

8.0 NATURAL ENVIRONMENT



MIDDLETOWN PLAN OF DEVELOPMENT

8.0 NATURAL ENVIRONMENT

8.1 Introduction

Middletown's 42.5 square miles contain a wide diversity of environments, including wooded uplands, traprock ridges, riverfronts, and inland wetlands, meadows and conservation areas, in addition to some highly urbanized areas. Uplands provide walking, hiking, and wildlife habitat for a variety of species. Traprock ridges represent a unique and localized geologic formation that adds to the local identity. The Connecticut River offers recreational opportunities, scenic views, and an undeveloped riverine corridor for wildlife. The abundant opportunities available to Middletown residents within a small geographic area enable residents to interact with and enjoy the natural assets the City has to offer.

The Plan of Conservation and Development sets the following goals for the natural environment:

- *To maintain sufficient and carefully selected undeveloped areas so as to preserve the rural character of Middletown, and to provide areas for passive recreational opportunities.*
- *To assist in carefully managing significant but fragile natural system.*
- *To provide for a healthy living environment by promoting clean air, reducing noise levels, ensuring clean water resources, and properly managing hazardous materials and solid wastes.*

The 1999 survey results demonstrate that these goals resonate with residents. One-third of all respondents to the town-wide survey listed protection of the natural environment as a key long-term goal for the city. And when asked to rank their environmental concerns, residents clearly indicated that air and water quality are the two principal environmental issues. As evidenced by the results of the public opinion survey carried out in August, 1999, 60% of respondents to the survey said that they wanted to increase the number of open space acres in Middletown, with 35% ready to pay higher taxes to acquire it.

8.2 Connecticut River

The Connecticut River defines Middletown's entire eastern boundary. This eight-mile section of the river offers Middletown residents a diverse range of passive and active recreational opportunities, as well as occasions to view wildlife and to learn about the local ecology. Only a small portion of the river's edge, between the confluences of the Mattabesset River and Sumner Brook (the Central Business District area) has been heavily developed. The rest of the river has remained relatively free from development pressure. The Connecticut River has been the focus of numerous local, regional, and national conservation efforts. In 1991, the Silvio O. Conte National Fish and Wildlife Refuge was created, which encompasses the entire Connecticut River watershed. In fact, one of the Refuge's special focus areas is in Middletown (Round and Boggy Meadows/Mattabesset, Coginchaug River/Wilcox Island). This area has been given a high priority rank due to its special biological values. The Tidelands of the lower Connecticut River have also been designated one of the hemisphere's "Last Great Places" by The Nature Conservancy (TNC), and the tidal marshes of the Mattabesset are within one of TNC's key conservation areas in the Tidelands Region. Most recently, the Connecticut River was named one of the American Heritage Rivers, in large part due to its undeveloped nature.

Much of the lowland area has been developed as the Central Business District and surrounding residential neighborhoods. The river and its banks hold tremendous potential for fishing, boating, hiking, and bird watching, but access to the riverfront remains a significant hurdle to better enjoy the river's amenities. The City has created Harbor Park as a means to make the river more accessible to residents, though Route 9 creates a barrier to reconnecting downtown with its riverfront.

