

Franeestown Water Resources

Franeestown
Master Plan

Chapter Adopted 11/16/ 2021



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*Above: South Branch Piscataquog River
Source: Barry Wicklow*

Part One: Purpose and Context

INTRODUCTION

Located in southwestern New Hampshire, Frankestown's water resources contribute to its rural character, ecosystem health, and its quality of life. The Water Resources Master Plan chapter serves as a blueprint for community-based water protection, low impact site development, and water resource education and demonstrates the Town's commitment to environmental and community health. The outline of this chapter includes an assessment of the condition of Frankestown's water resources and an examination of the potential threats to water

quality, habitat, flood holding capacity, and more. Regulatory and non-regulatory recommendations are included to help Frankestown meet its water resource goals.

These goals are:

- Protect the quality of Frankestown's surface water resources, including wetlands, rivers, streams, and ponds.
- Preserve aquatic habitat in Frankestown.
- Manage stormwater runoff on site by emphasizing green infrastructure solutions.
- Educate the public about the importance of water resources and their connection to many aspects of the wider community.
- Increase resiliency through the preservation of water resources, especially floodplains, forested wetlands, and riparian buffers.
- Protect the quality of Frankestown's groundwater, the main source of residential drinking water.

PREVIOUS WATER-RELATED STUDIES

Francestown has initiated a number of studies aimed at developing a broader understanding of its water resources and the key issues, opportunities, and challenges related to water resource planning. These include:

- 2013 Natural Resources Inventory
- 2017 Land Use Master Plan Chapter Update
- 2019 Francestown Village Water Company's Source Water Protection Plan

This chapter integrates information and recommendations outlined in the plans listed above with data from NH Department of Environmental Services to create a full picture of the Town's water resources. The issues related to water resources impact many aspects of the community and quality of life in Francestown. The following water resources are assessed in this Master Plan chapter:

- Watersheds
- Surface Water Resources
 - Lakes and ponds
 - Rivers and streams
 - Riparian and shoreland buffers
 - Highly erodible soils and steep slopes
 - Wetlands
 - Floodplains
 - Stormwater
- Groundwater and Public Water Supply Resources
- Potential Threats to Francestown's Water Resources

WHAT IS THE VALUE OF WATER RESOURCES?



ECOSYSTEM SERVICES

Francestown's water resources provide ecosystem services that benefit the community and are integral to environmental health. In short, Ecosystem Services are the direct and indirect contributions of natural resource systems to human well-being. Ecosystems function on many different levels to serve our everyday lives: providing food, water, medicine; regulating our air, water quality, climate, and floodwaters; enhancing our cultural identities, recreational activities; supporting the underlying functions that make our existence possible such as photosynthesis and the water cycle.

Francestown's natural systems are rich and complex, ranging from higher elevation environments to riparian and wetland ecosystems. Wise and efficient land use planning ensures a high quality of life for the community's citizens. To do this effectively, it's critical to understand Francestown's natural systems and to provide

PUBLIC PARTICIPATION

In the development of this Master Plan chapter, water resource education and soliciting public input on key issues were identified as priorities. The Planning Board worked with consultant, Resilience Planning and Design, to develop two educational videos that provided an overview of Francestown's water resources and a summary of the major issues related to water quality in Francestown. Additionally, a project webpage was developed to describe the project and a local newsletter article was published to alert community members about this initiative.

A short survey was developed to obtain information from residents on water resource issues that are most important to them and that should be incorporated into this chapter.

Priority water resource issues identified by residents through the survey include:

- Protection of the quality and quantity of Francestown's groundwater supplies, including both private wells and Village wells.
- Protection of the quality of the Town's surface water resources, including headwater streams and upland areas of streams and rivers.
- Mitigating threats of water contamination, hazardous waste disposal, stormwater runoff, and erosion, especially as they relate to development, land clearing, construction, and roadway maintenance activities.
- Extreme weather events, such as flooding and droughts/water shortages, related to climate change.
- Increased development and population growth and its effects on Francestown's water resources.

Results from this survey were integrated into the chapter and directly informed its content.

*Below: Scobie Pond
Source: Touring NH*





*Above: Shattuck Pond
Source: Francestown Land Trust*

Part Two: Existing Conditions Analysis

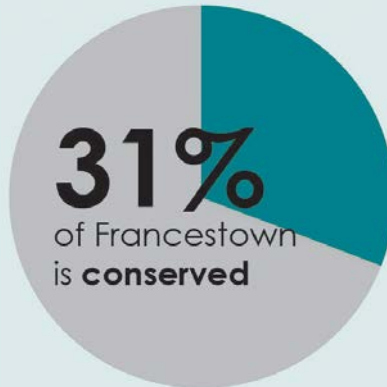
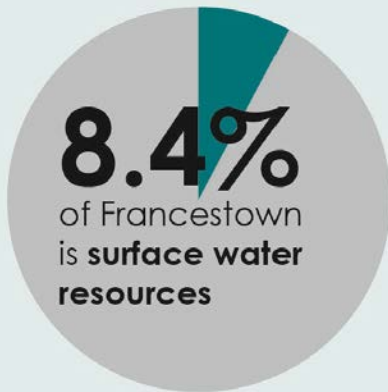
INTRODUCTION

Francestown has demonstrated a commitment to planning wisely for its future and ensuring a clean water supply for generations to come. Municipal boards and staff members, especially in partnership with community organizations and residents, have a powerful influence on water quality protection because of the hands-

on roles they play in crafting community plans, shaping local policies, projecting community attitudes, and determining which development plans are approved. To create water resource protection strategies that work best for Francestown, a comprehensive assessment of the condition, quality, distribution, and key issues related to surface water resources, groundwater, stormwater, and public water supplies were analyzed.

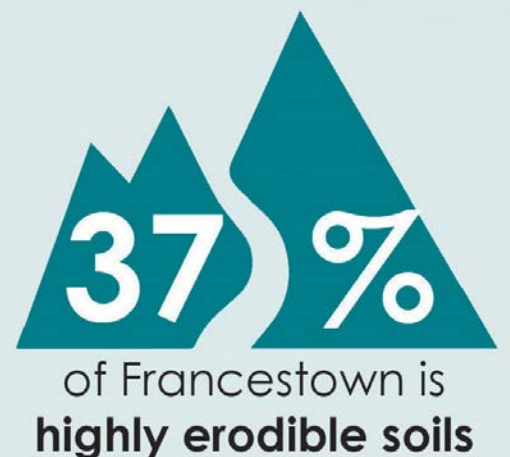
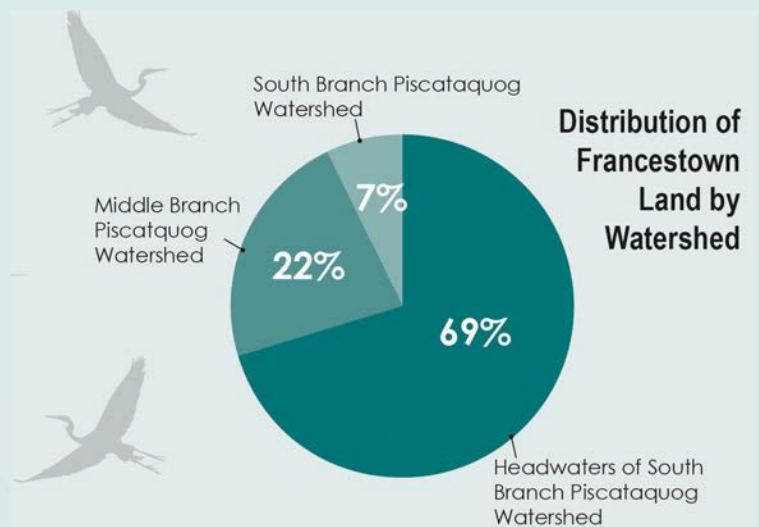
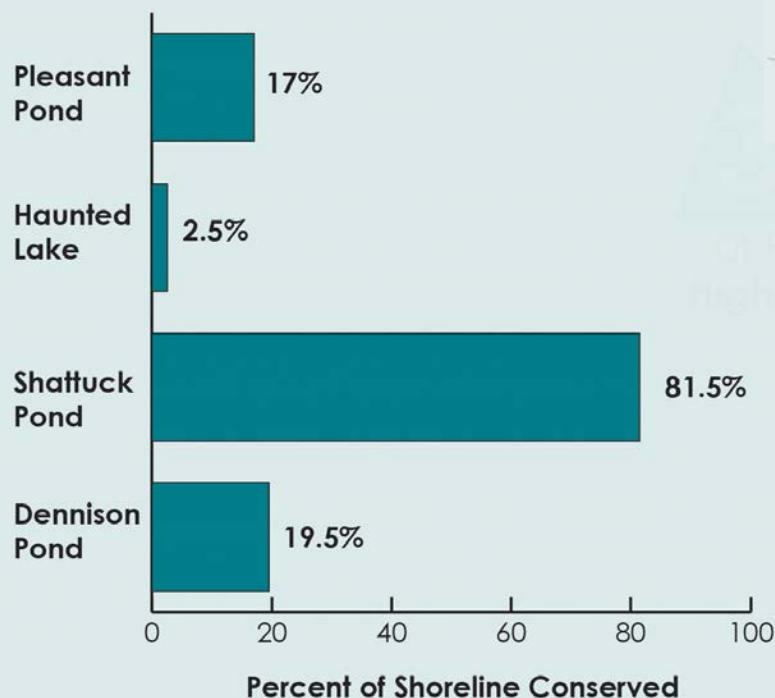
Additionally, Francestown's existing land use regulations were audited to examine ways they could be strengthened to preserve water quality. A suite of GIS maps were created and are included in this chapter that depict many of the topics and should be useful in future planning.

Let's talk about Francestown's Water Resources...



Francestown has:

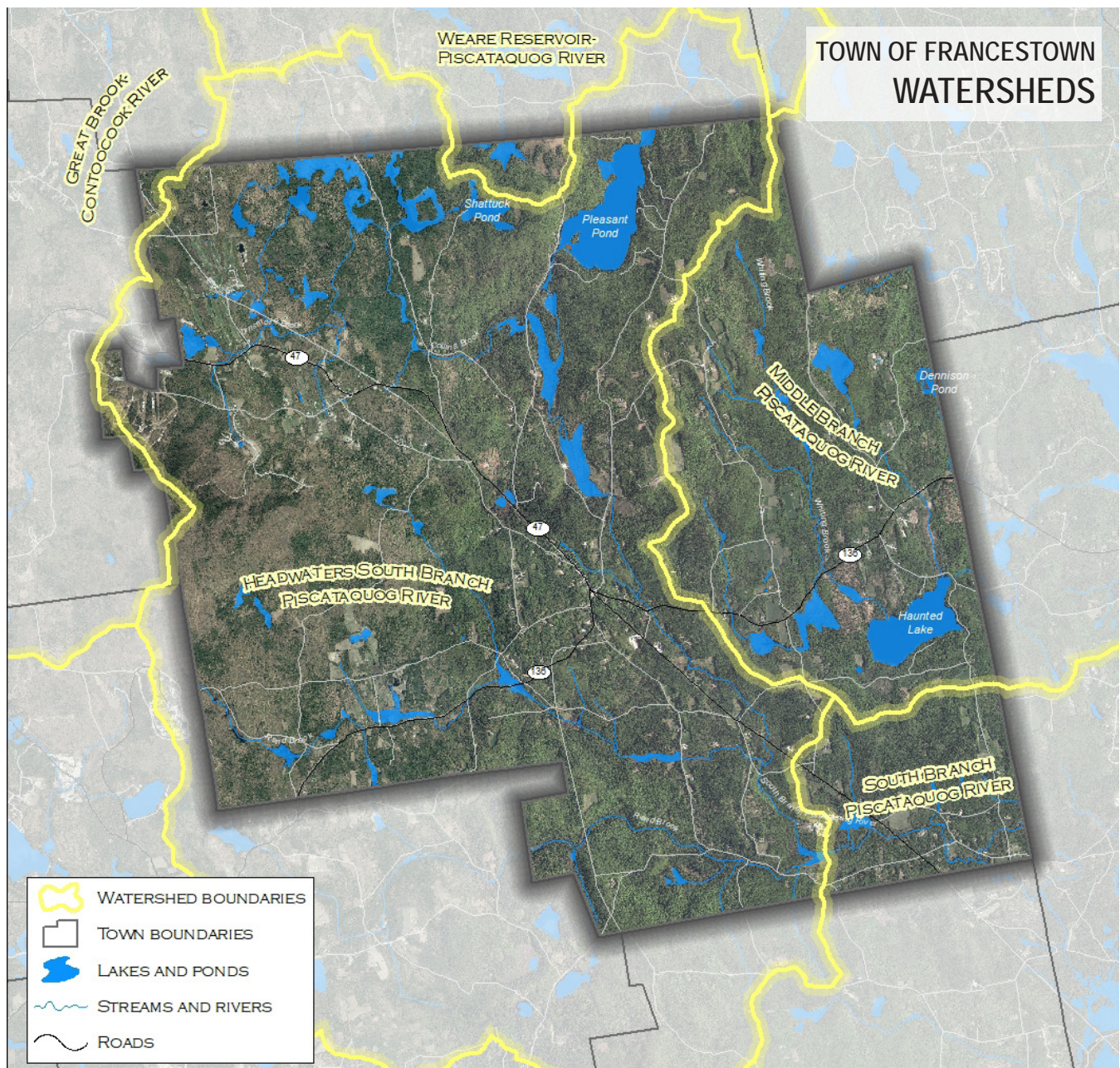
- ◆ 35 miles of rivers and streams
- ◆ 1255 acres of wetlands
- ◆ 380 acres of "Great Ponds"
- ◆ 4 wellhead protection areas



