

Planning for and Managing Open Space and Natural Areas

Increasingly, development proposals in Delaware include large amounts of open space and natural areas. While open space is important as a community amenity and for resource protection, management of these areas can be challenging and expensive. This chapter will define open space, explain its importance, and provide guidelines for locating and managing open space.

Open space is land set aside during the development process. Land is commonly set aside for recreation and stormwater management purposes, but can also be set aside for natural resource protection, preservation of cultural and historic resources, preservation of scenic vistas, and many other reasons. Land set aside for recreation is commonly referred to as “active open space,” while land set aside for most other purposes is referred to as “passive open space.” Passive open space often includes stream buffers, forested areas, floodplains, wetlands, areas of steep slopes, and other areas that are inappropriate for development or are of conservation concern.

Due to new techniques for residential development design and increasing environmental restrictions, development proposals are including large acreages of open space. Long-term management and maintenance of these areas sometimes are the responsibility of the municipality, but most are managed by homeowners’ associations or maintenance corporations who have limited financial and technical resources to address this challenge. Mowing costs alone for some developments run in the tens of thousands of dollars per year.

Benefits of Open Space

Water quality protection and flood prevention. Wetlands and vegetated stream buffers retain flood waters and reduce the amount of pollutants entering streams. Groundwater supplies are replenished in places where water soaks into the soil and reenters aquifers.

Wildlife and native plant habitat. Natural areas set aside as community open space provide important habitat for native plants and animals. Large wooded tracts are particularly important to native species, including many types of songbirds and woodpeckers, salamanders, and native orchids. Large meadow areas are also needed to support many native birds, including bobwhite quail, eastern meadowlarks, and grasshopper sparrows.

Forest Fragmentation

The US Forest Service estimates that Delaware lost **more than 20,000 acres** of forest land between 1986 and 1999. Large tracts of forest, those 25 acres or larger, are becoming increasingly rare in Delaware. It is well known that trees help clean the air and water and provide shade and habitat for wildlife. But as large forests become smaller, their value decreases, particularly for wildlife. As large tracts of forest are cut, the forest “edge” normally increases. Forest edge provides habitat for deer, squirrels, rabbits, and many common bird species but is also susceptible to invasion by aggressive plant species that take over and greatly reduce the forest quality. Many of Delaware’s rare and endangered species of plants, birds, and animals depend on forest “interior,” generally the area of forest 300 feet or more from the edge, where invasive species cannot reach and dense vegetation provides the special conditions needed for breeding and foraging.

Forest fragmentation occurs when large, unbroken areas of forest are split into separate, smaller parcels of forest habitat, reducing “interior” forest and increasing forest “edge.” Development activities that require the clearing of trees and building of roads, stormwater management facilities, and houses can drastically impact forest quality and habitat by increasing forest edge.

Air quality improvement. Wooded open spaces absorb carbon dioxide and pollutants from the atmosphere and provide shade, reducing air pollution levels and cooling the air.

Recreational opportunities. Active open space provides obvious recreational benefits. Natural areas set aside as passive open space provide opportunities for hiking, fishing, and bird-watching. For children, wooded areas and streams are natural playgrounds that encourage physical activity and imagination.

Sense of place. Open spaces help define the character of a region and contribute to the residents' sense of belonging.

Social benefits. Both active and passive open spaces provide areas for neighbors to meet and interact, strengthening community ties.

Increased home values. Extensive open spaces and forests increase property values and marketability because they enhance appearance and provide recreational opportunities.

Health benefits. Studies have shown that wooded areas and trees help contribute to an overall feeling of well-being and serenity. They also can contribute to physical well-being by providing opportunities for walking and jogging in a natural setting.

Screening and noise reduction. Wooded areas and trees provide screening from adjacent land uses and may reflect and absorb sound energy.



This mature forest was preserved as part of community open space in New Castle County and is popular with residents for walking and jogging.

Locating Open Space and Natural Areas within a Development Plan

A natural resource assessment should be the first step of the design process for a new development project. This inventory will show areas of the parcel where special resources exist, where development constraints are located, and where development is most appropriate.

From this, areas protected from development activities by federal and state regulations and local land-use ordinances should be clearly delineated. For example, federal and state regulations prohibit disturbance to tidal wetlands without permits, and federal regulations require that land within a certain radius of a bald eagle nest remains undisturbed. Local land-use ordinances might prohibit construction within floodplains or within a stream buffer zone. These areas are clearly off-limits to development activities.

