

CHAPTER 6:

NATURAL RESOURCES



Continue to preserve and protect important natural resources

OVERVIEW

Natural resources have strongly influenced Ridgefield's development. They should remain a formative element of Ridgefield's character.



Photo 14: Hessian Drive. (Nelson Gelfman).

The primary objective of current and future residents should be to protect those natural features that contribute to public health and safety, preserve the Town's most sensitive environmental resources, and maintain the environmental integrity that is central to our quality of life.

The Town contains a variety of natural resources of exceptional quality, including lakes, wetlands, large wooded tracts, ridgelines, steep slopes and open fields. Natural features are amenities but they also pose constraints on development.

Environmental Sustainability

Sustainability means that development occurs in ways that do not compromise the ability of future generations to meet their own needs.

Strategies related to environmental sustainability are found throughout this Plan. For example, this Chapter outlines strategies to protect and preserve a number of natural resources.

Strategies related to energy consumption and alternative energy sources are found in later chapters.

OVERVIEW OF NATURAL RESOURCES IN RIDGEFIELD

The following list categorizes natural resources into those that should be preserved and those that should be conserved.

Resources for Preservation

Resources so important to environmental quality, public health or character that alterations are regulated.

- Watercourses
- Wetlands
- Very steep slopes (>25%)
- Floodplains (100 year)
- Identified stratified drift aquifers and recharge areas

Resources for Conservation

Resources with important functions that can be maintained while compatible activities take place provided that such activities occur in an environmentally sensitive way.

- Floodplains (500 year)
- Areas of high ground water availability
- Unique or special habitat areas
- Slopes between 15% and 25%
- Shallow or rocky soils

Due to the scale of the Natural Resources Plan map, detailed field reviews of each parcel should be conducted in order to better understand the nature and location of natural resources. The map is intended to show general patterns and development limitations in Ridgefield.



Photo 15: Wetlands in Ridgefield (Nelson Gelfman).

Southeast, NY

Natural Resources Plan

Ridgefield, CT

Danbury

North Salem, NY

Redding

Lewisboro, NY

Weston

Wilton

Legend

- Important Habitat Areas
- Slopes > 15%
- Shallow / Rocky Soils
- Wetland Soils
- 100-year floodzone*
- 500-year floodzone*
- Water

* Floodzones have been updated
but digital data is not yet available

4,000
Feet

Is a “Buildable Land” Regulation Right for Ridgefield?

Buildable land regulations require the deduction of certain natural resource areas (such as steep slopes) when calculating development potential.

While the 1999 POCD recommended that the Town consider this approach, this may no longer be the best strategy for Ridgefield. As development has continued over the past decade, much of the vacant land left in Ridgefield is likely constrained by resources. A buildable land regulation might have wider impact on landowners than anticipated.

Instead, the Planning and Zoning Commission recommends a continuance of allowing flexible development patterns. This allows a parcel-by-parcel approach rather than a blanket arithmetic approach.

OVERARCHING PRINCIPLES

The following overall principles should guide natural resource protection efforts. Additional strategies to preserve specific resources are found in the next section.

Preserve Sensitive Areas

Preserving land as open space is the most effective tool for protecting natural resources, especially those resources that play important roles in protecting public health and safety (i.e., “Resources for Preservation”). Where financially feasible, the Town and other open space preservation entities should acquire those areas to permanently protect them as open space (see Chapter 7 for Open Space strategies).

Design Sites to Avoid Sensitive Areas

When development does occur, the design should preserve as open space those portions of the land that contain sensitive natural resources. The Town facilitates this approach to some extent through zoning. The PRD provisions, or Planned Residential Development, relax certain lot dimensional requirements in return for open space preservation. This tool should continue, but the Town should consider reducing the 6-acre eligibility requirement (especially if the lot is adjacent to existing open space or a very sensitive natural resource) and allowing PRDs in additional zones. The Town also might consider providing a density bonus to encourage greater use of PRD, in return for preserving more open space.

The Town should review the PRD provisions to ensure that adequate measures are in place to protect and conserve the natural resources identified in the Overview, while also providing for developments that are attractive and in harmony with surrounding neighborhoods.

Educate the Public in Preserving Natural Resources

Residents and landowners generally have a good understanding of the importance of preserving the Town’s natural resources. Often, it is less clear how individual actions can add up and have very real negative impacts. Various entities in Town, such as the Conservation Commission, the Discovery Center and the Ridgefield Action Committee for the Environment (RACE), are working to educate the public on such issues as how to protect wetlands, reducing pesticide use, and the use of native plants and trees in landscaping. Education efforts should continue.