WATERSHEDS

According to the New Hampshire Lakes Association, a “watershed” is an area of land that drains to a lowest common point, like a lake, pond, river, stream, or ocean. In general, larger watersheds contain many smaller watersheds. Near the western boundary of Franconia is the ridgeline of Crooked Mountain which serves as the dividing line between the Piscataquog River Watershed and the 490 thousand-acre Contoocook River watershed, both of

which are ultimately part of the greater 2.65 million-acre Merrimack River drainage basin. Franconia is located in the Piscataquog watershed, which is a sub-basin of the Merrimack watershed. The Piscataquog watershed is divided into three sub-watersheds: (the South Branch, the Middle Branch, and the North Branch). These watersheds join and drain into the lower main stem watershed of the Piscataquog River. Each sub-watershed has land within Franconia as well as in neighboring communities.

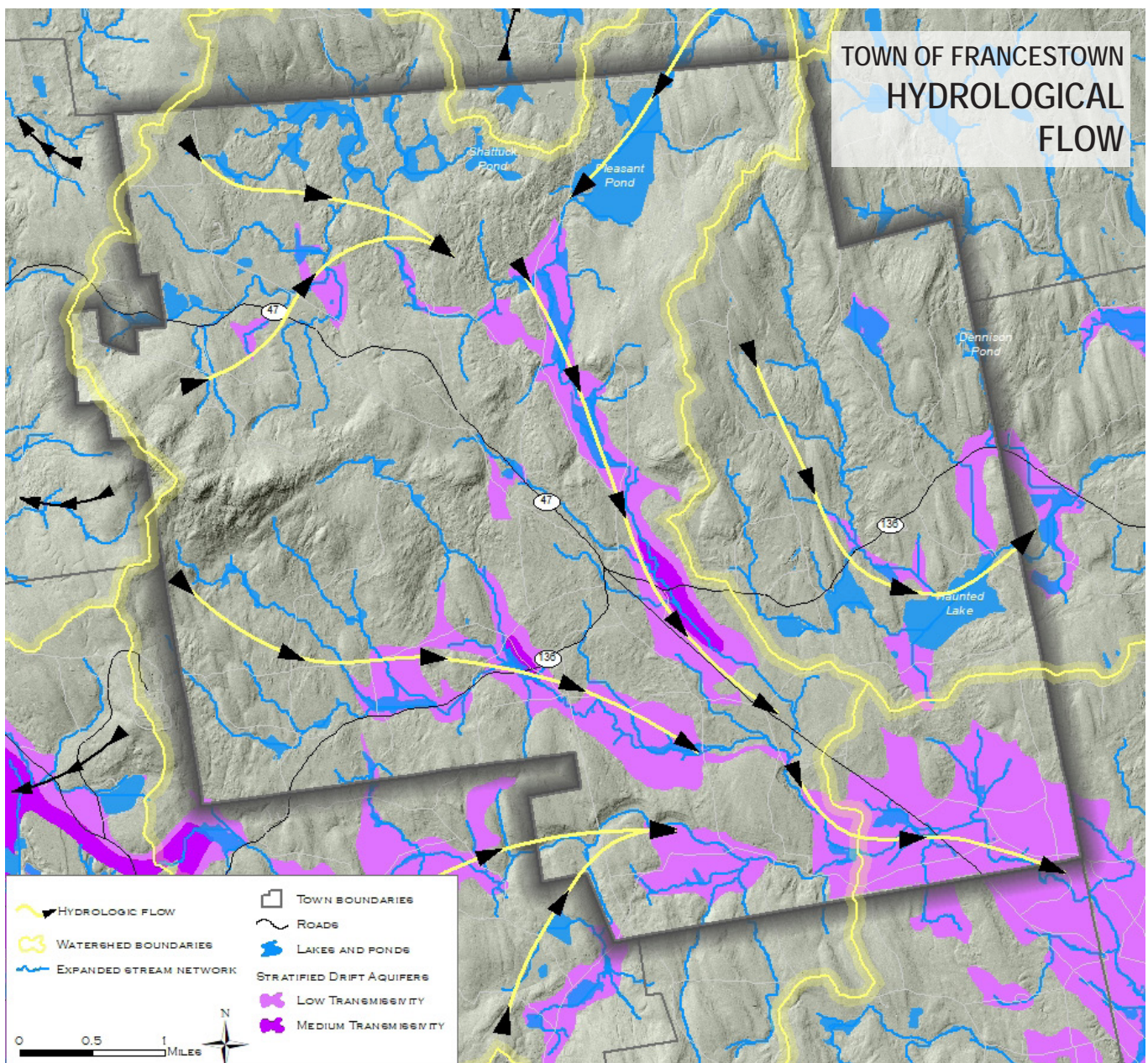


The majority of Frankestown, approximately 69%, is located in the Headwaters of the South Branch Piscataquog River watershed. 22% of Frankestown's land area drains into the Middle Branch of the Piscataquog River, and 7% of its land area drains into the South Branch of the Piscataquog River. The Headwaters of the South Branch of the Piscataquog River sub-watershed has the most land conserved out of the three primary watersheds in Town. 34% of this watershed consists of permanently protected land. The Middle Branch of the

Piscataquog River sub-watershed has 18% conserved land, and the South Branch Piscataquog River sub-watershed's land is 32% conserved.

RELATIONSHIP TO NEIGHBORING COMMUNITIES

Due to the ridgeline of Crotched Mountain being near the western boundary of the Town and serving as the dividing line between two watersheds, Frankestown is at the very top of the watershed divide. The majority of water passing through the



Town and draining from Francestown's land area flows to the Piscataquog River, with only 0.5% of the town's surface water flowing to the Contoocook River. Therefore, land uses within the town's boundaries can significantly influence the quality of surface water that leaves the town. Additionally, very little of the water flowing through Francestown is influenced by neighboring town's land uses before entering Francestown, due to the topography of the area. Water flows into the town from the north, west, and south from higher points of elevation, meaning the water is not heavily influenced by neighboring town's active land uses. This can be seen on the map on the previous page by looking at the hydrologic flow patterns.

The portion of the Middle Branch watershed in Francestown includes 80% of the eastern town boundary extending south from the northeast corner of town. A majority of the flow from Francestown lands in the Middle Branch sub watershed, southward into Scobie Pond/Haunted Lake, and then eastward from the lake into the Town of New Boston. A very small portion of the North Branch sub-watershed begins along the center of the town's north boundary and drains north into a small pond and wetland complex in Deering. This represents the southern-most headwaters of the 48,794 acre watershed.

*Above: Rand Brook
Source: Barry Wicklow*

CONSERVED LAND

According to the National Land Cover Geographic Database, 93.5% of the town is considered undeveloped land. Based on the GIS analysis, 31% of the community's land area is conserved. The surrounding towns average about 23% conserved land, putting Francestown above average compared to its neighbors.

SURFACE WATER RESOURCES

Approximately 8.4% of the Town's land area is composed of rivers, lakes, ponds, and wetlands. Streams, rivers, lakes, wetlands, and ponds all provide wildlife habitat for aquatic and terrestrial species and serve as important corridors for a wide variety of wildlife. They also provide recreational opportunities for fishing, swimming and boating.

RIPARIAN AND SHORELAND BUFFERS

The water quality of these surface waters is largely dependent on the adjacent land uses and the condition of the surrounding land, as well as the condition of ground and surface water inputs. For this reason, it is important that uplands adjacent to streams, rivers, ponds, and wetlands be preserved in their natural state to the greatest extent possible. These are commonly referred to



as riparian buffers. Forestry, agricultural, commercial and residential activities, when not managed appropriately, have the potential to degrade these vegetated buffers and as a result impact water quality.

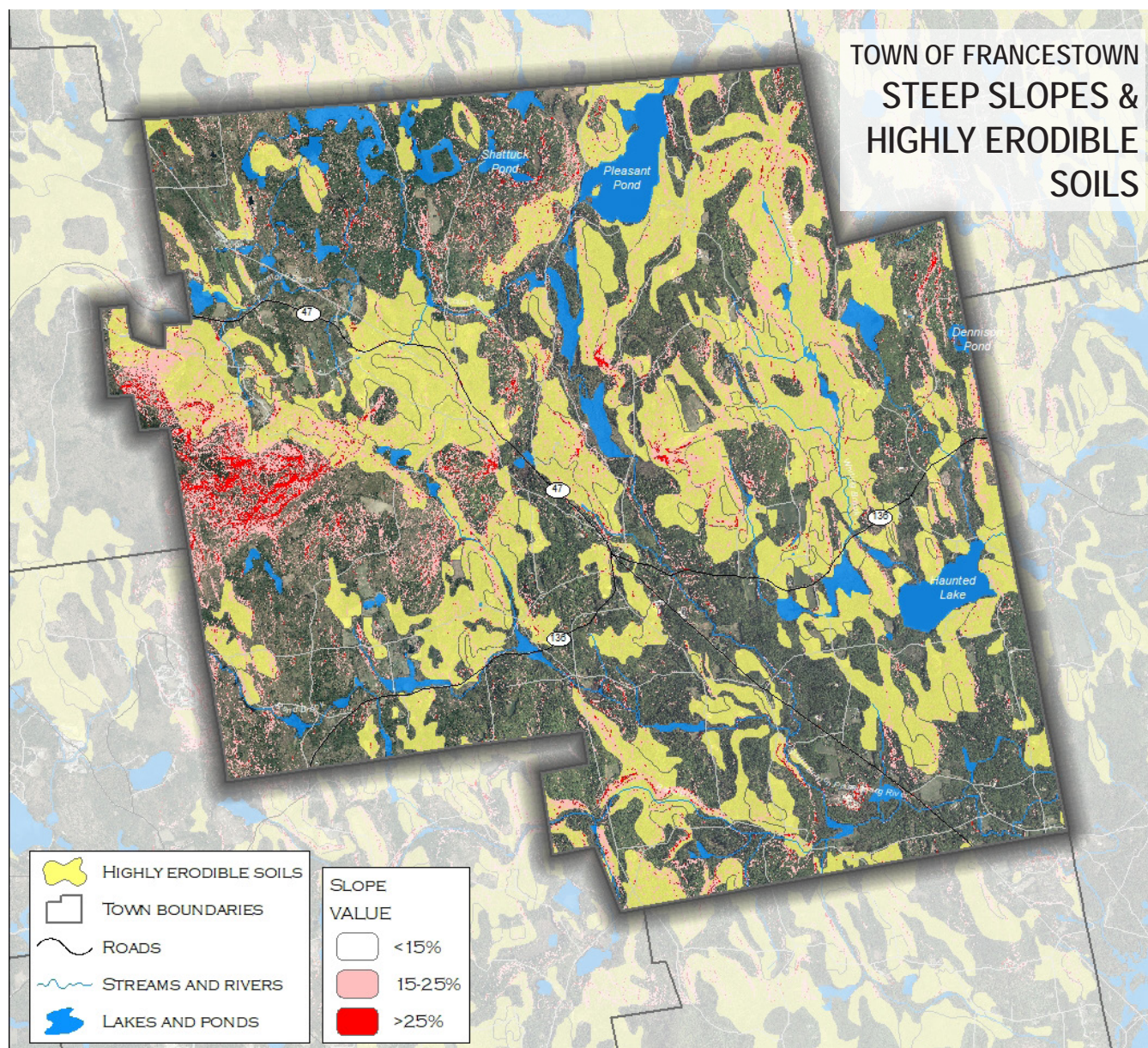
HIGHLY ERODIBLE SOILS & STEEP SLOPES

It's important to note that 36.9% of the Town's land area has highly erodible soils, with 84% of these falling on land with <15% slopes. Highly erodible soils and steep slopes dramatically increase the risk of water contamination from pollution sources,

