

**CITY OF MERIDEN**

**PLAN OF CONSERVATION  
&  
DEVELOPMENT UPDATE**

**Natural Resource Inventory**

**January 2007**

**Prepared For:  
City of Meriden  
Planning Commission**

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## I. INTRODUCTION

The quality of life in a community is largely determined by the quality, quantity and distribution of its cultural and natural resources. Therefore, the protection of these resources is key in ensuring that the quality of life in Meriden is preserved.

Open space planning is an important component of the Plan of Conservation and Development (POCD) in that it allows for the identification of important natural resources and defines policy in how best to protect them. In addition, the open space planning process allows for reflection on the community's open space needs and provides a mechanism to set policy on meeting the growing needs of the community.

The natural resources in Meriden influence the quality of life in the community. However, quantifying this influence is difficult due to the intangible nature of its benefits. Some tangible public benefits can be described and which in part can be attributed to the open space and natural resources in the City. These include the enhancement of real estate values and economic growth due to the residents' proximity to open space, which makes Meriden a desirable community in which to live and work.

### **OPEN SPACE PLANNING: THE PROCESS**

#### **Natural Resource Inventory**

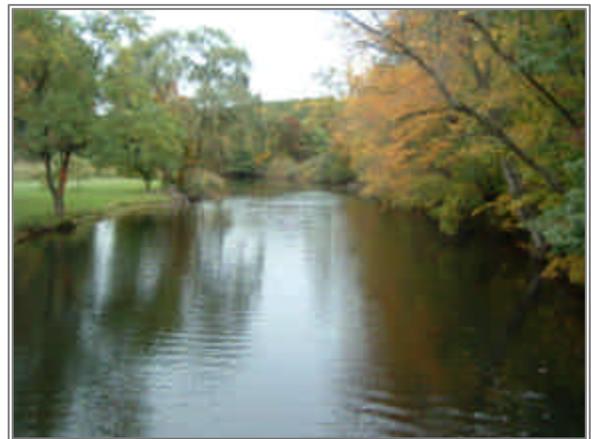
The process of open space planning first begins with careful documentation of the city's natural attributes. These attributes include the geology (soils, surficial geology, bedrock outcrops), hydrology (rivers, streams, lakes and ponds), and biology (plant and animal habitat) of the natural landscape. This inventory is organized and displayed using

Geographic Information System (GIS) technology. The GIS provides a means to map and analyze the natural resource information to better assist the city in establishing policy to ensure the protection of the natural resources identified. The mapping of these natural resources also provides an opportunity to observe, on a citywide scale, the distribution of the elements that help define the natural landscape of Meriden. This adds context to the policy established, which helps ensure these natural attributes are not lost.

#### **Policies, Goals, Objectives & Strategies**

The second component in the open space planning process is identifying what policies can be put in place to ensure the preservation of the natural resources identified in the inventory. This is a difficult task due to the many competing interests in how best to use the land in city. Proper allocation of Meriden's finite natural resources is a balancing act that involves consideration of both the open space needs and the economic development needs of the community.

Open space policy is best accomplished though the development of goals and



**Quinnipiac River Gorge**

objectives that clearly articulate the open space needs of the community and prioritizes the protection of sensitive natural areas and the enhancement of recreational areas. This will help create a focus that is critical in defining and advancing the open space vision of the community.

In recent years, a new approach to open space planning has emerged that involves linking or expanding existing open space areas with other protected open space in the region. This approach transcends municipal boundaries and looks more broadly at the regional open space network and tries to find ways to become a part of it. Greenway planning is an example of this approach to open space planning that has been embraced by the State in the formation of the Connecticut Greenways Council, a part of the Connecticut Department of Environmental Protection. This approach not only provides a regional open space network, but also improves the communities' natural infrastructure by providing close-to-home recreational opportunities.

### **Protection Methods**

The open space planning process involves defining open space protection methods. This includes defining a land acquisition strategy. Basic to an acquisition philosophy are the following precepts:

- Community growth and change will continue to take place;
- Land is a basic and finite resource and control of its use is essential to the public welfare;
- The city has the power and the responsibility to preserve open space through planning and the regulation of land use;

- The city has the legal authority to acquire open space and to administer and maintain the property in the best public interest. Many communities, especially those without a clearly defined open space goal, consider open space acquisition a luxury they cannot afford.



