

# **SECTION VII. CONSERVATION AND OPEN SPACE**

## **A. INTRODUCTION**

The Conservation and Open Space Section is intended to guide the protection of the City's natural resources and environment while promoting the appropriate and efficient use of land and water within the City of Concord in a manner consistent with the economic, physical, and social needs and desires of the citizens of Concord. Appropriate uses of open space have been identified as recreation, public service and safety, resource production, and environmental protection while providing the maximum and multi-purpose use of open space by the citizens of Concord. Open space in Concord is intended to be a system, interconnected and interrelated, and therefore, the links among major open space areas, as well as between the open areas and developed areas, must be defined

The Conservation and Open Space Use Section consists of a review of existing protected lands with a focus on additions to the protected land inventory that have occurred since the last Master Plan was adopted in December 1993. Conservation and open space goals are articulated, and applied to and interpreted upon the landscape of the City, and as displayed on maps that indicate how land in Concord should be preserved and protected. Policies and recommendations to guide the implementation of the Future Open Space Plan complete this Section of the Master Plan.

## **B. CONSERVATION AND OPEN SPACE GOALS**

When the City Council established the Conservation Commission in 1971, it set forth for the Commission the goal of "protecting, promoting and developing the natural resources...and for protecting the watershed resource of the City" and mandated the Conservation Commission, in conjunction with the City Planning Board, to prepare "a conservation and open space plan" as the major objective in achieving this goal, noting that the plan shall be based "on the concept of multiple use of natural resources and open space".

Specific conservation and open space goals are as follows:

1. To develop a coherent interconnected system of permanently protected open spaces designed to provide areas for recreation, public service and safety, resource production, and to protect sensitive environmental features.
2. To foster the wise and proper development and management of the City's land and water resources so as to ensure sustainable productive use of the same, while avoiding environmental degradation, personal injury, and property damage.
3. To maximize the multiple use of open space to the extent that such use does not adversely affect the primary function of the open space.
4. To maximize the opportunities for the citizens of Concord to have access to public open space through linkages between the City's villages and neighborhoods and the open space system.

5. To protect and enhance surface and ground water quality, and maximize the potential for the use of these water resources as potable water supplies.
6. To protect and enhance the air quality of the region.
7. To preserve prime and significant agricultural soils for agricultural uses, and to encourage the retention and diversification of agricultural uses within the city.
8. To encourage the use of best management practices of forest resources on both public and private land within the City in order to maintain a continuing, sustainable timber harvest from the same, and to encourage multiple use of this forest resource.
9. To retain habitat for the City's indigenous species of wildlife, including migratory species and those species that have been identified as endangered, to provide adequate area that will foster the perpetuation of these species, and allow for their movement through and within the City.
10. To protect and maintain exemplary natural communities and rare plant species that have been identified within the City.
11. To maintain and enhance scenic views and natural vistas from the City's roads and public properties where possible.
12. To preserve open space within the Urban Growth Boundary (UGB) to protect environmentally sensitive natural features, to provide non-structured recreational opportunities, and to serve as amenity features within neighborhoods.

## **C. THE CITY'S NATURAL RESOURCES**

### **1. Water Resources**

Much of Concord's land and its use are influenced by the City's extensive water resources. Concord is located in the watershed of the Merrimack River, and the City's other major rivers, the Contoocook, Soucook, and Turkey Rivers), are all tributaries of the Merrimack. There are 14 Great Ponds (10 acres or more in size) within the City as well as several smaller private ponds and many brooks and streams.

In the citywide rezoning of 2001, a Shoreland Protection (SP) District was adopted, supplanting the former Streambank and Shoreline (SS) District, paralleling and expanding upon the protections offered in the NH Comprehensive Shoreland Protection Act (RSA 483-B). The SP District, which was recommended in the 1993 Open Space Plan, encumbers the area within 250 feet of the shoreline of the rivers and Great Ponds, and establishes two buffer zones with differing levels of permitted activities and including restrictions on the removal of trees and shrubs. The entire SP District has a list of prohibited land uses that apply therein.

Penacook Lake is the City's primary source of potable water, although it is augmented by water pumped from the Contoocook River. A Penacook Lake Watershed Protection District was created by the City Council in the 2001 rezoning of the City which increased the minimum lot size to 4 acres and imposed restrictions on certain land uses that were deemed to represent a hazard to the water quality.

## **2. Wetlands**

In addition to extensive surface waters, the City has substantial areas of wetlands. A wetland delineation performed for this Master Plan by means of aerial photography interpretation (ref. Exhibit VII-1) indicates there are 6,678 acres of wetlands, slightly less than the wetland acreage identified from soil mapping for the 1993 Master Plan. This methodology provided accuracy to the nearest half acre so that there is additional wetland acreage unaccounted for in terms of small pockets of wetlands.

The citywide rezoning of 2001 added provisions for buffers to wetlands, supplanting the prior Wetland Overlay District which was based on soils mapping. The Ordinance requires a Conditional Use Permit to alter the buffer area within 50 feet of wetlands that are over 3,000 square feet in area.

## **3. Floodplains**

The City has a long documented history of floods with substantial acreages subject to flooding, primarily in relation to the Merrimack River which meanders from north to south through on broad floodplain that runs through the center of the City. The floodway and floodplain of the Merrimack were mapped by U.S. Army Corps of Engineers (USACOE) in 1966, while similar features were mapped for the Contoocook, Soucook, and Turkey Rivers by the U.S. Department of Housing and Urban Development (HUD) in 1980, and the Federal Emergency Management Agency (FEMA) in 1999.

In the mid-1970's prior to the advent of the National Flood Insurance Program, Concord adopted floodplain regulations for the Merrimack River using mapping and guidelines prepared for the City by the USACOE. Subsequently, the HUD maps and then the FEMA maps were adopted for other areas of the City, but the City continues to use the USACOE maps for the Merrimack as they proved to be more detailed and conservative than subsequent mapping prepared under the National Flood Insurance Program. The current Flood Hazard (FH) District as established in the Zoning Ordinance protects health, safety and property by prohibiting residential uses and permitting structural uses in those areas developed prior to the adoption of the District. Limiting further development in areas subject to flooding insures against increased property damage and increased public expenditures to deal with flood-related problems.

The extensive flooding in the spring of 2007 caused substantial damage in the Turkey River basin. Because major portions of the Turkey River Watershed are located in the Towns of Hopkinton and Bow, the City will need to work with both Towns to ensure coordinated actions to protect the watershed resources and to address the impacts of flooding which have been exacerbated by upstream development.

## **4. Groundwater/Aquifers**

The maps of stratified drift formations in Concord as prepared by the U.S. Geological Survey in 1995 and 1997, reveal that aquifers underlie vast areas of Concord, surrounding and following the City's major rivers including the Merrimack, Contoocook, Soucook, and Turkey Rivers. The City's own recent water supply studies have corroborated this and identified those areas where the City could develop the groundwater as a source for its municipal water supply.

A new regulatory measure is needed in Concord's Zoning Ordinance for an aquifer protection in order to preserve options for use of groundwater for both public and private water supplies.

## **5. Steep Slopes**

With regard to the soils and surficial geology of the City, Concord has areas of steep terrain, underlain by both rock as well as sand and gravel. While each type of resource has historically been quarried or excavated for marketable materials including granite, sand and gravel, these formations also constrain land development due to accessibility, and erodibility. Though use of soil maps, the 1993 Master Plan identified 6,767 acres of slopes in excess of 15% in the City. The steep sandy bluffs that line the Merrimack and Soucook Rivers are particularly unique and fragile examples of one type of formation, while Rattlesnake Hill that rises above West Concord continues to be a source of granite.

Another new provision of the citywide rezoning of 2001 is a setback to the top and bottom of the erodible bluffs that rise above floodplains, which limit activities on or adjacent to erodible steep slopes, ensuring that landowners do not inadvertently cause erosion.

While in effect citywide, of particular relevance to the Soucook corridor are the City's earth material removal regulations, which were updated in the 2001 rezoning, and saw their first application to an excavation site on Route 106 adjacent to the River in 2002. These regulations provide reclamation procedures and standards for closure of pits that have been depleted.

## **6. Prime Agricultural Soils**

Another soil-based resource in Concord is prime agricultural soils, located along the Merrimack River floodplain, in the Turkey River watershed, and in upland locations in East and West Concord. These soils support an active agricultural industry ranging from dairy farming to orchards.

While there are no specific local regulatory provisions relating to the protection of these soils, other regulations, such as those related to floodplains, help in the preservation of these lands. In a more direct effort to protect areas of these soils, the City has acquired farmlands or easements on these lands for open space purposes, with leasehold arrangements with local farmers in order to maintain the productivity of the agricultural soils.

## **7. Productive Forest Lands**

Concord has an extensive inventory of productive forest lands, some of which were once owned and managed by lumber companies. Privately owned and managed woodlots are found throughout the City, and the City has a Town Forestry program under which all municipal lands, conservation or otherwise, are managed with revenues from periodic timber sales. There are eight State Forests in Concord which are managed by the Forest and Lands Division of the NH Department of Resources and Economic Development.

There are no specific local regulatory provisions relating to the protection of these productive forest lands. As new land is added to the open space inventory, the City evaluates the forest resource and as appropriate, adds the property to the forest management plan.

## **8. Wildlife Habitat**

Concord is fortunate to have substantial undeveloped areas of forest, field, and wetlands with ample adjoining water resources, all of which create excellent wildlife habitat. Broken Ground, and the area between West Parish Road and Currier Road along the Hopkinton townline are both examples of unfragmented habitat.