soil erosion, the transport of sediment into surface water bodies, and through leaching into groundwater. These can be seen on the map below. This is especially true in areas where the vegetation is removed, or the soil is disturbed. The combination of highly erodible soils and steep slopes has been identified as a source of phosphorus in surface waters in other areas of the state, such as the Newfound Watershed.

LAKES AND PONDS

Francestown has four ponds that are considered "Great Ponds" by NHDES,



meaning they are water bodies greater than 10 acres in size. These include:

Pleasant Pond

Pleasant Pond is approximately **198 acres** and is the largest water body in Franconstown. It's located within the Headwater of the Piscataquog River watershed. Pleasant Pond has significant adjacent open space and some scattered residential development. There is a boat ramp on Pleasant Pond, which is the only public access to this waterbody. Approximately 17% of the shoreline along Pleasant Pond is conserved. If development pressure increases, there is potential for the pond's character and land use pattern to change.

The Pleasant Pond Association has been monitoring water quality in Pleasant Pond since 2000 and, since then, has seen a decline in its water quality. According to NHDES water sampling tests, Pleasant Pond has seen an increase in phosphorus levels over the years which negatively impacts water quality and aquatic habitat. In 2004, NHDES changed the classification of Pleasant Pond from Oligotrophic to Mesotrophic, and there was a cyanobacteria algae bloom in the Pond during the summer of 2020. Some of the likely sources of this phosphorus include stormwater runoff related to public road maintenance, private road construction and maintenance, general construction and landscaping, fireworks, and shoreline erosion. Phosphorus loading into Pleasant Pond should be a priority to protect this waterbody.

Haunted Lake/Scobie Pond:

Haunted Lake/Scobie Pond is approximately



Above: Scobie Pond
Source: Keene Sentinel

140 acres and has significant cultural and ecological value. It's located in the southern part of the Middle Branch of the Piscataquog River Watershed. Home to an 18th century sawmill, the lake's folklore and history have captivated many mystery lovers in NH. In 1780, an Irish immigrant named David Scoby built a water-powered saw and grist mill on Haunted Lake/Scobie Pond. There, he uncovered a skeleton buried in a shallow grave. Other folk legends that preceded the naming of this lake include the great forest fire that swept along the banks of the pond before the Town was settled, resulting in an eerie scene settlers, surveyors, hunters, and Native Americans avoided in superstition.

Approximately 2.6% of the shoreline is conserved, meaning the majority of the land around Haunted Lake/Scobie Pond is unprotected from future development. There is some rural residential development along the shoreline, including a few subdivision developments off Dodge Hill and Scoby Roads. There is public access on the lake and Franconstown residents can access its town beach through a beach permit.

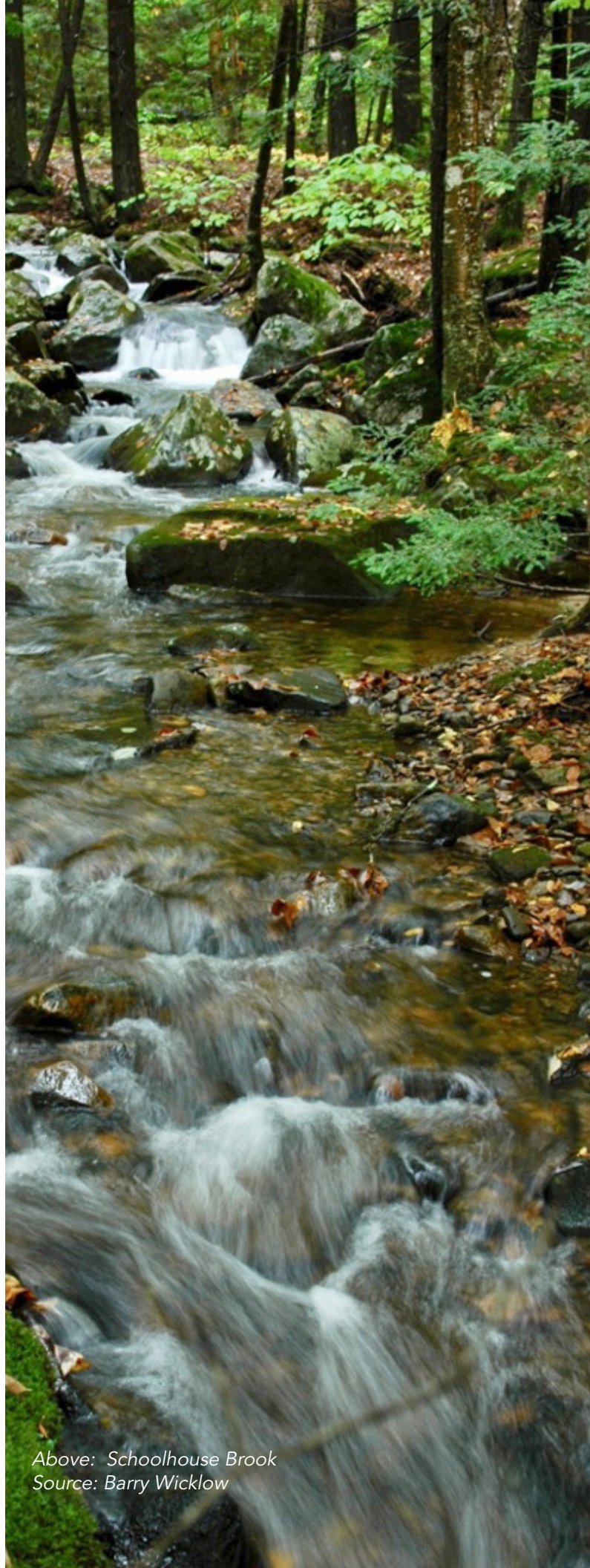
According to NHDES's water sampling tests, Haunted Lake/Scobie Pond is considered to be "impaired" due to its high levels of phosphorus and chlorophyll, largely due to non-point source pollution. This can impact water quality negatively and associated aquatic species. The NHDES Total Maximum Daily Load Report for Haunted Lake/Scobie Pond identifies numerous strategies to reduce high levels of chlorophyll and phosphorus including improving stormwater drainage systems (including infiltration and bioretention best management practices) and promoting low-impact development standards around the lake (such as maintaining a vegetative buffer along the shoreline, minimizing disturbance areas, and limiting impervious surfaces).

Shattuck Pond

Shattuck Pond is located just west of Pleasant Pond and is **30.7 acres** in size. It's located in the Headwaters of the Piscataquog River Watershed. This pond is a truly wild water body, with 100% of its shoreline conserved. Shattuck Pond is mostly surrounded by a 440-acre Town Forest. There is a hiking trail through the Town Forest from Pleasant Pond Road to Shattuck Pond. The pond may also be accessed via Shattuck Pond Road, a non-maintained town road. There is limited access for small boats and canoes near the end of the road.

Dennison Pond

Dennison Pond is the wildest, least developed water body in Franconia located on the eastern edge of town. Half of the pond is located in neighboring New Boston, NH. It's also located in the Middle Branch of the Piscataquog River watershed. It's **22.4 acres** in size and 19.5% of its shoreline is conserved (however its virtually all undeveloped land surrounding the pond). There are no roads that lead to this pond. Preserving both Shattuck Pond and Dennison Pond's ecosystem services through a combination of land conservation



Above: Schoolhouse Brook
Source: Barry Wicklow

HOW DO RIPARIAN BUFFERS WORK?

According to New Hampshire Department of Environmental Services, riparian vegetative buffers are one of the most effective ways to protect water resources in a community. Riparian buffers:

- **Filter Sediment, Nutrients, Pollution, and Chemicals from Runoff:** 50–100% of sediments and nutrients can be absorbed by buffer plants, slowing sediment-laden runoff waters. Phosphorus and nitrogen from fertilizer and animal waste can become pollutants but 80–85% can be captured when sediment is filtered out of surface water runoff by passing through the buffer. Wider, forested buffers are more effective than narrow, grassy buffers.
- **Regulate Stream Flow to Recharge Groundwater:** buffers allow water to infiltrate into the soil by slowing the velocity of runoff and recharging the groundwater supply. This helps control flooding and maintain stream flow during the driest time of the year.
- **Stabilize the Streambanks to Reduce Erosion:** Vegetation stabilizes and protects streambanks and prevents soil erosion.
- **Stabilize Stream Beds to Absorb Runoff:** Riparian buffers can also absorb surface water runoff and slow water velocity. When plant cover is removed, more surface water reaches the stream, causing the water to crest higher during storms or snowmelt.
- **Provide Wildlife Habitat:** Riparian buffers provide distinctive habitat to a multitude of plant and animal species. Connected stretches of riparian buffer also serve as wildlife travel corridors.
- **Support Aquatic Habitat:** Forested riparian buffers benefit aquatic habitat by improving the quality of nearby water through shading, filtering, and moderating stream flow.
- **Provide Recreation and Aesthetics:** Forested buffers are screen views of nearby development, protect the rural character of the community, and offer recreational opportunities such as fishing, hiking, and camping.

and promoting low-impact development techniques will be important moving forward into the future.

