

HUDSON

CONSERVATION PLAN

November 1990

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HUDSON CONSERVATION PLAN

HUDSON CONSERVATION COMMISSION

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Prepared by Hudson Conservation Commission with the assistance of Nashua Regional Planning Commission.

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EXECUTIVE SUMMARY

The Hudson Conservation Commission (CC) developed the Conservation Plan as an initial step in fulfilling its statutory responsibilities of inventorying and maintaining a natural resources index, protecting and managing the Town's significant resources and providing public information on conservation issues. In Chapter II, the CC identified Hudson's major conservation and natural resource issues: insufficient resource information; public awareness and concern; lack of direction in the Zoning Ordinance regarding conservation; communication and interaction between the CC, Town boards and staff; land use practices and regulation enforcement; management of conservation lands; and public access to natural areas. The CC then established the overall goal of: "Conserved, protected and soundly managed natural resources." Measurable objectives were identified to guide the community in addressing the issues and achieving the goal.

Despite the immense development pressures of the 1980s, Hudson's natural resource base remains diverse and many natural, unspoiled areas still exist. Chapter III discusses the natural resources found in the community, as well as threats to these resources and analyzes existing levels of protection from local regulations. The major points of the Chapter are outlined below.

- o Agriculture is limited to five active operations within the community.
- o Several large ponds and perennial streams in conjunction with acres of wetlands form a dispersed and interrelated surface water network. Many of the surface waters, particularly Robinson and Ottarnic Ponds and Merrill Brook, have exhibited signs of stress from development and activities within their watersheds. Existing regulations provide a limited amount of protection for surface waters.
- o The stratified drift aquifer around Ottarnic Pond contains the largest volume of recoverable water and is capable of supporting a public water system. Historic water testing documents high levels of naturally occurring iron and manganese. No regulations provide direct protection for the Town's groundwater resources.
- o Hudson's surface water and groundwater resources are threatened by numerous activities such as: subsurface waste disposal; landfills; junkyards; underground storage tanks; erosion and sedimentation; nutrient, pesticide and herbicide applications; and the generation, transportation and storage of hazardous and toxic chemicals and wastes.
- o Hudson's diverse natural resource base provides habitat for numerous plant, animal and fish species including one animal and eleven plant species listed as endangered or threatened in New Hampshire, three rare natural communities and one federally endangered species, the bald eagle. Continued species diversity depends on the maintenance of quality habitats.

- o Forestry activities in the Town are limited to small woodlots. The fifty-five acre Town forest, located off Kimball Hill Road, is presently unmanaged. Proper woodlands management can produce many benefits such as supplementing incomes and improving the quality of wildlife habitats.
- o Approximately 500 acres of public conservation/recreation land exist in Hudson, comprised of 34 parcels ranging in size from 0.7 to 100 acres. The two largest parcels comprise 40 percent of this area and are owned by the school district. Eighteen parcels are less than 5 acres, 7 contain utility easements and 3 are completely landlocked. These conservation lands are dispersed throughout the entire community with many parcels dedicated to the Town through the subdivision requirements to provide areas for recreation and open space. Much of this land cannot be used for its intended purpose because of its size, location, physical characteristics, inaccessibility or the presence of utility lines and easements. Only 9 areas are actively managed by the Town, the majority for active recreation.

Existing local regulations provide a moderate level of protection for the Town's natural resources. Fine-tuning of existing regulations, adoption of additional regulations and increased enforcement, however, will improve protection. Chapter IV discusses existing state and federal regulations with a direct or indirect impact on resource protection and conservation, as well as local options for protecting natural resources such as zoning, subdivision and site plan review regulations. Land protection techniques and mechanisms are also discussed along with the limited sources of funding.

Based on the information and the analysis contained in the plan, recommendations and implementation strategies have been developed to address the major issues, achieve the objectives and ultimately attain the goal of conserved, protected and soundly managed natural resources. The recommendations fall into five major categories: conservation, regulatory protection, natural resource data base, public awareness and public access. Major recommendations include:

- o Identify parcels with significant natural resources for future acquisition.
- o Acquire additional conservation lands and easements.
- o Develop and adopt shoreland protection regulations to protect the water quality and the scenic character of the Town's surface waters.
- o Develop and adopt aquifer protection regulations to protect the Town's groundwater resources.
- o Improve enforcement of local land use regulations and the conditions of approved plans.
- o Establish a computerized natural resource data base, or geographic information system, that would include information on the location and significance of the Town's natural resources.

- o Sponsor a series of public informational meetings on Hudson's significant natural resources and their potential threats.
- o Create and distribute pamphlets on existing and future public conservation lands.
- o Develop additional, and promote existing, environmental education programs in the schools.
- o Conduct workshops designed to assist landowners in managing their lands for specific objectives in an environmentally sound manner.
- o Develop and distribute a brochure identifying the existing conservation lands in the Town.
- o Create a trail system along the Merrimack River and its tributaries as part of the statewide NH Heritage Trail.

The implementation strategies assign the responsibility for undertaking the recommendations to the appropriate Town group. As would be expected, the majority of the recommendations are assigned to the Conservation Commission; however, the cooperation and assistance of other boards, Town administration, staff and the general public is essential to successful and effective implementation.

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Chapter I.

Introduction

CHAPTER I

INTRODUCTION

The legislative authorization for the creation of municipal Conservation Commissions (CC), RSA 36-A, specifies the following Commission responsibilities: conduct an inventory of the Town's natural resources; Coordinate the activity of unofficial bodies organized for similar purposes; and maintain an index of the Town's natural and scenic resources. In addition, the Conservation Commission is allowed to recommend programs to the Town Council for the protection, development and sound utilization of the areas in the index; acquire and manage lands within the Town; and provide public information on conservation issues. Given these responsibilities, development of the Conservation Plan provides the initial natural resource inventory and the basis for protecting and managing the community's natural resources.

The Hudson Conservation Commission (CC), with the assistance of the Nashua Regional Planning Commission (NRPC), prepared this Conservation Plan to promote the conservation, protection and sound management of the Town's natural resources. The first step in developing the plan was the identification and discussion of community conservation issues. This is an important component of the plan as the issues establish the framework for the rest of the document. Goals and objectives were established to address the issues and to define and guide the development of the plan. The conservation issues, goals and objectives are presented in the Chapter II.

Chapter III contains an inventory and discussion of the Town's natural resources and existing conservation lands, threats to these resources and the presence or lack of local protection measures. Specific topics include: soils, surface waters, groundwater, floodplains, wetlands, water resource threats, wildlife and fisheries, vegetation and existing conservation lands. Federal, state and local resource related regulations and protection techniques are discussed in Chapter IV.

The final chapter, Chapter V, contains the recommendations for improving the protection and management of the Town's natural resources. The recommendations are grouped in the following categories based on the specific issue or objective they are designed to address: conservation, regulatory protection, natural resource data base, public awareness and public access. The implementation section assigns the responsibility for undertaking specific recommendations to individual boards or organizations within the community. The section also discusses the need for support from municipal boards and other organizations that are directly or indirectly involved in resource conservation.

Protecting Hudson's natural resources is an enormous undertaking that will require the support of the Town Council, Town boards, municipal staff and residents. The importance of public awareness of conservation issues and involvement in activities cannot be understated. A successful conservation program cannot be developed without public support. Changes in growth and development, the economy, political leadership, population, land use patterns and resource protection views can all have an impact on the conservation of Hudson's natural resources. The Conservation Plan is the initial step in protecting the Town's natural resources; however, it should be reviewed and revised on a regular basis, at least once every five years, to incorporate changes at the local, state and federal level. In addition, the implementation strategies should be evaluated annually to assess their effectiveness and to measure the accomplishment of the objectives.

Chapter II.

Goals & Objectives

CHAPTER II

GOALS AND OBJECTIVES

Conservation Issues

As the initial step for developing the Conservation Plan, the Conservation Commission (CC) held a series of meetings to identify and discuss the major conservation issues in Hudson. Discussion centered on the role and effectiveness of the CC, community awareness and involvement in conservation issues, municipal regulations and board interaction, and information needs. Some of the issues included:

1. Lack of information and a centralized data base on the Town's natural resources.
2. Awareness and concern of residents regarding Hudson's natural resources.
3. Lack of direction for resource conservation provided in the Zoning Ordinance.
4. Communication and interaction between the CC and other local boards, and other regional CCs.
5. Current land use practices and regulation enforcement.
6. Management of existing and future conservation lands.
7. Inadequate public access to the Town's natural areas.

Objectives of the Plan

The issue identification process helped the CC determine what they wanted to achieve with the Conservation Plan and assisted in defining its direction. Subsequent meetings focused on establishing an overall goal and developing a list of measurable objectives to address the issues identified above. Well defined objectives establish the direction of plan and are the precursors for the recommendations and implementation strategies.

Goal: Conserved, protected and soundly managed natural resources.

- Objectives:
1. Identify Hudson's critical natural resources.
 2. Establish a natural resources data base.
 3. Increase public awareness of, and appreciation for natural resources.

4. Increase public access to natural resource areas where appropriate.
5. Encourage landowners to improve and manage the natural resource values of their properties.
6. Influence the decisions of federal and state agencies, the Town Council, Planning Board, Zoning Board of Adjustment and other local officials to assure the protection and enhancement of Hudson's natural resources.

Chapter III.

Inventory and Analysis

CHAPTER III

NATURAL RESOURCE INVENTORY AND ANALYSIS

The first step in developing a Conservation Plan for the Town of Hudson involves conducting a natural resources inventory. Information, obtained from numerous sources, is presented to describe the physical characteristics of the Town including soils; agriculture and forestry; surface and ground water resources; fisheries and wildlife; and existing conservation areas. Potential threats to the Town's natural resources are discussed along with existing local protection measures.

Topography

Topography is the general form of the land surface. Through time, the land surface is continually altered by wind, water, temperature, floods, earthquakes and man. The existing landscapes are a direct result of these natural and manmade alterations.

Elevation and slope are the two major components of topography. Elevation is the measure of the height of a given point of land relative to mean sea level, elevation above mean sea level (aMSL). Slope is a measure of the pitch or the steepness of the surface between two given points and is calculated by dividing the change in elevation (rise) by the distance between two points (run), hence rise/run.

Topographically, Hudson can be divided roughly into thirds. Elevations directly east of the Merrimack River range from 100 to 200 feet aMSL. The central and northeast sections of Town are characterized by rolling hills and gentle slopes with average elevations between 200 to 350 feet aMSL. Elevations are highest and slopes are steepest in the southeastern part of the Town, 350 to 500 feet aMSL. Bush Hill, located near the Pelham Border, is the highest point in the Town at 515 feet aMSL. Other significant elevations include: Barrett Hill, 495 feet, Kimball Hill, 405 feet, and Merrill Hill, 485 feet.

Changes in elevation and slope create the visually pleasing variations in the landscape. High elevations are both points for viewing the surrounding areas and subjects of views from lowlands. Slope provides the subtle and dramatic changes in the land surface, open fields and steep rock faces. Slope, a major determinant of development capability, is generally divided into four classes, 0-8%, 8-15%, 15-25% and greater than 25 percent. Lands in the 0-15 percent slope categories are generally easily developed with few constraints. One exception is the 0-3 percent range where drainage problems can be encountered. Increases in slope generally correspond to decreased soil depths and increased susceptibility to erosion. Areas of moderate slope, 15-25 percent, are sensitive to development and best suited to open space uses such as natural areas, hiking and nature trails, picnic areas, environmental education and other passive forms of recreation. Areas with slopes greater than 25 percent are considered undevelopable and should remain in their natural conditions. The majority of the moderate and steep slope areas are located directly adjacent to the Merrimack River and in the eastern areas of Town near Merrill Hill and Bush Hill.

Current Hudson land use regulations do not restrict development in sensitive steep slope areas. Effective measures for controlling development on steep slopes include: prohibiting development on slopes greater than 25 percent;

requiring and enforcing erosion and sedimentation control plans for activities that will disturb areas with 15-25 percent slopes or greater; and limiting cutting and vegetation disturbance on slopes greater than 15 percent.

Soil

The characteristics of a soil type determine its capability for a proposed use. Depth to water table and bedrock, susceptibility to flooding, slope, stone cover and permeability are factors affecting the suitability of a site for agriculture, forestry, recreation and development. Soil information is a valuable factor for determining the most suitable use for a parcel of land.

The USDA Soil Conservation Service (SCS) conducted extensive surveys and analyses of soil conditions in Hillsborough County during the 1970s and published the Soil Survey of Hillsborough County, Eastern Part in 1979. The Soil Survey delineates soil boundaries and provides information on the characteristics of individual soil types. This information is useful for making general land use planning and management decisions in a community; however, site specific decisions may require additional on-site investigations. The Soil Survey includes information on the suitability of a soil for building sites, roads, septic tank absorption fields, wildlife habitat, recreation, agriculture, forestry and construction materials. Soils are generally rated as having slight, moderate or severe limitations for a particular use.

Soil information can be used to evaluate potential uses for a specific site. For example, a parcel of land is being donated to the Conservation Commission that is wooded; and the CC is interested in harvesting some of the timber and managing it to promote wildlife species diversity by creating fields and transitional habitats. An examination of the soil characteristics would indicate the areas best suited for field habitats and the types of trees that would grow well on the site.

The SCS also identified four categories of significant farmland soils, prime, unique, statewide and local. These soils are important for the long- and short-term production of food and forage. The definitions of prime and state wide significant farmland are presented here for further discussion. Prime farmland is land best suited for the production of food, feed, forage fiber and oilseed crops; soil quality, growing season and moisture supply are sufficient to sustain high yields of crops with proper management; the land can be continually farmed without degrading the environment; and land which requires the least investment and the least amount of energy for maintaining productivity. State-wide significant farmland, identified by state agencies, is land that cannot be considered prime because of erodibility or droughtiness; land that requires greater inputs of fertilizers and erosion control; and land with a fair to good crop yield when properly managed. Prime and state significant farmland soils are still considered important when used for other purposes such as forestry and recreation. They are lost forever, however, when converted to urban uses.

While a number of prime and statewide significant farmland soils can be found in Hudson, an issue of greater concern is active agriculture. Much of the agricultural land in Hudson has been converted to other uses, particularly along the Merrimack River. The five remaining agricultural operations consist of one dairy farm, one turf farm along the river in northern Hudson, one orchard in eastern Hudson and two small vegetable farms. These areas are important to the community because they provide a local source of fruits and vegetables, protect open space and scenic views, and provide diversity in wildlife habitat. If converted to other uses, these benefits will be lost to the community. Hudson's

concern, therefore, is not conserving prime and state significant farmland soils but conserving its remaining active agricultural operations.

Construction Materials

The Soil Survey also provides information about soils as a source of construction materials, sands and gravels. Soils are rated as probable or improbable sources of sand and gravel based on gradation of grain sizes, thickness of suitable material and rock content. The aquifer maps developed for the NRPC region also provide information on the location of sand and gravel resources in the Town since aquifers are essentially well sorted deposits of sands and gravels.

Excavation of materials within an aquifer does not in itself pose a threat to groundwater resources. The threat arises from the types of activities that take place on the site during the excavation, storage and handling of petroleum products, for example, or use of the site upon completion of the excavation. The depth of the excavation in an aquifer, particularly as it relates to the seasonal high water table, should have a direct relationship to the proposed use of the site when the excavation is complete.

Municipalities have the authority to regulate excavations under RSA 155E, Local Regulation of Excavations. The statute requires that communities provide "reasonable opportunity for excavation" of construction materials on unimproved land within the community. In Hudson, excavations are permitted in the rural district which encompasses about fifty percent of the total land area. The local excavation regulations, adopted in 1981, are not in compliance with the recent changes to RSA 155E. The local regulations can be designed to provide additional protection for surface and ground waters from excavation activities. Erosion and sedimentation control measures protect surface waters from increased turbidities and siltation. Containment requirements for petroleum products stored on-site minimize the treat of groundwater contamination. Regulating the distance of the excavation from the seasonal high water table reduces potential threats from subsequent uses of the site; however, the regulations must also contain a provision for reducing this separation if the owner is willing to assure that subsequent use of the site will pose no threat to groundwater, such as permanent conservation of the parcel.

Water Resources

Lakes and ponds, rivers and streams, wetlands and groundwater are the most visible components of the hydrologic cycle. This interconnected water resource network performs many functions valuable to a community such as supply water for residential, industrial, commercial and agricultural uses, flood storage, groundwater recharge, providing fish and wildlife habitats, recreation and scenic beauty. An understanding of these resources and the interrelationships between them is essential for ensuring the wise use and management of Hudson's water resources.

Watersheds

A watershed is defined as that portion of the land area whose runoff contributes directly to the flow of a stream, river, lake or pond. All land, therefore, lies within a watershed. Watersheds are delineated by first identifying the highest points in an area. Lines called drainage divides are drawn between these points based on the topography and the direction of water flow. Land uses and other activities that take place within the watershed have a direct

impact on water quality and quantity; pavement and other impervious materials increase the volume of surface runoff; filling wetlands reduces water storage capacity; and land clearing and construction activities expose previously undisturbed areas to the erosive powers of rain and surface runoff. Delineation of the areal extent and boundaries of a watershed facilitates the identification and evaluation of existing and potential water quality and quantity impacts.

Two adverse impacts occur as a watershed loses its ability to naturally regulate surface waters. The obvious one is increased downstream flooding during periods of precipitation. This occurs because the developed watershed cannot retain water during storm events or snow melt. The less obvious impact is the intensification of drought conditions. Decreased water storage capacity within the watershed reduces the volume of water available for gradual discharge and maintenance of surface flows. Thus, development within a watershed increases flows during wet periods and decreases during dry periods.

The entire Town of Hudson is located within the 5,010 square mile Merrimack River watershed. Major sub-basins in Hudson include First Brook, Second Brook, Musquash Brook/Limit Brook and Robinson Pond. Brief descriptions of each sub-basin are provided within the discussion of the perennial streams and water bodies and the boundaries are depicted on Map III-1.