To the extent possible, natural and cultural resources on a development site, whether protected by ordinance or not, should be conserved. However, it is not always possible to conserve every resource and meet the housing goals of the region or the economic requirements for development. The following guidelines should be considered when determining the location and extent of passive open space on a parcel:

- Σ Maximize areas of contiguous forest. Lot lines should be drawn to avoid fragmenting forest blocks.
- Σ Preserve high-quality habitats, such as mature forests and Delmarva Bays, prioritizing their preservation over lower-quality habitat.
- Σ Adequate riparian buffers of no less than 100 feet from water bodies and wetlands should be maintained or installed. In many cases, 300 feet or more is recommended for purposes of providing adequate wildlife habitat.
- Σ Use “green technologies” for stormwater management that utilize the natural contours and features of the landscape to direct and infiltrate runoff (see Chapter 5 – Managing Stormwater for more information on green technologies).
- Σ Minimize areas of turf grass. Seek opportunities for meadow or forest restoration.
- Σ Meet regional needs for recreation such as hiking and bird-watching as identified in the Statewide Comprehensive Outdoor Recreation Plan.
- Σ Ensure that the goals of the municipality’s comprehensive plan are being met.



This development design maximized lots with wooded backyards, but in doing so, significantly fragmented the forest, limiting its value for wildlife.

Designation of active open space should consider the needs of the residents of the new development and the region as a whole. For example, tot-lots containing play equipment for young children may be more appropriate than basketball courts in new neighborhoods that target first-time homebuyers. Active open space should be centrally located and easily visible. Active open space that backs to backyards should be avoided, as should large areas of turf grass with no dedicated purpose as these areas are costly to maintain and not well used.

Managing Open Space

The work is not over once active and passive open spaces have been designated on the final site plan! While open space is a community and regional asset and provides many environmental, economic, cultural, and social benefits, many municipalities and homeowners' organizations are surprised by maintenance responsibilities and costs.

To reduce costs, many county and municipal governments have delegated the responsibility for managing community recreation areas, natural areas, and stormwater management facilities to a homeowners' association or maintenance association. While this puts management decisions in the hands of those who most use and benefit from the open space, homeowners' organizations rely on funding from residents that can be difficult to collect. In addition, the turnover rate of board members is usually high. This results in poor understanding of open-space management options and management decisions that have been made previously. To combat this, municipalities can

- Σ Take an active role in community open-space management by accepting maintenance responsibilities of community open space or designating a staff member to assist homeowners' associations with making decisions and managing open space.
- Σ Ensure that long-term maintenance costs are reduced by minimizing turf grass and maximizing low-maintenance open spaces like forest and meadows.
- Σ Require that developers establish open-space maintenance plans that specify management techniques, stormwater maintenance schedules, mowing schedules, invasive species control, etc.
- Σ Establish a long-term, stable funding mechanism.

Each type of open-space land use has benefits and drawbacks. Turf grass is necessary in areas with high foot traffic, like playgrounds and soccer fields. Most people are accustomed to and like the look of traditional lawn; however, maintenance is extremely expensive and can increase nonpoint source pollution if fertilizer and herbicides are applied. In addition, turf grass has little environmental or habitat value. Replacing turf grass with warm or cool season grasses that require mowing only once or twice a year saves money, provides great habitat for birds, and can increase water quality by filtering pollutants. Unfortunately, it has limits for active recreation. In addition, many people are unaccustomed to tall grasses and may have concerns. Mature forest normally requires virtually no maintenance and has wide acceptance by residents. However, occasional maintenance should include invasive plant species control and trail maintenance, if trails are provided.

Natural areas conserved on-site as passive

Conservation Easements

A conservation easement protects the natural, scenic, and historic value of a property by restricting some of the uses of that property. Terms of the easement will vary from site to site. Typically, though, for residential developments, a conservation easement would restrict cutting trees or building structures within a forest but would allow hiking trails, a dock for fishing, etc.

Conservation easements are "held" by a third party who agrees to enforce the restrictions. In Delaware, conservation easements can be held by the Department of Natural Resources and Environmental Control, the Department of Agriculture, or nonprofit organizations such as the Sussex County Land Trust. Conservation easements benefit both the landowner and the holder of the easement. Obtaining the easement helps fulfill the conservation goals of state and nonprofit agencies, while easing the burden of maintenance on the property owner.

open space should be deed restricted to prevent future development and infringement by homeowners. Placing permanent markers or signs on the edge of these areas is highly recommended to remind residents that it is a community area. When possible, these areas should be placed into a permanent conservation easement.

Good Practices for Local Governments

Plan

- Σ Create a town open-space plan, showing areas important for conservation, environmental protection, and town identity. Solicit public opinion and make the plan widely available.
- Σ Require that development proposals include a natural resource assessment.
- Σ Adopt ordinances that require conservation of priority natural resources.
- Σ Adopt ordinances that encourage use of natural landscaping and provide outreach to communities and developers.