**Exhibit VII-1. Wetlands**

**Insert 11 x 17 graphic**



In terms of endangered species, the Karner Blue butterfly has been identified by both the federal and State governments, endangered, two other butterflies, the Frosted Elfin and Persius Duskywing Skipper butterfly were identified by the State. The habitat for these butterflies is the pine barrens found on parts of Concord Heights on the easterly side of the Concord Airport. Some of the airport is subject to a Conservation Management Agreement with the US Fish and Wildlife Service and the NH Fish and Game Department to protect the butterfly habitat.

There are no specific local regulatory provisions relating to the protection of wildlife habitat. As additional open space lands are considered for acquisition, the City should evaluate the wildlife habitat characteristics among other factors.

## **D. THE OPEN SPACE PLAN**

This description of the planned open space system specifies the elements of the system by natural and geographic sub-areas of the City, primarily outside of the Urban Growth Boundary. Those properties already protected as well as lands proposed for protection are identified in terms of ownership for each geographic sub-area. Exhibit VII-2 depicts Concord's Future Open Space Plan with existing open space depicted along with the proposed future open land, differentiated by means of existing and proposed protection.

### **1. The Merrimack River Corridor**

#### **a. Description**

The Merrimack River corridor includes the river itself as well as the broad expanses of floodplains and the erodible, sandy bluffs surround it in certain areas, from the Canterbury and Boscawen town lines on the north to the Bow town line on the south. The oxbow ponds left from former river channels are part of the Corridor including at the Old River Channel in West Concord, Horseshoe Pond, Fort Eddy Pond and the Sugar Ball.

Fishing, boating, canoeing, and kayaking have all increased on the River with the improved water quality. The United States Fish and Wildlife Service is working to re-establish the anadromous fishery through its Atlantic Salmon and Shad Restoration Program. The Merrimack River corridor is also part of the Atlantic Flyway, the eastern corridor for migratory birds, and it also provides habitat for numerous species of resident wildlife. Agriculture continues to be one of the major open space uses of privately owned land in the Merrimack floodplains in Concord.

The New Hampshire Heritage Trail has been initiated under RSA 216-A:7 and a portion of the planned 230-mile north-south trail system will be in the Merrimack River Corridor from Nashua to Franklin for hikers and snowshoers, and in some areas, for bicyclists and cross country skiers. A section of the Heritage Trail has been established starting at the north end of North Main Street running easterly along the edge of Horseshoe Pond to through the NH Technical Institute, then turning northerly to East Concord Village, Locke Road and West Portsmouth Street.

#### **b. Protected Open Space**

For many years, the City has owned park lands in the Merrimack River Corridor which represent protected lands, although much has been altered to create recreational facilities. These parks include Kiwanis Park/Everett Arena, Beaver Meadow Golf Course, as well as Reed Playground, Merrill Park, Terrill Park, Healey Park, and a portion of Rolfe Park. Prior to the adoption of the

first Open Space Plan in 1978, the City's non-park open space lands in the corridor consisted of the South End Marsh and a nine-acre wetland abutting the north side of the upper pond at Goodwin's Point.

Since that time, the City has preserved a significant amount of open space in the corridor. In December of 1978, the City was gifted a 50 acre wetland westerly of Locke Road as part of the development of the adjacent industrial park. In 1987, as part of the dedicated open space of a Planned Unit Development on Second Street, the City was deeded the 47-acre Morono Park on the west side of the Old West Concord River Channel south of Sewalls Falls. In 1989, the City acquired the 14-acre Wendell Knight property which links Morono Park with the State Prison Farm holdings to the south, and includes part of Rattlesnake Brook. On the east shore of the River, the City, in 2005, acquired the 145-acre Gold Star Sod Farm property west of Locke Road, and the 200-acre West Portsmouth Street farmland immediately south of the Gold Star land. In 2007, the City received a donation of 48 acres together with a conservation easement on an additional 17 acres on the south shore of Goodwin's Point Lower Pond including the adjacent bluff, from the Oxbow Bluff cluster development. Also in 2007, the City purchased agricultural lands that belonged to Green Gold Farm north of Terrill Park.

The New Hampshire Fish and Game Department manages the State land along the west bank at Sewalls Falls for recreational purposes, and this property is the only State land in the corridor which is formally protected for open space purposes. The State owns four of the five public boat ramps and launch areas on the Merrimack (one off West Portsmouth Street, one at the Technical Institute and two at Sewalls Falls).

Privately held open spaces include the bluffs and floodplains surrounding the headquarters of the Society for Protection of NH Forests on Portsmouth Street which are privately protected by that organization as is the island at Horseshoe Pond. The Five Rivers Conservation Trust holds a conservation easement on the 14-acre Foss parcel adjacent to Rolfe Park.

#### c. Priorities for Open Space Protection

- The land belonging to Unitil (formerly the Concord Electric Company) below the Sewalls Falls Dam on the east bank of the River, is the focus of an on-going property transaction with the City that will extend protection to the tract abutting the Gold Star Sod Farm to the north.
- A portion of the Public Service of NH (PSNH) holdings on Garvins Falls Road is proposed to be protected, including land in the floodplains of the Merrimack as well as the adjacent erodible bluffs. Conservation easements should embrace environmental protection as well as trail access along the Merrimack floodplain.
- If the NH Department of Corrections abandons its interest in the NH State Prison's agricultural lands on the west shoreline, the City should seek to preserve this land for agricultural use and passive public recreational purposes. The City's recent water supply studies also identified this area as a potential source for a public water supply from the groundwater resource adjacent to the River, providing another reason for this land to be permanently protected.
- Easements or the purchase of development rights are proposed for current agricultural lands in the floodplain that are not otherwise protected so those currently farming may continue, and so the prime agricultural soils remain available for future agricultural use.

**Exhibit VII-2, Future Open Space Plan**

[Insert 11 x 17 graphic]



- Some additional easements or purchases of land are proposed to augment available public lands to foster the expansion of the Heritage Trail in order to reach its northerly and southerly termini at the City limits.
- Additional boat ramps and/or canoe launch areas should be acquired, one in the northern reach of the River closer to the Contoocook, and one in the southerly reach of the River, below the current boat ramp at Kiwanis Park.
- Conservation easements may be needed to augment regulatory protection of wetlands in the valley and the bluffs that surround it.
- In addition to the acquisition of land and easements by the City, the City should seek the participation and assistance of other public or private organizations in acquiring land and easements in the Merrimack corridor to maximize the amount of protected open space in the corridor.

## **2. The Contoocook River Corridor**

### **a. Description**

Entering from Hopkinton and flowing easterly to its confluence with the Merrimack River in Penacook, the Contoocook River occupies a much narrower corridor than the Merrimack. Several floodprone shelves border the River, but much of the surrounding land is rather steep, stony embankments. Upstream of the Island are many dwellings that were constructed as seasonal camps, the presence of which was fostered by the Edward York Dam which sustains a ponded water level in that section of the river allowing for swimming, boating, canoeing, and kayaking. One boat ramp on the Island provides access to the River for non-residents as well as residents. Located below the York Dam are three separate hydroelectric facilities constructed in the 1980's.

The entirety of the Contoocook River is included in the NH Rivers Management and Protection Program (RSA 483), and a Local Advisory Committee, composed of representatives of the communities along the River including the City, has prepared management recommendations for land adjacent to the River.

There are some prime farmland soils along the Contoocook's floodplain but little agricultural use. Some timber is cut in or adjacent to the corridor, including active forest management of City and State forests.

### **b. Protected Open Space**

The City has protected a substantial amount of open space in the corridor having acquired, in the 1970's, extensive acreage surrounding the Mast Yard State Forest on both sides of the River just east of the municipal boundary with Hopkinton. This land is held for future recreational purposes and was named Lehtinen Park in honor of the City's first city planner. In 1993, Eunice Clark donated to the City 15 acres of floodplain and wetland off of Broad Cove Drive on the River opposite Lehtinen Park. Further downstream, the City reassembled most of the once-renowned Contoocook River Park on The Island in Penacook. To complement the Contoocook River Park, a 50-acre parcel directly across the River was acquired from B & M in 2006 to preserve the gorge below the Edward York Dam. The Hardy family donated 16 acres of

land south of Elm Street to the City in 2002. The City also owns several sections of the abandoned Concord to Claremont railroad right-of-way for future trail purposes.

The sole state owned parcel in the corridor is the Mast Yard State Forest which straddles the Concord/Hopkinton boundary.

The Five Rivers Conservation Trust holds an easement on the Clark property that was acquired by the City

c. Priorities for Open Space Protection

- Another boat ramp should be provided, the best location for which appears to be just upstream of Lehtinen Park next to the power lines. The New Hampshire Fish and Game Department's program for access to public waters should be approached to assist in acquiring the land and constructing the ramp and parking area.
- Acquisition is proposed for parcels for future trails, including acquisition of additional sections of the abandoned Concord to Claremont Railroad right-of-way.
- Acquisition is proposed for land abutting Lehtinen Park as such may come available.

**3. The Soucook River Corridor**

a. Description

Flowing southwesterly from Loudon easterly of Route 106 to its confluence with the Merrimack at the tri-town boundary of Concord, Pembroke, and Bow, the Soucook River, which is the eastern border of the City, occupies a very narrow and meandering corridor. Small stretches of floodplain are interspersed with and lined by steep sandy bluffs.