**Bradley and Hubbard Reservoir**

This perception, coupled with the fact that funds are always in limited supply, causes open space acquisition often to take a backseat to more pressing items such as infrastructure improvements. Therefore, it has become increasingly important to identify alternative means to protect open space beyond fee simple. While fee simple is the most effective approach to protecting land, it is not always possible. Establishment of a municipal open space protection fund financed by a combination of taxes, referendums, donations, fundraisers or other means is one way to make fee simple a more realistic method of open space protection in the city. Other alternatives include private conservation easements, state matching grants, mandatory dedication as part of subdivision and improved use of land use regulations, just to name a few.

This memorandum presents the first component of the open space planning process: the natural resource inventory.

## II. NATURAL RESOURCE INVENTORY

### A. GEOLOGY

#### Bedrock Geology

Meriden's geologic landscape is characterized in part by the hills and ridgelines. The Hanging Hills, collectively known as West Peak, East Peak and South Mountain are such formations that are focal points of the landscape. The Hanging Hills are approximately 1,000 foot high broken escarpments of traprock that are part of the Metacomet Ridge that extends northward to Massachusetts.

Meriden technically lies in a region known as the Central Lowlands of Connecticut. The Central Lowlands is a wide, north-south strip of land bisected by the Connecticut and Quinnipiac Rivers. Most of the land is gently to moderately sloping with fertile agricultural soils. Unique to this region are the traprock ridges that run from Long Island Sound to Massachusetts. Rising to over one thousand feet above sea level, these ridges contain some of the last remaining wilderness areas in central Connecticut.

The bedrock geology in Meriden (illustrated on the map titled *Bedrock Geology*) is made up primarily of Brownstone, also referred to by geologists as Arkose. This sedimentary rock most likely originated from the deposits of the many streams that flowed from the Eastern and Western Uplands of Connecticut millions of years ago.

Between the years of 1640 and 1955, Brownstone quarries flourished throughout the Central Valley<sup>1</sup>. Brownstone was a popular building material mainly because it

<sup>1</sup>Michael Bell, *The Face of Connecticut, People, Geology and the Land*, Bulletin 110, State Geological and Natural History Survey of Connecticut, Connecticut Department of Environmental Protection, 1985.

was attractive, easy to work with and inexpensive to quarry. Although attractive, brownstone's building properties are actually quite poor. The softness of the rock makes it easy to break, especially along flat planes in the rock, and it is very susceptible to acid rain, which breaks down the bonds holding the sedimentary layers together. Even with these negative building properties, many of the buildings that line some of the nation's most prestigious streets were made with Connecticut brownstone and are still standing



**“Hanging Hills” South Mountain**

as proudly as ever.

Associated with brownstone are bodies of basalt (traprock), which appear as igneous intrusions in the sedimentary rocks. Traprock derives its name from the Swedish term meaning “step” or “stair” due to its characteristic columnar joints, formed as a result of the shrinking of the rock as it cooled, causing it to break into vertical columns that resemble steps. The largest of these traprock features are East Peak, West Peak, and South Mountain. Traprock has been mined extensively throughout the Central Lowlands.



**Bradley and Hubbard Reservoir with  
Chauncey Peak as the backdrop.**

Most traprock ridges have a similar profile – steep cliff on the western edge and a gradual slope to the east.<sup>2</sup> Where the western slope is too steep to support vegetation, the cliff wall protrudes as a colorful red-orange mass. These west-facing slopes are the most distinctive feature of the traprock ridge and provide unique habitats to a variety of flora and fauna.



**View of Ridgeline of South Mountain**

Traprock has been mined extensively throughout the Central Lowlands. Traprock is used primarily for road and railroad construction due to its durability and

resistance to erosion. Evidence of traprock mining can be found in Meriden along the western edge of Meriden.

### **Surficial Geology**

The surficial geology in Meriden is largely a product of glaciation. Evidence of glacial activity can be read throughout the landscape. Striations in the bedrock and glacial till deposits are the most obvious remnants from the glacial age.

Glacial drift, the rock and sediment left behind when the glaciers receded, is estimated to cover over 90% of Connecticut.<sup>3</sup> This glacial drift comprises the majority of Meriden's surficial geology in the form of till and stratified drift. Stratified drift, generally found in the form of sand or gravel, is uniform in size and has few large stones and boulders. Till, in contrast, is a mixture of materials ranging from large coarse boulders to fine deposits such as silt or clay. The distribution of the city's surficial geology is illustrated on the map titled *Surficial Geology*.

