native plants but has slightly broader implications because it also suggests landscaping to give the "look" of the landscape that existed before the mid-1800s. In addition, there may be an attempt to restore or reconstruct the landscape to look and function more as it did before settlers, other than Native Americans, lived here.

Natural landscaping applies to a wide array of landscaping techniques that help retain natural landscape features, including wetlands, woodlands and natural drainage features. For example, natural landscaping site design incorporates natural drainage features such as swales and vegetated "filter strips" in contrast to storm sewers and artificial drainage channels.

Beneficial landscaping is another term in current use that embraces both native and natural landscaping. The term beneficial landscaping also includes the use of shading and windbreaks, which reduce heating and cooling needs for buildings.

These terms are relatively new and their definitions are somewhat fluid. Questions of terminology should not obscure the basic intent or concepts. The term "natural landscaping" will be used throughout this guide. In **Appendix 1** of this guide is a **glossary** of frequently used terms associated with natural landscaping.

II. T

Difficult to maintain conventional landscaping.

Natural landscaping for habitat and reduced maintenance.

We need to assess which parts of our landscapes could be replaced with native plants. In returning to a more natural landscape, we will be returning those plants which evolved under our conditions of climatic stress, which require less maintenance and coddling and provide environmental, economic and aesthetic benefits.

One immediate result of the switch from conventional to native or natural landscaping is that our landscape can thrive under the diverse conditions across the region:

* sandy soils associated with Lake Michigan and its larger predecessors;
* rich lowland forest soils in floodplains along streams and rivers;
* heavy clay soils in low-lying wooded areas;
* wet conditions associated with wetlands, wet prairies, and riparian corridors;
* dry uplands on rolling lands left by glaciers; and
* moderate lands originally covered by tall-grass prairies and groves of oaks and other hardwoods.

Fortunately, there is a selection of native plants that have a wide tolerance for varying conditions and work well in many locations. Where special expertise and resources are available, ambitious natural landscaping projects can attempt to restore the original soil and water conditions.

III. How can Natural Landscaping Be Used?

Almost everyone can use natural landscaping. There is no rigid set of rules that dictates how much or what qualifies as natural landscaping or when it is appropriate. The concept embraces a range of opportunities for property owners, managers and public officials. Any effort that increases the amount of area devoted to natural landscaping will be of some benefit. It will largely be up to property owners, local officials, planners, engineers, and landscape professionals to determine where, what kind, and how much.

Some examples:

New developments of all types can

* preserve and enhance existing natural areas such as prairie, wetland, floodplain and woodland areas as an essential component of site planning;

* cluster homes in order to reserve green areas designed with native plants as a substitute for conventional subdivision design;

* reduce the amount of impervious surfaces by substituting vegetation where appropriate;

* utilize natural drainage approaches such as swales and vegetated filter strips instead of storm sewers.

Existing institutional and commercial complexes can

* create prairie, wetland, and woodland areas as part of government, corporate and institutional campuses, and reduce the area devoted to turf grass;

* design and retrofit stormwater detention basins as natural wetland/prairie systems to enhance water quality and other environmental benefits.

Individuals and groups of homeowners can

* totally or partially replace lawn areas and common areas with native plants and retrofit areas for more natural stormwater detention.

Golf courses can

* reduce the amount of turf by including areas of rough devoted to native plants and natural environments. The Audubon Cooperative Sanctuary Program for Golf Courses encourages golf courses to include wildlife habitat enhancement, establishment of Integrated Pest Management (IPM) programs, and protection of water resources.

Local governmental units can

* incorporate natural areas into non-active areas on most types of public property, as well as use natural landscaping for stormwater management.

Native plants can be used in various ways in the landscape

*Native plants as one part of the landscaping material

Existing or new building sites can use native trees, shrubs and grasses instead of the “exotic” plants typically marketed by nurseries. Native grasses and ground covers may partially replace turf areas. This approach is becoming increasingly popular with homeowners. Natural landscaping on commercial properties provides environmental benefits and a distinctive appearance to the building site. “Ornamental” use of native vegetation in landscape design can create unusual and attractive effects.

* Native plants as the principal landscaping material

With careful planning, native plants can constitute the primary landscaping material in new development sites and sites that are being re-landscaped. This approach may be particularly appropriate for office campuses, public facilities and parks, institutions, and clustered residential development. Using native plants can result in major environmental improvements and cost savings.

* Using more vegetation and less concrete and asphalt

The excessive use of concrete, asphalt and other impervious materials in our landscapes causes several environmental problems. It accelerates stormwater runoff and creates flooding and erosion conditions for communities along streams. It results in higher temperatures in urban environments, making the out-of-doors less pleasant and increasing the need for air conditioning. Increasing the use of vegetation- especially native vegetation- in our landscaping can reduce damage from stormwater runoff, reduce temperatures, reduce energy costs, improve water quality and increase wildlife habitat.

Strategies for increasing the amount of permeable surfaces include: reducing street widths in residential developments, reducing setbacks between buildings and streets, designing smaller parking lots which include island vegetation, and clustering development on part of a site.

Paving in unused paved areas can be removed and natural landscaping installed.

There are several special situations where the natural landscaping approach should be considered:

* To preserve existing native vegetation

Preserving existing natural vegetation is a fundamental purpose of natural landscaping. While very little area within the region has been left in its native state by humans, there are rare and valuable natural area remnants (wetlands, prairies, and woodlands) which should be protected and properly managed. With removal of exotic species, native plants will often re-establish themselves rather quickly.

* To restore ecological systems

Another primary use of natural landscaping involves restoring entire ecosystems with a full complement of native species. These projects include restoration of previously altered hydrology along streams and in wetlands and removal of drain tiles. Intensive design, monitoring and maintenance programs with long-term professional oversight are critical to the success of the restored landscape.

On publicly owned lands, volunteers can help accomplish large scale restorations. Volunteer workers and expert volunteer stewards are already providing experienced stewardship in all Chicago area counties.

* To create greenways

Linear open spaces called “greenways” provide exceptional opportunities for utilizing natural landscaping to protect and restore the region’s ecological identity. Many of the region’s forest preserves are in greenway corridors and are being managed to maintain their natural character. The Northeastern Illinois Regional Greenways Plan, adopted by the Northeastern Illinois Planning Commission (NIPC) in 1992 and updated in 1997, reflects these regional greenway opportunities.

Local jurisdictions can plan and implement local greenways that connect with the regional greenway network. Greenways are appropriate on both public and private property. Local and regional greenways are excellent and appropriate locations for natural landscaping.

Many greenways contain rivers, streams, or other waterways. In these locations native vegetation in buffer strips adjacent to the stream provides wildlife habitat, bank stabilization, and water quality benefits. These buffer strips protect natural resources from human impacts and filter out pollutants that could flow into streams.

* To stabilize streambanks and shorelines

Native willows, grasses and other plants can be used to stabilize eroding streambanks and shorelines. The techniques that employ native plant materials are collectively called bioengineering. They are more effective, less costly, and provide better wildlife habitat than traditional engineering approaches.

* To manage flood and stormwater

Flooding affects many communities in Northeastern Illinois. Floodplains are regulated so they will be retained in non-intensive, open space uses in order to reduce hazards from flooding. Planting native vegetation in floodplains helps absorb and slow flood waters.

Stormwater drainage facilities and detention basins designed to replicate the natural water purification functions of wetlands also improve water quality and wildlife habitat as well as creating aesthetically pleasing landscapes. Careful design and planting of these facilities allows them to blend more naturally into the landscape than conventional structures.

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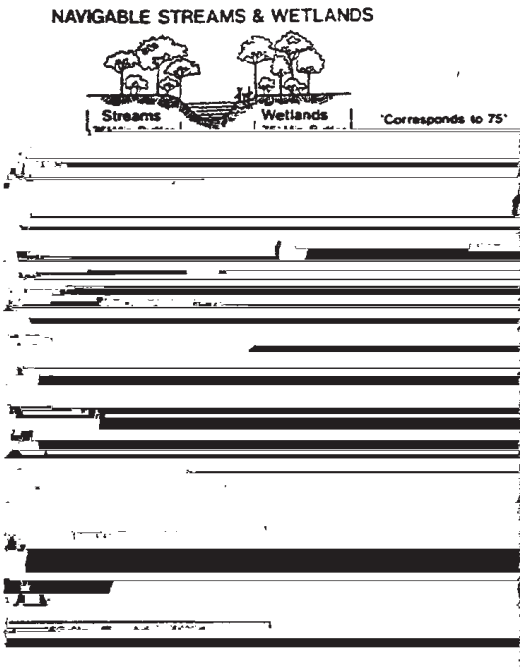

Sample buffer criteria for a stream greenway

For more information about stormwater:

Reducing the Impacts of Urban Runoff. Northeastern Illinois Planning Commission: 1997.

Strategic Plan for Water Resource Management. Northeastern Illinois Planning Commission: 2001.

water for irrigation can be very high and are avoided by natural landscaping. The reduced consumption of fossil fuel for lawn maintenance equipment is an additional benefit. Typical original maintenance requirements of natural landscapes involve annual mowing or burning and some weed removal (mostly in the few years after installation).

Appendix 8 contains detailed installation and maintenance cost analyses based on the experience of firms that design, install, and maintain natural landscaping projects.

Reduced expense 1rsþ27710.4992o0 TD(e)Tj1 o

Supports the natural landscaping component of the “green industry”

There are many opportunities for creative entrepreneurs in all aspects of natural landscaping.

II. Environmental Benefits

In many ways, natural landscaping reduces the stress that the “weed-free” lawn places on clean air, clean water, soil stability and other environmental qualities of life. Natural landscaping attracts wildlife, such as butterflies and birds, thus increasing biodiversity.

The ***Biodiversity Recovery Plan***, produced by Chicago Wilderness, states that natural landscaping is a way for landowners to increase biodiversity on their property by creating habitats for many species, particularly on properties that are adjacent to natural areas, streams, lakes or wetlands.

Reduced soil erosion

Natural landscaping has distinct advantages over conventional turf grasses in stabilizing highly erodible soils. Native plants are particularly effective on steeply sloped sites, stream banks, and in areas where moving water is present. The roots of native prairie plants are very dense, fine, and often very deep (in some cases, 5 to 10 feet in mature plants) and hold soil well.

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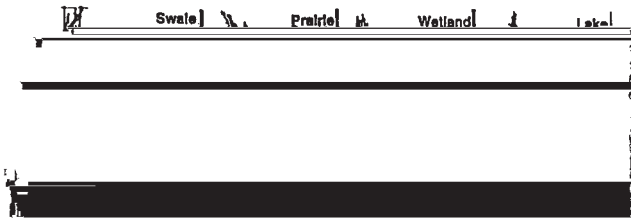
Demonstration projects for streambank and shoreline stabilization, such as along the Skokie River in the Chicago Botanic Garden, have successfully used native plants such as prairie cordgrass and various willow species.

Improved water quality

Native vegetation in naturalized drainage ways enhances the infiltration of contaminated stormwater. The dense, deep root systems augment the permeability of the soil and help the uptake of certain stormwater pollutants. Native vegetation buffers are particularly effective along the edges of streams, lakes, and wetlands. They can intercept runoff and subsurface water pollutants from urban and agricultural land uses and construction sites. Emergent and submerged wetland vegetation provides an additional benefit along the edges of lakes and streams by serving as a growing surface for microorganisms. These microorganisms break down certain pollutants thereby reducing their harmful effects.

An additional benefit of native vegetation landscaping is its ability to thrive without fertilizers, or heavy use of pesticides and herbicides. Turf grass and other conventional landscapes are heavily dependent on chemical applications, and the excess chemicals inevitably find their way into our waterways where they cause excessive plant growth and toxicity to fish and other aquatic organisms.



Drainage of a site through a natural system, rather than through storm sewers, dramatically reduces pollution levels.

Reduced air pollution

Standard lawn maintenance equipment creates significant amounts of air pollution. Equipment such as lawn mowers , chain saws, leaf vacuums, and other fossil fueled lawn maintenance equipment emit high levels of carbon monoxide, hydrocarbons (VOCs) and nitrogen oxides (NOx), which contribute to the formation of ground level ozone (smog), toxins and other particulates. The USEPA estimates that a gasoline powered lawn mower emits 11 times the air pollution of a new car for each hour of operation. Gasoline lawn and power equipment, on average, produce 5 percent of “smog”- forming VOCs in nonattainment areas (such as the northeastern Illinois region). Smog is a noxious irritant which impairs lung function and inhibits plant growth. In addition, the “driver” of such equipment is typically positioned where exposure to such carbon monoxide and toxic emissions is greatest.

