

HELDERBERG ESCARPMENT PLANNING GUIDE

A Project of the
Helderberg Escarpment Planning Committee

Daniel A. Driscoll and Lindsay N. Childs, editors

Albany County Land Conservancy
P. O. Box 567
Slingerlands, NY 12159
March, 2001

About the Editors:

Daniel A. Driscoll is founder and Chairman of the Helderberg Escarpment Planning Committee. He has been a member of the Town of Knox Planning Board since 1974 and was chairman from 1975 to 1990, when he stepped down to chair the Town of Knox Master Planning Committee. He helped found the Albany County Land Conservancy in 1991, and presently assists the Conservancy with the stewardship of its preserves. Driscoll is a Professional Engineer and has a Ph. D. in Electrical Engineering. He retired in 1999 after 26 years with New York State, where he specialized in the environmental aspects of noise and power line electric and magnetic fields. He is Board Certified in Noise Control Engineering, and served on a National Academy of Sciences committee on the possible health effects of power frequency electric and magnetic fields. He is active with the Helderberg Kiwanis Club, the St. Matthews Church music ministry, and the Knox Traditional Strings. He and his wife, Maureen, have two grown children and have resided in Knox, above the Escarpment, since 1972.

Lindsay N. Childs is Vice-Chairman of the Helderberg Escarpment Planning Committee. He was Vice-Chair of the Town of Guilderland Planning Board, 1984-90, and of the Town of Guilderland Zoning Board of Appeals, 1991-95. He has served on several planning committees of the Town of Guilderland, including the West Guilderland Land Use Study Committee, the 1999 Comprehensive Plan Advisory Committee and the Guilderland Pathways Committee. Childs has a Ph. D. in Mathematics and is a professor and former chair of the Department of Mathematics at the University at Albany. During the 1980's he was a correspondent for the Altamont Enterprise. He and his wife, Rhonda, have two grown children and a son in high school, and have resided in Guilderland, below the Escarpment, since 1973.

About the Writing of the Guide

This Guide grew out of the contributions of the participants in the initial 1991 Conference on the Helderberg Escarpment. Their presentations laid out the initial knowledge base from which the Guide evolved. Having been through twelve drafts since 1993, the Guide is very much a collaborative effort among all the members of the Helderberg Escarpment Planning Committee, but the Editors would like to particularly acknowledge the authors of the initial drafts of various chapters:

Chapter 3, Soils -- Mark Franze (presentation at the 1991 Conference on the Helderberg Escarpment)

Chapter 4, Hydrology -- Steve Lukowski (presentation at the 1991 Conference on the Helderberg Escarpment)

Chapter 5, Plants -- Larry Jackson.

Chapter 6, Animals -- Bob Daniels.

Chapter 8, Aesthetics -- from a set of guidelines by Richard Benas, whom we thank for permission to use his ideas.

Chapter 9, Recreation -- Mark King.

Chapter 10, Historic and Cultural Resources -- Mark Hesler.

Chapter 11, Existing Land Use Controls and Development --Diane Hill, Phyllis Schilling and Ann Richards.

ACKNOWLEDGMENTS

This report was prepared with the assistance of grants from the New York State Council on the Arts and the Open Space Institute.

The Committee acknowledges with gratitude this financial support, as well as the support of the Towns of Knox and Guilderland for mailing and secretarial services, the Village of Altamont, the Town of New Scotland, the Town of Knox and the Albany County Soil and Water Conservation District for meeting accommodations, the Village of Altamont for managing the Committee's grants, and the Albany County Planning Department for assistance with mapping and geographic information system (GIS) analysis.

We also wish to acknowledge the helpful editorial assistance of Bagdon Environmental Associates, Alvin Breisch, Dr. Ray Bromley, Director of the Regional Planning Program at the University at Albany, and the substantial contribution of his student Qingyong Hu. Mr. Hu served as a graduate intern with the Committee during the main year of Guide development (1994-95), and he prepared much of the artwork in the Guide.

Most of the photographs throughout the Guide were taken by the editors (Driscoll and Childs); the beautiful plant photographs are by Tom Crowl of Knox. Clarksville Cave photos are reproduced with permission from the Boston Grotto Photo Gallery web site.

The Ecological Communities map of Thacher Park and some of the ideas in Chapter 6, Animals, are from a study of ecological communities of Thacher Park. We thank Tom Lyons of NYS OPRHP for making this information available for the Guide, and Betty Ketcham of NYNHP for her editorial assistance.

Information in this Guide was gathered over a number of years and may not be the most current available. However, it reflects the information used by the committee as it developed its recommendations.

The Helderberg Escarpment Planning Committee (affiliations were those at the time of joining the Committee):

Chairman: Daniel A. Driscoll, Knox Planning Board

Vice-Chair: Lindsay N. Childs, Guilderland Zoning Board

Treasurer: Diane K. Hill, E. Berne

Secretary: Mark King, Albany County Planning Department

Members: Dennis Colliton, Knox Planning Board

Robert Daniels, Knox

Edward A. Donohue, New Scotland Town Board, Village of Voorheesville Trustee

Mark Hesler, Guilderland Planning Board

Larry Jackson, Berne Conservation Board

Steve Lukowski, Albany County Health Department

Raymond G. MacKay, Jr., New Scotland Planning Board

Ann Richards, Town of New Scotland Planning Board

Phyllis K. Schilling, Village of Altamont Trustee

Carl Schilling, Village of Altamont

Helderberg Escarpment Planning Guide

Executive Summary

A. Introduction

The Helderberg escarpment, located in the center of Albany County, New York, is the county's signature landform. The most dramatic part of the escarpment, with relief of over a thousand feet, stretches for about ten miles from Knox and Altamont to southern New Scotland, Westerlo and Coeymans. The view from the cliff top encompasses the Hudson-Mohawk lowlands, the southern Adirondacks and the western mountain ranges of Vermont and Massachusetts. John Boyd Thacher State Park, established in 1914 on the edge of the escarpment, draws over 250,000 visitors annually to admire the striking scenery from the cliff edge.