The difference in the composition of till and stratified drift is important in that water, particularly subsurface water, travels very well through stratified drift, but not very well through till. Therefore, for purposes of identifying potential sources of ground water for public consumption, geologists look to those areas that have large deposits of stratified drift. These potential aquifer areas are important natural resources to protect and have been the focus of aquifer protection regulations in recent years. In fact, the Connecticut DEP designated six public water supply wells as Aquifer Protection Areas in Meriden. These deposits are irreplaceable and therefore are an important component to the city's natural resource inventory.

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<sup>2</sup> See Bell

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<sup>3</sup> See Bell

## B. SOILS

### Wetland Soils

Wetlands are defined by many distinguishing features, the most notable are the presence of standing water for a period of time during the growing season, saturated soil conditions, and organisms, especially vegetation that are adapted to or tolerant of saturated soils. Wetlands are not easily defined and definitions are variable between regulatory agencies. In Connecticut wetlands are defined by soil type, specifically saturated or hydric soils, which are classified by the NRCS as either Poorly Drained, Very Poorly Drained, Alluvial/Floodplain or any combination of these are considered a wetland soil and protected under the city's inland wetland regulations.



**Wetland Area on "Hunter's Trail"**  
(Meriden Land Trust)

Wetlands are important for a variety of reasons including:

- Wetlands are among the most biologically productive natural ecosystems in the world;
- Wetlands provide habitat that is critical to a variety of plant and animal species, including threatened and endangered species;
- Wetlands often function like natural sponges, storing water (floodwater or

surface water) and slowly releasing it thus reducing the likelihood of flood damage to personal property or agriculture by controlling the rate and volume of runoff;

- Wetlands help improve water quality by intercepting surface runoff and removing or retaining its nutrients, processing organic wastes and reducing sediment before it reaches open water;
- Wetlands provide outdoor recreational opportunities (i.e., wildlife viewing/photography, nature study).

Unique wetland types are those found on alluvial and floodplain soils. Due to the excessive permeability of the soil, these areas are very susceptible to rapid infiltration of pollutants. Pollution infiltration can have devastating effects on groundwater drinking supplies. In Meriden, 1,085 acres or 7% of it's land consists of wetland-designated soils. The locations of wetland soils are illustrated on the map titled *Wetland Soils*.

### Prime and Statewide Important Farmland Soils

Prime farmland is defined by the NRCS as "land that has the best combination of physical and chemical properties for producing food, feed, forage, fiber and oilseed crops, and is also available for these uses."



**Active Farmlands**

Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed according to modern farming methods.

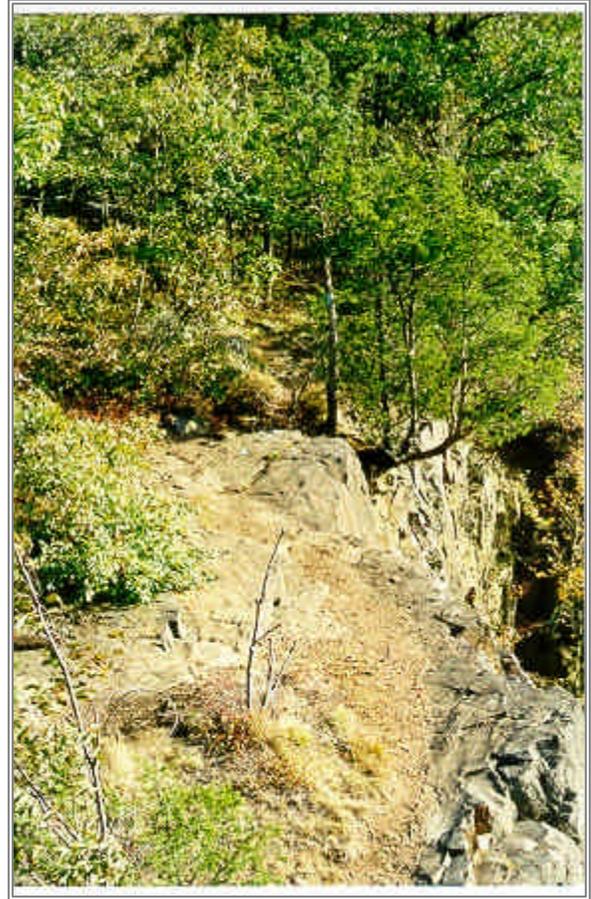
Additionally, statewide important farmland soils are those areas that are nearly prime farmland and that economically produce high yields of crops. Some may actually produce as high a yield as prime farmland if conditions are favorable.

