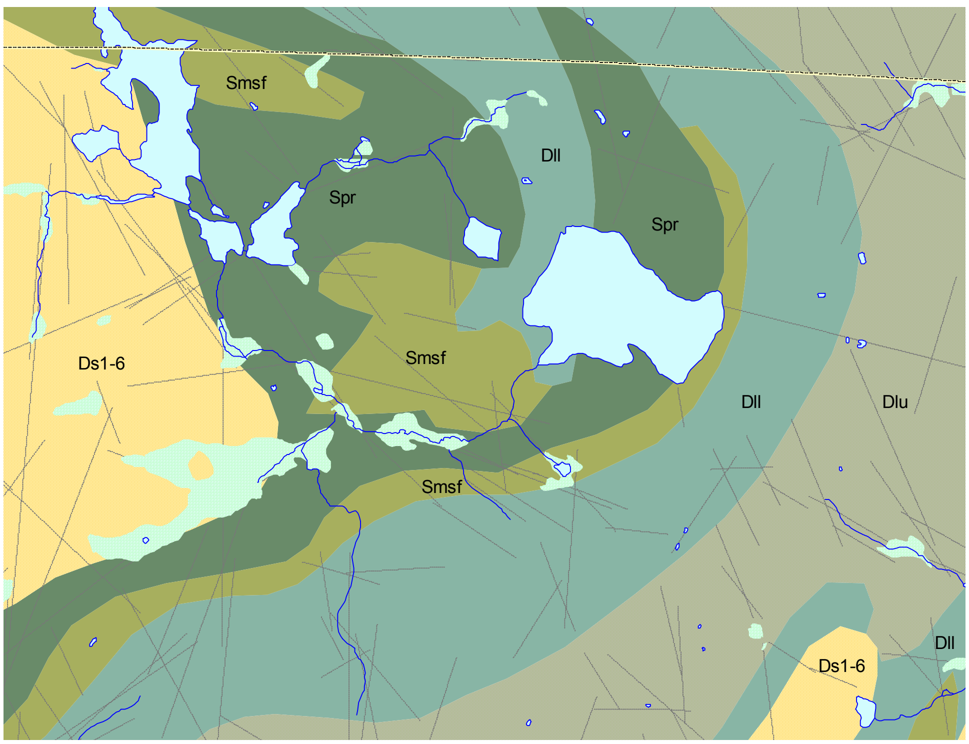
Town of Dublin, New Hampshire
Natural Resources Inventory

GIS Analysis



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SWRPC
Southwest Region Planning Commission
20 Central Square, 2nd Floor
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Acknowledgments

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Introduction

The municipal Natural Resources Inventory (NRI) can inform local decisions regarding all aspects of community development. The use of an NRI in community planning can help a community avoid damaging impacts of human activity on natural features and natural resources. An NRI at minimum will identify resources found in the community and discuss the distribution of those resources. The NRI can also present quantitative and qualitative information about resources. All of this supports a larger purpose of creating a shared understanding among residents and officials of the community's natural landscape and an appreciation for the intrinsic and social values of the community's natural resources.

Hallmarks of sustainable community development include willingness to question convention, adapt to change, and the ability to create or capitalize on opportunities for positive change while protecting against loss.

The development, periodic refinement and inclusion of an NRI in the Master Plan can foster an ethic in municipal government of conservation, protection, stewardship of natural resources. In general, conservation goals will address two suites of issues:

- Preserve Ecological Integrity - preserve the physical and biological components (air, water, soil, organisms, and communities) and processes (e.g. hydrology, ecological succession, and biodiversity) of the natural environment in order to preserve the natural systems on which we depend for air, water, food, and fiber.

- Preserve Specific Places and Resources - rare or special plant and animal communities and species; resources of economic value (e.g. farmland soils, timber lands and water supplies); and aspects of Dublin's natural and cultural heritage, (e.g. scenic views and recreation opportunities ranging from strolling on country roads to hunting, fishing and backcountry experiences).

A community survey conducted by the Planning Board in 2004 asked residents to identify essential qualities of Dublin, qualities and features central to community character and quality of life. The most frequent answers were natural features: wildlife, groundwater, fields and open places, forest, water bodies, scenic views, and forested hills and mountains. The survey also found that more almost all respondents felt that land conservation to protect those resources should be a priority for the community.

Approach

This project is an analysis of data describing the qualities and distribution of natural resources and features as available by way of the Southwest Region Planning Commission's (SWRPC) Geographic Information System (GIS). Primary data sources are U.S. Department of Agriculture Natural Resources Conservation Service, U.S. Geologic Survey, U.S. Fish & Wildlife Service, NH Department of Environmental Services, and New Hampshire's statewide GIS: NH GRANIT. Property line data was available byway of the Town's Tax Maps, which are maintained by SWRPC GIS. Original data developed for this project were watershed boundaries delineated by

SWRPC using USGS Topographic Maps and the location of structures digitized from Digital Orthophotos from NH GRANIT.

This GIS analysis uses two organizing geographic units: town boundaries and watersheds. Watersheds provide an ecologically meaningful unit of study and management due to the commonality of water throughout the watershed landscape. That same water provides a built-in monitoring system for environmental quality within a watershed: water quality is the product of all that water encounters in the course of the hydrologic cycle. Water chemistry and aquatic plant and animal species provide readily assessable indicators for watershed well-being.

Being in a highland setting, most of the water running, infiltrating, or standing in Dublin originates as snow and rain falling on Dublin. This creates a very good opportunity for the residents of Dublin to protect water quality in Dublin.

Results presented in maps and a series of tables, which are organized by variable groupings: Water Resources, Sensitive Resource Areas, Soil Resources, and Development Parameters, and presented by watershed.

This project includes a cursory description of land cover: perennial water, wetlands, forested and non-forested, non-wetlands (i.e. areas larger or more remote than typical landscaped yards associated with homes and commercial buildings that are maintained in a non-forested state for agriculture, recreation, excavation, or residential use).

The information presented in this report is provided as a foundation for further study, refinement and enhancement with local knowledge and original research.

This project does not include an inventory of species or communities of plants and animals. The NH Natural Heritage Inventory Bureau within the NH Department of Resources and Economic Development published a catalog of natural communities known or expected to occur in the State. That publication provides boundaries for the geographic extent of groups of communities by Eco-Region (Figure 1.), and while providing descriptions of the landscape conditions (elevation, slope, aspect, hydrology, soils, etc.) it does not indicate the location of individual community types. Appendix 1. of this analysis presents the individual plant community types from that catalog which are expected to occur in the Town of Dublin.

New Hampshire's Draft Wildlife Action Plan does provide descriptions and maps of habitats of concern – habitats that are themselves communities at risk or associated with plant and animal species at risk. Pending approval of the draft Plan by the U.S. Fish & Wildlife Service, GIS data depicting the distribution of natural communities will be available for public use and the SWRPC GIS. These data will be a very valuable addition to the physical features available through the USDA Soil Survey, elevation and hydrographic data.

Finally, Appendix 2. of this report provides contact information for "Additional Resources and References".

The Central New England Landscape

The rugged landscape of central New England is part of North America's vast Appalachian Mountain range. The Appalachians of today are the modest remnants of grand ancient mountains, widely thought to have arisen 250 million years ago during the collision of two plates of granite that since separated again and are now North America, northern Africa and southwestern Europe. The northern Appalachians were also subjected to several periods of glaciation, during which snow and ice accumulating in the north flowed *en masse* as far south as Massachusetts, Pennsylvania and Wisconsin, before melting away in a subsequently warming climates. The last period of glaciation ended only 12,000 years ago. Only 12,000 years ago central New England was a landscape of exposed bedrock, outcrops, boulders, sand, moss, lichen, sedges and juniper shrubs.

The southward flow of the ice shaped the landscape beneath it through both the erosive power which scoured the soil, stones, boulders, and life from the bed rock, and the deposition of the earth materials carried in the immense stream of ice when the glaciers melted. Some of that relocated material was simply laid down on the bedrock as the ice melted away from under it, and is known today as glacial till. Till is a mix of all manner of sizes and kinds of geologic particles: silt, sand, clay, stones, and boulders. Some of the material carried by the glaciers was redistributed by water running out of the melting glaciers, and deposited as stream channels, deltas and lake beds – geologic formations known today as stratified drift. Stratified drift deposits tend to contain particles of a small range of sizes or the same size because they were sorted by the running water. The glaciers also changed the landscape (and animals, particularly aquatic life) by the Earth's curst being depressed by the glacier's incalculable weight which changed the direction of the flow of water for a period time as the glaciers retreated northward.