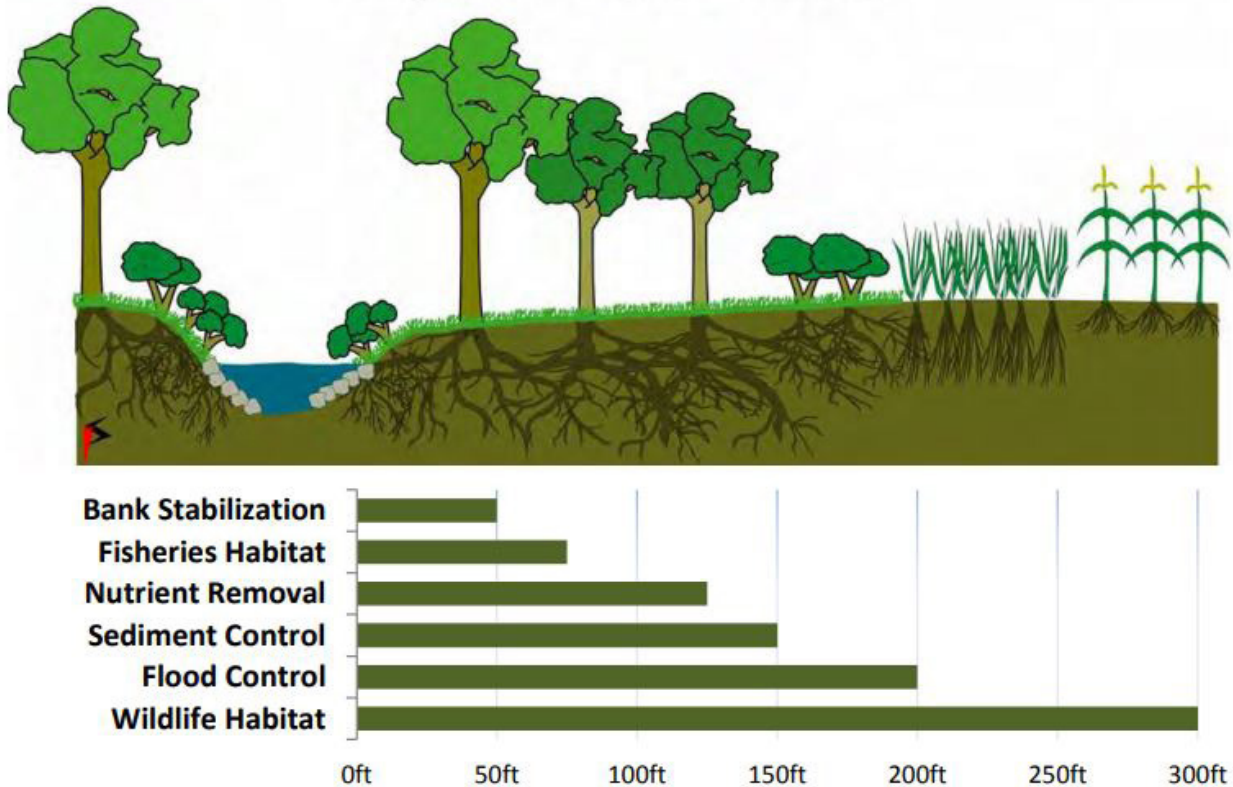
RIVERS AND STREAMS

In total, there are 35 miles of rivers/streams in Franconia which serve as important natural resources. The longest watercourse, the south branch of the Piscataquog River, flows along the entire length of the town from north to south (7.7 miles). This river is protected under RSA 483, the River Management and Protection Program. The town's many cold-water headwater streams, on which the Piscataquog's water quality depends, have no formal protection. Other prominent waterways in Franconia include

Brennan Brook, Collins Brook, Rand Brook, and Whiting Brook. Riparian buffers are vegetative buffers along the shorelines of rivers and streams that protect water quality and prevent soil erosion from adjacent land uses. This vegetative zone serves as a buffer to pollutants entering a stream from runoff and provides important habitat.

While natural riparian buffers have been lost in many places across the state over the years, Franconia has a number of water bodies and waterways that have intact riparian buffers. This presents an opportunity to retain these buffers as land uses change. They are preferred habitat in New Hampshire for species such as the

Riparian Buffer Widths



Source: Spokane Riverkeepers

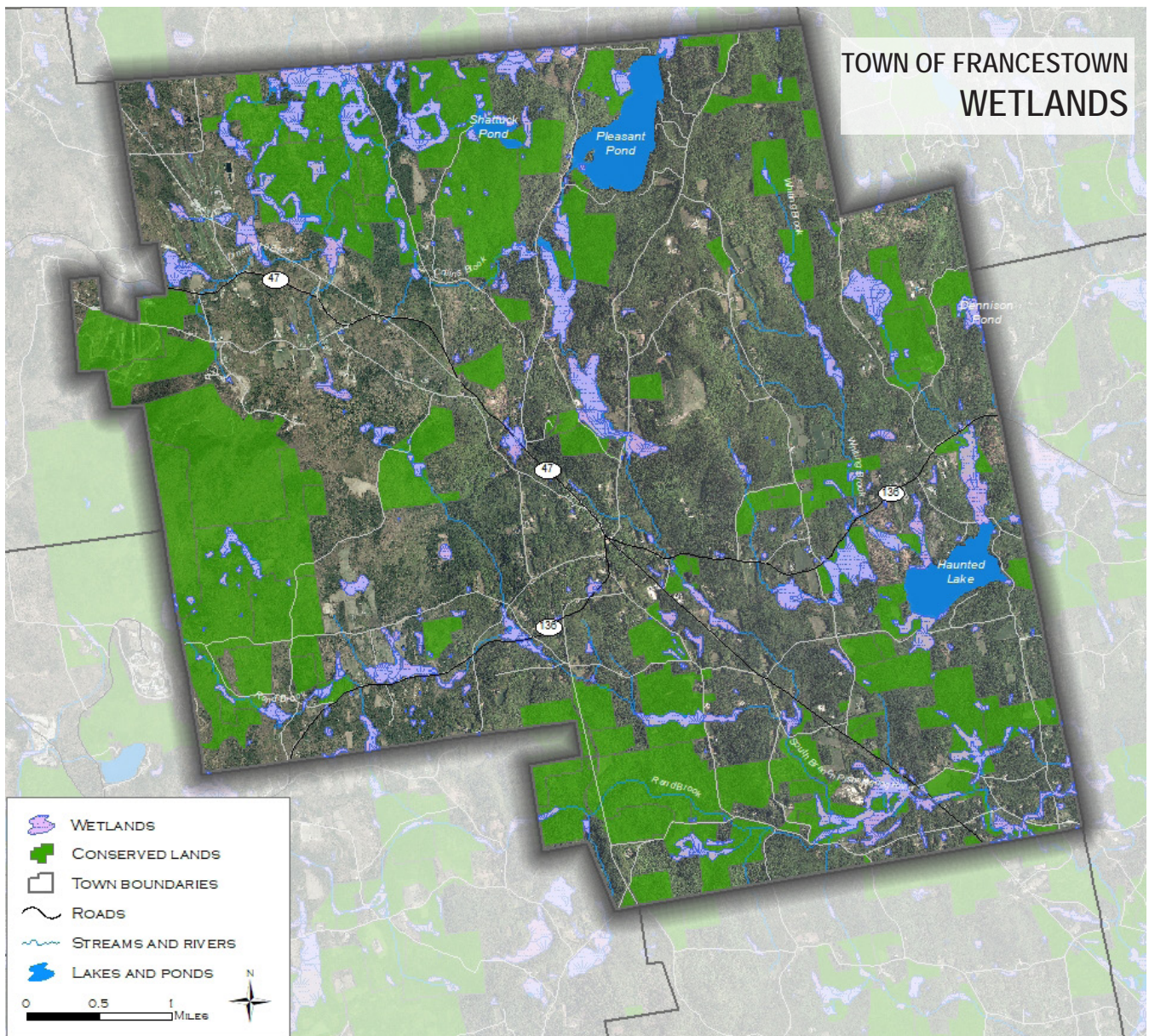
northern two-lined salamander, Fowler's toad, Blanding's turtle, ribbon snake, wood duck, red-shouldered hawk, eastern screech owl, barred owl, red-bellied woodpecker, river otter, mink and others in the state. Restoring them will be an important step forward for clean water, riverbank stability, wildlife, and aesthetics in New Hampshire.

WETLANDS

According to the State of New Hampshire, wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions support, a prevalence of vegetation typically adapted for life in hydric soil conditions. Wetlands can include swamps, marshes, bogs, riverbanks, and floodplains. They are incredibly important natural resources, as they are home to a high diversity of plant and animal species and serve ecological

functions such as feeding downstream waters, trapping floodwaters, recharging groundwater supplies, removing pollution, and providing fish and wildlife habitat. Historically, when human populations view wetlands as unproductive or marginal lands, they are targeted for drainage and conversion. It's important for NH communities to protect water quality by preserving the wetlands still in existence today through sound land use planning practices and policies.

Out of the approximately 1,225 acres of wetlands in Franconia, 42% are located on conserved land, which is a higher percentage than in neighboring communities. They are distributed somewhat evenly throughout the community and can be found on the map on the following page. Most of the wetlands identified through wetlands mapping in Franconia are

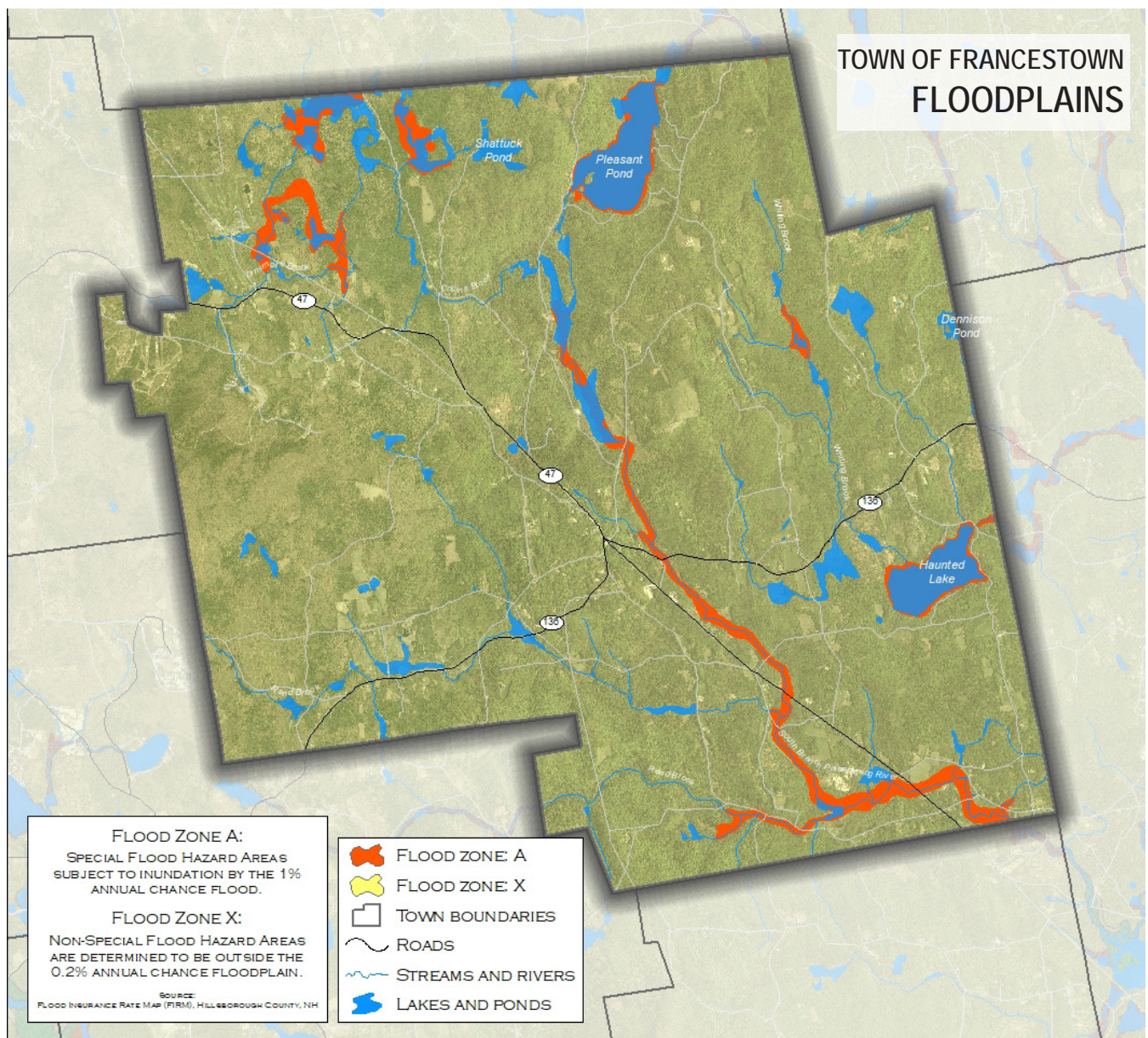


associated with one of the stream networks or ponds in town.