The Helderberg Escarpment Planning Guide has been written to encourage appropriate land use and development in the Escarpment region so that the unique character of the area can be enjoyed by future generations. It does so in two ways.

- First, it reviews the geological, biological, hydrological, aesthetic, historical, archaeological, economic and recreational assets and constraints of the Helderberg Escarpment area in order to provide a useful reference and information base for municipal boards, residents, developers and others.
- Second, the Guide offers land use guidelines and recommendations to assist local communities as they develop comprehensive plans, zoning ordinances and other regulations, and as they review development proposals.

The Guide will alert developers and municipal review agencies to significant concerns and physical limitations associated with development on or near the Escarpment, and suggests mitigation techniques for development. Municipal agencies will also find this Guide a useful resource as they conduct the required review of development proposals in the Escarpment region under the State Environmental Quality Review Act (SEQRA).

This document has no force of law, nor is it envisioned as a blue print to frustrate growth. Rather, the Guide is written to assist municipal boards, landowners and developers to appreciate the unique character of the Escarpment area and to understand better how to design growth which will be respectful of that uniqueness.



The Helderberg Escarpment Planning Guide is a project of the Helderberg Escarpment Planning Committee, an intermunicipal committee formed in 1991 for the specific purpose of encouraging a consistent approach among the municipalities regarding land-use decisions affecting the Helderberg Escarpment. Most members of the committee were appointed by the municipalities in the study area. The Committee also includes representatives of the Albany County Planning Department and the Albany County Health Department.

B. Description of the Study Area

Below is a map of the study area. The study area consists of the Helderberg escarpment itself and the land both above and below the escarpment within one to three miles of the escarpment face, a total land area of about 60 square miles. The length of the study area includes all readily identifiable "escarpment" areas; the width is sufficient to include related ecological, geological and other relevant associations.

ESCARPMENT STUDY AREA

BASE MAP

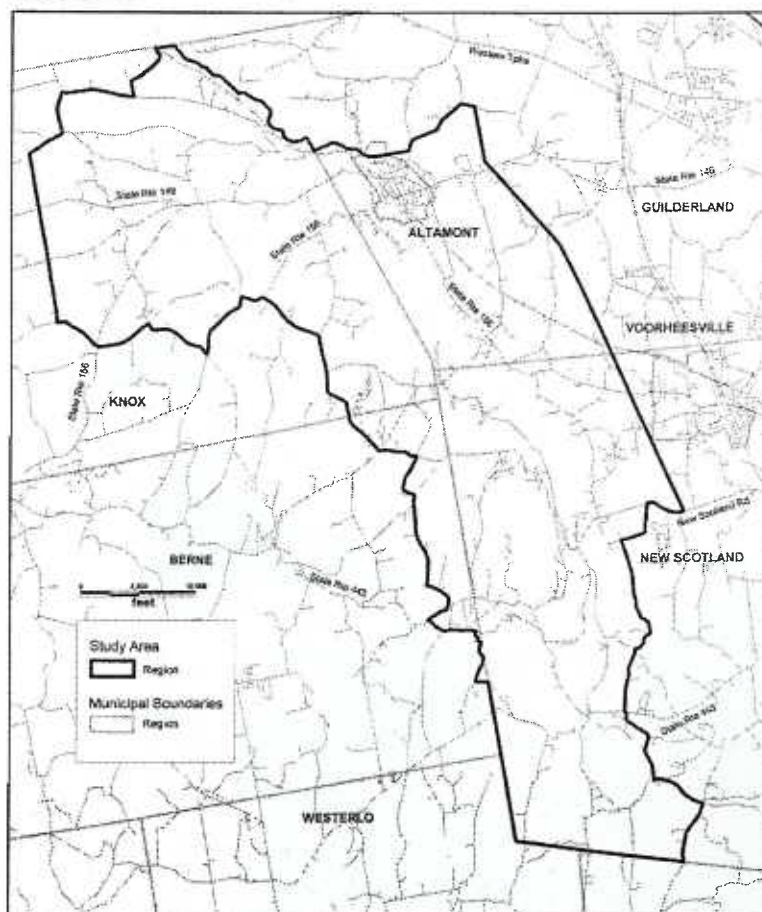


FIGURE 1-1

The study area includes portions of the Towns of Knox, Guilderland, New Scotland and Berne and the Village of Altamont. It is a transitional area: to the south and west of the escarpment is a rural, primarily agrarian community of moderately sized farms; to the north and east are residential suburbs of the nation's 55th largest metropolitan area. The approximate population of the study area is 5,200 (1990 census). Elevations range from 340 feet in the Black Creek Marsh Area to 1760 feet near Camp Pinnacle. Most of the visible cliff face is at elevations ranging from 500 feet at the talus slope base to 1300 feet at the cliff edge.

The study area includes Thompsons Lake, Helderberg Lake, the two Altamont Reservoirs, and all or part of thirteen state-regulated wetlands. It contains a number of

properties set aside for preservation purposes; the largest are Thacher State Park, 2,200 acres, and Black Creek Marsh, 725 acres.

Most of the land within the study area is rural, with low population density. Much of the study area was once farmed, but with the decline of farming in the area, most of the former farmland is now overgrown or forested. Of the remaining farms in the study area only five can be considered full-time operations. Two New York State Agricultural Districts fall partially within the escarpment study area.

The most densely populated areas within the study area are the Village of Altamont and the hamlet areas of New Salem, Clarksville and Knox. Altamont, New Salem and Clarksville have public water available; Altamont also has a public sewer system. All other sewage treatment is through private septic systems. All other water sources are through private wells. There is limited industry in the study area.

