

Formed by the convergence of the South Branch and the West Branch Souhegan Rivers in New Ipswich, the Souhegan flows approximately 31 miles through the communities of New Ipswich, Greenville, Wilton, Milford, Amherst and Merrimack before joining the Merrimack River. The Souhegan River is one of the most significant surface water resources in the Nashua region. Throughout history the River has served man by providing transportation and food, by powering early mills, by supplying water for irrigation and drinking and by carrying away wastes. The River continues to serve man, however, there is a greater appreciation for its natural, historic and cultural resources. The following information highlights the significant resources of the Souhegan River corridor.

The historic mills, dams and bridges within the corridor are a constant reminder of the historic use of the river for industrial uses. Fortunately for the corridor communities, some of the once vacant mill buildings have found new life as office and studio space, new industrial businesses and elderly housing. Many of the dams on the River have been converted to hydropower. The historic resources of the corridor have local and state significance.

The geologic resources of the corridor provide many of the communities with their only source of public water supplies. The stratified drift aquifers that follow the river corridor provide a source of high quality/high quantity drinking water used for public supplies by the Towns of Merrimack, Milford and Wilton. The aquifer also supplies water for a successful spring water company in Wilton. This groundwater resource is very significant locally. Other significant geologic resources include scenic areas, particularly the gorge in Greenville, the Horseshoe in Wilton and Wildcat Falls in Merrimack.

The importance of the Souhegan to the Atlantic salmon restoration program is recognized at the local, state and federal levels. As the best salmon nursery habitat in the region, the River is key to the success of the program. The River has recently become an important educational tool as part of the Adopt -a-Salmon-Family program sponsored by the US Fish and Wildlife Service.

The Souhegan River is recognized regionally and in New England for its whitewater kayaking and canoeing. The River is identified as good, intermediate whitewater by both the Appalachian Mountain Club's River Guide and the New England Whitewater River Guide. The rapids in the Greenville/Wilton stretch are classified as Class II, III and IV whitewater. In addition, the Souhegan corridor is a significant local recreational resource for swimming, hiking and nature study.

The quality-of-life aspect of the Souhegan River is an important local resource. All of the communities along the River are reacquainting themselves with the important role the River plays in their community. This is resulting in a renewed interest in water quality, public access, trail development and historic resources as well as an increased focus on the scenic qualities of the corridor.

During the glacial period, glacial Lake Merrimack extended up the Souhegan River to Milford center leaving behind fine sands and silts that underlie the floodplains of the river. Additionally, streams flowing from melting glaciers deposited sediments in layers of similar sized grains. These stratified drift deposits are often excellent sources of groundwater. The 1987 USGS study, Hydrogeology of Stratified Drift Aquifers and Water Quality in the Nashua Regional Planning Commission Area, South Central New Hampshire, identified the Souhegan aquifer as one of the potentially most productive sources of high quality groundwater in the region. Three of the corridor communities rely on this aquifer for their existing and future water supplies.

The River flows through a gorge in Greenville with steep sides. The land on which the gorge is located was donated to the NH Fish and Game Department for preservation purposes. The Horseshoe in Wilton is another geologically significant area that serves as the local swimming hole.

Wildlife Resources

Mammals and birds found in the Souhegan River corridor are those commonly found in southern New Hampshire. These include raccoons, skunks, muskrats, beavers, porcupines, white tail deer, woodchucks, squirrels, mice, bats, rabbits and other indigenous species adapted to living near humans. The more rural areas of the watershed may also provide habitat for larger animals that require extensive habitat areas, or species that require solitude such as moose, black bear and lynx. Depending on the season, the River corridor is host to a wide diversity of bird species. Gulls, doves, woodpeckers, chickadees and jays would be found throughout the year while other species such as warblers, sparrows, wrens, swallows, robins and several species of raptors are only seasonal residents. Other species including a variety of ducks, geese and herons nest in the area or migrate through the corridor.

2. List any endangered or threatened animals which are supported by the river and river corridor environment. Include location, if known. Check whether these animals are endangered [E] or threatened [T] species and if they are significant at a national [N] or state [S] level.

Animal Species	Location	E or T	N or S
Eastern Hognose Snake		T	S3
Woodhouse's Toad		E	S1

Based on an agreement with the NH Natural Heritage Inventory, we do not disclose the location of threatened and endangered species in written materials.

List significant wildlife habitat which is supported by the river or to which the river is integral, for game and non-game wildlife populations. Identify if the habitat has been determined to be exceptionally diverse, very diverse, or moderately diverse by the NH Fish and Game Department or the U.S. Fish and Wildlife Service.

Significant Habitat	Diversity Rating

Determine if the river corridor is important for the movement of wildlife between large habitat areas. If it is, explain why.