The Soucook River water is of high quality. Public water supply wells for both Concord and Pembroke are located next to the River in Pembroke and draw water of excellent quality from a high yield aquifer.

There are relatively few areas of public and private development within the immediate river corridor. However, there is extensive commercial and industrial development atop the bluffs above the corridor along Route 106 and Route 3 in both Concord and Pembroke. There are several sand and gravel pits located in both Concord and Pembroke adjacent to the River.

b. Protected Open Space

The City of Concord owns a majority of the Soucook River frontage between Routes 106 and 3 as a buffer area for the municipal airport, and while this land is not truly held for conservation purposes, it cannot be developed or sold. A 10-acre conservation easement was obtained in 1996 on the bluffs and floodplains below Sam's Club retail site, and another was 3.5 acre easement obtained in 2003 along the shoreline of a private excavation site just upstream of the Route 106 bridge to Pembroke.

The State of New Hampshire owns the Taylor State Forest between Route 106 and the Soucook north of I-393, as well as a wetland mitigation site just south of I-393.

There are no lands that are privately conserved within the Soucook River corridor.

### c. Priorities for Open Space Protection

- Conservation easements are proposed for the PSNH and KeySpan lands in the floodplains of the Soucook River as well as the adjacent erodible bluffs.
- Shoreline protective easements should be obtained on property occupied by the State's Fire Academy and Emergency Management facilities easterly of the Route 106.
- Easements or the purchase of development rights are proposed to conserve a portion of a dairy farm that lies at the edge of Broken Ground near the Loudon townline.
- The Soucook River bluffs and floodplains should be protected with easements wherever possible along the corridor.

## 4. **Broken Ground**

### a. Description

Mentioned in both the Bouton and Lyford histories of Concord, Broken Ground is considered to occupy about five square miles bounded on the north by Oak Hill, on the east by the Loudon town line, on the south by Route I-393, and on the west by the PSNH transmission line. Bouton described it as "a tract of hardwood and pine, of gravelly soils and not very productive". Lyford gives a hint of the historical uses of Broken Ground when he terms it "a locality best known to woodmen and hunters". Modern soil surveys reveal rugged terrain -- rocky, gravelly soils with steep slopes surrounding pockets of wetlands. Substantial wetland areas, the largest of which abuts Turtle Pond, together with the rugged terrain, renders Broken Ground unsuited to development.

In the Broken Ground are headwaters of streams that flow into two watersheds. Water from Turtle Pond flows southerly over the dam through Mill Brook which then turns westerly on its way to East Concord Village and the Merrimack. Easterly of a topographic divide, Cemetery Brook and another unnamed stream flow southeasterly to the Soucook River.

While most areas of the City that are now forested were once cleared for farming, the Broken Ground was not. Except for the land along Josiah Bartlett Road which was and continues to be farmed, timber production has been the most important land use; hunting, hiking, cross country skiing and snowmobiling on power line right-of-ways and logging roads have also been popular.

### b. Protected Open Space

The City has acquired land as well as easements within the Broken Ground in the wetland areas both east and west of Turtle Pond as well as a parcel at the end of Curtisville Road. The City has also acquired land for an east side school and park complex adjacent to Broken Ground School, which creates a natural entrance to the area. Two contiguous parcels were acquired by the City between Portsmouth Street and Curtisville Road along the PSNH transmission line that runs just easterly of the edge of the neighborhood on Portsmouth Street. A property exchange is pending with Unitil such that Unitil may acquire these two lots subject to a conservation easement to the City. The 29-acre common open space in the Welcome Subdivision on Josiah Bartlett Road was deeded to the City in 2004 along with some related conservation easements.

The City's water storage tank is located on land that stretches easterly along I-393 from the overpass of Portsmouth Street, and this land is restricted to uses solely related to the City's water system.

The NH Fish and Game Department has acquired land within the Broken Ground in the wetlands east of Turtle Pond and also owns the boat ramp off Oak Hill Road which provides public access to the Pond.

The Five Rivers Conservation Trust holds an easement on the Lang properties on both sides of Josiah Bartlett Road.

#### c. Priorities for Open Space Protection

- The City should seek to acquire from NHDOT two parcels that were retained by the State as part of the of the I-393 right-of-way acquisition.
- Public acquisition is recommended for most of Broken Ground in recognition of its diverse environment, its value as a large unfragmented habitat for a wide range of wildlife, as well as the range of recreational uses it offers to the public.
- The acquisition of easements or the purchase of development rights are proposed for the large dairy farm at the very easterly edge of Broken Ground so that those currently farming may continue to do so, and that the farm remains available for future agricultural use.

### **5. Oak Hill - Snow Pond - Hot Hole Pond**

#### a. Description

Oak Hill rises northerly of Broken Ground between Shaker Road and Oak Hill Roads. The fire tower at its peak just across the town line in Loudon commands a panoramic view of Concord and much of Merrimack County. Hot Hole Pond, which offers freshwater swimming and cold water fishing, lies at the northerly foot of the hill, straddling the Loudon town line. Snow Pond is just westerly of Oak Hill, across Shaker Road, and is surrounded by large wetland areas with the one to the south reputed to having been a peat bog.

#### b. Protected Open Space

The City's first Open Space Plan identified Oak Hill as an important area to protect and over the past 30 years the City has been acquiring parcels, managing the timber, and developing and maintaining trails thereon. A small trailhead parking lot has been developed on the Shaker Road frontage of the City holdings and access has been acquired on the Oak Hill Road side.

A trail easement was donated in 2005 as part of Phase II of the Juniper Fells Subdivision providing access from Shaker Road linking the Oak Hill trailhead to Snow Pond Road via Becky Lane.

In 1989, the City acquired some of the wetlands north of Snow Pond with frontage on Snow Pond Road using matching funds from the Land Conservation Investment Program (LCIP).

The boat ramp and adjacent parking area maintained by NH Fish and Game at Hot Hole Pond are the only State-owned, protected properties in the area.

### c. Priorities for Open Space Protection

- The rest of the ridge of Oak Hill as well as several access points are proposed for public acquisition to capitalize on scenic, environmental, and recreational potentials. Conservation easements are proposed for the slopes so that the scenic and natural environment of the peak will not be compromised by some ill-conceived utilization of these slopes
- One parcel is designated for acquisition to provide additional public access on Hot Hole Pond.
- The remaining wetlands surrounding Snow Pond are proposed for public easements for environmental protection.

## **6. Northern East Concord and the Hoit Road Marsh**

### a. Description

Northern East Concord includes the area easterly of Sanborn Road and northerly of Snow Pond Road to the City borders with Loudon and Canterbury. The Hoit Road Marsh is adjacent to the tri-town boundary of Concord, Loudon, and Canterbury and drains under Hoit Road into Hackett Brook which then becomes Hayward Brook near the Canterbury line. Snow Pond outlet drains northeasterly and into Hayward Brook before the latter reaches the Merrimack. Agricultural activity includes pastureland and hay fields as well as an orchard on the Canterbury line.

### b. Protected Open Space

In 1992, Paul Riley bequeathed approximately 66 acres to the City abutting Fish and Game's holdings at the marsh. The City and State are managing this area cooperatively. By gift of Lester Spear in 1999, the City received the 70-acre Spear Park off of Sanborn Road for which is the forest resource is managed and public recreational use is permitted including hiking, cross-country skiing, and snowshoeing. A 34-acre tax title parcel on Tallant Road was retained in 1995 and three parcels have been donated as part of subdivisions over the past three years as follows: 29 acres off of Graham Road as part of Juniper Fells Phase I, 14 acres at the intersection of Snow Pond and Shaker Roads as part of Juniper Fells Phase IV, and 51 acres adjacent to Spear Park as part of the Reserve at Stonehaven cluster development. In that same timeframe, a trail easement over the former Snaftown Road was donated as part of Juniper Fells Phase I, a conservation easement of 4.9 acres was donated as part of Juniper Fells Phase IV, and a 16.5-acre conservation easement was donated as part of the Emerald Abode Subdivision at the southwesterly corner of Hoit and Graham Roads together with a trail easement leading west from Graham Road.

The New Hampshire Fish and Game Department acquired the Hoit Road Marsh as a waterfowl management area, open for fishing, hunting, and trapping. The State also holds the development rights on the former Blood Farm on Mountain Road.

The Five Rivers Conservation Trust holds an easement on the Bois de Brodeur Trust land on Hoit Road just west of Tallant Road, and the Society for the Protection of NH Forests has an easement on the Richards Community Forest easterly of Sanborn which is adjacent to Spear Park.

### c. Priorities for Open Space Protection

- The acquisition of a parcel is proposed to complete the connection between the trail easement over the former Suptown Road with the trails on the Riley parcel and the Hoit Road Marsh.

## **7. The Horse Hill Area**

### **a. Description of the Area**

Horse Hill rises in the far northwest corner of the City, above the historic Mast Yard and Contoocook River corridor. The rocky, steep area runs from the Boscawen town line to Horse Hill Road and Blackwater Road. Also included for purposes of this plan is the area easterly to Weir Road and Elm Street as well as land to the west of Horse Hill enclosed by Blackwater and Warner Roads and the City limits. Little Pond, one of two water bodies bearing that name in the City, straddles the townline with Boscawen on the north side of Horse Hill. While much of this area is comprised of forests, there are wetlands, particularly west of Blackwater Road, and pastures from former farming activities. Some timber is cut from these lands, and there is evidence of recreational activities such as hunting, cross-country skiing, and snowmobiling.