FLOODPLAINS

Floodplains are areas adjacent to rivers, streams, and surface water bodies that are susceptible to flooding during periods of excessive stormwater runoff. The Federal Emergency Management Agency (FEMA) has prepared Special Flood Hazard Area maps for NH communities that identify the 100-year flood areas within a town that may be eligible for federally subsidized flood insurance. These 100-year flood

boundaries are largely associated with the South Branch of the Piscataquog River and Dinsmore Brook. Other areas include the lower Rand Brook to its confluence with the South Branch, a small part of Whiting Brook, various areas within the Dinsmore Brook watershed and Collins Brook watershed, and edges around Haunted Lake/Scobie Pond and Pleasant Pond. Due to the changing frequency and volume of rain events in the state, many communities are looking beyond 100-year floodplain boundaries towards 500-year flood boundaries. In an analysis of NH Granit's floodplain mapping data, it appears that no areas in Frankestown are in the



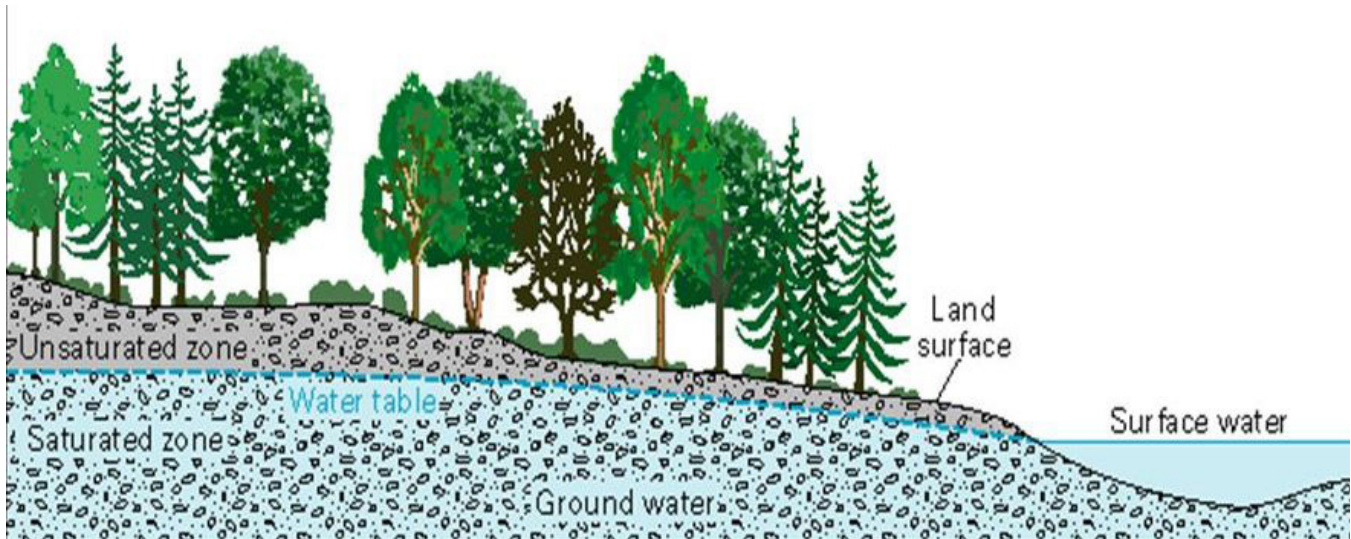
500-year flood boundaries. Frankestown's floodplain can be found on the map titled "Floodplains".

STORMWATER

Stormwater is rainwater or snowmelt that does not infiltrate into the ground. As natural land such as meadows and forests are developed, impervious surfaces are constructed, which may include buildings, roads, parking lots, etc. These surfaces prevent stormwater from soaking into the ground, creating excess stormwater runoff. Stormwater can become polluted when

it runs off streets, lawns, and disturbed or commercial sites if there are fertilizers, dirt, pesticides, oils, or other pollutant present. If polluted runoff is left untreated, it negatively impacts a community's rivers, lakes, and other surface water resources.

Stormwater management is a shared responsibility since our water resources are interconnected (sites upstream impact sites downstream and the cyclical nature of the hydrological cycle). Management activities are required in both rural and urban settings, from single lot to watershed-wide scales,



and through voluntary and regulatory approaches. Francestown can reduce possible threats to its water resource quality from stormwater by managing activities on the landscape within the municipal boundaries. The associated impacts that can occur when communities ignore stormwater related issues include polluted runoff that threatens drinking water supplies, increases in municipal budgets, and burdens on municipal infrastructure. The benefits of improved, integrated, and coordinated stormwater management activities are reduced pressure on municipal infrastructure, greater resilience to droughts and flooding, and healthier water resources.

GROUNDWATER

Groundwater is stored beneath the ground surface in the pore spaces of sand and gravel deposits, and in the fractures of bedrock (see figure above). The source of this groundwater is precipitation (both rain and snow). Rain and melted snow soak into the ground to recharge groundwater. An aquifer is a sand and/or gravel deposit or fractured bedrock area in the ground capable of storing and yielding water in useful quantities.

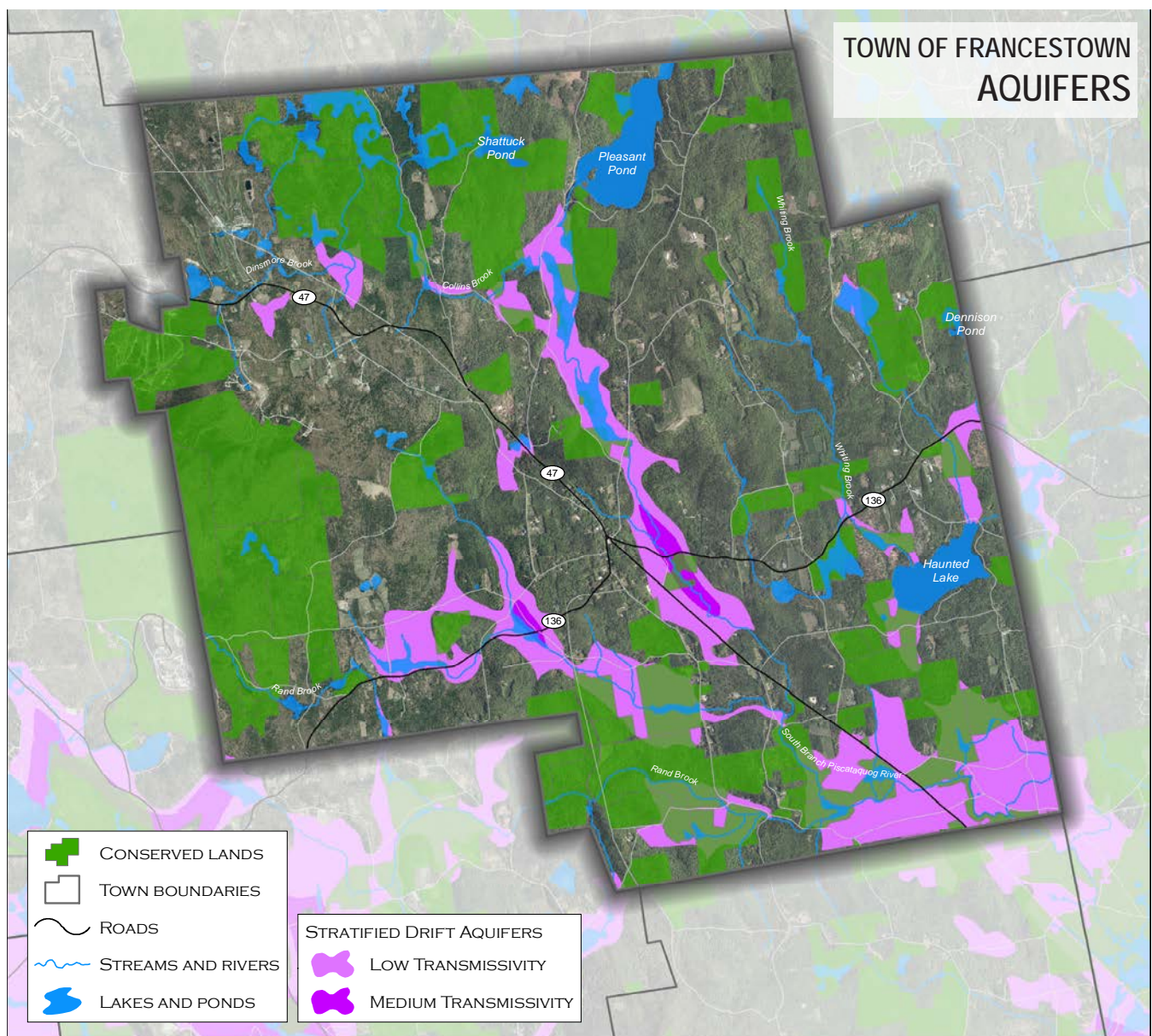
Groundwater is important as it serves as a source of drinking water and it helps maintain the base flows in many rivers and streams allowing them to run even in times of drought. Groundwater in an aquifer is extracted by drilling a well and pumping the water to the ground surface. The Francestown Village Water Company maintains two wells (bedrock) that can be used for production and are located on Oak Hill Road at the intersection of Oak Hill Road and Perley Road. They are blended together and serve as the primary water source for the majority of homes in the Village District. Other public water supply sites in town are located at the Francestown Elementary School, Crotched Mountain, Crotched Mountain Golf Resort, and the Inn at Crotched Mountain. Most of the households and businesses in town are served by private wells.

AQUIFERS

The aquifers located in Francestown are part of the Middle Merrimack River Basin located in south-central New Hampshire with a drainage area of 469 square miles. Ninety-eight square miles, or 21 percent of the basin, are underlain by stratified-drift aquifers. They are located primarily

under the South Branch of the Piscataquog River but can also be found below the Brennan and Rand Brooks and in the Southeast corners of town. Stratified-drift aquifers are very efficient at storing and transmitting groundwater (and can yield large quantities of groundwater to wells) compared to crystalline bedrock wells. Aquifers are often analyzed by their level of transmissivity, which refers to the materials ability to transmit water. Aquifers with higher transmissivity would have a higher volume and flow of groundwater than aquifers with lower transmissivity. According to the Town's

Natural Resource Inventory, the aquifer with the greatest potential as a drinking water source is located perpendicular to New Boston Road under the middle section of the South Branch Piscataquog River as it passes through Francestown. This aquifer is predicted to have a transmissivity rate of 1000 to 2000 cubic feet per day. Another small area with a moderately favorable transmissivity rate includes a section of an aquifer that runs below Muzzey Road as it crosses Greenfield Road in southwest Francestown. Groundwater is vulnerable to many types of contamination such as



industrial and commercial point sources, petroleum product storage and use, fertilizer and pesticide application, individual septic systems, improper animal waste and nutrient management practices, and many others. Despite this, limited regulations exist at the state and federal levels to protect drinking water. Fortunately, towns can authorize regulatory (such as groundwater protection ordinances) and non-regulatory (such as land conservation) groundwater protection mechanisms through local jurisdiction.

WELLHEAD PROTECTION AREAS

Surface Water Protection Areas (SWPAs), or Wellhead Protection Areas (WHPAs) are buffer areas defined in communities to better protect drinking water sources from contamination. This delineated zone is the area where groundwater flows underground to a producing well. The area needed is dependent on the type of well and volume of water withdrawn. The land within these areas is considered important to preserving the quality of groundwater supply, and the permitted land uses should be appropriately defined to avoid contamination.

The Francestown Village Water Company's Source Water Protection Plan also designates a "sanitary protective radius" within each of the Wellhead Protection areas that should receive the greatest attention.