Small gasoline spills evaporate and pollute the air as well. The USEPA estimates that every

summer, the few ounces spilled during each refueling of lawn and garden equipment adds up to 17,000,000 gallons of gasoline nationwide.

Natural landscaping can significantly reduce the need for fossil fueled lawn and garden equipment and this reduces the associated air pollution and health risks. In addition, the native plants themselves can help to improve air quality by reducing particulates and gaseous air pollutants. The Clean Air Counts campaign states that for every 1,000 acres of natural landscaping, 50 tons of VOCs and 5 tons of NOx are avoided per year.

Reduced noise pollution

Noise from lawn and gardening equipment has become a source of increasing dissatisfaction in some communities. The installation of natural landscaping reduces the use of this equipment.

Climatological benefits

Trees and other vegetation benefit the climate on three levels: human comfort, energy conservation, and urban climates.

Human comfort

Plants intercept infrared radiation directly by providing shade and indirectly by covering surfaces that reflect or reradiate solar energy. Trees and shrubs can channel air movement. Moving air feels cooler. In the winter, windbreaks reduce the wind chill factor.

Energy Conservation

Windbreaks on the north and west sides of

root depth distributions and microbes that produce the large amount of soil carbon.

Habitat restoration and protection

Due to extensive urban and agricultural development, high quality natural communities cover only .07% of Illinois' land and water, according to the Illinois Natural Areas Inventory. With the decrease in habitats, many plants and animals have lost the special conditions and requirements they need for their survival.

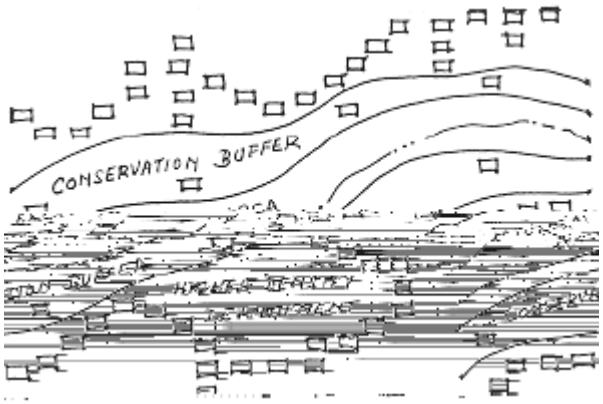
Natural landscaping plays a part in attracting native animals and re-establishing the natural cycles within which they thrive. In addition, natural landscaping can be used to create buffers which reduce urban stresses and proximity of exotic species to high quality natural areas.

When a site is adjacent to a natural area, special care must be taken when considering plant selection. Certain plant species can become invasive and disturb the natural area. It is advisable to treat the landscaped area as an extension of the natural area.

Native insects, including butterflies and moths, attract a wide array of songbirds, who eat the insects and the plant seeds. If a restored prairie is large enough, it might attract nesting grassland birds such as meadowlarks and bobolinks, birds whose habitat is decreasing in most parts of their range in the state. The degree of habitat value in natural landscaping depends on many factors relating to the ability of a site to provide the conditions required by specific plant and animal species. Site planning for natural landscaping should strive to preserve existing wildlife habitats.

As part of planning natural landscaping, it is desirable to complete an inventory of plant and animal species currently using the site be taken. Where desirable species are already using the site for nesting, phasing in a project by keeping enough habitat to protect those species should be considered before forging ahead with replanting the entire site.

Canada geese have become pests in many city and suburban locations where there are turf grass lawns in proximity to open water. A buffer of thick and tall native plantings around the waterbody will discourage geese from grazing, especially during the growing season when the plants are taller.



Conservation buffers can help protect wildlife habitat in a development. (Shaw, et. al., 1986.)

Beautification

Though it is difficult to quantify, beautification is an important reason, sometimes the fundamental reason, for natural landscaping. Many people living or working in natural landscapes appreciate the various textures, colors and shapes of native plants and the dramatic progression of hues throughout the seasons. Wildlife, especially the birds and butterflies attracted to the plants, also enhance the aesthetic appeal of natural landscaping.

III. Educational and Recreational Benefits

There is an old saying:

“People wintand oe .E

For more information about greenways:

Northeastern Illinois Regional Greenways Plan. Northeastern Illinois Planning Commission/Openlands Project: 1992. Updated June 1997.

For more information about biodiversity:

The Biodiversity Recovery Plan. Chicago Wilderness: 1999. Available at

http://www.chicagowilderness.org/pubprod/brp/index.cfm

Illinois Noxious Weed Law

The Illinois Noxious Weed Law (505 ILCS 100/1) is intended to control weeds that are a problem to agriculture, and enforcement of the law is assigned to the Illinois Department of Agriculture. The list of noxious weeds is determined by Director of the Department of Agriculture, the Dean of the College of Agriculture of the University of Illinois, and the Director of the Agricultural Experiment Station at the University of Illinois.

The list of official noxious weeds, updated in 2002, includes:

- marijuana
- giant ragweed
- common ragweed
- kudzu
- Canada thistle
- perennial sow thistle
- musk thistle
- perennial members of the sorghym genus

County boards are defined as the "control authorities" for weed control operating under rules established by the Department of Agriculture. Land owners are responsible for controlling noxious weeds on their property. The control authority can issue notices for such control in order to require compliance.

Local officials could work with county government and the Illinois Department of Agriculture in identifying and eradicating infestations of noxious weeds. Volunteer stewards working with conservation organizations often have experience in the techniques for removing noxious weeds.

Illinois Exotic Weed Act

Another law that addresses weeds is the Illinois Exotic Weed Act of 1972 (525 ILCS 10). This Act tries to avoid spreading non-native invasive plants that degrade natural plant communities, reduce the value of fish and wildlife habitat, or threaten Illinois endangered or threatened species. The Act prohibits the buying, selling, distributing, or planting of seeds or plants of designated exotic weeds.

Designated exotic weeds include:

- Japanese honeysuckle (Lonicera japonica)
- Multiflora rose (Rosa multiflora)
- Purple loosestrife (Lythrum salicaria)

In 2003, the Illinois Exotic Weed Act was amended to include kudzu and invasive species of buckthorn. The buckthorn species are common buckthorn, glossy buckthorn, dahurian buckthorn, saw-toothed buckthorn, Japanese buckthorn and Chinese buckthorn.

Similar laws exist in Wisconsin and Indiana.

A site plan for natural landscaping may necessitate the removal of both noxious and exotic weeds.

Municipal Weed Ordinances:

Municipal weed laws have sometimes become the "lightning rod" for controversy associated

with natural landscaping. Communities adopt weed laws in order to prevent unsightliness from poor property maintenance and to prevent hazards from vermin and fire, which were believed to be caused by unkempt vegetation. The drafting of such laws usually occurred prior to or without knowledge of natural plant communities. Weed laws, if not carefully worded, can equate natural landscaping with unmanaged landscapes. In fact, natural landscaping is managed and does not pose the hazards that weed laws are intended to address.

Community and neighborhood sentiment regarding aesthetics and appearance has sometimes led citizens to look to weed laws as a way of opposing natural landscaping. Courts have determined that concerns about natural landscapes, including vermin, fire hazards, mosquitoes, and allergies are unfounded. A well-crafted ordinance, coupled with public education illustrating the benefits of natural landscaping, should be adequate to provide a local framework to support natural landscaping.

Municipalities have responded to the natural landscaping movement and weed laws in various ways.

Permissive Approach

Madison, Wisconsin was among the first communities to encourage natural landscaping by taking a permitting approach. The ordinance requires homeowners to file an application for natural landscaping and obtain approval from a majority of neighbors.

Improved Weed Laws

More recently enacted weed laws allow natural landscaping "by right" without case by case neighbor or city permission. There are three main approaches to crafting or modifying a weed law:

* Require a setback.
* Include broadly worded exceptions for natural landscaping.
* Encourage natural landscaping.

Require a setback - Weed laws have traditionally regulated height. For example, weeds exceeding 10 inches in height may not be permitted. The newer and more sophisticated weed laws address the appearance issue by requiring that a setback or buffer strip on the periphery of the property be maintained at a maximum height (such as 12 inches). Vegetation behind the setback and within the yard is unregulated except for control of listed noxious weeds.

Setback distances depend on the type of community and size of the typical lot. Communities with homes on large lots could have as much as a twenty-foot setback, while in towns with smaller lots, a two- or three-foot setback would be more suitable.

Setback laws have several advantages and represent a workable compromise between the sometimes diverse interests of the village, natu-

ral landscapers and neighbors. Primarily, setback ordinances allow for the unregulated growing of vegetation on a majority of the lot. Like a frame around an abstract painting, the setback around the perimeter of a natural area creates a tended look that satisfies neighbor and village concerns of conformity and aesthetics. The yard takes on its intended look. A setback also solves the practical problems caused by large plants and grasses lopping over into neighbor yards or across sidewalks. The setback ordinances are also easy to understand and enforce. Both the village and the natural landscaper benefit from a clear and simple law. Neighbor complaints are generally satisfied by such compromise and living in a community makes compromise essential.

A reasonable exception to setback requirements is where adjacent landowners mutually agree to continuous natural landscaping across adjacent property lines.

Include broadly worded exceptions in the weed ordinance for beneficial landscapes - These exceptions may include the following:

Native plantings - the use of native plant species for aesthetic and/or wildlife reasons

Wildlife plantings -the use of native and/or introduced plant species to attract and aid wildlife

Erosion control - to offset and control any soil loss problems both occurring and predicted.

Soil fertility building - the enrichment and eventual stabilization of soil fertility through the use of various plant species.

Governmental programs - any federal, state or local programs which require the unimpaired growth of plants during a majority or all of the growing season.

Educational programs - any areas designated for educational studies.

Cultivation - any plant species or group of plant species native or introduced and grown for consumption, pleasure or business reasons.

Biological control - the planting of a particular plant species or group of species which will effectively out-compete and replace a noxious or troublesome weed species without additional soil disturbance of the site.

Parks and open space - any and all public parks and open space lands whether under the jurisdiction of federal, state, or local agencies including private conservation/preservation organizations.

Stormwater Control – the use of natural landscaping to convey and store stormwater run-off.

Wooded areas - all areas that are predominantly wooded.

Encourage natural landscaping - This approach promotes the use of natural landscaping in its broadest sense.

Long Grove, Illinois is a good example of a com-

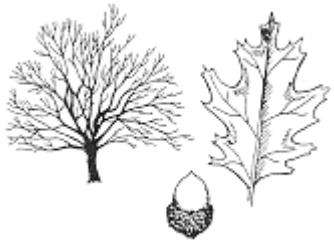
munity that embodies this policy. Long Grove has no law regulating vegetation height. The village requires developers to include scenic easements, at least one hundred feet deep and planted with native plants, wildflowers and grasses between the homes and major streets in their subdivisions. Large portions of the town are designated natural areas as determined by a scientific ecological survey. Long Grove employs a naturalist to advise developers and homeowners on how to cultivate and maintain natural landscapes. Long Grove sells native plants and seed mixes to residents and has a committee that reviews prairie restoration projects within the village.

Schaumburg, Illinois, created its own biodiversity recovery plan for the village. To implement the plan, the Board amended the municipal code with an ordinance for biodiversity regulations. The ordinance requires environmentally beneficial landscaping and sustainable development practices.

Fort Collins, Colorado employs a full time wildlife biologist and has a ten acre nature preserve in the heart of downtown on land that used to be a formal park. There is a city program to identify and certify homeowner's backyard wildlife habitats. To receive this certification, homeowners must let nature reclaim their non-native lawns. Hundred of citizens participate in the program.

There are many variations that can be developed to respond to local conditions. A community may want to try a pilot program directed within a selected neighborhood, pertaining to particular land uses such as campus-style uses, or targeted towards less visible locations on sites. See **Appendix 6** for additional information and sample ordinance language.