### **b. Protected Open Space**

In 1991, the City acquired approximately 56 acres east of Weir Road on the Boscawen town line. This parcel abuts a portion of Boscawen's Town Forest, which in turn abuts NH Fish and Game Department's Hirst Marsh also located in Boscawen. The City, the Town of Boscawen and Fish and Game are cooperating in the management of the more than 600 acres of conservation land.

A 46.5-acre parcel on the westerly slope of Horse Hill was acquired by the City in 1996, a conservation easement was acquired in 1996 west of Blackwater Road at the Webster townline, and another conservation easement was acquired in 2006 on 22 acres on the north side of Warner Road.

Allen State Forest is the sole State-owned parcel in this area, located westerly of Blackwater Road. As part of an adjacent land subdivision in 2006, the State received a 5 acre donation connecting the Allen State Forest to Warner Road.

The Five Rivers Conservation Trust holds an easement on 21 acres on the easterly side of Horse Hill off of Weir Road, and on two properties that had belonged to the Hardy family located off of Elm Street.

### **c. Priorities for Open Space Protection**

- The peak of Horse Hill is proposed for acquisition together with the shoreline of Little Pond and access to both from both Blackwater Road and Elm Street.
- Easements are proposed for the remainder of the slopes on the sides of Horse Hill in order to protect the physical and visual character of the hill, and to provide for increased recreational use.

## **8. The Great Bog**

### **a. Description**

Lying westerly of Fisherville Road and southerly of River Road, the Great Bog lent its name to Bog Road which was constructed across the southerly portion of the Great Bog as a “corduroy road”, made of row of logs laid side by side and covered with gravel. Bog Road was paralleled to the south by the Concord to Claremont railroad line, now abandoned, and a portion of the bog lies south of the old railbed, in a bowl-like form below the former Spofford Farm at the end of Ferrin Road. This large classic type of wetland remains relatively pristine, although residential development along Fisherville, Bog, and Borough Roads has pressed against its easterly edges, and a fringe of development lies along River Road. Although the Great Bog is primarily privately owned, the principal use of the area is for wildlife habitat.

#### b. Protected Open Space

The only publicly owned parcels belong to the City and include parts of the former Concord and Claremont Railroad right-of-way, used in part for the piping of Contoocook River water to Penacook Lake, and held in part for a future trail linking West Concord to the Mast Yard and Horse Hill. The agricultural lands on the Spofford Farm that lie adjacent to the Bog, southerly of the former railroad right-of-way, are protected by conservation easements. The common open space associated with the Primrose Subdivision south of Borough Road is the only private open space.

#### c. Priorities for Open Space Protection

- The missing links of public ownership in the former railroad right-of-way are proposed to be acquired for trail purposes.
- Conservation easements for environmental protection purposes are proposed to be obtained for the majority of this vast wetland.

### **9. The Penacook Lake Watershed and Environs**

#### a. Description

Penacook Lake, the City's chief source of potable water, is the focus of a 3.7 square mile watershed area that includes portions of Jerry, Pine, and Rattlesnake Hills as well as Russell Pond. Underlain with granite, the steep, thickly forested hillsides descend into the clear, long lake which runs northeasterly from the intersection of Little Pond Road, Long Pond Road, and Lake View Drive to a point just south of Hutchins Street in West Concord. Included within this segment of the open space system is another water body that is also known as Little Pond which is located to the north and east of the intersection of Little Pond Road and Via Tranquilla. Wetlands surround Little Pond, in contrast to the steep, stony soils which predominate within the adjacent watershed. The protection of the City's water supply is the pre-eminent purpose of public land protection in this small watershed, to the extent of exclusion of other potential uses.

#### b. Protected Open Space

The largest landowner within the watershed is the City of Concord. The City began acquiring the land around the lake some 40 years ago, and today owns the entire shoreline as well as varying amounts of acreage surrounding the immediate shoreline. The primary purpose of these acquisitions was and is to provide protection for the major source of the municipal water supply. The timber resource on the City's watershed has been managed under the City's forest management program which also maintains a network of fire roads.

The Carter Hill Orchard is located along its northern boundary of the watershed on Carter Hill Road and was protected in 2001 by a conservation easement to the Five Rivers Conservation Trust for which the City holds an executory interest. The Five Rivers Conservation Trust also holds an easement on a parcel near the end of Via Tranquilla.

The State of New Hampshire owns several parcels at the westerly edge of the watershed. The Abbott State Forest and District #5 State Forest lie, respectively, north and south of District #5 Road. The State also owns property at the easterly edge of the watershed in the Rattlesnake Hill Area which it holds in relation to the NH State Prison on North State Street.

#### c. Priorities for Open Space Protection

- Easements are proposed for the wetlands surrounding Little Pond in order to protect its fragile ecosystem.
- Private parcels within the Penacook Lake watershed which become available should be considered for public acquisition for water resource protection.
- If the State ever abandons its interest in the NH Prison lands on Rattlesnake Hill, the City should take steps to acquire protective interests in these properties.

### **10. West Parish, District #5, and Dimond Hill**

#### a. Description

This area embraces land westerly and southwesterly of the Penacook Lake Watershed to the Hopkinton townline, focusing primarily on the drainage area of Ash Brook which starts near District #5 Road and runs southerly past Currier Road to Hopkinton Road. Ash Brook has numerous associated wetland areas, of varying sizes as it meanders its way into Little Turkey Pond. Agricultural activity has been maintained at the Rossvie Farm on District #5 Road and at the Dimond Hill Farm on Hopkinton Roads. Hikers and snowshoers, and in some places, bicyclists and cross country skiers use both formal and informal trails in this area which is also traversed by a snowmobile trail.

#### b. Protected Open Space

An easement on 21 acres on the Hopkinton townline north of Currier Road was acquired by the City in 1992. In 2001, the City acquired the 68-acre Thirteen Hills property, northerly of Currier Road and abutting the District #5 State Forest. In 2002, a trail easement over the southerly end of the Old Dimond Road was granted to the City as part of the Abbott Hill Subdivision, and a conservation easement was provided to the City along Ash Brook as it flows through the Shenandoah Subdivision. In 2006, the City purchased an executory interest in a conservation easement on the 108-acre Dimond Hill Farm with the Five Rivers Trust holding the easement, and in 2007, a similar interest in the 545-acre Rossvie Farm was purchased by the City, with the New Hampshire Department of Resources and Economic Development holding the easement.

District #5 State Forest is the sole State-owned parcel which lies at the easterly edge of this area.

The Five Rivers Conservation Trust holds an easement on the Dimond Hill Farm, while the Society for the Protection of NH Forests has an easement on the 61.5-acre Hale parcel at the end of Chestnut Pasture Road.

c. Priorities for Open Space Protection

- Acquisition of land as well as easements is proposed to protect the unfragmented habitat and to provide trail connections from the Rossvie Farm northerly to West Parish Road, from the Rossvie Farm southerly to Currier Road along Ash Brook, as well as southerly from the Dimond Hill Farm to I-89, west of Little Turkey Pond.
- Protection should be legally formalized for the institutional lands of St. Paul's School including Jerry Hill as well as land on both sides of Long Pond Road at the intersection of Hopkinton Road, together with the trails thereon.

## **11. The Turkey Ponds and Turkey River Area**

a. Description

The Turkey Ponds and Turkey River occupy a large area in the southwestern quadrant of Concord. Starting at the Bow town line, Bela Brook enters Concord and flows easterly under Hooksett Turnpike, while further east, White and Turee Brooks flow north into Concord toward Clinton Street. All three of these brooks drain into Great Turkey Pond, which in turn drains northerly through a dredged channel under I-89 into Little Turkey Pond. The St. Paul's School pond is the next link in the circuitous waterway system that ultimately finds its way southeasterly via the Turkey River back into Bow and its confluence with the Merrimack River. The dominant feature of this sector of the City is its flat, wetland character. Some agricultural uses remain along Stickney Hill Road and Silk Farm Road. In addition to recreational uses associated with the surface waters and the trails in the area, wildlife habitat is the predominant use of the open space.

b. Protected Open Space

The City itself is a major landowner south of Clinton Street. The City acquired properties along Bela, White, and Turee Brooks through tax title deeds and has held them, originally for an ambitious plan to create a "Concord Lake". While that plan has since been relegated to a historic novelty, the land is extremely valuable wetland and wildlife habitat. A donation of 90.8 acres from the Bela Brook cluster development was made to the City in 2004.

A portion of the White Farm on Clinton Street abutting the Turkey River was acquired from the State by the Concord School District for purposes of environmental education.

The State owns major parcels to the northeast of I-89 along the Turkey River. These include the Cilley, Russell-Shea, Upton-Morgan, and West Iron Works Road State Forests as well as the former New Hampshire Hospital farmlands northerly of Clinton Street which are used as part of substantial trail network between Memorial Field and the Turkey River.

The Audubon Society of New Hampshire maintains its headquarters on Silk Farm Road with a trail system on its premises as well as on adjacent property of St. Paul's School.

c. Priorities for Open Space Protection

- Additional easements are proposed to complete protection of the river, streams, floodplains, and wetlands within this area, as well as to protect the remaining farmlands on Stickney Hill.
- Acquisition is proposed for a parking area on the south side of Clinton Street now used for public access to the Turkey Ponds.
- Acquisition of the parcel between Memorial Field and State land is proposed to link these two public properties for trail and access purposes.
- Should the State abandon its interest in the lands west of Memorial Field, these tracts should be preserved by the City for agricultural use and passive public recreational purposes.
- Conservation easements should be sought on the entire shoreline around the Turkey Ponds as well as on the associated wetlands, all of which are in the institutional ownership of St. Paul's School, in order to formalize the protection of these valuable environmental resources and to preserve the flood storage capacity.