Use a Natural Resources Inventory to Aid in Land Use Planning

The Conservation Commission is creating a natural resources inventory. It will provide a comprehensive inventory of natural resources in Ridgefield at a much deeper level than is possible in this Plan. The Natural Resources Inventory can serve as a tool for use by landowners and land use commissions and as an educational resource for residents. The Inventory can enable local officials to protect the integrity of natural resources while providing for appropriate growth. Specifically, the Inventory will identify critical natural resources and give a comprehensive understanding of how natural resources on a given site are part of a larger ecosystem.

PROTECTING SPECIFIC NATURAL RESOURCES

Protection of the Town's natural resources requires understanding the reasons for protection and developing strategies that will lead to effective preservation and conservation.

Waters Resources

Rivers, Streams, Lakes and Ponds

Ridgefield's rivers, streams, lakes, and ponds are the most significant natural assets existing in the community and play important roles in the health of regional ecosystems, including:

- maintaining the quantity and quality of natural water supplies,
- controlling stormwater drainage,
- providing animal and plant habitat,
- creating extraordinary scenic value, and
- in some cases, adding recreational value.

Many of Ridgefield's rivers and streams feed into regionally-important water bodies, such as the Croton River (in NY) and Long Island Sound. In fact, Ridgefield is home to the headwaters of nine rivers. What happens in Ridgefield can have impacts downstream.

Almost 14,000 acres of Ridgefield drains into public water supply reservoirs for the Town itself, along with Danbury, Norwalk, Wilton, New Canaan, Stamford, New York City, and other communities in CT and NY. These watersheds should be protected from development that will negatively affect public water supplies.

Wetlands and Vernal Pools

Preservation of wetlands, swamps, vernal pools, and marshes is very important for public health, safety, economic and ecological reasons. These features support biodiversity, maintain and improve water quality, control flooding by serving as natural drainage basins for rainfall, and help maintain the water table from which most residents in Ridgefield obtain their water supply. Filling or causing damage to these areas can cause flooding and can reduce the amount of water that seeps into the ground to replenish the water table.

Vernal pools fill a special niche in the environment. These small, intermittent watercourses shelter a variety of species that depend exclusively upon these temporary seasonal pools for their survival.

The woodlands and watersheds surrounding vernal pools are critical to their proper functioning. It is important to understand how impacts to surrounding land might impact the vernal pool. Landowners should be encouraged to protect these areas.

Surface Waters

The following is a partial list of rivers, streams, lakes, ponds, and swamps in Ridgefield.

Rivers and Streams

- Norwalk River
- Silvermine River
- Titicus River
- Ridgefield Brook
- Cooper Pond Brook
- Spectacle Brook
- Saugatuck River
- Still River

Lakes and Ponds

- Mamanasco Lake
- Wataba Lake
- Fox Hill Lake
- Pierrepont Lake
- Round Lake
- Bennetts Pond
- Lake Windwing
- Great Pond
- Turtle Pond
- John's Pond
- Shadow Lake
- Weir Pond
- Little Pond

Swamps

- Great Swamp
- Pumping Station Swamp
- Silver Spring Swamp
- Titicus Swamp

Aquifers

Whether drinking water comes from a public system or a private well, protecting the quality and quantity of ground and surface waters in Ridgefield is an important public health consideration.

The water quality and quantity of ground water is particularly important to Ridgefield because much of the Town's drinking water comes from this supply. Ground water that provides or likely could provide drinking water is often referred to as an "aquifer." In Connecticut, the Department of Environmental Protection (DEP) labels aquifers as those ground water supplies that are currently used for a public supply serving more than 1,000 people. In addition to the public aquifer, there are other areas of potential use due to favorable geology and high ground water availability; this Plan refers to those areas as "aquifers" in addition to the DEP-defined aquifers.