Minimize

- Σ Ensure that long-term maintenance costs are reduced by minimizing turf grass and maximizing low-maintenance open spaces like forest and meadows.
- Σ Locate passive open space within and adjacent to natural resource areas.
- Σ Ensure no less than 100 feet of forested buffer zone around water bodies and wetlands.

Mitigate

- Σ Minimize forest fragmentation and “edge effects” by reducing lot sizes and pulling lots and infrastructure out of forested areas.
- Σ If 100-foot forested buffers do not exist, designate adequate open space and revegetate.

Maintain

- Σ Take an active role in community open-space management and establish a long-term, stable funding mechanism.
- Σ Require that developers establish open-space maintenance plans that specify management techniques, stormwater maintenance schedules, mowing schedules, invasive species control, etc.
- Σ Require conservation easements or deed restrictions for natural areas in designated open space.



Community open-space area in traditional turf grass as compared to open space managed as a meadow.

Questions to Ask During the Development Process

- Σ What are the natural and cultural resources on-site? Are they of regional or local importance or a component of a natural corridor?
- Σ What are the recreational goals of the development, town, and region? Can they be met, in part, by the proposal?
- Σ Has preservation of existing natural and cultural resources been maximized? Has use of turf grass been minimized?
- Σ Are open-space areas connected within the parcel? Are they connected to open spaces adjacent to the parcel?
- Σ Is forest fragmentation minimized?
- Σ What are the long-term costs of open-space maintenance and who will be responsible?
- Σ Will the passive open space be placed into a conservation easement?
- Σ What will the deed restrictions be on natural areas, recreation areas, and stormwater facilities?

Technical and Financial Assistance for Managing Open Space

Technical and financial assistance is available from the following organizations:

Delaware Department of Agriculture, Urban and Community Forestry Program provides technical assistance and funding for publicly owned forests and assists developers, planners,

and engineers with tree preservation efforts during the development process.
www.state.de.us/deptagri/forestry/conser.shtml (302) 698-4500

DNREC Division of Soil and Water Conservation, Sediment and Stormwater Program manages stormwater through permitting, education, and technical assistance.
www.dnrec.state.de.us/DNREC2000/Divisions/Soil/Stormwater/StormWater.htm
(302) 739-9921

DNREC Division of Soil and Water Conservation, Delaware Coastal Programs administers a grant program for natural resources planning and management projects specifically aimed at municipalities. www.dnrec.state.de.us/dnrec2000/Divisions/Soil/dcmp/index.htm
(302) 739-9283

DNREC Division of Fish and Wildlife, Landowner Incentive Program provides technical assistance funding for habitat restoration projects that protect rare and endangered species.
www.dnrec.state.de.us/fw/landowner/delip.htm (302) 653-2880

DNREC Division of Fish and Wildlife, Natural Heritage Program maintains a database of rare and endangered species in Delaware and will review site plans and provide conservation recommendations. www.dnrec.state.de.us/nhp (302) 653-2880

DNREC Division of Parks and Recreation, Planning Preservation and Development Section administers grants programs for park development and will hold conservation easements on high-priority natural resource lands.
www.destateparks.com/know/division/index.htm (302) 739-9235

County Conservation Districts provide technical help and cost sharing for restoration projects. Sussex County, (302) 856-3990; Kent County, (302) 741-2600; New Castle County, (302) 832-3100

For Further Information

The State of Delaware Statewide Comprehensive Outdoor Recreation Plan (SCORP) contains extensive information about Delaware residents' recreational needs and desires by region. Available on-line at www.destateparks.com/SCORP/SCORP_2-2-04.pdf.

Five Simple Steps to Maintaining and Enhancing Community Open Space and Stormwater Management Areas. Delaware Department of Natural Resources and Environmental Control. September 2004. Sediment and Stormwater Program. Dover, Delaware. 39 pp.

Conservation Subdivisions: A Better Way to Protect Water Quality, Retain Wildlife, and Preserve Rural Character. Nonpoint Education for Municipal Officials. NEMO Project Fact Sheet 9. Available on-line at nemo.uconn.edu/publications/fact_sheets/nemo_fact_sheet_9_s.pdf.

Carving Up the Landscape: Habitat Fragmentation and What to Do About It. Nonpoint Education for Municipal Officials. NEMO Project Fact Sheet 10. Available on-line at nemo.uconn.edu/publications/fact_sheets/nemo_fact_sheet_10_s.pdf.