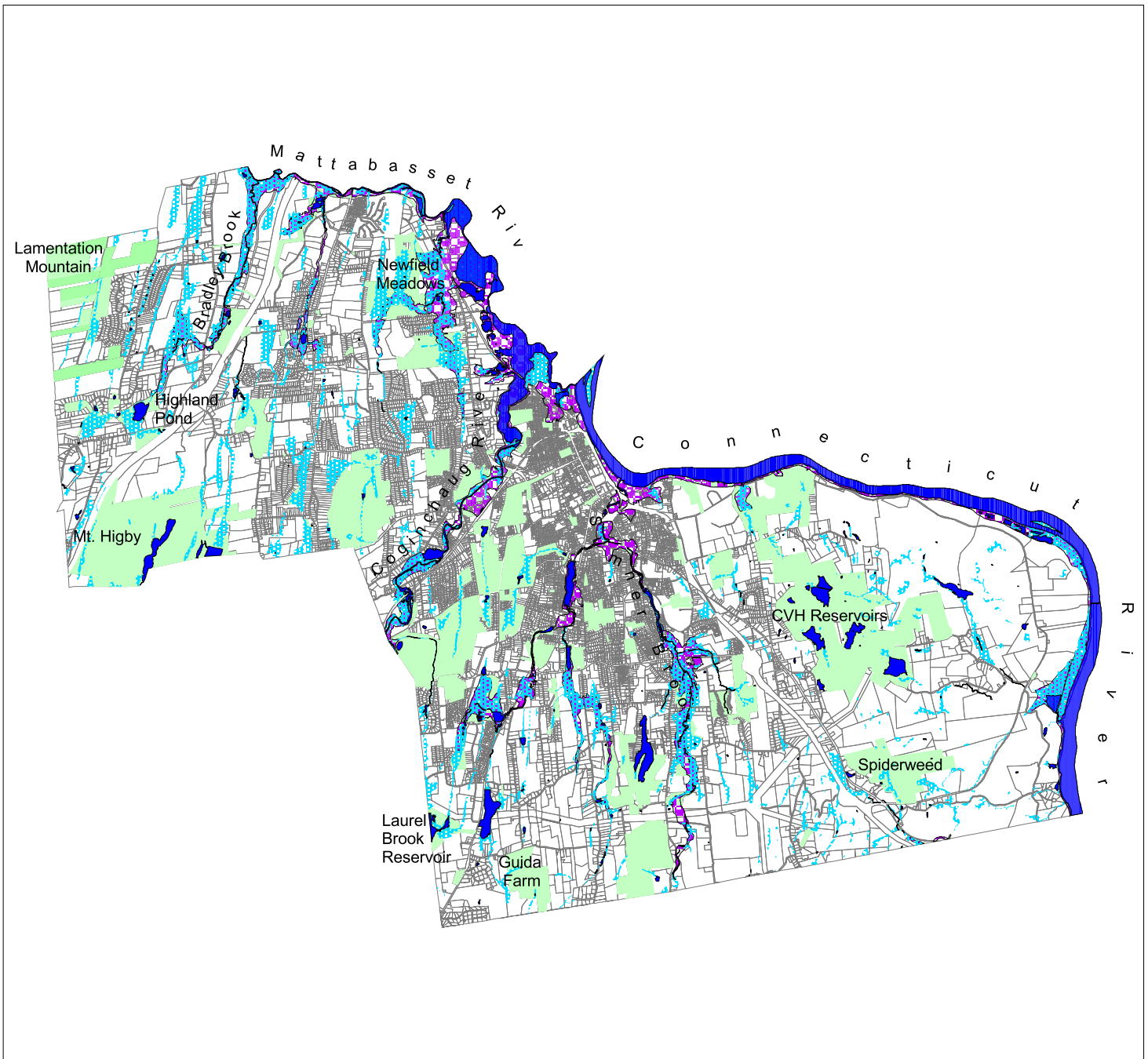
The topography changes gradually downstream of the Sumner Brook area, and abruptly south of Silver Street, resulting in limited development along the Maromas section of the riverfront. Rising quickly to elevations of 400 feet south of Silver Street result in beautiful vistas of the Connecticut River Valley from heights hundreds of feet above the river. The rocky soil, limited access, and difficult terrain have kept development away from the area, allowing the local environment to thrive. The entire length of the river and many interior points have been designated as "areas of special concern" by the CT Department of Environmental Protection and the "Open Spaces" chapter from the previous plan identifies the area as having a diverse habitat consisting of upland and wetland areas, many rare species, and valuable wetland and tidal wetland areas. The heavily vegetated banks and shoreline represent a wildlife travel corridor, offering protection and food for migrating animals and birds. The river itself is home to fish species including the Atlantic salmon, striped bass, shad, and shortnose sturgeon, which is a federally listed endangered fish that is found in the river and near Middletown. Many sport fish occur locally.