It is the sense of the Committee that in the coming years, development pressure will intensify in the escarpment region. One reason is that readily developable land in Bethlehem, and in Guiderland east of the Conrail tracks, is becoming scarce. It is reasonable to assume, for example, that in the near future suburban development will begin spreading out from Guiderland Center in the direction of the escarpment. As suburbia continues to spread from Albany towards the escarpment, families seeking a more rural lifestyle, and particularly those who can work at home via computer, will be attracted to the escarpment area itself by its strikingly scenic rural environment and reasonable access to Albany. In addition, if high-speed transportation between Albany and New York City becomes a reality, the study area could become as accessible to midtown Manhattan as much of eastern Long Island.



The remainder of this Executive Summary is a review of the environmental findings and recommendations found in the main body of the Guide.

C. Geology and Hydrology

The Helderberg plateau consists predominantly of layers of shale, sandstone and limestone, all lying on top of the older shale and sandstone layers that extend north across the Capital District. A rich array of fossils on the escarpment is evidence of nearly half a billion years of





geological history. Many fossils of worldwide distribution were first found in this area.

Water flowing through the layers of limestone on the plateau above the escarpment has dissolved and eroded the rock, leading to a geological landscape known as karst terrain. The characteristic features of karst areas include caves, limestone pavement, sinking streams, sinkholes, complex underground drainage systems and springs. The study area contains several well-known caves of ecological and recreational significance.

Karst Hydrology. The karst terrain as a whole poses significant development problems because of the uncertain quantity and quality of ground water. In karst areas, soils are generally thin, and surface water easily flows via

sinkholes or rock crevasses into underground rock conduits and caves, which allow groundwater to flow quickly and unimpeded by soils. As a result, the water does not have the benefit of being filtered and purified by soil.

Many serious groundwater contamination problems have developed in karst terrains both in the United States and abroad due to poor land use planning. Even locally, problems have been reported due to sewage laden karst spring water. Wells which draw their water from cave conduits are the most susceptible to contamination and should either not be used or should be tested frequently for contaminants.



Chemical contamination of a karst aquifer is particularly dangerous. Chemically contaminated water is not filtered as it moves through underground channels, so the contaminated water can potentially enter wells used for drinking water. Moreover, once in the karst system, chemicals can be absorbed into the limestone and continue to contaminate water supplies for years. Gas or other fuels that enter the karst system can produce fumes that may enter homes where they can be a fire hazard. It is important to recognize that once a contaminant spill occurs, or a septic tank fails, it is too late to alter downgradient impacts. Land use planning should consider this accordingly.

Surface Hydrology. Approximately half of the study area lies within watersheds of surface public water supplies.

Most of the study area from Thacher Park and Thompson's Lake to the north and west, below and above the escarpment, lies within the watersheds of the Watervliet and Altamont water districts. In addition, Altamont relies on wells that may have a large contribution from subsurface flow through the escarpment.

Part of the flow in the Onesquethaw Creek above the Wolf Hill Dam is diverted to the Vly Creek Reservoir.

Thompson's Lake itself serves as the source of public water for Thacher Park and Thompson's Lake State Campground.

The southwest corner of the study area lies within the Alcove Reservoir watershed, fed by tributaries of the Hannacroix Creek.



Onesquethaw Creek from Rt. 85A

State Health Department watershed rules and regulations cover all of these sources except for Thompson's Lake. However, Thompson's Lake is the most vulnerable. The conversion of summer camps to year-round homes has increased the load on the septic systems of these properties, and makes septic system failure, and resultant pollution of the lake water, much more likely. Since the lake water is a source of household water, pollution of the lake is a serious concern.

Recommendations. There is a series of steps a community can take to understand and control the problems associated with karst terrain. These include:

- assessment of the karst area (beginning with an inventory of karst features and the identification of existing sources of potential contamination);
- a community education program; and
- the adoption of appropriate land use controls, such as special zoning to protect the aquifer and to warn about the structural danger of building over known caves or in areas prone to sinkhole development.

Once existing sources of potential contamination are identified, a program of periodic inspections should be instituted to detect contamination of the karst aquifer.

Because the likelihood of contamination of ground water in karst areas is increased with higher density development, karst areas should be given a special zoning designation. Such zoning should allow only low-density development, and should include restrictions to protect groundwater purity. Any non-residential development that could leach contaminants into the ground water, such as landfills, road salt piles, storage of gasoline,

fuels, solvents or other hazardous chemicals, are a particular threat in areas with karst hydrology and merit special regulatory concern.

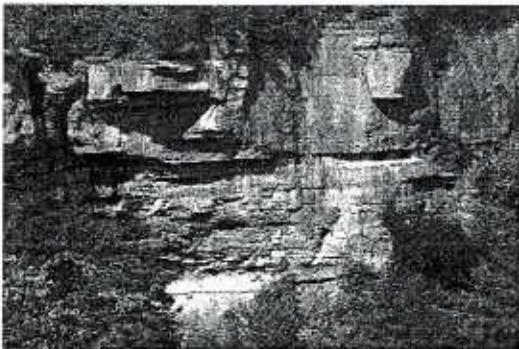
To help protect areas such as Thompson's Lake, formation of a wastewater management district would be appropriate. A wastewater management district is a town improvement district, similar to a water, sewer or lighting district, administered by the Town Board. Such a district would support a systematic annual or biennial inspection of all sewage disposal systems within the district. Regular inspection helps promote increased useful life of septic systems, and helps insure that septic system failures are readily identified and corrected, thereby minimizing accidents that could contaminate nearby surface or subsurface sources of public water.

D. Soils

The soils on the escarpment have very clear limitations: they involve steep cliffs that have shelves with very shallow soils.

The area immediately below the escarpment contains sands, old Lake Albany soils (including some of the best farmland in the area), and glacial till. Some of the soils are shallow to bedrock.

Much of the area above and close to the escarpment has shallow soils. Moving back from the escarpment to the hills above it, the soils are generally deeper, but they still have limitations such as internal drainage problems (both poorly drained and excessively drained soils). Drainage problems in general can create difficulties with sanitary facilities, cause moisture in basements, damage landscaping, and cause problems with the construction of driveways and roads.