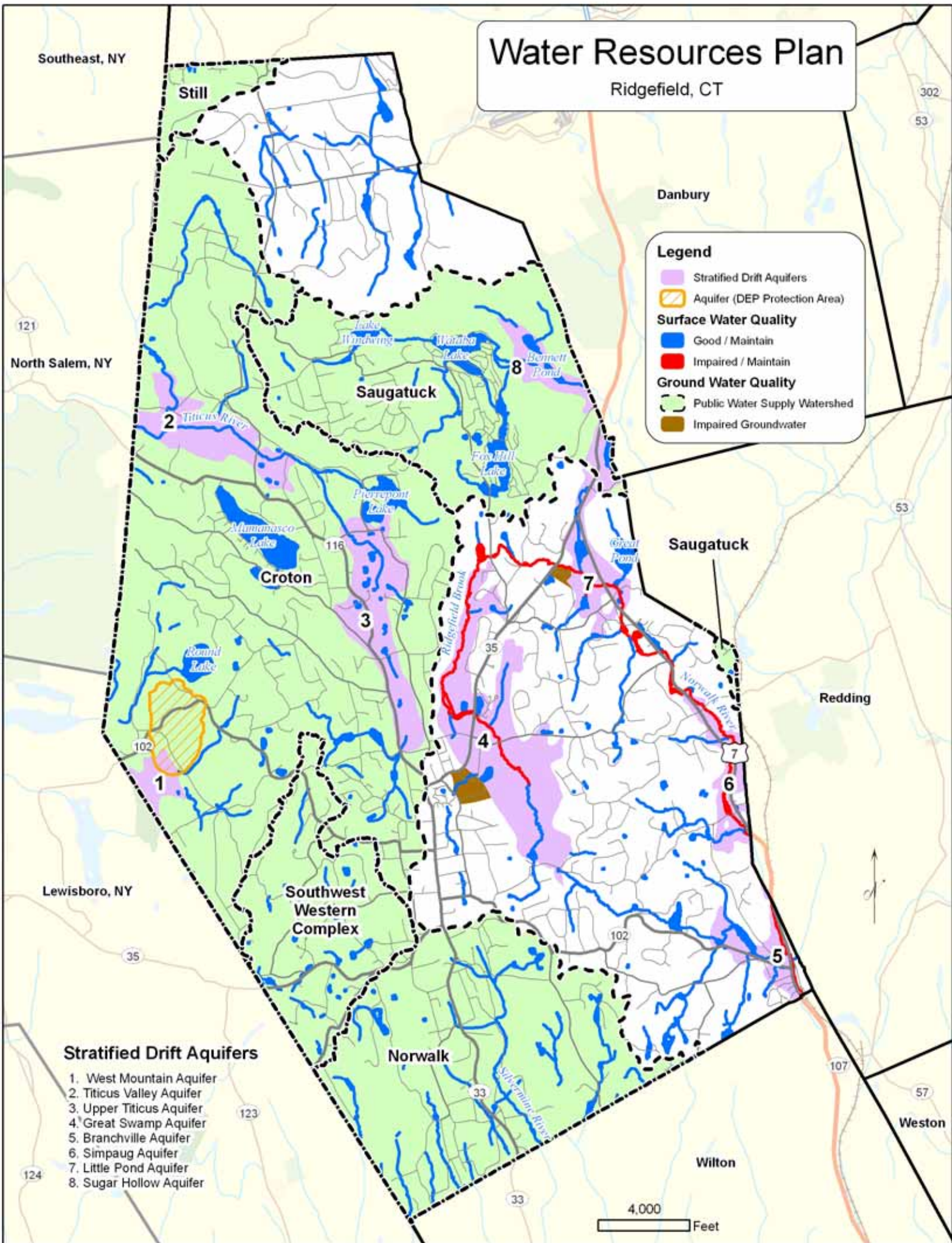
There are two types of aquifers in Ridgefield: stratified drift aquifers and bedrock aquifers. In 1995, Ridgefield identified and mapped the primary locations of the stratified drift aquifers. However, very little of the public water supply currently comes from stratified drift aquifers. Rather, bedrock aquifers are the dominant water source. Much of Ridgefield gets its drinking water from private wells in bedrock aquifers located throughout town. It is important to continue protecting stratified drift aquifers as potential future water sources and ground water throughout Town.

Stratified drift aquifers can usually be identified and mapped, but the same is not necessarily true of bedrock aquifers. The Water Resources Plan map, shows the locations of some of Ridgefield's stratified drift aquifers (the 1995 map provides greater detail). While some of these areas (such as the Upper Titicus aquifer) may be adequately protected because they are primarily in larger lot residential districts, other areas (such as the Sugar Hollow aquifer) are located near business zones.

To help protect water quality of stratified drift aquifers, Ridgefield has adopted an aquifer protection overlay zone which prohibits or limits certain higher risk uses and includes provisions to minimize potential impacts from development.

Water Resources Plan

Ridgefield, CT



Low Impact Development (LID)

“LID is an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible.”