This snapshot of geologic history describes the foundation of the natural landscape in Dublin and the Monadnock Highlands of southwestern New Hamsphire: granite, water, till, and stratified drift. It also serves to impress on us that natural systems are characterized by change, constant change.

Today we know the Monadnock Highlands of southwestern New Hampshire as a blanket of forest laced with streams, lakes, ponds, wetlands, and bedrock outcrops. The Monadnock Highlands are also a watershed divide between two of New England's major river systems: the Connecticut River to the west and the Merrimack River to the east.

The NH Natural Heritage Bureau[1] classifies the "ecoregion" in which Dublin sits as Vermont-New Hampshire Upland, with two subtypes: Sunapee highlands and Hillsboro Inland Hills and Plains. This classification arises from extensive research by the U.S. Forest Service. In this scheme, the eastern end of Dublin is considered Hillsboro Inland Plains and Hills, while the remainder of the town is at the southern extremity of the Sunapee Uplands region (which ends at Gap Mountain). The map on the following page indicates that a rather indefinite boundary

[1] Sperduto, D.D. and W.F. Nichols. 2004. Natural Communities of New Hampshire. The New Hampshire Natural Heritage Bureau and the Nature Conservancy.

between these regions generally traverses Dublin south to north from west of Thorndike Pond at the Jaffrey town line to west of NH 1327 at the Harrisville town line.

The Natural Heritage Bureau describes the Sunapee Uplands and the Hillsboro Hills and Plains as "characterized by isolated hills and peaks of hard, resistant rock (mostly granite) commonly referred to as monadnocks. Numerous small lakes and narrow valley streams are scattered throughout the area. Drumlins are also distinctive glacial features. Soils are typically shallow and stony [and of a coarser texture with lower nutrient status]. … This is reflected in the composition and distribution of plant communities."

The Natural Heritage Bureau further describes 109 distinct plant community types that are expected to occur in Dublin based on elevation, slope, aspect, bedrock and soils, hydrology and past land uses/disturbances. A table "Natural Communities Expected to Occur in Dublin" included at the end of his report lists the 109 communities and indicates the status of each in the two ecoregion subsections. While this GIS analysis does not include an inventory of quantitative inventory of plant and animal species and communities, full descriptions of the 109 communities can be found in the publication "Natural Communities of New Hampshire", which can be viewed at the Bureau's website: http://nh.gov/dred/divisions/forestandlands/bureaus/naturalheritage.

Mount Monadnock, the highest mountain in southern New Hampshire, is the most prominent natural feature of Dublin. While the peak of Monadnock is in neighboring Jaffrey, much of the mountain is in Dublin, and it is visible from all parts of the town. Much of the northern slope of Monadnock is owned or administered by the state, the Forest Society, or the Monadnock Conservancy, but the lower northern and eastern slopes and the parts of the western slopes that are in Dublin are privately owned.

Dublin Lake is a relatively deep 240 acre lake nestled below the north slope of Monadnock. It is near the geographic center of town, and is considered to be very picturesque. It is used for swimming, sailing, kayaking, canoeing, fishing and boating. The lake is ecologically fragile because it has a very small catchment area, and is bordered on one side by Route 101, the major east-west road through town.

Spencer* Brook and its tributaries Aldrich* and Amory* Brooks drain much of the western part of Dublin, including Dublin Lake and the north slope of Mount Monadnock. The stream system includes extensive wetlands which filter the water going into Howe Reservoir. The area also contains woodlands and a number of trails. The system provides a corridor between conservation areas of Monadnock and Howe.

Spaulding Hill is situated in what is by far the largest unfragmented land area in Dublin other than Mount Monadnock itself. This tract totaling over 1100 acres is a prime area for habitat for many types of birds and larger mammals. It is situated in western Dublin between Leyton State Forest and Monadnock conservation lands.

Howe Reservoir is the second largest body of water in Dublin by surface area. It is partly protected by conservation lands and is used for fishing and boating, although access is much more limited than access to Dublin Lake.

Stanley Brook and its tributaries Hinds Brook and Mills Brook drain the eastern slopes of Mount Monadnock, and provide much of the water for Mud Pond. They are lovely streams, with good portions visible from local roads in southeastern Dublin and from Route 137. The streams also drain Thorndike Pond and Frost Pond, both of which are mostly in Jaffrey.

Greenwood Brook runs from the east slope of Snow Hill (which abuts Dublin Lake and is part of the Monadnock massif) behind the town center and eastward to Mud Pond. It is a secondary source of water for Mud Pond and is generally hidden, but it could become a scenic watercourse as the properties abutting Route 101 on the south develop.

Mud Pond is the third largest body of water in Dublin measured by surface area, but it is surrounded by extensive marsh and wetlands. It contains a great variety of birds and other wildlife, and is the frequent subject of painters and photographers at all seasons. It is used for kayaking, fishing and hunting. It also acts as an extensive water filtration system for MacDowell Reservoir in Peterborough, a major feeder to the Contoocook River.

Brush Brook is the other major contributor of water from Dublin to MacDowell Reservoir. It drains the northeastern quadrant of Dublin, has a good deal of associated wetlands, and is quite scenic for much of its length.

Beech Hill is the second highest peak in Dublin, and is visible from many parts of the town. Along with Mount Monadnock its vistas provide much of the basis for the rural, forested feel of Dublin. Beech Hill is also the primary source of water for Dublin Lake. Its steep slopes are subject to significant erosion if not forested.

Geology

Geology is the study of the mineral materials of which the earth is composed and the processes that create, re-shape and modify those materials. Geologic materials and processes are literally fundamental to our natural environment. The primary geologic processes that shape the Earth's crust – plate tectonics (the continuous movement of continental plates), volcanism, earthquakes, glaciation, and erosion by wind and water, and freezing and thawing – have all had roles shaping the Monadnock Highlands of central New England.

It is an interesting footnote of our natural history that the bedrock of most of New Hampshire, Maine and southeastern New England is actually distinct from the bedrock of New England west of the Connecticut River. Approximately 250 million years ago, the ancient land mass that is now Europe and African collided with North American. This collision was part a global "conglomeration" of continental plates into a single contiguous mass known as Pangea. In the course of this collision, the former ocean floors that had separated the continents were compressed between the continents. In New England, that ocean flood became the shale and marble of the Connecticut Valley. The resulting layers of sedimentary rock (ocean floor) crushed between two plates of granite is known as a graben. Grabens are zones of constant siesmic activity: central New England is an earthquake-prone region. It was also during this collision that the Appalachians rose to heights more like the Rocky Mountains and Himalayas. As tensions in the Earth's crust changed, Pangea disbanded principally into the original continents. During the break-up of Pangea, it was not uncommon for edges of continental plates to break away from their parent plates and adhere to their neighboring plates. This is the case in New England: the bedrock of most of New Hampshire is remnant of the European-African plate, more specifically Portugal and Morocco.

Bedrock geology also has a profound influence on the movement and quality of water above and below the surface. The mineralogy of bedrock directly influences water chemistry and in turn, aquatic ecology and human health. The shape of the land has an obvious influence on the direction and rate of water runoff, ponding and infiltration. However, the physical characteristics of bedrock and the effects of past and present tectonic forces likewise effect the movement of water through bedrock fractures or fracture zones. The bedrock of southern New Hampshire is riddled with criss-crossing fractures, some traversing thousands of feet, others many miles. The hydrologic characteristics of bedrock fractures and fracture zones are difficult to know without site-specific hyrdogeologic study.

The NH Geologic Survey reports eight major geologic units, or kinds of rock, occuring in Dublin.

New Hampshire Plutonic Suite (Late to Early Devonian) – includes synkinematic and postkinematic granitoids related to the Acadian orogeny. Ages range from 410 to 365 Ma.

Igneous rock formed beneath the surface of the earth by consolidation of magma.

Ds1-6 Spaulding Tonalite (Early Devonian) – Weakly foliated to nonfoliated, spotted biotite quartz diorite, tonalite, granodiorite, and granite; garnet and muscovite may or may not be present.

Dk2x Kinsman Granodiorite (Early Devonian) – Foliated granite, granodiorite, tonalite, and minor quartz diorite; large megacrysts of potassium feldspar characteristic; garnet locally abundant

Metasedimentary and Metavolcanic Rocks of the Central Maine Trough

Metamorphosed sedimentary and volcanic rock….

Dlu Upper unnamed member – Light-gray metaturbidite, lithologically identical to, and probably correlative with, the Seboomook Formation of Maine. Coticule layers common.