8.3 Rivers and Inland Wetlands

In Middletown, the principal tributaries to the Connecticut River are the Coginchaug, the Mattabeset, and Sumner Brook. These smaller rivers traverse rural and highly urbanized areas. Due to extensive development within the tributaries' watersheds, these waterways have deteriorated over the years due to stormwater runoff, erosion, and the loss of habitat along the rivers' edge. Recreational possibilities that exist on the river, such as fishing on the Coginchaug and Mattabeset or canoeing on the Mattabeset, have been adversely affected over the years. Development along the rivers has also encroached into the natural floodplain, endangering property and impacting flooding conditions downstream. As the 1999 survey indicates, people are looking for ways to protect the natural environment and seek more recreational opportunities.





The Management Plan for the Mattabeset River Watershed demonstrates the spirit of cooperation that can exist between multiple towns and cities to accomplish a common goal. Working together, the Mattabeset River Stakeholder Group, funded in part by the CT Department of Environmental Protection (DEP) through an EPA Clean Water Section 319 nonpoint source grant, crafted a nine-point plan to restore the river's ecological integrity and to promote sustainable land use practices along the river. These goals included the expansion of recreational opportunities, limiting development, and safeguarding of preservation areas. A Coginchaug River Task Force was created several years ago to address the same issues along the Coginchaug.

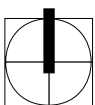
Because of the importance of wetlands and watercourses for flood retention, wildlife habitat, and groundwater recharge, the Connecticut legislature passed Chapter 440 of the Connecticut General Statutes entitled "The Inland Wetlands and Watercourses Act." This act regulates any activity within wetland boundaries, but has also allowed the local municipality to adopt legislation to control the permitting process. Middletown originally adopted its Inland Wetland and Watercourses legislation in 1988 and continues its aggressive protection of inland wetlands and waterways.



MIDDLETOWN PLAN OF DEVELOPMENT
Middletown, CT

Figure 8.1 Natural Environment

-  Open Space and Institutional Land
-  Streams, Rivers, Ponds
-  Wetlands
-  Flood Hazard Areas



0 5000 10000 15000 Feet

BFJ Buckhurst Fish & Jacquemart, Inc.

8.4 Public Watersheds and Groundwater

The 1999 public opinion survey indicates that water quality is a significant concern for Middletown residents. Potable water arrives into residents' homes from either an individual well or as part of a public water supply. Middletown has two sources for its public water supply – Mount Higby reservoir and the Connecticut River. The Mount Higby reservoir represents a surface water reservoir, and is directly impacted by stormwater runoff. Reservoirs are part of public watersheds and require special legislation to safeguard the uses that occur on the surface that might enter the reservoir when it rains, for instance.

Wells that are located alongside the Connecticut River, however, pump ground water into holding tanks before it is dispersed throughout the city. This groundwater is dependent on aquifers and “recharge areas” that allow water to slowly filter down into the ground where it can be pumped back to the surface. Like surface water reservoirs, groundwater is susceptible to contamination, but ground water does have the advantage of being filtered through many layers of soil before being recycled.

Both the City and the State recognize the need for safe drinking water and both have adopted legislation to safeguard the water supply. The State of Connecticut adopted Public Act 89-305, as amended by 90-275, “An Act Concerning the Aquifer Protection Areas.” Any existing hazardous materials and toxic chemicals in the aquifer recharge area or public watershed should be carefully managed and eliminated wherever possible. The City adopted Section 42 of the Zoning Code “Protection of Water Resources” to control the activities within watersheds and recharge areas.

As Middletown's population grows and new buildings are constructed, care must be taken to ensure that land uses do not adversely impact water supplies, including the City's reservoirs and the aquifers beneath the Connecticut River. This means that chemicals and toxic substances should not be allowed near drinking water supplies, but also that groundwater recharge areas should be carefully regulated to protect their important function.

8.5 Steep Slopes and Ridgelines

Mount Higby, at approximately 900 feet above sea level, is Middletown's highest point. Along with Lamentation Mountain, parts of the Maromas area, and a few other hills, these elevated ridges provide a visual contrast to the lowlands of the Connecticut River Valley.

Much of Mount Higby has already been preserved due to its inclusion within the public watershed. Large tracts of Mount Lamentation have also been preserved recently, and efforts to expand dedicated open space areas within the Maromas area continue. These efforts will continue to protect Middletown's slopes from development. While difficult to develop, they are valued for their scenic quality and for native flora and fauna.