Recommendations. The Albany County Soils Survey maps can help municipal boards and developers identify problem areas. But detailed on-site investigations are necessary to determine actual conditions. Local U. S. Department of Agriculture and Soil and Water Conservation District representatives can assist local planning boards to determine soil conditions at sites under review.

E. Plants and Animals

The Helderberg Escarpment supports a set of regionally unusual habitats. The size and morphology of the Escarpment create microclimates both horizontally and vertically along its front. These microclimates allow certain plants and animals to persist in areas detached from their more general range.

It is impossible in this Guide to identify all areas that are environmentally significant. The information presented is intended to guide municipalities as they develop their own inventories of locally important areas.

Plants. The Helderberg area has several rare vascular plants: Large Twayblade (an orchid); Smooth Cliffbrake (a fern); Sweet Coltsfoot; and Porter's Reed Grass. There are also several rare mosses.

The region has a unique collage of local plant communities. Old growth forest still exists in niches along the escarpment and steep slopes of the Foxenkill, Switzkill, Bozenkill and Onesquethaw drainages. Shrub and tree covers have returned along many stream courses, and a patchwork quilt of old fields, shrubland and sapling to mature forest has developed as land has been removed from active farming. The mature forestland shows a surprising diversity of northern and southern hardwoods mixed with white pine on drier, sandier sites and hemlock on shadier wetter sites. Added to this are the many plantations of Scotch pine, red pine, Norway spruce and larch planted by the Civilian Conservation Corps in the 1930's.



Animals. The fauna of the Helderberg Escarpment comprises a diverse mixture of organisms--each associated with a distinct habitat. The link between organism and habitat is paramount.

Several areas on or near the Escarpment have been designated as significant habitats by the New York Natural Heritage Program because of the animals found in them. These include

- turtle habitat in Vly and Black Creek marshes,
- raptor nesting areas,
- bat hibernacula along the Helderberg Escarpment and in several caves nearby, and
- several deer wintering areas.

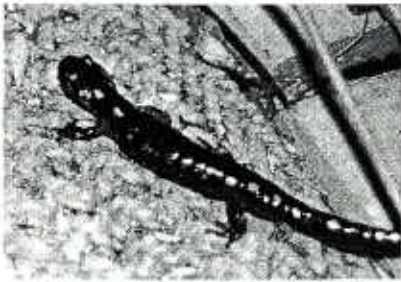
Several other areas are regarded as environmentally important. These include game management areas, private properties held in public trust (The Nature Conservancy properties, for example), the state park and areas designated by towns.



Often it is important to designate areas rather than individual species for specific management and protection. Managing for a particular habitat results in the protection of all the species present in that habitat.

Recommendations. In order to preserve a broad range of biotic communities within the Helderberg Study Area, land use planning is essential.

Each community should first identify the areas it regards as biologically important; Conservation Advisory Councils or Boards are the appropriate organizations to do the groundwork. Several sites in the Helderberg Escarpment area have already been identified as biologically important. But additional information needed to make decisions on other biologically valuable areas is often lacking.



Once the community has identified areas it considers to be biologically important, on-site development should be discouraged or carefully controlled in the identified areas. Off-site changes that will affect each designated habitat should also be carefully controlled or prevented.

As the community works to identify biologically important areas, it should recognize that the goal of protecting an important area may not be met by narrowly defining the habitat of a particular species. Whenever possible, manage for the habitat or plant community and concentrate less on the individual species. This is the concept behind the Natural Heritage Program's significant habitats. If management and planning decisions are based on protection of the system, then all of the plants and animals found in that system will benefit.

In designating significant habitat for management and protection, it is important to preserve large areas of habitat, rather than small areas connected by narrow corridors and buffer zones. Recent studies have shown that the latter does not work well.

F. Agriculture

Although acreage in farmland continues to decrease, agriculture remains an important and valuable land use in the study area. From an industry that dominated the landscape and stimulated the growth of communities it has, in much of the region, given way to residences and second growth forests. Some of the land cleared by early settlers and those who followed was only marginally suitable for agriculture and has long been



abandoned. The remainder was farmed into the first half of the twentieth century, but farming declined beginning with the Great Depression, and by the 1960's about 75 percent of the Helderberg Plateau had reverted to woodland. Nonetheless, many local residents proudly trace their heritage to ancestors who farmed the Helderberg region; these residents readily embrace the idea of families continuing the tradition of farming.

Farming is important to the Capital District, and to the Helderberg region in particular:

- The local production of food offers numerous benefits to the community. Locally grown crops are often of better quality, higher nutritional value, and lower cost than food imported from long distances.
- Agriculture is one of New York's most valuable industries. The cumulative value of this industry in New York State is estimated to be 2.9 billion dollars. A recent Albany County Cooperative Extension estimate placed the value of vegetable crops grown in Albany County at nearly 13 million dollars.
- Agriculture also strongly influences our perception of the aesthetic environment in the study area. Many of the scenic views we currently enjoy are a direct result of past and present agricultural practices.

The possibility of the loss of most agricultural land in the study area within the next few generations is very real. A widespread shift in land use from agricultural to residential and commercial will have a profound effect on the community and on landscape and rural character of the region. By acting to encourage farming and protect some of the better agricultural lands that remain in the area, we would be supporting one of our most important natural resources—land that produces food, stimulates the economy, creates scenic vistas, and provides recreation. Balancing the protection of this natural resource and the rights of property owners may be one of the most difficult parts of this task.

Recommendations. The reasons for the decline of agriculture are numerous and complex. Some of the factors include poor soils, property taxes, transportation costs, labor problems, suburbanization, and the loss of agricultural infrastructure. Worldwide economic forces also come into play. To help farming survive in the area, a combination of state and local techniques is needed. Some of the techniques described in this guide are:

- Agricultural districts;
- Agriculture and Farmland Protection Board;
- Purchase of development rights;
- Agricultural assessment;
- Right-to-farm laws;
- Agricultural zoning;
- Municipal and land trust acquisition of farmland;
- Agricultural easement programs; and
- Buffer strip ordinances.