Dll Lower unnamed member – Thinly or poorly bedded aluminous lower part, somewhat rusty. Rare quartzite lentils. Carrabassett Formation in northwestern Maine is probably correlative.

Smsf Madrid and Smalls Falls Formations, undivided (Silurian)

Sp Perry Mountain Formation, undivided (Middle to Lower Silurian) – Sharply interbedded quartzites, light-gray nongrahpitic metapelite, and "fast-graded" metaturbidites. Coticule layers common.

Spr Perry Mountain and Rangeley Formations, undivided (Silurian)

Sru Upper part of Rangeley Formation – Rusty-weathering, peltic schists, metasandstone, and local coarse-grained metasandstone lentils; calc-silicate pods common; minor coticule. Probably equivalent to member C of Rangeley Formation of Maine.

Hydrology

Our water resources: perennial streams, ponds, lakes, wetlands, floodplains, and stratified drift aquifers, are some of our most sensitive natural resource areas - susceptible to loss due to small size, fragile conditions, poor prospects for regeneration once disturbed, vulnerability for water contamination, and areas with a high potential for special communities or species. We are familiar with the legacy of degraded water quality and aquatic habitats, the loss of riparian habitat, the diversion of rain water and snow melt from natural courses of meandering through low lands or recharging ground water. Just as the ubiquity of trees along country roads throughout our Region may belie the degradation of natural forested communities by the road and traffic, home building and recurrent timber harvest, so the abundance of water may perpetuate a false sense of security about the well-being of the aquatic in our landscape mosaic.

Discussing water resources in terms of these discrete features – ponds, streams, aquifers – should not obscure the fact that these are not static, isolated resources, but parts of our hydrologic system – the ceaseless cycling of water through the atmosphere, soil and geologic formations, myriad organisms, and overland as surface water – and through our homes, businesses and industries.

A **watershed** is a land area from which all the surface run-off drains at a single point. Watersheds can be any size, from a parking lot to half a continent. Watersheds are meaningful units for conservation planning because of the pervasive nature of water – it continuously moves through the natural and manmade environments and our water quality is the net product of everything it encounters - air, soil, pavement, forests – and in the event that a water quality problem is identified, the cause is probably within the same watershed.

Watersheds for this project were delineated to identify all land area from which water flows into and through Dublin, hence the total lad area of the watersheds considered here is greater than the total land area of the Dublin corporate limits.

The boundary between the watersheds for town of New Hampshire's major river systems traverses the Monadnock Highlands north-south, just about bisecting Dublin between the Connecticut River watershed and Merrimack River watershed. The Town has been further subdivided in to 23 watersheds, some nested within others, to identify the land area from which water flowing in major streams and water bodies originates as rainfall, snow melt, or groundwater outbreak.

This analysis addresses **perennial lakes, ponds, impounded streams, and other perennial streams** that are wide enough to appear as more than a single line in the Digital Line Graph GIS data from U.S. Geologic Survey (essentially the hydrography depicted on the USGS topographic maps) – the standard source for New Hampshire's GRANIT GIS.

Wetland data from the USGS was combined with data from the U.S. Fish & Wildlife Service National Wetlands Inventory (a 23-class system developed from aerial photography in the 1980's) and from the USDA Soil Surveys (hydric soils) for this study. The USGS and USF&WS wetlands data may tend to under-represent the extent of identified wetlands and some forested wetlands may be overlooked all together. The hydric soils data, on the other hand, may overrepresent the extent of wetlands due to a matter of resolution affecting all soils data – the boundaries of soil types in the soil survey are very accurate, but, there may be small patches within any mapped soil type that are different soils.

Riparian communities should be considered integral with our aquatic habitats and water resources.

Floodplains are a special kind of riparian community, simply defined by the dominating influence of recurring flooding. While floodplains are important as ecological communities, as part of the river ecology and for natural flood mitigation, the GIS floodplain data available for the Southwest Region today is not consistent with other water resources data, soils data or data used in the fragmentation analysis. Accordingly, floodplains are not part of this analysis.

Aquifers are geologic formations (either fractured bedrock or sand and gravel) that by virtue of their physical structure and location on the landscape can provide water through drilled wells in sufficient quantities to support human uses. Groundwater occurs in all manner of soils and geologic formations across (under) the landscape. Aquifers are a qualified by the ability to support human activity. Characteristics of high-value aquifers include being situated down stream in a watershed, being in a watershed with a preponderance of natural forested land cover, and having a physical structure that is highly permeable – open spaces between particles of sand and gravel or open fissures and interconnected networks of cracks in bedrock - to both store and transmit water. Aquifers are re-supplied primarily by water falling as precipitation. Rain and snow melt move downward through soil, sand and gravel and/or cracks in bedrock to a saturated zone where the spaces between particles and cracks in rock are filled with water.

Stratified Drift Aquifers are geological formations of sand and gravel deposited by the melting glaciers 12,000 years ago. Some are vast and extend through several towns. Having been sorted by running water, the deposits can be made up of stones or particles of sand that have very uniform size and therefore a great deal of open space. Stratified Drift can store and yield vast volumes of ground water. These aquifers are also highly susceptible to pollution due to the ease with which contaminants can spread through the porous formations. The data used here is from a thorough study conducted by the USGS and NH Department of Environmental Services.

Fractured bedrock can be highly-productive aquifers. Most domestic water wells in Dublin are drilled into bedrock – and while many have low yields, bedrock fractures can be staggeringly water rich – and sometimes transmit great volumes of water over many miles. Dublin is currently preparing a field study of bedrock fractures. Reconnaissance level data about possible location of fractures and fracture zones provided by NH DES.

The **glacial till** that blankets the vast majority of Dublin's landscape will typically hold a great deal of water due to physical and chemical characteristics of its clay and silt particles, but is a very poor transmitter of water due to the those same characteristics – it "holds on to the water very tightly".

Soil

Soil is a complex and irreplaceable resource. Soil is not an inert substrate, but an ecological system comprised of mineral particles, decaying organic matter, microscopic organisms (bacteria, algae, fungi, and microscopic animals), water, gases, and chemicals in solution. In this medium live plants and animals that live nowhere else, and upon which terrestrial communities of plants and animals with which we are most familiar depend. Soils evolve from parent material (particles of rock created by wind, rain, freeze-thaw cycles, and mechanical abrasion) through the effects of physical forces, climate, chemistry, biology, and accident of location on the topography regarding hydrology, elevation, slope, and aspect. Our land-use decisions in the past may not have fully accounted for the economic importance of soil potential for agriculture, timber production, water protection, and the ecological importance of soil ecosystems to biodiversity.

Soil information for Dublin was obtained from the Soil Survey of Cheshire County, New Hampshire, published by the US Department of Agriculture Soil Conservation Service, 1982. The USDA Soil Survey provides a great deal of information about natural landscape conditions (e.g. hydrology and predominant forest types), suitability for different kinds of resource management (e.g. farming, timber management and gravel mining) and development (e.g. buildings, roads, and septic systems). This analysis addressed three facets of soil potential: potential or suitability for agriculture, timber management and sand & gravel extraction. The USDA classifies soils relative to suitability for farming in three levels:

1) **Prime Farmland Soils** are recognized nationally for their fertility and ease of management for grazing, forage crops or till crops.

2) **Farmland Soils of Statewide Importance** are designated by individual states by virtue of their fertility and ease of management and importance to, or suitability for the predominant agricultural activities in that state.

3) **Farmland Soils of Local Importance** are designated by individual County Conservation Districts by virtue of their fertility and ease of management and importance to, or suitability for the predominant agricultural activities in that county.

The USDA classifies soils relative to the predominant forest types likely to be found there and the suitability for timber management / harvest activities as follows:

- **Forest Soil Groups IA, IB and IC** tend to be well-drained upland situations, with A and B supporting a preponderance of mixed hardwoods, and C supporting mixed forest dominated by white pine and hemlock. These three groups are considered suitable for a range of timber management regimens and mechanized harvest. They are also more suitable for development, having fewer limitations such as steep slopes or wetness.

- **Groups IIA and IIB** tend to indicate wetter settings, erodible soils and forest communities dominated by pine, hemlock, spruce and fir. These groups are considered not suitable for timber management, or for limited management and harvest activity.

- Some soils are "Not Classified" due to patent unsuitability for timber harvest due to steepness, rockiness, erodibility, or wetness – or due to highly variable conditions within the soil unit.

The Soil Survey also qualifies soils regarding their potential as commercially viable sources of excavated earth materials: sand, gravel and topsoil. There is a very small amount of soil in Dublin classified as suitable for topsoil. However, there is an appreciable number of acres of soil suitable as sources for sand or gravel.