Statistics indicate that the quantity of farmland, and consequently the quantity of prime and important farmland soils, has been rapidly decreasing in the State. According to University of Connecticut Cooperative Extension System, farmland has decreased from almost 50% to only 11% of the State's total land area since 1950.<sup>4</sup> Due to these statistics and a City's desire to keep farmland an integral part of the community character, farmland preservation strategies have become more common across the state. In identifying appropriate locations for such protection, inventorying the NRCS designated farmland soil types is a logical place to begin. Meriden has nearly 2,388 acres designated as prime farmland soils and another 1,906 acres listed as additional statewide important farmland soils. Collectively they account for 4,294 acres or 28% of Meriden's land. Therefore, the distribution of these soil types is illustrated on the map titled *Farmland Soils*. As can be seen on the *Farmlands Soils Map*, most of these soil areas have been developed over the years.

#### **Soils with a Shallow Depth to Bedrock**

Bedrock depth in the City varies considerably depending on factors such as elevation and slope. In some areas of the city, the soil depth is well over 5 feet; in others, bedrock is exposed as outcroppings. Understanding what area of the city has shallow soil depths is important in planning development, especially

for on-site septic systems. Shallow soils (soils with less than 20 inches above bedrock) account for approximately 3,208 acres, or 21% of Meriden's land. The areas of Meriden that have shallow soils are illustrated on the map titled *Shallow Depth to Bedrock*.



**Exposed Bedrock**

In addition, the trap rock ridgelines are illustrated on the map. These ridgelines are a dominant physical feature of Meriden and are recognized and protected by the State and City through its Ridgeline Protection Ordinance.

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<sup>4</sup>See Gibbons

### **Steep Slope Soils**

Areas of steep slopes are important to identify primarily due to their effect on development. While the stability of a slope is dependant on many variables including vegetative cover and the underlying geology, as a general rule it can be expected that slopes greater than 15% pose significant constraints to development due to the difficulty building foundations and siting septic systems. In addition, these areas pose additional hazards such as increased erosion, surface runoff, siltation and flooding of watercourses. Therefore, identifying areas of steep slopes is an important component to the natural resource inventory. The areas identified as steeply slope soils cover 1,875 acres and account for 12% of the city's land. These areas are illustrated on the map titled *Steep Slope Soils*.

### **C. WATER RESOURCES**

Water resources include watercourses, waterbodies, watersheds, and aquifers. Hanover Pond, Merimere Reservoir, Bradley Hubbard Reservoir, Beaver Pond, Silver Lake, Baldwin's Pond, Mirror Lake, Bishops Pond, and High Hill Pond are major waterbodies within in the city. Quinnipiac River, Harbor Brook, Sodom Brook, Willow Brook, and Spoon Shop Brook are significant watercourses flowing through Meriden.



**Hanover Pond**

These water features are fed by a network of tributaries and are best defined by the watersheds that supply them.

### **Subregional Watersheds**

A watershed is defined as all the land and waterways that drain into the same body of water. All the surface water that drains Meriden's 24 square miles begins its flow at the highest point of one of six subregional watersheds. These watersheds are delineated on the map titled *Subregional Watersheds*.



**Silver Lake**

Watersheds define the natural drainage systems in Meriden. Rivers, streams, lakes, ponds, wetlands and floodplains are the components of the watershed that contain the attributes to support a variety of plant and animal life, attenuate flood conditions. Managing these watersheds in a sustainable manner is critical to ensure that the attributes they contain and the benefits they provide will be around for years to come.

Of the eleven subregional watersheds within the city, three drain 13,629 acres or 89% of the city's land area: the Quinnipiac River, Harbor Brook, and Sodom Brook.

## Floodplains

A floodplain is a broad and relatively flat area of a river or stream valley to either side of the main watercourse. This floodplain is formed by a series of flood events, which spill over the riverbanks and work and rework the sediment. A 100-year flood is a flood that has one percent probability of occurring in a given year or is likely to occur once every hundred years.