(This section draws heavily from the John Marshall Law Review, Volume 26, Number 4, Summer 1993, written by Bret Rappaport.)



Black Oak

For more information about updating local ordinances:

Conservation Design Resource Manual, Northeastern Illinois Planning Commission: 2003.

Available at http://www.chicagowilderness.org/pubprod/miscpdf/CD_Resource_Manual.pdf

CHAPTER 4: THE "HOW TO" OF NATURAL LANDSCAPING

Arrowhead

I. Ethics of Using Native Plants

II. Developing an Approach

III. Natural Landscaping on a Small Scale

IV. Natural Landscaping on a Large Scale

V. Considerations for Installation

VI. Savanna and Woodlands

VII. Wetland and Lakeshore Stream Habitats

VIII. Natural Landscaping for Stormwater Management

Designing, installing and managing natural landscaping projects will vary in complexity and approach depending upon the nature of the site and the project goals. There are different degrees of natural landscaping, ranging all the way from a small native flower patch, to a full-scale replication of a plant community covering many acres. An otherwise traditionally landscaped site may be installed with a "natural" stormwater pond with a fringe of native wetland plants and upland buffer to trap sediment.

Larger projects have the most at stake, financially and visually. They require a detailed and technical planning process. Some examples of larger scale projects include corporate campuses, university lands and large community parks.

I. Ethics of Using Native Plants

Regardless of the scope or goals of your project, an important ethical consideration is the acquisition seeds or plugs from a reputable supplier. It is inappropriate for amateur gardeners or professionals to collect seeds or plants from "the wild," except by permission of the owner or as part of a restoration program.

Collection of too many plants or seeds can seriously reduce the ability of the plundered site to replenish itself. Seed collecting ethics are rigorously followed by volunteer groups working with forest preserve districts, owners of natural sites, and professionals in the nursery business.

II. Developing an Approach

Planning, even if informal, is a fundamental ingredient for a successful natural landscaping project. The greater the ambition or the shorter the timetable, the more planning and technical expertise will be required. A starting point for any natural landscaping project is to analyze the current amenities, opportunities and limitations of your site and articulate reasonable goals.

A basic underpinning for any natural landscaping project would be an understanding of current soil conditions. This knowledge will assist you with your decision about what you can

plant where, since soil conditions can vary dra-

with groundcovers, shrubs, grasses and colorful forbs is an inviting alternative.

Individuals about to undertake the transition of a turf lawn to a natural landscape will find many helpful resource books in libraries and in larger or specialty bookstores. In addition, local restoration organizations such as the North Branch Restoration Project in the Chicago region, regional nurseries devoted exclusively to native stock, local nurseries that are enlarging their selection of native plants, and professional landscape architects who "design with nature" will readily share their knowledge.

Homeowners can volunteer with restoration organizations to grow native plants in their yards and harvest them, and beautify their yards in the process. It is important, however, that plants producing seeds intended for restoration grow in separate areas from those purchased at nurseries, because it is necessary to keep the native stock to be used for restoration "pure."

Homeowners and owners of small sites who enjoy "digging in the dirt" may find the gradual approach to converting their lawns a less expensive alternative than a one-time project using a professional designer and installer. With this gradual approach comes the delight of experimentation 1nIchouhrubs -arubsgbi(metores.ng a)]TJT In additimes mth nt us to convsivwtepproand t6.9enuntehe

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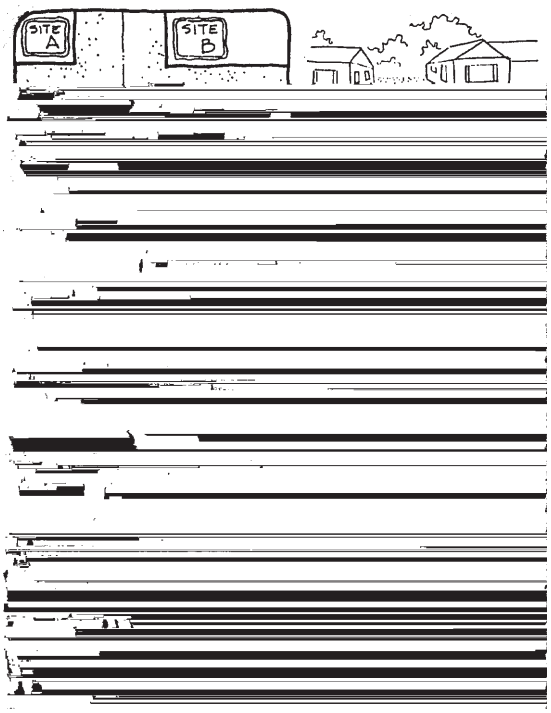

IV. Natural Landscaping on a Large Scale

Natural landscaping on medium to larger sites requires considerable advance planning because of the size of the initial investment and the cost implications of making serious mistakes. A rigorous program would include the following tasks, undertaken with the assistance of a qualified professional:

* inventory ecological resources, current site conditions and potential for restoration;
* study site history and review technical literature;
* develop goals and objectives for the overall project (and subareas of the site, as appropriate)
* develop a plan (site design, installation, and management) to accomplish the goals and objectives;
* design a monitoring program to assess project performance;
* implement the project (installation on the site);
* manage the project;
* evaluate the project and report on its progress.

Reputable and experienced guidance is the best insurance for a successful restoration program, whether from a staff manager, consulting ecologist, or other source.

V. Considerations for Installation

Prairie Vegetation

Prairies are open "grasslands"which are fire-climax communities. Historically, whether fires were started by lightning or by man, they beat back any trees and large shrubs which tried to grow and kept them at a low shrubby stage.

Prairies are dominated by perennial grasses and forbs. Soil type and hydrology are probably the primary determinants of different species composition on the prairie.

Site preparation: removal of existing undesirable vegetation

The primary methods of preparing the site include: burning, baking under black plastic, herbicides, tillage, and removal by hand. Local conditions and personnel considerations may call for flexibility and creative approaches. Site

conditions throughout the region have been so disturbed that successful approaches on one site, or one portion of a site, may not work on others.

Often techniques are used in combination. For small areas where appearance is not a factor, covering an area with black plastic for a growing season is a very environmentally safe method of killing turfgrass and other vegetation. This is not as practical with large sites. Here herbicide treatments may need to be conducted twice: once following an initial burn to remove litter and duff, and then several weeks later to eliminate any germinating or resprouting undesirable plants. Use a low toxicity, non-persistent herbicide.

Burning can occur early in the season at a time of low moisture. Tilling can occur as soon as soils thaw in the spring. It makes strategic sense to till after existing vegetation has germinated or sprouted in order to expose it to the stress effects of tilling and warmer weather.

Tillage can bring weed seeds to the soil's surface and create a longer-term weed problem. Where tillage is used, carefully timed repetition over several months, or even for an entire growing season, has been used to control weeds. Cover crops may be used in-between tillage events to stabilize soils. Cover crops can include annual rye grass, barley, oats, and other annual species that grow quickly.

Site preparation and control of weeds are the most

ning and add carefully chosen matrices of more conservative plants over the years as the prairie matures. One common strategy is to include very colorful prairie plants such as black-eyed susans in the beginning. These may be short lived but will provide a highly visible, colorful and very positive initial impression.

Planting:

Planting is largely a late fall or early spring activity. Planting in very hot and dry summer conditions may delay germination and growth or require irrigation. Irrigation of seeded areas, however, is usually not mandatory as native species will usually germinate when conditions are most appropriate. However, as with any planting, watering may be necessary to help a planting that has already germinated but is in early vulnerable growth stages when a drought or heat wave begins. An effective mulching system can usually address moisture retention and greatly help a young planting. As with any large scale agricultural activity, however nature can wreak havoc on even the best planned project.

Sowing can be accomplished by use of tractors and appropriate drills or broadcasters on larger projects while hand broadcasting can often be used in smaller projects. Native plants are installed the same way as any other potted or bare root stock by digging a hole large enough so it will not constrict root systems. Mulching is often necessary to ameliorate soil and moisture conditions and ensure successful seed germination and early growth. Straw, mulches, or alternatively, cover crops including oats, barley, etc., can be seeded simultaneously with the prairie seeds and plants to provide protection against erosion and desiccation, and also to control subsequent weed germination. Cover crop seeding rates should be light to moderate so they do not compete with developing seedlings.

The cost of installation can be reduced by using volunteers who are often eager to be stewards and learn about natural landscaping.

Initial management:

After cover crops (and some inevitable weeds) reach a height of 1-2 feet, usually by late June of the first year of planting, mow the planting to a height of no lower than 6-8 inches. Use a rotary mower that does not leave thick mats of clippings, which smother young prairie seedlings. Noxious weeds such as thistles may need extra attention. Hand removal or direct application by wick treatment with herbicides may be sufficient.

Follow-up maintenance:

Occasional mowing may be necessary for 2-3 years to keep weeds down and prevent them from suppressing young prairie plants. There is no prescribed season or number of times for mowing, but weather will be an important factor in growth of the newly planted prairie and will affect the mowing schedule. The services of a qualified professional will be invaluable in decision making about maintenance during the

first years. In the spring following the first year of planting, prescribed burning can be used to begin the maintenance process. Noxious weed management may also be needed at this time.

Routine maintenance will primarily involve use of prescribed burning. Prescribed burns can be conducted anytime plant fuel is combustible. However, late spring and early to mid-summer

VI. Savanna and Woodlands

Woodlands are a major component of the region's natural environment. They originally existed in upland areas in a delicate, see-saw relationship with prairies, and in lowland areas as well. Their location and density depended largely upon climate changes. The Chicago metropolitan area is world renowned for its oak savannas, an open woodland form dominated by oak species such as burr oak.

Dense oak/elm/ash/maple "big woods" contained many fire-intolerant fast-growing tree species with thin bark. This "forest" community probably experienced fire much less often than "oak openings," whose dominant oak tree has thick, fire-resistant bark. Both woodland types share many, but not all, of the same understory plants.

There is considerable academic interest and debate regarding the historical predominance of oak woodlands and relationships with other forest trees such as maple, hickory and elm. The natural transition from one type of vegetation to another in a woodland and in the transition zone between woodland and prairie and savanna is also still being studied.

Much of the remaining oak woodland has been included within the holdings of the forest preserve districts. Other woodlands have become highly desirable locations for subdivisions and estate homes. Oak woodland and conventional turf-dominated landscaping are not compatible, however. In our region the cultivation of turf grass under established oaks, and the soil compaction which accompanies it, results in the slow, but certain, demise of the oak. Therefore, remaining oak groves should be protected and restored. Landowners might even want to begin a woodland "from scratch." The process of woodland restoration is even less well understood and defined than prairie restoration, yet this should not deter the property owner from beginning to grow woodland plants and working towards re-establishing healthy ecosystems.

Installation

Creating a woodland "from scratch" is a long-term, if not multi-generational project. The time required for the maturing of trees, creation of more natural woodland soil conditions, etc. requires patience and vision on the part of the project sponsor. The effect can be enhanced through the strategic introduction of some faster growing but short-lived trees, which can jump start the creation of shaded conditions to support woodland understory vegetation and soil building. These will be replaced later by maturing, oaks, maples, or other species, depending on the type of woodland you are building.

Existing savannas and woodlands throughout the region are often seriously degraded and dominated by such plants as European buckthorn and garlic mustard. Thus, natural landscaping often means taking a highly degraded existing forest remnant, eliminating exotic species and re-introducing species that have

been eliminated.

Oak trees of any species often do not reproduce in their own shade and need openings for sprouting and maturing. Also, ground cover is shade suppressed by European buckthorn and other nonnative and native shrubs and trees. To create the conditions for oak regeneration and the growth of savanna grasses and forbs, both native and nonnative shrubs need to be reduced. The procedure should include manual or machine cutting and treatment of stumps with an herbicide to prevent re-sprouting.

The follow-up can be a wait-and-see-what-comes-up strategy, or the introduction of seeds and plants. Seedbank testing (placing soil samples in a flat and seeing what germinates) will often verify that native species are present and that they will be stimulated to germinate by removal of the shade suppressing shrubs and trees. If the seed bank is depleted, seed purchase or local collection may be required. Using the same guidelines as for procurement of seeds for prairies, appropriate species and quantities should be installed.