Perennial Streams and Water Bodies

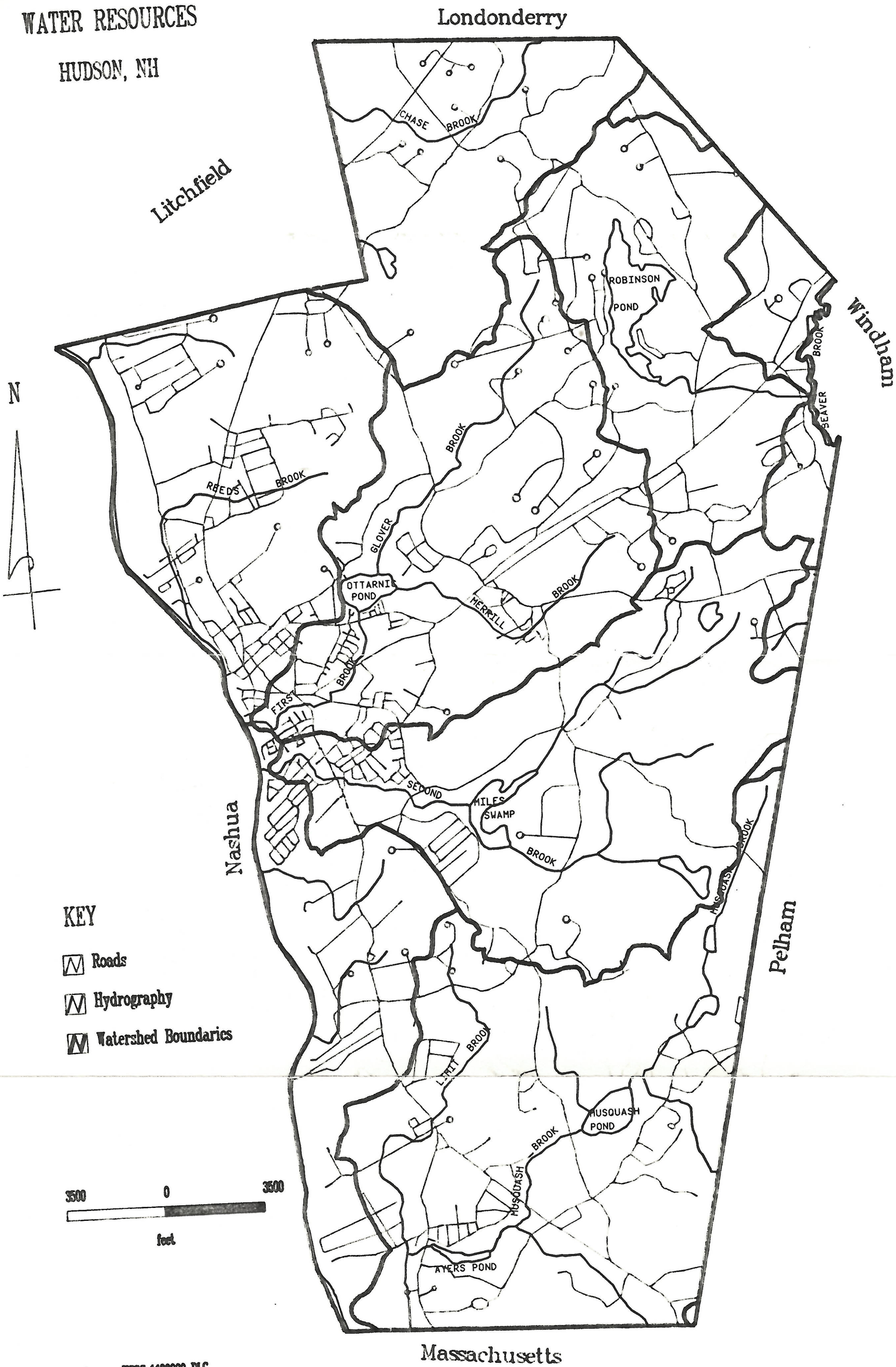
Hudson's ponds and streams are well distributed throughout the Town. Eight named streams and the Merrimack River combine to form a twenty-five mile network of rivers and streams. All of the surface waters in Hudson have Class B water quality classification, acceptable for fishing and swimming, and for water supply with treatment. Robinson, Ottarnic, Musquash Ponds and Miles Swamp are the largest water bodies with a total surface area of 207 acres. A brief description of the major watercourses and water bodies follows with additional information presented in Tables III-1 and III-2. The locations of the surface waters are depicted on Map III-1.

Before discussing the specific conditions of the Town's surface waters, it is necessary to explain a few terms. Eutrophication is the natural, biological aging process of a water body; however, human intervention often accelerates the process. Water bodies are generally classified as oligotrophic, mesotrophic, eutrophic or a combination. These classifications are based on water transparency, nutrient levels, presence of aquatic vegetation, water stratification and levels of dissolved oxygen. Oligotrophic water bodies have high transparencies, low levels of nutrients and vegetation, and high levels of dissolved oxygen. Mesotrophic water bodies have reduced transparencies, elevated levels of nutrients and vegetation, and decreased levels of dissolved oxygen. Eutrophic water bodies have low transparencies, high levels of nutrients, abundant aquatic vegetation and low levels of dissolved oxygen. Phosphorous is the nutrient that generally limits the level of plant growth. Transparency is a measure of water clarity. Stratification is the division of water into separate layers identified by changes in temperature.

Merrimack River

The Merrimack River is the most significant water course in Hudson. It flows for approximately 6.8 miles along Hudson's western border. Originating at the confluence of the Pemigewasset and Winnepesaukee Rivers in Franklin, the Merrimack flows for 116 miles to the Atlantic Ocean in Newburyport, Massachusetts. Considered one of the ten most polluted rivers

MAP III-1
WATER RESOURCES
HUDSON, NH



Source: USGS 1:100,000 DLG

in the country during the 1960s, legislation and advances in wastewater treatment technology have greatly improved the condition of the River. The stretch of the Merrimack River from the Manchester/Litchfield line to the Massachusetts line was recently included in the New Hampshire Rivers Program. In addition to the protection measures discussed in Chapter IV, the legislation reclassified water quality to Class B for the entire stretch. Approximately 3,875 acres in Hudson drain directly to the Merrimack River. Land use along the River is a mixture of residential, industrial and commercial.

Limit Brook/Musquash Brook

Limit Brook originates in a wetland area of Hudson and flows south for approximately three miles into Tyngsborough where it empties into the Merrimack River. Musquash Brook originates near the Pelham border and flows southwest through a series of ponds and into Limit Brook. The Limit Brook/Musquash Brook watershed encompasses 3,886 acres and includes both Musquash and Ayers Ponds. Single-family residential is the dominant land use in this watershed and approximately fifty percent of the watershed is developed. Limit Brook and its adjacent wetlands constitute one of Hudson's highest quality natural resources with outstanding wildlife habitat and diversity of wildlife populations.

First Brook

First Brook flows southwest from Ottarnic Pond for about a mile before it empties into the Merrimack River. The First Brook watershed encompasses approximately 3,050 acres and includes Ottarnic Pond, Glover Brook and Merrill Brook. Land use within the watershed is a mixture of single- and multi-family residential, industrial and commercial. This area includes a long segment of Route 111.

Second Brook

Second Brook originates in the Merrill Hill area and flows for approximately 3.2 miles to the Merrimack River. The Second Brook watershed encompasses 3,332 acres and includes Miles Swamp, a significant wetland area, and a number of unnamed streams. This watershed includes the largest undisturbed expanse of land in Hudson exhibiting the greatest diversity in topography, ecological communities and scenic areas. Except for moose and black bear, all species of wildlife and plants indigenous to southern New Hampshire still inhabit this area.

Robinson Pond

Robinson Pond is the largest water body in Hudson. Approximately 1.8 miles long, it covers eighty-eight acres with a 1,976 acre watershed. Average depth of the pond is sixteen feet with a maximum depth of twenty-nine feet. The Pond is classified as eutrophic by the Water Supply and Pollution Control Division (WSPCD) of DES. Robinson Pond was monitored from 1982 to 1985 by the Conservation Commission under the UNH Lakes Lay Monitoring Program (LLMP). While these studies historically indicated eutrophic phosphorous levels, the most recent 1985 information reported phosphorous levels in the oligotrophic range, indicating an improvement

TABLE III-1

PERENNIAL STREAMS
HUDSON, NH

NAME	LOCATION	TOTAL LENGTH (miles)	IN HUDSON (miles)	DAMMED OR FREE FLOWING	CLASS
Limit Brook	Southwest	3.6	3.0	free	B
Musquash Brook	Southeast	4.0	4.0	free	B
Second Brook	West-central	3.2	3.2	dammed	B
First Brook	West-central	1.5	1.5	dammed	B
Merrill Brook	Central	1.9	1.9	dammed	B
Glover Brook	Central	1.0	1.0	dammed	B
Reeds Brook	Northeast	2.1	2.1	free	B
Chase Brook	North	2.3	1.5	dammed	B
Merrimack River	West	116.0	6.8	dammed	B

TABLE III-2

PONDS
HUDSON, NH

NAME	LOCATION	LENGTH (miles)	AREA (acres)	AVG. DEPTH (feet)	CLASS	TROPHIC CLASS	TYPE
Robinson Pond	Northeast	1.8	88.0	16	B	eutrophic	Natural
Miles Swamp	South-central	1.5	53.0	NA	B	NA	Natural
Ottarnic Pond	West-central	1.1	34.0	10	B	eutrophic	Dammed
Ayers Pond	Southwest	0.5	12.0	5	B	NA	Dammed
Melendys Pond	Southwest	0.1	1.5	NA	B	NA	NA
Musquash Pond	Southeast	1.0	32.0	NA	B	NA	NA
Little Ottarnic	West-central	0.1	2.0	NA	B	NA	NA

in the nutrient conditions of the Pond; however, short term fluctuations are not uncommon. The UNH study classified the Pond as oligotrophic-mesotrophic with the potential to become eutrophic depending on the conditions and activities within the watershed.

Ottarnic Pond

Ottarnic Pond is the third largest water body in Hudson, approximately 1.1 miles long with a surface area of 34 acres. The Pond is quite shallow with an average depth of ten feet and a maximum depth of thirteen feet. The Pond is located off Route 111 close to the center of Town and surrounded by residential development. Ottarnic is classified as eutrophic by both the WSPCD and the LLMP. Monitored by Conservation Commission through the LLMP from 1982 to 1985, the Pond had low transparencies, high phosphorous levels and high concentrations of algae. The highest phosphorous levels in 1985 were found in Merrill Brook, the inlet stream that passes through Benson's Animal Farm. Since the Pond was last monitored in 1985, the impact of Benson's closing on water quality cannot be determined.

The Environmental Protection Agency recently approved a WSPCD proposal to conduct Phase I diagnostic/feasibility studies of Ottarnic and Robinson Ponds under the Clean Lakes Program. The purpose of the studies is to determine the sources and magnitudes of phosphorous inputs to the ponds, to evaluate techniques to reduce inputs and restore water quality, and to recommend the most feasible restoration program. A two-year study, water sampling for the project is scheduled to begin in October of 1990.

The large drainage areas just described can be further divided into drainage areas for the smaller perennial and intermittent streams that contribute to their flow. Disturbances in these small drainage areas can have an impact on water quality and quantity in the larger streams. Erosion, flooding and contamination can occur in the smaller perennial and intermittent streams during periods of peak runoff as after a storm or during spring melt. Therefore, the cumulative impacts of development, from the smallest drainage course to the largest river, have an impact on water quality and quantity within the community.

Hudson's surface waters face numerous threats from both point and nonpoint sources of pollution, discussed at the end of this section. Surface waters are included in the definition of the wetlands district in the Town's zoning ordinance, giving them the same protection as wetlands. The most significant protection is the fifty foot setback from water bodies for roadways, parking lots and structures. Other mechanisms to protect surface waters from scenic and water quality degradation include increased septic system setbacks, shoreland protection regulations and educating homeowners about the cumulative water quality impacts of improper use of fertilizers, pesticides and numerous other household products.

Floodplains

Floodplains are areas adjacent to watercourses and water bodies that are susceptible to flooding during periods of high surface water runoff. All streams and water bodies have floodplains, though some are more extensive than others. Floodwaters can cause significant damage to buildings, structures and land uses located in the floodplain. Major floodplains in Hudson are located along the Glover Brook-Merrill Brook-Ottarnic Pond-First Brook system, the Second Brook-Miles Swamp system, the Musquash Brook-Musquash Pond-Ayers Pond system, along

Chase Brook and Robinson Pond, its inlets and outlets. Hudson's 100-year floodplains, mapped as part of the National Flood Insurance Program, are depicted on Map III-2.

Hudson's Flood Damage Prevention regulations require that all proposed development within any special flood hazard areas obtain a floodplain permit from the Town Engineer. Encroachments are not allowed in the regulatory floodway if it would result in an increase in the level of the base flood. All new construction or substantial improvement must have the lowest floor elevated to or above the 100-year flood or be floodproofed to meet the established criteria. In addition, all water and sewer systems proposed in a special flood hazard area must be designed to minimize or eliminate infiltration of flood waters into the system and discharges from the system into flood waters.

Floodplain areas are best suited to low-intensity uses such as open space, recreational fields, hiking, biking and skiing trails, picnic areas and parking lots in commercial/industrial areas. They also provide excellent outdoor classrooms for environmental education. Floodplain soils, vegetation and wildlife habitats are unique due to their periodic inundations. These uses are also compatible with the national goal of alleviating the economic and human loss associated with flooding.

Wetlands

Awareness of the important role wetlands play in the hydrologic and ecologic systems has increased significantly over the last decade. Wetlands perform many important functions such as flood control and natural stream flow regulation, erosion and sedimentation control, and water purification while providing nursery grounds and habitat for numerous species of vegetation and wildlife.

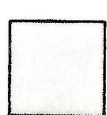
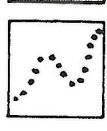
Recently, the Army Corps of Engineers, the USDA Soil Conservation Service, the Fish and Wildlife Service and the Environmental Protection Agency agreed on a system for defining and delineating wetlands. The so-called Federal definition contains three essential characteristics: 1) hydrophytic vegetation, 2) hydric soils and 3) wetland hydrology. All three characteristics must be present for an area to be considered a wetland. The New Hampshire Wetlands Board definition includes essentially the same basic elements as the federal definition: "Fresh-water wetlands mean those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soils conditions."

The Hudson Zoning Ordinance does not contain a definition of wetlands; however, it does define the Wetlands Conservation District as "those areas delineated and mapped ... as poorly drained, very poorly drained or as water features by the National Cooperative Soil Survey's 1976 Field Mapping for the Town of Hudson, New Hampshire." Uses permitted within the district include: forestry and tree farming; agriculture not including the stockpiling of manure or chemicals or the filling, draining, impounding or excavating of wetlands; well supplies; natural drainage ways; wildlife refuges; conservation areas and nature trails; and open space. The minimum setback for septic tanks and leachfields is seventy-five feet, equivalent to state standards. The most significant aspect of the district restricts construction activity, including but not limited to roadways, parking lots and structures, within fifty feet of the wetland with the following exceptions: drainage ways for stormwater runoff; wells; utilities; and regrading of the ground surface as approved by the Conservation Commission.

HUDSON WETLANDS AND FLOODPLAINS



KEY

-  Wetlands
-  Floodplains

In addition, wetlands can only comprise twenty-five percent of the minimum lot size; however, the remaining area must be sufficient to accommodate all required utilities. The Zoning Board of Adjustment may grant special exceptions for streets, roads and other access ways, and utility right-of-way easements if they are essential to the productive use of the land and if the proposed activity is located and constructed to minimize negative impacts on the wetland.

Significant wetland systems in Hudson include: Musquash Brook-Musquash Pond, Second Brook-Mile Swamp, Ottarnic Pond-Glover Brook-Merrill Brook, Robinson Pond and Chase Brook. These wetland areas have an impact on water quality in the Town's major surface waters. Maintenance of these areas will ensure the continuation of natural wetland functions such as water storage and filtration. These and other wetland areas are depicted Map III-2.

In addition to the Wetlands Conservation District, there are other regulatory and non-regulatory methods for protecting wetlands from degradation including: requiring and enforcing erosion and sedimentation control plans for developments; increasing minimum setbacks for buildings, structures, septic systems and other site developments; maintaining a vegetative buffer directly adjacent to the wetland; public education on the importance of and threats to wetlands; and prime wetlands designation.

New Hampshire RSA 482-A 15 authorizes communities to designate areas meeting established standards as prime wetlands. The criteria and the submission requirements are explicitly set forth in the administrative rules governing the Wetlands Board. The benefits of prime wetland designation include:

- o identifying and recognizing wetlands as locally significant based on their size, unspoiled character, diversity of flora and fauna, and water storage capacity in combination with other characteristics;
- o notifying landowners, developers and the New Hampshire Wetlands Board of the municipality's strong beliefs that certain wetlands should remain undisturbed;
- o and assuring that the Wetlands Board will give additional consideration to proposals for activities within a designated prime wetland.

It should be noted that prime wetland designation can only apply to very poorly drained soils; the Conservation Commission is responsible for notifying the Wetlands Board when a proposal would involve a designated prime wetland; and designation does not guarantee complete protection of the wetland.