The USDA Soil Survey includes soil characteristics that can be used to identify areas on the landscape that might be especially susceptible or sensitive to disruption or loss of resource values by development or resource management activity. The susceptibility may be due to fragile conditions that are easily altered or do not recover readily from disturbance, or because they support ecological communities that occur in small isolated patches. Soils identified as having steep slope, shallow to bedrock, shallow to water table, and prone to flooding can identify sensitive resource areas.

Analysis

Tables attached after this page present summary statistics for an array of variables shown in the maps that append this report grouped as:

1. Water Resources,
2. Sensitive Resource Areas,
3. Soil Resources, and
4. Development Parameters.

Each group is further subdivided into four tables, denoted by a decimal:

#.1 - Totals (for Study Area), Nubanusit Watershed, Howe Reservoir Watershed and the "leftover" watershed areas;

#.2 – Totals (Study Area), Nubanusit Watershed, and sub-watersheds within the Nubanusit Watershed;

#.3 – Totals (Study Area), Howe Reservoir Watershed, and sub-watersheds within the Howe Reservoir Watershed; and

#.4 – Totals (Study Area), "Leftover" watersheds.

Explanation of other variables in the tables:

Total Study Area - the area in acres of all land area (watersheds) determined to send water into, through and out of Dublin; this area is larger than the Town of Dublin.

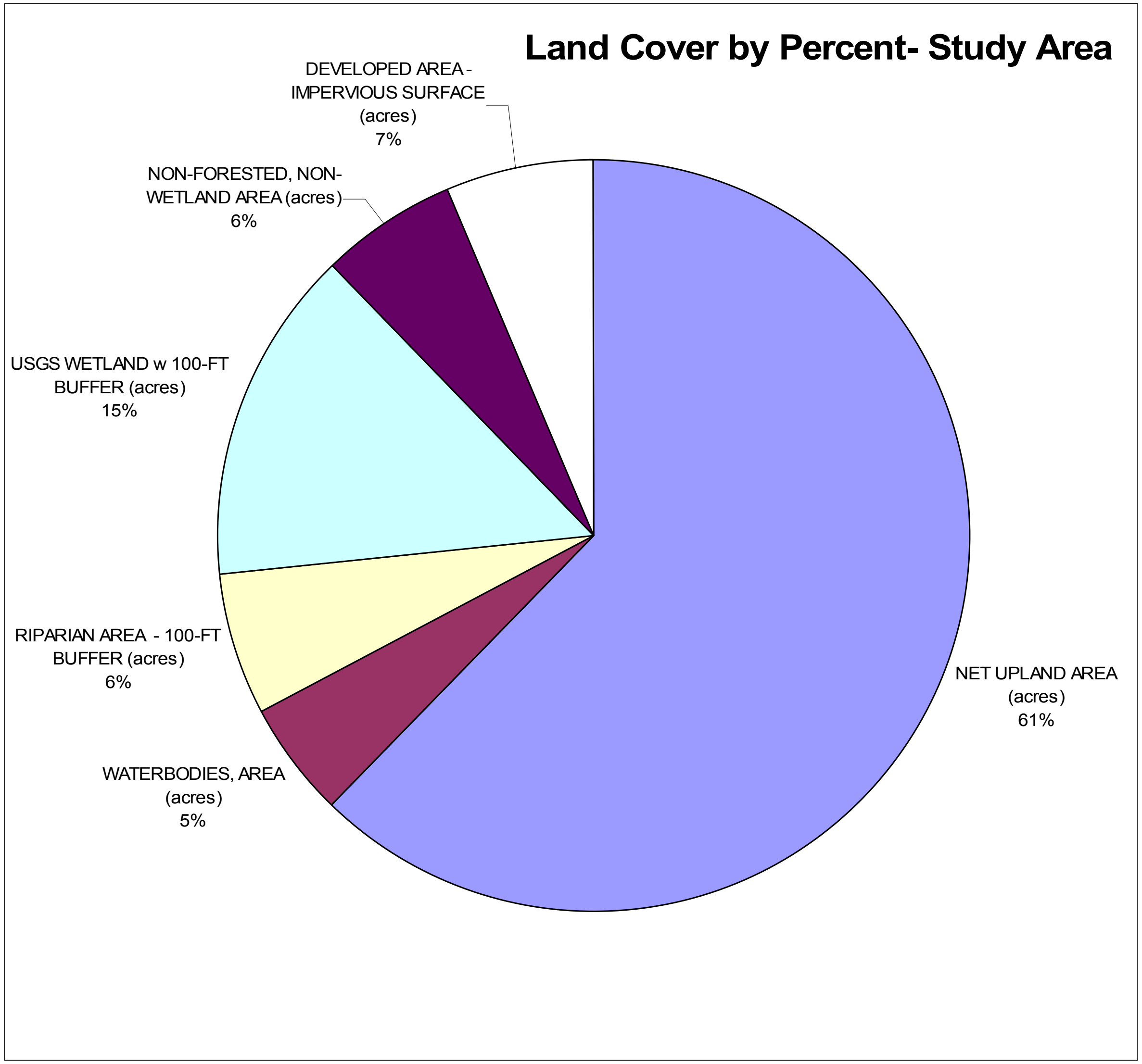
Total Land Area in Study Area – the Total Study Area minus surface area of lakes and ponds.

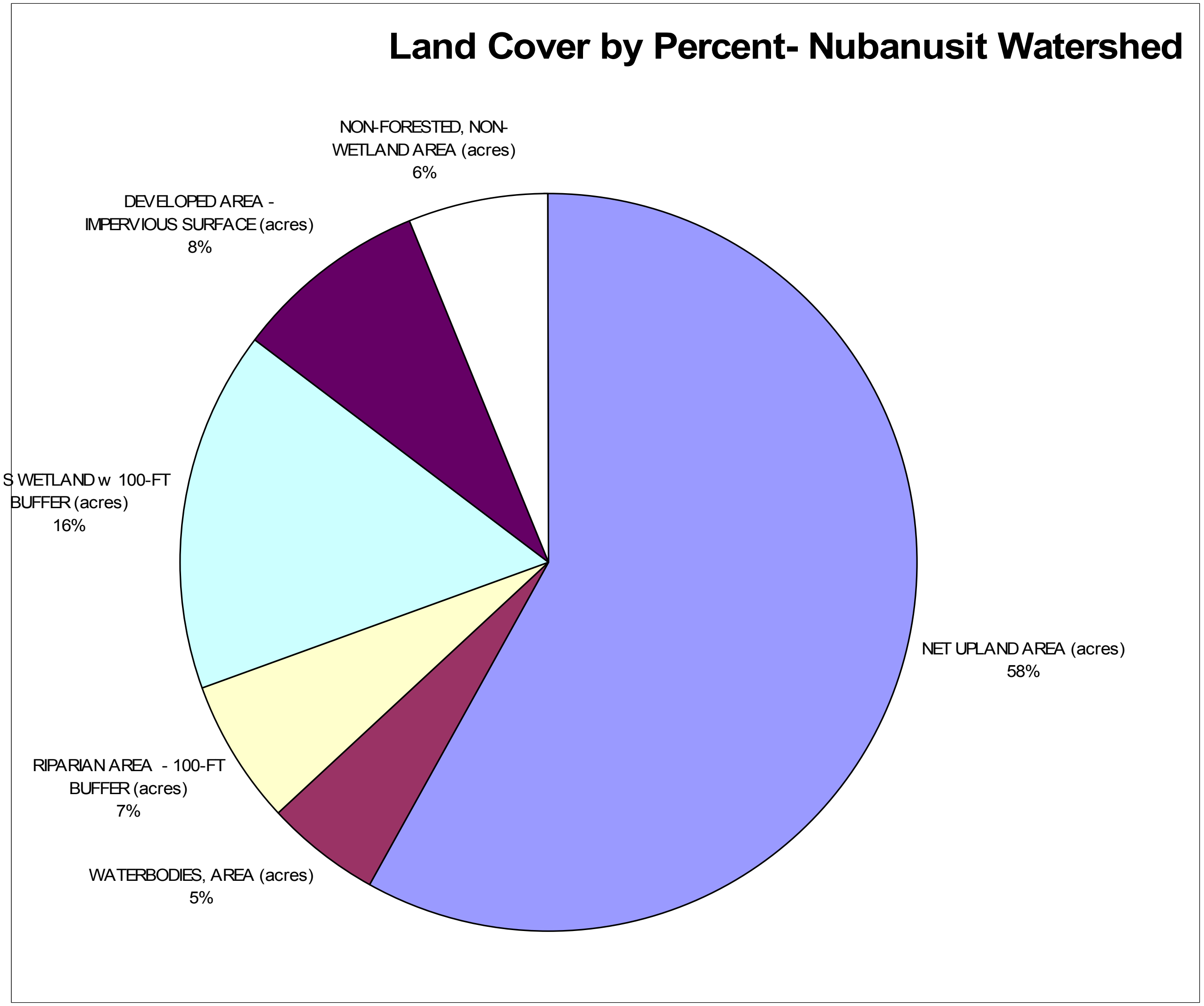
Net Area - the area of the variable minus the "developed area / impervious surface" that overlaps the variable, for example if the USDA Soil Survey indicates a patch of farmland soil 25 acres in size, and other GIS data indicate that there are a town road and several houses with yards and driveways on that same patch that collectively occupy 6 acres, the Net Area for that farmland soil patch would be 19 acres.