In addition, communities should encourage and promote the sale of locally grown produce through farm markets and local stores. Planning boards should know where prime soils occur in the community, and guide development to assure continued availability of good soils for agriculture.

G. Aesthetics

The beauty of the Helderbergs is perhaps the overriding issue concerning land use in the escarpment study area. The Helderberg region contains some of Albany County's most spectacular scenery, including Thacher Park, which attracts more than one-quarter million visitors annually.



While aesthetic considerations are of great importance in the Escarpment area, aesthetic values are not easily protected through environmental and land use regulation. This is because aesthetic judgments are in part subjective and difficult to quantify. Nonetheless, it is necessary to make such judgments in an area as aesthetically important as this.

The body of this guide describes an organized approach to the review of aesthetics: this approach is based on a handbook drafted by the State Department of Environmental Conservation for the review of aesthetic impacts under the State Environmental Quality Review Act. The Guide also describes a number of ways of mitigating any adverse aesthetic impacts of development. These include such measures as preserving natural screening and camouflage, keeping structures below the tree canopy level, minimizing the off-site visibility of nighttime lighting, and the use of natural colors.

Recommendations. Municipalities should undertake a scenic resource inventory, to identify aesthetically important viewpoints and views in their communities. In the study area these will most notably include viewpoints of the escarpment from below, and views from the escarpment edge and above the escarpment. The committee has prepared a preliminary survey of scenic resource points and areas, but recommends that municipalities within the study area expand and amend the survey based on their own special knowledge and appreciation of the scenic vistas in their communities.



While it is obvious that development in many areas beneath the escarpment will affect the view from Thacher Park, it is also the case that siting a house badly on a particular parcel below the escarpment can have a major negative impact on significant roadside views of the escarpment.

Structures should be designed and located so that they will minimally impact either views of the escarpment from

below, or views from the escarpment. To give developers and planning boards the flexibility needed to develop aesthetically appropriate subdivision designs, clustering (or an alternative form of flexible housing density requirements) and Transfer of Development Rights should be used in the study area.

H. Recreation.

One of the greatest assets of the Helderberg Escarpment region is its attractiveness for outdoor recreational use. Its scenic vistas and natural surroundings provide the environment for a number of recreational activities that are described below. It is important to consider the recreational value of the Escarpment region early in the planning process as the area's recreational potential can have important impacts on the quality of life and on the local economy. Some of the recreational activities available in the study area are:

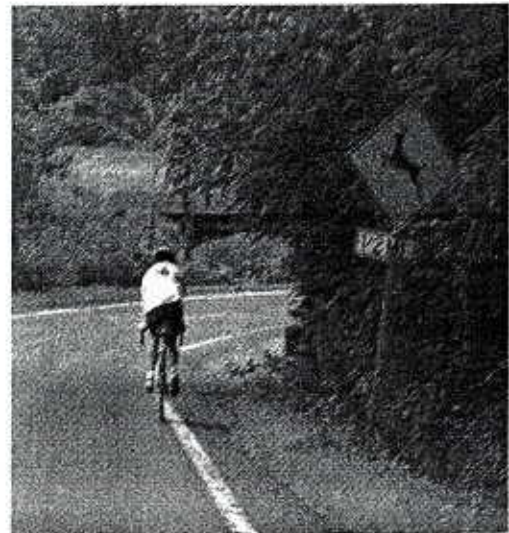


Hiking/Walking. The scenic views and natural landscape of the Helderberg Escarpment region provide rewarding treks unlike any others in Albany County. A portion of the Long Path crosses the study area.

Bicycling. Bicycling is another very popular activity in the study area. The greatest level of use probably occurs on the roads below the escarpment, roads that offer relatively flat terrain with fine views of the escarpment. The upper escarpment is also popular for mountain biking.

Sightseeing/Driving. Of all escarpment recreational activities, driving for pleasure is undoubtedly the most common. The area's mix of forests, agriculture and limited residential development offers a pastoral setting attracting numerous motorists. This is especially true during the fall foliage season.

Birdwatching/Nature Observation. The Helderberg Escarpment area offers several excellent locations for observing nature. Vly swamp and Black Creek marsh are two of the region's premier bird watching areas. Thatcher Park and the pinnacle area are good locations for observing migrating hawks.



Cross-Country Skiing. The Helderberg escarpment study area has a number of high quality groomed and ungroomed cross-country skiing areas.

Off Road Motorcycling, Snowmobiling and ATV Use. These activities are popular in the study area. There are numerous, extensive trail systems throughout the region that utilize power, water, and cable line rights-of-way, and public and private property. Use of these vehicles is controversial since improper use can cause damage and can conflict with other land use. A balance must be struck between demand for this and other trail based recreational activities.



Caving. Caving has been a popular scientific and recreational activity in the area for many years, but because of safety concerns, should be conducted only with experienced cavers.

Rock Collecting. The geology of the Helderbergs and the effects of millions of years of formation and weathering have left behind many unusual rocks and fossils. This has led rockhounds, both amateur and professional, to the Helderberg region in search

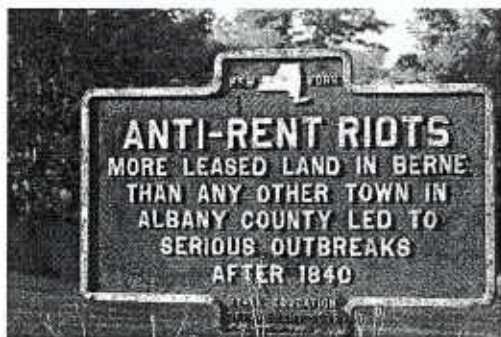
of these artifacts. Geology classes from several colleges in the northeast make regular trips to the Helderbergs. However, State parks and the Nature Conservancy generally prohibit any collecting on their properties, preferring that natural objects be left in place so the others may study and enjoy them.