The western reaches of the river corridor are very undeveloped and provide access between a number of large public and semi-public protected resource areas. In addition, the River corridor serves as a travel corridor in the developed areas of the region between the protected open spaces.

Vegetation/Natural Communities

List the plant species commonly found in the river and river corridor.

Typical plant species in the river corridor include those commonly found in southern New Hampshire and include white pine, hemlock, red maple, red oak, sycamore and numerous species of grasses and shrubs.

List any endangered or threatened plant species that are supported by the river and river corridor environment. Include location, if known. Check whether these plants are endangered [E] or threatened [T] species and if they are significant at a national [N] or state [S] level.

Plant Species	Location	E or T	N or S
Long's Bitter Cress		E	S1
Wild Lupine		E	S1
Bird's Foot Violet		E	S2
Siberian Chives		E	S2

Wild Garlic		SH
Skydrop Aster	E	S2
Goat's Rue	E	S1
Stiff Tick Trefoil		SH
Giant Rhododendron	E	S2

List any vegetative communities supported by the river and the river corridor environment which have been identified as "exemplary natural ecological communities" by the New Hampshire Natural Heritage Inventory. Include location, if known.

Exemplary Natural Ecological Community	Location	Rank
Southern New England High-energy Riverbank Community		S?
Southern New England Floodplain Forest		S2

Fish Resources

List the fish species commonly found in the river and river corridor.

Native species of fish in the Souhegan River include small mouth bass, sunfish, pumpkinseeds, yellow perch, suckers and dace. In addition, the River is stocked annually by the NH Department of Fish and Game with brown trout, rainbow trout and brook trout.

List any endangered or threatened fish species which inhabit the river. Check whether these fish are endangered [E] or threatened [T] species and if they are significant at a national [N] or state [S] level.

Fish Species	Location	E or T	N or S
Banded Sunfish		E	S2

Describe the presence and location of spawning beds, feeding areas, and other significant aquatic habitat for fish populations. Determine if the habitat is exceptionally diverse, very diverse or moderately diverse as determined by the NH Fish and Game Department or the U.S. Fish and Wildlife Service.

Significant Habitat	Diversity Rating
Atlantic salmon nursery habitat	identified by US Fish and Wildlife Service as the best Atlantic salmon nursery habitat in theregion.

Indicate whether the significant fisheries found in the river rely on natural reproduction or a stocking program. If fish populations rely on a stocking program, indicate whether they are partly or wholly dependent on the program.

The brook, brown and rainbow trout in the Souhegan River rely almost entirely on a stocking program. Over 5,000 rainbow, brown and brook trout are stocked in the Souhegan River annually. When released, the trout are of a legal size for angling, representing what is called a "put and take" program.

Is the river a viable anadromous fish resource? If yes, identify any on-going or planned restoration programs.

The Souhegan River is an important part of the Merrimack River anadromous fish restoration program and is considered one of the most productive rivers in the watershed. The upper reaches of the Souhegan and its tributaries provide the appropriate habitat - gravelly, sloping bottoms, water temperatures, oxygen levels and food sources - for excellent growth and survival of Atlantic salmon frye. On average, 100,000 Atlantic salmon frye are stocked in the Souhegan River annually. The dams on the River are equipped with downstream passage only at this point since natural reproduction is not expected. The Merrimack River Basin Fish Passage Action Plan for Anadromous Fish, January 1988, calls for the construction of upstream passage at the Merrimack Village dam when a specific number of shad pass through the Amoskeag dam. All other upstream passage is deferred.

In addition, the River is integral to the extremely successful US Fish and Wildlife Services Adopt-a-Salmon-Family Project that uses a watershed approach for environmental education. Classes are given Atlantic salmon to raise during the year which are then released into the Souhegan River in the spring. At present, the Souhegan River is the main release site for the program that currently involves approximately 25 schools in Massachusetts and New Hampshire.

If the river is not currently supporting its water quality classification, identify the existing major causes of deficient water quality (e.g., industrial or sewage pollutants, agricultural fertilizer run-off) and possible corrective measures (e.g., regulations, enforcement, local and use controls).

At present, the Souhegan River supports its water quality classification, Class B, at all locations. The Souhegan Watershed Association's volunteer water quality monitoring program currently monitors 17 sites on the Souhegan for dissolved oxygen and bacteria. Due to the heavy rainfall in June, the 1998 sampling season was able to document high levels of bacteria during wet weather. Bacteria counts below Wilton and at the 122 bridge in Amherst exceeded the acceptable standard for swimming throughout the year. This is of concern since the Amherst site is a popular swimming area. Results from this program indicate problems with dissolved oxygen at the Pine Valley Mill site in Milford. Wet weather sampling by DES also documented dissolved oxygen problems in this area. The low dissolved oxygen levels are due in part to the presence of two dams in the downtown Wilton area.