Groundwater

Groundwater from stratified drift deposits, unconsolidated till deposits and bedrock supplies residential, commercial and industrial users in Hudson. Stratified drift aquifers are composed of well sorted sands and gravels which generally have the potential to yield large quantities of water. The capability of a stratified drift aquifer to release water is based on three characteristics: saturated thickness, transmissivity and storage coefficient. Saturated thickness is a measure of the distance between the top and the bottom of the saturated area measured in feet. Transmissivity is the rate at which water moves through a unit width of the aquifer under a unit hydraulic conductivity. Transmissivity is calculated as hydraulic conductivity times saturated thickness expressed in feet squared per day. Hydraulic conductivity is based on the physical and chemical characteristics of the soil material. A coarse sand

deposit with a saturated thickness of 10 feet and a fine sand deposit with a saturated thickness of 50 feet would both have a hydraulic conductivity of 50 feet per day; however, water flows more freely through the coarse grained material because of the larger pore size which results in greater yields. Stratified drift deposits are depicted on Map III-3. The 1987 United States Geological Survey study, Hydrogeology of Stratified Drift Aquifers and Water Quality in the Nashua Regional Planning Commission Area, described Hudson's stratified drift aquifers as follows:

The Town of Hudson has a nearly continuous aquifer along the Merrimack River that comprises ten square miles or thirty-six percent of the town area. The most productive aquifer is located around Ottarnic Pond and extends northeastward along Glover Brook and southwestward to the Merrimack River. The aquifer consists of coarse-grained pebble-to-boulder gravel in the northeast that grades to mixed sand and gravel, and to sand in the southwest (Koteff, 1976). This aquifer contains the largest volume of recoverable stored groundwater within Hudson. Saturated thickness is greater than sixty feet; the greatest thickness occurs between Ottarnic Pond and the Merrimack River. Several wells, with capacities ranging from 100 to 400 gal/min, are located in this aquifer near Ottarnic Pond and Melendys Pond. Other areas favorable for groundwater development are located near the Merrimack River; however, because the land is built up and has a high population density, groundwater quality considerations might limit this favorability.

Most of the other stratified drift aquifers of Hudson are composed of fine-grained, glacial-lake-bottom sediments with low permeability. Saturated thickness generally is less than forty feet throughout, and transmissivity is less than 4,000 square feet per day. There are two areas of greater transmissivity and saturated thickness in southern Hudson. They have limited areal extent and are remote from sources of induced recharge. They are probably best suited for wells that yield 5 to 10 gal/min here.

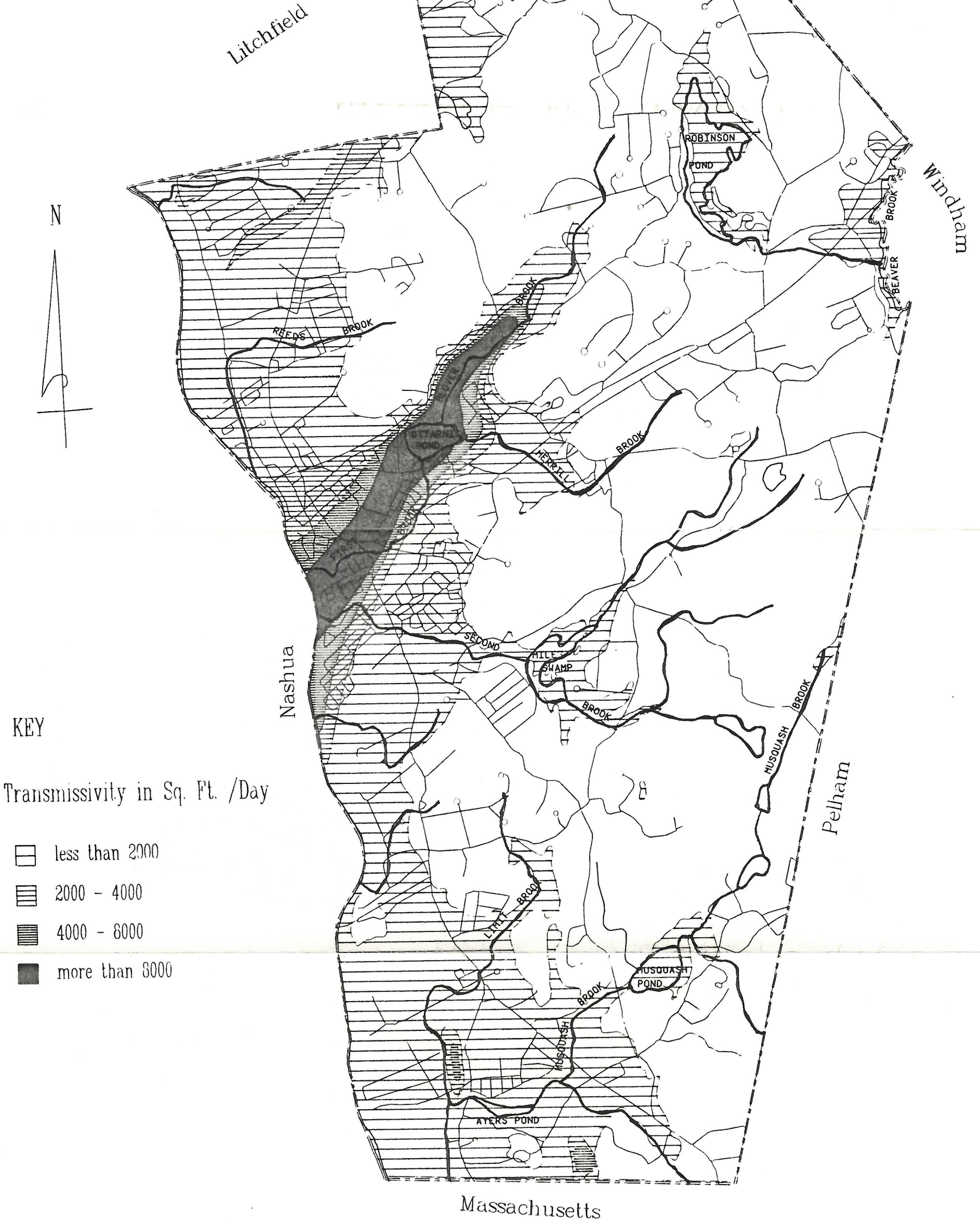
Along Route 102 near Alvirne High School in northern Hudson, permeable kame delta deposits supply water to individual households. Other permeable stratified drift, localized in north-central Hudson near the Londonderry and Litchfield borders are of limited areal extent and have small saturated thickness. These deposits do not seem to be capable of supporting large-capacity municipal water systems that require more than 100 gal/min.

The ability of the Ottarnic Pond aquifer to supply large quantities of water is supported by the fact that Southern New Hampshire Water Company (SNWC) operated two wells in the Ottarnic Pond aquifer. A 1983 Metcalf and Eddy study, Nashua New Hampshire Regional Groundwater Evaluation, showed that the two SNWC wells exceeded the secondary water quality standards for iron and manganese, and the recommended standard for sodium. SNWC closed the Hudson wells when a higher quality supply was tapped in Litchfield. The land has subsequently been sold with conditions that the wells not be used for public water supply.





Elevated levels of iron and manganese are common in stratified drift aquifers due to geochemical processes. Iron and manganese in water do not pose a health threat; however, high levels can cause unpleasant taste, staining of clothes and plumbing fixtures, and growth of iron bacteria in water distribution systems. Treatment systems are available to remove iron and manganese for both public and individual supplies.

MAP III-3
 STRATIFIED DRIFT

AQUIFERS
 HUDSON, NH



KEY
 Transmissivity in Sq. Ft. /Day

-  less than 2000
-  2000 - 4000
-  4000 - 8000
-  more than 8000

Source: USGS Hydrogeology of Stratified Drift Aquifers and Water Quality in the NRPC Area South Central New Hampshire, 1987

In addition to stratified drift deposits, till deposits and bedrock also contain groundwater. Till deposits contain a mixture of clays, sands and gravels of varying grain sizes. These deposits do not have the capacity to store or transmit large volumes of water; however, they can provide sufficient volumes to supply individual residences. Bedrock wells are drilled into water containing fractures and can provide substantial volumes of water. Well completion reports for approximately 330 wells in Hudson, on file with NH DES Water Supply and Pollution Control Division, indicate a range in depth of 80 to 1,100 feet for bedrock wells.

Stratified drift aquifers are highly susceptible to pollution due to the ease with which waterborne pollutants are transmitted through the soil. Pesticides, septic system effluent, leaking underground storage tanks, landfill leachate and improperly stored hazardous chemicals and wastes are only a few of the numerous groundwater threats. Contaminants entering the groundwater can render millions of gallons of water unusable. To minimize potential threats to groundwater, many communities in New Hampshire have adopted aquifer protection regulations. Applied as an overlay district, these regulations typically delimit permitted and prohibited uses, and establish performance standards for development within sensitive aquifer areas. The Hudson Zoning Ordinance does not contain any direct aquifer protection measures despite the fact that the Town relies totally on groundwater.

Water Resource Threats

Hudson's surface and ground water resources are threatened by numerous land use practices and activities, including: direct discharges; subsurface waste disposal; solid waste disposal; underground storage tanks; erosion and sedimentation; nutrients, pesticides, and herbicides; and hazardous and toxic wastes. These potential sources of pollutants are discussed briefly below.

Direct Discharges

Discharges to surface and ground waters greater than 20,000 gallons are required to register with the DES Water Resources Division (WRD). As of March 1990, WRD had three registered discharges for Hudson: Brox Paving Materials, Inc. - release to a recycling pond; Green Meadow Golf Club - release to groundwater through irrigation; and Tuckahoe Turf Farm - release to groundwater through irrigation.

In addition to state registration requirements, any point source discharge is required to obtain a National Pollutant Discharge and Elimination System (NPDES) permit. The permit specifies the level to which waste water must be treated before being discharged, effluent monitoring and a time schedule for meeting the minimum standards if the discharge does not already do so. The DES Water Supply and Pollution Control Division (WSPCD) is the agency responsible for administering the NPDES program in New Hampshire. There are currently no NPDES permits registered with the WSPCD for Hudson; however, two applications are pending.

Subsurface Waste Disposal

Septic system failures from improper design, siting or maintenance allow nutrient rich effluent, particularly nitrogen and phosphorous, to leach into surface and ground waters. Excessive nutrient levels in surface waters create

optimal conditions for growth of aquatic vegetation, which in turn, decreases oxygen levels, impedes sunlight penetration and clogs waterways. Contamination can also result from high levels of bacteria contained in the effluent.

Subsurface waste disposal is a potential problem in the northern, eastern and southern portions of the Town since these areas are not served by public sewer. Soil potentials for subsurface absorption fields, Soil Potentials for Development, Hillsborough County, New Hampshire, indicate a mixture of soils in the northern and eastern sections of Hudson. Certain areas receive high and very high ratings for septic systems while others receive low and very low ratings. It is also likely that much of the area receiving the highest ratings is already developed. Depth to bedrock, slope and seasonal high water table are the major problems associated with subsurface waste disposal systems in northern and eastern Hudson. Soils in the southwest section near Ayers Pond and the Merrimack River are highly permeable. These soils are poor filters and septic system effluent can rapidly leach into surface and ground waters.

The problems associated with elevated nutrient levels in surface waters have been documented in Ottarnic and Robinson Ponds. While subsurface waste disposal may not be solely responsible for the elevated nutrient levels it is certainly a contributing factor, particularly in Robinson Pond. Proper siting, installation, inspection and maintenance of septic systems can minimize surface and ground water contamination. In addition, municipalities have the authority to adopt regulations stricter than State standards to protect public health, safety and welfare. Local regulations increasing the distance between septic systems and surface waters have been repeatedly upheld by the NH Supreme Court (*Freedom v. Gillespie*, 1980; *Biggs v. Sandwich*, 1984).

Solid Waste Disposal

Hudson is currently under orders of the DES Waste Management Division to close its landfill located on West Road. The contaminant plume from the landfill extends into Litchfield and encompasses a portion of Chase Brook. The information contained in the February 1990 annual monitoring report for the site indicates groundwater contamination downgrade of the landfill in Hudson and Litchfield. The 1990 report recommends that the Town "proceed with landfill closure in accordance with the closure design approved by the DES in October, 1989. The intent of the landfill closure is to isolate the refuse mass, decreasing the volume of water (both groundwater and precipitation) that comes into contact with the refuse. In this manner leachate generation will be limited and groundwater quality will improve with time." The Town Council recently awarded the closure contract and construction will begin late 1990 with an expected completion of summer 1991.

The old Town dump, located on Burns Hill Road, operated as an open burning facility and landfill. The site has been identified by the EPA as a non-NPL CERCLA site with five contaminants detected. There are currently no plans for clean-up of the site at the local or State level.

In addition to the problems associated with the municipal landfill, illegal landfills are likely to exist throughout Town. Many of these areas will contain old automobiles, parts and other junk, oil and gasoline containers, common household hazardous wastes and other household refuse. A small amount of oil, gas or other petroleum products can contaminate a water supply. Therefore, it is important that these areas be identified and action taken to cleanup the sites to protect the Town's water resources.

Junkyards

Junkyards, auto salvage yards and metal recycling operations represent a significant threat to surface water and groundwater. The DES Waste Management Division currently does not regulate junkyards under the solid waste rules and little definitive information exists on their locations. The potential water quality impacts from junkyards result from the release of fluids such as motor oil, brake and transmission fluid, anti-freeze, gasoline, battery fluid and solvents containing toxic organics, metals, oil and grease. Junkyards located in stratified drift aquifers create a potentially serious problem because of rapid soil permeabilities. Aquifer protection regulations generally prohibit locating junkyards within the aquifer district. In addition, some communities have adopted junkyard regulations that specifically address water quality and other impacts.

Underground Storage Tanks

Leaks in underground storage tanks (USTs) are difficult to detect and can go unnoticed for long periods of time while causing extensive contamination of water resources. A small amount of a petroleum based product can contaminate thousands of gallons of water. UST facilities where the cumulative storage capacity is equal to or greater than 1,100 gallons are regulated by the DES-WSPCD. Facilities with a storage capacity less than 1,100 gallons, oil-transmission and oil-production facilities, motor fuel and heating oil tanks for on-site residential consumption and tanks storing non-petroleum based chemicals are not regulated by the state at this time. Appendix A contains a list of the 132 USTs registered with the WSPCD as of March 1990.

Erosion and Sedimentation

Erosion potential increases when the soil is exposed to the elements by agricultural, silvicultural and construction activities. During land conversions, much of the protective vegetative cover is stripped from the site resulting in an increase in the velocity and volume of runoff. Soil particles are carried by surface runoff into rivers, lakes and wetlands. Sediments increase the turbidity of the water, impede light penetration and cause siltation of waterways.

Methods for decreasing erosion and sedimentation include: requiring and enforcing erosion and sedimentation control plans for major subdivisions and site plans; encouraging the retention of natural vegetation; limiting development on steep slopes; and general education. The Hudson Subdivision and Site Plan Review regulations do not contain formal provisions requiring erosion and sediment control plans for proposed developments. Plans are requested during the review phase if warranted by the size or potential impact of the development.

Nutrients and Pesticides

Nutrients, particularly nitrogen and phosphorous, pose potential threats to surface waters. Elevated levels of nutrients in surface waters can lead to increased growth of algae and other aquatic vegetation. The increase in vegetation inhibits light penetration while decomposition of the vegetation decreases the amount of oxygen available to fish and other aquatic species.

One source of nutrients is agricultural runoff; however, contributions from this source are minimal in Hudson due to its limited active agriculture. Urban residential development, on the other hand, is an increasing source of nutrient

runoff. Fertilizers applied to individual lawns at improper times and rates can have a significant cumulative impact on nutrient levels in a water body. Phosphates contained in detergents are another source of residential nutrients.

Pesticides and herbicides can have dramatic and lasting impacts on the natural and human environment. Some impacts are readily apparent, as in the case of a fish kill or vegetative death caused by a one-time application. The effect of other pesticides may only be evidenced over a longer period of time. As with nutrients, the amount and timing of an application can have a significant impact on pesticides contained in runoff. Proper application of pesticides reduces the potential negative impacts to a negligible level; however, the long-term impact of pesticide residues retained in the soil and released into the groundwater has yet to be determined. Pesticide applications for a twenty-three year period, 1965-1988, have been tracked by the New Hampshire Department of Agriculture, Division of Pesticide Control and are included in a history of pesticide use in the State, Report of New Hampshire Pesticide Usage and Site Identification, 1965 - Present. The study contains information on the types, amounts and locations of pesticide applications as reported to the Division by private and commercial applicators. The information for Hudson is presented on Map III-4.

Education concerning the impacts of nutrients and pesticides is the most effective method for reducing urban residential sources. Many people do not know that a simple, inexpensive soil test can lead to the proper nutrient prescription for their lawn or garden. Fertilizer and pesticide applications can be timed not to take place immediately before rain is predicted, thereby decreasing the amount contained in runoff. Additionally, many people are willing to switch to low phosphorous detergents to aid in protecting the environment.