Photography and Painting. The protection of scenic and pastoral views offers the most potential for encouraging artistically related activities. Scenic viewpoints and pull-offs contribute to the safety of this activity.

Recommendations. Communities should map existing public trails and develop plans to improve and connect trails; trails should be marked to avoid conflict among the several trail uses. It would be desirable to develop a regional trail system interconnected with the Long Path. And it would be useful to publish a tourism map for the area.

I. Historic and Cultural Resources

The earliest colonial settlement occurred below the escarpment in the early to mid-18th century; settlement in the "upper" escarpment region began later in the 18th century, much of it following the end of the Revolutionary War.



The barns of the 18th century Dutch settlers, known as the new-world Dutch Barns, represent one of the earliest forms of barn architecture in the United States.

The 18th and early 19th century settlers rented their family farms from the Van Rensselaer Patroons. The system was widely viewed as an injustice by social reformers as well as by the farmers themselves, and systematic attempts to collect back rents and evict farmers in arrears beginning in 1839 led to a long period of uprisings across upstate New York, the Anti-Rent Rebellion. The earliest incidents in the struggle were centered primarily in the Helderberg Escarpment region.

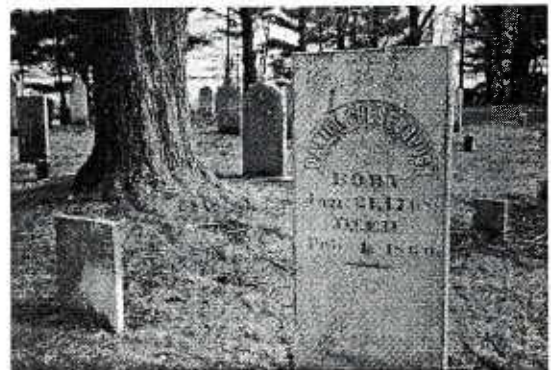
Beginning in the late 19th century, the escarpment region became a major destination for outdoor enthusiasts. Many of these folks arrived via the train into Meadowdale Station below the escarpment, and hiked or rode to the top on the Indian Ladder Road. The remains of the old roadway are a significant historic landmark.



Recommendations. Many 18th and 19th century residential, agricultural and commercial structures, historically significant reminders of our early culture and heritage, such as the early Dutch Barns, are scattered throughout the escarpment region. Municipalities should inventory these historic and cultural sites, and consider the use of easements, historic districts, and economic incentives to private owners to preserve sites and structures of greatest importance. Wherever appropriate, these structures should be registered with the New York State Register of Historic Places and the National Register of Historic Places. Developers and owners should be strongly encouraged to maintain and preserve these structures, even creatively incorporating them into any development proposals. Before removal of any such structure from a site, formal documentation (that is, photos and/or drawings and measurements) should always be made.

Significant historical sites (for example, the site of Clark's Tavern in Clarksville) should be commemorated by historic markers.

Stone walls are historically significant; they also frequently represent legal property boundaries. Preservation of these walls should be encouraged wherever possible. Family cemetery plots are historically and culturally significant; when included in a development proposal, appropriate setbacks and an access point should always be established.



J. Residential development

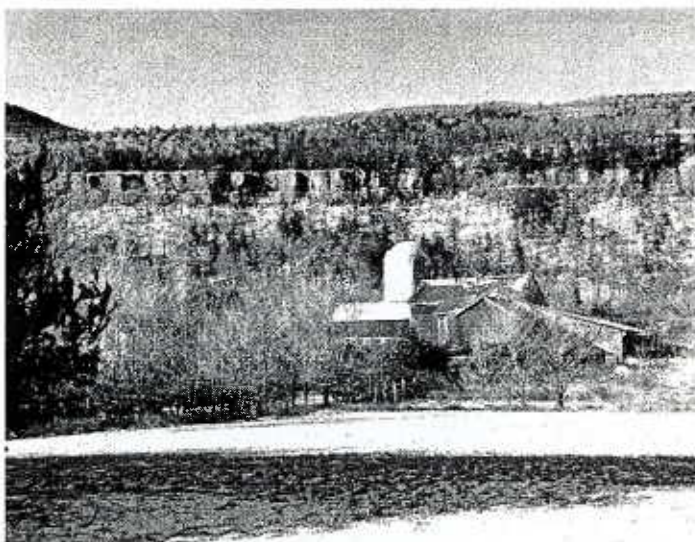
Most of the land in the study area is zoned for residential or agricultural use. The greatest impacts from development are likely to come from single-family residential subdivisions.

Beneath the escarpment, the land is readily accessible to the commercial centers of the Capital District, so will face significant development pressure in the next decades. Some of this pressure can already be seen in the Guilderland Center area, and in and adjacent to Altamont, where public water and sewer are available.

The escarpment area will become more desirable for development in the coming decades because of the quiet, spacious, rural surroundings, and the greater ease of working at home provided by the Internet.

At present, the main regulatory constraints on development in the study area are local zoning and the Albany County Department of Health requirements for water sources and septic systems. But there are other significant environmental factors which development in the study area should consider. These include respect for the geology and hydrology, aesthetics, significant habitats, rural character, and recreational potential of a site and its surroundings.

Recommendations. Residential development should consider both the layout of lots on a plat, and the siting of individual homes.



Lot layout. To carve a 100-acre parcel into a 3-5 acre grid of individual lots is unimaginative and usually unattractive. A grid development leaves no large expanse of undivided open space to help sustain a rural/country character, and portions of the parcel which are of particular importance for agricultural, aesthetic, recreational, ecological or other reasons are carved up with the rest of the parcel and their value to the community is lost.

Generally preferable is a subdivision with a similar overall density of lots,

but which clusters the allowable number of residences to leave a substantial portion of the property as undivided open space. This permits portions of the site which are significant for agricultural, aesthetic, ecological, hydrological or recreational reasons to be preserved while permitting the developer a return which can be greater than would be available from a simple grid (since preservation of the features which attract residents to the area is

assured and developers' investments in infrastructure can be less); it also leaves the municipality with less infrastructure to maintain over the long run.