Phosphorous samples were collected on the Souhegan River during the 1998 sampling season. Samples collected at the impact sites for both the Greenville and Milford wastewater treatment facilities exceeded the 0.05 mg/l level of concern limit throughout the season except in times of high water volume in June. Phosphorous levels continued to rise downstream of the Milford indicating other sources of phosphorous contribution, possibly the two golf courses and residential development in this stretch of the corridor.

Natural Flow Characteristics

Briefly describe the natural flow characteristics of the river, including natural periodic variation in flow (e.g., spring run-off and summer flow amounts) and frequency and duration of flood events. If applicable, describe purpose of and flow variations caused by impoundments, significant diversions, or channel alterations, including interbasin transfers. Indicate which segments of the river are free flowing.

Souhegan River flow data is only collected at one location, just above Wildcat Falls in Merrimack. The station operated as a full station until 1976 when it was converted to a partial station which is used only during periods of extreme weather, to estimate flooding conditions or drought severity. The monthly average flows for the Souhegan River as reported in the USGS publication Statistical Analysis of Stream Gauging Date, 1981, are presented in the table below. Flows range from a high of 818cfs in April to a low of 39 cfs in September. The 7Q10 flow, the lowest seven day sustained flow which occurs once in ten years, for the Souhegan River is 12.8 cfs. Flows in the Souhegan have been modified over the years by the construction of 12 flood control structures throughout the watershed to minimize flood damage. The flood control system is managed by the NH Department of Environmental Services.

Open Space

Briefly describe, give the location and identify the type (e.g., floodplain, forested, etc.) and type of ownership (i.e., public or private) of significant areas of open space in the river corridor. Describe and include the location of any

protected land parcels within the river corridor (e.g., state parks and forests, national forest lands, municipal parks and conservation easements).

Despite the rapid pace of development in southern NH, large areas of undeveloped land exist along the Souhegan River in each community, particularly in the western sections of the corridor. The Land Use Maps in both the corridor and watershed studies identify the types of land use along the River and the locations of publicly and privately protected open spaces. The major parcels of protected land are identified by community in the following discussion.

Merrimack: Three sites along the River are owned by the Town, the Eighty Acres site - predominantly forested includes Wildcat Falls; the Turkey Hill Bridge site - open and forested, provides car top access to the River; Davidson Avenue green space - predominantly forested. In addition, the Whippoorwill Boy Scout Camp is located on the River.

Amherst: There are three areas of protected land owned by a municipality along the River, the Scott and Sherburne site - predominantly floodplain; the Currier Land - predominantly floodplain; and the Curtis Well site - public drinking water supply owned by the Town of Milford mixed woods and fields.

Milford: Milford conservation lands include an unnamed piece east of downtown - floodplain, forest, field; the site east of the swinging bridge - open area and woods; Emerson Park - small developed park; the Keyes Memorial Park - floodplain, open recreation area; and an unnamed parcel adjacent to the fish hatchery. The NH Department of Fish and Game operates a fish hatchery on a large parcel of land along the river - mixed fields and forest.

Wilton: The Town Forest on the Souhegan River is the only substantial piece of Town owned land in the river corridor. The Society for the Protection of NH Forests owns a parcel along the River - forested. The NH DOT owns a 3.2 mile scenic easement on Route 31 in Wilton and Greenville along the Souhegan River.

Greenville: The NH Department of Fish and Game owns a large parcel that is predominantly forested and includes the gorge.

New Ipswich: There are a couple of small pieces of land owned by the Town along the River that are predominantly forested.

Name of Dam	Location	Ownership	Purpose	Minimum Flow Req.?
Souhegan River	New Ipswich	Warwick Mills		
Souhegan River III	New Ipswich	Otis Company	(inactive)	
Souhegan River	Greenville	Greenville Elderly Housing		
Souhegan River IV	Greenville	Oil Recovery Systems	(inactive)	
Souhegan River VI	Greenville	PSNH	(inactive)	
Souhegan River	Wilton	Gould Leech Trust		
Souhegan River III	Wilton	Label Arts		
Souhegan River	Wilton	Label Arts		
Goldman Dam	Milford	Town		
McLane Dam	Milford	Town		

Water Withdrawals and Discharges

List any significant water withdrawals from the river, including withdrawals for public drinking water, industry, and agriculture. Identify the purpose (e.g., irrigation) and location of the withdrawal. Indicate if the river has been identified in a state, regional, or local study as a potential source of water supply and, if so, identify the study.

Pennichuck Water Works historically withdrew water for public supply from 1965-1984 and maintains the right to with draw water in the future. In addition to those listed below, there are five hydropower withdrawals registered with NHDES that are indicated in the hydropower section.

