

SUMMARY OF MUNICIPAL PLANS & BYLAWS
THE SUDBURY, ASSABET, & CONCORD WILD & SCENIC RIVER
CONSERVATION PLAN UPDATE

For the Massachusetts Municipalities of
Bedford, Billerica, Carlisle, Concord, Framingham, Lincoln, Sudbury, and Wayland

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SUMMARY OF MUNICIPAL PLANS & BYLAWS

THE SUDBURY, ASSABET, & CONCORD WILD & SCENIC RIVER CONSERVATION PLAN UPDATE

1.0 Introduction

This report summarizes plans and regulations for the eight municipalities along The Sudbury, Assabet, & Concord Wild & Scenic River (SuAsCo WSR, Figure 1). This report has been prepared in support of The Sudbury, Assabet, & Concord Wild & Scenic River Conservation Plan Update (Conservation Plan) being prepared by The Sudbury, Assabet, & Concord Wild & Scenic River Stewardship Council (RSC). The Conservation Plan is an update of the River Conservation Plan prepared in 1995 as part of the Sudbury, Assabet and Concord Wild and Scenic River Study authorized by the United States Congress in 1990 pursuant to Public Law 101-628 (NPS, 1995).

The National Park Service (NPS) designation of the SuAsCo WSR as a Partnership Wild and Scenic River indicates the rivers' Outstandingly Remarkable Values (ORVs) documented in the 1995 Study are to be protected by a partnership of regulatory entities and organizations. Primary river protection is afforded by the U.S. Army Corps of Engineers (USACE), which specifically requires RSC/NPS review of permit applications concerning the WSR. The eight municipalities along the designated WSR also protect river ORVs through planning, zoning, permitting and infrastructure management. The eight municipalities are:

- Town of Bedford
- Town of Billerica
- Town of Carlisle
- Town of Concord
- City of Framingham
- Town of Lincoln
- Town of Sudbury
- Town of Wayland

These municipalities are members of the RSC, each with a representative and an alternate appointed by the Board of Selectmen. The other voting members of the RSC are representatives of the Commonwealth of Massachusetts, the Sudbury Valley Trustees (SVT), OARS (formerly Organization for the Assabet River (OAR)), the U.S. Fish and Wildlife Service (USFWS) and the NPS.

Each municipality helps to protect the designated Wild & Scenic River segments through implementation of their local ordinances / by-laws such as zoning and land development, through long-term planning, and through non-regulatory efforts such as education and the acquisition of parcels for conservation or recreational access. This report evaluates the local plans and regulations that help protect the rivers, and identifies additional protection measures for consideration.

Federal and state laws provide significant protection to the rivers and provide a foundation for local protections as well; key federal and state laws are therefore briefly described at the outset of this report. For each of the eight member communities, this report provides a summary of community plans and municipal bylaws that relate to the use, protection, and/or management of the study rivers, and identifies potential areas for improvement.

This report begins in Section 2 with a description of the methods used to collate and summarize the municipal information. The following Section 3 summarizes key federal and state laws and programs that directly or indirectly afford river protection. Section 4 provides a summary overview for all municipalities, including a summary matrix to facilitate comparison. The report concludes in Section 5 with a municipality by municipality summary of relevant plans and by-laws, including recommendations for each municipality for improved resource protection in the study area. Appendix A to this report provides an index to the Code of Massachusetts Regulations (CMRs) with internet links to the regulations and with certain relevant sections highlighted. Appendix B contains surface water quality classification map and table for the SuAsCo Watershed from 314 CMR 4. Appendix C provides zoning and future land use maps for the eight municipalities. Appendix D provides copies of key by-laws for each municipality.

2.0 Methods

2.1 Regulatory Review

The National Park Service Wild and Scenic River (WSR) Program guidance (NPS, 2018) was reviewed along with material provided by the RSC including the 1995 Conservation Plan and the Sudbury, Assabet, and Concord Wild and Scenic Rivers: Unprotected Land Inventory 2015 Update (SVT, 2015). Each municipality's master plan, by-laws, zoning, and land development regulations were obtained and reviewed as they relate to the WSR protection. Regulations that appear irrelevant to the study because of subject matter or relevance outside the study rivers' watersheds were not reviewed. Important federal and state laws are summarized in Section 3, including those which form the basis of regulations implemented at the state and local level. Common elements of municipal plans and regulations are summarized below in Section 4 by subject matter or category. For each of the eight SuAsCo WSR member communities, relevant portions of municipal plans and regulations are summarized in Section 5. Maps depicting zoning, future land use plans, conservation lands and water resource constraints were evaluated for the WSR watershed areas in each community, focusing on the lands closest to the rivers.

Regulatory protection of WSR segments are summarized for each municipality along with recommendations for improved protection.

The review of municipal plans and regulations varies by municipality in accordance with the relevancy of the subject matter to the specific river / watershed conditions. For example, Bedford has significant river protection afforded by the Great Meadows National Wildlife refuge, and so land development regulations are not discussed in the same depth as communities such as Carlisle where future development has a greater potential to affect Wild & Scenic River values.

2.2 Watershed Approach

The SuAsCo WSR Conservation Plan and subsequent work by the RSC members has intentionally avoided the delineation of a specific Wild & Scenic River “Corridor” in favor of a more holistic approach that considers the rivers (waterbodies), riverside properties, and the river’s watersheds as interrelated components important to the protection of SuAsCo WSR values. An evaluation of local plans and regulations for each of the 33 municipalities with land in the SuAsCo WSR watershed is beyond the scope of this report. For the 25 municipalities that are not SuAsCo WSR member communities, the importance of land development and water resource management to the WSR is related to water quality, water quantity (both flooding and low flow conditions), and biota / natural communities. Increased development outside the member communities will also increase recreational use of the waterways.

2.2.1 Watershed Characteristics

Various watershed characteristics are depicted on Figures 2 – 9 to provide some context for a broader view of the area contributing flow to the SuAsCo WSR. These watershed-wide maps are based on the most recent data available through the Massachusetts Geographic Information System (MassGIS). Table 1 provides a breakdown of the SuAsCo WSR watershed areas by municipality and by major sub-watershed (Sudbury, Assabet and Concord subwatersheds as depicted on Figure 2). The watershed-wide maps also provide a context for understanding the federal and state protections described below.

2.2.2 Growth and Development in the SuAsCo WSR Watershed

In March of 2015, the UMass Donahue Institute prepared the publication: Long-term Population Projections for Massachusetts Regions and Municipalities. Prepared for the Office of the Secretary of the Commonwealth, it provides population projections for municipalities and regions in Massachusetts at 5-year intervals until 2035. The SuAsCo WSR watershed municipalities are in the Metro West Region. Their growth averaged about 0.5% from 2000 to 2010 in the region and the report predicted growth rates up to 1% per year through 2015. Thereafter, projections indicate a lower growth rate of between 0.25% and 0.35% annualized average.

Table 2 provides population history taken from the U.S. Census for 1980 through 2010 along with projections from UMass for each of the municipalities in the region. The total population within the watershed municipalities, including land in and outside of the watershed, was 571,389 in 2015. It is projected to rise to 609,377 by 2035; an increase of 37,988 persons or 6.65% over the next 20 years. That equates to an equalized annual rate of about 0.33% per year.

The UMass report says, of the region:

“The continuing growth of the Metro West region will be the result of a combination of factors: increasing domestic in-migration coupled with slight decline in domestic out-migration from 2015 forward; continued positive net international immigration; and a slight increase in new births in the near term—with steady levels continuing throughout the period. This growth will be partly offset by a steady rise in the number of deaths, coinciding with the region’s aging population.”

It also says:

“The region is still expected to lose more domestic migrants than it gains between 2015 and 2035. Most of this out-migration will be among college students and retiring baby boomers, although there will be far fewer residents approaching college age (15-19 years old) in the next two decades than in the recent past.”

Overall, the projections indicate that modest growth can be expected in the Metro West Region, including the watershed municipalities, but no population “boom” is anticipated. Growth is generally concentrated in the headwaters along the 495/Route 9 axes, and is not evenly distributed. Table 2 population projections show that all of the watershed municipalities are anticipating some growth within and outside the watershed.

3.0 Federal and State Protection

Regulatory protection of rivers and watersheds is based on state and federal statutes, regulations, policies and plans. This section describes key regulations at the federal and state level that protect SuAsCo WSR values. In some cases the regulations described below provide direct protection without significant local responsibility for implementation; in many cases the regulations delegate implementation to the municipal government (the National Flood Insurance Program, for example). In many instances the regulatory protections afforded to a particular resource involve multiple jurisdictions and authorities. This section begins with a brief listing of some of the more important federal laws, followed by descriptions of the protections afforded by the Commonwealth of Massachusetts.

3.1 Federal Protection

3.1.1 Wild and Scenic Rivers Act (WSRA)

The federal Wild and Scenic Rivers Act (Public Law 90-542; 16 U.S.C. 1271 et seq.) established the National Wild and Scenic Rivers System “... to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development.” (USFWS, 2018). The act includes a process for the addition of new rivers to the National Wild and Scenic River System as referenced in Section 1 of this report. “Congress has specified in some Wild and Scenic River designations, that rivers are to be administered by the Secretary of the Interior through the NPS in partnership with local governments, councils, and non-governmental organizations, generally through the use of cooperative agreements. In these Partnership Wild and Scenic Rivers communities protect their own outstanding rivers and river-related resources through a collaborative approach.” (NPS, 2018)

Once a river is accepted into the System, the WSRA affords those rivers additional protection in regard to federal activities.

Section 7(a) states in part that the he Federal Energy Regulatory Commission: [FERC] shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, as amended, on or directly affecting any river which is designated in section 3 of this Act as a component of the national wild and scenic rivers system or which is hereafter designated for inclusion in that system, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation of a river as a component of the national wild and scenic rivers system.

The standards for FERC project review are somewhat more stringent than for other federal agencies. Section 7 review applies to all federal actions in the designated wild and scenic rivers and their corridors. Compliance with Section 7 is the responsibility of each federal agency; guidance to assist federal agencies is provided by NPS. In cases where the NPS is the administrative or management responsibilities for the WSR, the

NPS prepares a Section 7 Determination for the federal agency, and identifies circumstances where a Section 7 Determination is not required.

Section 11(b)(1): The Secretary of the Interior, the Secretary of Agriculture, or the head of any Federal agency, shall assist, advise, and cooperate with States or their political subdivisions, landowners, private organizations, or individuals to plan, protect, and manage river resources. . . . This authority applies within or outside a federally administered area and applies to rivers which are components of the Wild and Scenic Rivers System . . .

While the act includes similar mandates for federal agencies to assist, advise and cooperate with river management in furtherance of WSRA goals, specific standards for resource protection are not provided in the act. In practice specific resource protection by federal agencies pursuant to WSRA is realized through application of existing federal protections consistent with the river specific management plans.

3.1.2 Rivers and Harbors Act

Section 10 of the federal Rivers and Harbors Act of 1899 prohibits the “creation of any obstruction... to the navigable capacity of any of the waters of the United States” (33 USC 403). It prohibits certain specific construction (piers, breakwaters, bulkheads, etc.) and excavation or filling in general, unless authorized by the U.S. Army Corps of Engineers (USACE). The law applies to all navigable waters of the United States, even outside of areas specifically designated for navigation. The current definition of navigable waters is contained in the USACE regulations (33 CFR § 329), which begins with the cautionary note that “Precise definitions of “navigable waters of the United States” or “navigability” are ultimately dependent on judicial interpretation and cannot be made conclusively by administrative agencies.” (33 CFR § 329.3), This law is administered by the USACE through a permit program that includes federal wetland permitting pursuant to section 404 of the federal Clean Water Act as described below in section 3.16. Although the federal definition of both navigable waters and waters of the United States have been the subjects of various important Supreme Court cases over the past fifty years, it is clear that the Assabet, Concord and Sudbury Rivers are navigable waters pursuant to Section 10.

3.1.3 National Environmental Policy Act (NEPA)

NEPA requires that all federal agencies consider the environmental impacts of their actions. Each federal agency has implementing regulations that are followed to ensure NEPA compliance. Major federal actions are reviewed before they are implemented, and if found to have a potential for significant impact, an environmental impact statement (EIS) must be prepared. Agency regulations may allow an environmental assessment (EA) to be prepared in cases where impacts are not as severe or may be reasonably lessened through impact mitigation. NEPA requires agencies to evaluate all reasonable alternatives to the proposed action, the impacts of these alternatives, and actions to avoid and mitigate foreseeable impacts.

NEPA requires agencies to prepare EISs and EAs with input from other government entities and the public.

Major federal actions that may trigger an EIS or EA include expenditure of federal transportation funds, dredging a river or harbor, or funding of sewage treatment system improvements for example. Agencies generally have procedures in place to ensure that most of their projects are developed in a way that avoids significant impacts such that an EA or EIS is not required. For example, most federal highway drainage projects are done in a manner that qualifies them as a Categorical Exclusion (CE) pursuant to NEPA. It is important to understand that projects conducted by state agencies such as the Massachusetts Department of Transportation receive major funds from the federal Department of Transportation and must therefore comply with NEPA.

3.1.4 Historic Preservation Act

Section 106 of the federal Historic Preservation Act requires that federal agencies consider the impacts of their actions on historical and archaeological resources. Whether officially designated or not, properties that are eligible for listing on the National Register of Historic Places are protected. Such resources must be at least 50 years old and must be in a condition that is deemed to have historic / cultural value. Federal actions that involve soil excavation must often consider the potential presence of archaeological resources of cultural importance. Compliance with section 106 often involves a number of steps involving survey of protected resources, measures to avoid impacts to those resources, and if impacts are unavoidable, measures to recover and/or otherwise preserve the affected resource. Historic and archaeological resources occur throughout the SuAsCo Watershed; the rivers themselves are rich in these resources because of the importance of these rivers to all people who have lived in the area as well as the rivers' importance to regional trade and commerce.