- USEPA

Protecting Water Quality – Surface and Ground Water

Threats to surface and ground water resources include nutrient and chemical pollution (from stormwater runoff, failing septic systems, discharges from wastewater treatment facilities, and other sources), sedimentation from erosion, and thermal pollution. New development (clearing of vegetation, increases in impervious surfaces) and existing development (use of chemicals, failing septic systems) can contribute to water pollution. This condition also increases the risk of flooding to developed and undeveloped land.

The Town and others have taken actions to minimize pollution potential. In addition to measures already mentioned, the Town annually updates its federally-required Stormwater Management Plan, which outlines municipal actions to decrease stormwater pollution.

The *Norwalk River Action Plan* was prepared for the Norwalk River watershed by representatives from the affected communities, regional agencies, and environmental groups. Studies have also been prepared for the Titicus River and Saugatuck River watersheds. Ridgefield should continue to endorse and support regional efforts, undertake a review of specific strategies, and strive to implement appropriate recommendations.

The Lake Mamanasco association (Mamanasco Lake Improvement Fund) recently adopted watershed action guidelines, which were incorporated into the Town’s Inland Wetlands and Watercourses Regulations. The guidelines aim to preserve a 100-foot vegetated buffer around the Lake, encourage proper septic maintenance and reduction in the use of fertilizers, and provide other water protection strategies. The Town should encourage residents and associations around other major lakes, such as Wataba Lake, Fox Hill Lake, Lake Windwing and Pierrepont Lake, to adopt similar guidelines.

A key strategy for improving stormwater quality is to reduce the amount of stormwater that leaves a site. Traditional stormwater management meant getting water off of the site as quickly as possible, often taking pollutants with it. Current best practices, which fall under the umbrella term “Low Impact Development” or LID, recognize the benefits of retaining stormwater on site and promoting infiltration (see sidebar). These principles should apply to new development and redevelopment. The Town has adopted LID guidelines as part of its Wetlands Regulations. The next steps might be to incorporate LID into the zoning and subdivision regulations and to apply LID to Town projects.

Since wetlands naturally filter pollutants, the Town must continue to ensure that wetland areas are maintained in their natural state. The Inland Wetlands Board should review the requirements for buffer zones for wetlands, watercourses, and floodplains to ensure that they are appropriate for protecting water resources.

To protect ground water quality in stratified drift aquifers, aquifer protection provisions should continue. To protect ground water sources town-wide, in addition to the strategies mentioned above, the Town can reduce the risk of con-

tamination by adopting an ordinance requiring the removal of underground fuel storage tanks that are more than 20 years old. Some communities also adopt mandatory septic system maintenance ordinances. Such ordinances require proof that a septic system is being maintained.

Finally, homeowners and business owners may not be fully aware that actions on their property can impact drinking water and surface water. Education efforts should focus on minimizing practices that can impact water quality (e.g., use of fertilizers, herbicides, and pesticides) and encourage practices that can improve water quality (e.g., increasing/retaining vegetation on site, minimizing impervious surfaces, and using low impact development techniques such as rain gardens and permitting runoff to infiltrate into the ground rather than directing runoff onto driveways and other impervious surfaces).

Protecting Ground Water Quantity

Residents often take ground water availability for granted, until problems occur. Two factors that can stress the amount of ground water availability over the long term are the amount of water used by each household and the amount of water available to recharge ground water. If household usage increases and more storm-water is channeled off-site rather than infiltrating, water availability might be reduced.

Ground water availability has not emerged as a critical issue at this time. However, there are steps that a community can take to assess any issues over the long-term. The Town may wish to annually review well permit data and log any complaints about well water levels. If a trend becomes evident, the next step might be an educational campaign to encourage infiltration and water conservation.

Flood Plains and Flooding

There are many places along the Town's watercourses where the land is subject to flooding during periods of intense rainfall. Flood plains provide storage in a drainage system by holding excess runoff. Left undisturbed, flood plains can serve as recharge areas for ground water supplies, protect public safety and minimize the need to build flood control projects.

Land uses in these areas should be strictly controlled in order to minimize potential flood hazards on-site and downstream, to maximize water storage and ground water recharge, and to protect wildlife habitat. Activities should not reduce the flood storage capacity or the conveyance functions of flood plains. The zoning regulations place limits of activities within flood plains in Ridgefield.

The reduction of flooding extends beyond the actual flood plain. More impervious surfaces and less woody vegetative land covers can increase downstream flooding. While most land use regulations manage the peak rate of runoff post-development, they often do not address the total amount of runoff. Communities are beginning to address this and to encourage more on-site infiltration of runoff. As noted earlier, reducing runoff can also help to reduce water pollution.