**Broad Brook Reservoir Dam**

Federal Emergency Management Agency (FEMA) has determined areas within floodplains and their boundaries. Floodways are those areas within the floodplains that convey the floodwaters. The floodways are subject to water being carried at relatively high velocities and forces. The floodway fringe are those areas of the floodplain outside of the floodway which are subject to inundation but do not convey the floodwaters. Floodplains are delineated on the map titled *FEMA Floodzones*.

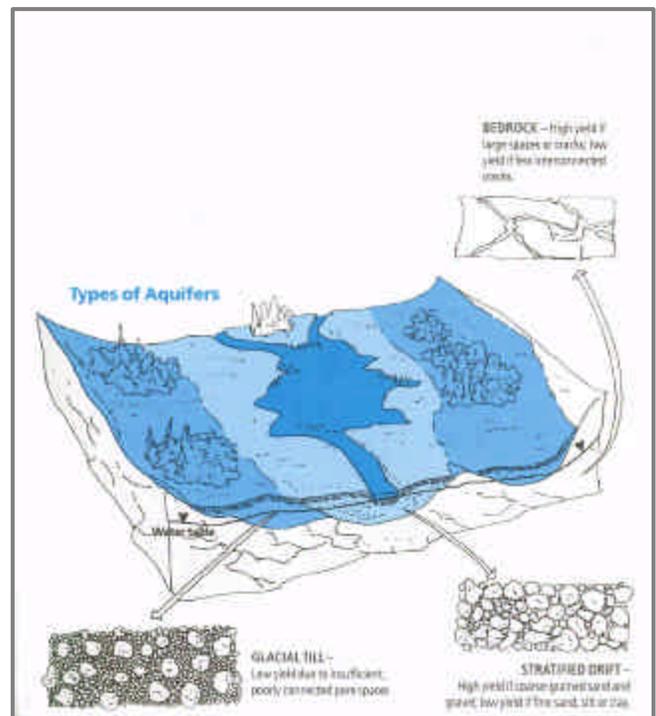
## Aquifers

While groundwater can be defined simply as water lying below the surface of the ground, an aquifer is more specifically defined as “any geologic formation that allows for the withdrawal of useable amount of water<sup>5</sup>”. In

<sup>5</sup> Understanding Groundwater, Protecting a Natural Resource, Connecticut Department of Environmental Protection, 1998.

most cases, the use of this water involves drinking water supply.

Meriden is mainly comprised of two types of aquifers: bedrock-till formations and stratified drift formations. Bedrock-till aquifers, found throughout the city, are comprised of many different rock types (including till) and can yield as much as 10 gallons of water per minute. Stratified drift aquifers, in contrast, are comprised of layered deposits of sand, gravel, silt and clay and are located primarily in river and stream beds.



Protecting Connecticut's Groundwater: A Guide For Local Officials, Connecticut Department of Environmental Protection. DEP Bulletin No. 26. 1997

Stratified drift aquifers can yield millions of gallons per day wherever deep saturated deposits of porous materials are found. These high yield conditions have the capacity to be developed into municipal water supplies. In Meriden, the Evansville (East/West), Mule, Platt, Lincoln, and Columbus Park well fields are examples of stratified drift wells that have been developed into active water supplies.

Most modern wells are six-inch diameter holes drilled or driven 100 feet or more into the ground. The area immediately surrounding a well is of critical importance because this is the area from which groundwater is drawn towards the well, creating what is known as a cone of depression in the water table. The land area that contributes water to the cone of depression is called a well recharge area and varies in size and shape depending on the type of aquifer tapped and the yield of the well. Because the recharge area of the well is so important to the overall purity of the well water, special care must be taken to protect this land area from contamination.

### **Aquifer Protection Areas**

Many aquifers across the state are threatened by contamination due to potentially contaminating land uses. To address this problem, Connecticut has established the Aquifer Protection Program (C.G.S. § 22a-354a et. sec.). The purpose of this program is to identify critical water supply areas and to protect them from pollution by managing land use. To satisfy their statutory requirement, the DEP, in conjunction with the local/regional water authorities, have identified over 120 Aquifer Protection Areas (APA) across the State. Two Level A APAs and 4 Level B APAs are located in Meriden.

APAs must meet the criterion of containing a public water supply well that is located in stratified drift and services more than 1000 people. DEP is in the process of drafting regulations that would limit the types of land uses that could be sited in the “protection area,” which coincides with the well recharge area of the aquifer.

The protection areas have been delineated by the local/regional water authorities and submitted to the DEP for review. The distribution of the APA and the public water supply wells in Meriden are illustrated on the map titled *Groundwater Resources*. Also included

on this map are the locations of the active wells.