3.1.5 National Flood Insurance Program

The National Flood Insurance Program (NFIP) provides federally subsidized flood insurance to homeowners and businesses. To be eligible to participate in the program, a local government (municipality) must enact laws that restrict development in flood hazard areas. The delineation of flood hazard areas is done by the Federal Emergency Management Agency (FEMA) and published on Flood Insurance Rate Maps (FIRMs). FEMA designated 100-year flood hazard areas in the SuAsCo WSR watershed are depicted on Figure 6. FEMA also sets the regulatory requirements municipalities must enact. The regulations generally prohibit filling and new development in the 100-year floodplain unless there is compensatory floodwater storage provided. FEMA requires buildings damaged by flood events to be rebuilt in a way that helps protect them from future flood events. A municipality that does not enforce the required flood hazard regulations may jeopardize the ability of individual homeowners and businesses in the community to obtain flood insurance. The local building official or zoning officer is typically empowered to administer flood hazard regulations at the local level.

3.1.6 Clean Water Act

The federal Clean Water Act (CWA) regulates many activities affecting the SuAsCo WSR. It sets goals that waters of the United States should be fishable and swimmable and generally suitable for public water supply. The most important CWA protections involve regulation of point source discharges of wastewater (municipal sewage, industrial pollutants, stormwater outfalls), non-point sources of pollution such as stormwater runoff from farms and urban areas, and the destruction of wetlands by filling. The CWA requires treatment of wastewater before discharge; funding of municipal sewage treatment plant construction and upgrade under the CWA was the largest public works expenditure in U.S. history (but this federal funding is no longer available). The U.S. Environmental Protection Agency (EPA) has primary authority for CWA implementation including the important role of setting water quality criteria and standards. Point source discharges are regulated pursuant to the National Pollutant Discharge Elimination System (NPDES). “In the Commonwealth of Massachusetts, the Environmental Protection Agency (EPA) is the permitting authority and NPDES permits are typically co-issued by EPA and the Department of Environmental Protection (MassDEP)” (MassDEP 2018). There are five major wastewater treatment plants upstream of the WSR that have discharges regulated through the EPA's NPDES program. The municipal Wastewater treatment plants of Wayland and Concord discharge directly into the WSR. Improved treatment required under the Clean Water Act has resulted in a significant decrease of water pollution..

Section 404 of the CWA gives primary authority over “filling waters of the U.S.” to the U.S. Army Corps of Engineers (USACE), with EPA given significant oversight authority over the USACE. The Department of the Interior’s U.S. Fish and Wildlife Service (USFWS), Department of Commerce National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS) and the Department of Agriculture’s Natural Resources Conservation Service (NRCS) have roles as key resource agencies in addition to EPA consulted by USACE in its 404 permit program. Wetlands, rivers and other waterbodies deemed “waters of the U.S.” are regulated under section 404. In Massachusetts the USACE has issued a General Permit (Programmatic General Permit) that effectively allows Massachusetts to be the primary permitting authority for minor activities involving wetlands and waterways. In MA, the authority is carried out through local implementation of the MA Wetlands Protection Act, described in the following Section 3.2. The USACE retains the right to step in and regulate even small impacts to wetlands. The General Permit does not relieve the USACE of its responsibilities under NEPA or Section 106 of the Historic Preservation Act.

3.1.7 Safe Drinking Water Act

The federal Safe Drinking Water Act (42 U.S.C. 300f, 300h-3(e), Pub. L. 93-523) is intended to ensure safe potable water is available to the public. It sets specific water quality criteria and standards, and empowers EPA to administer implementing regulations. Massachusetts has been delegated the authority to administer the Safe Drinking Water Act and does so through

different programs including water quality monitoring, wellhead protection, and source water assessment (see section 3.2 below).

3.1.8 CERCLA, RCRA, FIFRA, and TSCA

Environmental pollution from toxic chemicals led to a number of federal laws in the 1970s and 1980s that regulate the use and disposal of toxic or otherwise hazardous chemicals. While the CWA focused largely on wastewater discharges to waterways, these other regulations focused on a) the use of chemicals in the workplace, home and environment, and b) the ultimate disposal of waste chemicals in the environment:

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, directs EPA to identify “orphaned” hazardous waste sites, direct their cleanup, identify “potentially responsible parties” (PRPs) and collect financial compensation from the PRPs to pay for the cleanup. There are several Superfund sites in the SuAsCo Watershed. In addition, the related Superfund Enterprise Management System (SEMS) database identifies a number of additional remediation sites in the watershed (EPA, 2018).

The Resource Conservation and Recovery Act (RCRA) directs EPA to manage a permit program that requires businesses producing, using, and disposing hazardous chemicals to track the amounts and types of these chemicals “from cradle to grave”, ensuring the responsible companies can account for proper use, shipment, and disposal of these chemicals. In the SuAsCo Watershed RCRA is important as the primary regulatory authority at the federal level for chemical use and disposal by manufacturers and industries. Massachusetts incorporates federal RCRA requirements into the MassDEP solid waste and hazardous waste regulations, and these MassDEP is in practice the primary regulator of hazardous and non-hazardous waste materials.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) – directs EPA to regulate pesticide use, including a requirement that all pesticides be registered after first demonstrating that proper use of the pesticide “will not generally cause unreasonable adverse effects on the environment.” (EPA, 2018). FIFRA is important in the SuAsCo Watershed as it relates to pesticide use for agriculture, residential lawns & yards, transportation and utility corridor control of vegetation, and control of nuisance plants / invasive plants in terrestrial and aquatic habitats. MassDEP incorporates FIFRA requirements in their regulatory programs.

Toxic Substances Control Act (TSCA) as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act – authorizes EPA to “...to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures.” (EPA, 2018). TSCA does not regulate pesticides but has similar provisions to FIFRA for non-pesticide toxic chemicals. TSCA regulates “new” chemicals and the import / export of toxic chemicals. EPA has TSCA programs related to lead paint, polychlorinated biphenyls (PCBs), and asbestos in schools. EPA has delegated some of its TSCA responsibilities to MassDEP (e.g., asbestos programs).

3.1.9 Endangered Species Act

The federal Endangered Species Act (ESA) authorizes USFWS and NMFS to identify endangered and threatened species, and species of concern, and implement regulations to protect those species. USFWS manages ESA with regard to terrestrial and freshwater species while NMFS manages ESA with regard to marine and anadromous species. Pursuant to ESA, the “taking” (destruction, collection, transport) of listed species is a felony crime. Any federal activity potentially affecting listed species must be evaluated pursuant to section 7 of ESA, and federal actions which may lead to “taking” of a listed species may not be authorized.

3.2 Commonwealth of Massachusetts

3.2.1 Overview

Massachusetts has many resource protection laws, policies and programs similar to other states and often developed in conformance with federal laws. Those relevant to the SuAsCo WSR are summarized below along with those which are somewhat unique to MA. Statutes are referenced with respect to the MA General Laws (MGLs). State laws most relevant to protection of the SuAsCo WSR are found in MGL Part I: Administration of the Government:

- Title VII Cities, Towns and Districts (e.g., zoning enabling law),
- Title XIV Public Ways and Works (e.g., public properties, facilities, watershed management)
- Title XIX Agriculture and Conservation (e.g. agriculture, soil conservation, wetlands, fisheries, wildlife, endangered species, forestry)

Appendix A provides a highlighted listing of MGLs with hyperlinks to the appropriate section of the official state website (<https://malegislature.gov/Laws/GeneralLaws>).

Regulations are referenced with respect to the Code of Massachusetts Regulations (CMRs). Regulations tend to be grouped in the CMRs by regulatory authority (e.g., Department), and then by topic (e.g., Program) rather than strictly by statute. This is a practical and sometimes necessary approach because different statutes have overlapping and complimentary requirements, and the same group of regulators may have particular expertise applicable to implementation of several different statutory requirements. Most of the relevant regulations and programs are within the Governor’s Executive Office of Energy and Environmental Affairs. The Executive Office of Housing and Community Development provides support to cities and towns in planning, zoning and growth management; this office is also responsible for licensing professional surveyors, engineers, architects and landscape architects (among others). The Executive Office of Transportation and Public Works is responsible for many aspects of public infrastructure.

The following Massachusetts Departments and some of their more relevant regulatory programs are:

Executive Office of Energy and Environmental Affairs (EOEEA) – 301 CMR
Department of Conservation and Recreation (DCR) – 302 CMR
Division of Forests and Parks – 304 CMR
Board of Registration of Hazardous Waste Site Cleanup Professionals – 309 CMR
Department of Environmental Protection – 310 CMR
Board of Underwater Archaeological Resources – 312 CMR
Division of Water Supply Protection – 313 CMR
Division of Water Pollution Control (DWPC) – 314 CMR
Department of Fish and Game (DFG) – 320 CMR
Division of Ecological Restoration (DER) – part of DFG
MassWildlife, also known as the Division of Fisheries & Wildlife (DFW) – 321 CMR
Division of Marine Fisheries – 322 CMR
Division of Law Enforcement – 323 CMR
Connecticut River Atlantic Salmon Commission – 325 CMR
Department of Agricultural Resources – 330 CMR
Pesticide Board – 333 CMR
Low-level Radioactive Waste Management Board – 345 CMR
Department of Conservation and Recreation – 350 CMR
Massachusetts Water Resource Authority – 360 CMR
Department of Transportation – 700 CMR
Department of Housing and Community Development (DHCD) – 760 CMR

The general website link to the CMRs is: <https://www.mass.gov/code-of-massachusetts-regulations-cmr> Many of the relevant CMRs are provided in pdf document specific to the agency's program. It is often easiest to obtain such documents through the agency's program website.

Bylaws and Ordinances

Bylaws and ordinances are local regulations implemented by a municipality (town or city) and based upon state enabling legislation. The term "bylaw" and "ordinance" are used somewhat interchangeably in the MGLs and CMRs as in "local bylaw or ordinance". The term bylaw is also applicable to private corporations and therefore can be confusing in certain contexts. Although Massachusetts state laws are not always consistent in the usage of these terms, MGL Chapter 4 Section 7 : Definitions of statutory terms; statutory construction, Twenty Second definition states:

"Ordinance", as applied to cities, shall be synonymous with by-law.

Therefore, strict usage would use the term ordinance in reference to city regulations, and by-law (or bylaw) in reference to town regulations. In practice the two terms are often applied without strict reference to the specific type of municipal government.

3.2.2 Community Master Plans

Community master plans are prepared by municipal planning boards pursuant to the enabling legislation codified in MGL Chapter 41 Section 81D: Master plan; economic development supplement. The law requires the master plan:

... to provide a basis for decision making regarding the long-term physical development of the municipality. The comprehensive plan shall be internally consistent in its policies, forecasts and standards, and shall include the following elements:

- Goals & Policies
- Land Use Plan
- Housing
- Economic Development
- Natural and Cultural Resources
- Open Space and Recreation
- Services and Facilities
- Circulation (Transportation)
- Implementation Program

The master plan enabling legislation requires a public process for plan development and official approval / adoption by the planning board. The implementation element is specifically required to identify how local regulations are to be changed to become consistent with the master plan. Periodic updates are allowed (encouraged). An “economic development plan supplement” is also required of communities seeking grants from the Commonwealth. State agency support for community planning, such as publication of model zoning ordinances and development guides, is provided by the Massachusetts Department of Housing and Community Development (DHCD).

3.2.3 Open Space and Recreation Plans

Local Conservation Commissions are empowered to prepare municipal Open Space and Recreation Plans (MGL Chapter 40 Section 8C). Approval of Open Space & Recreation Plans (OS&R Plans) by EEA Division of Conservation Services (DCS) allows a municipality to apply for a number of different grant programs administered by the state, including:

- Massachusetts Land and Water Conservation Fund Grant Program (w/ NPS funding)
- Local Acquisitions for Natural Diversity (LAND) Grant Program
- Parkland Acquisitions and Renovations for Communities (PARC) Grant Program
- Outdoor Recreation Legacy Partnership Grant Program (ORLPP)

3.2.4 Water Resource Management Plans

Municipalities seeking financial assistance for water management projects through the State Revolving Fund (SRF) must have a Water Management Plan that meets the requirements set by the Executive Office of Energy and Environmental Affairs (EEA) in their Water Policy and their Guide to Water Resource Management Planning (EEA, 2016). Communities required to prepare an Environmental Impact report (EIR) pursuant to the Massachusetts Environmental Policy Act (MEPA) also prepare Water Management Plans. Municipalities may seek SRF assistance for the preparation of these plans.

The Guide presents information on three different levels of planning: the Integrated Water Resource Management Plan, the Comprehensive Water Resource Management Plan, and the Engineering Report. ...

An Integrated Water Resource Management Plan is a plan that evaluates alternative means for addressing a community's current and future wastewater, drinking water, and stormwater needs and identifies the most economical and environmentally appropriate means of meeting those needs. (EEA, 2016).

The Integrated Water Resources Management Plan is the highest level, most involved of the three types of Water Resource Management Plan. It is particularly appropriate for larger communities with multiple water resource issues such as compliance with wastewater discharge, water supply, and stormwater management requirements. The Integrated Water Resources Management Plan allows municipalities to coordinate and consolidate certain compliance requirements in one plan, potentially saving significant costs in planning and implementation.

A Comprehensive Water Resources Management Plan focuses on one particular water resources issue of particular importance to a community. For example, a municipality might prepare a Comprehensive Wastewater Management Plan to evaluate and select different sewage treatment options for different areas. A Comprehensive Water Supply Plan could investigate different options for meeting a municipality's existing and future potable water needs. A Comprehensive Stormwater Management Plan could help a community fulfill its legal responsibilities regarding management of its municipal drainage system.

Cities and towns that have a specific water resources problem may choose to prepare an *Engineering Report, a report that describes the remedy and details how it should be built in accordance with all environmental laws and regulations. Not a substitute for a Comprehensive Management Plan or an Integrated Water Resource Management Plan, the Engineering Report is often prepared after a Comprehensive Management Plan or an Integrated Water Resource Management Plan has identified a need for a particular infrastructure or mitigation project. For example an Engineering Report can identify particular stormwater retrofit projects that can increase recharge and mitigate the water quantity impacts of an increased water withdrawal or an expansion of the sewer system recommended in an earlier Comprehensive or Integrated Plan.* (EEA, 2016).