Above: A diagram of a Wellhead Protection Area
Source: City of Auburn, Indiana

PROBABLE SAND AND GRAVEL RECHARGE AREAS

Many communities identify land over aquifers and areas that potentially provide recharge to these aquifers as high priority for conservation to reduce the risk of contamination from development. An aquifer can be utilized as a drinking water supply if the quality of the groundwater is sufficiently free of pollutants and contaminants. As identified in the Hillsborough County Soil Survey, soils characterized by sand and gravel will drain quickly and may provide a direct connection to stratified drift aquifers further underground. These recharge areas are important to retain and protect from contamination to maintain the quality and quantity of water available in the future.



Above: Jack and Margaret Hoffman Wilderness Sanctuary near Campbell Hill Road, Source: Union Leader

Part Three: Threats to Water Resources

INTRODUCTION

Communities across the state face threats to the health of their water resources. As part of the creation of this Master Plan chapter, potential threats to water resources were identified and analyzed. These threats include:

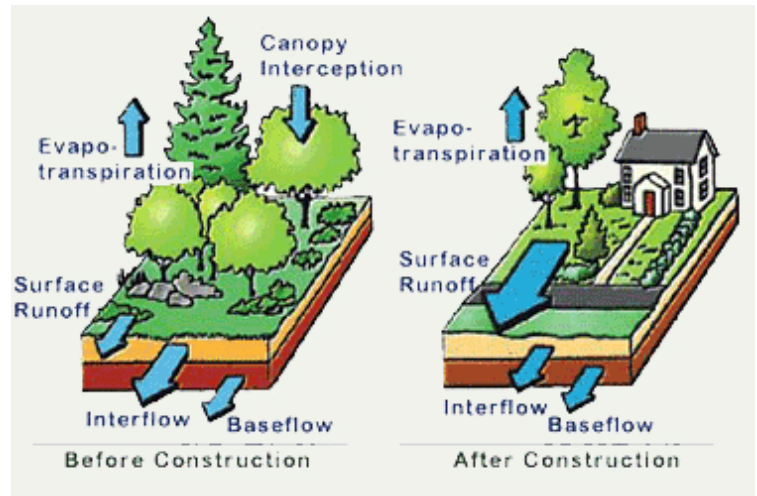
- **Stormwater runoff and non-point source pollution:** NHDES reports that over 90% of the water pollution problems in New Hampshire are caused by the pollutants carried in stormwater runoff.
- **Contamination of water resources due to improper storage of hazardous materials:** To protect Francetown's drinking water and aquatic habitat, measures must be put in place to reduce the risks associated with local contamination.
- **Land use change and development:** Clearing open space for development reduces the capacity for water infiltration and poses erosion risks. These impacts must be mitigated through low impact development techniques.
- **Climate change:** Climate change is increasing the intensity and frequency of flooding and other extreme weather events. Francetown should invest in ways to increase its resilience to these impacts in the future.

POTENTIAL THREATS TO WATER RESOURCES

It is the responsibility of all residents to recognize the role we play in contaminating water sources and to understand proper management of potential contaminants. There are two types contamination sources: point and non-point, as explained below.

NON-POINT SOURCE POLLUTION

Contaminants can enter a water supply through both point and nonpoint pollution sources. Contaminants from point pollution sources discharge directly into a water body at a specific location. This is the less likely threat to Francestown's water supply, because there are no permitted point pollution sources and existing regulations are in place to address these. Nonpoint source pollution involves the diffuse discharge of wastes from sources that are widely distributed and sometimes hard to control. Nonpoint pollution sources can be a more serious concern due to their cumulative impact on surface and ground water quality.



Above: *Hydrology of a Developed and Undeveloped Site*
Source: Brown W. Schuler; "The Economics of Stormwater
BMPs in the Mid-Atlantic Region"

Examples of these include, subsurface disposal systems, roofs and parking areas, hazardous waste sites, salted roadways and salt storage areas, pesticides, fertilizers, motor oil, and excavation. These potential threats can be mitigated through regulatory and non-regulatory mechanisms, and programs that promote low-impact development. The image below (produced by the University of Wisconsin Extension and the Wisconsin Department of Natural Resources) shows how non-point source pollution can impact water bodies in a community.

Below: *Stormwater Runoff Diagram*
Source: Lake George Association



POTENTIAL LOCAL CONTAMINATION SOURCES

In Frankestown, there are a number of potential contamination sources that may pose threats to Frankestown's water supply if nonpoint source pollution is not properly mitigated. The highest density of contamination sites in town is just north of the intersection of Routes 47 and 136. In 2019, The Frankestown Village Water Company published a Source Water Protection Plan to better protect its public water supplies. An analysis of potential sources of contamination was completed to evaluate the specific characteristics of these sites and the level of threat to the Town's water supplies. Some of this information is summarized below and cross referenced with NHDES GIS data. These sites are described in greater detail below:

Automobile service and salvage yards:

According to NH Department of Environmental Services, the primary concern related to active or inactive motor vehicle recycling facilities and auto shops is the potential for groundwater and surface water contamination due to mishandling of vehicular fluids such as gasoline, diesel fuel, oil, transmission fluid, power steering and brake fluids, and gear oil. These facilities may also generate a number of other wastes such as mercury from switch assemblies, lead from lead-acid batteries, chlorofluorocarbons (CFCs) and other refrigerants from air-conditioning units, asbestos, and sodium azide from air bags. Mishandling these wastes can dramatically impact environmental quality.

For example, petroleum hydrocarbons present in gasoline, motor oil, and diesel fuel are toxic to aquatic life and some are suspected or known carcinogens. These pollutants can move off site via stormwater runoff. Heavy metals can also leach into the

soil through corrosion of auto parts, leakage of motor fluids, dismantling operations, and improper handling and storage of vehicle components. These metals can be toxic to wildlife and accumulate in fish and shellfish.

- There is currently an automotive repair shop located within the 2,050-foot radius of the Frankestown Village Water Company's Wellhead Protection area and within the 250-foot wetland and surface water buffer on Oak Hill Road. This site is listed as a Potential Source of Contamination by the NH Department of Environmental Services.
- Frankestown Highway Garage work includes vehicle and equipment repair/service and gasoline/diesel storage which may pose some contamination risks. Gas storage tanks are contained and covered by a structure. This site is within the 1,300-foot radius of the Frankestown Elementary School wellhead protection area and within the 250-foot wetland and surface water buffer.

Adequate management of contaminants and stormwater runoff is crucial to protecting the groundwater supply in these areas.

Hazardous Waste Generators: Hazardous waste generators are properties that store hazardous solid, semi-solid liquid, or contained gaseous waste. Two hazardous waste generators exist in the northern part of Frankestown and are located at Crotched Mountain Ski Area and Crotched Mountain Resort. The hazardous waste generator at Crotched Mountain Resort is located within a 250-foot pond buffer along the 2nd NH Turnpike North and is within the 500-foot radius of the Crotched Mountain Golf Club wellhead protection area.

Underground storage tank sites:

Underground storage tanks are used to store materials such as gasoline and oil that

contains dangerous substances such as benzene, toluene, and heavy metals. There are risks associated with these tanks as toxic chemicals can corrode the tank walls leaking contaminants into soil and groundwater supplies. While NHDES does keep a database of underground storage tank sites and their status, this list is often not current. Because of this, we also supplemented with data provided by the Town. While this list is not exhaustive, some of the underground storage sites are listed below:

- Francestown Village Store has five underground storage tanks, however these have been sealed and are being monitored as a Superfund project for any contamination.
- Francestown Town Offices had one underground tank which was removed in 2007. The surrounding area was tested for contaminants in 2009.
- Francestown Highway Garage also has one underground tank. According to the Francestown Village Water Company's Source Water Protection Plan, activities that occur at the Highway Garage include salt storage, and chemical use and may pose some contamination risks. The garage does store fuel and small quantities of waste oil and antifreeze. Fuel tanks are located within containment and covered by a structure.

Other: Francestown Fire Department:

According to the Francestown Village Water Company's Source Water Protection Plan, the Fire Department falls within the Wellhead Protection Area for the Francestown Elementary School. Currently, NHDES does not classify this site as a potential source of contamination and no large quantities of chemicals are stored at this facility. Should anything change, this site could pose a threat to this wellhead protection area.

Remediation sites: Twelve remediation sites exist in Francestown and include underground storage tank sites where remediation activities were employed. The details of the remediation activities on these sites are likely varied. Additional research must be completed to assess whether any of these sites still pose a threat to water resources.

LAND USE CHANGE

As natural lands become developed, riparian buffers may be reduced and additional stormwater runoff is created through the construction of impervious surfaces. This also reduces the opportunity for stormwater to recharge the groundwater supply. Addressing these issues through low-impact development will help ensure that the quality and quantity of Francestown's water resources remains intact.

Additionally, the presence of highly erodible soils in Town are also a concern as it pertains to water resource protection. Highly erodible soils that are disturbed or are without vegetative cover, have the potential to increase erosion and impair the quality of surface waters through sediment and phosphorus loading. Development can have negative impacts on surface and groundwater supplies if these adverse impacts are not mitigated. Regulatory and non-regulatory mechanisms should be identified and enacted to ensure all future development activity does not impact the water quality in Francestown.

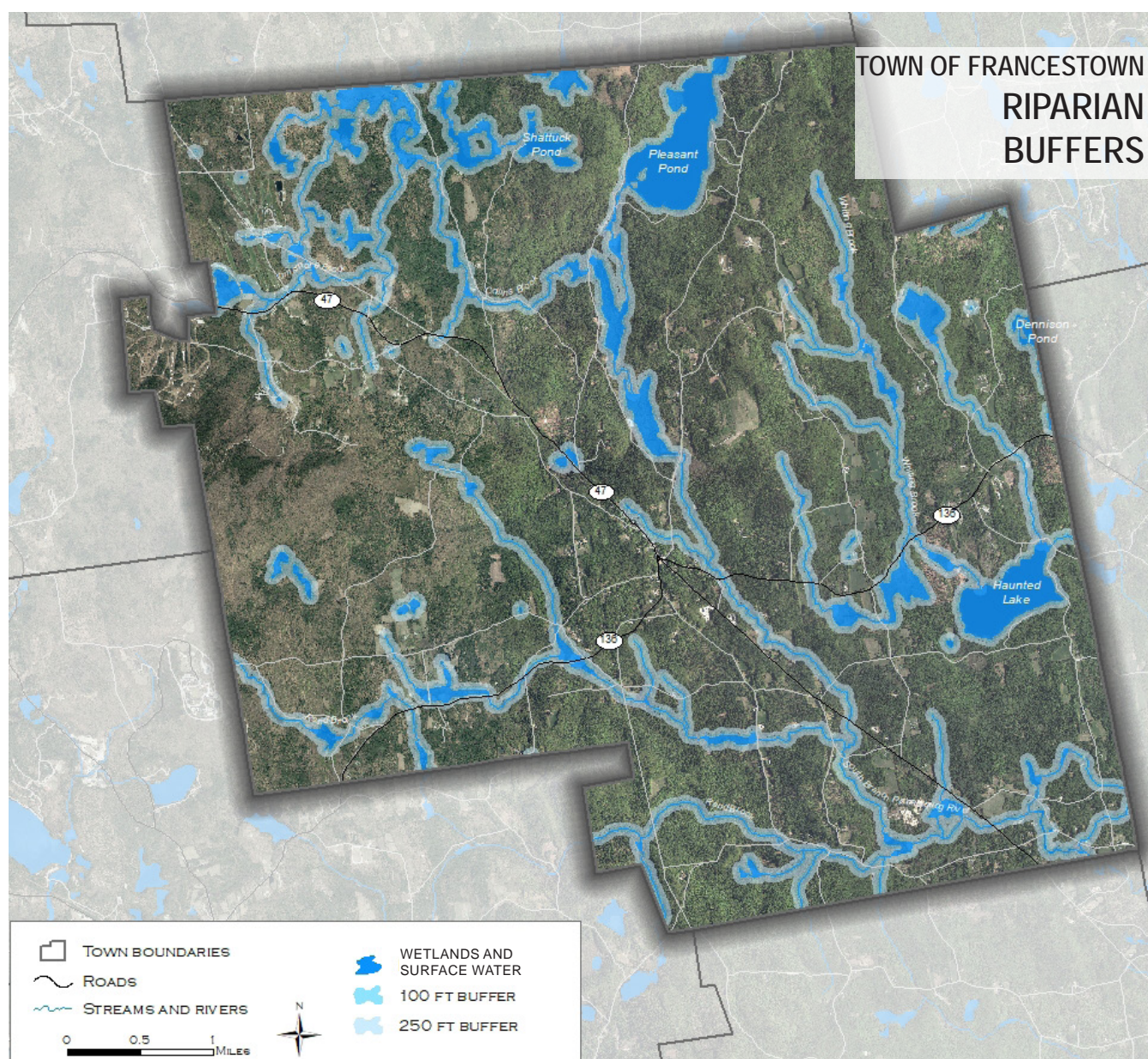
CLIMATE CHANGE

The realities of climate change poses environmental, health, and safety risks associated with more frequent and intense weather events, periods of drought, and flooding. It is important that local communities actively plan to become more resilient against the impacts of climate change in the future. While climate

change is already impacting the state of New Hampshire in many ways, trends that are expected to pressure drinking water supplies include higher temperatures, more intense precipitation events, earlier snow melt, and periods of low stream flows and groundwater levels. These impacts have the potential to effect system operations, water quality, and water availability. Flooding, intense storms, and water quality degradation may also cause physical damage to Francestown's infrastructure, including roads, buildings, etc. Increased loading of nutrients, sediments, and

contaminants with more frequent storms and flooding may lessen water quality over time. As temperatures rise and water supply demand increases, water availability concerns will also increase. Climate change mitigation and adaptation strategies have the potential to prepare Francestown for these threats in the future.