Withdrawal	Purpose	Location	Potential Source? (ID Study)
Amherst Country Club	irrigation	Amherst	
Souhegan Woods Golf Club	irrigation	Amherst	

Historical and Archaeological Resources

Describe any significant historical or archaeological resources or sites with significant potential for such resources (as determined by the state historic preservation officer) found in the river or river corridor. Identify whether the resource is listed or is eligible to be listed as a National Historic Landmark (NHL) or on the National Register of Historic Places (NRHP) or is a recognized Historic District (HD) or Multiple Use Area (MUA). If known, indicate whether these resources are significant at a national, regional (New England), state, or local level. Below this listing, note any local town histories, oral histories, or general historical knowledge about the use of the river and its corridor.

The Souhegan River Corridor Management Plan, NRPC, 1993, contains an excellent Historic Resources chapter including an historic overview of the Souhegan corridor along with a discussion of the significant historic and archaeological resources. Rather than list all of the information here, the chapter is appended to the nomination form. Individual resources that are listed on the National Register or that have been determined to be eligible for the National Register are identified as such. All other resources discussed in the chapter are identified as potentially eligible for listing on the National Register. In addition, a list of local histories and other sources of historical information is included at the end of the chapter.

Community Resource

Briefly describe how the river is recognized or used as a significant community resource. If the river's importance is recognized in any official town documents, such as a master plan, include reference to such documents.

The Souhegan River has played an important part in the development of the region. From Native American settlements to current day industrial, recreational, historic and cultural uses. Each of the communities within the river corridor recognizes the importance of the River to the quality of life in each community. The River is discussed in each of the municipal master plans and is recognized as a significant community resource in the most recent. Wilton and Milford are currently updating their Master Plans and include references to the Souhegan River relative to its importance to their respective downtown's as well as the recreational opportunities it provides for swimming, canoeing and kayaking, fishing and hiking.

It is important to note that the Souhegan River Watershed Study was produced after the adoption of all of the Town's adopted Master Plans. This Study contains a significant amount of information about the River and makes specific

recommendations for local and regional actions. All of the communities in the watershed appointed representatives to participate in the development of the Study. In addition, the Study was well received by all of the communities in the watershed and many are beginning to implement the recommendations of the Study and to include references to the Study in their local Master Plans. The recommendations of the Study included such things as amendments to local Zoning Ordinances and land use regulations, the development of a continuous trail along the River, additional public access sites in each community, public education on River resources and their protection, continuation of the volunteer monitoring program and state actions.

Boating .

The western sections of the Souhegan River from Greenville to Wilton provide whitewater canoeing and kayaking during the spring and other periods of high water. Both the Appalachian Mountain Club's (AMC) River Guide and the New England Whitewater River Guide identify these sections of the River as good intermediate whitewater. The AMC guide classifies the rapids in this section as Class II, III and IV. This stretch of the River is very popular with canoers and kayakers because it provides good training runs, the water is clean, the area is easily accessed and the ice melts early in the spring. The Boston and New Hampshire AMC's and the Merrimack Valley Paddlers organize numerous trips on the Souhegan River every year.

The stretch of the River between Wilton and Milford provides limited opportunities for canoeing and kayaking because the water is generally very low and portages are required around the dams. Below the Route 122 bridge in Amherst, the River is flat and provides excellent opportunities for family canoeing. The water is shallow with a sandy bottom and there are numerous spots to picnic and wade. Below the Seaverns Bridge in Merrimack, the River quickens as it flows through a series of ledges called Indian Ledges. Passage for canoes and kayaks at this point is again limited to periods of high water. The stretch of River below Seaverns Bridge is impassable to watercraft because of Wildcat Falls.

The Souhegan Watershed Association sponsors annual trips on all of the accessible sections of the River. The River is impassable to motor boats except in the western reaches on the impoundments.

Other Recreational Opportunities

In addition to the recreation areas listed below, numerous groups and the SWA have discussed a trail along the entire length of the Souhegan River.