3.2.5 Zoning and Land Development

State zoning requirements are codified in MGL Chapter 40A “The Zoning Act”. The law specifies the procedures and standards for the establishment of local zoning districts, maps, bylaw, and administration. MGL Chapter 41, Section 81B specifies the powers and duties of the local Planning Boards and assigns them a key role in administration of the local zoning and subdivision regulations. The local Zoning Board of Appeals and their designated Zoning Administrator (if any) have principal roles in the enforcement of zoning and appeals of Planning Board decisions (MGL Chapter 41, Section 81AA). Most of the state zoning law is concerned with establishing the uniform content, structure of the bylaw as well as the land development review / approval process of the bylaw.

The Massachusetts Subdivision Control Law (MGL Chapter 41 Sec. 81K to 81GG) establishes the requirements for local ordinances regulating subdivision of land. It sets the required content of the ordinance and the procedures for review and standards for approval of proposed development projects. It includes provisions for establishing design standards, stages of plan review/approval, project phasing, and the dedication of public rights-of-way, and other public amenities / infrastructure. These regulations are implemented by the Planning Board with consultation provided by municipal officials and boards including the Board of Health; appeals are heard by a Board of Appeals.

State agency support of municipalities in the area of zoning and subdivision control is provided by DHCD.

3.2.6 Conservation and Recreation Programs: DCR, DCS, and CPA

Massachusetts programs that provide financial support for conservation include the DCR Trail and Greenway Programs, the EEA DCS grant programs, and the Community Preservation Act (CPA) that provides annual funds through the Department of Revenue (DOR). DCR also provides

funds and manages parks and water bodies under their jurisdiction. There are several in the watershed.

DCR Trails and Greenways

Recreational Trails Program

DCR accepts applications for Recreational Trails Grants on an annual basis. ...The Recreational Trails Program (RTP) is a federal assistance program of the United States Department of Transportation's Federal Highway Administration (FHWA), administered at the State level, providing funding for the development and maintenance of recreational trail projects. ...RTP Grants are awarded to well-planned trail projects which help to develop, protect and maintain trails and trail systems that are open and maintained for public recreational use. (DCR, 2018)

Commonwealth Connections

Commonwealth Connections is a vision for a coordinated network of greenways and trails in Massachusetts, and includes specific steps for making this vision a reality. It was developed by DCR in partnership with the Appalachian Mountain Club, the National Park Service and a broad group of stakeholders from across Massachusetts. (DCR, 2018)

DCS Grant Programs

A number of grants for conservation and recreation purposes are administered by the EEA DCS. In at least two cases DCS is the state administrator for federal funding from the National Park Service. In many cases grants require matching funds from other sources. DCS grant programs include:

- Conservation Partnership Grant Program (for IRS 501(c)(3) organizations)
- Drinking Water Supply Protection Grant Program (for public water systems and municipal water suppliers)
- Massachusetts Land and Water Conservation Fund Grant Program (allocation of NPS grants to state agencies and municipalities) – requires NPS approved State Comprehensive Outdoor Recreation Plan (SCORP); grants to municipalities require DCS approved OS&R Plan
- Landscape Partnership Grant Program (protection of sites 500 acres or larger)
- Local Acquisitions for Natural Diversity (LAND) Grant Program (requires DCS approved OSRP)
- Parkland Acquisitions and Renovations for Communities (PARC) Grant Program (requires DCS approved OSRP)
- Conservation Assistance for Small Communities Grant Program – provides grants for conservation planning including preparation of OSRPs (communities of 6,000

- residents or fewer are eligible; 6 SuAsCo WSR watershed municipalities appear eligible)
- Outdoor Recreation Legacy Partnership Grant Program (ORLPP) – two Massachusetts projects are submitted to NPS yearly for funding of parks, playgrounds and other outdoor spaces (densely settled areas of municipalities with 50,000 residents or more and with DCS approved OSRP; in the SuAsCo WSR watershed only Framingham appears currently eligible)
 - Massachusetts Off Highway Vehicle (OHV) Technical Assistance Program – OHV Club Creation

Community Preservation Act

The Massachusetts Community Preservation Act (MGL Chapter 44B) is a voluntary program to facilitate state funding of municipal preservation projects. The Community Preservation Coalition (a private not-for-profit organization) provides the following summary (CPC, 2018)

The Community Preservation Act (CPA) is a smart growth tool that helps communities preserve open space and historic sites, create affordable housing, and develop outdoor recreational facilities. CPA also helps strengthen the state and local economies by expanding housing opportunities and construction jobs for the Commonwealth's workforce, and by supporting the tourism industry through preservation of the Commonwealth's historic and natural resources. ...

CPA allows communities to create a local Community Preservation Fund for open space protection, historic preservation, affordable housing and outdoor recreation. Community preservation monies are raised locally through the imposition of a surcharge of not more than 3% of the tax levy against real property, and municipalities must adopt CPA by ballot referendum. To date, 173 municipalities in the state have adopted CPA. ... The CPA statute also creates a statewide Community Preservation Trust Fund, administered by the Department of Revenue (DOR), which provides distributions each year to communities that have adopted CPA. These annual disbursements serve as an incentive for communities to pass CPA.

All of the SuAsCo WSR municipalities have adopted CPA with the exception of the City of Framingham. Numerous preservation projects have been funded in the seven WSR municipalities that adopted CPA.

3.2.7 Wetlands Protection Act

The Massachusetts Wetlands Protection Act (MGL Chapter 131 Section 40) prohibits filling, dredging or other alteration of wetlands without a permit. The Wetlands Protection Act (WPA)

requires municipalities to regulate activities that may impact wetlands in their communities. Implementation of the WPA is to promote the following public interests:

- protection of public and private water supply
- protection of ground water supply
- flood control
- storm damage prevention
- prevention of pollution
- protection of land containing shellfish
- protection of fisheries
- protection of wildlife habitat

Local Conservation Commissions review development projects within or near wetlands, and issue permits (Order of Conditions) if the project complies with the WPA. Oversight and appeal is provided by MassDEP. Different types of wetland resources are regulated under the WPA, including Bordering Vegetated Wetlands (BVWs); Bank (e.g., streambanks); Land Under Water (e.g., streams, rivers, ponds, lakes); Land Subject to Flooding (e.g., floodplains and certain isolated land subject to flooding); and Riverfront (land within 200-feet of perennial streams and rivers). Vegetated wetlands are identified by vegetation, soil and hydrologic characteristics. BVWs include swamps, marshes, bogs and other types of wetland if they border on streams, rivers, ponds, lakes or tidal waters. A 100-foot Buffer Zone extending outward from BVWs, Banks, and other “bordering” resource areas is also a regulated resource area pursuant to the WPA.

WPA regulations that appear in 310 CMR 10.00 are intended “... to define and clarify that process by establishing standard definitions and uniform procedures by which conservation commissions and the Department may carry out their responsibilities under M.G.L. c. 131, § 40. Applicants and issuing authorities shall use forms provided by the Department to implement 310 CMR 10.00.” (310 CMR 10.01(2)). The regulations provide additional criteria and standards for wetland permitting specific to certain types of wetland resources and associated public interests. Projects subject to the WPA are encouraged to avoid, minimize and mitigate wetlands impacts. Project mitigation often includes construction of replacement wetland.

All Massachusetts municipalities have a wetland bylaw that meets the minimum requirements of the WPA. Many municipalities enact wetland bylaws that go beyond the minimum requirements of the WPA; for example, many include a provision whereby an applicant may be required to pay for an independent expert to provide oversight review to the Conservation Commission. Some municipalities’ wetland bylaws include additional wetland resource types such as very small isolated wetlands.

3.2.8 Rivers Protection Act

The Massachusetts Rivers Protection Act, Chapter 258 of the Acts of 1996, established protection of 200-foot wide Riverfront Areas along each side of perennial streams and rivers (25-foot Riverfront Area in certain urban communities).

According to the law, the riverfront area provides the eight interests of the Wetlands Protection Act: protection of public and private water supply, protection of groundwater supply, protection of land containing shellfish, protection of wildlife habitat, flood control, storm damage prevention, prevention of pollution, and protection of fisheries. The law also establishes the policy of the state to protect the natural integrity of rivers and to encourage and establish open space along rivers. (MassDEP, 2018)

Implementation of the act was integrated into the WPA regulations (310 CMR 10) and is carried out by local Conservation Commissions.

3.2.9 Floodplain Management

DCR's Flood Hazard Management Program (FHMP) is the designated state office that provides technical assistance to municipalities implementing the requirements of the National Flood Insurance Program (NFIP). Assistance includes information regarding the "...NFIP, floodplain management, flood resistant construction, floodplain mapping, flood mitigation, flood insurance and flood risk awareness and education." (DCR, 2018).

DCR's FHMP is not a regulatory program. Municipalities are responsible for ensuring compliance with the NFIP requirements. They do so through implementation of the State Building Code, Wetlands Protection Act, local zoning and land development regulations.

3.2.10 Interbasin Transfer Act

The Interbasin Transfer Act (MGL Chapter 21 Section 8B – 8D) empowers the Massachusetts Water Resources Commission to: "...determine the applicability, Insignificance, approval or denial of any proposed action to increase the Present Rate of Interbasin Transfer of water or wastewater." (313 CMR 4.01) The implementing regulations in 313 CMR 4 provide criteria for evaluating requests for interbasin transfer, including need for the transfer, alternatives (including conservation measures), and environmental impacts. The act is intended to ensure that adequate water flows are maintained for existing human uses (e.g., water supply) and for maintenance of aquatic life, fisheries and wildlife habitat.

3.2.11 Water Management Act

The Water Management Act (MGL Chapter 21G) empowers MassDEP to regulate withdrawal of groundwater and surface water to ensure sufficient water supplies are available for the future. Associated MassDEP regulations are contained in 310 CMR 36. The program covers withdrawals

in excess of 100,000 gallons per day (gpd) and withdrawals in excess of 9 million gallons over a three month period. Water withdrawals must receive a permit from MassDEP. Approved withdrawals may be transferred from one owner to another. Public water suppliers and some private enterprises such as golf courses, industrial users, farms and gravel mines are typical entities requiring a permit (private wells serving individual homes do not require a MassDEP WMA permit but are permitted by local Boards of Health). Applicants for new or increased withdrawals must meet certain review criteria, essentially demonstrating the proposed water withdrawal will have no adverse impacts on existing water uses or other community interests.

Sustainable Water Management Initiative

The EEA initiated the Sustainable Water Management Initiative (SWMI) in 2010 to develop a framework or process "... to develop and implement water policy that supports ecological needs while meeting the needs of economic growth." (EEA 2012 p. 4). This initiative led to changes to the WMA regulations in 2014. MassDEP's 2014 summary of the changes states (p. 1-2):

The following SWMI-related elements have been incorporated into the revised WMA regulations:

- *Safe Yield: A new methodology for calculating the amount of water that can be withdrawn from a basin. (310 CMR 36.13)*
- *Baseline: The volume of water, based on 2003 through 2005 water withdrawals, above which a permittee will be required to mitigate the impacts of increasing withdrawal volumes. (CMR 310 36.03)*
- *Streamflow Criteria: Criteria that were developed to guide permit conditions to protect the natural resources and ecology of waterways by specifying flow alteration percentages and corresponding mitigation requirements for water withdrawals. (310 CMR 36.14, 36.19, 36.20 and 36.22)*
- *Coldwater Fish Resources: Waters that support a population of coldwater aquatic life. (310 CMR 36.03). All applicants seeking withdrawals that will impact coldwater fish resources will be required to evaluate options for minimizing the impact by shifting permitted withdrawals to their other withdrawal points, if any, and optimizing the timing of withdrawals. (310 CMR 36.21(3) and (4), 36.22 and 36.28(3)(f))*
- *Permit Review Categories: Permit review categories, or "tiers," determine the requirements for obtaining a WMA permit. (310 CMR 36.19)*
- *Minimization Requirements: All applicants seeking to withdraw water from groundwater depleted subbasins (August net groundwater depletion of 25% or more) will be required to minimize the impact of their withdrawal to the extent feasible through a combination of conservation, optimizing the timing of withdrawals, and returning water to the subbasin. (310 CMR 36.21, 36.22 and 36.28(3)(f))*
- *Mitigation Requirements: Applicants seeking an increased withdrawal over their baseline (permit tiers 2 and 3) will be required to develop and implement mitigation plans to offset the impacts of their increased withdrawal, to the extent feasible. (310 36.21, 36.22 and 36.28(3)(f))*

MassDEP has published its Revised Model Outdoor Water Use Bylaw/Ordinance (May 1, 2018) for use by public water suppliers in accordance with the WMA regulations. MassDEP also maintains an up-to-date list and map of current water use restrictions based primarily on reporting by public water suppliers.

The 2014 regulations also updated certain provisions of the regulations related to the first round of registrations (section deleted), provisions for permit transfer or modification, and the dates when existing permits within a basin expire (generally every 20 years). Existing water management policies regarding exemptions and replacement wells were adopted as part of the regulations. An important addition to the 2014 water management regulations relates to water supply emergencies (310 CMR 36.40 – 36.42).

A key component of the 2014 WMA regulations is the adoption of streamflow criteria which may limit allowed water withdrawal from particular surface water supplies at particular times (310 CMR 36.14). Five bioperiods (seasons) and three streamflow categories are used to determine the streamflow criterion for a particular subbasin. The three categories are Biological Category (BC), Groundwater Withdrawl Category (GWC), and Seasonal Groundwater Withdrawal Category. Criteria within each category are based on studies conducted in 2003 – 2004 and modeled by USGS for each subbasin (note that subbasins used in this effort are defined by USGS and do not always match subbasins as defined by MassGIS). Application of these streamflow criteria to subbasins result in maps which to determine allowed water withdrawal and the thresholds for implementing mitigating measures such as water conservation or reliance on other sources. Application of these criteria also influences permitting of new surface water withdrawals.