Introduction of the herbaceous layer into a woodland or savanna can be by simple hand broadcasting, usually in late fall, winter, or early spring (mid- November through March). In especially bare soil areas that might be erosion prone, light raking of the soil surface may accomplish better seed incorporation required for germination and minimize seed loss to erosion.

It should be noted that nurseries market nonnative trees such as the Norway maple which, with its deep shade, self-propagating vigor and widely-spreading surface roots, eliminate vegetation underneath them. Maples in general have this effect but some of the cultivars are a particular problem and should be avoided. Lack of light beneath them will retard the growth of the understory and promote erosion, loss of topsoil and nutrients.

Certain profusely growing, “weedy” native trees, such as box elder, are often considered a detriment to regeneration of desirable plants and are removed. These trees are often valued by the public which often doesn’t distinguish among species and which values vegetation largely for scenic buffering and wildlife purposes. Therefore, removal of vegetation should be approached carefully with a regard for adjacent property owners. Education, evaluation of the need for removal, and the phasing of project components can help alleviate problems.

Persimmon Woods, St. Charles, IL

Initial management and follow up

In a woodland or savanna, other than spot removal of noxious weeds (e.g., garlic mustard, Canada thistle and re-sprouting buckthorn, prescribed burning is both the initial and long-term management and maintenance tool. Initially, prescribed burns should be light ground fires.

There are different professional opinions as to whether spring or fall is the best time to burn. The timing of burns can be varied, however, and the results monitored. Often a late spring date (mid April - mid May) is most effective at controlling the noxious weeds that have already leafed out and have minimal root energy reseimam3av

Natural landscaping for enhancement of wetlands and riparian zones

Over time, many of our wetland, streamside, and lake shore environments have become degraded by human-induced disturbances which not only affect their natural functions but also reduce their aesthetic value. One such disturbance is the introduction of invasive non-native plants, including reed canary grass, purple loosestrife, European fragile willows, and buckthorn. Such species reduce habitat value, contribute to an unkempt, weedy appearance, and obscure the waterbody from view. Wetlands and waterbodies also may be disturbed by land development activities in adjacent areas and in upland areas within the watershed. These disturbances, resulting in sediment deposition, nutrient enrichment, and increased stormwater flows, present a landscaping challenge in wetland and riparian environments.

Natural landscaping to enhance degraded conditions in wetlands and riparian environments should focus on two zones.

Upland transitional zone

Land that is adjacent to the normally wet or inundated area is a critical upland transitional zone. This transitional zone is extremely important to the health, function, and appearance of the wetland or waterbody. Natural landscaping in this transitional zone should be based on the same principles and techniques previously described for prairies and savanna/woodlands. An assessment of early surveyors' data may provide a good indication of the type of plant community to strive for in this zone.

While description of the techniques for prairie and savanna/woodland landscaping will not be repeated here, one particular consideration is worth mentioning. Most of the existing stream and river environments in northeastern Illinois bear little resemblance to the natural conditions which existed prior to settlement in the mid-1800's. The typical stream is now densely tree-lined (commonly with European buckthorn, box elder, and other invasive species). Not only do

priate adjacent to intermittent streams or small wetlands. Buffers will be discussed at greater length later in this section.

Wetland/open water zone

Wetland and open water zones range from having saturated soil below the ground surface (such as in a wet meadow) to being completely inundated with water (such as a lake shoreline or a streambank). These areas can support a range of wetland plant species ranging from various sedges and shrubs which are intolerant of inundation, to emergent species, to submerged or floating leaved plants. Some of the basic principles of wetland landscaping, such as the importance of determining site history and previous vegetation, are similar to prairie and woodland principles, but many other factors are unique to wetlands.

The most important consideration in wetland landscaping is hydrology. Hydrology defines the presence of water in a wetland, including such factors as average and maximum depth, duration of inundation, and degree of soil saturation. Hydrology establishes the soil and plant conditions which distinguish different wetland type sand streambank and shoreline environments.

It should be noted that certain types of activities in wetlands, lakes and streams require a Section 404 permit from the Army Corps of Engineers. (The Corps' Chicago District regulates activities in the six-county northeastern Illinois region.) Regulated activities include filling, draining, and regrading. Most natural landscaping activities which are limited to vegetation management are not subject to a Corps permit. If a permit is needed, formal wetland delineation also will be required and more explicit mitigation criteria must be met. Wetland mitigation guidance is beyond the scope of this Source Book. You should check with the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, or Natural Resources Conservation Service to determine possible permitting and mitigation requirements. (See **Appendix 4** for more information.) If the wetlands are designated as isolated, and are no longer protected by federal regulations, local governments—specifically county stormwater agencies—have or are developing regulations for protection.

Restoration of degraded plant communities

In dealing with existing wetlands with degraded plant communities, reduction of nonnative vegetation can best be addressed by using the techniques presented for prairie, savanna and woodland systems. Once undesirable species are under control, wetland enhancement may require temporary cover crops, modest species enrichment, or in extreme cases, complete reseeding or replanting. Most wetland sites have a seedbank (both native and nonnative) that will respond once weeds are reduced. However, if deep sediment burial has occurred, seed banks may not be present. Understanding the history of sediment burial is a key to deter-

mining the regenerative capability of the existing site. In some cases, it may be desirable and feasible to remove accumulated sediments to expose the seedbank and to create depressions and open water zones. This type of restoration can enhance the aesthetics and marketability of the new development. (The project designer can find assistance from the Natural Resource Conservation Service or a consulting wetland or soil scientist regarding appropriate restoration techniques.)

Restoration of drained wetlands

Another important consideration in wetland landscaping is an appreciation of the fact that extensive draining of naturally wet (or hydric) soils was done to accommodate intensive agriculture. Hydric soils are often found on farmland that has been (or is about to be) converted to urban uses. One of the simplest ways to "create" (or expand) a wetland landscape is to identify the location of hydric soils and the presence of drain tile systems or surface drainage ditches. Restoration of wetland hydrology can be accomplished by breaking up or plugging the drain tile or eliminating the ditch. This method is fairly reliable and is less expensive than excavating a wetland depression. Good technical planning is essential so that neighboring properties are not adversely affected with undesired nue86 TD(R Tj2at.s8)Tjid toTD(R Tj2at.s8)Tjid toTD(R Tj2at.s8)Tjsacan be ac

ies, wetlands and other aquatic systems. Read the product labels, and make sure that only a licensed herbicide applicator conducts this work.

What to expect

If hydrologic and soil conditions are conducive, wetland plantings often respond very rapidly. Extensive cover of native plants often can be achieved during the first growing season. Often, noxious weed control via herbicides, mowing, or pruning is necessary during the first several years. Some replanting also may be necessary. A stable, diverse, and aesthetic wetland/riparian landscape may take three to five years to achieve.

Purple loosestrife is a particularly aggressive, noxious wetland weed and merits special attention here. If it gets out of control, the landscaping project may be in trouble. When the weed is present in a limited area, it may respond to hand pulling or to several doses of herbicides. It is important to attack before it goes to seed. Recently, biological controls for purple looses-

lakes and wetlands. When surface runoff does occur, it moves slowly across the vegetated landscape, through natural depressions, and via swales into larger streams.

In contrast, the developed site produces dramatically more surface runoff due to impervious surfaces and soil compaction. Conventional drainage relies upon curbs, gutters, channels and sewers to quickly convey the water away. As a consequence, pollutants in stormwater runoff are flushed downstream and the pulsating flows contribute to increased flooding and destabilization of downstream channel systems.

Natural drainage designs attempt to replicate elements of the pre-development drainage scheme by:

*minimizing disturbances of the original drainage network and the area of impervious surfaces and

*maximizing opportunities to infiltrate surface runoff, to hold runoff water in natural depressions, and to release it slowly through surface swales and drainageways.

While it will be impossible to replicate completely the pre-development hydrologic conditions of a site, studies estimate that natural drainage designs can substantially reduce both surface runoff volumes and pollutant loads compared to conventional drainage designs. For example, for a clustered, naturally drained residential development in Grayslake, Illinois, estimates suggest a 65 percent reduction of surface runoff. Recommended elements of a natural drainage approach, or runoff reduction hierarchy, are described below.

Preserve natural drainage systems

Existing swales, depressions, wetlands and stream corridors should be preserved in the site plan wherever possible. In some cases this will require clustering the development around these important features. By siting the buildings, homes or other structures on only a portion of the total site, clustering has the added benefits of reducing the total impervious area associated with roadways and minimizing soil compaction associated with mass grading activities.

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tings where there are relatively wide expanses of pervious area adjacent to impervious surfaces. Filter strips are readily accommodated in the following development situations:

*residential

*office and industrial campuses

*expressways and rural roadways (where right-of-way is adequate)

* buffer zones adjacent to sensitive environments

Design guidance

There are several basic design considerations for filter strips which will maximize their performance and reliability:

* A robust stand of vegetation should be established.

* Ground slope should ideally be relatively flat (i.e., preferably less than 5-10 percent slope).

*A width of at least 10-20 feet is recommended.

* Runoff onto the strip should be evenly dispersed.

*Contributing drainage areas should be relatively small (less than five to ten acres.)

Healthy vegetation is important to minimize erosion and to improve the filtering of pollutants in the runoff water. Where high concentrations of salt are expected due to roadway deicing, salt tolerant vegetation should be planted. Native prairie vegetation is ideal in most filter strip applications (choose salt-tolerant species where necessary). Its deep root zones and extensive biomass give it performance advantages over turf grass. Forested filter strips also can be effective because of their ability to take up certain pollutants from the root zone and store them in their biomass.

Utilize vegetated swales

Swales function much like filter strips except that their purpose is to convey concentrated flow. Unlike conventional storm sewers, swales move water more slowly and allow a portion of the runoff to infiltrate the ground.

Applicability

Swales are suitable alternatives to storm sewers for many types of development , particularly where the number of driveway crossings is not large. Swales are easily implemented on the rolling to gently rolling topography which is common in northeastern Illinois. Swales are strongly recommended in the following development situations.

*large lot residential sites (e.g., 1/2 to 1 acre or larger)

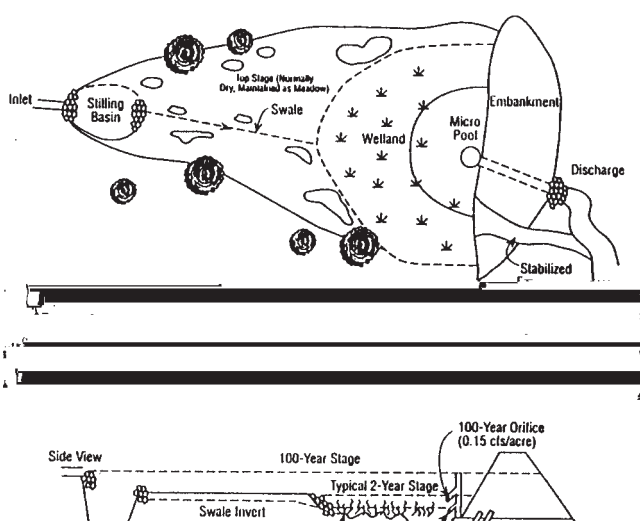
*office and industrial campuses

*roadways where right-of-way widths are adequate

*parking lot medians and edges

Where feasible, runoff should be routed into swales from filter strips. Runoff also can be directly conveyed from parking lots or roadways via sheet flow or through slotted curbs. Swales in parking lot medians represent a departure from the conventional design which

for wetlands containing sensitive habitats or diverse plant communities, because the subsequent changes in water levels and pollutant loadings associated with urban runoff will hasten their degradation.



A natural approach to retention basin design

For more information about stormwater management:

Best Management Practice Guidebook for Urban Development, Northeastern Illinois Planning Commission: 1992.

For more information about stream protection:

Restoring and Managing Stream Greenways: A Landowner's Handbook, Northeastern Illinois Planning Commission: 1998.

For more information on plant material:

Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, USDA Natural Resources Conservation Service's Chicago Metro Urban and Community Assistance Office: 1997.