### **D. FORESTED LAND**

One of the largest components to the state’s open space network are forests, which represent approximately 60% of the state’s total land area.<sup>6</sup> In addition, 80% of Connecticut’s forests are in private ownership and 55% of those holdings are in tracts of 10 acres or less.<sup>7</sup> The fact that the average age of the forest land owner in the state is 66 years old implies that over the next 20 years, the decisions that these land owners make regarding the use of their forest land will have a dramatic effect on the landscape of the state.<sup>8</sup>



**Forested Land**

The trees and forests of Meriden are essential components to the city’s character. Forests provide many benefits to the city including improving the community’s appearance, improving energy efficiency and air quality, providing wildlife habitat and recreational opportunities. However, the land use trends across the city and the state appear to be rapidly fragmenting the forests, which can

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<sup>6</sup> See Gibbons

<sup>7</sup> See Gibbons

<sup>8</sup> See Gibbons

have a devastating effect on wildlife habitat, timber production and water quality.

Giuffrida Park and Hubbard Park contain significant tracts of unfragmented forests. In fact, these protected areas account for 996 acres or 25% of the forested lands in Meriden. Forested lands cover 3,922 acres or approximately 26% of Meriden's lands. The distribution of the city's forest resources is illustrated on the map titled *Forestry Resources*.

## **E. SIGNIFICANT HABITATS AND STATE LISTED SPECIES**

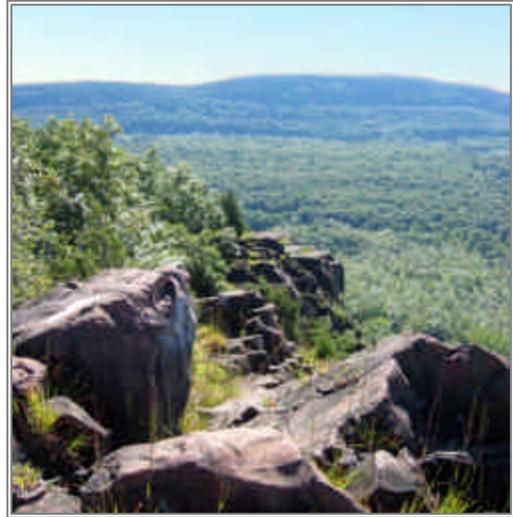
At first glance, Meriden may not seem like the kind of place that would have abundant diversity of plant and animal life. Based on the population density of the city alone, it would appear to those unfamiliar with Meriden that the city is primarily a developed urban city. While this description may fit some parts of Meriden, other parts support a wide variety of plant and animal habitats. The combination of varied topography, forested tracts, numerous rivers, streams, lakes, and ponds provides exceptional habitat for a variety of plants and animals. The following describes some of the specialized habitats that warrant special attention: These areas are identified on the map titled *Significant Habitats and State Listed Species*.

### **Talus, Ledge & Rock Outcropping**

Talus slopes generally form underneath ledge or rock outcropping from the fragments of rock that dislodge from these geologic formations. The small crevices between the rocks provide refuge for a variety of animals. In addition, crevices between the rock tend to create a cooler environment which, combined with the rich soils found in these areas, can provide favorable growing conditions for a variety of plant species.

Good examples of this habitat type include the trap rock ridges in Meriden. East Peak,

West Peak, South Mountain, as well as portions of Chauncey Peak contain talus, ledge and rock outcrop habitats. These areas are illustrated on the map titled *Significant Habitats and State Listed Species*.



**Typical Ledge Habitat**

Smaller rock outcrops, though locally important, were not specifically identified. These areas are too numerous to mention and are prevalent in Meriden, particularly along the northeastern and northwestern borders where the topographic relief is the greatest.

### **Endangered, Threatened, and Special Concern Species**

In Connecticut, the protection of unique biological communities is held to a high standard. In support of this, the Connecticut DEP has inventoried sites across the state that contain habitats of endangered, threatened, and special concern species. These habitat areas are perceived as unique and receive special protection status from the state. The state has identified these sites in a special survey called The Connecticut Natural Diversity Database, which is a centralized inventory of these unique habitat locations and represents the findings of years worth of biological surveys.