Recreational Area	Ownership	Location
Taft Land - hiking, nature study	NH Fish & Game	Greenville
Town Forest - hiking, nature study	Town of Wilton	Wilton
SPNHF Land - hiking, nature study	SPNHF	Wilton
Souhegan River Scenic Easement - picnicking, river access	NHDOT	Greenville/Wilton
The Horseshoe - swimming, picnicking	private	Wilton
Milford Fish Hatchery - hiking, nature study, picnicking	NH Fish & Game	Milford
Town Land - hiking, nature study, picnicking	Town of Milford	Milford
Keyes Field - field sports, water access, tennis	Town of Milford	Milford
Emerson Park - walking, picnicking, summer concerts	Town of Milford	Milford
Kaley Park - river access, recreational fields	Town of Milford	Milford

Amherst canoe port - river access, swimming	Town of Amherst	Amherst
Route 122 Access - river access	Town of Amherst	Amherst
Sherburne Site - hiking, nature study	Town of Amherst	Amherst
Eighty Acres - hiking, picnicking	Town of Merrimack	Merrimack
Turkey Hill Bridge Site - hiking, river access	Town of Merrimack	Merrimack

Public Access

Location	Type of Access	Related Facilities	Ownership
Taft Land, Greenville	canoe	limited parking	NH Fish & Game
Captain Clark Bridge, Wilton	canoe	limited parking	NH DOT
Green Bridge, Milford	canoe	parking on-street	
Keys Field, Milford	canoe	parking, rec. fields	Milford
Kaley Park, Milford	canoe	parking	Milford
Route 122 Bridge, Amherst	canoe	limited parking	Amherst CC
Amherst Canoe Port	canoe	limited parking	Amherst
Turkey Hill Bridge, Merrimack	canoe	parking	Merrimack
Seaverns Bridge, Merrimack	canoe	limited parking	Merrimack

Scenic Resources

Numerous scenic views exist along the Souhegan River many of which involve rapids and riffles. Moving west to east, Route 31 travels along scenic Water Loom Pond and under the High Bridge in the center of Town. In Greenville, the River flows through a series of dams through the center of the Town. Again, many scenic views and vistas are easily viewed from Route 31 and include pastures and agricultural land, the remaining stone abutments of a railroad bridge and a scenic gorge that is permanently protected through a donation of land by the Taft family. Through a 3.2 section along Route 31 in Greenville and Wilton, the corridor is protected by a scenic easement donated to the NH DOT. This section of the corridor is particularly scenic which is enhanced by its proximity to the road corridor. The Horseshoe in Wilton is an area where the River passes through a series of ledges that are steep on one side. A local swimming hole, many Wilton residents learned to swim here. In addition, the River winds its way through downtown Wilton passing under an old railroad bridge behind the buildings lining Main Street. Having recently been admitted into the National Main Street Program, Wilton's focus on the River as an element of the downtown's character is being recognized and built upon. As the River enters Milford along 101, it passes through a series of riffles that are popular with fly fisherman and under the historic Green Bridge. The Souhegan River Trail follows the river along the state owned fish hatchery property and the adjacent Town owned property. Through downtown Milford, the River can be viewed from a number of locations most notably the Swinging Bridge which is located just above a dam providing views of the impoundment and the downstream sections of the River. The majority of the views of the River in Amherst are at bridge crossings as the road network is not as close to the River as it is in other sections of the corridor.

A similar situation exists in Merrimack since public access to the River is limited to a few places. Of note in Merrimack are Indian Ledges and Wildcat Falls. The Currier land also known as Eighty Acres permanently protects

Wildcat Falls in public ownership. A dam and another series of falls near the mouth of the River in Merrimack provide scenic views from Route 3. The connections between the River and the transportation network, and hence the public's access to the River corridor, provides many of the scenic views. A description of the historic bridges and dams in the corridor can be found in the Historic Resources chapter that is attached to this application.

Land Use

Land use within the River corridor varies significantly from community to community. Much of the land is undeveloped, particularly in the western communities. This is due in part to the physical constraints of the land, i.e. floodplains, steep slopes, proximity of the road, etc. While the Souhegan River Corridor Management Plan and the Souhegan River Watershed Study, were completed in 1994 and 1995 respectively, land use patterns within the corridor have not changed significantly. Generalized land use for the watershed is depicted on the attached Land Use Map.

Merrimack

East of Daniel Webster Highway, the study corridor is highly developed for industrial and commercial uses. West of D.W. Highway development is predominantly residential with some areas of public ownership, including the Town owned 80 Acres in the area of Wildcat Falls. The Town owns another parcel along the River accessible from Davidson Avenue and the Boy Scouts own a parcel across the River, Camp Whippoorwill. Land use in the far western section of the river corridor is very low density residential and vacant.

Amherst

Much of the land in Amherst's section of the corridor is vacant and undeveloped. This is somewhat misleading since there are three golf courses in the western section of the study corridor. The dominance of the vacant land use category can also be related to the large expanses of floodplain within the corridor in Amherst. The rest of the study corridor is residential and the Town owns one piece of conservation land with River frontage.