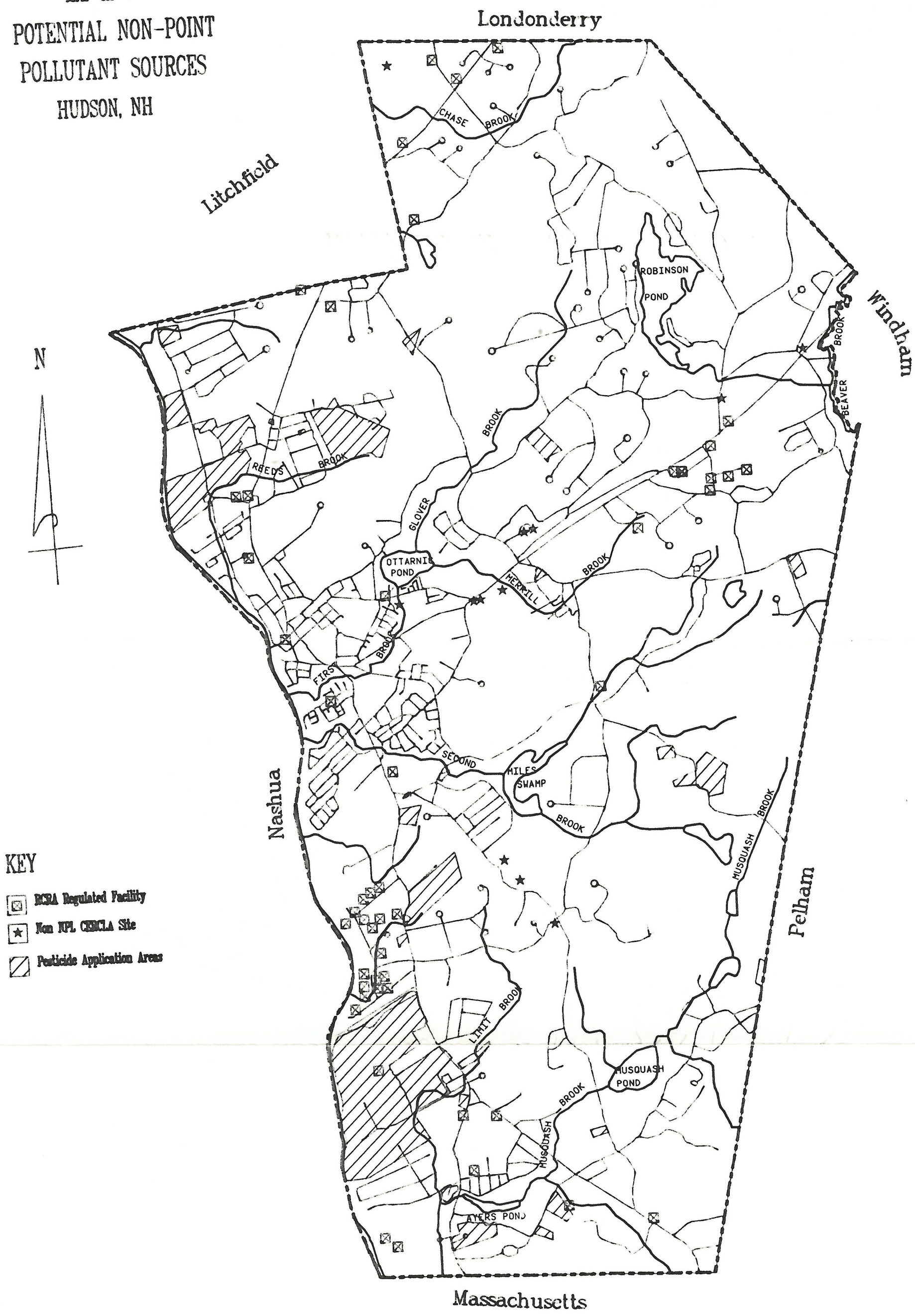
Hazardous and Toxic Wastes

The use, generation or storage of hazardous or toxic chemicals presents another threat to water resources. Facilities that treat, store or dispose (TSD) of hazardous wastes are regulated by the Federal Resource Conservation and Recovery Act (RCRA). The RCRA program addresses proper management of hazardous wastes and requires all TSD facilities to obtain an operating permit. The RCRA program regulates facilities that generate 1,000 kg or more of hazardous waste per month. A recent study, conducted by the DES WSPCD Groundwater Protection Bureau with assistance from EPA, identified fifty-one RCRA sites in Hudson. As indicated on Map III-4, the majority of the RCRA facilities are located in industrialized areas, the Sagamore Industrial Park and along Route 102.

Two sites, identified as the Burns Hill Road Area, 52 Burns Hill Road and the old Hudson landfill also on Burns Hill Road, are identified in the EPA study as non-national priority list (Non-NPL) Comprehensive Environmental Response Compensation and Liability Act (CERCLA) sites. Non-NPL CERCLA sites are contaminated sites that have not scored high enough under the EPA's hazardous ranking system to be included on the NPL. Thirty-two separate contaminants have been identified at the Burns Hill Road Area, previously a junkyard. Five contaminants have been identified at the old Hudson landfill.

In addition, the EPA study listed eleven asbestos sites as Non-NPL sites. The 1987 Waste Site Inventory, published by the DES Waste Management Division, identified 59 asbestos sites in Hudson. Of these, eighteen have been fully closed, fourteen are partially closed, nine warrant action and fourteen are under continuing investigation. Asbestos exposure poses a significant health threat and has been linked to cancer.

MAP III-4
POTENTIAL NON-POINT
POLLUTANT SOURCES
HUDSON, NH



The State of New Hampshire, Hazardous Waste Rules, 1988, regulates all generators of hazardous waste in two classifications: small quantity generators - less than 100 kg per month; and large quantity generators - greater than 100 kg per month. Therefore, the state list of regulated facilities is much more extensive than the Federal list. The State list is updated monthly and a copy of the print-out is on file for public use with the DES Waste Management Division, Bureau of Hazardous Waste.

Wildlife and Fisheries

Hudson's diverse natural resource base provides habitat for numerous plant, animal and fish species. A wide range of habitats such as wetlands, forests, fields, rivers and streams is essential to support a diversity of species in quantities healthy enough to ensure continuation. Maintenance of quality habitat is of great importance to all plant, animal and fish species. The conservation of wildlife species and habitats provide many benefits to the Town: preservation of open space and scenic views, recreational and educational opportunities, water resource protection and wind, noise and visual buffers. The quality and diversity of wildlife and plant habitats in the Town are constantly threatened by the individual and cumulative impacts of development.

Mammals, Birds and Fish

Mammal and bird species commonly found in Hudson are those indigenous to southern New Hampshire. These include: raccoons, skunks, muskrats, beavers, otter, deer, porcupines, woodchucks, squirrels, mice, bats, rabbits, doves, woodpeckers, chickadees, sparrows, jays, wrens, swallows, robins, great blue herons, owls and hawks. Bald eagles are known to winter near the Merrimack River and have been sighted in Hudson.

The New Hampshire Natural Heritage Inventory (NHI), a program of the Department of Resources and Economic Development, tracks threatened and endangered species and exemplary natural communities in the State. Using a ranking system developed by the Nature Conservancy, the NHI assesses the rarity of a species on a global and state level. The eastern box turtle is a special concern species and the only animal listed by the NHI in Hudson. The eastern box turtle is typically found in well drained forest bottomlands; however it also inhabits old fields, powerline clearings, woodlands, transitional zones with sandy soils and stream banks. The turtles emerge from hibernation in April, breed and lay eggs in June-July which hatch in August-September. Young turtles are chiefly carnivorous and eat earthworms, slugs, insects crayfish, frogs and carrion; older turtles are more herbivorous eating leaves, grass, berries and fruit. The turtles are active during the day and burrow into leaf litter at night. Bisection of habitat by roads can reduce or destroy populations.

Fish species found in Hudson's lakes, ponds and streams are those usually found in small, shallow ponds and streams. Studies by the Fish and Game Department Division of Inland Fisheries found the following species in Hudson's surface waters: northern common bullhead, large and small mouth bass, bluegill, suckers, shiners, white and yellow perch, pumpkinseed, chain pickerel, brook trout and eel. Anadromous fish species, those that spend their adult lives in salt water but return to freshwater to spawn, are being restored to their historic waters of the Merrimack River watershed. The numbers of American shad, alewife, blue-

back herring and Atlantic salmon returning to the River have increased annually. With the completion of the fish passage facility at the Amoskeag Dam, the fish now have access to the Merrimack River and its tributaries to Hooksett. Atlantic salmon, however, are currently trapped at the dam in Lowell and transported to the Nashua fish hatchery for use in the stocking program.

Plants

Plant species in Hudson are also those species commonly found in southern New Hampshire. Typical tree species include silver maple, red maple, birch, aspen, spruce and pine, while other plant species include common grasses and shrubs.

The NHI is the agency responsible for identifying and recording the State's endangered and threatened plant species. Plants are also ranked using the Nature Conservancy system. The NHI records indicate eleven endangered or threatened plant species in Hudson: rue anemone, skydrop aster, river birch, Kalm's brome-grass, walking-fern spleenwort, prostrate tick-trefoil, hairy bedstraw, slender bush-clover, geometrid-barrens metarrenthes mot, smooth-forked chickweed and pansy violet. In addition, the NHI also notes the presence of three exemplary natural communities: the southern New England dry colluvial slope forest on acidic/circumneutral bedrock or till, the southern New England lake sediment/river terrace forest and the northern New England level bog. Natural communities are "assemblages of plants and animals ecologically related to each other and their physical environment." These areas represent intact examples of New Hampshire's native flora and fauna and have the following characteristics:

Southern New England Dry Colluvial Slope fores on Acidic/circumneutral Bedrock or Till - a dry or dry-mesic forest typically on thin, rocky soils on slopes or nearly level sites where deposition of colluvial material creates soils rich in organic matter and soluble salts. The fertile soils are characterized by plant species such as flowering dogwood, ebony spleenwort, tick trefoils, ironwood, pignut hickory, four-leaved milkweed, hairy hawkweed, hairy bedstraw and bulrush.

Southern New England Lake Sediment/River Terrace Forest - a forest community of river bluffs and higher river terraces found on soils derived from wind and water deposited sediment of glacial outwash. A variety of habitats are found which support diverse plant species like hemlock, basswood, American ash, green ash, red oak, scouring rush and Christmas fern. Undisturbed and large examples are uncommon.

Northern New England Level Bog - peatlands found in wet depressions and low areas with poor or no drainage, where the familiar "floating mat: develops. Bogs are open and dominated by heath-like shrubs and coniferous trees that are stunted due to the lack of nutrients in the soil.

For the past fifteen years, the Conservation Commission has conducted an annual elm tree maintenance program to preserve the community's remaining elms. Two trees, at the library and the Wattanick Grange, are inoculated against Dutch elm disease in the spring or early summer. The program may be expanded in the future to include additional trees in Town.

The mammals, fish, birds and plants listed above represent species that can likely be found or that have been documented in Hudson and other species, including threatened and endangered, may exist in the community. The information provided by the NHI represents documented or historical occurrences and is by no means a complete representation of the species limitations. Documented species could be found in other locations in the community, as could other undocumented species. The continued presence of these and other species depends on maintaining an appropriate mix of quality habitat. This includes providing corridors or connections between large protected areas to facilitate safe movement.

Forestry

Hudson's forest lands are predominantly a mixture of hardwoods and softwoods held in small parcels. While the size of these parcels limits their potential for commercial timber harvesting, with proper management small parcels can generate incomes. Christmas trees, timber and firewood are examples of income producing management options for small woodlots. Other management options such as wildlife habitat, recreation and education provide personal satisfaction but no monetary returns. Wise management of these parcels is directly related to a number of the community's conservation objectives: open space, wildlife habitat, recreational and educational opportunities, watershed management and wood supplies.

A great deal of information and assistance for small woodlot management is available from the New Hampshire Cooperative Extension Service, the Society for the Protection of New Hampshire Forests, the New Hampshire Timberland Owners Association and private consulting foresters. Many of the services are provided free of charge or at a low cost. These organizations also regularly sponsor workshops and training seminars directed toward specific management objectives for small woodlot owners.

Information from the Hillsborough County Cooperative Extension Office indicates that the Alvirne High School Tree Farm is the only certified tree farm in the Town. In addition, the County Forester has assisted eight Hudson residents in managing their forest lands.

The Hudson Town Forest is located off Kimball Hill Road near the Pelham line. This fifty-five acre parcel is presently unmanaged. Parts of the site are rocky and steeply sloped, while other areas are wet and a PSNH power line crosses the western section of the site. The economic and recreational potentials of the site are underestimated. A properly managed forest of this size will generate sufficient revenue to cover management costs and provide a modest income; provide diverse wildlife habitats; and recreational opportunities such as hiking, cross-country skiing and birdwatching.

Existing Conservation Lands

The Hudson Master Park Plan, completed in 1988, contains information on the municipally owned conservation and recreation parcels. The Plan provides information on each site such as existing use and facilities, site constraints, access and recommendations for future use and recreation development. A synopsis of the information is presented in Table III-3. Hudson has a total of 503.69 acres of conservation and park land, approximately 2.6 percent of the total Town land area. The parcels range in size from 0.7 to 100 acres and include developed parks, large school properties and open space within subdivisions.

Of the thirty-four areas, eight are larger than ten acres, eight are between five and ten and eighteen are less than five acres. Nine areas are actively managed by the Town, seven parcels contain utility easements and 3 parcels are completely landlocked. Additionally, these areas are dispersed throughout the Town with little prospect for consolidation or interconnections. One reason for this is the subdivision regulation requirement for ten percent or less of the total area to be dedicated to the Town for open space and parks. Much of this land, however, cannot be used for its intended purpose for the following reasons: the parcel is too small or in a poor location; physical characteristics such as wetlands and steep slopes; the site is inaccessible; or major portions of the site contain utility lines and easements. Existing conservation and recreation lands are depicted on Map III-5.

In addition to outright ownership of a parcel, easements are used to protect significant lands and resources within a community. Lands protected by conservation easements in Hudson cannot easily be identified. Obtaining this information would require examining each subdivision plan and the accompanying legal language for any easements.

Maintenance and public use of the Town's existing conservation lands is lacking; existing areas and facilities could use additional repair; many parcels are unmarked; and public access is often limited. Wise use and proper management of these and other areas obtained in the future will ensure the protection of Hudson's significant natural resources and the continuation of public open space and recreation areas within the community.

The following must be considered when evaluating existing and future conservation lands:

- o the need to protect the resource and the appropriate protection measure;
- o the potential for multiple use of the area;
- o the relationship and the benefits to other resources;
- o and the location of the resource in relationship to other conservation areas.

Assessing these factors would assist the Conservation Commission in making sound decisions.

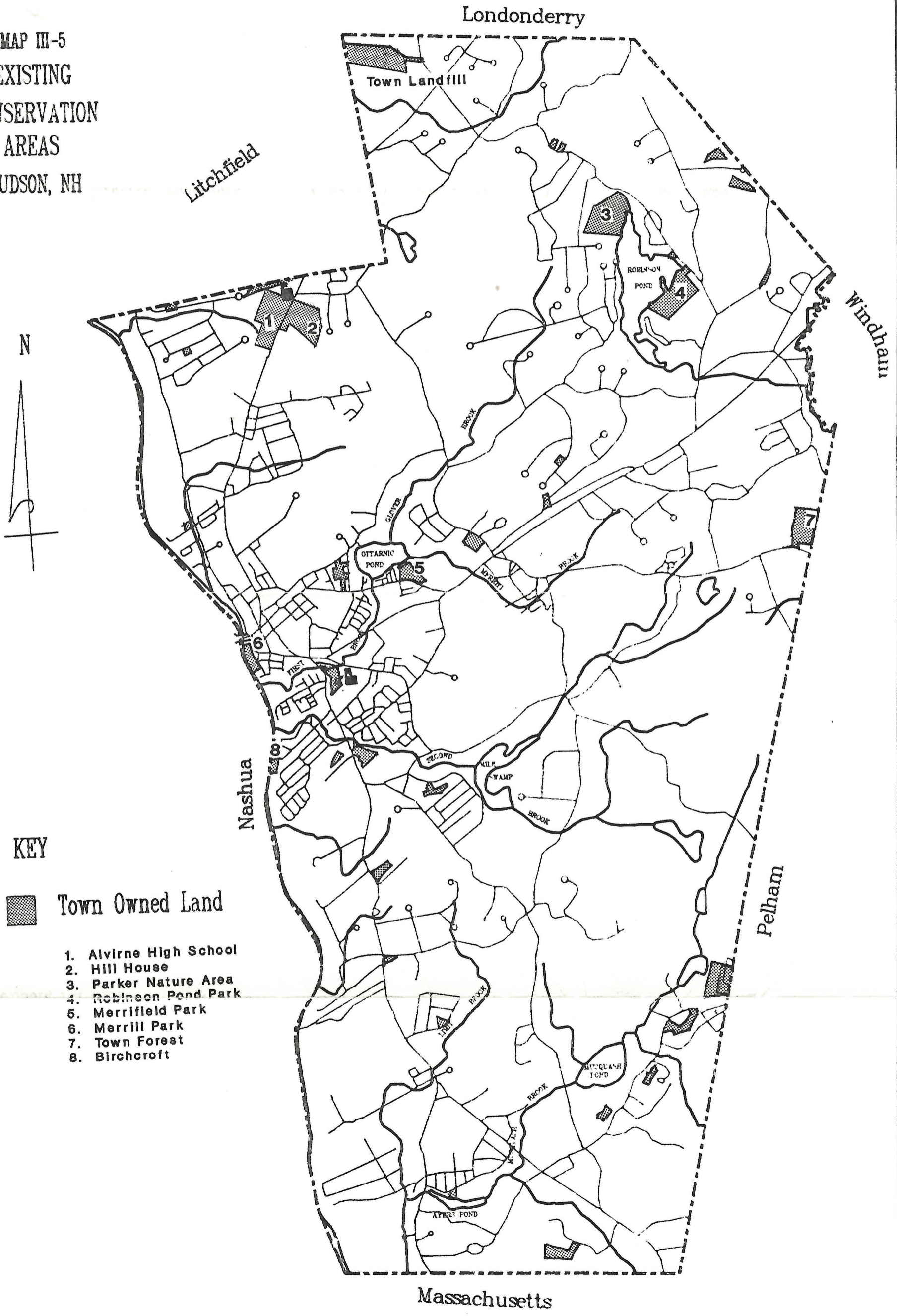
TABLE III-3

EXISTING CONSERVATION LANDS
HUDSON, NH

NAME	LOCATION	AREA (acres)	EXISTING/POTENTIAL USE
SCHOOL CONSERVATION LANDS			
Alvirne High	Route 102	100.00	school facilities, tree farm
Hill House	Route 102	<u>100.00</u>	conservation land
TOTAL SCHOOL		200.00	
MUNICIPAL/STATE PARKS AND CONSERVATION LANDS			
Birchcroft	Sycamore St.	5.33	PSNH, sewer easements, potential for river trail
Greeley Field		3.98	baseball, basketball, playground
Jette Field	County Rd.	3.50	softball
Merrifield Park	Ferry St.	5.80	boat/fishing access, picnic area
Merrill Park	Maple Ave.	9.33	car top boat access, picnic area, hiking trail along river
Parker Nature Area	easement from Woodcrest Rd.	20.20	potential nature trails
Robinson Pond Park	Robinson Rd.	50.00	swimming, playground, ice skating
Robinson Pond Access	Robinson Rd. (State owned)	1.00	boat/fishing access
Town Forest	Kimball Hill Rd.	<u>55.00</u>	potential nature/hiking trails
TOTAL PARKS		154.14	
OTHER CONSERVATION LANDS			
LOCATION	AREA (acres)	CONSTRAINTS	RECOMMENDATION
Forest Road	1.05	power easement	conservation land
Adam Drive	1.00	power easement	conservation land
Federal/Merrimack Streets	0.70		potential playground
Adam Drive	2.74	power easement	conservation land
Robinson Road	1.00	steep slope, shore frontage	conservation land
Robinson Road	1.93	two separate sites	conservation land

LOCATION	AREA (acres)	CONSTRAINTS	RECOMMENDATION
Griffin Road	3.80	power easement	conservation land
Near David Drive	7.00	landlocked, no access	conservation land
Near David Drive	9.00	landlocked, no access	conservation land
George Street	4.77	power easement	conservation land
Rangers Drive	3.03	possible wet	potential for active recreation
Windham/Barrett Hill Roads	3.06	culvert	NA
Willard Street	2.11	three sites, bisected by road	potential for active recreation
Brenton Avenue	1.00	long, narrow parcel	conservation land
Glen Drive	6.40		conservation land
Rena Street	1.20		conservation land
Wason Road	1.90	steep slopes	conservation land
Pelham line/ Musquash Pond	50.00	landlocked	potential for nature trails
Ayers Pond Road	1.00		shore frontage, potential for neighborhood playground
Shaefer Circle	24.84	bisected by road	potential for active recreation
Near Gowing Road	5.40	landlocked	multiple use park
Brook Road	6.55	steep, ledge	conservation land
Gowing Road	<u>10.07</u>		conservation land
TOTAL OTHER	149.55		
TOTAL CONSERVATION LAND	503.69		

MAP III-5
EXISTING
CONSERVATION
AREAS
HUDSON, NH



KEY

 Town Owned Land

- 1. Alvirne High School
- 2. Hill House
- 3. Parker Nature Area
- 4. Robinson Pond Park
- 5. Merrifield Park
- 6. Merrill Park
- 7. Town Forest
- 8. Birchcroft

Chapter IV.