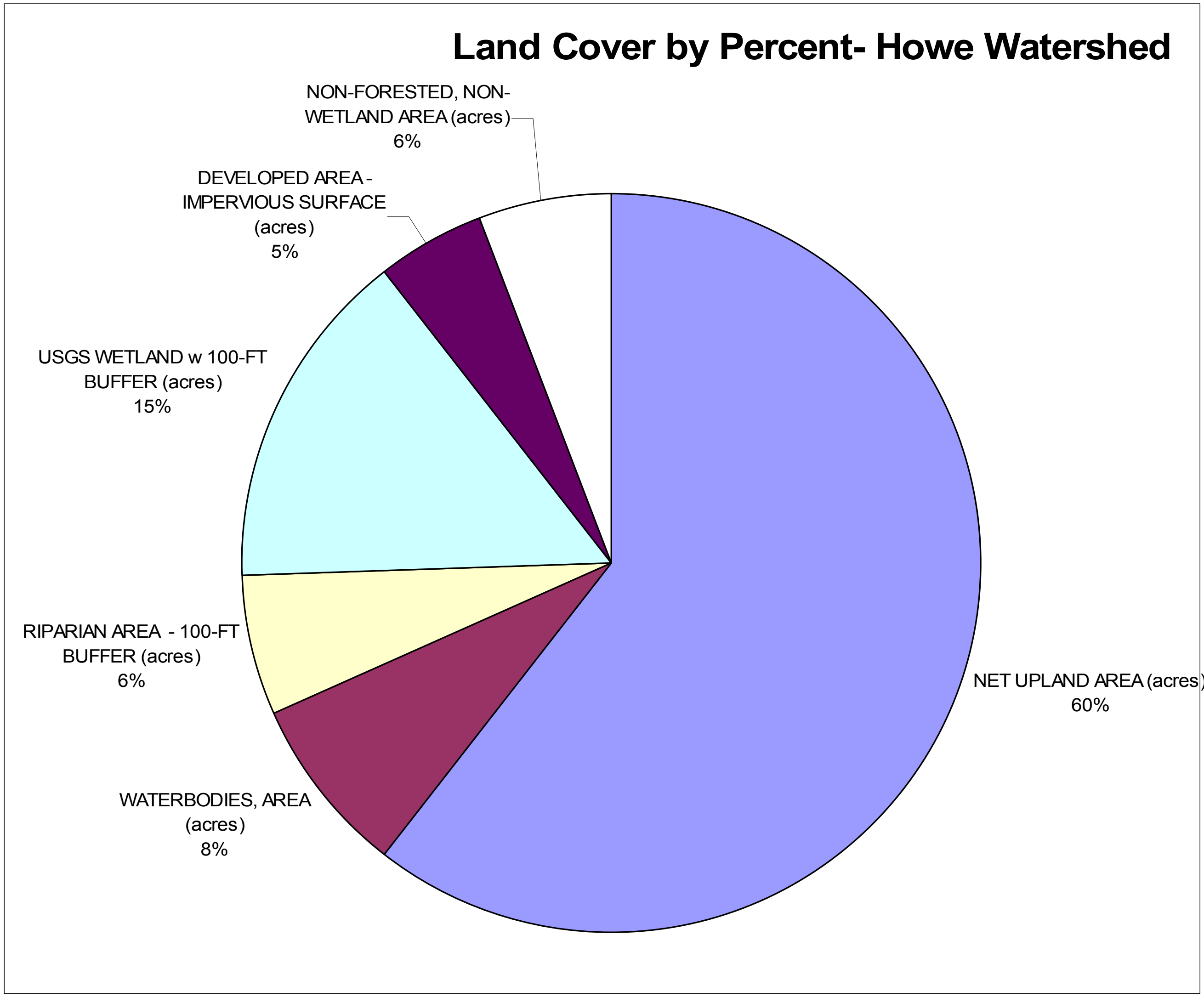
Developed Area / Impervious Surface – this is the total of two other variables: 1) each building location is assumed to create a 2 acre impact in terms of displacing the natural resource values of underlying soils or natural landscape conditions that would otherwise occur in that area, and 2) the area of paved road surface known from GIS road data.

Table 1.1 Summary

Water Resources	TOTALS	Nubanusit Watershed	Howe Reservoir Watershed	Leftover Watersheds
TOTAL STUDY AREA (acres)	22,509	11,636	7,287	3,585
NET AREA (acres)	*21,178*	*10,782*	*6,971*	*3,425*
TOTAL LAND AREA IN STUDY AREA (acres)	21,477	11,170	6,809	3,499
NET AREA (acres)	*20,101*	*10,267*	*6,496*	*3,338*
TOTAL LAND AREA IN TOWN	17,933	8,758	5,940	3,235
NET AREA (acres)	*16,591*	*7,884*	*5,638*	*3,069*
LAKES & PONDS (count)	71	43	23	5
WATERBODIES, AREA (acres)	1,083	518	530	35
WATERBODY SHORELINE (miles)	39	21	14	3
NET SHORELINE (miles)	36	20	13	3
STREAMS (miles)	33	19	10	3
RIPARIAN AREA - 100-FT BUFFER (acres)	1,260	715	425	120
USGS WETLAND (acres)	800	473	268	60
USGS WETLAND w 100-FT BUFFER (acres)	3,081	1,707	1,060	314
NWI WETLAND (acres)	2,280	1,173	857	250
USDA HYDRIC SOIL (acres)	2,635	1,681	571	382
STRATIFIED DRIFT AQUIFERS (acres)	946	941	0	4
S.D. ESTIMATED SATURATED VOLUME (cubic ft)	- na -	- na -	- na -	- na -


Land Cover by Percent- Study Area
DEVELOPED AREA - IMPERVIOUS SURFACE (acres) 7%
NON-FORESTED, NON-WETLAND AREA (acres) 6%
USGS WETLAND w 100-FT BUFFER (acres) 15%
RIPARIAN AREA - 100-FT BUFFER (acres) 6%
WATERBODIES, AREA (acres) 5%
NET UPLAND AREA (acres) 61%


Land Cover by Percent- Nubanusit Watershed
NON-FORESTED, NON-WETLAND AREA (acres) 6%
DEVELOPED AREA - IMPERVIOUS SURFACE (acres) 8%
S WETLAND w 100-FT BUFFER (acres) 16%
RIPARIAN AREA - 100-FT BUFFER (acres) 7%
WATERBODIES, AREA (acres) 5%
NET UPLAND AREA (acres) 58%


Land Cover by Percent- Howe Watershed
NON-FORESTED, NON-WETLAND AREA (acres) 6%
DEVELOPED AREA - IMPERVIOUS SURFACE (acres) 5%
USGS WETLAND w 100-FT BUFFER (acres) 15%
RIPARIAN AREA - 100-FT BUFFER (acres) 6%
WATERBODIES, AREA (acres) 8%
NET UPLAND AREA (acres) 60%