Milford

Milford exhibits the greatest diversity in land use within the study corridor, with high density residential, residential, commercial, industrial, institutional and public lands, and vacant land categories represented. The eastern portion of the study corridor, near the Amherst line, is predominantly commercial with a small shopping center and a few restaurants and shops. The Milford Wastewater Treatment plant and Riverside Cemetery are located near the River. Approaching the Milford downtown land uses is mostly residential and multi-family. The Milford downtown is a mixture of commercial and residential/multi-family land use with some small parcels of Town owned land, east of the swinging bridge north of the River, Emerson Park, Elm Street Cemetery and Keyes Field. The next section of the corridor is dominated by commercial development south of the River and residential and vacant land north of the River. The State owns a significant area of land, the Milford fish hatchery, along the Souhegan River near its confluence with Purgatory Brook. The land across the River is used for agriculture, and the development rights to one parcel have been purchased by the State. The western section of the corridor is lightly developed with commercial and residential uses. There are two hazardous waste sites in the corridor in Milford, the Savage Well site and the Fletcher Paint site.

Wilton

In Wilton, the eastern portion of the study corridor is dominated by residential and commercial/industrial uses, including Souhegan Wood Products, Label Art, the Riverview Mill and the downtown businesses. West of the downtown along Route 101 the principal land use is residential with a few commercial businesses along 101. Along NH Route 31 south the corridor is sparsely developed with only a few residences and the River is close to the road. The NH Department of Transportation holds a scenic easement along a stretch of Route 31 in Wilton and Greenville.

Greenville

Land use within the study corridor in Greenville is predominantly vacant land in the northern section and residential in the village areas.

New Ipswich

Land use within the study corridor in New Ipswich is chiefly vacant and residential.

Land Use Controls

Identify the municipalities with existing master plans and zoning ordinances within the river corridor. Identify existing or significant proposed land use controls which affect the river and the river corridor (e.g., zoning, easements, subdivision regulations).

According to the Office of State Planning 1997 report, Status of Municipal Planning and Land Use Regulations in New Hampshire, all of the communities in the Souhegan corridor have an adopted Master Plan, a Zoning Ordinance and Subdivision/Site Plan Review Regulations. The following discussion on zoning and land use regulations by community is taken from the 1994 Souhegan River Corridor Management Plan. No significant changes to the Zoning Ordinances or the Subdivision/Site Plan Regulations that would have an impact on the River have occurred since the study was completed. Zoning for the watershed is depicted on the Zoning Map for the watershed.

Merrimack

The majority of the study corridor in Merrimack, all of the land west of the Everett Turnpike, is zoned for residential development. Zoning east of the turnpike is commercial and industrial. The uses permitted within each district include:

General or Limited Commercial: limited commercial permits stores for the sale of retail goods or services; business and professional offices; specifically excludes banks, automotive uses of all kinds, hotels and motels; permitted by special exception - restaurants, cafes, residential and accessory uses; general commercial permits stores for the sale of retail goods and services; business, professional and banking offices; research and development; restaurants and cafes; parking lots for transient motor vehicles; hotels and motels; and churches; permitted by special exception - accessory uses, residential, public facilities, sale or storage of new or used cars, commercial recreation and entertainment, and gasoline and automobile service stations.

Industrial: manufacturing industries; warehouse and wholesale uses; offices greater than 10,000 sq. ft.; public utilities; churches; gas stations; enclosed service and repair; sales service and repair of machinery and transportation equipment; freight and trucking terminals, offices and brokers; contractor yards; parking garages; animal hospitals and veterinary clinics; research and testing laboratories; fuel storage and distribution (bulk); printing establishments; contract cleaning establishments; industrial supply establishments; support uses to industrial district - restaurants, branch banks, offices, hotel/motel; and breweries and bottling facilities.

Residential: residential uses; home occupations; permitted by special exception churches and accessory dwelling units.

Minimum lot size in the commercial districts is 20,000 sq. ft. There is no minimum lot size for industrial developments; however, floor area ratios cannot exceed 0.4 for a one story building or 0.8 for a two-story building and buildings must be set back a minimum of 100 feet from D.W. Highway. In addition, all developments in this district must be served by municipal water and sewer. Minimum lot size in the commercial districts is 20,000 sq. ft. with 125 feet of frontage. Floor area ratios are the same as the industrial district. Minimum lot size requirements in the residential district are based on soil type and the presence of municipal water and sewer. Cluster development of one, two or four unit residential structures is allowed in all residential districts with a minimum parcel size of 15 acres and municipal water and sewer. In addition, the Town has adopted a number of regulations to protect its natural resources, such as the floodplain conservation district, the wetland conservation district and the aquifer conservation district. The Town does not have any type of shoreline protection.