Regulations and Funding Sources

CHAPTER IV

REGULATIONS AND FUNDING SOURCES

This chapter discusses the federal, state and local regulations that provide direct or indirect protection for Hudson's natural resources. Awareness and understanding of these regulations is the key to identifying and reporting potential violations. Enforcement of the regulations is an onerous task; therefore, assistance from concerned citizens is important to the ultimate protection of the resource.

FEDERAL AND STATE REGULATIONS

Clean Water Act

The Federal Water Pollution Control Act of 1972, last amended in 1987 and known as the Clean Water Act (CWA), combines a number of approaches to maintaining water quality. First, the CWA establishes an antidegradation policy which states that all waters with classifications exceeding the fishable/swimmable (f/s) criteria must be maintained at that level. Second, the CWA declares that all waters not meeting the f/s criteria will work toward attaining that level of water quality, and third, the CWA requires each state to establish water quality standards for all waters. Since its adoption, the CWA has resulted in significant water quality improvements throughout the country. Once polluted waters have been reclaimed and restored to levels that support aquatic life and that are safe for fishing and swimming.

Initially, the CWA provided grants for the construction of municipal waste water treatment facilities (WWTF) which had a profound impact on water quality. Funding for construction and upgrades of WWTFs has declined significantly and is now limited to assisting the states in establishing revolving loan funds to finance projects. Specific components of the CWA relative to Hudson's water resources are briefly described below.

National Pollution Discharge and Elimination System (NPDES)

The National Pollution Discharge and Elimination System (NPDES) program requires that all point dischargers obtain a discharge permit from the administering agency, in New Hampshire the Water Supply and Pollution Control Division (WSPCD) of the Department of Environmental Services (DES). The permit sets specific limitations on the content and the quantity of the discharge; establishes compliance schedules; and specifies the type and frequency of monitoring to be conducted. Effluent monitoring reports, submitted to the WSPCD on a regular basis, are reviewed to determine compliance with the parameters of a permit.

Section 401: Water Quality Certification

Any project requiring a federal permit or license that may result in a discharge to the waters of the United States must receive 401

certification. The water quality certification process serves almost as a checklist to ensure that all necessary state and federal water quality and related permits have been granted prior to the projects receipt of a federal permit or license. In New Hampshire, the WSPCD is responsible for the 401 certification process. Upon completion of the review, the WSPCD will either grant, grant with conditions or deny 401 certification. Any project denied 401 certification will not receive a federal permit or license.

Section 404: Dredge and Fill

Section 404 regulates the discharge of dredge and fill material into the Nation's waters, including wetlands. All dredge and fill activities are required by the CWA to obtain a permit from the U.S. Army corps of Engineers prior to commencing the activity. Exempted activities include: normal agricultural, forestry and ranching practices; construction of farm, forest or temporary mining roads; and maintenance of existing structures such as dams, dikes, and bridges. In addition, permits are not required for activities in the following areas: non-tidal streams with a headwater average annual flow less than five cubic feet per second; streams that are not tributaries to navigable waters; and areas less than one acre in size.

One very important component of the CWA is it grants standing to any citizen to bring a civil action in federal district court against a discharge violating an effluent limitation or compliance order. Civil suits have been used successfully in numerous cases to bring facilities into compliance. Fines from such suits are generally awarded to environmental organizations and projects.

NH RSA 485-A: Water Pollution and Disposal of Wastes

NH RSA 485-A, Water Pollution and Disposal of Wastes, the New Hampshire counterpart to the CWA prohibits the pollution of surface water and groundwater resources through the discharge of point and nonpoint sources of pollutants. State waters have been classified based on water quality and maximum acceptable pollutant concentrations as established by EPA. The WSPCD is the State agency charged with implementing the provisions, issuing permits, and enforcing RSA 485-A and the CWA. A 1989 amendment to the statute requires the reporting of any permit violations to the conservation commission or the selectmen of all downstream municipalities within 25 air miles.

NH RSA 482-A: Fill and Dredge in Wetlands and Public Waters

New Hampshire RSA 482-A, Fill and Dredge in Wetlands and Public Waters, establishes the Wetlands Board as the administrative agency responsible for regulating certain activities in the State's wetlands and public waters. The Board reviews all applications to excavate, dredge, fill or construct a structure in or on wetlands and public waters. The jurisdiction of the Wetlands Board overlaps that of the Corps under section 404 of the CWA; however, the Board regulates a broader range of activities with no statutory exemptions.

The provisions of the statute allow for conservation commission intervention in the review of Wetlands Board applications. To exercise the right to additional application review time, the conservation commission must give written notification to the Wetlands Board within ten days of the filing date

of the application. Upon notification, the Board must suspend action on the application until it receives a written report by the Commission or until forty days after the filing date, whichever is earlier. Under the Wetlands Board rules, the Conservation Commission is responsible for notifying the Board when an application involves activity in or adjacent to a designated prime wetland.

Safe Drinking Water Act

The purpose of the Safe Drinking Water Act is to ensure a safe public drinking water supply. The Act requires testing of public water supplies for regulated and unregulated contaminants; regulates underground injections of potential contaminants; and requires states to establish well head protection for public water supply wells. In order to provide safe public water supplies, local governments are required to construct water treatment plants or to develop alternate groundwater sources. The provisions of the Act are administered by the DES WSPCD under RSA 485, New Hampshire Safe Drinking Water Act, which establishes the provisions for compliance with the Federal regulation. RSA 485 also gives the WSPCD responsibility for analyzing water used for swimming and drinking, licensing of youth recreational camps and certification of water works operators and laboratories conducting water analyses.

Dams and Hydropower Facilities

The Federal Energy Regulatory Commission (FERC) is the agency responsible for licensing hydropower projects under the Federal Power Act. Before licensing, dams for hydropower projects must receive the necessary permits from other State and Federal agencies and conform to the safety and construction requirements of the DES Water Resources Division (WRD).

The WRD, under RSA 482 Dams and Flowage, regulates the construction of new dams; inspects existing publicly and privately owned dams; orders repair and removal of unsafe dams; maintains state owned dams; and regulates water levels. The statute also mandates that the WRD consider the effect of any impoundment on scenic and recreational values, fish and wildlife, natural water flows below the dam and any hazards to navigation, fishing, bathing and other public uses.

Public Utilities Commission

The New Hampshire Public Utilities Commission (PUC) licenses water, sewer and other utilities, and governs rate structures and territories. The PUC reviews proposed rate changes, utility capital improvement plans and sets standards for service. A 1986 amendment to the statutes, RSA 374:22 states: "No water company shall obtain the permission or approval of the commission to operate as a public utility without first satisfying any requirements of the Water Supply and Pollution Control Commission and the Water Resources Board concerning the suitability and availability of water." This provides limited protection for the State's water resources since the PUC must consider the environmental implications of the proposed project.

NH RSA 483: New Hampshire Rivers Management and Protection Program

The New Hampshire Rivers Management and Protection Program was established by the legislature in 1988. The Program allows any New Hampshire organization or resident to nominate a river or river segment for protection. The protection measures approved by the legislature in 1990 created three classes of designated rivers, natural, rural and community. Classification criteria are based on the

length of the segment proposed for designation, water quality, distance to nearby roads, existence of dams and level of surrounding development. The protection measures address dams and other encroachments, water quality and quantity, waste disposal and recreational use.

The 1990 legislation designated five river segments for protection under the program. The Merrimack River from the Manchester line to the Massachusetts line was designated a community river. This designation provides the following protections: prohibits the construction of new dams; allows for channel alterations with conditions; prohibits interbasin transfers of water; requires DES to study the river and establish protected in-stream flows; prohibits new landfills within the 500 year floodplain and requires a 250 foot setback for all other new solid waste facilities; and establishes headway speed as the maximum for all motorized watercraft within 150 feet of the shore. The legislation also raised the water quality classification of the River to Class B for the entire length of the segment.

A local river management advisory committee will be appointed by the commissioner of the DES for each designated river or segment. Members will be chosen from individuals recommended by governing bodies and will serve a three year term. Committee membership will represent a broad range of interests including local government, business, conservation, recreation, agriculture and riparian landowners. Committee duties include: advising the commissioner and the advisory committee on river management issues; reviewing and commenting on any federal, state or local governmental plans to approve, license, fund or construct any facilities that would impact the values for which the river was designated; and assisting in the development and adoption of local river corridor management plans.

National Flood Insurance Program

The National Flood Insurance Program was created by Congress in 1968 to decrease the damage and economic loss of flooding. As part of the program, flood-prone areas were mapped and rated according to their specific flood potential or hazard. Three specific zones were delineated on the flood insurance rate maps based on the probability of the occurrence of a storm event.

Zone A: Special Flood Hazard Areas inundated by the 100 year flood. There is a one percent chance that this level of flooding will occur in any given year.

Zone B: Areas between Zone A and the limits of the 500 year flood, including areas of the 500 year floodplain that are protected from the 100 year flood by dike, levee or other water-control structures; also areas subject to certain types of 100 year shallow flooding where depths are less than one foot; and areas subject to 100 year flooding from sources with drainage areas less than one square mile.

Zone C: Areas of minimal flooding.

To qualify for the Flood Insurance Program, localities must adopt local land use and building construction controls designed to reduce the level and impacts of flooding in compliance with minimum standards established by the Federal Insurance Agency of the Department of Housing and Urban Development.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA), administered by the EPA, regulates the treatment and disposal of hazardous wastes and solid wastes, and the underground storage of hazardous wastes and petroleum products. The Act covers the generation, transport, treatment and disposal of hazardous wastes. In New Hampshire, RCRA requirements are handled primarily by the DES Waste Management Division (WMD); however, underground storage of hazardous, raw materials and petroleum products is regulated by the WSPCD through the oil pollution control program. NH RSA 147-A, Hazardous Waste Management, provides the guidelines for regulating hazardous wastes in the State. The Hazardous Waste Rules, He-P 1900, developed under the authority of RSA 147-A establish standards for packaging and labeling; generators, transporters and owners and operators of hazardous waste facilities; permitting of waste facilities; inspection and enforcement. The State regulation applies to facilities that generate or store 100 kg or more of waste per month while the Federal regulations apply facilities that generate or store 1,000 kg or greater per month.

Funds for the cleanup of hazardous waste disposal sites are provided by the Federal Comprehensive Environmental Response Compensation and Liability Act (CERCLA) also known as "Superfund". There are currently no national priority superfund sites in Hudson. The State of New Hampshire established a hazardous waste cleanup fund in 1981 to provide money for non-qualifying CERCLA hazardous waste sites. The fund is administered by the WMD; however, the Governor must certify that the circumstances require the use of the fund. In addition, the fund may be used for conducting household hazardous waste cleanup projects on a dollar for dollar matching basis with the participating municipalities or other local or regional organizations. Hudson regularly participates in household hazardous waste clean-up days sponsored by the Nashua Region Solid Waste District.

Solid Waste

The DES Waste Management Division is the New Hampshire agency responsible for administering and enforcing the RCRA provisions relative to solid waste and its New Hampshire counterpart RSA 149-M, Solid Waste Management. This statute along with the New Hampshire Solid Waste Rules, He-1901, establishes the standards for public or private transfer, treatment, processing and disposal of solid waste, including septage and sludge. Each municipality is responsible for providing or assuring access to an approved septage and solid waste facility for its residents. Municipalities must participate in a solid waste district or subdistrict and each district prepares a solid waste management plan consistent with the state plan. Hudson's current voluntary curbside recycling program for aluminum, glass and newsprint results in a 9.5-10 percent average monthly reduction in volume. The Town is negotiating a new recycling contract with extended parameters to include mixed paper, magazines and catalogs, aluminum foil and ferrous metal cans.

Toxic Substances

The EPA regulates the manufacture, distribution and use of chemical substances under the Toxic Substances Control Act of 1976. Pesticides are regulated by the EPA under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). The NH Department of Agriculture's Division of Pesticide Control is the agency

responsible for administering the provisions of FIFRA under the guidelines established by the Pesticide Control Board (PCB) which control the labeling, sale, transportation and use of pesticides. In addition, commercial applicators must be registered by the PCB annually in order to apply pesticides in the State.

Underground Storage Tanks

The states have the primary responsibility for administration and enforcement of the underground storage tank (UST) provisions of the RCRA. The WSPCD regulations, Ws 411, incorporate the federal requirements and include additional state provisions. The rules apply to non-residential underground oil storage facilities where the capacity of any one tank or the cumulative capacity of the facility is 1,100 gallons or greater. These facilities are required to register and obtain a permit from WSPCD. Oil transmission and oil production facilities, residential heating oil tanks less than 1,100 gallons, tanks for the storage of non-petroleum based chemicals and oil facilities with a cumulative volume less than 1,100 gallons are exempt from existing state regulations. Motor fuel USTs with a capacity of 110 gallons or greater must also register with WSPCD.

Legislation passed in 1988 created an oil discharge cleanup fund from a tax on gasoline and diesel distributors. Collected by the Department of Safety Services, the fund is disbursed by the oil fund disbursement board to owners of USTs that require cleanup. Owners must spend a minimum amount, which varies depending on the number of facilities owned, before becoming eligible for funds under this program.

Significant Alteration of Terrain Permits

RSA 485-A:17 requires that all dredge, excavation, fill, mining, transportation of forest products and construction activities located in or on the border of the State's surface waters, ponds or lakes greater than 10 acres in size, obtain a permit from the WSPCD. Permits are also required for all construction or earth moving activities that would disturb 100,000 contiguous square feet or more regardless of the location. The purpose of this regulation is to control water pollution that may result from increased runoff and alteration of drainage patterns. The WSPCD is concerned with potential negative water quality impacts caused by the proposed activity.

Sewage Disposal Systems

Sewage disposal systems are regulated by the WSPCD under NH RSA 485-A. The statute requires that all subdivisions with lots of less than 5 acres not serviced by public water and sewer be approved by the WSPCD. The design, construction and operation of all septic or other subsurface wastewater disposal system must be approved by WSPCD. The WSPCD Subdivision and Individual Sewage Disposal System Design Rules establish minimum guidelines and standards for the design and installation of subsurface waste disposal systems.

Septic tanks and leachfields are required to be set back a minimum distance of 75 feet from surface water, open drainage areas, private wells, reservoirs, and neighbors' foundations. The minimum setback is 200 feet from community wells and 400 feet from municipal wells. These represent only a few of the important requirements established by the rules. In addition, these are minimum setback standards; individual municipalities have the authority to adopt more stringent standards governing septic system design and installation.

Air Quality

Under the Clean Air Act, the EPA established National Ambient Air Quality Standards for primary and secondary pollutants. These pollutants include particulates, sulfur oxide, nitrogen oxide, carbon monoxide, ozone and lead. The states are responsible for attaining and maintaining these standards and are required to submit a State Implementation Plan for EPA approval. RSA 125-C, Air Pollution Control is the New Hampshire counterpart of the Clean Air Act. The DES Air Resources Division is responsible for implementing the provisions of the Clean Air Act and RSA 125-C. The Division regulates the construction, installation, operation and modification of air pollution control devices and sources. A permit system is used to control and monitor stationary source emissions. Applicants are required to submit information concerning the type of fuel, operating schedules and pollution control devices for the proposed facility. Depending on the type and volume of emission, permits are issued for one to three years. Approval is subject to compliance with applicable emission limits and air quality standards.

Endangered Species Act

The Federal Endangered Species Act requires protection of critical habitat for endangered or threatened species. The Federal endangered species list contains 245 mammals, fish, birds, insects, reptiles, crustaceans and plants. The NH Endangered Species Conservation Act, RSA 212-A, prohibits the killing, taking, possession, transportation or sale of any endangered or threatened species. The NH Fish and Game Department is responsible for animal species while the Department of Resources and Economic Development (DRED) is responsible for plant species.

Cutting of Timber Near Public Waters

New Hampshire RSA 224:44a regulates the cutting of timber near public waters and public highways. The statute restricts cutting to no more than 50% of the basal area of trees within 150 feet of any pond or lake larger than 10 acres, navigable river or public highway, or within 50 feet of any perennial stream, brook or river without a permit from DRED.

Logging operations must comply with all other State regulations such as obtaining a Wetlands Board permit for a permanent or temporary road crossing a perennial or intermittent stream. In addition, the intent to cut form, filed with the municipality, contains an agreement to conduct the operation using the appropriate best management practices to prevent surface water pollution.