The Committee recommends that Planning Boards be given the authority to require clustering of lots in any zoning district where it is appropriate; this additional flexibility will help to mitigate adverse environmental impacts from subdivisions.

Designing of homes. The siting of the homes on lots and the architecture of the homes are as important as lot and street layout. Zoning for much of the study area should require site plan review for all building permits. Such site plan review would permit a municipal board to review all of the environmental aspects of the proposed structure and its siting. In the body of this Guide we present a number of principles which should be considered during site plan review. These include:

- Siting of structures to avoid occupying or obstructing public views of the escarpment or public views from the escarpment;
- Blending structures into their natural surroundings through use of appropriate building materials, appropriate siting on the lot, and screening by natural vegetation;
- Controlling exterior lighting to avoid off-site glare and diminished visibility of the sky;
- Limiting the cutting of woodlands; and
- Burying utilities.

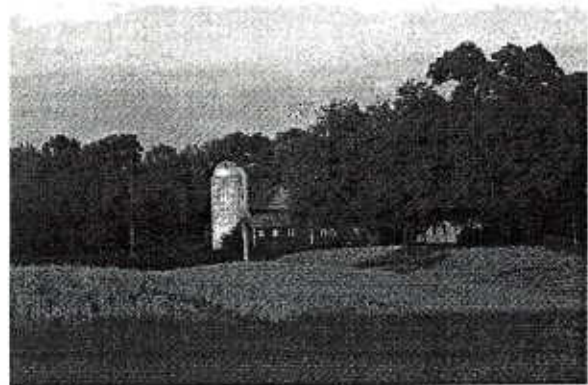
K. Commercial and Industrial Development

Seeking a balanced mix of commercial and residential development is a difficult task for municipal governments. On one hand commercial development usually generates badly needed tax revenues, yet at the same time adjacent residents tend to be reluctant to tolerate commercial businesses that generate traffic and noise, and that may have negative effects on property values.

The solution to these problems lies in the siting of commercial enterprises and the selection of the type of commercial development that is appropriate for an area.

Agriculture. Agriculture is the traditional commercial use in the study area and should be encouraged. See Section F, above.

Recreation. Tourism related business should be encouraged to respond to the opportunity presented by the thousands of visitors to the escarpment each year. Businesses such as bike rental and repair, restaurants, and lodging are examples of



commercial development that could result from increased recreational use of the region; with careful planning these should provide substantial benefits with minimal negative impacts on the communities in which they are located.

Home based offices. Changes in technology have created new opportunities for people to work out of their homes. Municipalities should continue to allow such activities, subject to appropriate performance standards.

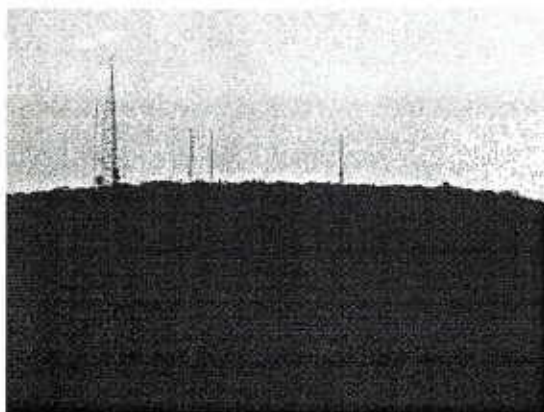


Light Manufacturing. Small-scale manufacturing including some home based manufacturing is already allowable in most of the study area. This type of commercial development should be encouraged, assuming the proposed activity meets performance-based standards.

Recommendations. Because commercial development has the potential for negative environmental impacts and yet is a key component of viable communities each development proposal must be carefully assessed. For this reason it is recommended that the most significant areas of the escarpment be given a special zoning designation. The effect of this designation should be to trigger additional performance standards and the requirement for an environmental assessment for projects requiring municipal approval. Designating the most significant areas of the escarpment as a special zone would require regional cooperation and perhaps an intermunicipal review of proposed projects. This type of cooperative review would be unique in Albany County, but may be necessary for an important regional resource such as the Helderberg Escarpment.

Performance Standards. Most uses within in a zone are subject to performance standards. If a project meets certain standards and is compatible with the zoning classification it is approved. Municipalities should review these standards within the escarpment area to insure that the standards reflect the environmental significance of the Helderberg Escarpment. Supplementary standards should be required for certain uses that could have negative environmental impacts.

Antenna Surveys. Because of the line-of-sight view of the Capital District commanded by the Helderberg Escarpment, the Escarpment has become a prime location for radio, TV and microwave antennas. Before being permitted to introduce a new antenna or modify

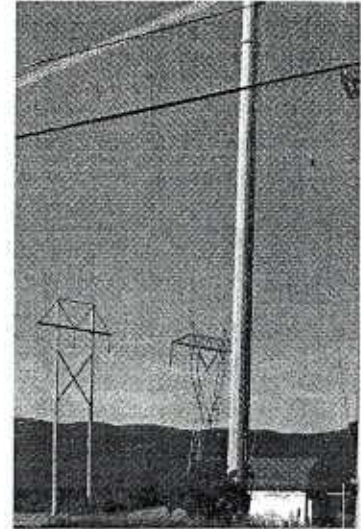


the power or radiation pattern of an existing antenna, an applicant should show how existing radiation patterns will be modified, and demonstrate that the new or modified source will not cause the total electromagnetic environment to exceed ANSI standards (or whatever standards are in use by the FCC at the time of the application). Appendix M Includes specific recommendations.

Aesthetics. The conditions that make the Helderberg Escarpment a desirable location for antennas from an engineering perspective make the antennas and other large development undesirable from an aesthetic perspective. Viewshed analysis and other techniques for minimizing visual impact should be used to determine an appropriate setback from the edge of the escarpment and to choose other mitigation measures. For example, to the extent possible, new antennas should be confined to the existing "antenna farms."