The Natural Diversity Database breaks down the sites into the following taxonomic groups: mammals, birds, reptiles, amphibians, fish, invertebrates and plants. Within these groups, the species are further categorized as being endangered, threatened, or special concern. According to Connecticut Public Act 89-224, these categories are defined as follows:

*“Endangered Species”* means any native species documented by biological research and inventory to be in danger of extirpation throughout all or a significant portion of its range within the state and to have no more than five occurrences in the state, and any species determined to be an “endangered species” pursuant to the federal Endangered Species Act.

*“Threatened Species”* means any native species documented by biological research and inventory to be likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range within the state and to have no more than nine occurrences in the state, and any species determined to be a “threatened species” pursuant to the federal Endangered Species Act, except for such species determined to be endangered by the Commissioner (DEP) in accordance with section 4 of this Act.

*“Species of Special Concern”* means any native plant species or any native non-harvested wildlife species documented by scientific research and inventory to have a naturally restricted range or habitat in the state, to be at a low population level, to be in such high demand by man that its unregulated taking would be detrimental to the conservation of its population or has been extirpated from the state.

Information from the state’s database was transcribed onto maps, represented by circles a half mile in radius. These sites, commonly referred to as “blobs,” are represented

ambiguously because of the many threats they face. These threats include collection, because of their beauty, uniqueness or purported medical or economic values. Even well-intended observers and photographers have been known to accidentally destroy sites.

The location of sites within the city identified by the Connecticut Natural Diversity Database are illustrated on the map titled *Significant Habitats and State Listed Species*. In addition to generalizing the exact location of these sites, the category in which the sites are located has also been removed. This is to further ensure the protection of these unique resources.

### **Wildlife Corridors**

Wildlife corridors are contiguous segments of land that create a link between animal habitats by providing transportation routes for animals to use to reach breeding grounds or forage areas. Many wildlife corridors include riparian zones that line rivers and streams and include both undeveloped and partially developed areas. In most cases, lands that comprise wildlife corridors are privately owned and vulnerable to development or activities destructive to wildlife and their ecology.

Wildlife passageways are important to avoid isolation and eventual extinction of plant and animal populations. The biological integrity of a species is also dependant on the interconnectivity of wildlife habitat to ensure diversity of species and avoid population “islands,” which are subject to inbreeding and the detrimental effects this has on the genetics of the species.

In Connecticut, there is no formal inventory of wildlife migration routes that could be used to identify existing wildlife corridors. As a result, we must attempt to infer the wildlife migration patterns. This is a difficult assignment due to the many variables involved. However, potential wildlife corridors can be identified based on variables

such as land use (undeveloped land), proximity to protected open space, presence of streams, ridge tops, wetlands, and/or forested lands, and proximity to “sensitive areas of special concern.” The caveat is that these potential areas require additional scientific study to further refine their boundaries.

Potential wildlife corridors are identified on the map titled *Significant Habitats and State Listed Species* based on the variables listed above. The Giuffrida Park, Hubbard Park, Cathole Mountain, Hanover Pond, the New Dan area are used by state listed species as indicated by the Natural Diversity Database circles in these areas. Other potential corridors identified include the Quinnipiac River Gorge and a linear corridor from High Hill Pond north to New Dam.