Motor Boat Operating Restrictions

The NH Division of Safety Services is responsible for boating safety in the fresh waters of the State. NH RSA 489 allows for speed, horsepower and propulsion restrictions for boats on fresh water to be established by the Legislature. In addition, NH RSA 270:12 allows these same restrictions to be set by the Director of Safety Services if petitioned by 25 or more persons, by any association with 25 or more members, or by any governmental subdivision or agency.

LOCAL REGULATIONS

Zoning

Zoning is the principal tool available to localities for managing land use and development. After adoption of the general statement of objectives and the land use sections of the Master Plan, municipalities are granted the power to zone, RSA 674:16, "for the purpose of promoting the health, safety or the general welfare of the community..." This power includes the right to adopt innovative land use controls such as phased development, open space development, performance standards, flexible and discretionary zoning, and environmental characteristics zoning (NH RSA 674:21).

Zoning is used to establish the appropriate locations for types and classes of land use within a municipality and to establish specific requirements for land uses and structures. One stated purpose of zoning is to "assure the proper use of natural resources..." (NH RSA 674:17). Conservation zoning is used to protect areas sensitive to development based upon the protection of public health safety and general welfare. Conservation districts are generally overlay districts that apply additional conditions to the underlying zone. Examples of conservation districts include: wetland districts, floodplain districts, aquifer districts, and shoreland protection districts to name a few.

Open Space and Planned Unit Development

By allowing a certain flexibility in design, open space or planned unit developments (PUDs) can be used to protect the environment and conserve open space. Open space developments, usually residential, allow for an increased density of development on a portion of the site while maintaining the overall density and conserving open space. Environmentally sensitive areas of the site can be left undeveloped and preserved as open space or used for recreation. PUDs are laid out similar to open space developments but contain a mixture of land uses, such as single family, multi-family, commercial or office. Additional conditions are also usually applied to open space and PUDs for buffers, stormwater runoff and open space.

Incentive Zoning

Incentive zoning provides developers with bonuses, usually in the form of increased density, for providing public benefits. Bonuses can be awarded for such things as: keeping development away from wetlands, floodplains and steep slopes; maintaining buffers around the development; minimizing cutting of vegetation; and providing more than the required amount of open space.

Performance Standards

Performance standards differ from traditional zoning in that they allow development based on its overall impact, on such things as traffic, density, water and sewer, drainage and noise, where traditional zoning allows development based on the type of use and the standards of a specific zone, minimum frontage and setbacks for example. Therefore, the use of performance standards can provide greater flexibility of design than traditional zoning. The increased flexibility may enhance the protection of environmentally sensitive areas. Performance standards are incorporated into existing zoning regulations, for example the requirement of no increase in stormwater drainage off-site usually found in subdivision and site plan review regulations. Performance standards

are also common components of shoreland protection regulations. Effective use of performance standards will require sufficient time and expertise on the part of the local planner in reviewing the potential impacts of proposed developments.

Subdivision Review Regulations

Municipalities can adopt subdivision review regulations regardless of whether or not they have adopted a zoning ordinance. Subdivision regulations establish guidelines governing the subdivision of land. Regulated areas relative to conservation include the provision of "adequate open space"; the provision of parks of adequate size and suitable location for playgrounds and other recreational purposes; requirements that the land be buildable without posing any health hazards; and prescribed minimum lot sizes in conformance with the zoning including appropriate areas for septic systems (NH RSA 674:36). Subdivision regulations can promote the conservation of natural, historic and cultural resources located in the community.

Site Plan Review

Municipalities may review nonresidential or multi-family developments under the authority of NH RSA 674:43, if they already have zoning and subdivision regulations, upon adoption of site plan review regulations. The site plan review regulations may contain provisions for ensuring adequate stormwater drainage; utilizing pollution control measures; maintaining the quantity and quality of surface and groundwater; protecting natural land features such as wetlands and steep slopes; and providing adequate amounts of open space and landscaping in keeping with the surrounding character of the community.

Excavation

NH RSA 155-E, Local Regulation of Excavation, grants municipalities the authority to adopt excavation regulations that comply with the minimum standards contained in the statute. RSA 155-E contains the following provisions:

- o communities must provide reasonable opportunities for excavations;
- o all excavations are required to obtain a permit from the regulating board unless specifically exempted by statute;
- o all excavations must comply with the operational and reclamation standards;
- o an appeals process to exempt excavations for Department of Transportation highway projects from local zoning;
- o projects specifically prohibited;
- o communities can order the reclamation of abandoned excavations;
- o and the posting of a bond sufficient to cover site reclamation.

Additional Local Protection Mechanisms

Prime Wetlands

Prior to designating prime wetlands, a municipality must first conduct a wetlands inventory in accordance with the rules of the Wetlands Board (Wt Chapter 700). Based on the evaluation conducted in the inventory, those wetlands determined to be of high value can be brought to town meeting for designation as prime wetlands. Upon approval, the wetlands maps and designations can be filed with the Wetlands Board. Permit applications for activities in designated prime wetlands will be more closely examined for potential impacts.

The community's conservation commission is responsible for notifying the Wetlands Board when a proposed activity involves or is adjacent to a prime wetland. Upon verification, a public hearing will be ordered and held by the Wetlands Board who will then make the final decision on the application. If approved, the permit will have an effective date twenty-eight days after the decision to allow for appeal. Though prime wetlands designation does not guarantee protection, it does ensure a more detailed review of the permit application and closer scrutiny of the potential impacts of the proposed activity.

VOLUNTARY MECHANISMS

A number of land protection mechanisms exist that are self-imposed by the landowner. These techniques are often more effective and binding than regulatory measures available to localities. The techniques currently include acquisition of a parcel through purchase, donation or purchase of an easement and current use tax assessments.

Current Use Assessment

The current use assessment program, authorized by NH RSA 79-A, allows for reduced property assessments on parcels of field, forest or farm of ten acres greater; on wetlands of any size; on "natural preserve" land or recreation land of any size; and on active farmland of any size with at least a \$2,500 annual gross value of product. Applications to the program are conducted through the local assessors and are due by April 15. Upon approval of the application and acceptance into the program, the assessed value of the property will be lowered to the level prescribed by the program. Removal from the program or a change to a non-qualifying land use results in a 10% land use change tax based on the assessed full value at the time of the change and applied to that tax year.

Parcels less than ten acres may qualify for a discretionary easement. This program requires the land holder to give the easement to the Town for a minimum time period of 10 years. During that time the land owner cannot develop, subdivide or otherwise intensify the use of the tract. Application is done through the planning board in April which then makes a recommendation to the municipal governing body on acceptance of the easement. Once accepted the easement is registered and early removal or a change in land use would result in a penalty, however, no penalty will result if the time contract is met.

A 1988 amendment to the statutes, allows municipalities to designate the land use change tax penalty assessed for withdrawal from the program for conservation acquisitions. Current use is administered by the Department of

Revenue Administration. The current use and discretionary easement programs are available to all interested individuals. Additional information on current use taxation is available from the assessors office.

Acquisition

Fee simple ownership of a parcel is the only method of assuring absolute protection. It is also the most expensive method, very often beyond the means of a municipality. In addition, municipal ownership removes property from the tax rolls which may decrease the potential of acquisition. The efforts of private non-profit conservation organizations are also hampered by a lack of funding for land purchases; however, alternatives to fee simple purchase do exist.

Donation

Donation is the simplest and least expensive method of acquiring conservation lands. The donor is assured long-term protection of the land and relieved of the property taxes. Contributions to qualified charitable organizations would also provide some federal income tax deductions.

An outright donation of full title and ownership of the property is the most direct method providing the maximum tax benefits. A bequest in a will is another form of donation. While this method ensures long-term protection and a reduced estate tax, it does not provide any immediate tax benefits such as property tax relief and charitable deductions. A third form of donation is donation of a remainder interest. This involves the immediate donation of the property but the donor reserves the right to its use for the remainder of his or some other specified family members' lifetime. The tax deduction for this type of donation is based on the remainder of the full market value minus the lifetime use of the property. Thus, the donor would receive a present benefit less than that of an outright donation but greater than a bequest.

Tax Default

Municipalities can acquire and sell at public auction lands on which the owner has failed to satisfy property tax obligations. The statute governing such acquisition and sales, RSA 80, also allows a municipality to retain the property for public purposes if approved by a vote of the governing body. This is a simple and inexpensive method for communities to obtain conservation lands. To effectively use this method, communities should investigate the potential public and conservation value of the parcel prior to disposal.

Conservation Easements

Conservation easements, authorized by NH RSA 477:45-48, may be given or sold to the municipality or a private conservation organization. A conservation easement places permanent restrictions on the use of the property allowing the land owner to maintain ownership while protecting the property from development. The terms of an easement are flexible and can be tailored to the desires of each individual landowner. The restrictions of the easement are perpetual and binding on all future landowners.

Donation of an easement to a charitable organization entitles the donor to a charitable income tax deduction for the reduced value. The IRS has established a set of criteria outlining the type of conservation easements that qualify as charitable deductions. Compliance with these criteria is important if

the landowner is seeking a charitable income tax deduction. The organization receiving the easement is responsible for enforcing the conditions of the easement and therefore must establish a regular monitoring program and provide for potential legal enforcement.

Options and Rights of First Refusal

An option establishes the price at which the municipality or an organization can purchase the land during a specified period of time. This guarantees the purchase price while allowing the organization the time it needs to raise the money. The process works in the following manner. First the landowner and the organization establish a purchase price for the parcel. Second, a deadline is established and the owner agrees not to sell the property to another party during that time period. The organization then uses the time to raise the money necessary for the purchase. If the money is not raised by the deadline, the owner is free to sell the property to another party. If it is raised, then the group proceeds with the purchase of the property at the agreed upon price.

A right of first refusal is less specific than an option in that it simply guarantees the municipality or the conservation group the opportunity to purchase the land at a price equal to a bona fide offer. For example, a conservation organization would obtain a right of first refusal from a landowner in the event that he wished to sell his property at some time in the future. If the landowner receives an offer from another individual, the conservation organization has the option to match the offer or to negotiate the purchase at a lower price before the property is sold. A right of first refusal is less binding than an option, however, it does afford some legal means for municipalities and conservation organizations to acquire land.

Each alternative buys a little time for the conservation organization to raise money for the purchase. In neither instance, however, is the organization obligated to purchase the property.

Deed Restrictions

Deed restrictions provide landowners with the opportunity of placing restrictions on the use of the land. The conditions of the restriction are up to the landowner. For example, the deed may allow agricultural use and prohibit the subdivision or development of the property. The restrictions are carried with the property in perpetuity; however, if circumstances change the court may nullify the conditions. An example of a change in circumstances would be intense industrial development of surrounding parcels with only a small protected parcel remaining.

Bargain Sales

A bargain sale is an alternative to a donation and a market value purchase. A bargain sale allows a conservation organization to purchase a parcel of land at less than full market value and the owner can take a charitable deduction for the difference between the sale price and the full market value. This technique allows organizations to acquire total ownership of the property at a lower cost while still allowing the landowner to receive some compensation.

FUNDING SOURCES

Most communities do not have large budgets for purchasing conservation lands. Therefore, it is necessary for them to obtain funding from one or a combination of other sources or to work in conjunction with other conservation organizations. Competition for the limited funds available for land conservation is intense so it is important to be aware of all the alternatives. The following sections will briefly identify funding sources and programs at the federal, state and local level.

Land and Water Conservation Fund

The Land and Water Conservation Fund originating with the U.S. Department of Interior, is administered by the New Hampshire Department of Resources and Economic Development Division of Parks and Recreation. The fund pays up to 50% of the appraised fair market value for the purchase of conservation and recreation lands by governmental units. The remaining 50% is to come from the locality, private sources or a donation from the landowner. Municipalities, school districts and the State are eligible recipients of the fund. As with most federal programs, appropriations to the Land and Water Conservation Fund have been declining.

Funds are distributed through a competitive application process. Each section of the application is assigned a point value and these points are totaled at the end of the review procedure. Applications are then ranked in order of the number of points received and those with the most points receive funding.

The staff of the Division of Parks and Recreation is available to assist communities in completing the grant applications. Early contact with the Division is advisable to assure accurate and timely completion of the application.

Department of Fish and Game Funds

The New Hampshire Fish and Game Department receives federal funds under the Pittman-Robertson, Dingell-Johnson and Wallop-Breaux Acts for land acquisition. These funds pay 75% of the appraised fair market value of land purchased by the Department to provide public access to ponds and rivers; and to protect significant wildlife habitats, fish and game management areas and critical habitat for endangered or threatened species. To apply for the funding, the community should identify a parcel for public access and contact the Fish and Game Department. The Fish and Game Department will analyze the suitability of the site based on their goals and if the site is suitable proceed with the process. The major problem with this program is the municipality must come up with 100 percent of the funding for the site up-front and 75 percent of the cost will be reimbursed by the government. There are, however, ways to get around this problem and the Fish and Game Department has a great deal of experience with this program. Additionally, the land must be turned over to the State for management. All Fish and Game lands are open to the public for hunting, fishing and other recreational activities not in conflict with the management goals.

Sources of Community Funds

The conservation commission may have funds that could be used to acquire property or easements within the Town. These funds may come from the municipal budget or from some other source. The municipality may also vote to appropriate

funds for the purchase of lands that are deemed significant and important to the entire community. In addition, fund-raising efforts are often successful in raising the funds needed to acquire an important parcel.

The current use change tax is another source of revenue for the purchase of conservation lands. Municipalities have the authority, under RSA 79-A:25, to dedicate all or a portion of the current use change tax for purchase of conservation lands. This action must be approved, however, by a majority vote of the governing board. Many municipalities have already dedicated the current use change tax for the purchase of conservation lands.

Private Funds

Another alternative to public funding sources and acquisition is acquisition by a private, non-profit, land-holding conservation organization. Most conservation organizations have limited budgets for purchasing land and conservation easements; however, if the parcel is significant, an arrangement can usually be made. Conservation organizations active in New Hampshire include: the Audubon Society, the Society for the Protection of New Hampshire Forests and the Nature Conservancy.

Chapter V.

Recommendations

CHAPTER V

RECOMMENDATIONS

The Town of Hudson is concerned with and committed to the conservation of its important natural resources. This Conservation Plan is the initial step in the protection process. Previous chapters have established the goals and objectives, examined Hudson's natural resource base and discussed existing federal, state and local protection mechanisms. This information led to the following recommendations to implement the plan and achieve the goal of conserving, protecting and managing Hudson's natural resources.

COMMUNITY ACTION

Community actions will have the greatest influence on conservation and sound management of Hudson's natural resources. Most of the issues surrounding the Town's natural resources are most effectively addressed at the local level through land use regulations, enforcement, education and citizen involvement.

Conservation

Analysis of the information reveals that conservation land represents a small portion of the Town's total area, 2.6 percent. The areas that do exist have limited public access and are underutilized for recreation purposes. In addition, much of the conservation land cannot be used for its intended purpose due to size, location and physical constraints. The following recommendations address the future acquisition of conservation land and the maintenance and use of existing open space and recreation land.

1. Identify parcels with significant natural resources for future acquisition. During the identification process consider the need for protection and the importance of the resource, the relationship to other resources, the multiple use aspects of the parcel and its location. Appendix B contains a sample project evaluation system that can be used to assess future conservation lands.
2. Acquire additional conservation land and easements. Conservation land represents only 2.6 percent of the total land area of the Town. This is significantly below State standards, 5.4 percent calculated based on Hudson's population, and conservation lands provided by other communities in the region.
3. Implement the recommendations of the Master Park Plan for the existing conservation lands.
4. Develop trail systems in the Parker Nature Area, the Town forest, the Alvirne High School and Hill House lands, along the Merrimack River and other areas where such trails would not damage the resource or disturb sensitive wildlife species. Volunteers could be enlisted to assist in trail construction, locating interpretive markers and maintaining the system.
5. Acquire access to the conservation land along the Pelham line and Musquash Brook and develop interpretive nature trails.

6. Identify and develop locations for outdoor classrooms to be used by the school system in their environmental education programs.
7. Implement the plan for Merrill Park, especially the development of access to the Merrimack River.
8. Develop a management and maintenance plan for existing and future conservation lands to ensure wise management and their continued existence for future generations of Hudson residents.

Regulatory Protection

Zoning, the principle tool for regulating local land use, is a low-cost, effective mechanism for protecting dispersed resources such as wetlands, floodplains and shorelands. While existing regulations provide direct and indirect protection for the Town's natural resources, amendments to these regulations and adoption of additional regulations would increase natural resource protection.

1. Develop and adopt regulations creating a shoreland protection district to protect the water quality and scenic character of the Town's lakes, ponds, rivers and streams. Shoreland protection districts generally regulate activities within a specified distance of the mean high water mark including: permitted and prohibited uses, minimum setbacks for structures and other activities, maintenance of a vegetative buffer strip and cutting limitations. Shoreland protection districts protect water quality by decreasing the potential for erosion; by providing buffers to filter sediments and nutrients from runoff; and by conserving the natural, undeveloped character of the shore.
2. Amend the floodplain regulations to restrict the construction or enlargement of buildings and structures within the 100 year floodplain.
3. Amend the zoning ordinance to include a definition of a wetland. Adoption of the federal definition, based on the three criteria of vegetation, hydric soils and hydrology, is recommended for consistency with state and federal regulatory agencies.
4. Amend the wetland regulations to include provisions for septic system and leachfield setbacks based on soil type as follows:
 - a. systems located entirely or partially in highly permeable soils (a permeability of 6 inches per hour throughout as indicated in the USDA Soil Survey of Hillsborough County, NH Eastern Part,) - 125 feet;
 - b. systems located entirely or partially in somewhat poorly drained soils, moderately well drained soils or soils with a restrictive layer and a slope of 8% or greater - 100 feet; and
 - c. systems located in all other soils - 75 feet.