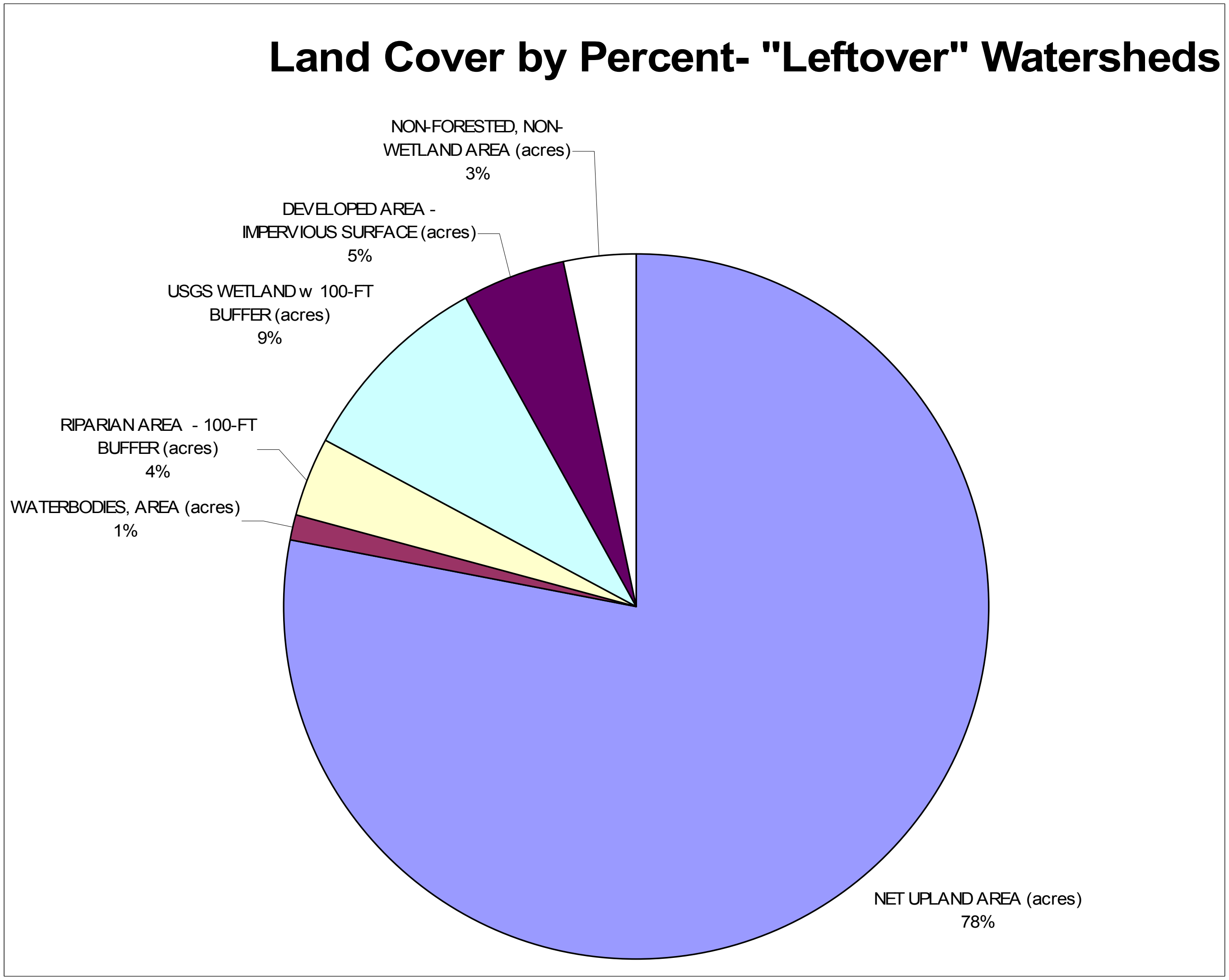

Land Cover by Percent- "Leftover" Watersheds
NON-FORESTED, NON-WETLAND AREA (acres) 3%
DEVELOPED AREA - IMPERVIOUS SURFACE (acres) 5%
USGS WETLAND w 100-FT BUFFER (acres) 9%
RIPARIAN AREA - 100-FT BUFFER (acres) 4%
WATERBODIES, AREA (acres) 1%
NET UPLAND AREA (acres) 78%

Table 1.2 Nubanusit. Water Resources	Study Area Totals	Nubanusit Watershed Totals	Sub-Watersheds within the Nubanusit Brook Watershed								
			1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
TOTAL AREA IN WATERSHED (acres)	22,509	**11,636**	2,409	2,599	194	199	2,911	275	47	603	2,400
NET AREA (acres)	*21,178*	***10,782***	*2,409*	*2,473*	*183*	*180*	*2,539*	*217*	*46*	*576*	*2,159*
TOTAL LAND AREA IN WATERSHED	21,477	**11,170**	2,193	2,515	159	167	2,840	268	47	595	2,386
NET AREA (acres)	*20,101*	***10,267***	*2,142*	*2,389*	*149*	*148*	*2,469*	*210*	*46*	*568*	*2,146*
LAND AREA IN TOWN	17,933	**8,758**	1,168	1,903	159	167	2,828	268	47	583	1,633
NET AREA (acres)	*16,591*	***7,884***	*1,132*	*1,782*	*149*	*148*	*2,457*	*210*	*46*	*556*	*1,403*
LAKES & PONDS	71	**43**	7	12	1	1	11	3	0	3	5
WATERBODIES, AREA (acres)	1,083	**518**	268	84	34	32	71	7	0	8	14
WATERBODY SHORELINE (miles)	39	**21**	7	5	1	1	4	1	0	2	1
NET SHORELINE (miles)	36	**20**	6	5	1	1	4	1	0	2	1
STREAMS (miles)	33	**19**	4	5	0	0	3	1	0	1	4
RIPARIAN AREA (acres)	1,260	**715**	180	190	21	12	128	22	5	49	107
USGS WETLAND (acres)	800	**473**	22	54	0	0	249	3	0	78	66
USGS WETLAND w/100-FT Buffer (acres)	3,081	**1,707**	94	355	0	0	724	29	6	181	318
NWI WETLAND (acres)	2,280	**1,173**	329	168	36	31	377	14	0	113	104
USDA HYDRIC SOIL (acres)	2,635	**1,681**	243	374	45	54	541	15	6	107	296
STRATIFIED DRIFT AQUIFERS (acres)	946	**941**	0	0	0	0	610	26	17	100	188

Table 1.3 Howe **Water Resources**	Study Area Totals	**Howe Reservoir Watershed Totals**	Sub-Watersheds within the Howe Rservoir Watershed 10	11	12	13	14	16
TOTAL AREA IN WATERSHED (acres)	22,509	**7,287**	2,288	1,364	731	1,329	1,076	499
NET AREA (acres)	21,178	**6,971**	2,247	1,304	631	1,249	1,049	491
TOTAL LAND AREA IN WATERSHED (acres)	21,477	**6,809**	2,287	1,361	490	1,278	918	474
NET AREA (acres)	20,101	**6,496**	2,246	1,301	392	1,199	891	466
LAND AREA IN TOWN	17,933	**5,940**	2,108	1,361	490	1,149	817	15
NET AREA (acres)	16,591	**5,638**	2,067	1,301	392	1,072	790	15
LAKES & PONDS	71	**23**	2	5	1	8	6	1
AREA (acres)	1,083	**530**	1	3	241	50	159	76
WATERBODY SHORELINE (miles)	39	**14**	0	0	3	2	7	2
NET SHORELINE (miles)	36	**13**	0	0	2	2	6	2
STREAMS (miles)	33	**10**	2	3	1	2	1	1
RIPARIAN AREA - 100-FT BUFFER (acres)	1,260	**425**	49	86	55	76	115	44
USGS WETLAND (acres)	800	**268**	152	67	0	26	20	3
USGS WETLAND w 100-FT BUFFER (acres)	3,081	**1,060**	381	293	0	197	146	43
NWI WETLAND (acres)	2,280	**857**	213	90	239	92	192	31
USDA HYDRIC SOIL (acres)	2,635	**571**	201	114	38	134	51	33
STRATIFIED DRIFT AQUIFERS (acres)	946	**0**	0	0	0	0	0	0

Table 1.4 Leftovers

Water Resources

	Study Area Totals	"Leftover" Watersheds Totals	Individual "Leftover" Watershed Areas							
			15	17	18	19	20	21	22	23
TOTAL AREA IN WATERSHED (acres)	22,509	**3,585**	517	905	591	1,292	44	114	76	46
NET AREA (acres)	*21,178*	***3,425***	*486*	*831*	*571*	*1,274*	*44*	*114*	*61*	*45*
TOTAL LAND AREA IN WATERSHED (acres)	21,477	**3,499**	441	896	591	1,291	44	114	76	46
NET AREA (acres)	*20,101*	***3,338***	*410*	*821*	*571*	*1,273*	*44*	*114*	*61*	*45*
LAND AREA IN TOWN	17,933	**3,235**	328	744	591	1,291	44	114	76	46
NET AREA (acres)	*16,591*	***3,069***	*289*	*672*	*571*	*1,273*	*44*	*114*	*61*	*45*
LAKES & PONDS	71	**5**	1	2	0	2	0	0	0	0
WATERBODIES, AREA (acres)	1,083	**35**	25	10	0	1	0	0	0	0
WATERBODY SHORELINE (miles)	39	**3**	2	1	0	0	0	0	0	0
NET SHORELINE (miles)	36	**3**	2	1	0	0	0	0	0	0
STREAMS (miles)	33	**3**	0	1	1	1	0	0	0	0
RIPARIAN AREA - 100-FT BUFFER (acres)	1,260	**120**	29	42	23	27	0	0	0	0
USGS WETLAND (acres)	800	**60**	0	36	4	19	0	0	0	0
USGS WETLAND w 100-FT BUFFER (acres)	3,081	**314**	14	166	43	73	0	0	0	19
NWI WETLAND (acres)	2,280	**250**	77	66	16	82	6	1	0	2
USDA HYDRIC SOIL (acres)	2,635	**382**	21	125	56	157	8	4	10	1
STRATIFIED DRIFT AQUIFERS (acres)	946	**4**	0	0	4	0	0	0	0	0