EXISTING WATER RESOURCE PROTECTION REGULATIONS & PROGRAMS



OVERLAY DISTRICTS

Francestown has established a number of zoning overlay districts that work to protect sensitive environmental resources. They include:

Wetlands and Vernal Pool Conservation

District: Land use in this district is regulated to ensure protection of the Town's wetland resources and vernal pools that form during springtime. This district is designed to prevent the development and destruction of naturally occurring wetlands and flood protection areas and to protect unique natural areas, wildlife habitats, potential water supplies, and existing aquifers. The only permitted uses in this district are those that do not require construction of structures, excavation, or dredging, such as forestry, agriculture, and nature trails.

Floodplain District: Land use is regulated in this district to control buildings and use of land on floodplains to prevent unnecessary hazards due to the threat of flooding, to protect natural water flow and drainage, and to encourage uses that can be appropriately and safely located within floodplains. This district includes all land within the Special Flood Hazard area identified in the "Flood Insurance Study for the County of Hillsborough, NH". Certain land uses are prohibited in this district, such as junk and salvage yards, and special exceptions cannot be granted if the proposed use would result in increased flood heights, additional threats to public safety, or extraordinary public expense.

Aquifer Protection District: Land use in this district is regulated to control building and land uses on natural aquifer areas that would contribute to groundwater pollution, to protect local groundwater supply and recharge areas, to preserve present and potential sources of water supply for public health and safety, to prevent unnecessary expenses to the Town, and to encourage uses

that can be appropriately and safely located within aquifer areas. Certain uses are prohibited including automotive service shops and commercial excavation activity and development proposals must meet a set of aquifer protection criterion in order to be approved by the Zoning Board of Adjustment.

Shorelands District: Land use in this district is regulated to control building and land use on shorelands that would result in excessive erosion and surface/groundwater pollution, to protect riparian buffers and water quality, to encourage appropriate uses on shorelands, and to preserve wildlife habitats and corridors. This applies to all land within 500 feet of the mean high water level of Dennison Pond, Haunted Lake/Scobie Pond, Shattuck Pond, and Pleasant Pond, and land within 50 feet of the mean high water level of any other pond or perennial stream. There is a list of permitted uses in this district including single-family detached housing, municipal recreation areas, and wildlife refuges, and a set of shoreland protection standards. These standards regulate septic system siting, minimum water frontage, and more. The riparian buffer map on the previous page shows 100 and 250-foot buffers adjacent to streams and rivers.

ENVIRONMENTAL PROTECTION REQUIREMENTS

The Town's Site Plan Review and Subdivision Regulations require environmental protection standards to be met by developers. These regulate:

- The sizing and location of water supply, wastewater, and sewage disposal systems
- The sizing and location of stormwater drainage systems
- Sediment and erosion control
- Impacts of the proposed development on groundwater supplies
- Site design and subdivision in flood hazard areas



*Above: White Breasted Nuthatch
Source: NH Audubon Society*

Part Four: Implementation Strategies

LOW-IMPACT DEVELOPMENT AND NATURE-BASED SOLUTIONS

Land use choices affect the health of waterways in a community. While Francestown is located in a rural area with a large amount of undeveloped and conserved land, any amount of development has the potential to impair waterways and cause

water pollution. For example, Francestown is seeing increased levels of phosphorus in water quality testing results for Pleasant Pond and Haunted Lake/Scobie Pond, most likely due to non-point source pollution running off roadways and other impervious surfaces.

THE POWER OF NATURE TO PROTECT WATER QUALITY

Maintaining or restoring the capacity of Francestown's landscape (such as its forests, fields, and wetlands) to absorb and filter precipitation improves the health of its rivers, lakes, and streams. There are opportunities to **maintain** water infiltration by strategically protecting the most important natural lands in the community (such as wetlands, vegetated shorelines, and other unique ecosystems, etc.). Additionally, there are opportunities to **restore** the capacity

for water filtration by promoting low-impact development and green infrastructure as a component of future development activity.

Green Infrastructure (GI) includes both natural landscapes and features, such as forests and wetlands, as well as engineered systems that mimic natural ecosystem processes, such as a rain garden.

Low Impact Development (LID) is an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. LID works to preserve the natural landscape, minimize impervious surfaces to keep stormwater close to the source, decentralize drainage infrastructure, and maximize onsite storage, filtration, and infiltration.

Where land is altered by development or redevelopment, low-impact development (LID) techniques can be used to retain and

filter water on the site, which preserves or restores water quality and infiltration. LID techniques have the power to help a site maintain pre-development water conditions and groundwater recharge.

Together, low-impact development and green infrastructure not only manage stormwater and improve groundwater supplies, but also provide other free ecosystem services including cleaner air and water, flood control, shade and energy savings, recreational opportunities, and quality of life. While preserving the community's existing green infrastructure through land protection efforts is the first line of defense against climate impacts such as increased storm frequency and intensity, incorporating low-impact development techniques into site construction projects preserves ecosystem services lost by clearing land and mitigates the negative impacts associated with development.

To better protect its water resources, Francestown should encourage the use of LID techniques and green infrastructure

Below: Rain garden in Hampton, NH
Source: NH Department of Environmental Services



through its land use regulations, modeling LID techniques on municipal properties, and through educating homeowners, developers, business owners, and other members of the community about low-impact development, green infrastructure, and best management practices for stormwater runoff.

TOOLS FOR PROTECTING WATER RESOURCES

MUNICIPAL ACTION

Land Use Policy

Local decision makers, such as Town Staff, the Conservation Commission, the Board of Selectmen, and the Planning Board, play important roles in making sure enough clean water is available for the community and the environment. In order to prioritize and encourage sustainable growth and development in Frankestown, the Town should ensure that the goals outlined in this Water Resources Master Plan chapter are compatible and reflected in Frankestown's land use regulations. Together, these create local priorities for both development and conservation in the community.

The Town should ensure its land use regulations promote smart planning and low-impact development practices such as:



*Above: A vegetative buffer along a shoreline.
Source: Acton Wakefield Watersheds Alliance*

- Limiting the clearing of land and loss of vegetated cover during development.
- Preserving natural vegetation on-site.
- Minimizing paved surfaces that prevent water from soaking into the ground and replenishing groundwater.
- Prohibiting topsoil stripping and earth removal and promoting a minimum 6-inch depth of topsoil on all cleared areas to help retain moisture.
- Limiting topographic alterations and requiring that natural topography be maintained.
- Encouraging the use of permeable paving materials that allow water to soak into, rather than flow over, the surface.

Water Conservation for Municipal Facilities

Many of Frankestown's municipal buildings have undergone extensive upgrades and renovations in the last five years. These include replacing all old plumbing fixtures in the Town Hall, Library, Fire Department, and Police Station. Frankestown's other public buildings, including the Highway Department and the first floor of the Town Offices would be good candidates for these water conservation upgrades as well. Other water conservation measures to consider include:

- Identifying and fixing leaks.
- Upgrading water-using appliances to



*Above: Rain barrel to catch rainwater runoff from roof
Source: NH Department of Environmental Services*

high-efficiency models.

- Adding faucet aerators/self-stopping faucets.

Additionally, improving stormwater management on gravel town roads could also help minimize impacts on water bodies and wetlands.

For **sports fields and landscaped areas** outside public buildings, consider utilizing these practices to reduce water use:

- Water savings start with healthy soils. Add organic material, such as compost, that holds water and provides nutrients to plants.
- Use bark mulch around shrubs and plants to help reduce evaporation, suppress weed growth, moderate soil temperature, and prevent erosion.
- Minimize the use of turf in landscaped areas.
- Where turf is needed (as in sports fields), select grasses that are compatible with the New Hampshire climate such as creeping red fescue, chewings fescue, and hard fescue, all of which are drought tolerant and low maintenance.
- Manage irrigation systems for best water-conservation practices. This might include:
 - Water only when needed.
 - Water early in the day to reduce evaporation.
 - Water deeply and less often to encourage deep root growth.
 - Consider harvesting rainwater. Install rain barrels and use rainwater for landscaping.

Communication

Francestown should communicate the importance of water resource stewardship to local residents through its various communication channels to increase support for water protection efforts. These channels include:

- **Signage:** Place signs that identify source water protection areas and highlight water conservation efforts the Town undertakes.
- **Town Website:** The Town website is a great place to reach out to residents about water resource issues and provide tips for water conservation.
- **Flyers & Mailings:** Use of flyers and mailers can be used to connect with residents in Town about specific water stewardship programs and initiatives.
- **Social Media:** Utilize social media, such as Facebook, to build community and interest around water resource protection projects. Regularly post updates on what the Town is doing to conserve and steward its water resources, and some best practices that residents can implement at home.

Coordinating efforts with other community organizations and departments, such as the Francestown Garden Club, Francestown Land Trust, the Francestown Village Water Company, and the Conservation Commission will build capacity for developing programs to educate and facilitate water smart strategies and nature-based solutions.

HOMEOWNER ACTION

The Town should promote water stewardship resources and best practices to homeowners and residents of Francestown. For example, New Hampshire Department of Environmental Service's Soak Up the Rain program offers a variety of ways to voluntarily manage stormwater runoff from residential properties, including through fact sheets, the NH Homeowner's Guide to Stormwater Management, and other resources found on their website. Best practices for homeowners related to water conservation may include:

- Limit watering the lawn, especially during a drought.
- Minimize landscape water needs by maintaining healthy soil, using mulch around plants, and choosing native plants.
- Implementing indoor water saving tips such as fixing household leaks, choosing high efficiency water saving appliances, and being conscious of turning off the tap when brushing your teeth.
- Install a rain barrel, rain garden, dry well, or other DIY stormwater practice to reduce the amount of stormwater your property releases.
- Consider using less fertilizer to reduce stormwater pollutants.

- Manage and properly dispose of waste oil, paints, and other potential contaminants used on your property.

The following pages outline a detailed action plan for the Town to work towards to protect the quality of its water resources into the future.