An online interactive map viewer depicting various SWMI variables is available at:
http://maps.env.state.ma.us/flexviewers/SWMI_Viewer/index.html

Drought Management

The Water Management Act is also one legal basis for MassDEP's involvement in drought management (others involve MassDEP's role in regulation of drinking water). Massachusetts has experienced a series of significant droughts that caused adverse impacts to water supply, water quality, fish and wildlife habitat, and recreational use of waterbodies among others. At the municipal level, water use restrictions have been imposed as a result of droughts. Climate change science suggests a trend of more frequent droughts (and floods) in the future. Loss of flow in the SuAsCo WSR and its watershed is a significant concern.

The Massachusetts Drought Management Plan (May 2013) was prepared by EEA and the Massachusetts Emergency Management Agency (MEMA) to provide guidance to Massachusetts agencies in responding to droughts. The plan was the result of over ten years of planning by a federal and state agency stakeholder group called the Drought Management Task Force (DMTF). This Drought Management Plan identifies roles of various federal and state agencies in data collection, assessment and reporting. Its primary purpose is to facilitate coordination between government agencies by identifying lines of communication and an agreed-upon basis for decision-making. It identifies five different drought action levels based on seven different drought indices applied on a regional basis.

Adoption of the 2013 Drought Management Plan was a significant step towards improving the management of water resources during times of low river flow. The effectiveness of the plan, and drought management in general, is determined by the degree to which drought management actions are implemented. Concerns have been raised regarding the timeliness of drought emergency declarations and the absence of statutory authority to impose water conservation measures in certain circumstances (e.g., private well use). Use of historic data may prove inadequate given the uncertainties of a rapidly changing climate. At the local level there is concern that water conservation measures are unevenly / unfairly applied, creating confusion and diminishing public support for water conservation. The DMTF is currently reviewing changes to the Drought Management Plan, including revision to Drought Region boundaries, and the indicators used to determine drought level (DMTF 2018).

Water Conservation Standards

The Massachusetts Water Resources Commission adopted Water Conservation Standards in 1992 to:

...assist Massachusetts' public water suppliers in achieving efficiency in their systems and to foster education of residents, industrial facilities, and places of business on the importance of water efficiency and effective conservation measures. The Massachusetts Department of Environmental Protection (MassDEP) used the 1992 Standards to condition water withdrawal permits under the Water Management Act program, and

the Commission used the Standards in reviewing applications under the Interbasin Transfer Act. (Standards draft May 2018 p. 5)

The Water Conservation Standards were revised in 2006 and 2012; they have been undergoing a recent process of revision with the latest draft published for review in May 2018. This draft, prepared by EEA and the Water Resources Commission states (p. 5):

This document includes both standards and recommendations. Standards represent best practices. They should be adopted by water suppliers and water users, as applicable. They should also be incorporated by state agencies into water resources management programs and the issuance of permits or approvals that govern water use. Recommendations represent emerging thinking in water-use efficiency. Although they may not currently be suited to a regulatory context or may not be as widely achievable in the short term as standards due to economic or technical limitations, the Massachusetts Water Resources Commission strongly encourages their adoption wherever possible. Together, the standards and recommendations should guide all programs affecting the planning and management of the Commonwealth's water resources, including but not limited to: local and state land use and economic development planning, drought management and water conservation plans, the Water Management Act, the Interbasin Transfer Act, and the Massachusetts Environmental Policy Act (MEPA). They should also be incorporated into construction, rehabilitation, operation, and facility development activities statewide, as applicable.

The Water Conservation Standards Draft provides the following summary (p. 8):

Overview of the Standards and Recommendations

There is a role for everyone in water conservation and efficiency efforts. Each segment of the water-using community can support the collective effort to reduce water waste and use water more efficiently for essential purposes. The standards and recommendations in this document are intended for adoption, as applicable, by: government entities and regulating bodies; municipal, private, and regional water suppliers; and water consumers, including individual households, businesses, industries, and public agencies. The Standards are organized into ten chapters, addressing key areas of water supply planning, management, and use:

- 1. Comprehensive Planning and Drought Management Planning*
- 2. Water Loss Control*
- 3. Metering*
- 4. Pricing*
- 5. Residential Water Use*
- 6. Public Sector Water use*
- 7. Industrial, Commercial, and Institutional Water Use*
- 8. Agricultural Water Use*
- 9. Outdoor Water Use*

10. Public Education and Outreach

Each chapter begins with a bulleted list of target audiences based on the chapter's content, to help guide readers to the areas most useful to them. Additionally several chapters include lists of additional resources, tools, and references, and a set of appendices offer additional detail, background, and guidance.

These standards and recommendations are all applicable and relevant within the SuAsCo WSR watershed, although some are more applicable in certain areas (e.g., public water supply service areas). The appendices provide much useful information for municipalities interested in promoting water conservation, including Model Bylaws (Appendix B), Summary of Water Conservation and Water Quality Recommendations for Lawns and Landscapes (Appendix H), and Massachusetts Drought Management Outdoor Water Use Restriction Guidelines (Appendix J).

3.2.12 Groundwater Protection

Groundwater protection regulations in MA are contained in multiple regulations including:

State Environmental Code Regulating Septic Systems ("Title 5") – 310 CMR 15

Federal Safe Drinking Water Assessment – 310 CMR 21

Massachusetts Drinking Water Regulations – 310 CMR 22

Underground Injection Control – 310 CMR 27

Certification of Well Drillers and Filing of Well Completion Reports – 310 CMR 46

Groundwater Discharge Permit Program - 314 CMR 5.00

The regulations provide for compliance with federal requirements pursuant to the SDWA and CWA with respect to groundwater. Private and public wells are also regulated under these regulations; the MA Department of Health also has a role in the implementation of MA's groundwater protection strategy. MassDEP works with the U.S. Geological Survey (USGS) to identify wellhead protection areas, groundwater reservoirs and associated recharge areas.

Municipal Health Departments and their Agents provide permits for wastewater treatment systems serving individual homes and businesses as well as small community systems discharging treated wastewater to the ground. Specific septic system regulations are contained in 310 CMR 15: Septic Systems (a.k.a. "Title V") which governs the construction and maintenance of septic systems and the transport of septic-system waste.

Massachusetts drinking water regulations include provisions for: permitting public water suppliers, certification of water supply operators, drinking water laboratory certification, drinking water purity requirements (various pollutants), water treatment and distribution system requirements, water supply protection, record keeping /reporting, public notification, and technical assistance, among others. 310 CMR 22.21 Groundwater Supply Protection

provides the requirements for permitting new groundwater supplies, including delineation of Zones I, II, and III. 310 CMR 22.02 Definitions, states:

Zone I means the protective radius required around a public water supply well or Wellfield. Zone I size depends on the pumping rate; Zone I areas range from 100-feet to 400-feet. Zone I is sometimes referred to as the wellhead protection area. Allowed uses in Zone I are very limited.

Zone II means that area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions ...

Zone III means that land area beyond the area of Zone II from which Surface Water and groundwater drain into Zone II. The surface drainage area as determined by topography is commonly coincident with the groundwater drainage area and will be used to delineate Zone III. In some locations, where surface and groundwater drainage is not coincident, Zone III shall consist of both the surface drainage and the groundwater drainage areas.

The Underground Injection Control (UIC) program is a federal SDWA program delegated by EPA to Massachusetts. MassDEP administers the program as part of its Drinking Water Program.

The UIC program protects underground sources of drinking water by regulating the disposal of fluids into the subsurface that may be a threat to public health or the environment. Most UIC wells or injection wells are simple devices that allow fluids into the shallow subsurface under the force of gravity. The potential for ground water contamination from UIC wells exists and is dependent upon the well construction and location, the volume and quality of the fluids injected and the hydrogeologic setting. (MassDEP, 2018)

The Massachusetts Groundwater Discharge Program is administered by DEP to ensure groundwater is protected from pollutant discharges and maintained for potable water supply. The program complies with EPA's CWA requirements. It establishes a permit program, requirements for treatment prior to discharge, effluent standards, and groundwater standards.

3.2.13 Surface Water Protection

Surface water protection regulations in MA are contained in multiple regulations including:

Massachusetts Drinking Water Regulations – 310 CMR 22
Watershed Protection Act Regulations – 313 CMR 11
Surface Water Discharge Permit Program – 314 CMR 3
Surface Water Quality Standards – 314 CMR 4

The regulations provide for compliance with federal requirements pursuant to the SDWA and CWA with respect to surface water. The Massachusetts regulations regarding federal Safe Drinking Water Act provides compliance with EPA's requirements pursuant to the SDWA with regard to support of public water suppliers. 310 CMR 21 Federal Safe Drinking Water Assessment provides the authority to assess water suppliers a fee to support safe drinking water efforts.

Massachusetts Drinking Water Regulations

The Drinking Water Regulations are based on multiple statutory authorities as noted above. Most of the regulations pertain to operation and management of public water supply systems, including testing, treatment requirements (both in terms of standards and technology), and reporting. In regard to SuAsCo WSR protections, surface water supply assessment and protection is important because the rivers are used as a source of public drinking water.

Source Water Assessment and Protection

The Federal Safe Drinking Water Act Amendments of 1996 emphasize the importance of protecting public drinking water from contamination. The law required every state to examine existing and potential threats to the quality of all its public water supply sources and to develop a Source Water Assessment and Protection (SWAP) Program. The assessments in Massachusetts were completed in 2004. ... With the SWAP process, local officials received assessment results accompanied by prioritized recommendations for improving water supply protection. SWAP information helps educate the public and build support for program implementation. (MassDEP, 2018)

Surface waters used for public water supply are protected in a number of ways, including the definition of three zones (310 CMR 22.02):

Zone A means: (a) the land area between the Surface Water Source and the upper boundary of the Bank; (b) the land area within a 400 foot lateral distance from the upper boundary of the Bank of a Class A Surface Water Source, as defined in 314 CMR 4.05(3)(a): Class A; and (c) the land area within a 200 foot lateral distance from the upper boundary of the Bank of a Tributary or associated Surface Water body.

Zone B means the land area within ½ mile of the upper boundary of the Bank of a Class A Surface Water Source, as defined in 314 CMR 4.05(3)(a): Class A, or edge of Watershed, whichever is less. However, Zone B shall always include the land area within a 400-foot lateral distance from the upper boundary of the Bank of the Class A Surface Water Source.

Zone C means the land area not designated as Zone A or B within the Watershed of a Class A Surface Water Source as defined at 314 CMR 4.05(3)(a): Class A.

310 CMR 22.20B Surface Water Supply Protection proscribes the measures to protect surface water supplies, including land use restrictions such as prohibition of underground storage tanks, wastewater discharges, animal feedlots and others that could contaminate the water supply.

In addition to the drinking water regulations applicable to surface water suppliers, the MassDEP drinking water program works with other water management programs to provide technical assistance and guidance to communities to improve water resource planning and management.

Watershed Protection Act

The Massachusetts Watershed Protection Act (313 CMR 11) directs DCR to regulate activities within the watersheds of the Quabbin Reservoir, Ware River and Wachusett Reservoir. Although these watersheds are outside the SuAsCo watershed, 313 CMR 11.03 defines the “Watershed System” to include the “..North and South Sudbury watersheds, Sudbury Reservoir, Framingham Reservoirs 1, 2 and 3..” which are within the SuAsCo watershed; these SuAsCo watershed reservoirs act as the emergency water supplies for the DCR/MWRA system. As part of the Watershed System the Sudbury Reservoir and Framingham Reservoirs 1 (Stearns), 2 (Brackett) and 3 (Foss) are protected by various prohibitions enumerated in 313 CMR 11.09. The prohibitions focus on activities taking place on the DCR reservoir property, but also include general prohibitions which would pollute or divert waters of the Watershed System. The regulations provide for both DCR and MassDEP to inspect properties, review records and engage in activities to enforce the provisions of the Act. Many of the listed prohibitions may be waived by the Commissioner of DCR on a case-by-case basis; for example, 313 CMR 11.09 (2)(a)(3) states “Powered boats are prohibited within the Waters of the Watershed System except in areas designated by the Commissioner.” 313 CMR 11.09.(2)(e) specifically allows fishing from the shore of the Sudbury Reservoir and allows boating on the Sudbury, Foss, Stearns, and Brackett Reservoirs in areas designated by the Commissioner of DCR.

Surface Water Discharge Permit Program

Wastewater discharges to surface waters are permitted by EPA New England pursuant to the NPDES Program previously described. In Massachusetts, the NPDES Program is administered jointly by EPA and MassDEP pursuant to the federal CWA and the Massachusetts Clean Water Act – (MGL Chapter 21 Sections 26-53), respectively. MassDEP’s regulations regarding wastewater discharges to surface waters are contained in 314 CMR 3: Surface Water Discharge Program; these regulations are intended to provide conformance with federal NPDES requirements such that Massachusetts may assume full NPDES authority by EPA in the future. MassDEP currently provides scientific, technical, and administrative support to the NPDES program. MassDEP issues the Water Quality Certification (that the proposed permit will enable the waterbody to meet state water quality standards, and co-signs the EPA issued NPDES

permit. The NPDES program issues permits for surface water discharges of treated sewage from publically owned wastewater treatment facilities (sewage treatment plants), commercial and industrial wastewater, and stormwater from various activities.