## **12. Fisk Hill**

### **a. Description**

Fisk Hill rises above Pleasant Street westerly of Concord Hospital and includes the land area westerly of Fisk Road and northerly toward Little Pond Road where the watershed of Penacook Lake begins to carry runoff to the north. Within this area lie the headwaters of Bow Brook and Miller's Brook together with some related wetlands, as well as the fields and pastures along Fisk Road which create a classic pastoral landscape. Some residential development has occurred in this area, and agricultural activity is limited to haying of the fields. There are both formal and informal recreational trails, primarily east of Fisk Road, used for hiking, snowshoeing, and cross country skiing. A rope-tow ski facility was once maintained by St. Paul's School from Pleasant Street to the height of land east of Fisk Road.

### **b. Protected Open Space**

As part of the mitigation for the Northwest Bypass (Langley Parkway), the City acquired a 25-acre conservation easement in 1994 on the large wetland area north of Concord Hospital abutting Bow Brook. A conservation easement on the 47.8-acre common open space in the Walkers Reserve cluster development was given to the City in 2002, expanding the trails system from the adjacent Walker State Forest. In 2003, the City purchased 28 acres south of the Walker State Forest with the assistance of funds raised by supportive citizens.

Walker State Forest off of Little Pond Road is the only parcel of protected open space that is in State ownership. A trail network is maintained within the Forest.

The Five Rivers Conservation Trust holds an easement on the 28 acres the City acquired south of the Walker State Forest. The fields and forests of the Fisk Hill Farm subdivision are protected by private easements among the lot owners that bind those owners to maintaining the fields as such and not allowing their reversion to forest.

### **c. Priorities for Open Space Protection**

- Acquisition by the City of the land between the protected wetland behind Concord Hospital westerly and northerly to the permanent open spaces surrounding Walker State Forest is proposed for both environmental protection purposes as well as for the expansion of existing trail systems.
- Protection of the institutional lands of St. Paul's School and the Unitarian Church and the public access to the trails thereon should be legally formalized.

### **13. Open Space inside the Urban Growth Boundary**

#### **a. Description**

There are some open space lands inside the Urban Growth Boundary, and while these lands provide open space on a smaller scale, they are far more intensively used by the public due to proximity to residential development and places of employment. These parcels are mostly in public ownership and require little further action for preservation and protection.

#### **b. Protected Open Space**

The City's major parks all function as open space within or immediately adjacent to the Urban Growth Boundary, including White Park, Rollins Park, Martin Park, Memorial Field, Kimball Park, Garrison Park, Morono Park, Contoocook River Park, Rolfe Park, Merrill Park, Keach Park, Kiwanis Park, Terrill Park, and Healey Park, as well as Beaver Meadow Golf Course. The future park/school site adjacent to Broken Ground School will be added to this inventory as the park is formalized, and other recreation sites may be acquired and developed as parks to serve as urban open space for developing areas of the City.

The South End Marsh has long been held by the City as an urban open space. The City's cemeteries also function as formal, landscaped open spaces that provide open space both visually, and functionally, for walking within these special spaces.

Some subdivisions and all cluster developments within the Urban Growth Boundary have protected open spaces, some of which is held in condominium ownership as common land, some of which has been deeded as proportionate undivided interests among all of the owners, and some of which has had conservation easements conveyed to the City as a means of protection. These subdivisions and developments include the Primrose Subdivision, West Village, Millstream Estates, Brookwood, Freedom Acres, Haywood Brook, Bly Farm, Cardinal Builders Subdivision, and Woodcrest Heights.

#### **c. Priorities for Open Space Protection**

- The acquisition of easements around the South End Marsh is proposed to provide a buffer for the Marsh.
- While some specific recommendations for access to public waters are included in this plan, expanded public use of surface waters may result in the need for additional access points for purposes of recreation and safety.

### **14. Linkages and Connections**

#### **a. Description**

Open space becomes a system when its components are linked together, and the system becomes more viable and useful to the citizens of Concord when these linked components are connected to and accessible from the villages and neighborhoods where the citizens reside. The linkage devices may include utility rights-of-way, railroad rights-of-way, and streambanks, but where no rights-of-way or streams exist, linkages will need to be acquired as corridors between open space parcels. Rights-of-way are generally traversable, being fairly free of substantial growth and having either relatively flat or at least passable terrain; however, streambanks vary in grade and are sometimes surrounded by wetlands, requiring culverts and small bridges make them valuable and viable as linkages and connections. A connected open space system will provide recreational opportunities for hiking, cross-country skiing, snowmobiling, horseback riding, bicycling and the like.

Trails and connections used by the public may also serve as wildlife corridors, linking large areas of unfragmented habitat as well as providing access for wildlife to sources of water. However, there may be need to acquire corridors for wildlife where the trail systems do not otherwise serve that need.

b. Existing Trails

Over the past thirty years, the Conservation Commission has developed trails on most of the City's public open spaces except where public access is prohibited, such as around Penacook Lake. Trail maps are available to the public (ref. Exhibit VII-3), and with the advent of computerized mapping, these maps have become available on the City's website. Informational kiosks have been constructed at many of these areas stocked with maps, and several sites have trailhead parking lots. Public trails are also available on the State land at Sewalls Falls, at the Forest Society's headquarters, and at the Audubon Society's headquarters.

c. Proposed Linkages and Connections for Public Access

While trails exist on many open space sites, only a few are connected to each other, such as Sewalls Falls, Morono Park, and Beaver Meadow Golf Course with cross country skiing trails. What is proposed to be accomplished herein is a more universal linkage among these large open space areas with their internal trail systems, and the provision of connections to these open space areas and trails from the neighborhoods and villages inside the Urban Growth Boundary. The following is a description of these linkages and connections throughout the City:

- i. West Concord Village/Concord Manor to Riverhill/Board Cove/Mast Yard: The City owns or holds easements on sections of the abandoned Concord to Claremont railroad right-of-way from North State Street to the Contoocook River at the Riverhill Bridge. The missing links need to be acquired or easements obtained thereon in this stretch. There are also sections of the railroad right-of-way along Horse Hill Road that should be acquired which would connect from the O'Reilly-Fleetham Trail at Riverhill to the existing trail system in Lehtinen Park. A bridge over the Contoocook River using the old railroad bridge abutments has been proposed by local snowmobile clubs which will provide a connection to Mast Yard trails which lead into Hopkinton.
- ii. Riverhill to Weir Road/Horse Hill/Boscawen Town Forest: For trail users arriving at Riverhill, a short trip up Horse Hill Road onto Elm Street and Weir Road leads to existing trails at the townline that continue into the Boscawen Town Forest and the Hirst Wildlife Management area. As land is acquired on Horse Hill, trails should be laid out on and over Horse Hill to Blackwater Road and Lehtinen Park.

**Exhibit VII-3. Trail Map**  
**Insert 8 ½ x 11**



- iii. West Concord Village to West Parish/District #5/Currier Roads and Dimond Hill: Running southerly from the proposed trail along the abandoned Concord to Claremont railroad right-of-way paralleling Bog Road, a trail connection should be established along the water line easements to West Parish Road. This would require the acquisition of trail easements in addition to the utility easement the City now holds. By continuing westerly on West Parish Road, a hiker could then enter the Carter Hill Orchard trail system, which is planned to be expanded westerly and southerly throughout Rossvie Farm crossing District #5 Road. At the southerly end of the Rossvie Farm, a trail needs to be laid out to continue southerly through the Thirteen Hills parcel and along an easement over the Old Dimond Road to Timberline Drive and Currier Road. Other connections from the Rossvie Farm to Currier Road should be sought. Currier Road provides access to the northern edge of the Dimond Hill Farm which continues southerly across Hopkinton Road.
- iv. Memorial Field through the White Farm to the Turkey River Watershed: The South End is connected to the Turkey River Watershed via trails leading westerly from Memorial Field through the White Farm under a license agreement between the Commission and NHDRED. The Concord School District land is also utilized in reaching the Turkey River just north of Clinton Street, which must be utilized to reach trails at the Audubon Headquarters as well as trails in the Upton-Morgan State Forest on Silk Farm Road, respectively north and south of Clinton Street. Further west off of Clinton Street is a new trail system in the Bela Brook cluster development. Opportunities should be explored to link with trails maintained by the Bow Conservation Commission in the Town of Bow.
- v. Pleasant Street to Walker State Forest over Fisk Hill: Formal trails exist at both ends of this area, in Walker State Forest and on the land of the Unitarian Church. The informal network in between needs to be formally protected and upgraded, providing access from the West End to this open space area.
- vi. The Heritage Trail along the Merrimack: The Heritage Trail is intended to follow the Merrimack River from Bow to Boscawen and Canterbury, providing access to the river from all of the neighborhoods and villages in Concord. Begun in 1990, some sections follow sidewalks along City streets, and some have been established over pre-existing trails such as the bicycle lane on the I-93 bridge connecting the NH Technical Institute with East Concord Village. All of the recently acquired properties on the Merrimack floodplain will be used to expand this trail system but there are missing pieces that will need to be acquired to connect from the Gold Star Sod Farm to Sewalls Falls Road, and from Sewalls Falls Road to Hannah Dustin Drive. The trail along I-93 in the Downtown area will have to wait for the modifications to I-93 by NHDOT to connect from Healey Park to Loudon Road and provide for the "river connection" to the trail over I-93 from Downtown Concord. Non-public sections of the abandoned Concord to Claremont railroad right-of-way should be acquired from Horseshoe Pond continuing north to North State Street and West Concord.
- vii. Broken Ground: Existing trails on the future school park site accessed by Batchelder Mill, North Curtisville, and Curtisville Roads lead east toward Broken Ground. Trails have also been laid out on the Nichols parcel at the dead-end of Curtisville Road, while other more informal trails run southerly from Curtisville Road to Portsmouth Street, where the East Sugarbell Road trail connects back to East Side Drive providing access from the Heights. The vast remainder of Broken Ground is laced with old logging roads that are well used by the public but no formal trail rights exist to these. The protection of Broken Ground will be

the key to gaining formal trail rights throughout Broken Ground connecting east to Josiah Bartlett Road, and north to Appleton Street, Turtle Pond, and Oak Hill Road.