Table 2.1 Summary

Sensitive Resource Areas	TOTALS	Nubanusit Watershed	Howe Reservoir Watershed	Leftover Watersheds
RIPARIAN AREA - 100-FT BUFFER (acres)	1,260	715	425	120
USGS WETLAND (acres)	800	473	268	60
USGS WETLAND w 100-FT BUFFER (acres)	3,081	1,707	1,060	314
NWI WETALND (acres)	2,280	1,173	857	250
USDA HYDRIC SOIL (acres)	2,635	1,681	571	382
STRATIFIED DRIFT AQUIFERS (acres)	946	941	0	4
USDA EXCESSIVELY WELL DRAINED (acres)	437	419	10	8
USDA SHALLOW TO BEDROCK (acres)	2,952	1,585	1,268	98
USDA SHALLOW TO WATER TABLE (acres)	13,216	7,306	4,767	1,144
USDA SLOPE > 25% (acres)	2,216	1,070	962	175
DEM SLOPE > 25% (acres)	602	202	304	96
USDA PRONE TO FLOODING (acres)	181	77	98	5
FOREST SOIL GROUPS IIA & IIB	5,690	3,083	1,889	394

Table 2.2 Nubanusit Sensitive Resource Areas	Study Area Totals	**Nubanusit Watershed Totals**	**Sub-Watersheds within the Nubanusit Brook Watershed**								
			1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
RIPARIAN AREA - 100-FT BUFFER (acres)	1260	**715**	180	190	21	12	128	22	5	49	107
USGS WETLAND (acres)	800	**473**	22	54	0	0	249	3	0	78	66
USGS WETLAND w 100-FT BUFFER (acres)	3081	**1707**	94	355	0	0	724	29	6	181	318
NWI WETALND (acres)	2280	**1173**	329	168	36	31	377	14	0	113	104
USDA HYDRIC SOIL (acres)	2635	**1681**	243	374	45	54	541	15	6	107	296
STRATIFIED DRIFT AQUIFERS (acres)	946	**941**	0	0	0	0	610	26	17	100	188
USDA EXCESSIVELY WELL DRAINED (acres)	437	**419**	57	53	0	0	209	25	0	0	74
USDA SHALLOW TO BEDROCK (acres)	2952	**1585**	842	346	27	4	234	25	12	40	56
USDA SHALLOW TO WATER TABLE (acres)	13216	**7306**	928	1951	116	145	1901	82	12	226	1945
USDA SLOPE > 25% (acres)	2216	**1079**	458	170	0	0	75	31	7	36	302
DEM SLOPE > 25% (acres)	602	**202**	172	0	0	0	0	0	0	3	28
USDA PRONE TO FLOODING (acres)	181	**77**	12	22	0	0	8	12	6	12	5
FOREST SOIL GROUPS IIA & IIB	5690	**3083**	1107	716	36	25	504	48	18	82	547

Table 2.3 Howe

Sensitive Resource Areas

	Study Area Totals	Howe Reservoir Watershed Totals	Sub-Watersheds within the Howe Reservoir Watershed					
			10	11	12	13	14	16
RIPARIAN AREA - 100-FT BUFFER (acres)	1260	**425**	49	86	55	76	115	44
USGS WETLAND (acres)	800	**268**	152	67	0	26	20	3
USGS WETLAND w 100-FT BUFFER (acres)	3081	**1060**	381	293	0	197	146	43
NWI WETALND (acres)	2280	**857**	213	90	239	92	192	31
USDA HYDRIC SOIL (acres)	2635	**571**	201	114	38	134	51	33
STRATIFIED DRIFT AQUIFERS (acres)	946	**0**	0	0	0	0	0	0
USDA EXCESSIVELY WELL DRAINED (acres)	437	**10**	5	5	0	0	0	0
USDA SHALLOW TO BEDROCK (acres)	2952	**1268**	536	306	93	153	94	87
USDA SHALLOW TO WATER TABLE (acres)	13216	**4767**	1415	958	363	1125	577	329
USDA SLOPE > 25% (acres)	2216	**962**	609	224	46	24	25	34
DEM SLOPE > 25% (acres)	602	**304**	280	24	0	1	0	0
USDA PRONE TO FLOODING (acres)	181	**98**	26	52	0	18	0	3
FOREST SOIL GROUPS IIA & IIB	5690	**1889**	760	442	141	243	150	154

Table 2.4 Leftovers **Sensitive Resource Areas**	Study Area Totals	**"Leftover" Watersheds Totals**	**Individual "Leftover" Watershed Areas**							
			15	**17**	**18**	**19**	**20**	**21**	**22**	**23**
RIPARIAN AREA - 100-FT BUFFER (acres)	1260	**120**	29	42	23	27	0	0	0	0
USGS WETLAND (acres)	800	**60**	0	36	4	19	0	0	0	0
USGS WETLAND w 100-FT BUFFER (acres)	3081	**314**	14	166	43	73	0	0	0	19
NWI WETALND (acres)	2280	**250**	77	66	16	82	6	1	0	2
USDA HYDRIC SOIL (acres)	2635	**382**	21	125	56	157	8	4	10	1
STRATIFIED DRIFT AQUIFERS (acres)	946	**4**	0	0	4	0	0	0	0	0
USDA EXCESSIVELY WELL DRAINED (acres)	437	**8**	0	0	0	8	0	0	0	0
USDA SHALLOW TO BEDROCK (acres)	2952	**98**	22	76	0	0	0	0	0	0
USDA SHALLOW TO WATER TABLE (acres)	13216	**1144**	381	752	0	10	0	0	0	0
USDA SLOPE > 25% (acres)	2216	**175**	17	16	1	141	0	0	0	0
DEM SLOPE > 25% (acres)	602	**96**	0	0	0	96	0	0	0	0
USDA PRONE TO FLOODING (acres)	181	**5**	0	0	0	5	0	0	0	0
FOREST SOIL GROUPS IIA & IIB	5690	**717**	57	141	231	242	4	2	10	31

Table 3.1 Summary

Soil Resources	TOTALS	Nubanusit Watershed	Howe Reservoir Watershed	Leftover Watersheds
PRIME FARM LAND (acres)	663	259	312	92
PRIME FARM LAND-NET (acres)	*573*	*258*	*248*	*67*
FARMLAND OF STATE IMPORTANCE (acres)	711	472	146	93
FARMLAND OF STATE IMPORTANCE - NET (acres)	*613*	*412*	*127*	*75*
FARMLAND OF LOCAL IMPORTANCE (acres)	6,111	3,396	1,899	816
FARMLAND OF LOCAL IMPORTANCE - NET (acres)	*5,602*	*3,066*	*1,769*	*767*
FOREST SOIL GROUPS (acres)				
I A	11,899	6,308	4,062	1,530
I A-NET	*11,817*	*5,739*	*3,799*	*2,279*
I B	2,274	1,894	260	120
I B-NET	*860*	*487*	*258*	*115*
I C	434	387	39	8
IC -NET	*351*	*304*	*39*	*8*
II A	4,234	2,115	1,553	566
II A -NET	*4,130*	*2,047*	*1,524*	*560*
II B	1,456	968	336	152
II B -NET	*1,399*	*928*	*327*	*143*
NC	1,671	868	560	242
NC-NET	*1,638*	*850*	*552*	*237*