Broad classes of activities requiring a surface water discharge permit may be authorized by a general permit:

For the most part, general permits are administered by EPA, require submission of a Notice of Intent (NOI) to EPA, and do not require an application to MassDEP. However, there are some circumstances that require submittal to both MassDEP and EPA. The following situations require applicants to submit a MassDEP transmittal form, a copy of the EPA's NOI, payment (unless exempt), and any other required submittals to MassDEP:

- *Construction General Permit (CGP) with discharge to Outstanding Resource Waters (ORW);*
- *Massachusetts Small Municipal Separate Storm Sewer Systems (MS4) Permit;*
- *Publicly Owned Treatment Works General Permit (POTW GP);*
- *Potable Water Treatment Facilities General Permit (PWTF GP) for first time applicants that also discharge to an ORW and High Quality Waters;*
- *Remediation General Permit (RGP) discharges from non-MCP sites;*
- *Dewatering General Permit (DGP) with discharge to Class A or Class SA Waters;*
- *Hydroelectric Generating Facilities General Permit (Hydro GP) with discharge to ORW waters.*

Stormwater Management / Soil Erosion & Sedimentation Control

Implementation of Massachusetts' policies regarding stormwater management and soil erosion and sediment control during construction is implemented at the state level by individual agencies undertaking projects (e.g., DCR, DOT) with guidance provided by DEP. EPA issues NPDES general permits with requirements for managing stormwater during construction activities (as well as general permits for other activities with specialized requirements). Local implementation of the Wetland Protection Act is a primary means of managing stormwater from new projects and providing for proper control of erosion and sedimentation during construction.

Surface Water Quality Standards

Massachusetts Water Quality Standards include standards and associated criteria for the protection of state surface waters for various uses, and provides compliance with the federal CWA. The regulations set the process for adoption and revision of standards / criteria and explains the proper application of the standards. It sets forth Antidegradation Provisions in 314 CMR 4.04. Different Surface Water Quality Classes (A and B) are identified along with associated uses and water quality standards / criteria (314 CMR 4.05). All surface waters of the

Commonwealth are classified in 314 CMR 4.06, along with provisions for special resource types such as:

- Public Water Supplies, Treated Water Supplies
- Outstanding Resource Waters
- Special Resource Waters
- High Quality Waters
- Shellfishing Waters
- Cold / Warm Waters
- Aquatic Life
- Waters affected by Combined Sewer Overflows (CSOs)
- Vernal Pools

Surface waters that are mapped lakes, ponds, rivers and streams are assigned a waterbody-specific Water Quality Classification, and watercourses are commonly divided into different segments for classification and monitoring. In addition:

Wetlands bordering Class A Outstanding Resource Waters are designated Class A Outstanding Resource Waters. Vernal pools are designated Class B Outstanding Resource Waters. All wetlands bordering other Class B, SB or SA Outstanding Resource Waters are designated as Outstanding Resource Waters to the boundary of the defined area. All other wetlands are designated Class B, High Quality Waters for inland waters... (314 CMR 4.06 (2)).

All active and inactive reservoirs approved by the Department's Drinking Water Program after December 29, 2006 as a source of public water supply are designated Class A, Outstanding Resource Waters, regardless of whether they are listed in the tables to 314 CMR 4.00 (314 CMR 4.06(3)).

Unless otherwise designated in 314 CMR 4.06 or unless otherwise listed in the tables to 314 CMR 4.00, other waters are Class B, and presumed High Quality Waters for inland waters and Class SA, and presumed High Quality Waters for coastal and marine waters. Inland fisheries designations and coastal and marine shellfishing designations for unlisted waters shall be made on a case-by-case basis as necessary. (314 CMR 4.06 (4)).

Figure 18 and Table 18 of the Surface Water Quality Regulations identify the water quality classification for SuAsCo Watershed waters; these are reproduced herein as Appendix B.

3.2.14 Massachusetts Environmental Policy Act

The Massachusetts Environmental Policy Act (MEPA) requires that state agencies study the environmental consequences of their actions, including permitting and financial assistance. It also requires them to take all feasible measures to avoid, minimize, and mitigate damage to the

environment. MEPA also requires that state agencies "use all practicable means and measures to minimize damage to the environment," by studying alternatives to the proposed project, and developing enforceable mitigation commitments, which will become conditions for the project if and when they are permitted.

MEPA applies to projects that exceed MEPA review thresholds specified in 301 CMR 11.00: MEPA Regulations, and that require a state agency action, specifically projects that are proposed by a state agency or are proposed by municipal, nonprofit or private parties and require a permit, financial assistance, or land transfer from state agencies. Project proponents file an Environmental Notification Form (ENF) with EEA, and if required, an Environmental Impact Report (EIR). Project thresholds for filing an ENF and mandatory preparation of an EIR are detailed in 301 CMR 11.03; they include over 100 criteria grouped into 12 categories:

1. Land
2. State-listed Species under M.G.L. c. 131A.
3. Wetlands, Waterways and Tidelands
4. Water
5. Wastewater
6. Transportation
7. Energy
8. Air
9. Solid and Hazardous Waste
10. Historical and Archaeological Resources
11. Areas of Critical Environmental Concern
12. Regulations

Certain provisions of 301 CMR 11.03 indicate activities that do not require a mandatory ENF or EIR, but grant the Secretary of EEA discretion to require them. In cases where an EIR is not mandatory, based on the thresholds, MEPA review of an ENF may lead to a requirement to prepare an EIR.

3.2.15 MA Endangered Species Act

The Massachusetts Endangered Species Act (MESA), MGL Ch. 131A, is administered by the MassDEP Division of Fisheries and Wildlife (MassWildlife) Natural Heritage & Endangered Species Program (NHESP) pursuant to 321 CMR 10.00.

The Massachusetts Endangered Species Act and its implementing regulations

- *protects rare species and their habitats by prohibiting the "Take" of any plant or animal species listed as Endangered, Threatened, or Special Concern*
- *establish procedures for the listing and protection of rare plants and animals*
- *outline project review filing requirements for projects or activities that are located within a Priority Habitat of Rare Species*

- *provide clear review timelines and establish an appeal process for agency actions* (MassWildlife, 2018)

The NHESP provides mapping of Priority and Estimated Habitats of Rare Species, reviews MESA filings for projects with potential impacts, and issues permits for “taking” rare species for acceptable purposes (e.g., scientific collection, conservation measures). This mapping may be accessed online at: <https://www.mass.gov/service-details/regulatory-maps-priority-estimated-habitats>.

4.0 Summary Overview of All Municipalities

This section summarizes the major regulatory and plan elements of resource protection in the subject municipalities. It is organized by major element: comprehensive plans, zoning bylaws, land development (subdivision) regulations, and special resource protection bylaws / regulations. For all municipalities these elements are interrelated, but the exact substance and interrelationships of regulations and plans varies by municipality. If protection for a special resource is contained in the zoning bylaw it will first be described in the zoning section for that municipality (groundwater protection districts, for example). In many municipalities, the zoning bylaw, land development / subdivision regulations, and some resource bylaws are provided separate and apart from the general bylaws / code of ordinances. Not all municipalities have updated their plans and regulations, and sometimes internal inconsistencies exist.

4.1 Community Plans

All municipalities in the study area have some sort of master plan or comprehensive plan to guide growth and development in the future. Massachusetts state law governs the preparation and content of such plans as described above. Municipalities may have supplemental or associated plans that focus on an important community planning element such as open space or economic development. Such supplemental or related plans are described below to the extent they are relevant to resource use or protection in the study area.

All of the municipalities include goals promoting the preservation of natural resources, open space, and the rural / historic character of the town / city. In most cases these preservation goals are tied to water supply protection, protection of development from flood damage, protection of biological resources (species, habitats), low impact recreation and for some municipalities the protection and promotion of the tourism industry. Municipalities also recognize the importance of resource protection for financial sustainability, understanding the loss or diminishment of certain resources may pose adverse financial consequences to the municipality.

All eight of the WSR member communities protect the WSRs and adjacent lands to a large extent, and they administer meaningful development regulations that protect water resources in the rivers' watersheds. Many municipalities promote greenways and interconnected conservation lands; some municipalities specifically support the SuAsCo Wild and Scenic River protection efforts. However, most plans do not specifically mention the federal Wild & Scenic River designation. None of the eight Master Plans identify the Sudbury, Assabet, and Concord Wild and Scenic River Stewardship Council by name, and no plan maps were found that specifically call out the WSR designation or limits.

Recommendations

- Revise / update municipal Master Plans and OSRPs to identify the SuAsCo WSR designation by name, and on maps. Also identify the Sudbury, Assabet, and Concord Wild and Scenic River Stewardship Council as a primary contact and stakeholder.
- Coordinate WSR conservation and planning efforts between municipalities and the RSC; include other stakeholders as appropriate.
- Consider seeking grants for preparation of specific plans related to the SuAsCo WSR protection (restoration, improvements).
- Revise / update municipal Master Plans and OSRPs to include recommendations of the SuAsCo WSR Conservation Plan.

4.2 Zoning

Most of the land along the Wild and Scenic Rivers is zoned for residential uses; typically large lot single family uses. Each of the eight WSR municipalities in has applied the residential zone requiring the largest lot size in the community to the land along the rivers. The size of the largest lots tends to vary with the density of development already existing in the community. A "large lot" in Framingham is 20,000 square feet while a "large lot" in Lincoln is 80,000 square feet. It is common for area municipalities to apply large lot single family zoning to lands where a low density of development is desired to protect rural character.

Only a couple of the study area municipalities currently have dedicated Open Space zones. Properties acquired for open space therefore tend to remain in whatever zoning classification they were in prior to acquisition, typically large lot residential. This means there are extensive tracts of dedicated open space along the rivers that appears to be designated for residential uses even though ownership restrictions and easements prevent it from ever being put to residential use, or even industrial use (in the case of Billerica).

Recommendation: Municipalities within the study area should consider establishing Open Space zones for dedicated open space properties rather than leaving them in residential or other zoning classifications.

In addition, unlike the roads, the rivers are often not shown on the zoning maps, making orientation difficult, masking the relationship between land uses along the riverfront and making it appear as if the rivers themselves are zoned for residential development. There are also many places where the rivers serve as boundaries between zones. These could be clarified if the municipality's official zoning maps included depiction and identification of the designated Wild & Scenic Rivers.

Recommendation: Municipalities should consider showing the rivers as features on future zoning maps along with roads to clarify the relationships between land uses and the rivers.

All of the municipalities in the study area also have enacted zoning bylaws that place controls on land uses to protect public health safety and general welfare. Because they must be consistent with state enabling legislation (which is, in turn, based on federal model legislation) the bylaws all tend to be very similar in form, even though there is a wide variation in the types of zones established and the types of uses allowed. Zoning bylaws typically consist of the following sections:

- Legal Authority, and Purpose
- General Provisions
- Zoning Districts (types, descriptions, zoning map reference)
- Use Tables (allowed and prohibited)
- Dimensional Requirements
- Nonconforming Uses, Structures, and Lots
- Special Use Regulations
- Impact Standards, Performance Standards, Review/Approval Criteria
- Administration, Enforcement and Appeals
- Amendment Procedures

The Zoning Map shows the locations of the various zoning districts within the municipality. This analysis concentrates on the types of zones designated in proximity to the WSRs and the level of resource protection provided by the Bylaw. In addition, most communities include "overlay" districts that provide a higher level of resource protection than the underlying district. Typical overlay districts within the study area include surface water and groundwater supply protection zones, wellhead protection areas, wetland protection areas, flood hazard zones, historic village districts. Some overlay zones are explicitly mapped, others are incorporated by reference to specific maps such as the FEMA Flood Insurance Rate Maps (FIRMs).

Finally, some zoning bylaws include special measures that allow proposed developments to be configured in such a way as to protect natural resources while still providing the same development densities as conventional development. These allow uses to be arranged on one part of a property at higher densities while leaving other parts of the property undeveloped to protect open space, agricultural land, historical resources, wetlands, floodplains and other

valuable natural resources. Examples include residential compounds, Cluster Development, and Planned Unit Development (PUD). Cluster Development, PUDs and other types of special uses are defined in MGL Chapter 40 A, Section 9 Special Permits, and municipalities generally follow those definitions. In some case the issuance of a special use permit may be granted to a municipality authority other than the Planning Board.

The terms “Conservation Development”, “Smart Growth” and “Low Impact Development” (LID) are also referenced in some of the zoning and land development regulations, but often with different meanings and specificity in different municipalities. Like clusters and PUDs, these terms generally refer to zoning which preserve natural resources and make more efficient use of public infrastructure. A “Smart Growth Development District” typically refers to one or more types of overlay zones defined as defined in MGL 40R; zoning bylaws establishing such districts, if approved by DCHD, allow the community to receive smart growth funding.

In each case, the Zoning Bylaw also establishes a Zoning Board of Appeal. The responsibility of the Zoning Board is to hear cases where the literal application of the Bylaw would result in a “hardship” for an individual property owner and/or would deprive a property owner of all reasonable use of the land. The Board is empowered to grant variances in those cases assuming the conditions for “relief” have been met. Zoning Boards may also grant certain Special Permits (if so empowered by bylaw) for uses where special conditions must be met as a pre-requisite to development. They also hear appeals of decisions made by the Planning Board in the development review process described below.

“Chapter 40B is a state statute, which enables local Zoning Boards of Appeals to approve affordable housing developments under flexible rules if at least 20-25% of the units have long-term affordability restrictions.” (Mass.gov 2018). This Chapter 40B law may supersede zoning and certain land development rules leading to unanticipated residential development in areas previously considered unsuitable for such development. One way a municipality can reduce the uncertainty associated with 40B projects is to prepare a Housing Production Plan to meet the community’s goal for affordable housing. As summarized on the state’s Chapter 40 B Housing Production Plan website:

A Housing Production Plan (HPP) is a community's proactive strategy for planning and developing affordable housing by: creating a strategy to enable it to meet its affordable housing needs in a manner consistent with the Chapter 40B statute and regulation

The HPP regulation became effective on February 22, 2008 when the DHCD promulgated 760 CMR 56.00, Comprehensive Permit; Low or Moderate Income Housing. The HPP regulation is contained in 760 CMR 56.03(4). HPPs replace Planned Production under 760 CMR 31.07(1)(i).

If a community has a DHCD approved HPP and is granted certification of compliance with the plan by DHCD, a decision by the Zoning Board of Appeals (ZBA) relative to a

comprehensive permit application will be deemed "consistent with local needs" under MGL Chapter 40B. "Consistent with local needs" means the ZBA's decision will be upheld by the Housing Appeals Committee.