Because these ridgelines can be seen from long distances, aesthetic qualities are perhaps their most important asset. Development should not be allowed above elevations that would interfere with the ridgelines' scenic qualities. Some form of creative development, including cluster development, should be encouraged for any subdivision that impacts these slopes or ridgelines. Building heights should be lowered in these areas to stay below the treeline. Towers, clear-cutting, and other visually obtrusive elements should be prohibited.

A unique subset of ridgeline protection should address “Traprock Ridges.” Rising from 300 to 900 feet above the ground, the Traprock Ridges run north from Long Island Sound to the New Hampshire border. The ridges, which were formed by an ancient volcanic lava flow, have dramatic, precipitous cliffs to the west and soft gradual slopes to the east. Glacial action and eons of weathering have produced a fragile, windswept environment with thin soil and plants not found elsewhere in the valley, such as yellow corydalis, lyre leaf rockcress.

These relatively pristine ridges provide an essential corridor for birds, animals and insects. Vernal pools on the eastern slopes provide breeding grounds for some rare salamanders, amphibians, and invertebrates. The western face of the ridges, footed by talus slopes, have unique micro-environments supporting relic plants from colder eras, sustained by cold-water seeps from above.

8.6 Air Quality

Air quality in Connecticut is a major concern. The 1990 Plan of Development noted that it was the number one concern of residents and the 1999 survey indicated that it ranked second only to water quality as residents’ primary concern. The state now meets health-related standards for five of the seven major pollutants regulated under the federal Clean Air Act. Reported air emissions of toxic substances declined from 12,700 tons in 1988 to 4,000 tons in 1994.¹⁰

The primary air quality concern in Connecticut derives from ozone. Ozone is a byproduct of the chemical reaction between heat and sunlight and volatile organic compounds (VOCs) and nitrogen oxides (NOX). Motor vehicles, paints, solvents, chemical plants, and gasoline stations all produce VOCs while motor vehicles, power plants, and burning fossil fuels create NOX. Ozone is a prime ingredient in smog, which, when inhaled, can aggravate a number of health problems including acute respiratory problems and asthma.

Currently the Greater Hartford Area, including Middletown, has been labeled a serious ozone non-attainment area by the EPA. This means that the Hartford area exceeds federal limits. Since 1991, however, the state has worked to lower ozone in the air and filed air quality improvement plans with the federal government. These measures, including cleaner gasoline, new automobile emission limits, and power plant emissions, have improved the air quality in the region. However, the state is still subject to pollution from windborne sources. Ozone can travel for hundreds of miles, and models indicate that Connecticut’s ozone levels are worse when the wind comes from the southwest, carrying with it pollution from the metropolitan areas outside the state. Clearly, meeting the new standards will greatly depend upon improvements made in other states as well. Federal legislation will help to achieve these results.

Despite efforts to reduce pollutants, particularly in motor vehicles, which represent the dominant nonpoint source of pollutants in the state, projected growth in the number of vehicles and miles driven will ultimately outstrip the gains made. As a result, future land use planning should encourage closer interaction between residential areas and employment centers in an effort to reduce the number of vehicles and miles driven every year.

Only clean industries should be welcomed because of Middletown’s poor air quality. Middletown’s oil burning power plant should be brought into compliance with national standards.

¹⁰ www.opm.state.ct.us/pdpd3/physical/c&dplan-rec/AirQ.htm

8.7 Summary

Middletown has significant amounts of undeveloped land that endow the city with its rural characteristics and safeguard the city's unique and environmentally sensitive lands. The city has pursued policies to protect and enhance these resources and should continue to do so into the future. Middletown, however, does not have the resources nor the jurisdiction to tackle environmental problems on its own. The city will have to work with state and federal agencies to maintain protection of the environment.

Major Assets

- The Connecticut River, smaller tributaries and numerous wetlands
- Uplands and traprock ridges
- Diverse flora and fauna and habitats

Issues and Opportunities

- Improved connections and access to the Connecticut River so residents are better able to appreciate the river's benefits.
- Future acquisition of open space lands and the need to support the city's natural environmental systems.
- Protection of city's wildlife and habitat, including any threatened or endangered plant and animal species.