Amherst

The entire study corridor in Amherst is zoned for residential development. Uses permitted in the residential district include: single-family and accessory buildings; planned residential development; home occupations; open space plan; amateur, nonprofit sports and recreation uses; and family daycare uses. Minimum lot size is two acres with 200 ft. of frontage for regular lots and 35 ft. of frontage for reduced frontage lots. The open space plan calls for

maintaining the overall density, two acres/unit, but allows for the development of residential units on 40,000 sq. ft. lots to encourage the maintenance of open space. Minimum parcel size for open space plans is ten acres in the residential district. The planned residential development standards allow for the development of different housing types at densities greater than required by the underlying zone. Density is determined by dividing the overall acreage by two and then multiplying that number by a factor which is based on the soil classification. Single-family attached and detached structures, and multi-unit structures with three to six units are permitted in planned residential developments. Minimum tract size for a planned residential development is 20 acres in the residential district. In addition, the Town has adopted a number of regulations to protect its natural resources such as a floodplain conservation district, a wetland conservation district and an aquifer protection district. The watershed protection district essentially is the same as a shoreline protection district.

Milford

Land within the Milford section of the study corridor is almost equally divided between commercial, industrial and residential districts. South of the River, the eastern section is zoned commercial and the western section is zoned industrial. Except for a small area near the downtown, all of the land in the corridor north of the River is zoned residential. The uses permitted within each district include:

Commercial: retail and wholesale businesses; restaurants; filling stations, garages and parking lots; professional offices and banks; hospitals and/or medical facilities; schools, colleges, business or trade schools; hotels, motels and inns; churches; theaters and bowling establishments; laundries and dry cleaning; newspaper and job printing; funeral homes; the uses permitted in residence "A" and "B" districts; and elderly housing; permitted by special exception - dumps and junk yards, mobile homes and communication towers.

Industrial: harvesting and processing of natural resources; and light industrial and manufacturing; permitted by special exception - uses permitted in the commercial/business district and residence "R" district except for residential uses.

Integrated Commercial-Industrial: wholesale businesses; retail businesses; restaurants; professional offices and banks; hotels, motels and inns; daycare facilities; public utility uses; light industrial and manufacturing; distribution and mailing facilities; research and development laboratories; automotive service and repair; harvesting of natural resources; permitted by special exception - schools.

Residential District: "A" district: single-family residences and accessory buildings; permitted by special exception home occupations, recreation and community center buildings, kindergartens and day nurseries, churches, and public utilities; "B" district: multi-family with municipal water and sewer; single-family and two-family dwellings; permitted by special exception - hospitals, schools and funeral homes; "R" district: uses permitted in "A" district; hospitals; schools; farm, agriculture or nursery; mobile homes; harvesting of natural resources; and recreational uses; permitted by special exception two-family residences and communication towers.

Minimum lot sizes in the commercial and industrial districts are 20,000 sq. ft./150 ft. of frontage with municipal water and sewer and 60,000 sq. ft./225 ft. frontage without water and sewer. Lot sizes and frontages in the integrated commercial-industrial district are the same as those for the commercial/industrial with water and sewer and 40,000 sq. ft./150 ft. of frontage without water and sewer. Residential minimum lot sizes are as follows: "A" - with water and sewer 15,000 sq. ft./100 ft. frontage, without 40,000 sq. ft./150 ft. frontage; "B" - with water and sewer 20,000 sq. ft./150 ft. frontage, without 60,000 sq. ft./225 ft. frontage; "R" - single-family 40,000 sq. ft./150 ft. frontage; two-family 80,000 sq. ft./225 ft. frontage. Cluster development is permitted in all residential districts with a minimum tract size of 5 acres with water and sewer or 20 acres without. Overall density is the same as would be permitted by the underlying zone and there are no minimum lot size, frontage or setback requirements. In addition, the Town has adopted a number of regulations to protect its natural resources such as a floodplain management district, a wetland protection district and an aquifer protection district. The wetland protection district includes surface waters.

Wilton

Residential and agricultural, and residential zoning dominates the Wilton section of the study corridor with a strip of commercially zoned land along NH Route 101 and some industrially zoned land along NH Routes 101 and 31 South. The uses permitted within each district include:

Residential: single-family and duplex dwellings and accessory uses; multi-family dwellings with 3 units; permitted by special exception - home occupations, bed and breakfasts, churches, synagogues, parish houses and convents, hospitals, emergency medical centers and clinics, civic and municipal buildings, schools and daycare centers.

Residential and agricultural: any use permitted in the residential district; and all general farming and forestry activities.

Commercial: any use permitted in the residential and agricultural district; duplex and multi-family dwellings, inns, tourist courts, cabins, and bed and breakfasts; restaurants and other retail establishments; garages, parking lots and filling stations; business and professional offices; theaters, halls, clubs and amusement centers; greenhouses and florist shops; funeral homes; and wholesale establishments in connection with permitted retail establishments, warehousing or merchandise for sale within the district.