CHAPTER 5: CASE STUDIES IN NATURAL LANDSCAPING

I. An Innovative Planned Development

II. Natural Landscaping for Urban Lots

III. Natural Landscaping for

have been restored through and around the residential areas of the development. These areas, in addition to their habitat and aesthetic benefits, serve as part of an alternative stormwater management system. The system utilizes a "stormwater treatment train" which is a sequenced series of native landscape units including vegetated swales that surround all home clusters. These swales convey the water to expansive prairies in which most of the water quality enhancement and management occurs. Some contaminants are removed within the upland prairies. Water that does not infiltrate or evaporate flows slowly from the 175 acres of prairies into 22 acres of created wetlands, and ultimately into 27 acres of created lakes.

The use of natural landscaping and ecological restoration in this project not only integrates the development by its presence everywhere, but also serves this vital water management function.

Immediate aesthetic benefits on the large acreage of prairie was achieved through use of a cover cropping system (Barley and winter rye). The extensive fields looked like grain fields during the first year. The Prairie Crossing project demonstrates its deep commitment to public education during the home sales process and afterward by providing a handbook on "Living with Nature" and numerous educational opportunities for residents throughout the year. Homeowners are educated regarding the environmentally progressive aspects of the development and are encouraged to minimize use of chemicals, plant native plants and minimize lawn area. A community supported garden program provides additional opportunities to involve homeowners with natural resources and develop a greater understanding and appreciation for natural landscaping.

Use of natural landscaping for water conveyance and management saved several million dollars in stormwater piping and installation. When compared to conventional lawns, the natural landscaping is much less expensive in terms of costs of initial installation and long-term maintenance. In addition, stabilization of the lake and pond on the site are achieved entirely through the use of native plants and natural materials. This reduces costs of shoreline maintenance by controlling shoreline erosion.

Appreciation of the natural landscaping has been demonstrated by higher than average home values, by resident involvement, including many homeowners now naturalizing their yards, and the unprecedented local and national media attention the project has garnered. In addition, wildlife use of the open spaces and restored landscapes has been exceptional and greatly appreciated within the community.

Zoning and regulatory approval for the project was greatly expedited by the overall conservation focus. Although many construction details and plans, including the stormwater management scheme, required long and arduous negotiations, the local community and public officials were supportive and encouraged alterna-

tive strategies for landscaping and stormwater management.

II. Natural Landscaping for Urban Lots

200 Block North Elmwood
Oak Park, Illinois

Visitors to the 200 block of north Elmwood in Oak Park, Illinois will notice a significant trend towards the use of natural landscaping on relatively small urban single family lots. One of the best examples is where two adjacent homeowners have collaborated in the development of a wildflower garden which fills their adjacent side yards and portions of the front yards. This project was based upon a shared interest in reducing the amount of turf grass and associated use of herbicides and pesticides. The owners were interested in a more dto the 20and Tj8.25 718n6 VS252us6252TJa TD0 Twcennitiotsy t]TJd Ts wark, Illinois wi -1annualers w

garden won the “Garden of the Year” award.

Other homeowners in the neighborhood have undertaken similar projects. It is estimated that at least 30 to 40 natural gardens have “sprouted” in Oak Park.

III. Natural Landscaping for Corporate Office Campuses

Sears Corporate Headquarters

Prairie Stone Business Park
Higgins and Beverly Road
Hoffman Estates, Illinois

The Sears corporate headquarters and business park (Prairie Stone) is located on 780 acres adjacent to Interstate 90. The project was conceived as an integrated land planning process which recognizes natural systems and relationships between the built and natural environments.

Native plants have been incorporated into the landscape in ornamental as well as functional ways.

Areas near the primary structures are landscaped with a combination of traditional landscaping and the ornamental use of native plants and stone. Water features have been created that extensively use limestone slabs over which water flows into naturalized ponds surrounded by native vegetation. Native plants have been incorporated into key entrance and other highly visible locations in order to carry out the theme of natural landscaping.

The overall plan called for the preservation and enhancement of existing wetlands and the creation of new wetland systems as part of the site’s stormwater management plan. The landscaping therefore reduces the amount of surface water runoff, and what runoff there is is treated by filtering through vegetated filter strips and swales and a series of naturalized retention and detention basins connected by the vegetated swales.

Lucent Technologies
Bell Labs Innovations

2600 Warrenville Road
(Warrenville Road east of Naperville Road)
Lisle, Illinois

and

Warrenville Road and Naperville Road
Naperville, Illinois

In the 1990’s, what was then AT&T’s Network Software division was mandated by the national

development of a new park with a high quality oak savanna, additional floodplain areas including very high quality wetlands, and a 120 acre created lake (a former gravel quarry). Uplands around this lake, and other areas including the lake system, are treated in part by natural landscaping.

A new access road created to service the development impacted 31 acres of floodplain wetlands. To compensate for this, several large farm fields were converted to wetlands through excavation and removal of farm drain tiles. In addition, significant upland buffers around these wetlands have been restored to prairies. The created wetland systems are connected to flood events in the adjacent Des Plaines river. The result has been fish spawning opportunities, including use of the areas by rare fishes, and the presence of numerous rare birds.

Throughout the regulatory and local approval processes, this project encountered no problems with its use of native landscaping, a significant protection plan, and restoration program. Prescribed burning is used frequently, and with local approval, although at times it is difficult to obtain the fire department's permission unless meteorological conditions meet their standards.

The project has won wide acclaim for its innovative address of ecological resources and was one of The Nature Conservancy's very first projects which involved the wetland mitigation process. The positive feedback has forged an important conservation partnership between the industry and conservation groups.

The natural landscaping and ecological restoration in this project provided the basis for success in a number of ways. The industry has saved

retention capability, re-establish the physical connection between the wetland and the Chicago River and bring back the appropriate plant and animal communities.

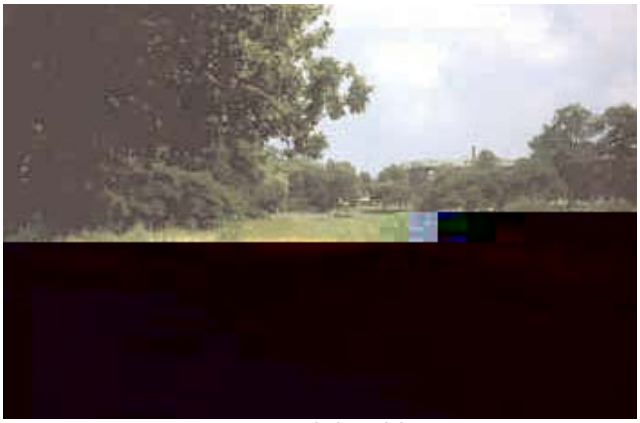
*Facilitate a resource for education, scientific study and community stewardship to a multi-generational, community-based population, education and training in wetland ecology, restoration, monitoring and management and provide, for that population.

*Establish a model of local and federal government agencies, community groups and not-for-profit organizations working cooperatively and in collaboration as a team in the restoration of a significant ecological system in an urban context.

The total cost of Gompers Park Project was $90,000, the majority of which was spent removing two feet of fill over the two acre site, regrading and installing a dike and water control structure. The remainder of the project cost went for plant material, signage and educational programming in conjunction with the project.

After construction was complete, the site was seeded with a cover crop of annual rye for temporary soil stability, then drill-seeded with a diverse mixture of appropriate native perennial grasses, sedges and forbs. An experienced planting contractor installed plugged plant materials in the submergent, emergent and sedge-meadow planting zones. Volunteers completed the planting, installing more than 2500 plant plugs into the wet and mesic prairie zones during the weekend work events during the spring and summer of 1995 and 1996.

Volunteers continue to help with the wetland's management, participating in weeding sessions and keeping the area free of litter and trash. A qualified contractor burns the site every year to encourage the native Midwestern plants which are adapted to seasonal burning and to discourage invasive weed species.



Gompers Park in Chicago, IL

In the years since the completion of the wetland project, other natural areas at Gompers Park have been developed and expanded, including restoration of the fishing lagoon and enlargement of the native plantings adjacent to the wetland. Additionally, the Chicago Park District has built upon the knowledge and experience gained from the Gompers Park project. To date, more than 50 natural areas throughout the city have been rehabilitated through the Park District's Natural Areas Program.

This initiative, to develop new natural areas and enhance existing significant or sensitive sites, includes a wide range of projects. The program includes the restoration of riparian systems and wetland habitat associated with Chicago's

lagoons, river edges and lake shore and the establishment and enhancement of other native habitats, such as woodlands, savannas, prairies and dunes, as well as the development of nature gardens and the improvement of lakefront bird habitat.

The Natural Areas Program is augmented and supported by the Park District's Urban Stewardship Program, which enlists public participation in the monitoring and maintenance of the natural areas. The Audubon Certification of Park District golf course program, which involves the conversion of out-of-play areas to natural habitat, is being pursued. Additionally, the Park District is involved in the Urban Monitoring program, tracking the population characteristics of five significant natural area indicators, including frogs, butterflies, dragonflies, birds and threatened and endangered plants.

VI. Natural Landscaping for a School

Wheaton Warrenville South High School
1920 South Wiesbrook Road
Wheaton, Illinois

Addressing many issues simultaneously, Wheaton Warrenville South High School began incorporating native landscape treatments into their school grounds in 1995. The school had several goals: to reduce maintenance on unused lawn areas and time demands on limited staff, improve overall aesthetics, restore native habitats, and more important, create a living laboratory for hands-on environmental education. The project consultant developed a master plan which identified appropriate zones for the reintroduction of various prairie community types and incorporated requested outdoor classroom elements.

During Earth Day week in April 1995, students installed the first phase of the master plan, approximately 2.5 acres of upland mesic and wet prairie plantings.

VII. Natural Landscaping for a Government Complex

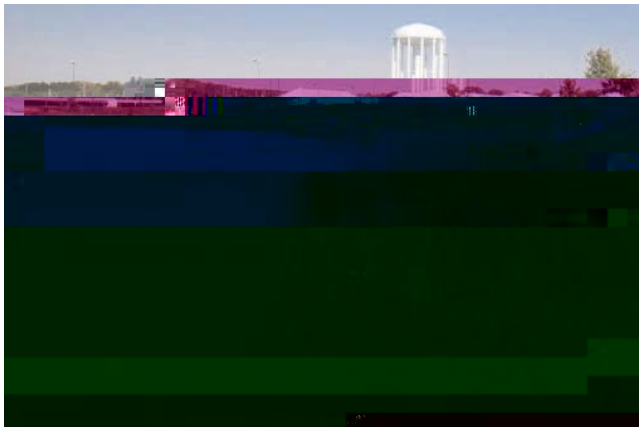
DuPage Government Center
East Campus Detention Basin
County Farm Rd. and Manchester Rd.
Wheaton, Illinois

When developing the 57-acre Government Center, DuPage County looked to incorporate natural landscapes into the site through native plantings within compensatory water storage

areas. The East detention basin was modeled after the West Basin, which was previously planted with native vegetation but is currently under construction.

In 2003, DuPage County has been working to incorporate native wetland and prairie vegetation into the landscape design for the East Basin. Native prairie grasses, herbaceous plants, trees, and shrubs surround the basin. Emergent and floating aquatic vegetation enhance the wetter bottom of the basin. These wetland plants act naturally to filter water and improve flood control capabilities.

Another benefit of the natural landscaping in the East detention basin is that it can be a deterrent to Canada geese. The geese have been a problem in this area for years. Not only are they an overcrowded, nuisance species, but they can cause ecological problems, such as E.coli bacteria, to water bodies as well. Tall vegetation around a pond or basin discourages the geese from inhabiting or feeding in the area. DuPage County hopes to maximize all the benefits of natural landscaping as a part of the Government Complex.



West Basin at the DuPage Government Center

Third Avenue Drainage Project

State Route 83 and Byron Avenue
DuPage County, Illinois

In the fall of 2002, DuPage County completed a drainage project that encompasses water storage and native landscaping. Drainage problems in the area required a 3-acre detention basin to be built. The county used this project as an opportunity to incorporate native plantings into a detention basin project.

The native plantings function to improve water quality for the on site wetlands and, on a larger scale, the Salt Creek watershed. Water entering the site is runoff from roads and residential areas. This water is likely to be contaminated with lawn pesticides and other pollutants. Plant selection for the detention basin has emphasized the use of species tolerant to such conditions. The plantings give the basin aesthetic appeal as well. Over 50 different wetland and prairie species were planted in and around the basin. The overall effect of the project is that it simultaneously performs flood control functions, water filtration, and habitat for wetland species.