- viii. Oak Hill to the Hoit Road Marsh: The City has an extensive trail system on Oak Hill with access from Oak Hill Road and a trailhead with parking off of Shaker Road. Existing trail easements connect from Shaker Road through Becky Lane across Snow Pond Road to a trail easement on the former Snaptown Road from which trails can diverge in two directions. Heading westerly, a City owned parcel that can provide a connection to Graham Road from which another trail easement continues westerly toward the Richards Community Forest and Spear Park on Sanborn Road, with one easement connection needed to complete this connection. Heading northerly from the former Snaptown Road, one additional acquisition would fill a missing link to the Riley Trails on City land that cross Hoit Road to the Marsh.

The City should remain alert for and actively seek additional corridors and linkages to provide connections between areas of open space and the urban parts of the city.

d. Proposed Linkages and Connections for Environmental Protection and Wildlife Corridors

Easements are proposed whenever possible along all streams and brooks. Drainage rights, development rights, and in some cases, right of access, should be sought along the following brooks:

- i. Bow Brook is proposed for easements in order to unify various urban open spaces and to provide access and a link to Little Pond in the north and the Turkey River in the south.
- ii. Hayward Brook, Hackett Brook, and the Snow Pond Outlet link the Hoit Road Marsh and the Snow Pond/Oak Hill area and the Merrimack as they meander through a developing area in East Concord.
- iii. Hoyt Brook rises in the Great Bog southwest of Borough Road and flows northerly under Borough Road and South Main Street in Penacook, down through the land of the Merrimack Valley School District to the Merrimack River.
- iv. Beaver Meadow Brook rises east of Ferrin Road and adjacent to the Penacook Lake watershed, and flows down across the railroad right-of-way, under Fisherville Road, through Concord Manor and Beaver Meadow Golf Course to the Merrimack River.

While the shorelines of rivers, streams and ponds have been placed under a protective setback requirement in the City's Zoning Ordinance, easements should be obtained for land in the Shoreland Protection District whenever possible, both to reinforce the zoning and to alert future landowners to development restrictions. Where no rights-of-way or streams exist, linkages will need to be acquired as corridors between open space parcels to act as wildlife corridors.

## **E. CONSERVATION AND OPEN SPACE POLICIES AND RECOMMENDATIONS**

### **1. Conservation and Open Space Policies**

a. Open space protection and management policies

- i. Acquire and manage open space lands where public access is desired, including lands which provide access to public waters.

- ii. Acquire conservation easements in perpetuity or purchase development rights in areas proposed to remain as open space and where public access is not envisioned or not desirable due to environmental sensitivity.
- iii. Provide adequate public funding, such as the proceeds from the Use Change Tax, that will sustain a program for the acquisition and protection, as well as the long term management of open space, and to leverage that public investment with other sources of funding
- iv. Work with volunteers, private conservation groups, landowners, adjacent towns, and the agencies of the state and federal governments to protect, monitor and maintain the open space areas identified in this open space plan.
- v. Encourage and support the continued maintenance of the quality and functions of private open space areas owned individuals and institutions.
- vi. Evaluate each tax title property for consistency with the Open Space Plan, and if consistent, to determine if the title should be retained if public access is desired, or should be resold with conservation easements, if public access is not recommended.
- vii. Accept donations of conservation easements and/or fee simple title to open space lands only after a determination that the donation is consistent with the open space plan, and the site has been evaluated for the presence of hazardous wastes.
- viii. Utilize conservation organizations as secondary grantees in holding easements or executory interests on publicly owned open space, to ensure that the land is protected in perpetuity.
- ix. Support the continuation of the Current Use Taxation (RSA 79-A) and the Conservation Restriction Assessment (RSA 79-B) Programs for privately held open space.

b. Policies related to the public use of, and access to, open space

- i. Establish linkages between large open space areas both for public access and as corridors for wildlife migration along rivers and streams, major transmission line rights-of-way, and abandoned railroad rights-of-way.
- ii. Develop trails, boat ramps, boardwalks, and other facilities for public access to Concord's open space where such access will not adversely impact natural resources and the ecology of the open space.
- iii. Continue trail development and maintenance within open space areas throughout the City, and to encourage and coordinate volunteer efforts to develop and maintain these trails.
- iv. Carefully consider and mitigate adverse impacts which may occur from the development of public and private recreational facilities within the open space system.

c. Environmental protection policies

- i. Conserve large unfragmented areas that provide a variety of wildlife habitats and promote landscape connectivity to allow for the movement of wildlife within the City.
- ii. Protect the habitat of endangered or threatened species through acquisitions and easements that ensure the continued existence of the natural habitats of these species.
- iii. Maintain and improve the quality of ground and surface waters

d. Land Use Regulatory Policies

- i. Wetlands:
  - o Strive for no net loss of the functions and values of wetlands in the City and to seek mitigation for unavoidable impacts.
  - o Require setbacks from wetlands for activities that may have an adverse impact upon the wetland.
  - o Continue to add to the City's inventory of mapped wetlands so that wetlands are readily and easily identified when land is proposed to be developed.
- ii. Floodway - Prohibit the placement of fill and/or obstructions in the floodway, and to prohibit the erection of buildings and structures in the floodway other than those which cannot be located elsewhere, such as bridges and boat ramps.
- iii. Floodplain:
  - o Use the best available information to establish the regulatory flood elevations and limits of flood hazard areas and to continue participation in the Federal Flood Insurance Program.
  - o Continue to restrict development in the floodplain outside of existing urbanized areas to agricultural and recreational uses.
  - o Prohibit new residential uses within the floodplain and encourage the removal of existing residences.
- iv. Steep and Erodible Slopes - Perpetuate setbacks and use regulations intended to protect steep erodible slopes and bluffs from irreversible damage from clearing, grading, and excavation.
- v. Shoreland Protection - Perpetuate setbacks, buffers, and use regulations intended to maintain surface water quality and protect the banks of the rivers, streams and ponds from damage by incompatible development.
- vi. Penacook Lake Watershed – Continue to protect the Penacook Lake Watershed City's primary source of potable water through restrictions on incompatible uses and limitations on density of development.
- vii. Aquifers - Prepare and adopt ground water protection regulations.
- viii. Site Development:
  - o Require site development to take into account the natural site conditions during the design process and, where appropriate, to preserve and promote such physical and natural features as rivers, streams, ponds, marshes, wetlands, scenic vistas, steep slopes, woodlands, wildlife habitat, and special geological features.
  - o Require site development to minimize the destruction of natural vegetation and alteration of terrain.

- ix. Cluster Development - Foster the use of cluster development and/or limited development techniques in rural residential areas to promote the preservation of open space and to reduce the economic and environmental costs associated with sprawl.

e. Policies related to the use and development of natural resources

i. Agriculture:

- o Recognize that agriculture is the highest and best use of prime agricultural soils within open space areas.
- o Support a diverse agricultural industry including but, not limited to, field crops, horticultural production, dairy farms, orchards and animal husbandry.
- o Support the use of agricultural best management practices to protect water and soil resources and to maintain long term productivity.
- o Recognize agriculture as an economic activity which should be supported through tax policy and land use regulation.

ii. Forestry:

- o Support the use of forestry best management practices to protect water and soil resources, to prevent soil erosion and sedimentation, and to preserve and enhance wildlife habitat.
- o Recognize forestry as an economic activity which should be supported through tax policy and land use regulation.
- o Continue the forestry management program for the City's open space lands to provide for sustainable yield of timber and allow for multiple use which will not adversely impact the ecological functions of the open space.

iii. Potable Water

- o Protect the quality of surface and groundwater to ensure availability of a potable water supply for both the City as well as for individual homeowners.

iv. Sand and Gravel Deposits

- o Maintain regulations consistent with the authority of RSA 155-E for the establishment of new excavations as well as the closure and reclamation of depleted excavations.