Municipal zoning provides very good protection of the areas along SuAsCo WSRs for the most part, especially in combination with large areas of protected conservation lands. Some of the zoning challenges with respect to resource protection are a result of the historic village developments along the river (Concord, West Concord, Wayland). While these villages are an important asset to the cultural and scenic values of the rivers, they often pose challenges to new growth and redevelopment because of lot densities and inadequate infrastructure (wastewater disposal and water supply, for example) in addition to the historic constraints and water resource constraints such as flood hazards.

4.3 Subdivision Regulations

All eight WSR municipalities have adopted a "Subdivision Bylaw" and/or the "Subdivision Rules and Regulations" pursuant to MGL Chapter 41 Sections 81K – 81GG . These typically apply to subdivision of land into three or more lots (two lots if insufficient road frontage exists). While the Zoning Bylaw indicates WHAT uses are permitted on a property, the subdivision bylaws indicate HOW those uses may be developed. They specify the procedures by which the local regulatory authorities will review and approve proposed land subdivision and development projects and set minimum standards for projects that typically include more detail than that provided in the Zoning Bylaw. Unlike the Zoning Bylaw, the subdivision regulations provide specific requirements for evaluation and protection of natural and cultural resources during the subdivision review and approval process. The Planning Board's approval process also involves approvals or opinions from other municipal authorities such as Conservation Commissions (wetlands), Health Agents (septic systems), and Public Works (infrastructure needs / capacity), among others. Appeals to Planning Board decisions pursuant to subdivision bylaws and regulations are made to the Municipal Zoning Board of Appeals.

4.4 Special Resource Protection

Each of the eight WSR municipalities has its own set of local bylaws / ordinances and regulations. These local laws cover a wide range of topics based on state requirements and local priorities. All municipalities have a Wetland Protection Bylaw and a Flood Hazard Protection Bylaw, although the exact bylaw name and its location within the municipal laws may vary. Many local bylaws / ordinances provide specific protections for resources considered important within the communities. They range from nuisance laws about garbage and debris to underground storage tanks to scenic roads and "dark skies" bylaws that control outside lighting. This study reviews the local requirements and guidance contained in the bylaws for the protection of wetlands, floodplains, stormwater management, groundwater aquifers, public wells, and any other resources that may be related to the protection of the WSR values.

4.4.1 Wetlands and Rivers Protection

The eight municipalities along the WSR implement wetland and river protection through local Conservation Commissions pursuant to the Wetland Protection Act as described in Section 3.27 above. The Massachusetts Association of Conservation Commissions (MACC) updated their database of municipal wetland protection bylaws in 2017; Table 3 at the end of this report presents most of the MACC data for the municipalities in the SuAsCo WSR watershed. All eight of the SuAsCo WSR communities have Wetland Protection Bylaws that go beyond the minimum WPA requirements in some way. All have expanded buffer zones to additional resource areas and/or expanded the size of the buffers applied. Many have expanded vernal pool protections. These and other expanded protections of wetland resource areas are shown on Table 3 and described for each municipality in Section 5. In terms of local capabilities to implement the local Wetland Bylaw, each of the municipalities has a Wetland Administrator to assist the Conservation Commission with technical and administrative duties. Most or all of these are full-time positions, and some have other municipal staff to assist them. All of the eight Conservation Commissions meet twice monthly, except for Carlisle's Commission which meets once per month.

4.4.2 Floodplains

All of the municipalities in the study area have adopted flood hazard bylaws. These local bylaws are required by the Federal Emergency Management Agency (FEMA) as a condition of participation in the National Flood Insurance Program (NFIP) and most of them are based on the FEMA minimum requirements. As a result, most of them include the same, or similar, provisions that protect floodways, prohibit / regulate development in flood hazard areas, regulate placement of mobile homes in floodplain, and establish requirements for stormwater management, debris management, and often establish erosion and sedimentation control requirements for flood prone areas. Although zoning and subdivision bylaws include flood-related provisions, the municipality's flood hazard bylaws may be a separate chapter of the municipal general bylaws. These will include specific reference to the NFIP, and cite the FEMA Flood Insurance Rate Maps (FIRMs) as depicting the regulated area. Many municipalities have included flood hazard overlay districts to their zoning regulations with the flood hazard boundaries corresponding to those depicted in the FIRMs.

4.4.3 Stormwater

Regulations regarding stormwater management for new development are generally included in the zoning and subdivision regulations. Additional stormwater bylaws have been adopted by municipalities with municipally-owned stormwater drainage systems. Restrictions on new connections, inspection, enforcement and management of stormwater infrastructure are specified. These and other local strategies to manage stormwater are required for a municipality to be eligible for authorization to discharge stormwater from a municipal stormwater system pursuant to the NPDES General Permits for Stormwater Discharges From

Small Municipal Separate Storm Sewer Systems in Massachusetts issued by EPA in 2016 and which went into effect July 1, 2018. All SuAsCo WSR member municipalities except Carlisle are required to obtain permit approval from EPA upon submission of a Notice of Intent application indicating compliance with the general permit conditions. Carlisle received an exemption from the small community MS4 permit requirements from EPA in 2015. Most SuAsCo WSR municipalities have laws in place that will satisfy at least some of the general permit requirements; it is likely that additional actions will be need to be taken by municipalities to be eligible for authorization under the general permit. The stormwater general permit includes a phased approach to compliance beginning with submission of a Notice of Intent by October 1, 2018.

4.4.4 Groundwater

Significant groundwater aquifers and recharge areas lie within the SuAsCo WSR watershed (Figure 7). These represent high yield aquifers suitable for public water supply. They were created by glacio-fluvial deposits during the ice age. Areas inside and outside these groundwater reservoirs are also used for individual water supply wells and small community and non-community wells. Groundwater is a critical resource to the rivers. It feeds relatively clean and cool water into tributaries and into the river. Without a diminution in groundwater resources the WSR would have even more serious flow and quality issues.

A number of public water supply wells use these groundwater resources. MassDEP's drinking water regulations (310 CMR 22) defines "Zone I" (wellhead), "Zone II" (aquifer recharge), and "Zone III" (aquifer watershed) areas and requires municipalities enact regulations to protect these resources. Many of the communities in the watershed have groundwater protection overlay districts with additional resource protections including land use restrictions and performance standards for new development. Groundwater recharge is encouraged through the Stormwater Handbook BMPs, the Water Management Act and the MS4 general permit.

4.4.5 Wastewater (Septic Systems and Sewers)

Septic systems (subsurface sewage treatment disposal systems), are regulated by municipalities pursuant to 310 CMR 15.00, also known as "Title V". Local bylaw authorizes Municipal Health Departments / Boards of Health and their Agents provide permits for septic systems pursuant to these provisions. The bylaw is typically part of the municipal general bylaws and follows state requirements. Both the Bedford and Framingham are served by the MWRA sewer system. Both have bylaws governing their responsibilities as part of their general bylaws.

4.4.7 Soil Erosion & Sedimentation Control

Local Zoning, Subdivision, Stormwater Management, and Wetland Protection bylaws all provide for managing stormwater from new projects and providing for proper control of erosion and sedimentation during construction. These bylaws tend to be oriented toward fulfilling certain requirements of the federal Clean Water Act as implemented through EPA and MassDEP regulations; they require minimum controls on soil disturbance during construction to reduce soil erosion and pollutant discharges from stormwater runoff. Relatively small areas of soil disturbance may be regulated, and in a determination of applicability is typically required from the building official for such disturbances. Conformance with the state standards as articulated in the Massachusetts Stormwater Handbook is required. Large projects disturbing over one acre of land are permitted under the EPA Construction General Permit.

4.4.8 Resource Extraction

Resource extraction (mining, quarrying) is an activity that is covered under the municipal zoning bylaw. Some communities, particularly those with a history of quarrying and/or sand and gravel excavation, have adopted local bylaws that regulate mining and resource extraction. These are typically adopted to work in conjunction with erosion and sedimentation control regulations, to reduce noise, protect air and water quality, and regulate truck traffic associated with extractive industries.

4.4.9 Solid Waste

Municipalities also have local bylaws that regulate solid waste. These vary widely, but almost all are based on the community “Police Powers” for the protection of public health and safety. They typically prohibit unauthorized disposal, littering, trash and debris and recycling as well as for solid waste storage, collection and disposal.

4.4.10 Vegetation

Municipalities have bylaws that relate to the protection of vegetation, including zoning regulation of maximum impervious cover allowed on a lot, wetland protection requirements and tree bylaws typically restricted to public street trees and/or to trees on public property. Local tree bylaws provide for minimal fines for removing public trees with permission of local authorities. Some municipalities also have a “Tree Warden” charged with managing publicly owned trees, trimming limbs that overhang streets or utility wires and, as needed, removing trees that are seriously damaged, diseased or otherwise a threat to public safety. A few municipalities have adopted bylaws to protect rare, threatened or endangered plant species, typically by prohibiting collection and/or by regulating disturbance within critical habitat areas. Most municipalities’ land development regulations include provisions for vegetated buffers and / or landscaping associated with large development proposals.

Invasive / nuisance plants pose problems potentially affecting WSR ORVs throughout the SuAsCo WSR. No specific requirements for control of invasive species were identified in the regulatory review. However, such control measures have been included as mitigation for some land development projects as a condition for wetlands and/or subdivision approval. Invasive species control measures tends to be most successful when they are part of a long-term invasive species management plan.

4.4.11 Special Habitats

Although community plans typically identify important habitat areas in each municipality, and most of the municipalities include general requirements for protection of special habitats as part of their development regulations, very few study area municipalities have chosen to protect special habitats for fish, wildlife, or vegetation directly through local bylaws. Hunting, fishing, and logging are regulated at the state level supplemented by local bylaws. These typically have a stronger focus on public safety and resource sustainability rather than habitat protection. It appears the most common means of protecting special habitats in the study area is for the communities to acquire the land containing those important habitat areas and protect them through public ownership. Open space set-asides and other contributions to public open space are often targeted towards habitat protection.

The MassDEP Division of Fisheries and Wildlife (MassWildlife) provides mapping of rare species and critical habitats that municipalities use in conservation planning. The MassWildlife Natural Heritage & Endangered Species Program maps have regulatory importance with regard to the Massachusetts Endangered Species Act (MESA) and other state laws. Coldwater Fishery Resources (e.g., trout streams) are identified by MassWildlife and provided some protection under the Rivers Protection Act and Water Management Act. Some important tributaries of the Wild & Scenic Rivers are CFRs. They provide relatively clean and cold water to the rivers.

4.4.12 Open Space Conservation

All the study area communities have some local bylaws or regulations for protection of open space. Some require dedication of public open space / parks (or equivalent in lieu fee payment) as a condition of approval for larger developments. Most require that open space at least be identified as part of all major land development projects. The Conservation Commissions have the prime role in preparing the municipal OSRP and making recommendations for land acquisition. CPA communities have Community Preservation Committees with key roles in open space conservation. Responsibilities of these institutions are included in municipal general bylaws / ordinances.

All the study area municipalities have some form of Land Trust, Conservancy or other private conservation organization that functions to acquire and protect open space locally. These organizations own land outright, hold conservation easements, and serve as rights holders for acquisition of property development rights. Some Land Trusts are areaspecific and are active in

only one municipality. Others are natural resource oriented and are active in more than one community. Jurisdictions frequently overlap such that communities are served by multiple such organizations.

4.4.13 Historic / Cultural Resources

Rivers in the SuAsCo River watershed include historic villages that date back to the early days of European colonization. Native American cultural resources are also present throughout the SuAsCo Watershed as well as the riparian corridors. Historic and other cultural resources occur along the rivers due to their importance for fisheries, transportation and water power. A number of municipalities have enacted regulations to protect these resources, including provisions for resource identification and preservation as part of land development regulations, and historic village overlay districts in the zoning bylaw. Where enacted, such village overlay districts typically attempt to preserve the historic village character with design guidelines / standards. Some municipalities have an independent Historic District Commission that regulates Historic Districts pursuant to specific bylaws. Municipalities may require historic / archaeological studies as part of the land development review process. Most of the historic villages along these rivers include old mills that present difficult challenges for preservation and reuse. CPA communities have Community Preservation Committees as noted above; they are involved in CPA funded preservation project.

4.5 Summary Comparison Matrix

The Summary of Plans and Bylaws (Table 4 at the end of this report) lists each municipality along with an indication of the primary regulatory basis of resource protection, if any, for the natural and cultural resources associated with the WSR riverside areas and watersheds. This matrix does not attempt to evaluate the effectiveness of local protections, nor does it discuss regulations applicable only outside the SuAsCo WSR Watershed.

5.0 Summary & Recommendations by Municipality

This section provides a municipality by municipality summary of relevant plans and bylaws, and provides recommendations for additional regulatory protection of wild and scenic river values. Recommendations contained in this section relate to local plans and regulations; the reader is also directed to “Action Strategies for the Future”, Chapter 6 of the Stewardship Plan for additional voluntary actions which would provide enhanced resource protection in multiple communities. This information is presented by municipality in alphabetical order. Each section begins with an overview of resource protection followed by a discussion of relevant portions of the municipality’s plan, zoning, land development, and special resource protection regulations.

5.1 Bedford

Summary

Bedford’s western boundary follows the Concord River WSR designated segment in the northeast portion of the SuAsCo WSR watershed. Most of Bedford within the WSR watershed is permanently protected open space, including portions of the Great Meadows NWR. Most of the land not in conservation is developed residential land. The SuAsCo 2015 Unprotected Land Inventory identifies five priority sites, all categorized as “Management Area Priorities”.

Plans

Bedford’s plan is “The Bedford We Want: Shaping Our Future, Comprehensive Plan” (Bedford, 2013).