Steep Slopes and Ridges

In addition to impacting Ridgefield's character, the disturbance of slopes can lead to increased erosion, drainage issues, destabilization, and impact plant and animal habitats.

Development should avoid areas of steep slopes (25 percent or greater), especially in areas with erodible soils. Such areas may best be preserved as open space. When that is not possible and development does occur, the development should be carefully reviewed to ensure that there is minimal disturbance of the slope and vegetation. Zoning regulations address grades on steep slopes for new driveways, but over the long-term, the Town may wish to revisit other road and driveway standards contained in the Town Code.

[Strategies for preserving scenic ridges are discussed in Chapter 5, Community Character.]

Habitat

Non-fragmented and contiguous habitat maintains biodiversity, provides a healthy ecosystem and benefits the community in diverse and important ways. A large variety of habitats is found in Ridgefield including forests, meadows, open fields, fens, vernal pools and wetlands. These will be more fully documented in the Natural Resources Inventory. In addition to their value to wildlife, the quiet beauty of these unique areas is an invaluable resource.

When habitat cannot be permanently protected as open space, careful consideration of preservation of habitat, provision for wildlife corridors, and minimization of fragmentation should occur during the site planning process.



Photo 16: Box Turtle in Ridgefield (Nelson Gelfman).

Air Quality

Research shows that air pollution not only puts people at higher risk of respiratory problems, but cardiopulmonary problems as well (see sidebar). Air pollution can degrade water quality as pollutants settle on roads and wash into water bodies and it can impact climate.

While larger air quality issues are likely beyond Ridgefield's control, the Town has taken steps to reduce localized air pollution (e.g., establishing an anti-idling program). There are additional steps that can be taken to reduce or mitigate local air pollution.

Perhaps the most important step a community can take is to increase transportation options, such as walking, biking and public transit. These issues are addressed later. In terms of mitigation, vegetation plays a key role in filtering air pollutants. Encouraging land owners to preserve existing vegetation (as discussed elsewhere) and planting additional trees is an important air quality measure.

Ridgefield is fortunate to have local groups that educate residents on what they can do to reduce air pollution. Their efforts should be supported.

The Town also recently joined "ICLEI - Local Governments for Sustainability" which provides resources to help communities tackle air quality and sustainability issues, such as climate protection.

Traffic and Health

The California Air Resources Board has researched the relation between traffic and health impacts and has issued policy guidance.

The Board's Health Updates web page provides summaries of research into health impacts of traffic at:

www.arb.ca.gov/research/health/healthup/healthup.htm

In general, impacts tend to be greatest within 300 and 1,000 feet of high traffic roadways.

CARB has issued recommendations that sensitive land uses, including hospitals, day care centers, schools, and nursing homes, should not be located within 500 feet of a freeway, an urban road with over 100,000 vehicles/day, or a rural road with over 50,000 vehicles/day. See: www.arb.ca.gov/ch/handbook.pdf

While Ridgefield does not experience these levels of traffic, careful consideration of the location of sensitive land uses should be an important consideration. This is a new area of research and additional information on lower traffic levels should be monitored.

NATURAL RESOURCE PROTECTION STRATEGIES

Overarching Principles

1. Preserve sensitive areas as open space, where feasible.
2. When open space preservation is not feasible, ensure careful site planning and allow flexibility in lot design to avoid sensitive natural resources.
3. Educate residents and landowners about the importance of Ridgefield's natural resources, the cumulative impacts of their actions, and how they can contribute to protecting natural resources.
4. Use the Natural Resources Inventory to aid in land use planning.

Protect Water Resources

5. Increase on-site stormwater infiltration and retention.
6. Preserve wetlands in their natural state.
7. Adopt water quality protection guidelines for all major lakes in Ridgefield.
8. Monitor well permit data and complaints about water levels in wells.
9. Continue to protect aquifers and enhance protection town-wide.
10. Review recommendations from watershed plans and studies, and implement appropriate recommendations.

Minimize Flooding

11. Continue to regulate activities in flood plains.
12. Increase on-site stormwater infiltration and retention.

Protect Other Natural Resources

13. Minimize the disturbance of steep slopes.
14. Protect local plants and animals and their habitats, with an emphasis on minimizing habitat fragmentation.
15. Minimize the clearing of vegetation in order to:
 - Reduce stormwater runoff
 - Provide habitat
 - Filter air pollution
 - Protect the Town's character
16. Continue efforts to reduce local sources of air pollution.