## **2. Conservation and Open Space Recommendations**

a. Regulatory Recommendations

- i. Sustain and perpetuate the open space-related regulatory provisions adopted in 2001. The 2001 Zoning Ordinance included a Shoreland Protection Overlay District, a Flood Hazard Overlay District, and a Penacook Lake Watershed Protection Overlay District as well as requirements for wetland buffers and requirements for buffers to bluffs. The City's earth removal regulations were also reviewed and substantially revised to reflect amendments to RSA 155-E, "Local Regulation Excavations".
- ii. Aquifer Protection District - An aquifer protection district should be prepared and adopted to safeguard the City's potable groundwater supplies for future use by both the City and private users. Available models of such ordinances do not adequately address Concord's circumstances wherein the City possesses both municipal water and sewer

systems which serve the urban areas, and the land over the aquifers in these urban areas is substantially and heavily developed. At the same time, there are rural and undeveloped areas of Concord that are dependent on wells and septic systems. A Concord-specific ordinance should be prepared that will address requirements and standards for management practices such as for leak detection and spill containment, and will explore the legal means to apply these requirements retroactively to those existing uses that represent a hazard to groundwater.

- iii. Maximize the open space benefits of Mandatory Cluster Development - While this was not included as a recommendation in the past editions of the Open Space Plan, the City Council adopted a zoning amendment making cluster development mandatory. Based on a tentative recommendation in the draft of this Master Plan, the amendment was promoted in part because the enabling statute was revised to allow the mandate, and in part because related research revealed that cluster developments had yielded about 600 acres of open space since the adoption of the citywide revision of the Zoning Ordinance in 2001. While the zoning amendment does not, and cannot require that the rights to the open space be granted to the public, it does require that a certain amount of land be kept open on a permanent basis. This represents a new opportunity to augment other more traditional means of protecting open space in Concord. The design of individual cluster developments should maximize the connectivity of the proposed open space to other existing as well as planned open spaces, for the benefit of both wildlife corridors as well as trails.

#### b. Public Acquisition Recommendations

All proposed open space acquisitions, whether the fee title or some lesser interest, should be judged by several criteria when establishing priorities. Perhaps the foremost is *vulnerability to development or other alteration*. Some open space is more susceptible to development by virtue of its location adjacent to an existing public highway or a waterbody. Since inaction would mean the loss of such open space, acquisition of interests in these properties should be of highest priority.

A second criterion would be the *potential for immediate public utilization* of the open space. Some parcels would require funding not only for acquisition but also for site development to render them useful to the public. Other lands can be utilized with minimal effort once they are acquired.

Other criteria include the following:

- maximizing the protection of multiple natural resources;
- providing linkages between and among existing protected open spaces and lands targeted for protection, or provision of connections between open spaces and the City's neighborhoods and villages;
- being located adjacent to existing open space such that there would be a complementary and beneficial relationship; and
- comprising a portion of an unfragmented area of open space.

The history of public acquisition of land indicates that opportunities will arise to acquire properties in a sequence unrelated to established priorities. Such opportunities should be carefully evaluated in light of available funding and the status of negotiations for parcels of higher priority. In some cases, non-sequential acquisitions will be warranted.

Some parcels of land may be offered to the City for open space purposes that are not included in this Plan. These properties should be evaluated on a case by case basis using the following criteria:

- the provision of possible linkages to or within the open space system,
- the potential to provide neighborhood "pockets" of open space,
- the level of difficulty of management of the property if acquired, and
- the potential for the resale or trade of the property, perhaps with the encumbrance of a conservation easement, for other more valuable or desirable property.

Finally, some consideration should be given to the timing of the various acquisitions. Based on past experience, in the case of acquisition by direct public purchase, at least one high priority or several lower priority acquisitions should occur each year. Receipt of gifts and retention of tax title land will periodically augment these purchases. The amount of remaining open land in the City is finite, and with development pressures and the passage of time, opportunities for protection of that open land that are lost, are likely lost forever.

#### i. Acquisition of Fee Title

All of the proposed acquisitions, with the possible exception of those around Penacook Lake, have the "potential for immediate public utilization", and there is some level of "vulnerability to development or other alteration" associated with each. However, of all of the proposed acquisitions, Broken Ground is the only one that meets all of the criteria for the acquisition of open space. The list of acquisitions presented below parallels that as presented in the description of the open space system in this Section and does not reflect a priority ordering of the same.

- Merrimack River Corridor - trail linkages; boat ramp/canoe launch sites
- Contoocook River Corridor - trail linkages; boat ramp/canoe launch site; expansion of Lehtinen Park
- Broken Ground – all land not already publicly owned or otherwise protected
- Oak Hill & Hot Hole Pond – additional access to, and remainder of ridgeline of, Oak Hill; frontage on Hot Hole Pond
- Northern E Concord & Hoit Road Marsh – one parcel linking the Snow Pond Road open space and trails to the Riley lot and the trails related to the Hoit Road Marsh
- Horse Hill - peak of Horse Hill; shoreline of Little Pond; access to both from Blackwater and Weir Roads
- The Great Bog – abandoned railroad rights-of-way to complete the trail connections
- Penacook Lake Watershed – additional land as may become available, evaluated on a case by case basis
- West Parish, District #5, and Dimond Hill – linkages from Rossvie Farm to West Parish Road and to Currier Road
- Turkey Ponds and Turkey River – area for parking on Clinton Street for access to the Turkey Ponds; parcel between Memorial Field and State land

- Fisk Hill – the hillside between Pleasant Street and the Walker State Forest westerly of Langley Parkway
- Open Space inside the Urban Growth Boundary – future parks and cemeteries, access to public waters that may become available; common open spaces from cluster developments

## ii. Acquisition of Interests-Less-Than-Fee

The list of acquisitions of interests-less-than-fee presented below parallels that as presented in the description of the open space system in this Section and does not reflect a priority ordering of the same.

- Merrimack River Corridor - agricultural lands; wetlands; bluffs
- Soucook River Corridor - agricultural lands; floodplains; bluffs
- Broken Ground - agricultural lands
- Oak Hill & Snow Pond – slopes of Oak Hill; wetlands around Snow Pond
- Northern E Concord & Hoit Road Marsh – trail easement to link Graham Road to open space along Sanborn Road
- Horse Hill – slopes
- The Great Bog – wetlands
- Penacook Lake Watershed – wetlands around Little Pond
- West Parish, District #5, and Dimond Hill – linkages from Rossvie Farm to West Parish Road and to Currier Road; and from Dimond Hill Farm to Little Turkey Pond; wetlands and shoreline of Ash Brook
- Turkey Ponds and Turkey River – shorelines of the Ponds, River, and streams; floodplains and wetlands; agricultural lands
- Fisk Hill – trail easements
- Open Space inside the Urban Growth Boundary – easements over the currently privately owned sections of the Marsh and forming a buffer around its edges; shorelines of rivers, streams and ponds not otherwise mentioned to reinforce floodplain and shoreland zoning, as well as wetlands, and erodible slopes and bluffs.

## c. Management of the City's Open Space

As the City accumulates more land and interests in land for permanent open space, the management of these lands becomes a more substantial matter that needs to be addressed. At present, much of the management undertaken under the aegis of the Conservation Commission is done through the Forestry Program. After starting the Forest Management Program rather modestly some thirty years ago with assistance from the NH Division of Forests and Lands as

well as employment of college interns, for the past twenty years Commission has maintained a contract with a consultant forester who oversees forest management practices, timber harvests, timber stand improvements including trail blazing through the forests. The City's Forest Management Plan is currently undergoing its third update which will recognize past work on existing lands and add new properties to the management schedule.

The City's consultant forester has provided a regular presence on these open space lands and a watchful eye for storm-related damage, illegal dumping activity, encroachment by neighboring owners, and other matters of concern in terms of land management. The trail volunteers who work under the forester's guidance and with his assistance also provide a public presence on these properties and public evidence of maintenance activities. Of course the trail users themselves, for whom the trail improvement efforts are expended, provide the best source for the reporting of management issues and concerns such as natural damages as well as acts of vandalism.

The addition to the City's open space inventory of agricultural lands has opened a new chapter in the City's open space management through formal lease agreements with farmers who plant various crops and provide a seasonal presence on these properties.

The terms of some of the easements acquired by the City as well as the terms of certain funding by which interests in land were acquired require stewardship on an annual basis by the City, which is generally performed by the Conservation Commission or a subcommittee thereof. As the number of these stewardship requirements increase, the responsibility will likely have to be shared or even shifted to an employee designated to serve the Commission to manage its land and its programs.

The private non-profit conservation organizations holding interests in open space land in the City are another major player in the management of open space land in the City. The Society for the Protection of NH Forests, and the Audubon Society of NH both own land as well as hold conservation easements, and the Five Rivers Conservation Trust holds a number of conservation easements. These organizations are all active stewards of the lands and are engaged in land management.

The other major land manager in the City's open space network is the State which includes the NH Division of Forests and Lands, NH Fish and Game, and the NH Department of Corrections, all of which manage major open space lands within the City.

As the open space system achieves its maximum limits, management planning should be a focus for the City in the future to provide for adequate and appropriate support and oversight of the system that will ensure the public's enjoyment and safety, as well as protect the public investment in this irreplaceable resource.

## **F. Supporting Studies**

A Legacy for Future Generations – Open Space in Concord, New Hampshire: A Master Plan Report, Concord Conservation Commission, Concord, NH, 1978.

City of Concord Master Plan Year 2010 Update, Concord Planning Board & Concord Planning Department, Concord, NH, December 15, 1993.

Concord Wetland Mapping Study, prepared by James W. Sewall Company, 2004.

Concord Master Plan Community Survey, prepared by The NorthMark Group, 2004.

Endowment for the 21<sup>st</sup> Century, Conservation & Open Space Plan, Concord Conservation Commission, Concord, NH, December 15, 1993.