These setbacks have been recommended by the Hillsborough County office of the Soil Conservation Service. Setbacks based on soil types have been upheld in by the New Hampshire Supreme Court (*Freedom v. Gillespie*, 1980; *Biggs v. Sandwich*, 1984).

5. Conduct a prime wetlands study to identify significant wetlands in the community. The designated prime wetlands should be provided with a greater level of protection based on their significant characteristic(s). Applications for activities in or adjacent to designated prime wetlands will also receive closer scrutiny by the Wetlands Board. This study will also provide additional information for the Town's natural resource data base.
6. Develop and adopt minimum lot size standards for lots with on-site septic and water based on the soil potential for septic tank absorption fields, as identified in the Hillsborough County Soil Potentials for Development. The Hillsborough County office of the Soil Conservation Service recommends the following:
 - a. soils receiving a very high rating - 1 acre;
 - b. soils receiving a high rating - 1.5 acres; and
 - c. soils receiving a medium, low, or very low rating - 2 acres.
7. Amend the zoning ordinance to prohibit development on slopes greater than 25% and to require erosion and sedimentation control plans for construction on 15-25% slopes, particularly in sensitive areas adjacent to wetland and surface waters. Slopes greater than 25% are highly susceptible to erosion if disturbed.
8. Develop and adopt an aquifer protection district to protect the significant groundwater resources of the Town. Consideration should be given to developing cooperative agreements with neighboring municipalities to protect intermunicipal aquifers. Hudson should be particularly concerned with the SNWC well fields in Litchfield since they supply the Town's water.
9. Amend the subdivision and site plan review regulations to require no increase in off-site surface runoff. This means that stormwater runoff will have to be handled on the site and will decrease the impacts on surrounding lands.
10. Obtain conservation and pedestrian easements along the Merrimack River and other water bodies and watercourses throughout the community to protect water quality and scenic views, and to provide public access to these resources via a coordinated system of trails.
11. Improve enforcement of local land use regulations and the conditions of approved plans. Enforcement is crucial to the proper installation and maintenance of environmental protection mechanisms such as erosion control.
12. Assign a Conservation Commission member to follow development proposals through the review and construction processes. The physical presence of a Commission member will ensure that the Commission's concerns will be addressed at the public hearing. Periodic site inspections will facilitate the reporting of violations to the appropriate municipal official for further inspection.
13. Consider providing developers with the option of either contributing funds to purchase conservation and/or recreation lands or providing open space within a subdivision. This will give the Town the opportunity to purchase

and protect large parcels of significant land, and to develop a planned network of parks throughout the community. The current method of requiring open space in each development has resulted in the Town owning a number of small parcels that cannot be used for their intended purpose.

Natural Resource Data Base

Early in the development of this plan, the Conservation Commission expressed concern over the lack of information available on the Town's natural resources. Information on significant resources and existing conservation easements is dispersed and therefore, difficult to obtain. The following recommendations are designed to provide the information necessary to protect the significant natural resources of the Town.

1. Establish a computerized, natural resource data base, or geographic information system (GIS), that would include information on the location and significance of the Town's natural resources. The data base could include such information as: significant features, location, areal extent, current ownership and land use, and conservation easements. A computer data base containing this information would allow quick updates, identify parcels for future fee simple or conservation easement acquisition and provide a system to track conservation areas throughout the Town. The NRPC GIS contains information for Hudson including: surface waters, watersheds, groundwater, nonpoint sources of pollution and soils.
2. Produce a map that identifies existing public and private conservation, lands and easements. Visual displays are very effective and in Hudson's case will show the lack and dispersed nature of conservation lands.
3. Request that the Planning Board file copies of conservation easement legal language and the approved plan with the Conservation Commission so that the information can be quickly added to the data base.

Public Awareness

Public awareness of the potential threats to and benefits of a diverse natural resource base is central to conservation and sound management of those resources. Education is the key to increasing resident's knowledge of and respect for Hudson's natural resources.

1. Develop a pictorial display to inform residents of the role and activities of the Hudson Conservation Commission. The display can be exhibited at public meetings and gatherings such as Old Home Days to improve public awareness, promote the activities of the Conservation Commission and generate volunteers.
2. Sponsor a series of informational meetings on Hudson's significant natural resources and their potential threats. Topics could include: the Merrimack River; water resources protection and conservation; proper applications of fertilizers and pesticides for gardeners; attracting wildlife to your yard; and highlights of specific areas in the community such as Mile Swamp and Parker Nature Center. Slide shows and other visual presentations would be effective tools. Speakers for the workshops can be obtained through numerous sources such as the Merrimack River Watershed Council, the SCS, the Cooperative Extension Service, the Division of Parks and Recreation and other state agencies, and community residents.

3. Create and distribute simple pamphlets on existing and future public conservation lands. The pamphlets should contain general information about the area including: location; directions to the site; where to park; permitted activities; trail maps; distinctive features - geology, wildlife species, historic; and anything else of significance. These pamphlets could be made available to residents at the Town Hall, the library or other high traffic location.
4. Develop a network of volunteer speakers who are willing to conduct presentations and discussions on environmental issues. A diverse community like Hudson will have numerous individuals willing to share their knowledge with others.
5. Develop additional, and promote existing, environmental education programs in the schools. Existing programs sponsored by the Merrimack River Watershed Council, the NH Fish and Game Department and the Cooperative Extension Service address many of Hudson's conservation objectives. In addition, outdoor classrooms and interpretive nature trails developed and used by the local schools would focus on areas and issues in Hudson, thereby, increasing children's and resident's knowledge and interest in the community.
6. Increase awareness of Conservation Commission activities by writing a monthly information column for the newspaper. Articles should focus on one topic or issue and highlight Commission activities. Articles could be written by Commission members, Town residents and guests from throughout the region.
7. Conduct tours of conservation areas for small groups on a regular basis. Getting people to the resource generally increases their interest in its preservation and management.
8. Develop a list of volunteers willing to assist the Conservation Commission in their activities such as constructing and maintaining trails and conservation areas, monitoring water resource, improving wildlife habitat and the elm tree conservation effort. Many people would be willing to assist the Conservation Commission if given a task to do and some direction. Volunteers can be enlisted through other activities and through publicity in the newspaper.
9. Conduct workshops designed to assist landowners in managing their properties for specific objectives in an environmentally sound manner. Workshops could focus on increasing the diversity of birds and animals in the backyard, the importance and benefits of buffers along water ways and wetlands, composting and gardening, and water conservation.

Public Access

Public access to Hudson's existing conservation lands is inadequate. Getting people to the site is an essential part of educating them on the significance of the resource and its potential threats. Public use and enjoyment have led to the protection of many resource areas throughout the State. People will rally to support protection of a threatened resource that they have seen and enjoyed first hand.

1. Develop and distribute a brochure identifying the existing conservation lands in the Town. Increased awareness of the resource may increase pressure on Town officials to provide public access.
2. Develop and install coordinated signage to identify municipal recreation and conservation lands, access points and parking areas.
3. Create a trail system along the Merrimack River and its tributaries as part of the statewide NH Heritage Trail. Assistance in organizing a local trail committee, identifying a trail corridor, constructing the trail and developing a maintenance program is available from the NH Division of Parks and Recreation, the Nashua Regional Planning Commission and other organizations.

IMPLEMENTATION

Successful implementation of these recommendations will require the cooperation and involvement of the entire community. The Conservation Commission is the lead organization; however, the Planning Board, the Town Council, municipal staff and Hudson residents all have important roles in protecting the Town's natural resources.

Conservation Commission

The statute which allows communities to create conservation commissions, NH RSA 36-A, also charges the commissions to inventory and maintain an index of the Town's natural resources; coordinate the activities of unofficial conservation organizations; and provide public information on conservation issues. The Hudson Conservation Commission is the municipal organization whose principal role is to identify and protect the Town's significant natural resources and to provide public education on conservation issues and needs. Many of the recommendations need to be undertaken by the Conservation Commission with assistance from volunteers and conservation organizations.

The Conservation Commission is responsible for the following activities associated with implementing the recommendations and achieving the objectives of the plan:

1. Developing and maintaining the natural resource data base.
2. Mapping the existing conservation areas and updating the map as necessary.
3. Proposing amendments to the zoning ordinance and encouraging the Planning Board to make the recommended changes.

4. Actively participating in the current and any future revisions of the zoning ordinance to ensure the representation of conservation objectives during the process.
5. Developing a public education and awareness program to include writing and sponsoring conservation articles and workshops, promoting existing and developing additional education programs, sponsoring tours of existing conservation lands
6. Encouraging and coordinating interaction between the municipal boards to discuss and promote conservation issues.
7. Educating and informing the municipal boards on the issues surrounding Hudson's natural resources and the goals for conserving significant areas within the community.

Planning Board

As the municipal board responsible for drafting new zoning ordinances, amending existing regulations and administering the municipality's land use regulations, the Planning Board plays a major role in protecting the Town's natural resources. While the Board recommends changes to the zoning ordinance, they must ultimately be voted on and approved by Town residents. Changes to the subdivision and site plan review regulations, however, can be made by a majority vote of the Board. The Board can also use non-regulatory measures to protect a resource by recommending changes to the proposed design that would, for example, minimize a wetland fill or by negotiating with a developer for conservation easements along a river or stream.

Many of the recommendations of this plan require Planning Board initiative and action to amend existing regulations or to develop and propose additional regulations to Town residents. Other recommendations rely on the Boards use of non-regulatory actions to improve site designs and to obtain conservation and pedestrian easements. Therefore, it is essential that the Planning Board be well educated and informed of Hudson's conservation issues and goals. The Planning Board should be encouraged to participate in community conservation activities such as tours of conservation areas and community workshops and educational programs.

Town Council

The Hudson Town Council is responsible for making decisions for the Town. Town Council support for conserving Hudson's natural resources is important to a successful conservation effort. Council support may increase the credibility of the proposal, a change to the zoning ordinance for example, in the eyes of the governing body, the residents. Council support is also essential when municipal funds are required for such things as purchasing an easement, developing and installing signs at conservation areas, and constructing public recreational facilities. In addition, it is the Council that hears residents complaints; therefore, they need to be assured that the day to day problems associated with public access to conservation areas have been considered and adequately dealt with in the continuous planning for the area.

Budget Committee

The Budget Committee is responsible for annually producing the municipal budget. Therefore, it is essential that the Conservation Commission educate the Budget Committee concerning Hudson's conservation issues and efforts in order to obtain funding. Though the Committee does not have final approval of the budget, their support of a program is important. The Conservation Commission can use the information obtained in the inventory to illustrate the need for including funding for conservation purchases in the annual budget.

Municipal Staff

Town staff, particularly the planning, zoning and engineering department, can have a significant impact on the conservation of Hudson's natural resources. Enforcement of municipal regulations and approved plan conditions is the responsibility of the zoning administrator. Once a plan is approved, it is up to the zoning administrator to ensure the developer adheres to the conditions of approval. Adherence to these conditions will minimize the negative impacts of the proposal on the environment. The engineering department provides technical assistance and review of plans to the Conservation Commission and the Planning Board. This review role should be utilized to its fullest extent to obtain the best design for the site and to minimize environmental impacts. The Town Planner is often the person who conducts the initial development contact. This contact provides the opportunity for input into the initial design of the project and allows the planner to make recommendations based on environmental considerations. Therefore, it is essential for municipal staff to be aware of the conservation goals and objectives of the community to enlist their assistance.

Nashua Regional Planning Commission

The Nashua Regional Planning Commission (NRPC) can assist the Conservation Commission and the Town in implementing the Conservation Plan. NRPC staff can provide expert advice and assistance in developing regulations and in reviewing the effectiveness of proposed regulations to protect natural resources. The NRPC can also assess the impact of regional projects, such as the Circumferential Highway, on natural resources and local conservation efforts. The NRPC GIS system contains a number of data bases for Hudson and additional data bases can be created through other projects or by direct contract.

Other Organizations

Numerous organizations can assist the Town in implementing the Conservation Plan. The Soil Conservation Service and the New Hampshire Cooperative Extension Service can provide speakers for workshops, assistance to individual landowners, project review and general conservation/resource information. The Merrimack River Watershed Council can provide information on the Merrimack River and its tributaries, the impacts of watershed development and water quality and quantity issues. Other organizations such as the Society for the Protection of New Hampshire Forests and the Trust for New Hampshire lands can provide expertise in land conservation mechanisms and assistance in approaching landowners. Additionally, the New Hampshire Division of Parks and Recreation, the Appalachian Mountain Club, Trail Wrights and the National Park Service can provide technical assistance in designing and developing trail systems, especially those trails related to the New Hampshire Heritage Trail.

Appendix A

APPENDIX A

UNDERGROUND STORAGE TANKS

UNDERGROUND STORAGE FACILITIES IN HILLSBOROUGH COUNTY - 04 DEC 1989

TANK.....	Facility Location City	Facility Location Name	Facility Location Street	Facility Owner Name	Facility Owner Tank Age	Tank Capacity	Tank Description	Tank Status	Product Description	Tank. Monit Filled Tank. Test Wells Flag	Perf Rev'd
01105001001	HUDSON	AUTO SOLUTION	195 CENTRAL STREET	JOHN RISSET & RONALD TOOMEY	05	3,000	Temp. Out-of-Use Empty		Petroleum - Gasoline		
01105001002	HUDSON	AUTO SOLUTION	195 CENTRAL STREET	JOHN RISSET & RONALD TOOMEY	05	3,000	Temp. Out-of-Use Empty		Petroleum - Gasoline		
01102818001	HUDSON	BALZERS	8 SAGAMORE PARK ROAD	DERLIVON BUHARLE	08	10,100	Now In Use		02 HEATING OIL		
01104336001	HUDSON	BROX INDUSTRIES	85 GREELEY STREET	BROX INDUSTRIES	14	10,000	Perma. Out-of-Use		Petroleum - Diesel	07/89	03/89
01104336002	HUDSON	BROX INDUSTRIES	85 GREELEY STREET	BROX INDUSTRIES	14	10,000	Perma. Out-of-Use		Petroleum - Diesel		03/89
01104336003	HUDSON	BROX INDUSTRIES	85 GREELEY STREET	BROX INDUSTRIES	17	8,000	Now In Use		Petroleum - Diesel		01/89
01104336004	HUDSON	BROX INDUSTRIES	85 GREELEY STREET	BROX INDUSTRIES	17	2,000	Now In Use		Petroleum - Diesel		01/89
01104336005	HUDSON	BROX INDUSTRIES	85 GREELEY STREET	BROX INDUSTRIES	17	2,000	Perma. Out-of-Use		Petroleum - Gasoline		07/89
01104336006	HUDSON	BROX INDUSTRIES	85 GREELEY STREET	BROX INDUSTRIES	05	5,000	Now In Use		Petroleum - Diesel		03/89
01104336007	HUDSON	BROX INDUSTRIES	85 GREELEY STREET	BROX INDUSTRIES	05	5,000	Now In Use		CALCIUM CHLORIDE		
01106591001	HUDSON	CADY'S SERVICE STATION INC.	103 LOWELL ROAD	CADY'S SERVICE STATION INC.	24	5,000	Now In Use		Petroleum - Gasoline		
01106591002	HUDSON	CADY'S SERVICE STATION INC.	103 LOWELL ROAD	CADY'S SERVICE STATION INC.	24	5,000	Now In Use		Petroleum - Gasoline		
01120451001	HUDSON	CALCOMP INC. (PIP-2)	65 NORTH RIVER RD.	CALCOMP INC.	3	20,000	Now In Use		0 2 FUEL OIL		
01120451002	HUDSON	CALCOMP INC. (PIP-2)	65 NORTH RIVER RD.	CALCOMP INC.	3	20,000	Now In Use		Empty		
01105208001	HUDSON	CALCOMP INC. (PIP-2)	65 NORTH RIVER RD.	CALCOMP INC.	3	550	Now In Use		Petroleum - Diesel		
01125926001	HUDSON	CHMERICS INC.	16 FLAGSTONE DRIVE	CHMERICS INC.	06	4,000	Temp. Out-of-Use		Petroleum - Gasoline		
01117778001	HUDSON	CONCRETE SYSTEMS, INC.	120 DEARY ROAD	ANGENIUX CORP. OF AMERICA	10	2,500	Now In Use		Petroleum - Diesel		
01117778002	HUDSON	CONCRETE SYSTEMS, INC.	COMMERCIAL AVE.	MR. LEONARD A. WARDEN	15	2,000	Now In Use		Petroleum - Diesel		
01117778003	HUDSON	CONCRETE SYSTEMS, INC.	COMMERCIAL AVE.	MR. LEONARD A. WARDEN	15	2,000	Now In Use		Petroleum - Diesel		
01125966001	HUDSON	CONCRETE SYSTEMS, INC.	COMMERCIAL AVE.	MR. LEONARD A. WARDEN	10	12,000	Now In Use		Petroleum - Gasoline		
01115076001	HUDSON	CONTINENTAL PAVING, INC.	150 LOWELL ROAD	CONTINENTAL PAVING, INC.	14	10,000	Now In Use		Petroleum - Diesel		Y
01115076002	HUDSON	CUMBERLAND FARMS	189 CENTRAL STREET	CUMBERLAND FARMS, INC.	09	8,000	Now In Use		Petroleum - Gasoline		
01115076003	HUDSON	CUMBERLAND FARMS	189 CENTRAL STREET	CUMBERLAND FARMS, INC.	09	8,000	Now In Use		Petroleum - Gasoline		
01121796001	HUDSON	CUMBERLAND FARMS	189 CENTRAL STREET	CUMBERLAND FARMS, INC.	09	8,000	Now In Use		Petroleum - Gasoline		
01121796002	HUDSON	CUMBERLAND FARMS	189 CENTRAL STREET	CUMBERLAND FARMS, INC.	09	8,000	Now In Use		Petroleum - Gasoline		
01121796003	HUDSON	CUMBERLAND FARMS	189 CENTRAL STREET	CUMBERLAND FARMS, INC.	09	8,000	Now In Use		Petroleum - Gasoline		
01121796004	HUDSON	CUMBERLAND FARMS	189 CENTRAL STREET	CUMBERLAND FARMS, INC.	09	8,000	Now In Use		Petroleum - Gasoline		
01121796005	HUDSON	CUMBERLAND FARMS	189 CENTRAL STREET	CUMBERLAND FARMS, INC.	09	8,000	Now In Use		Petroleum - Gasoline		
01121796006	HUDSON	CUMBERLAND FARMS	189 CENTRAL STREET	CUMBERLAND FARMS, INC.	09	8,000	Now In Use		Petroleum - Gasoline		
01123841001	HUDSON	DIGITAL EQUIPMENT CORP.	LOWELL RD.	DIGITAL EQUIPMENT CORP.	0	10,000	Now In Use		FUEL OIL		U
01123841002	HUDSON	DIGITAL EQUIPMENT CORP.	LOWELL RD.	DIGITAL EQUIPMENT CORP.	0	10,000	Now In Use		FUEL OIL		U
01118101001	HUDSON	DR. H.O. SMITH ELEM. SCHOOL	33 SCHOOL STREET	HUDSON SCHOOL DISTRICT SAU 027	31	6,000	Now In Use		02 OIL		
01108696001	HUDSON	DUCHARRE SAND & GRAVEL	RTE 102 DEARY ROAD	WALTER DUCHARRE JR	02	10,000	Now In Use		Petroleum - Diesel		U
02201598001	HUDSON	FEDERAL BLDG-SEWAGE PUMP STATION	FEDERAL STREET	TOWN OF HUDSON	05	550	Now In Use		Petroleum - Diesel		U
01116301001	HUDSON	FIRE DEPARTMENT	15 LIBRARY STREET	TOWN OF HUDSON	33	2,000	Now In Use		Petroleum - Gasoline		
01116301002	HUDSON	FIRE DEPARTMENT	15 LIBRARY STREET	TOWN OF HUDSON	26	8,000	Now In Use		Petroleum - Diesel		
01116311001	HUDSON	FIRE DEPARTMENT	52 ROBINSON ROAD	TOWN OF HUDSON	19	2,000	Now In Use		02 FUEL OIL		
01124001001	HUDSON	FRED FULLER OIL CO.	77 CENTRAL STREET	FRED FULLER OIL CO.	12	12,000	Now In Use		Petroleum - Diesel		Y
01124001002	HUDSON	FRED FULLER OIL CO.	77 CENTRAL STREET	FRED FULLER OIL CO.	12	12,000	Now In Use		Petroleum - Diesel		Y
01124001003	HUDSON	FRED FULLER OIL CO.	77 CENTRAL STREET	FRED FULLER OIL CO.	09	10,000	Now In Use		Petroleum - Diesel		
01124001004	HUDSON	FRED FULLER OIL CO.	77 CENTRAL STREET	FRED FULLER OIL CO.	04	4,000	Now In Use		Petroleum - Diesel		
01124001005	HUDSON	FRED FULLER OIL CO.	77 CENTRAL STREET	FRED FULLER OIL CO.	04	4,000	Now In Use		Petroleum - Diesel		
01131201001	HUDSON	FRED FULLER OIL CO.	ARLE STREET	FRED FULLER OIL CO.	15	20,000	Now In Use		02 FUEL OIL		04/88
01131201002	HUDSON	FRED FULLER OIL CO.	ARLE STREET	FRED FULLER OIL CO.	15	20,000	Now In Use		02 FUEL OIL		04/88
01131201003	HUDSON	FRED FULLER OIL CO.	ARLE STREET	FRED FULLER OIL CO.	15	20,000	Now In Use		02 FUEL OIL		04/88
01131201004	HUDSON	FRED FULLER OIL CO.	ARLE STREET	FRED FULLER OIL CO.	15	20,000	Now In Use		02 FUEL OIL		04/88
01131201005	HUDSON	FRED FULLER OIL CO.	ARLE STREET	FRED FULLER OIL CO.	15	20,000	Now In Use		02 FUEL OIL		04/88