VIII. Natural Landscaping for a Right-of-Way

Among the significant landowners in metropolitan areas are the owners of roadways and utility right-of-ways. The interconnected, linear nature of these extensive ownerships creates opportunities for a highly visible use of natural landscaping. In addition, natural landscaping in these corridors can help provide continuity of habitat and habitat linkages that are important for species propagation and survival.

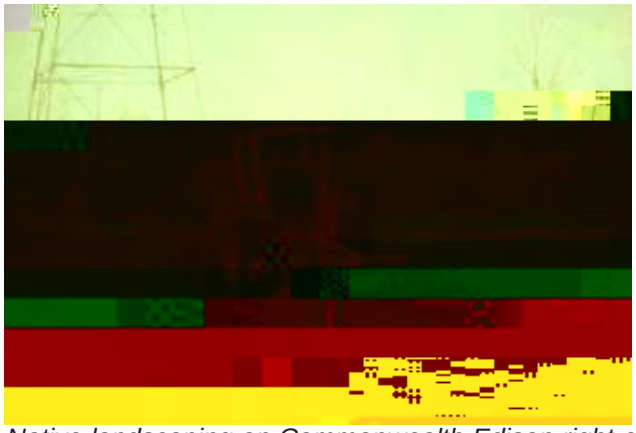
Illinois Department of Transportation

The Illinois Department of Transportation has a program of planting native plants and wildflowers along Illinois state highways. Travelers to Springfield are aware of the extensive use of prairie grasses in the Interstate 55 right-of-way as one approaches the state capitol.

In recent years IDOT has been using native plantings more extensively in the Chicago metropolitan area. Segments of right-of-way that are being managed for native vegetation are designated by signs and are not subject to conventional mowing routines.

Commonwealth Edison

Commonwealth Edison has initiated the use of native landscaping as part of its land management and environmental programs. Commonwealth Edison has completed a number of prairie plantings in their right-of-way in the Chicago metropolitan area. This is being done for environmental, economic and aesthetic reasons.



Native landscaping on Commonwealth Edison right-e landscaping

One location for viewing Commonwealth Edison's work is at the Power House energy museum in Zion, Illinois. Commonwealth Edison also has a voluntary stewardship program which encourages Commonwealth Edison employees, families and friends to participate in prairie restoration efforts.

tions on the golf course and around the clubhouse. Several savanna remnants still are evident on the South Course. Those areas were burned to eliminate some non-natives and stimulate the dormant seed bank. Results after the first year were encouraging.

A program of erosion control, using native vegetation, had been initiated along Butterfield Creek and lake shorelines. In previous years, riprap was placed on the creek banks to control erosion. Grass was mowed to the water's edge along streambanks and shorelines. Vegetative buffers were established where practical, and vegetation such as rushes, iris and cordgrass have been planted to protect the soil on the banks. This program will be expanded in future years.

The Olympia Fields Country Club Grounds Department practices an environmentally sensitive fertilizer and pesticide program. An extensive Integrated Pest Management program is in place utilizing scouting, threshold levels, curative disease control, least toxic chemicals, organic fertilizer and biological control. No-spray buffer zones have been established around environmentally sensitive areas such as water features. Many weeds, such as crabgrass and dandelions, are controlled through hand picking on the fairway, greens and tees. Fewer chemicals are used on the 36 holes than are used on many 18 hole facilities.

Member and non-member awareness of the environmental programs are important aspects of the Cooperative Sanctuary Program. The club newsletter is used on a monthly basis to inform the membership of ongoing environmental programs. Also, the grounds superintendent has made presentations to local superintendent groups and local environmental and social groups on the Olympia Fields Country Club environmental program.

Olympia Fields County Club, Olympia Fields, IL

X. Natural Landscaping Along a Shoreline

Frankfort Prairie Park

Connects with Old Plank Road Trail, east of White Street
Frankfort, Illinois

The Village of Frankfort created the Frankfort Prairie Park on a vacant parcel that includes a high-quality natural area containing over 40 species of prairie plants. The Village had three objectives in developing the park: the park must preserve and protect the native prairie species of plants; demonstrate environmental conservation

practices and educate visitors; and provide outdoor recreational opportunities.

The park contains a lake fed by a drainage way that conveys surface runoff from the downtown and historic districts. The lake is edged by wetland plants and rock outcroppings for public access. Though most people see only the beautiful naturalized park, the lake is part of a treatment system for the storm water runoff. The storm water first enters a separator basin and rock creek that collects heavy solids. The water then travels to a stilling pool that is planted with wetland plants to filter additional solids. A water pump helps to maintain a flow of water in a rocky stream that, in turn, helps to aerate the water. The stream then flows into the lake for storm water storage. The lake is stocked with native game fish. From the lake, water flows into a wet prairie and a bioswale, where hydrocarbons, nutrients and other contaminants are absorbed by native plants.

The park provides a connection to Old Plank Road Trail, and educational markers describe the flora and fauna on the site.

Frankfort Prairie Park, Frankfort, IL

APPENDIX 1: GLOSSARY

Annual: A plant that lives for one year or one growing season.

Beneficial Landscaping: Using different landscaping techniques to achieve all kind of benefits (e.g., decrease of maintenance costs, reduction of stormwater runoff, beautification of the landscape, preservation of endangered species, etc.).

Biennial: A plant that grows from seed and produces leafy growth the first year. In the second

fits: (1) protection and management of natural and cultural resources; (2) provision of recreational opportunities; and (3) enhancement of the quality of life and the aesthetic appeal of neighborhoods and communities.

Habitat: The physical, chemical, and biological environment in which an organism lives.

Herbaceous plant: Any plant that is not woody.

Landscaping: The design of outdoor space to serve the needs of people by planting, altering the contours of the ground and/or building structures like pedestrian ways, paths, picnic areas, etc.

Mesic: Soil condition that is medium-wet.

Native Landscaping: Landscaping only by using native plants.

Native Species: A plant or animal that originally occurred in an area. Also referred to as Indigenous Species.

Natural Landscaping: Landscaping in a way that tries to capture the character and spirit of nature in a designed landscape by arranging plants in a community context similar to their arrangement in nature. May be planted exclusively with native plants or incorporate some small percent of exotics.

Noxious Weed: Any plant which is determined by the Director, the Dean of the College of Agriculture of the University of Illinois and the Director of the Agricultural Experiment Station at the University of Illinois, to be injurious to public health, crops, livestock, land or other property (Illinois Noxious Weed Law; 505 ILCS 100.)

Oak Savanna: A transitional community between prairie and forest, sustained by fires, characterized by scattered, open-grown oak and hickory trees and grasses and forbs which flourish in partly shady conditions. These savannas were often called “oak openings” by the pioneers. Definitions of density of trees vary widely, from a few scattered trees to an almost closed canopy.

Perennial Plant: A plant which lives for more than two years.

Prairie: A plant community dominated by a diversity of perennial herbaceous plants growing between a majority of grasses, and forming a dry flammable turf in autumn. Prairie communities are categorized by soil conditions into dry (sandy or shallow hilltop soils), mesic (medium wetness) and wet prairies (poorly drained soils). Often characterized by very deep rooted plants, prairie vegetation also consists of shallow-rooted species, some with widely spreading root systems.

Prescribed Burn: Controlled application of fire to naturally occurring vegetative fuels under specified environmental conditions and following appropriate precautionary measures, which causes the fire to be confined to a predetermined area and accomplish the planned land management objectives.

Sedge: A plant that resembles a grass, but is part of a distinct plant family that typically grows in damp, wet, or marshy habitats.

Setback: Area between intensive development (e.g., structures) and a protected area (e.g., waterbody or wetland).

Stormwater Detention Basin: A waterbody designed to detain stormwater runoff and reduce flooding.

Submergent: Aquatic plants that live and grow entirely below the water surface.

Weed: Any undesirable or troublesome plant, especially one that grows profusely where it is not wanted.

APPENDIX 2: SELECTING ASSISTANCE FOR YOUR NATURAL LANDSCAPING PROJECT

Checklist for landowner

For your project, have you considered?:

__ The type of project (e.g., noise or privacy buffer, butterfly garden, large restoration of plant communities)

__ Other goals (e.g., reduction of chemical and water use)

__ Appearance desired (e.g., low "designed" look, wild prairie, ground cover)

__ "Fit" with other neighborhood landscapes (discussions with neighbors?)

__ Project size and scope

__ Project time-line (e.g., phasing in slowly instead of planting your entire site at one time)

__ Cost parameters (installation and future maintenance)

__ Maintenance level desired (e.g., minimum, or backyard hobby garden)

__ Existing amenities to be retained (e.g., speci-

__ __

Details for your project

__ Cost estimate

__ Timeline

__ Maintenance required

__ Justification for plant selections and locations

__ Drawings/site plan

__ Source of landscape materials

__ Terms and conditions of payment

__ Contract including all of the above

Prairie Smoke	(Geum triflorum)
Western (Naked) Sunflower	(Helianthus occidentalis)
False Boneset	(Kuhnia eupatorioides)
Round Headed Bush Clover	(Lespedeza capitata)
Rough Blazing Star	(Liatris aspera)
Cylindrical Blazing Star	(Liatris cylindracea)
Pale Spiked Lobelia	(Lobelia spicata)
Wild Quinine	(Parthenium integrifolium)
Prairie Cinquefoil	(Potentilla arguta)
Deam's Rosin Weed	(Silphium integrifolium)
Gray Goldenrod	(Solidago nemoralis)
Riddell's Goldenrod	(Solidago reddellii)
Golden Alexanders	(Zizia aurea)

Grasses:

Big BluestemGrass	(Andropogon gerardii)
Little Bluestem Grass (dry prairie)	(Andropogon scoparius)
Sideoats Grama (dry prairie)	(Bouteloua curtipendula)
Purple Love Grass	(Eragrostis spectabilis)1(e Grass)-1605

Curly-styled Wood Sedge	(Carex rosea)

Trees and Shrubs for Woodland Communities

Oak Savanna:

Trees

Shagbark Hickory	(Carya ovata)
White Oak	(Quercus alba)
Bur Oak	(Quercus macrocarpa)
Black Oak	(Quercus velutina)

Shrubs:

New Jersey Tea	(Ceanothus americanus)
American Hazelnut	(Corylus americana)

Floodplain Forest:

Trees:

Silver Maple	(Acer saccharinum)
Hackberry	(Celtis occidentalis)
Green Ash	(Fraxinus pennsylvanica subintegerrima)

Shrubs:

Spicebush	(Lindera benzoin)
Elderberry	(Sambucus canadensis)

Mesic Woodlands
(Savanna grasses are often part of this community)

Trees:

Sugar Maple	(Acer saccharum)
Shagbark Hickory	(Carya ovata)
Green Ash	(Fraxinus pennsylvanica subintegerrima)
White Oak	(Quercus alba)
Swamp White Oak	(Quercus bicolor)
Bur Oak	(Quercus macrocarpa)
Red Oak	(Quercus rubra)
Basswood (American Linden)	(Tilia americana)
American Elm	(Ulmus americana)

(found less frequently today due to Dutch Elm Disease)

Shrubs:

Grey Dogwood	(Cornus racemosa)
Elderberry	(Sambucus canadensis)
Nannyberry	(Viburnum lentago)

Plants for Generally Wet Conditions

Marsh:

Swamp Milkweed	(Asclepias incarnata)
Blue Joint Grass	(Calamagrostis canadensis)
Common Lake Sedge	(Carex lacustris)
Sedges	(Carex sp.)
Spotted Joe Pye Weed	(Eupatorium maculatum)
Common Boneset	(Eupatorium perfoliatum)
Rice Cut Grass	(Leersia oryzoides)
Common Water Horehound	(Lycopus americanus)
Common Cattail	(Typha latifolia)
Dark Green Rush	(Scirpus atrovirens)
Great Bulrush	(Scirpus validus)
Prairie cordgrass	(Spartina pectinata)

Calcareous wet soil communities (fens)

Great Angelica	(Angelica atropurpurea)
New England Aster	(Aster novae-angliae)
Marsh Marigold	(Caltha palustris)
Porcupine Sedge	(Carex hystericina)
Turtlehead	(Chelone glabra)
Fen Thistle	(Cirsium muticum)
Fowl Meadow Grass	(Glyceria striata)
Narrow-Leaved Loosestrife	(Lysimachia quadriflora)