**The Planning Board wishes to thank The Francetown Village Water Company for their 2019 Source Water Protection Plan.*

IMPLEMENTATION PLAN

To achieve the goals outlined at the beginning of this chapter, a series of strategies have been recommended for the Town to invest and engage in. These are organized under the following categories:

- **Land Use Regulations:** The community’s land use regulations and policies have the potential to positively or negatively impact water resources in Francetown. These recommendations are focused on how best to improve Francetown’s zoning, site plan, and subdivision regulations to protect water quality in Town.
- **Strategic Land Conservation and Water Protection:** Strategically protecting land that contains sensitive natural resources can help ensure Francetown preserves its wildlife habitat, water storage capabilities, and other critical ecosystem services.
- **Education and Outreach:** These strategies focus on increasing educational opportunities related to local water resources in Town and their importance to the community. Stewardship begins with a care for the land and teaching others about protecting water and why it’s important.
- **Training and Emergency Response:** Communities are more resilient to natural disasters, such as flooding, when they are prepared to handle emergencies swiftly and efficiently. These strategies focus on emergency response systems related to Francetown’s water resources.
- **Water Body Specific:** These strategies focus on tactics to improve or maintain water quality of specific surface waters.

ORGANIZATION

The table on the following page outlines the recommended strategies to achieve the Town’s goals related to water quality protection, enhancing resiliency, and mitigating threats to water resources. Each action includes information about who is responsible for completing the action, potential partners to achieve that action item, the proposed timeframe for completing the action item, and a column for tracking the status and progress of the action of item. The timeframe column identifies when the action item should be completed, utilizing the following categories:

- **Short-Term:** Year 1 to Year 2
- **Mid-Term:** Year 3 to Year 5
- **Long-Term:** Year 5+
- **Ongoing:** Year 1-5+

Land Use Regulations				
Action	Responsible Party	Partners	Timeframe	Status
Develop and adopt a Wellhead Protection Ordinance to complement the Aquifer Protection District already in place. Ensure that these new regulations exclude incompatible uses from Wellhead Protection Areas (WHPAs).	Planning Board, Conservation Commission	Francetown Village Water Company (FVWC)	Short-Term	
Review and revise land use regulations to encourage/require Low Impact Development (LID) solutions, such as green infrastructure systems and permeable pavement during development and redevelopment activity to the greatest extent possible.	Planning Board	N/A	Short-Term	
Riparian buffers are vegetative buffers along the shorelines of rivers and streams that protect water quality and prevent soil erosion from adjacent land uses. Assess/adopt land use regulations requiring a vegetative riparian buffer along all surface waters including ponds, lakes, streams, rivers, and wetlands. Ensure that the new regulatory language states that this will support biodiversity and water quality, and should include native plantings.	Planning Board	Conservation Commission	Short-Term	
Review and update the language in the Wetland Conservation Overlay District regulations. Consider requiring a larger shoreline buffer for the permitted activities in this overlay district.	Planning Board	Conservation Commission	Short-Term	
Review existing land use regulations related to the protection and stabilization of highly erodible soils and steep slopes and identify areas where they can be strengthened.	Planning Board	N/A	Mid-Term	
Review the uses, setbacks, and construction criteria allowed within the 100-year flood boundaries in Town. Consider additional restrictions, such as limiting uses and the construction of new structures to ensure flood protection, flood storage capacity, and to protect water resources within floodplain areas as climate change impacts continue to increase the frequency and intensity of storms.	Planning Board	Conservation Commission	Mid-Term	
The Shorelands District applies to all land within 500 feet of the mean high water level of Dennison Pond, Haunted Lake, Shattuck Pond, and Pleasant Pond, and land within 50 feet of the mean high water level of any other pond or perennial stream. Review the Shorelands District provision in the Zoning Ordinance and identify opportunities to include a vegetative buffer requirement and other potential best management practices.	Planning Board	Conservation Commission	Short-Term	

Action	Responsible Party	Partners	Timeframe	Status
Strategic Land Conservation and Water Protection				
The Town's many cold-water headwater streams, on which the Piscataquog's water quality depends, have no formal protection. Identify conservation opportunities in collaboration to protect the Piscataquog's water quality.	Conservation Commission	Planning Board, Francestown Land Trust (FLT), other potential land protection partners	Ongoing	
Conserve the remaining land around Scobie Pond.	Conservation Commission	FLT, other potential land protection partners	Ongoing	
Wetlands, aquifers, and public water supplies are also high priorities for conservation. These recharge areas are important to retain and protect from contamination to maintain the quality and quantity of water available in the future. This includes assisting the FCC, FLT, and FWWC with the identification, prioritization, and purchase of parcels within wellhead protection areas and over aquifers so they may be permanently protected.	Planning Board	Conservation Commission, FLT, FWWC	Ongoing	
Continue working with NHDES and their Volunteer Lake Assessment Program to regularly monitor the quality of Francestown's water bodies. Review water quality data to monitor levels of phosphorus, and other nutrients and contaminants.	Planning Board	NHDES, Scobie Lake and Pleasant Pond Associations	Ongoing	
Explore NHDES's drinking water specific grant opportunities to protect public water supplies.	Conservation Commission	NHDES, FLT, Planning Board	Ongoing	
Education and Outreach				
Support FWWC efforts to bring source water protection lessons into local schools. Consider utilizing lessons developed by NH Fish and Game's Watershed Education program, NHDES's educational resources, and NH Lake's Watershed Warrior program.	Town Staff	Planning Board, NHDES, FWWC, NH Fish and Game	Short-Term	
Connect school teachers in Francestown with NHDES's "Project WET", an interdisciplinary environmental education program that focuses on water and people's relationship with it. The program includes curriculum on water education training and materials to promote youth and community awareness, appreciation, knowledge, and stewardship of water resources.	Planning Board	NHDES	Short-Term	

Action	Responsible Party	Partners	Timeframe	Status
Provide best management practice information to Highway and Fire Departments. Utilize NHDES's Clean Drinking Water Brochure and their "Best Management Practices for Groundwater Protection".	Town Staff	Planning Board, FWWC, Conservation Commission	Short-Term	
Identify best management practices and alternative materials aimed at reducing phosphorous loading in Frankestown's surface waters and share this information with property owners and applicants.	Town Staff	Planning Board	Short-Term	
Promote NRCS's technical assistance program on the Town's website and in Town Hall which prioritizes land and water conservation practices on private working lands designed to protect public and private drinking water supplies. Technical services are offered to agricultural lands, forest lands, and lands with conservation easements and include waste storage facilities, nutrient management, cover crops, vegetated treatment areas, riparian forest buffers, filter strips, well water testing, forest management planning, and more.	Town Staff	N/A	Short-Term	
Provide outreach and education opportunities to homeowners related to household hazardous waste collection on the Town website and at municipal locations.	Town Staff, Waste Disposal Committee	Planning Board, Regional Planning Commission	Short-Term	
Install signage that identifies drinking water source protection areas in the community.	Town Staff	Planning Board, FWWC	Short-Term	
Promote New Hampshire Lake's "Lake Smart" Program, which is an education, evaluation, and recognition program that is free, voluntary, and non-regulatory. It includes an evaluation process for homeowners to determine how lake-friendly their property and activities are and covers driveway and parking areas, structures, and yard and play areas. For properties along the water, the shoreline and shallow water areas of the lake are included. Participants may include individual homeowners, homeowner associations, watershed organizations, and businesses.	Town Staff, Planning Board	Conservation Commission, NH Lakes, Scobie Pond and Pleasant Pond Associations	Mid-Term	
Consider implementing a municipal rainwater harvesting program that distributes rain barrels at a discounted cost for capturing rainwater for yard and garden use. Check out the Great American Rain Barrel Company for information on how to start a community rain barrel program.	Town Staff	Sponsors, Grant Funders	Mid-Term	

Action	Responsible Party	Partners	Timeframe	Status
Partner with other town and community organizations to host Public Education Workshops related to water resource stewardship and source water protection. Partner with New Hampshire Lakes or NHDES to offer virtual or in person presentations on topics such as water friendly landscaping and water quality protection. Partner with the Francestown Garden Club and the Francestown Elementary School to create educational programs, workshops, or classes on water efficient landscaping.	Planning Board, Town Staff, Conservation Commission	School District, Recreation Department, Francestown Garden Club, FVWC	Mid-Term	
Provide educational materials related to water protection, best management practices, climate change, and stewardship to homeowners in Francestown. Post the New Hampshire Homeowner's Guide to Stormwater Management and Landscaping at the Water's Edge on the Francestown website and promote its use to homeowners in Francestown to encourage individual efforts to recharge aquifers by slowing and infiltrating stormwater. Offer information on water conservation measures for the home (such as low flow fixtures, behavior change, etc.) on Francestown's website.	Planning Board, Town Staff	Conservation Commission, FVWC, FLT	Mid-Term	
Create Low Impact Development (LID) demonstration projects on municipal sites (such as Town Hall, the Library, or the School) and with other partners. These may include rain gardens, bioswales, rainwater catchment systems, and other stormwater management strategies. Explore NHDES's LID project planning for stormwater management web page for tips on how to start a DIY project. Consider small grant opportunities to cover the costs or recruiting a corporate sponsor.	Planning Board, Conservation Commission, Town Staff	NHDES, Sponsors, Grant Funders	Long-Term	
Training, Emergency Response, and Climate Change Resiliency				
Provide all PCS locations with contact information for emergencies and direct personnel to report a spill of any size immediately to the District and local emergency responders	Town Staff	FVWC, Emergency Responders	Short-Term	
Inventory existing culverts and identify specific culverts that are under-sized or compromised and should be replaced to enhance flood resiliency and aquatic habitat connectivity.	Town Staff	Regional Planning Commission	On-going	
Update Emergency Response, Vulnerability Assessments and Contingency Plans as an on-going effort.	Town Staff	FVWC, Board of Selectmen	Ongoing	

Action	Responsible Party	Partners	Timeframe	Status
Rising concentrations of chloride from salt applications have been identified in New Hampshire waters, which can be toxic to some aquatic species and can impart a salty taste in drinking water supplies. One of the best ways to prevent chloride from reaching surface waters and groundwater is to reduce the amount of salt applied to our road surfaces without compromising safety. Promote participation in the Green Snow Pro certification program for all public and private sector winter maintenance operators in Franconia to insure there is a decrease in salt used.	Road Agent	Board of Selectmen	Short-Term	
Communicate directly with the local Police and Fire Departments to ensure that they remain aware of the drinking water source locations and necessary protective measures.	Town Staff	Police and Fire, FWC	Ongoing	
Conduct emergency response exercises periodically with local emergency responders.	Town Staff	Police and Fire, FWC	Ongoing	
Municipal Water Conservation				
Implement water conservation practices for indoor municipal facilities (referenced on page 27).	Town Staff	Board of Selectmen	Ongoing	
Implement water conservation practices for outdoor municipal facilities (referenced on page 27).	Town Staff	Board of Selectmen	Ongoing	
Improve stormwater management on gravel roads to help minimize impacts on water bodies and wetlands.	Highway Department	Board of Selectmen, NHDES	Ongoing	
Water Body Specific				
Identify how to best reduce phosphorus loading into Pleasant Pond.	Conservation Commission	NHDES, , Pleasant Pond Association	Mid-Term	
Implement the identified strategies in the 2019 NHDES Total Maximum Daily Load Report for Haunted Lake/Scobie Pond to reduce high levels of chlorophyll and phosphorus. This includes preserving the wetlands around Haunted Lake/Scobie Pond, improving stormwater drainage systems throughout Town (including infiltration and bioretention best management practices), and promoting low-impact development standards around the lake (such as maintaining a vegetative buffer along the shoreline, minimizing disturbance areas, and limiting impervious surfaces).	Conservation Commission, Planning Board	NHDES, Town Staff	Long-Term	

Preserve water quality in both Shattuck Pond and Dennison Pond through a combination of land conservation and promoting/requiring low-impact development techniques.	Planning Board, Conservation Commission	Fracestown Land Trust, Monadnock Conservancy, other potential land protection partners	Long-Term	
Continue to monitor and support prevention (Pleasant Pond) and eradication (Scobie Pond) efforts for milfoil on town ponds.	NHDES	Town Staff	Ongoing	