Table 3.3 Nubanusit **Soil Resources**	Study Area Totals	**Nubanusit Watershed Totals**	**Sub-Watersheds within the Nubanusit Brook Watershed**								
			1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
PRIME FARM LAND (acres)	663	**259**	42	78	2	12	0	1	0	17	107
PRIME FARM LAND-NET (acres)	573	**258**	40	64	1	8	69	1	0	12	64
FARMLAND OF STATE IMPORTANCE (acres)	711	**472**	109	151	5	9	115	4	0	9	69
FARMLAND OF STATE IMPORTANCE - NET (acres)	613	**412**	105	137	3	8	85	3	0	9	62
FARMLAND OF LOCAL IMPORTANCE (acres)	6111	**3396**	426	790	26	72	901	102	17	296	765
FARMLAND OF LOCAL IMPORTANCE - NET (acres)	5602	**3066**	407	720	21	63	786	84	17	280	690
FOREST SOIL GROUPS (acres)											
I A	12783	**6308**	828	1623	109	141	1506	89	15	427	1570
I A-NET	11817	**5739**	794	1509	102	122	1297	74	14	407	1421
I B	2274	**1894**	31	11	1294	0	249	115	15	23	158
I B-NET	860	**487**	31	11	10	0	203	84	15	17	118
I C	434	**387**	62	53	0	0	219	16	0	0	36
IC -NET	351	**304**	61	53	0	0	155	6	0	0	29
II A	4234	**2115**	922	457	27	4	301	34	12	40	319
II A -NET	4130	**2047**	913	450	27	4	284	31	12	40	286
II B	1456	**968**	184	259	10	21	203	15	6	42	228
II B -NET	1399	**928**	180	256	10	21	180	15	6	41	221
NC	1671	**868**	169	115	35	33	369	0	0	66	82
NC-NET	1638	**850**	167	114	35	33	358	0	0	66	77

Table 3.3 Howe

Soil Resources

	Study Area Totals	**Howe Reservoir Watershed Totals**	**Sub-Watersheds within the Howe Reservoir Watershed**					
			10	**11**	**12**	**13**	**14**	**16**
PRIME FARM LAND (acres)	663	**312**	4	56	53	137	25	38
PRIME FARM LAND-NET (acres)	573	**248**	3	45	31	115	17	37
FARMLAND OF STATE IMPORTANCE (acres)	711	**146**	6	5	18	52	5	60
FARMLAND OF STATE IMPORTANCE - NET (acres)	613	**127**	4	3	16	43	4	56
FARMLAND OF LOCAL IMPORTANCE (acres)	6111	**1899**	538	283	196	450	287	145
FARMLAND OF LOCAL IMPORTANCE - NET (acres)	5602	**1769**	514	266	145	423	278	144
FOREST SOIL GROUPS (acres)								
I A	12783	**4062**	1042	841	341	988	566	284
I A-NET	11817	**3799**	1007	794	259	915	546	278
I B	2274	**260**	0	36	12	0	178	34
I B-NET	860	**258**	0	36	12	0	176	33
I C	434	**39**	39	0	0	0	0	0
IC -NET	351	**39**	39	0	0	0	0	0
II A	4234	**1553**	684	370	103	156	119	121
II A -NET	4130	**1524**	678	360	91	155	119	121
II B	1456	**336**	76	72	38	87	30	33
II B -NET	1399	**327**	76	71	34	85	30	32
NC	1671	**560**	447	44	0	47	22	0
NC-NET	1638	**552**	446	44	0	43	18	0

Table 3.4 Leftovers

Soil Resources

	Study Area Totals	"Leftover" Watersheds Totals	Individual "Leftover" Watershed Areas							
			15	**17**	**18**	**19**	**20**	**21**	**22**	**23**
PRIME FARM LAND (acres)	663	**92**	27	25	12	12	2	0	9	4
PRIME FARM LAND-NET (acres)	573	**67**	21	16	10	9	2	0	7	3
FARMLAND OF STATE IMPORTANCE (acres)	711	**93**	9	37	21	16	0	9	0	1
FARMLAND OF STATE IMPORTANCE - NET (acres)	613	**75**	7	23	21	14	0	9	0	1
FARMLAND OF LOCAL IMPORTANCE (acres)	6111	**816**	92	261	103	256	28	51	24	0
FARMLAND OF LOCAL IMPORTANCE - NET (acres)	5602	**767**	81	238	101	249	28	51	19	0
FOREST SOIL GROUPS (acres)										
I A	11899	**1530**	381	644	308	884	32	94	57	13
I A-NET	11817	**2279**	352	573	299	868	32	94	48	13
I B	2274	**120**	0	44	30	25	0	13	9	0
I B-NET	860	**115**	0	44	29	23	0	13	6	0
I C	434	**8**	0	0	0	8	0	0	0	0
IC -NET	351	**8**	0	0	0	8	0	0	0	0
II A	4234	**566**	36	90	197	208	4	0	0	31
II A -NET	4130	**560**	34	89	194	208	4	0	0	31
II B	1456	**152**	21	51	33	34	0	2	10	0
II B -NET	1399	**143**	21	49	30	34	0	2	7	0
NC	1671	**242**	0	74	23	134	8	2	1	0
NC-NET	1638	**237**	0	73	20	134	8	2	0	0

Table 4.1 Summary

Development Parameters	TOTALS	Nubanusit Watershed	Howe Reservoir Watershed	Leftover Watersheds
NON-FORESTED, NON-WETLAND AREA (acres)	1,199	671	411	117
STRUCTURES (count)	727	491	154	82
ROADS (acres)	275	170	72	34
DEVELOPED AREA - IMPERVIOUS SURFACE (acres)	1,379	904	316	160
% WATERSHED AREA IMPERVIOUS	6.4%	8.1%	4.6%	4.6%
NPS POLLUTION SOURCES (count)	15	12	3	0
PUBLIC WATER SUPPLIES (count)	28	22	4	2
WELLHEAD PROTECTION AREAS (acres)	1,042	729	192	122

Table 4.4 Nubanusit **Development Parameters**	Study Area Totals	**Nubanusit Watershed Totals**	Sub-Watersheds within the Nubanusit Brook Watershed								
			1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
NON-FORESTED, NON-WETLAND AREA (acres)	1199	**671**	52	174	11	9	246	7	0	17	156
STRUCTURES (count)	727	**491**	16	65	5	9	208	31	0	13	144
ROADS (acres)	275	**170**	20	24	2	3	68	9	0	3	41
DEVELOPED AREA - IMPERVIOUS SURFACE (acres)	1379	**904**	51	126	10	19	371	58	1	27	240
% WATERSHED AREA IMPERVIOUS	6	8	2	5	7	12	13	22	2	5	10
NPS POLLUTION SOURCES (count)	5	**12**	0	0	0	0	6	0	0	0	6
PUBLIC WATER SUPPLIES (count)	0	**22**	3	2	0	0	15	0	0	0	2
WELLHEAD PROTECTION AREAS (acres)	0	**729**	0	81	6	0	411	0	0	0	230

Table 4.3 Howe. **Development Parameters**	Study Area Totals	**Howe Reservoir Watershed Totals**	**Sub-Watersheds within the Howe Reservoir Watershed**					
			10	**11**	**12**	**13**	**14**	**16**
NON-FORESTED, NON-WETLAND AREA (acres)	1199	**411**	54	88	90	148	29	2
STRUCTURES (count)	727	**154**	25	26	51	41	11	0
ROADS (acres)	275	**72**	8	9	20	18	7	9
DEVELOPED AREA - IMPERVIOUS SURFACE (acres)	1379	**316**	41	60	99	80	28	8
% WATERSHED AREA IMPERVIOUS	6	5	2	4	20	6	3	2
NPS POLLUTION SOURCES (count)	15	**3**	2	0	0	0	0	1
PUBLIC WATER SUPPLIES (count)	28	**4**	1	1	1	0	0	1
WELLHEAD PROTECTION AREAS (acres)	1042	**192**	0	0	136	0	0	55

Table 4.4 Leftovers

Development Parameters	Study Area Totals	"Leftover" Watersheds Totals	Individual "Leftover" Watershed Areas							
			15	17	18	19	20	21	22	23
NON-FORESTED, NON-WETLAND AREA (acres)	1199	**117**	16	16	37	28	2	11	5	1
STRUCTURES (count)	727	**82**	18	42	7	8	0	0	7	0
ROADS (acres)	275	**34**	4	10	7	8	1	0	4	1
DEVELOPED AREA - IMPERVIOUS SURFACE (acres)	1379	**160**	31	74	20	18	0	0	15	1
% WATERSHED AREA IMPERVIOUS	6	5	7	8	0	0	0	0	0	0
NPS POLLUTION SOURCES (count)	15	**0**	0	0	0	0	0	0	0	0
PUBLIC WATER SUPPLIES (count)	28	**2**	0	1	1	0	0	0	0	0
WELLHEAD PROTECTION AREAS (acres)	1042	**122**	0	122	0	0	0	0	0	0