Lake and Pond Communities

Great Spike Rush	(Eleocharis palustris)
Common Rush	(Juncus effusus)
Rice Cut Grass	(Leersia oryzoides)
Pickerel Weed	(Pontederia cordata)
Swamp Dock	(Rumex verticillatus)
Common Arrowhead	(Sagittaria latifolia)

Illinois Department of
Natural Resources
One Natural Resources Way
Springfield, IL 62702
(217) 785-5500
http://dnr.state.il.us/

Illinois Department of
Natural Resources
Division of Natural Heritage, Region II
2050 W. Stearns Road
Bartlett, IL 60103
(847) 608-3100

Illinois Native Plant Society
Forest Glen Preserve
20301 East 900 North Road
Westville, IL 61883
(217) 662-2142

Madison Arboretum
University of Wisconsin
1207 Seminole Highway
Madison, WI 53711
(608) 263 -7888
http://wiscinfo.doit.wisc.edu/arboretum/

The Morton Arboretum Library
4100 IL Route 53
Lisle, IL 60532
(630) 719 -7932
http://www.mortonarb.org

National Wildflower Research Center
4801LaCrosse Avenue
Austin, TX 78739
(512) 292-4200
http://www.wildflower.org

The Nature Conservancy
IL Field Office
8 South Michigan Avenue, Suite 900
Chicago, IL 60603
(312) 346-8166
http://www.nature.org

Northeastern Illinois Planning Commission
(NIPC)
222 South Riverside Plaza, Suite 1800
Chicago, IL 60606
(312) 454-0400
Environment and Natural Resources
Department
http://www.nipc.org

US Army Corps of Engineers
Permit Evaluation Section Chief
US Army Corps of Engineers
Regulatory Branch
111 N. Canal St.
Chicago, IL 60606
(312) 353-6400, x 4028 (for information about
wetlands regulations)
http://www.usage.army.mil/lrc

USDA: Natural Resources Conservation Service
(formerly the Soil Conservation Service):
http://www.nrcs.usda.ga

Chicago:
NRCS
Chicago Metro Urban & Community Assistance
Office
313 W. Naperville Road, Suite J
Plainfield, IL 60544
815 - 577-3597

DuPage and Kane Counties:
NRCS and Kane-DuPage Soil & Water
Conservation District St. Charles Field Office
545 Randall Rd.
St. Charles, IL 60174
(630) 584-9534 (NRCS)
(630) 584-7961(SWCD)

Lake County:
NRCS and Lake County Soil & Water
Conservation District
100 N. Atkinson Rd, Suite 102-A
Grayslake, IL 60030-7805
(847) 223-1056

McHenry County:
NRCS and McHenry County Soil & Water
Conservation District
Woodstock Field Office
1143 N. Seminary, P.O. Box 168
Woodstock, IL 60098
(815) 338-0049 (NRCS)
(815) 338-0099 (SWCD)

North Cook County:
NRCS and North Cook Soil & Water
Conservation District
Address: P.O. Box 407, Streamwood, IL 60107
Location: 899 Jay Street, Elgin, IL 60120
(847) 468-0071 (NRCS)
(847) 991-4330 (SWCD)

South Cook and Will Counties:
NRCS and Will-S. Cook Soil & Water
Conservation DistrictJoliet Field Office
1201 Gouger Rd. New Lenox, IL 60451
(815) 462-3106 (NRCS)
(815) 462-3151 (SWCD)

United States Environmental Protection Agency
77 West Jackson Boulevard
Chicago, Illinois 60604
(800) 621-8431
http://www.epa.gov/greenacres/

Wild Ones - Natural Landscapers, Ltd.
PO Box 1274
Appleton, WI 54912-1274
(877) 394-9453 (toll free)
(920)730-3986 (local)
http://www.for-wild.org

Sources of Native Seeds, Plants and Garden Catalogs

Company names mentioned on the following pages are presented strictly for informational purposes; there is no implied endorsement or recommendation. Other companies provide materials for natural landscaping. An exhaustive listing is not possible for this type of publication.

Illinois
Berthold Nursery
434 E. Devon
Elk Grove Village, IL 60007
(847) 439-2600

Blazing Star
2107 Edgewood Dr.
Woodstock, IL 60098
(815) 338-4716
http://www.blazing-star.com

Bluestem Prairie Nursery
Route 2, Box 92
Hillsboro, IL 62049
(217) 532-6344 (retail only)

Enders Greenhouse
104 Enders Drive
Cherry Valley, IL 61016
(815) 332-5255

Genesis Nursery
23200 Hurd Road
Tampico, IL 61283
(815) 438-2220
(plants for a variety of restoration activities, including wetlands)

LaFayette Home Nursery, Inc.
Rt. 1, Box 1A
LaFayette, IL 61449
(309) 995-3311

Lee's Gardens
PO Box 5
25986 Sauder Road
Tremont, IL 61568
(309) 925-5262
(Woodland native plants, retail only)

Possibility Place Nursery
7548 W. Monee Road
Monee, IL 60449
(708) 534-3988
http://www.possibilityplace.com

Spring Bluff Nursery
41 W. 130 Norris Road
Sugar Grove, IL 60554
(708) 466-4278
(retail only)

The Natural Garden
38 W. 443 Hwy 64
St. Charles, IL 60175
(630) 584-0150

The Prairie Garden
705 South Kenilworth
Oak Park, IL 60304
(708) 386-7495

Windsong Prairie Nursery
5412 N Ridgeway Road
Ringwood, IL 60072
(815) 653-6936
(seeds only)

Wisconsin
Applied Ecological and Taylor Creek Restoration Nurseries
P.O. Box 256
17921 Smith Road
Brodhead, WI 53520
(608) 897-8641
http://www.appliedec.com

Johnson's Nursery
W 180 N 6275 Marcy Road
Menomonee Falls, WI 53051
(414) 252-4988

Vegetated buffers along streambanks and shorelines intercept surface runoff and subsurface water pollutants. The avoidance of fertilizers and other chemicals is also a big factor in protecting water quality.

Reduced Air and Noise Pollution

Lawn mowing equipment is a heavy air polluter and is noisy. Natural landscaping requires little or no mowing.

Climatological Benefits

Native plants store large amounts of carbon which would otherwise exist in the atmosphere as carbon dioxide and contribute to global warming. Natural landscaping can provide shade and windbreaks to reduce costs of air conditioning and heating.

Habitat Restoration and Protection

Natural landscaping protects and restores habitats for wildlife. The introduction of native plants can enhance the populations of birds, insects, and animals which are essential components of healthy ecosystems.

Beautification

Natural landscaping can provide a diversity of color and texture throughout the year which significantly contributes to the beauty of sites and communities.

Educational and Recreational Benefits

Conservation Education

Natural landscaping puts people in touch with nature. Municipalities, school districts, park districts, forest preserve and conservation districts, as well as private educational organizations, can use natural landscaping as an educational tool.

Recreation

Natural landscapes are ideal locations for bird watching, photography, walking and hiking, and simply enjoying the quiet and beauty of nature.

Scientific Study

Natural landscapes provide professional scientists and science students with outdoor laboratories for studying nature.

Who Should Use Natural Landscaping?

Natural landscaping should be considered where the ground surface is not required to bear intense usage. Wherever there is conventional lawn there is potential for small or large scale conversion to natural landscaping. New development projects should consider natural landscaping at the site design stage. Natural landscaping is especially appropriate for:

*home sites and planned developments

*governmental properties: civic building sites, schools, and libraries

*corporate and office campuses

*institutional sites

*golf courses

*parks

*roadway right of way and utility corridors

*stormwater conveyance and detention areas

What Can I Do in my Community to Promote the Use of Natural Landscaping?

As a property owner you can install natural landscaping on your own land and encourage other property owners to do likewise.

As a public official you can install natural landscaping on new and existing public sites. You can adopt or amend the local weed ordinances and development regulations so as to encourage natural landscaping. You can provide information about natural landscaping to residents, developers, and civic organizations. You can identify natural areas within the community that need to be preserved or restored. You can sponsor demonstration projects and award creative efforts.u can inrp72]TJT*olunte property owner yasson al areaonsor natural land-i7.1636 Tf*(tion about natu

APPENDIX 6: SAMPLE LOCAL ORDINANCES

person(s) who contacted the city or was contacted by the city regarding the alleged violation of article 1 of this ordinance. The citation shall be adjudicated in accordance with art. ___, of the municipal code relating to adjudication of [traffic offenses].

3. Abatement and penalty: upon a finding of guilty in accordance with article 2 of this ordinance, the landowner shall have twenty-eight (28) calendar days in which to abate the nuisance. If he/she does not so act, the city may take whatever reasonable action is necessary to abate the nuisance. The costs of such abatement shall be assessed against the landowner and shall constitute a fine, the collection of which may be made pursuant to the provisions of art. ___[relating to imposing a lien on the property].

Long Grove, Illinois, a low-density conservation conscious community takes a comprehensive approach involving the creation of upland and lowland conservancy districts, as well as scenic corridor districts. The municipality works directly with the Illinois EPA to regulate burning. The village has a conservancy/scenic corri-

tain his landscape in the manner of his choosing, insofar as it is not in a state of neglect, nor presents a hazard to the public health or safety, or to the agricultural environment.

(a) every landowner possessing lawns of the conventional bluegrass type shall be responsible for maintaining them at a height not to exceed eight inches.

(b) every landowner shall be responsible for the destruction of all weeds on every parcel of land which he shall own or control.

The city acknowledges the desirability of permitting and encouraging the preservation and restoration of natural plant communities within its boundaries. It acknowledges its citizens' rights to enjoy and benefit from the variety, beauty, and other values of natural landscaping, including freedom from toxic chemicals, and it seeks to guarantee citizens the freedom to pur-

ignated wildlife areas."

Lisle, Illinois rewrote its weed ordinance, giving exception to native prairie grasses defining them as such:

8-4-1: DEFINITIONS:

NATIVE ILLINOIS PRAIRIE GRASSES: Plants accepted as native in the tallgrass prairies of the Midwestern United States and described as such in the publication Plants of the Chicago Region, by Floyd Swink and Gerould Wilhelm (1994), or in subsequent editions of said publication.

The ordinance continues with requirements as follows:

8-4-5: NATIVE ILLINOIS PRAIRIE GRASSES:

(A) Management; Nuisance: The Village hereby declares that it shall be a nuisance if native Illinois prairie grasses are allowed to grow uncontrolled, without limitation, and without proper management/maintenance and it shall be unlawful for any person owning or controlling land to permit native Illinois prairie grasses to grow or to remain on any lot, tract, or parcel under that person's ownership or control if the plants are grown:

1. In excess of a height exceeding twelve inches (12") on lots, tracts or parcels of land with a permanent structure erected or in the process of being erected thereon, or contiguous thereto; or

2. In excess of a height exceeding eighteen inches (18") on all other lots, tracts or parcels of

the person owning the property or controlling the property provides the required basic lot line setbacks, structural setbacks, and graduated setbacks as follows:

(a) Minimum Basic Setbacks:

(1) A minimum basic lot line setback of five feet (5') from the perimeter of a lot, tract or parcel of land must be provided for native Illinois prairie grasses grown up to two feet (2') in height.

(2) A minimum basic structural setback of five feet (5') from the foundation of all buildings and from the edge of all decks and other structures must be provided for native Illinois prairie grasses grown up to two feet (2') in height.

(b) Graduated Setbacks: A minimum one foot (1') of lot line setback and one foot (1') of structural setback, in excess of the basic lot line and structural setbacks required above, must be provided for each additional foot of height of native Illinois prairie grasses grown in excess of grasses grown to two feet (2') in height. (Ord. 95-2650, 5-15-1995)

Highland Park included a similar amendment to their weed ordinance, and it reads as follows:

All areas shall be kept free from weeds or plant growth in excess of 10 inches (254 mm). Weeds excess ose

* r p to of h

bon it ra

geerrjuriimiN.29tatss-1') of struc-tural setback, in excess of the basic lot line andstructural setbacks required above

vided for each additional foot of height of native

Illinois pra of h

*Landscaping should be innovative and creative, and should ensure the proper long term maintenance and replacement of landscaping as needed.