Bedford’s plan summarizes its vision for the future:

Bedford realizes its full potential as a well-connected community, providing a healthy living environment with a balance of distinctive commercial, residential, institutional, and governmental centers, linked open spaces, friendly, well-knit neighborhoods, and employment in an expanding new economy. The Town enhances its base of wetlands, streams, habitat and natural resource areas while fostering redevelopment and new growth in appropriate patterns of development. (p. 2-1)

Bedford needs appropriate redevelopment and land use management to maintain its balance and remain competitive in the region. Improvements to the pedestrian, bicycle and greenway network are a complementary future strategy, with significant implications for natural resources and open space, transportation, health and wellness and community character. (p 2-3)

The plan recognizes that additional regulatory controls are needed to adequately protect the town's natural resources:

Ensuring a Healthy Environment. Natural resources are under growing pressure from severe weather and higher flood levels owing to climate change. These storms damage roads, utilities and telecommunications, degrade water quality, stress trees and other vegetation, harm public and private property, and undermine public health. At the same time, wetlands are becoming more important in managing stormwater. Yet encroaching redevelopment, dwindling opportunities for land acquisition, and a lack of robust regulatory tools undermine efforts to protect natural resources. Incorporating those tools into zoning bylaws could help. (p. 1-5).

The comprehensive plan's vision for future land use is presented in a number of maps but summarized in its "Land Use Structure Map" (Appendix C). This map shows most of the lands along the Concord River as open space or residential, reflecting existing land uses. The map is somewhat misleading in the northwest area of town in the vicinity of Dudley Road; the map depicts large undeveloped tracts as residential use while the plan's open space map indicates much of this undeveloped "residential" land is in fact private open space with conservation restrictions.

While Bedford's comprehensive plan provides a solid basis for continued river protection, it does not mention the SuAsCo WSR or the town's role on the RSC.

Zoning

Bedford's zoning bylaw is contained in The Town of Bedford Zoning Bylaw (2017) separate from the General Bylaws of the town. It includes standard sections and provisions of the state enabling act and regulations including: administration, definition of districts (including aquifer protection, floodplain and wetland overlay districts), use regulations, dimensional and landscape requirements, and special requirements.

Zoning Map - Most of the land along the Concord River in Bedford, just slightly more than 2 miles of riverfront, is zoned Residence R (R) with a minimum lot area of 60,000 square feet and a minimum frontage of 200'. The R zone extends from the boundary with Billerica southward along the river to a point just north of the river bend, opposite Ball Hill. From there south, roughly 2/3 of a mile of land along the river is zoned Residence C (R-C) with a minimum lot area of 25,000 square feet and minimum frontage of 115 feet. The R-C zone reflects existing development density between Davis Road and the river. The remaining ¼ mile of riverfront land in Bedford is zoned Residence B (R-B) with a minimum lot size of 30,000 square feet and a minimum frontage of 125 feet. The R-B zone reflects existing development density along Concord Road.

Land Development

Bedford's subdivision and land development regulations are contained in the Planning Board's Rules and Regulations Governing the Subdivision of Land (1990). These regulations are relatively old, but their applicability in Bedford's SuAsCo WSR watershed is very limited due to the absence of parcels available for subdivision.

Special Resource Protection

Bedford's Wetland Protection Bylaw (Article 54 of the General Bylaws) has been updated through 2016. This bylaw goes beyond the minimum requirements of the WPA by setting certain restrictions within 100-foot Buffer Zones, and by allowing the collection of fees for expert assistance from the applicant. The bylaw has limited applicability due to the absence of undeveloped lots without conservation restrictions. There appear to be a few lots that might be developed in the absence of wetland protection.

Bedford also has General Bylaws Article 53. Rivers, which regulates the use of motorboats on the River, and allows coordination with adjacent municipalities for that purpose.

Recommendations

- Include a discussion of the SuAsCo WSR in the town's comprehensive plan including a statement of support and commitment to consistency with the updated SuAsCo WSR Conservation Plan.

5.2 Billerica

Summary

Billerica includes the downstream portion of the Concord River designated Wild and Scenic (downstream terminus of the WSR is the Route 3 bridge). Billerica lies at the northeastern (lowest) portion of the SuAsCo WSR watershed; a small portion of the WSR watershed extends north and east of Route 3 around Nutting Pond (Mill Brook). The land along the Concord River and in the WSR watershed is already mostly developed. Several large undeveloped parcels along Dudley Road near the Concord River are identified in the SuAsCo WSR 2015 Unprotected Lands Inventory as Land Protection Priorities.

The Concord River is the source of drinking water for Billerica, and it requires significant treatment to meet drinking water standards:

The Concord River provides the sole source of drinking water for the Town of Billerica. The Town broke ground in 2003 on a new \$25 million water treatment plant located off Treble Cove Road, with a capacity of 14 million gallons per day (gpd). The Town has MassDEP approval to withdraw 5.26 million gallons per day (gpd) on an annual average. The Town's annual water consumption in FY 15 was approximately 1.784 billion gallons, with the average of 4.89 million gallons of water used per day (gpd). The highest daily pumping occurred on May 27, 2017 when 8.79 million gallons were produced. (Billerica, 2018)

Plans

Billerica's master plan was completed in April 2018 (Billerica, 2018). Its land use vision states:

Billerica will be enjoyed by its residents, workers, visitors, and investors as a healthy and well-connected Smart Growth community that embraces its rich places and unique land use patterns while becoming more balanced in terms of its commercial, residential, industrial, and institutional land uses. A community that is inter-linked, with an accessible and ever-expanding open space and recreation network. Our land use sectors will better transition between our residential neighborhoods and natural resource areas with environmental sensitivity and our community character and quality of life will be enhanced through an integrated land use pattern.

Land use goals 2 and 4 are particularly relevant to the SuAsCo WSR; these are shown below along with associated action items:

Goal 2 Preserve and strategically utilize the Town's natural resources and open spaces to improve quality of life and healthy living in Town.

LU-5 Continue preserving existing forests and conservation land while collaborating with state agencies, land trusts, and private landowners to seek more opportunities to expand the trail network and enhance public accessibilities for passive recreation.

LU-6 Identify town-owned land as well as other opportunity sites along Concord and Shawsheen rivers as target areas for creating public access points to the river.

LU-7 Coordinate regionally to develop long range land use strategies along the Concord and Shawsheen River corridors that will promote water quality improvements, wildlife habitat restoration, and public access to regional waterfront recreation resources.

LU-8 Identify parcels to expand and connect the existing open space and natural resources.

Goal 4 Improve the design and connectivity of our public realms, including gateway areas, streets and sidewalks, parks and open spaces, and civic places, to reinforce our community character while fostering a healthy and active lifestyle.

LU-12 Develop design standards and guidelines for the Town Center and Route 3A commercial corridor to enhance building character, parking configuration, and public realm interface.

LU-13 Leverage public and private capital investment, as well as permitting and site plan review process, to beautify Billerica by improving the quality of public realm design and enhancing neighborhood identities.

The Master Plan's vision, goals and actions related to natural resources are also relevant:

Vision:

Billerica will be renowned for its abundant natural resources and open spaces with their environmental integrities preserved and enhanced. Our connection to the Concord and Shawsheen Rivers, forests, and open lands will be widely known, accessible, and appreciated by residents and visitors alike; our critical wildlife habitats within our landscapes and ponds will be restored for ecological balances at a local and regional level; and our wetlands will be protected as valuable green infrastructures to enhance our climate resilience. Together, these resources are woven and connected within the community fabric and help define the unique characters of Billerica.

Goals and Actions:

Goal 1 Continue to inventory and publicize the natural resources in Town and make them connected and accessible for public enjoyment.

NR-1 Maintain and promote a centralized information hub (such as the town's website) to publicize access information regarding Billerica's natural resource and open space assets in order to increase public awareness, use, and appreciation of these resources, and to build support for continuous resource protection, management, and acquisition.

NR-2 Inventory existing trails and paths in town and identify critical parcels that will help expand the trail network and improve the accessibility and connectedness of existing open space resources. Create additional trail linkages through a variety of means, such conservation easements, land donations, and town acquisition.

NR-3 Establish a comprehensive wayfinding system for the town's open space and trail systems that also offers educational and interpretive information for the benefit of residents and visitors alike.

NR-4 Collaborate with stakeholders, town departments, and volunteers to reclaim deserted, blocked, and/or encroached public access to rivers and ponds in town.

Goal 2 Preserve and enhance our existing conservation and open space resources with Smart Growth land use approaches while targeting priority areas for future resource acquisition.

NR-5 Adopt innovative Smart Growth land use regulations, such as Transfer of Development Rights and Open Space Residential Design, to preserve open spaces while stimulating well-planned development.

NR-6 Identify and inventory additional parcels of critical environmental values, such as for open space linkage, wetland and floodplain integrity, public waterfront access, intrinsic biodiversity, agriculture, or continuity with larger tracks of conservation land, etc. Actively seek public and private partnership and funding sources for resource acquisition and encourage Agricultural Preservation Restriction and Conservation Restriction by landowners.

Goal 3 Protect our surface waters from non-point source pollutions and improve the overall water qualities.

NR-7 Enforce the Town of Billerica Stormwater Management By-law.

NR-8 Adopt stormwater Best Management Practices such as Low Impact Development in site design standards, particularly for commercial and industrial districts in close proximity to open waters.

Goal 4 Enhance our climate resilience against severe storm and flooding events through the protection of wetland and floodplain resources.

NR-9 Enforce the Town of Billerica Wetlands Protection By-law to ensure no net loss of total wetlands in town.

NR-10 Stay up-to-date on FEMA flood hazard information. Preserve existing and projected floodplains for their flood storage values by siting new development away from high hazard floodways.

The Town's vision for historic preservation and certain related goals and actions are also relevant to the WSR:

Vision:

Billerica is known for its work to preserve and enhance its historic resources. The town is a recognized leader in providing physical and educational links between the town's historic resources and the Concord and Shawsheen Rivers, which help define Billerica's heritage and have resulted in unique architecture and special places like Faulkner Mills. The historic character of the town's diverse neighborhoods are preserved through the responsible design of both alterations to older buildings and new construction, enhancing each neighborhood's quality of life. The town's residents interact with these resources on a regular basis, making the Billerica's heritage an active economic and cultural benefit.

Goals and Actions:

Goal 1 Enhance Billerica's civic education programs and instill pride in the town's rich heritage.

HR-1 Enhance the current local history curriculum in schools by coordinating with the Billerica Historical Society's existing program.

HR-2 Publicize and expand recent school heritage projects, such as the student walking tour of the town center and the creation of the Ditson School mural.

HR-3 Support and promote ongoing preservation activities and priorities.

Goal 2 Develop programming and key projects to promote opportunities for everyday interactions with the town's history and resources.

HR-4 Develop relationships with key partners to encourage complementary, interactive programming (such as Department of Public Works; Billerica Arts Council; Cemetery Commission; Conservation Commission, Recreation Department; Sudbury Valley Trustees; Middlesex Canal Association; and Billerica Historical Society).

HR-5 Develop a ten-year strategic plan for the former Howe School.

HR-6 Seek grants and survey and project funding through MHC and other entities that support local heritage and outreach projects.

HR-7 Evaluate the consolidation of the Middlesex Canal Museum and the Howe museum with the mill district.

HR-8 Enhance the town's historic inventory by identifying neighborhoods which have not been previously studied and are integral to the town's historic development, such as Nutting Lake.

Goal 3 Explore the potential adoption of the Community Preservation Act, in order to provide funding for historic preservation, open space, and affordable housing projects.

HR-9 Connect with the Community Preservation Coalition to discuss strategies, challenges, and potential residents' concerns, and connect with neighboring towns that have passed CPA to gain input based on their experience, such as Bedford, Carlisle, Chelmsford, and Tewksbury.

HR-10 Identify priority projects which are highly visible and have the highest public benefit, such as the establishment of the museum, or creating connections between interpretive markers in the village and along the Middlesex Canal with a bicycle/pedestrian path, for consideration and feasibility as potential future CPA projects.

Although the Master Plan makes reference to the Concord River's federal designation as a Wild and Scenic River (south of Route 3), there is no specific mention of the Town's involvement with the SuAsCo Wild and Scenic River Stewardship Council. Action items presented in the Implementation Matrix identify various parties including the Planning

Board and Conservation Commission as having a role in implementation; the matrix also sets forth a time frame for implementation.

Zoning

The “Zoning By-Laws of the Town of Billerica” were updated in 2017. It includes standard provisions for administration, enforcement, district establishment, use limitations and dimensional standards. In addition to conventional districts, the bylaw also establishes nine overlay districts including those related to historic preservation, floodplains, cluster residential development, and planned unit development (PUD). It includes special provisions for solar electric systems.

Zoning map –Land along the east bank of the Concord river in Billerica from Route 3 south to Bedford, roughly 2.25 miles of riverfront, is zoned Rural Residence (RR). The RR zone has a minimum lot area of 50,000 square feet and a minimum lot frontage of 200 feet. Land on the west bank is split between two zones. The RR zone applies to roughly half a mile of riverfront extending from Route 3 southward to Cobblestone Way. The Village Residential (VR) zone applies to the remaining roughly $\frac{3}{4}$ of a mile to the Carlisle boundary. The VR zone has a minimum lot size of 30,000 square feet and a minimum frontage of 150 feet. There are also a few properties along the river at the Route 4 (Nashua Highway) bridge crossing, including the River View Restaurant and Billerica Motorsports & Marine, that are zoned General Business (GB) and Neighborhood Business (NB).

Land Development

The “The Rules and Regulations Governing the Subdivision of Land in Billerica, Massachusetts” is dated 12/98 but appears to have sections updated more recently. It contains standard sections related to administration, plans believed not to require approval, requirements related to phased development review and approval (Preliminary and Definitive Plans), design standards, and required infrastructure improvements.

Special Resource Protection

The Billerica Wetland By-Law is Article XXII of the General By-Laws; it is administered by the Conservation Commission along with their “Wetland Protection Regulations” (2008). The bylaw and regulations follow the WPA requirements, and provide additional requirements beyond the WPA minimum requirements including additional vernal pool protection, a 25 – 50-foot No Alteration Zone in the inner portion of the 100-foot Buffer Zone, and reimbursement of expert expenses incurred by the Commission for project review.