Floodplain Information, Merrimack River, City of Concord, New Hampshire, United States Army Corps of Engineers, 1972.

Geohydrology and Water Quality of Stratified-Drift Aquifers in the Contoocook River Basin, South Central New Hampshire; United States Geological Survey Water Resources Investigations Report 92-4154, 1995.

Geohydrology and Water Quality of Stratified-Drift Aquifers in the Upper Merrimack River Basin, South Central New Hampshire; United States Geological Survey Water Resources Investigations Report 95-4123, 1997.

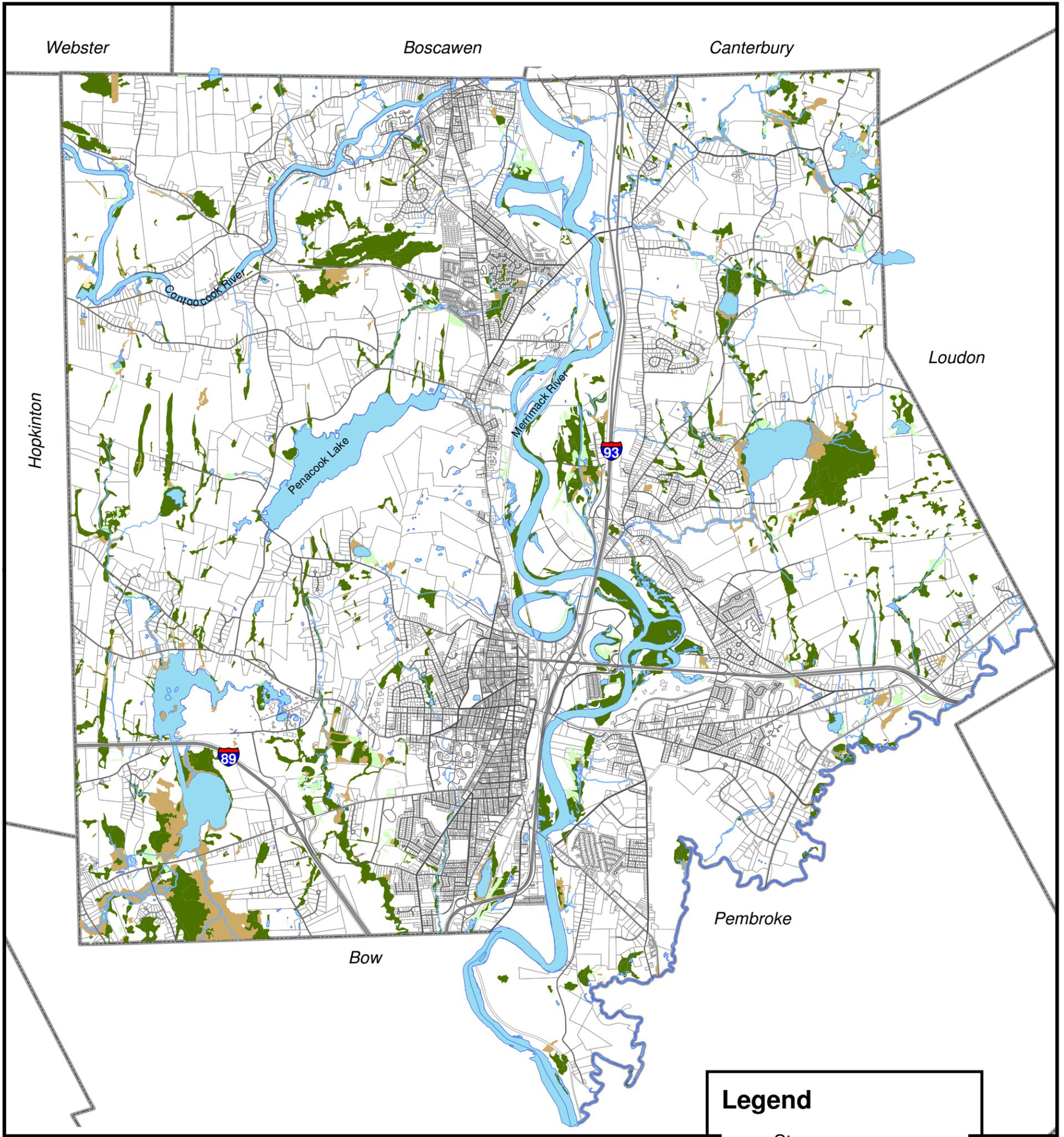
Groundwater Exploration Program Phase I Report for the City of Concord Water System Master Plan, Emery & Garrett Groundwater, Inc., October 2005.

Merrimack River Greenway and Trail System, Concord Conservation Trust, Concord, NH, 1990.

Turkey River Basin Plan, prepared for the Turkey River Basin Trust by Margaret Watkins, 1993.

Water System Master Plan, Phase 1, for the City of Concord, New Hampshire, Wright-Pierce, September 2006.

Zoning Ordinance for the City of Concord, New Hampshire. Adopted November 29, 2001 together with zoning map, as revised through June 2007.



**Exhibit VII-1  
Wetlands Map  
City of Concord, NH  
Master Plan 2030**



**Legend**

— Streams

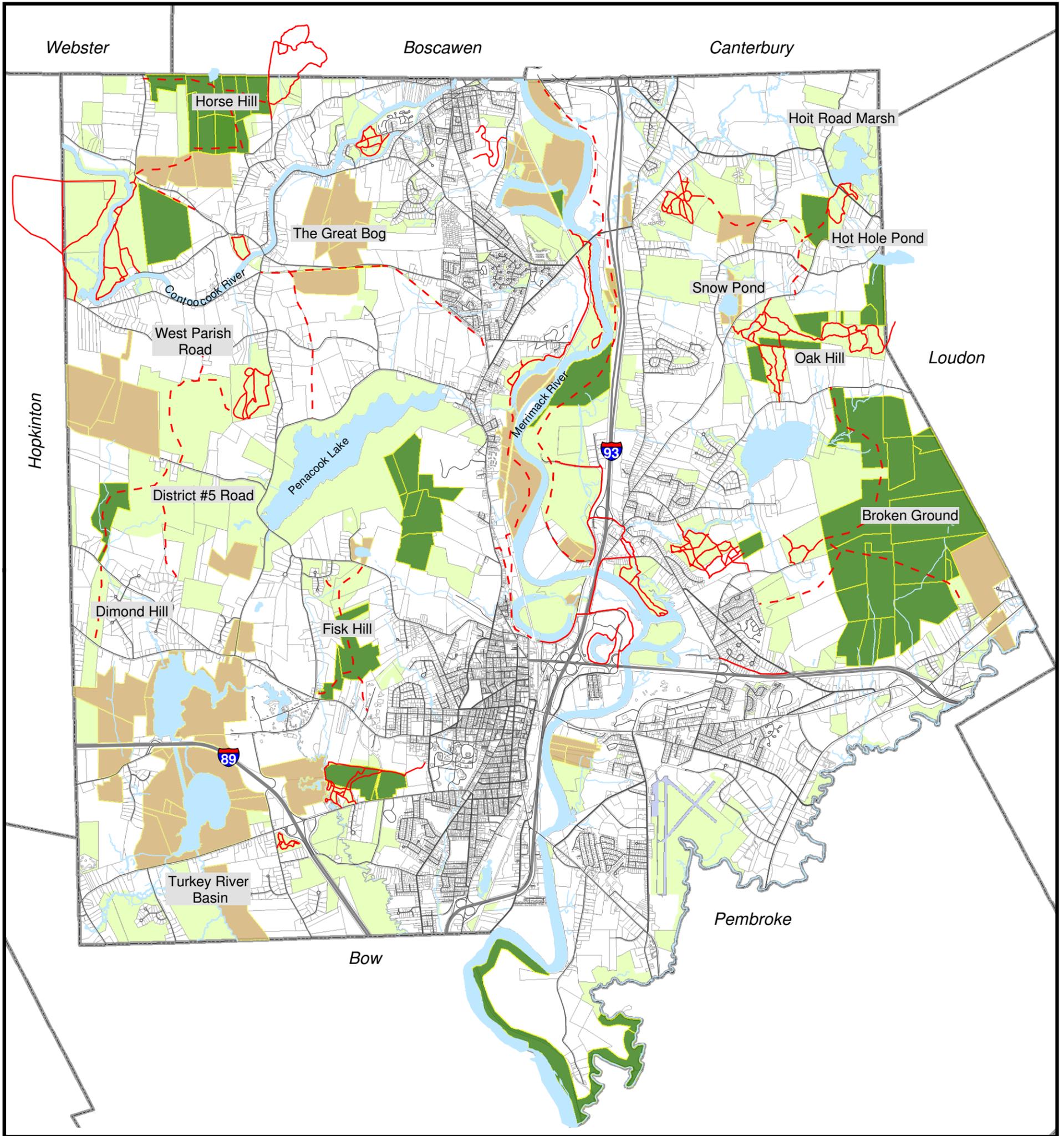
**Wetland Class**

**CLASS1**

- Forested
- Scrub-Shrub
- Emergent
- Aquatic Bed
- Unconsolidated Bottom
- Unconsolidated Shore

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Prepared by the Planning Division: November 2007



**Exhibit VII-2  
 Future Open Space Plan  
 City of Concord, NH  
 Master Plan 2030**



**Legend**

- Priority Acquisition - Fee Simple
- Priority Acquisition - Easement
- Existing Open Space
- Existing Trails
- Proposed Open Space Connections

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