In Schaumburg, Illinois, an extensive biodiversity ordinance was created, based on the development of their biodiversity recovery plan. Their general requirements for landscaping include:

Landscaping and Screening

(A) Purpose. The landscaping and screening requirements specified herein are intended to foster aesthetically pleasing, environmentally beneficial, and sustainable development that will protect and preserve the appearance, character, general health, safety and welfare of the community. Specifically, these regulations are intended to increase the compatibility of adjacent uses requiring a buffer or screen between uses, and in doing so, minimize the harmful impact of noise, dust and other debris, motor vehicle headlight glare or other artificial light intrusions and other objectionable activities or impacts conducted or created by an adjoining or nearby use.

Requirements for detention and retention basins are as follows:

(F) Detention and retention facilities. Landscaping shall be required around the perimeter of all retention and detention basins. Such landscaping shall consist of trees, shrubs, and emergent plantings in a quantity, species, and arrangement that will create an aesthetically pleasing and ecologically functional environment. Such landscaping shall be in conformance with best management practices (BMPs) as determined by the Village of Schaumburg as part of the NPDES program. Retention and detention basins should be designed to resemble natural land forms, whenever possible. Trees, shrubs, turf and prairie plantings should be located below the normal water line. Refer to the Village of Schaumburg Subdivision Control Ordinance, Section 151.09, for grading, seeding and sodding requirements on different slopes.

Appendix 7: Illinois EPA Burning

6. MATERIALS TO BE BURNED

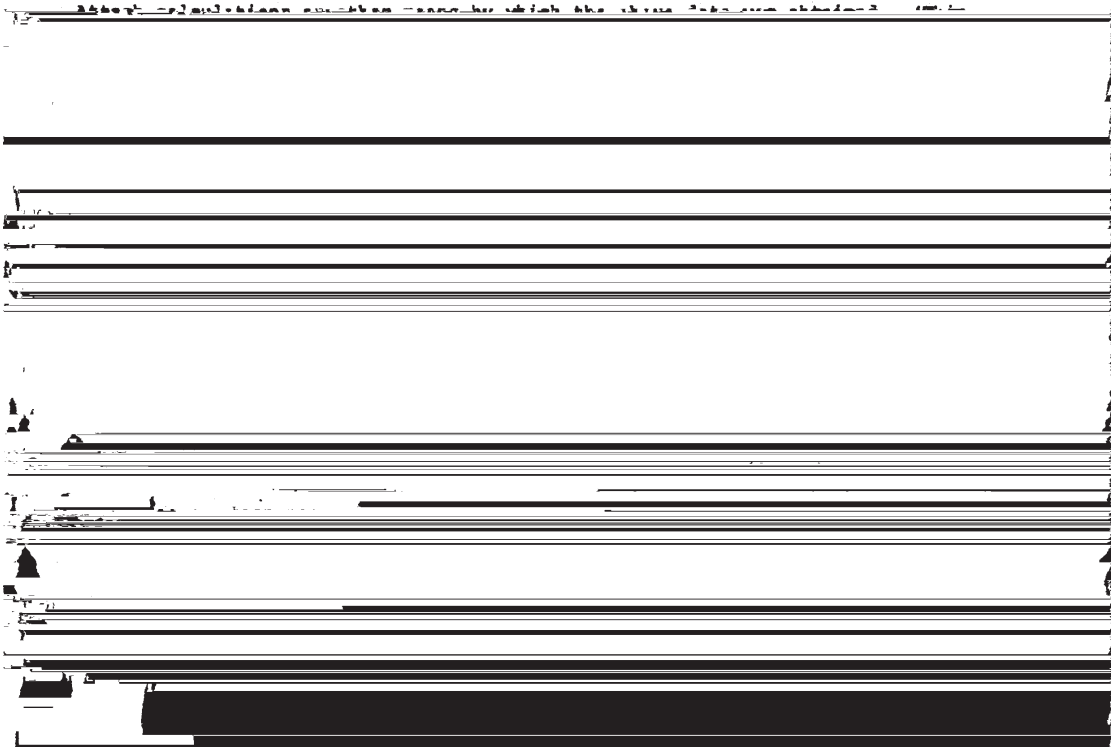
Item	Amount/Size	Composition/Description/Contents

Specify total amounts of material to burned at the site. Include material(s) used to start the fire and any supplemental material(s) used to maintain the fire. Describe items in appropriate terms, that is

Prairies: Acres - Type and extent of vegetation
Chemicals: Volume or weight - chemical constituents
Buildings: Stories, rooms, square feet - type of construction, state of deterioration, roofing & siding materials, remaining furnishings, other contents

7. CONTAMINANT EMISSIONS

__Particulate Matter _____LB __Sulfur Dioxide _____LB __Nitrogen Oxide _____LB __Organic Material _____LB __Carbon Monoxide _____LB __Other(_____) _____LB



10. NOTIFICATION

[redacted]

Burning?

___Yes ___No If "Yes", explain method of notice and any additional measures to be taken to respond to concerns:

11. ADDITIONAL INFORMATION -LANDSCAPE WASTE DISPOSAL ONLY!

[redacted]

Manufacturer:_____ Model No.:_____

Attach a copy of the manufacturer's written instructions for use of the device to [redacted] the application. A copy of these instructions should be available at the Open Burning site.

AUTHORIZED SIGNATURE

The undersigned hereby makes application for an Open Burning Permit and certifies that the statements contained herein are true and correct.

Signature:_____ Date:_____

Additional Comments:

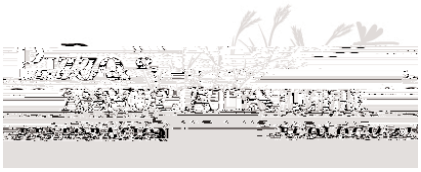
Appendix 8: Examples of Natural Landscaping Installation and Maintenance Costs

The following tables represent 2003 costs. Costs vary among different firms, but overall savings are similar.

Turf Grass Lawn with an Irrigation System vs. Native Prairie; from Seed

Estimated Annual Cost Per Acre; for a Five-Acre Planting Project

Source: Applied Ecological Services, Inc.



10729 Pine Road, Leland, IL 60531 (815) 495-2300

Cost Comparison

Install	$5,200.00					
Mow	$3,500.00	$3,500.00	$3,605.00	$3,713.15	$3,824.54	$4,433.69
Fertilizer	$525.00	$525.00	$540.75	$566.97	$583.98	$676.99
Irrigation	$5,600.00	$500.00	$515.00	$530.00	$545.90	$632.85
Overseeding / Aerating		$900.00		$927.00		$1,075.00
Annual Expense	$14,825.00	$5,425.00	$4,660.75	$5,727.57	$4,954.52	$6,818.53

Install	$3,500.00					
Herbicide (Pre-planting)	$330.00	$198.00				
Weed Control	$2,000.00	$2,250.00	$2,317.50	$500.00		
Burn Management		$500.00	$515.00	$530.45	$546.36	$633.38
Annual Expense	$5,830.00	$2,948.00	$2,832.50	$1,030.45	$546.36	$633.38

Percentage Savings	61%	57%	53%	59%	63%	75%

Total Project Area <1 Acre
Inflation Factor - 3%
Labor Rate - Non Prevailing Wage
Professional Landscape Maintenance Company Hired to Maintain Lawn.
Water Cost Not Calculated
Irrigation - System Installation & Maintenance

10729 Pine Road, Leland, IL 60531 (815) 495-2300

Cost Comparison

Mow	$2,000.00	$2,060.00	$2,121.80	$2,185.45	$2,251.02	$2,609.55	$3,507.01
Fertilizer & Herbicide	$250.00	$257.50	$265.23	$273.18	$281.38	$326.19	$438.38
Annual Expense	$2,250.00	$4,567.50	$2,387.03	$2,458.64	$2,532.39	$2,935.74	$3,945.39
Install	$3,500.00						
Herbicide to Kill Lawn	$350.00						
Weed Control - by owner	$200.00	$220.00	$226.60				
Burn Management		$1,000.00	$500.00	$515.00	$530.45	$614.94	$826.42
Annual Expense	$4,050.00	$1,220.00	$726.60	$515.00	$530.45	$614.94	$826.42
Percentage Savings	-80%	-15%	14%	31%	41%	61%	72%

Total Project Area >1 Acre
Inflation Factor - 3%
Owner Maintenance

Appendix 9: President's Executive Order on Beneficial Landscaping

Executive Order 13148 of April 21, 2000

Greening the Government Through Leadership in Environmental Management

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C. 11001-11050) (EPCRA), the Pollution Prevention Act of 1990 (42 U.S.C. 13101-13109) (PPA), the Clean Air Act (42 U.S.C. 7401-7671q) (CAA), and section 301 of title 3, United States Code, it is hereby ordered as follows:

PART 1—PREAMBLE

Section 101. Federal Environmental Leadership. The head of each Federal agency is responsible for ensuring that all necessary actions are taken to integrate environmental accountability into agency day-to-day decision-making and long-term planning processes, across all agency missions, activities, and functions. Consequently, environmental management considerations must be a fundamental and integral component of Federal Government policies, operations, planning, and management. The head of each Federal agency is responsible for meeting the goals and requirements of this order.

PART 6—LANDSCAPING MANAGEMENT PRACTICES

Sec. 601. Implementation.

a. Within 12 months from the date of this order, each agency shall incorporate the Guidance for Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds (60 Fed. Reg. 40837) developed by the FEE into landscaping programs, policies, and practices.

b. Within 12 months of the date of this order, the FEE shall form a workgroup of appropriate Federal agency representatives to review and update the guidance in subsection (a) of this section, as appropriate.

c. Each agency providing funding for nonfederal projects involving landscaping projects shall furnish funding recipients with information on environmentally and economically beneficial landscaping practices and work with the recipients to support and encourage application of such practices on Federally funded projects.

Sec. 602. Technical Assistance and Outreach. The EPA, the General Services Administration (GSA), and the USDA shall provide technical assistance in accordance with their respective authorities on environmentally and economically beneficial landscaping practices to agencies and their facilities.

PART 10—DEFINITIONS

For purposes of this order:

Sec. 1001. General. Terms that are not defined in this part but that are defined in Executive Orders 13101 and 13123 have the meaning given in those Executive orders. For the purposes of Part 5 of this order all definitions in EPCRA and PPA and implementing regulations at 40 CFR Parts 370 and 372 apply.

Sec. 1002. "Administrator" means the Administrator of the EPA.

Sec. 1003. "Environmental cost accounting" means the modification of cost attribution systems and financial analysis practices specifically to directly track environmental costs that are traditionally hidden in overhead accounts to the responsible products, processes, facilities or activities.

Sec. 1004. "Facility" means any building, installation, structure, land, and other property owned or operated by, or constructed or manufactured and leased to, the Federal Government, where the Federal Government is formally accountable for compliance under environmental regulation (e.g., permits, reports/ records and/or planning requirements) with requirements pertaining to discharge, emission, release, spill, or management of any waste, contaminant, hazardous chemical, or pollutant. This term includes a group of facilities at a single location managed as an integrated operation, as well as government owned contractor operated facilities.

Sec. 1005. "Environmentally benign pressure sensitive adhesives" means adhesives for stamps, labels, and other paper products that can be easily treated and removed during the paper recycling process.

Sec. 1006. "Ozone-depleting substance" means any substance designated as a Class I or Class II substance by EPA in 40 CFR Part 82.

Sec. 1007. "Pollution prevention" means "source reduction," as defined in the PPA, and other practices that reduce or eliminate the creation of pollutants through: (a) increased efficiency in the use of raw materials, energy, water, or other resources; or (b) protection of natural resources by conservation.

Sec. 1008. "Greening the Government Executive orders" means this order and the series of orders on greening the government including Executive Order 13101 of September 14, 1998, Executive Order 13123 of June 3, 1999, Executive Order 13134 of August 12, 1999, and other future orders as appropriate.

Sec. 1009. "Environmental aspects" means the elements of an organization's activities, products, or services that can interact with the environment.

THE WHITE HOUSE,

April 21, 2000.

APPENDIX 10: SELECTED BIBLIOGRAPHY

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Note: An increasing selection of books on this subject is coming onto the market. The gardening section of most larger bookstores and libraries will have many titles from which to choose.

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