HUDSON CONSERVATION PLAN
APPENDIX A: UNDERGROUND STORAGE TANKS

UNDERGROUND STORAGE FACILITIES IN HILLSBOROUGH COUNTY - 04 DEC 1989

TANK.....	Facility Location City	Facility Location Name	Facility Location Street	Facility Owner Name	Facility Phone Number	Owner Tank Age	Tank Capacity	Tank Description	Tank Status	Product Description	Tank. Monit. Filled Tank. Test Wells Flag	Revd
01114651001	HUDSON	GLIDDEN AUTO SERVICE	18-20 FERRY STREET	EXXON COMPANY, USA	(713) 656-7772	0	12,000	Now In Use	After 5/8/85	Petroleum - Gasoline U		
01114651002	HUDSON	GLIDDEN AUTO SERVICE	18-20 FERRY STREET	EXXON COMPANY, USA	(713) 656-7772	0	10,000	Now In Use	After 5/8/85	Petroleum - Gasoline U		
01114651003	HUDSON	GLIDDEN AUTO SERVICE	18-20 FERRY STREET	EXXON COMPANY, USA	(713) 656-7772	0	10,000	Now In Use	After 5/8/85	Petroleum - Gasoline U		
01114651004	HUDSON	GLIDDEN AUTO SERVICE	18-20 FERRY STREET	EXXON COMPANY, USA	(713) 656-7772	0	1,000	Now In Use	After 5/8/85	Petroleum - Used Oil U		
01114651005	HUDSON	GLIDDEN AUTO SERVICE	18-20 FERRY STREET	EXXON COMPANY, USA	(713) 656-7772	0	1,000	Now In Use	After 5/8/85	FUEL OIL U		
01114651006	HUDSON	GLIDDEN AUTO SERVICE	18-20 FERRY STREET	EXXON COMPANY, USA	(713) 656-7772	16	4,000	Pera. Out-of-Use	After 5/8/85	Petroleum - Gasoline M		09/87
01114651007	HUDSON	GLIDDEN AUTO SERVICE	18-20 FERRY STREET	EXXON COMPANY, USA	(713) 656-7772	16	6,000	Pera. Out-of-Use		Petroleum - Gasoline M		09/87
01114651008	HUDSON	GLIDDEN AUTO SERVICE	18-20 FERRY STREET	EXXON COMPANY, USA	(713) 656-7772	16	6,000	Pera. Out-of-Use		Petroleum - Gasoline M		09/87
01114651009	HUDSON	GLIDDEN AUTO SERVICE	18-20 FERRY STREET	EXXON COMPANY, USA	(713) 656-7772	16	1,000	Pera. Out-of-Use		Petroleum - Used Oil M		09/87
01135931001	HUDSON	GREEN MEADOW	59 STEELE ROAD	GREEN MEADOW GOLF CLUB	(603) 889-1555	10	8,000	Now In Use		Petroleum - Gasoline Y		
01135931002	HUDSON	GREEN MEADOW	59 STEELE ROAD	GREEN MEADOW GOLF CLUB	(603) 889-1555	5	2,000	Now In Use		Petroleum - Gasoline Y		
01135931003	HUDSON	GREEN MEADOW	59 STEELE ROAD	GREEN MEADOW GOLF CLUB	(603) 889-1555	5	2,000	Now In Use		Petroleum - Gasoline Y		
01135931004	HUDSON	GREEN MEADOW	59 STEELE ROAD	GREEN MEADOW GOLF CLUB	(603) 889-1555	8	2,000	Now In Use		Petroleum - Diesel Y		
01116291001	HUDSON	HILLS MEMORIAL LIBRARY	18 LIBRARY STREET	TOWN OF HUDSON	(603) 886-6000	20	1,500	Now In Use		HEATING OIL		06/87
01136811001	HUDSON	HUDSON GAS	2 TRACY LANE	TOWN OF HUDSON	(603) 886-6000	20	1,500	Now In Use		HEATING OIL		06/87
01136811002	HUDSON	HUDSON GAS	2 TRACY LANE	L.C.J.C. REALTY CORP.	(603) 883-7026	1	6,000	Now In Use		Petroleum - Gasoline M		
01136811003	HUDSON	HUDSON GAS	2 TRACY LANE	L.C.J.C. REALTY CORP.	(603) 883-7026	1	6,000	Now In Use		Petroleum - Gasoline M		
01136811004	HUDSON	HUDSON GAS	2 TRACY LANE	L.C.J.C. REALTY CORP.	(603) 883-7026	1	6,000	Now In Use		Petroleum - Gasoline M		
0117271001	HUDSON	HUDSON GOLF	68 LOWELL RD.	RICE OIL CO., INC.	(617) 755-8686	14	4,000	Now In Use		Petroleum - Diesel M		
0117271002	HUDSON	HUDSON GOLF	68 LOWELL RD.	RICE OIL CO., INC.	(617) 755-8686	14	12,000	Now In Use		Petroleum - Gasoline 05/89		
01107551001	HUDSON	HUDSON MOBIL	ROUTE 3A LOWELL ROAD	RICE OIL COMPANY, INC.	(413) 772-0227	14	3,000	Pera. Out-of-Use		Petroleum - Gasoline 01/89 M		Y
01107551002	HUDSON	HUDSON MOBIL	ROUTE 3A LOWELL ROAD	RICE OIL COMPANY, INC.	(413) 772-0227	14	3,000	Pera. Out-of-Use		Petroleum - Gasoline 01/89 M		Y
01107551003	HUDSON	HUDSON MOBIL	ROUTE 3A LOWELL ROAD	RICE OIL COMPANY, INC.	(413) 772-0227	14	12,500	Pera. Out-of-Use		Petroleum - Gasoline 01/89 M		Y
01107551004	HUDSON	HUDSON MOBIL	ROUTE 3A LOWELL ROAD	RICE OIL COMPANY, INC.	(413) 772-0227	14	12,500	Pera. Out-of-Use		Petroleum - Gasoline M		Y
01107551005	HUDSON	HUDSON MOBIL	ROUTE 3A LOWELL ROAD	RICE OIL COMPANY, INC.	(413) 772-0227	14	6,000	Pera. Out-of-Use		Petroleum - Diesel 01/89 M		Y
01138281001	HUDSON	HUDSON MOBIL	225 OLD LOWELL ROAD	RICE OIL CO., INC.	(413) 772-0227	0	10,000	Now In Use	After 5/8/85	Petroleum - Gasoline M		N
01138281002	HUDSON	HUDSON MOBIL	225 OLD LOWELL ROAD	RICE OIL CO., INC.	(413) 772-0227	0	10,000	Now In Use	After 5/8/85	Petroleum - Gasoline M		N
01138281003	HUDSON	HUDSON MOBIL	225 OLD LOWELL ROAD	RICE OIL CO., INC.	(413) 772-0227	0	8,000	Now In Use	After 5/8/85	Petroleum - Gasoline M		N
01138281004	HUDSON	HUDSON MOBIL	225 OLD LOWELL ROAD	RICE OIL CO., INC.	(413) 772-0227	0	8,000	Now In Use	After 5/8/85	Petroleum - Diesel M		N
01103171001	HUDSON	HUDSON PAVING INC.	19 BARRETT HILL ROAD	HUDSON PAVING INC.	(603) 882-6854	05	3,000	Now In Use		Petroleum - Diesel		
01103171002	HUDSON	HUDSON PAVING INC.	19 BARRETT HILL ROAD	HUDSON PAVING INC.	(603) 882-6854	05	3,000	Now In Use		Petroleum - Gasoline		
01116281001	HUDSON	HUDSON POLICE DEPARTMENT	12 SCHOOL STREET	TOWN OF HUDSON	(603) 886-4011	15	4,000	Now In Use		Petroleum - Gasoline Y		
01110221001	HUDSON	HUDSON SUNOCO	74 LOWELL ROAD	ARANCO OIL COMPANY	(603) 224-7500	07	8,000	Now In Use		Petroleum - Gasoline		
01110221002	HUDSON	HUDSON SUNOCO	74 LOWELL ROAD	ARANCO OIL COMPANY	(603) 224-7500	13	8,000	Now In Use		Petroleum - Gasoline		
01110221003	HUDSON	HUDSON SUNOCO	74 LOWELL ROAD	ARANCO OIL COMPANY	(603) 224-7500	05	10,000	Now In Use		Petroleum - Gasoline		
01110221004	HUDSON	HUDSON SUNOCO	74 LOWELL ROAD	ARANCO OIL COMPANY	(603) 224-7500	18	4,000	Now In Use		Petroleum - Diesel		
02201601001	HUDSON	INDUSTRIAL DR. SEM. PUMP STM.	INDUSTRIAL DRIVE	TOWN OF HUDSON	(603) 886-6000	03	550	Now In Use		Petroleum - Diesel U		
01102141001	HUDSON	JAN-CAR LEASING CORP.	WEST ROAD	JAN-CAR LEASING CORP.	(603) 434-3111	3	20,000	Now In Use		Petroleum - Diesel		
01102141002	HUDSON	JAN-CAR LEASING CORP.	WEST ROAD	JAN-CAR LEASING CORP.	(603) 434-3111	3	20,000	Now In Use		Petroleum - Gasoline		

Appendix B

APPENDIX B

PROJECT EVALUATION SYSTEM

Project Title: _____

Land Owner(s): _____

Address: _____

Phone: Day _____ Evening _____

Location of the Property: Tax Map _____ Lot _____
 Description: _____

Current Zoning: _____

Size of the area to be protected: _____

Size of the entire parcel: _____

I. WATER RESOURCES

			POINTS
(0-3)	A. Ponds: Name _____	Size: _____	_____
(0-3)	B. Perennial Streams/Rivers:		
	Name _____	Length: _____	_____
	Name _____	Length: _____	_____
	Name _____	Length: _____	_____
(0-3)	C. Wetlands: Very poorly drained soils _____	acres	_____
	Poorly drained soils _____	acres	_____
	Total wetland soils _____	acres	_____
	Percent of Town total _____	%	_____
	D. Aquifers:		
(1,0)	Is the parcel located in the Aquifer Protection Zone?	Yes No	_____
	E. Public Water Supply:		
(1,0)	Is the parcel located in the Watershed Protection Zone?	Yes No	_____
	F. Floodplains:		
(1,0)	Does the parcel contain any floodplain areas?	Yes No	_____
	If yes, how much? _____ acres		

II. RECREATIONAL RESOURCES

- (1,0) A. FRONTAGE ON POND, STREAM OR RIVER: YES NO
 If yes, how much? _____ feet
- (0-3) B. Ease of public access: existing _____ (2)
 suitable _____ (1)
 unsuitable _____ (0)
- (1,0) C. Proximity to existing recreation area: distance: _____ miles
- (1,0) D. Is the parcel located close to the population center Yes No
- (1,0) E. Is the area currently used for recreation? Yes No
 If yes, what type? _____
- (1,3) F. Potential recreational use: Type of use _____
 (1) seasonal _____
 (3) year round _____
- (1,0) G. Existing trail system: Yes No
- (1,0) H. Potential trail system: Yes No

III. AGRICULTURAL RESOURCES

- (0-6) A. Soil Type:
- (3) 1. Prime farmland soils: _____ acres
 % of Town total: _____ %
- (2) 2. State significant soils: _____ acres
 % of Town total: _____ %
- (1) 3. Total Prime and State: _____ acres
 % of Town total: _____ %
- (1,0) B. Active Agricultural Use: Yes No
- | | | |
|--------------|---------|-------|
| Type of use: | pasture | _____ |
| | hay | _____ |
| | crop | _____ |
| | orchard | _____ |
| | other | _____ |
| | TOTAL | _____ |
- C. Scenic Value to Community:
- (1,0) 1. Visible from road: Yes No
- (1,0) 2. Rustic buildings: Yes No
- (1,0) 3. Fields and open spaces: Yes No

IV. FOREST RESOURCES

- (0-4) A. Total Acreage: 0 - 25 acres _____ (1)
 26 - 50 acres _____ (2)
 51 - 100 acres _____ (3)
 > 100 acres _____ (4)
- B. Major Cover Type: _____ hardwood
 _____ hardwood/softwood
 _____ softwood/hardwood
 _____ softwood
- (1,0) C. Contiguous to existing protected area: Yes No _____
- (1,0) D. Actively managed: Yes No _____

V. WILDLIFE - PLANT HABITATS

- (1,0) A. Endangered or threatened species: plant Yes No _____
 (1,0) animal Yes No _____
- If yes: species _____
 habitat area _____
- (1,0) B. Known breeding area: Yes No _____
- (1,0) C. Migration route for waterfowl: Yes No _____
- (1,0) D. Old growth plant species: Yes No _____
 If yes, type: _____

VI. HISTORIC RESOURCES

- (1,0) A. Historic site: Yes No _____
 If yes, what? _____
- (1,0) B. Historic structure: Yes No _____
 If yes, type: _____
 age: _____
- (1,0) C. Is the site/structure contiguous with other historic sites/structures? Yes No _____
- (1,0) D. Historic district: Yes No _____

VII. SCENIC RESOURCES

- (1,0) A. Unobstructed view or vista: Yes No _____
- (1,0) B. Important to the Town character: Yes No _____
- (0-2) C. Access to the view: existing _____ (2)
 potential _____ (1)
 inaccessible _____ (0)
 NA _____

VIII. GENERAL CONSIDERATIONS

(1,0) A. Does the site have scientific or educational value? Yes No

B. Surrounding Land Use:

(1,0) 1. Contiguous or proximal protected areas: Yes No
If yes, name and type of protection mechanism: _____

- 2. Type of land use : _____ Industrial
_____ Commercial
_____ Residential
_____ Agricultural
_____ Open Space

(1,0) C. Is the parcel under Current Use? Yes No

(1-3) D. Development pressure on the parcel: high _____ (3)
medium _____ (2)
low _____ (1)

(1,0) E. Has the owner expressed interest in conserving his land? Yes No

(1-3) F. Importance of the parcel to the community: high _____ (3)
medium _____ (2)
low _____ (1)

(1,0) G. Can the parcel support multiple use: Yes No

(1,0) H. Does conservation of the resource provide multiple benefits? Yes No

I. Estimated cost of the project: \$ _____

J. Potential sources of funding and matching funds:

- 1. _____
2. _____
3. _____

TOTAL POINTS