Light and Noise Pollution. Light and noise pollution are important considerations that can determine whether or not a business is a welcome neighbor. Light can be a problem either when it produces sky-glow or when it causes glare on neighboring properties; outdoor lighting should be designed to provide only the needed illumination.

The Escarpment region is a quiet area, and is vulnerable to noise. Noise control regulations may be appropriate. Limiting the use of noise producing equipment (for example, hours of operation) can be useful for some noise sources, but prohibiting noise above a specified sound level is usually needed for commercial and industrial noise. Appendix K Includes a recommended approach to noise control.



L. Comprehensive Recommendations

Throughout this Guide, as each of the resources associated with the Helderberg Escarpment is addressed, the Guide offers suggestions about how municipalities can identify areas of importance to their communities, and act to treat those areas with appropriate care. A recurring theme throughout the guide is community involvement. Community planning works best with widespread community involvement. It is most important that the community understand:

- the need for planning;
- the significant assets and constraints of the community which should be respected in planning; and
- the variety of possible strategies for guiding growth.

With a full understanding of the objectives of the planning process, how it will protect community values and lead to a better community,



members of the community can also help to implement the community plans. For example, members of the community will be alert to more opportunities to preserve important architecture and scenic views than municipal officials could possibly recognize. By understanding the implications of inappropriate disposal of waste products, or inadequate maintenance of septic systems, people can avoid (and encourage their neighbors to avoid) actions which could contaminate their own and their neighbors' ground water sources.

As important as community involvement is to achieving community goals, a municipality must also use some of the land-use tools available to it. The final chapter in this Guide takes a more comprehensive look at the future of the Helderberg Escarpment and suggests two additional approaches that municipalities should consider to prepare for that future:

1. Foster recreation. The Helderberg Escarpment is already a premiere recreational area for the Capital District, and it will become even more important in the future as the area's population increases. Providing recreational opportunities for the Capital District is a major opportunity for the Helderberg area. Most recreational land uses are relatively low impact activities, and so are gentle on the environment; by their very nature, they help preserve open space; and they provide opportunities for economic development. The Helderberg communities should be alert to opportunities to foster recreation.

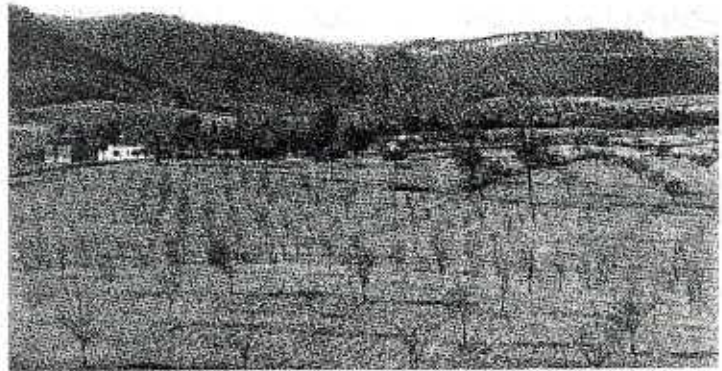
2. Special Zoning Districts. Because of the area's beauty and proximity to the Capital District, the Helderberg region will become an increasingly desirable place to live. To prepare for increased residential development, municipalities must act to preserve the features that attract people to the area, and protect the natural resources (in particular, water quality) which are necessary for good health.

The Committee recommends that three parts of the study area (the escarpment area itself, an upland area above and within about 3000 feet of the escarpment, and a lowland area between the escarpment and the major power lines) be treated with special zoning regulations. These regulations should limit the overall density of development while permitting clusters of development, and should require site plan review for all subdivisions and building permits so that a review of aesthetic and other environmental impacts of the proposed development will be undertaken.



Such a site plan review should include approval of a building envelope on each lot. Structures should be located so that they will minimally impact either views of the escarpment from below, or views from the escarpment.

These recommendations will be most effective if the individual communities work with one another to apply the recommendations uniformly to the entire Helderberg region. Changes to Village and Town Law adopted by the State Legislature in 1993 make it clear that municipalities are authorized to cooperate in this way; they may join together to create comprehensive land-use plans, develop uniform regulations, create intermunicipal overlay districts, and even contract with each other to administer and enforce land-use regulations. Also, General Municipal Law authorizes municipalities within a county to contract with the county planning board to assist with the oversight of a shared resource such as the Helderberg Escarpment.



Final Comments. The Helderberg Escarpment is a unique natural area whose beauty enhances the quality of life of residents of the region and attracts thousands of visitors each year. It is hoped that with the assistance of this Guide, municipalities and residents of the Helderberg Escarpment region will better understand the uniqueness of their region, and will be better equipped to help that uniqueness survive for generations to come.



The Helderberg Escarpment is a unique natural area in Albany County, New York, rising 1000 feet above suburbs of the nation's 55th largest metropolitan area. The Escarpment is home to John Boyd Thacher State Park, visited by over one quarter million people annually.



Indian Ladder, 1927

The Helderberg Escarpment Planning Guide provides for the first time a comprehensive study of the environment in a 60 square mile area on and near the escarpment.



Developed over an eight-year period by an award-winning intermunicipal planning committee, the Guide examines the geology, soils, hydrology, flora and fauna, agriculture, aesthetics, recreation, history, present land use and zoning, noise and electromagnetic radiation of this unique area. Planners, municipal officials, developers, residents, and anyone else wishing to better understand the special character of the Helderberg Escarpment region will find the Guide an invaluable resource.

The Helderberg Escarpment Planning Committee was awarded an Erastus Corning II Achievement Award for Intermunicipal Cooperation in 1992 from the Capital District Regional Planning Commission. Preparation of this Guide has been supported by grants from the New York State Council on the Arts and the Open Space Institute.