Industrial: Manufacturing, compounding, processing, packing, treatment or warehousing of goods and products; research and/or testing laboratories; and offices; and commercial uses under the same terms and conditions as industrial uses.

Minimum lot size in the residential district is 0.5 acre with water and sewer and one acre without with 100 ft. frontage. Lot size in the residential agricultural district is either one, one and a half or two acres depending on soil conditions with 200 ft. of frontage. The commercial district does not establish a minimum lot size; however, it does establish a maximum lot coverage of 75 percent. The industrial district requires a two acre minimum lot size with 200 ft. of frontage and lot coverage cannot exceed 60 percent or 40 percent in the aquifer protection district. Cluster developments are permitted in the residential and agricultural district with a minimum tract area of 15 acres with 500 ft. of frontage; no minimum lot sizes or setbacks are established. In addition, the Town has adopted a number of regulations to protect its natural resources such as a floodplain conservation district, a wetland conservation district and an aquifer protection district.

Greenville

Greenville's zoning within the study corridor is predominantly industrial and commercial with small sections of residential and rural/agricultural. The following uses are permitted in each district:

Rural/agricultural: single-family residences; convalescent or nursing homes; educational use, place of worship or public and semi-public nonprofit uses; veterinarian, commercial stable or kennel; general farming; roadside stands for the sale of produce grown on the premises; commercial agricultural uses; cemeteries; public utility installations; excavations of natural materials; accessory uses to permitted uses; home occupations; and start-up home businesses; permitted by special exception - inn or tourist home.

Residential: single-family residences; two-family residences; educational use, place of worship or public and semi-public nonprofit uses; public utility installations; accessory uses to permitted uses; home occupations; and start-up home businesses; permitted by special exception - multi-family housing and inn or tourist home.

Commercial: retail business establishments; professional offices; banks and financial institutions; real estate offices; restaurants, cafeteria, bakery and confectionery shops; grocery or general store; place of worship; inn or tourist home; indoor theater; private club; self-service storage centers; health care facilities; recreational facilities; building supply facilities; and accessory uses to permitted uses; permitted by special exception gasoline service station or garage, single-family residence, two-family residence, multi-family housing, and light industry.

Industrial: any industry whose use or process is not obnoxious or offensive by reason of gas, radiation, odor smoke vibration, liquid discharge, illumination, noise or appearance and which does not constitute a public hazard whether by fire, explosion or otherwise; plants for the processing and distribution of milk and dairy products for human

consumption and for bottling or packaging beverages, pharmaceuticals, and toilet preparations perfumes and similar products; printing, publishing and general contractors; restaurant and cafeteria; and accessory uses to permitted uses; permitted by special exception - uses permitted in the C and C-I districts.

Minimum lot size and frontage requirements for single family buildings are one acre/150 ft. frontage with municipal sewer and two acres/200 ft. frontage without. Minimum lot sizes for multi-family buildings range depending on the number of units in the structure. A 0.5 acre minimum lot size is required within the commercial district and a five acre minimum lot size is required in the industrial district and minimum frontage for both is 200 ft. regardless of whether or not municipal or sewer service is provided.

New Ipswich

The New Ipswich section of the study corridor is zoned rural except for one section just north of Water Loom Pond which is zoned Village District I. The following uses are permitted in each district:

Village District I: single-family dwellings and accessory uses; two-family dwellings and accessory uses; places of worship; permitted by special exception inns, bed and breakfasts, nursing and convalescent homes, daycare and day nurseries, and kindergartens, professional uses and home occupations, and multi-family dwellings.

Rural: any use permitted in Village District I and II; mobile homes; cluster developments on 10 acres or more; agricultural uses; recreational uses; roadside stands; greenhouses; stables and riding schools; summer camps; permitted by special exception - uses permitted by special exception in Village District I and II, commercial, business, industrial, excavations, group home, camping area, saw mills, slaughter houses, junk yard, heavy equipment business, light industry, veterinary clinics, kennels, residential cluster on tract less than ten acres.

Minimum lot size in the Village District I is one acre with 200 ft. of frontage. Minimum lot size in the rural district is two acres with 200 ft. of frontage. All structures and parking lots must be set back 100 ft. from the normal bank of all lakes, ponds, rivers, streams and brooks. In addition, the Town has a floodplain district and a steep slope district.

Water Quality

Souhegan River flow data is collected at the stream gauge station in Merrimack located just above Wildcat Falls. The station operated as a full station until 1976 when it was converted to a partial station that is used only during periods of extreme weather, to estimate flooding conditions or drought severity.

Riparian Interests/Flowage Rights

Pennichuck Water Works withdrew water from the Souhegan from 1965 to 1984 at a maximum rate of 10.8 cfs. While Pennichuck no longer uses this withdrawal for public supply, the company maintains the right to withdraw water in the future.