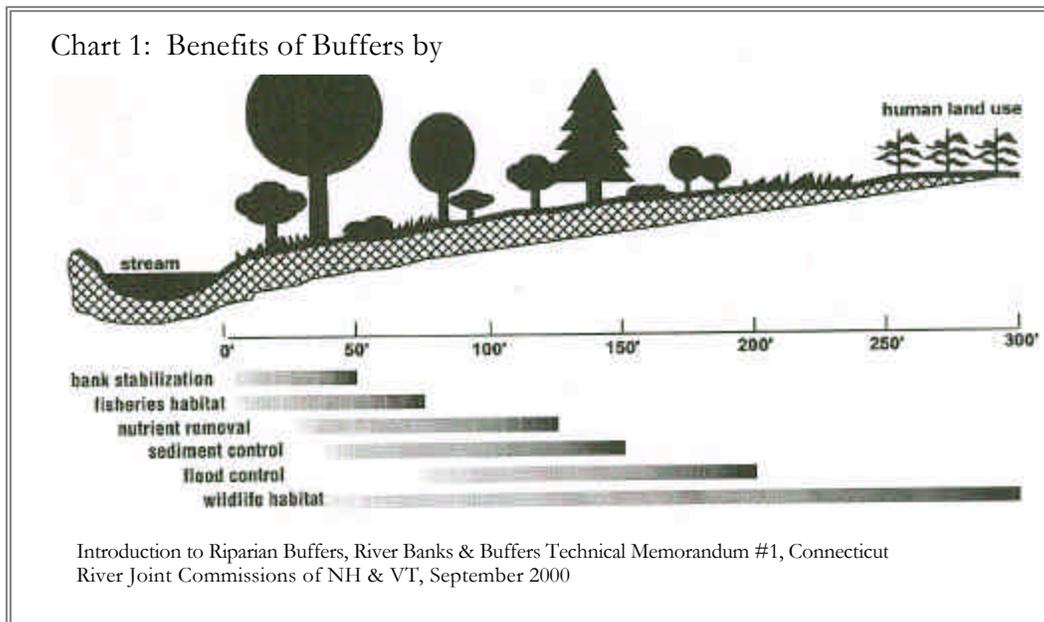
**Riparian Corridors**

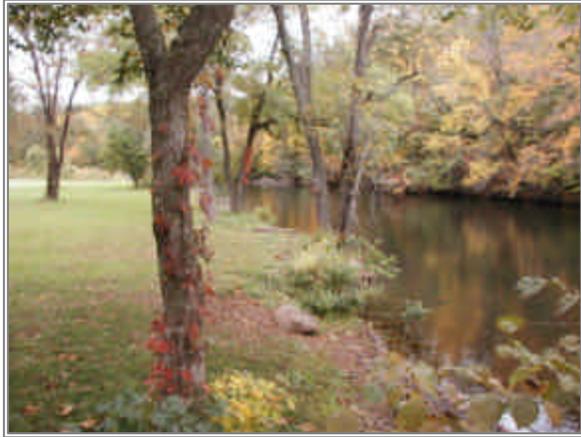
Riparian corridors, or riparian buffers, are undisturbed, naturally vegetated areas contiguous with and parallel to rivers and streams. The benefits of riparian buffers are well documented. To summarize, riparian buffers protect our water resources by

improving water quality through filtering pollutants and sediments, stabilizing stream banks and river beds, and improving wildlife habitat by providing travel corridors and improving aquatic habitat.

The recommended buffer width of riparian corridors varies depending on what the goal of the buffer is. There is not one generic buffer width that will keep the water clean, stabilize the bank, protect fish and wildlife habitat, and satisfy human demands on the land. The minimum acceptable width is one that provides acceptable levels of all needed benefits at an acceptable cost. The basic buffer recommendation is 50 feet from the top of the bank; however; as illustrated on Chart 1, you gain more benefits with every additional foot.

To protect wildlife habitat and provide wildlife corridors along waterways, the recommended buffer width varies depending upon the desired species. For example, some songbirds only require a buffer width of 40 feet while larger birds such as cavity nesting ducks require a buffer width of 600 feet. On average, it is recommended that a buffer





**Banks of Quinnipiac River**

width of 300 feet would adequately provide a functional corridor for most wildlife species. Obviously, protecting a 300-foot buffer along all the river and streams in Meriden is not a realistic objective. The United States Forest Service, in a publication titled “Riparian Forest Buffers-Function and Design for Protection and Enhancement of Water Resources,” suggests a minimum buffer of 95 feet, which is composed of the following three zones: Zone 1 begins at the top of the stream bank and occupies a strip of “undisturbed forest” of 15 feet. Zone 2 begins at the edge of zone 1 and occupies an additional 60 feet of “managed forest.” Zone 3 is composed of 20 feet of natural or controlled grazed grassland whose main function is to control runoff. The 95-foot buffer is a minimum. Actual widths should vary depending on 1) the nature of the stream protected; 2) soils, topography and vegetation; and 3) land use of concern that may impact stream. Even though this approach is not specific to wildlife, it could provide some level of protection to wildlife in the city.

While this approach is not feasible for the entire city, there are some areas, particularly in undeveloped portions of Meriden, where some buffer implementation would be feasible. These areas are illustrated on the map titled *Significant Habitats and State Listed Species*.

### III. CONCLUSION

The natural resource inventory presented here represents the natural attributes of the city that are important to preserve. The next step in the open space planning process is to conduct an open space inventory and develop a strategy to help ensure these resources are protected for years to come. This is done through careful assessment of the open space priorities of the city and clear articulation of those priorities through identification of goals and objectives.

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