Billerica's General Bylaws also provide for regulation of public utilities (water and sewer system infrastructure), stormwater management, and parks.

Recommendations

- Identify the SuAsCo Wild and Scenic River Stewardship Council as a stakeholder for relevant action items in the Master Plan.
- Incorporate and the SuAsCo WSR Conservation Plan in local planning and future town Master Plan.
- Consider efficacy of Open Space zoning of riverfront areas; identify specific institutional / legal barriers to adoption of Open Space zoning of riverfront areas.

5.3 Carlisle

Summary

Carlisle's southeastern border is formed by the WSR designated portion of the Concord River; the eastern third (+/-) of the town drains to the Concord River; the southwestern third of the town drains to the Assabet River; the northern third of the town lies outside the SuAsCo WSR watershed. The town is rural, with low density residential and agricultural uses and a few businesses scattered around town, but mostly in the Carlisle village center. Conservation lands occur scattered throughout town, and in particular along the Concord River. The 2015 SuAsCo WSR Unprotected Land Inventory identifies a number of parcels alongside the Concord River south of Route 225; some but not all of these are identified in the Carlisle OSRP.

The Carlisle Master Plan process is underway; this will essentially be a new plan compared to the last plan which was approved in the 1960s. The town OSRP was updated relatively recently; it provides an excellent basis for conservation and recreation planning, and provides much of the baseline information which one would find in a master plan (e.g., analysis of growth and development). Large lot residential zoning combined with thoughtful conservation planning should ensure protection of SuAsCo WSR values in the future.

Plans

Carlisle's master planning process is underway; the Master Plan Steering Committee has prepared a "Carlisle Master Plan Report, Outline of Master Plan Approach, Process & Scope of Work" for the Planning Board in November 2017 (Carlisle, 2017). The following excerpts provide context for the ongoing planning effort:

Purpose

Carlisle seeks to develop a comprehensive long-range master plan that addresses both short-term needs and long-term goals for the town. The master plan, developed through a community process, will inform town policy, guide decision makers and inspire members of the community to participate in Carlisle's ongoing improvement as a sustainable community. The Master Plan Steering Committee (MPSC) has prepared the following recommendations to the Planning Board on how to proceed over the next two years to engage the Carlisle community in the planning process, to potentially procure planning consultants, and to develop a comprehensive and integrated master plan.

Background

The Town of Carlisle is a predominantly residential community[with] a population of 5,074 residents (U.S. Census 2015)... and a land area of 15.5 square miles. Once called "...city of the woods..." by Henry David Thoreau, Carlisle is a rural community with over 30% of the land under some form of conservation

restriction. Carlisle residents enjoy the charm of a New England farming community with an historic rural character, unspoiled woods and an extensive network of trails, including those of the Great Brook Farm State Park The last official master plan was completed in 1960. The town is in need of an integrated, comprehensive plan to help us make more informed decisions and plan proactively to address opportunities and challenges moving forward.

Guiding Principles

The MPSC has developed a set of four guiding principles for the master planning process. These principles embody an approach that reflects the values and distinct attributes of the Town of Carlisle and will inform the planning process and the selection of master plan committee members and consultants.

a) Integrated Planning *The master plan must incorporate the elements required by the State as outlined in M.G.L. Ch. 41, s. 81-D. ... In addition to the state’s required elements ... MPSC has developed an “Integrated Planning Framework” that encompasses all of the topics relevant to creating a sustainable future for the Town of Carlisle.*

b) Action Oriented Approach *The master plan should identify clear policy direction and priority projects, outline roles and responsibilities, and define approaches to funding and implementation with the expressed goal of timely implementation....*

c) Community Engagement *The master plan should undertake a robust community engagement process that reaches and engages with all of Carlisle’s constituents....*

d) Measure Success *The master plan process should embrace a performance-based approach that establishes targets and a dashboard for measuring outcomes....*

The Carlisle Master Plan process described in this report is phased, with essential baseline data gathering (GIS mapping, community surveys, resource inventories) occurring in Phase I “Exploration” (September 2018 to March 2019) and strategic planning and policy development in Phase II “Strategy / Policy” (July to December 2019).

Open Space Plan

The Town of Carlisle Open Space & Recreation Plan (Carlisle, 2013) provides detailed, substantive information on resources, plans and policies relevant to the SuAsCo WSR. The following are excerpts from the plan’s summary:

Carlisle has permanently protected approximately 3,362 acres, or about 34%, of its undeveloped land. Overseers of this protected open space include the Carlisle Conservation Commission, the Carlisle Conservation Foundation, The Trustees of Reservations, Harvard University, the New

England Forestry Foundation, the Commonwealth of Massachusetts, and the federal government. Private citizens have contributed approximately 627 acres (an increase of 25% since 2005) of Carlisle's open space by means of permanent conservation restrictions (CRs) on their properties.

Carlisle enjoys a long history of publicly supported efforts to preserve its rural appearance and protect natural resources and wildlife habitat. Over the years since the early 1970s, various study groups and surveys have ranked saving Carlisle's small-town rural character as the highest priority in shaping the town's future. Recent surveys have confirmed citizen support for expanded facilities for active recreation and community activities. ...

The 2013 Open Space and Recreation (OS&R) Plan includes an inventory of lands of conservation and recreation interest, including Town-owned, Commonwealth-owned, federally owned, and privately owned protected land; lands and facilities used for active recreation; publicly owned unprotected land; and a priority ranking of privately owned unprotected parcels. The acquisition of 9 acres of the top-ranked Elliott property, with 1,000 feet of riverfront along the Concord River, has been a major focus for the past two years.

Looking to the future, the 2013 OS&R Plan states the need to preserve additional open space for groundwater protection, conservation, and recreation as the population increases. Groundwater issues may become more significant in the future as increased numbers of households provide for their own drinking water and sewage disposal, especially in denser 40B developments that can override 2-acre zoning. Acquisitions of land for conservation will enhance already protected land and the additional land will improve and expand both wildlife corridors and links between walking trails.

The Plan states the need for ongoing maintenance of existing open space, which has become more evident in recent years, with land stewardship receiving increased attention both within town government and local conservation groups. Good stewardship includes the development of baseline assessments and management plans, improved signage, and efforts to monitor and control invasive plants and burgeoning deer populations. ...

An important part of the planning process has been the Americans with Disabilities Act (ADA) Access Self-Evaluation of public lands and facilities. Carlisle needs to develop communication channels with the disabled

community and improve handicap accessibility to both recreational facilities and conservation lands and is developing transition plans to help prioritize these efforts.

Recognizing Carlisle's community vision and its needs in the areas of conservation and recreation, this Plan includes objectives that will help to meet four primary goals.

Goal 1: Maintain the rural character of Carlisle.

Goal 2: Protect the town's environment.

Goal 3: Meet the town's recreational needs.

Goal 4: Proactively manage land use in town.

In order to address each of these goals, 15 Town boards and interested groups developed their seven-year action plans, or initiatives, for 2013 through 2019. From these, the OS&R Plan Committee identified a list of high-priority initiatives including expansion of recreation fields and facilities; evaluating sites for a possible community center; improving trail connections within town, to neighboring communities, and to regional trail networks; protecting important rural vistas; increasing access for persons with disabilities; and resolving long-standing issues on the Town's Cranberry Bog and Greenough Lands.

The Plan is enhanced by detailed full-color maps, benefiting from the recent conversion of the Town's hand-drawn Assessors' maps to Geographic Information Systems (GIS). This conversion was coordinated by members of the OS&R Plan Committee. Town boards and committees are encouraged to use and expand the GIS database to make GIS a working tool for document retrieval, planning, and oversight of open space, municipal land, CRs, water resources (including private wells and septic systems), and other resources. The town should also develop protocols to make GIS data available to Carlisle's citizens through the Town website to improve their access to and understanding of existing town data for their properties and neighborhoods.

Goal 1 – Maintain the rural character of Carlisle.

Objectives

a. Protect natural features such as open fields, woodlands, wildlife habitat, and scenic vistas.

b. Protect corridors and trail linkages for wildlife and provide additional protected connections between existing open spaces.

c. Encourage agriculture in town.

Goal 2 – Protect the town's environment.

Objectives

- a. Protect the town's water resources: lands with surface water resources, wetlands, streams, ponds, or potential aquifer sites.*
- b. Protect natural spaces that provide ecological diversity.*
- c. Identify and protect sites with rare, endangered, or protected species.*
- d. Proactively manage protected lands, including invasives control.*

Goal 3 – Meet the town's recreational needs.

Objectives

- a. Upgrade existing recreation areas and facilities.*
- b. Provide additional sites for active recreation facilities and a possible community center (for recreation and senior activities).*
- c. Improve signage, accessibility, and communication channels for the handicapped.*

Goal 4 – Proactively manage land use in town.

Objectives

- a. Educate the town about the value of long-term planning for land use.*
- b. Guide where and how concentrated development occurs.*
- c. Encourage cooperation among diverse stakeholders involved in efforts to acquire land for municipal use.*
- d. Improve the Town's ability to finance preservation of open space and recreation.*

The plan describes a variety of methods to protect open space:

- Commonwealth and Federal Funding
- Adoption of the Community Preservation Act
- Permanent Conservation Restrictions
- Permanent CRs on Town Conservation Lands
- Agricultural Preservation Grants
- The local Open Space Land Development Trust
- Zoning that encourages protection of natural space
- Charitable Donations

The plan provides detailed action items for fourteen different town boards / organizations for the seven year period 2013 – 2019. Most of the priority projects are within the SuAsCo WSR, including a number fronting on the Concord River. Carlisle sites 1 and 2 – 7 in the 2015 SuAsCo WSR Unprotected Lands Inventory are identified as Priority 1 or 2 sites in the town's OS&R Plan.

Zoning

Carlisle's Zoning District Map (Appendix C) and Zoning Bylaws (2016, Appendix D) reflect the rural, low intensity development that characterizes the town. All the land along the Concord riverfront in Carlisle is zoned Residence B (R-B). The R-B zone in Carlisle has a minimum lot size of 2 acres and a minimum frontage of 250'. The R-B zone covers most of the town, with

small areas of higher density residential zoning (R-A, R-M zones) in Carlisle Center. Very small Business District (B-1) zones and a Carlisle Center Business zone are shown. A Historic District is also shown in Carlisle Center.

Carlisle also has wetland and floodplain overlay zoning. In addition to standard zoning bylaw sections (Purpose, Districts, Use Regulations, Intensity / Dimensional Requirements, Non-Conforming Uses, Administration and Enforcement), the bylaws also include the following regulations relevant to the SuAsCo WSR protection:

Section 5. SUPPLEMENTARY REGULATIONS

5.2 Wetland/Flood Hazard District

5.5 Conservation Clusters

5.6 Accessory Apartments

5.7 Senior Residential Open Space Community

5.8 Solar Photovoltaic Facility Overlay District

5.9 Personal Wireless Communication Facilities

Land Development

The Carlisle Planning Board Rules and Regulations Governing the Subdivision of Land is a stand-alone document updated through 2013. It provides the procedural and substantive requirements for subdivision of land, including a phased approach (Conceptual, Preliminary, and Definitive Plan submissions), conservation restrictions, development standards (design, infrastructure), performance assurances, and construction management. Attachment A Development Standards, I. General Development Standards states:

B. Developments shall:

1. Minimize, to the extent possible, the following:

- (a) Alteration of ground water, septic water levels or chemical constituents;*
- (b) Alteration or relocation of water ways and drainage patterns;*
- (c) Disruption, reduction of capacity, contamination, and other adverse effects on existing on site and off site drinking water wells;*
- (d) Any use of groundwater for irrigation of landscaping;*
- (e) Alteration of existing, natural grades, and overall volume of cut and fill;*
- (f) Area over which existing vegetation will be disturbed, especially if within 200 feet of a river, pond or stream, or having a slope of more than 15%;*

2. Maximize, to the extent possible, the following:

- (a) Preservation of uncontaminated water resources for drinking water and preservation of legal and practical functionality of existing drinking water wells and existing septic systems;*

- (b) Recharge of the underlying water aquifer;*
- (c) Visual prominence of natural features of the landscape;*
- (d) Legal and physical protection of views from public ways and existing protected open space;*
- (e) Connections via publicly accessed trails to and between protected open space and other trails;*
- (f) Buffers for and connections among existing protected open spaces;*
- (g) Wildlife corridors;*
- (h) Preservation of: (a) stone walls, by locating Lot and Parcel boundaries along the existing line of the walls; and (b) scenic points as identified in the Massachusetts Landscape Inventory and historic sites as identified by the Massachusetts Historical Commission, by incorporating them within public open space or easements as provided by the relevant regulation(s); and*
- (i) Curvilinear street patterns; ...*

E. Site planning, Height, Set-Backs, Screening, Landscaping, and Lighting... All developments should provide visual screening consistent with the density and setback requirements...An adequate vegetative buffer should be provided to minimize the visual impact of the development from existing roadways, from protected open space, and from existing and future housing development. Similarly, all developments should rely on and protect the natural features of the site such as open meadow, woodland, hillsides, rock outcroppings, water bodies, open vistas, valuable habitat and wildlife corridors, existing and potential trail connections which can provide public accessibility to open space, and buffers for and connections among existing protected open spaces through careful siting of roadways and structures. This section also promotes thoughtful outdoor lighting, protection of existing landscapes, use of native vegetation to provide visual and noise screening,

Section F. Open Space, states "... all developments should to the extent possible set aside, for perpetual protection, sufficient open space to serve the needs of the project residents and ensure that the proposed project is integrated within the existing neighborhood."

The Design Standards also require provision of public infrastructure and promote the use of "green development practices".

Carlisle's Subdivision Regulations, along with its Wetland Bylaw, also provides standards and enforcement mechanisms for stormwater management and control of erosion and sedimentation control during construction.

Special Resource Protection

Wetland Bylaw

Carlisle's Wetland Bylaw is Article 13 of the General Bylaws. This town bylaw does not go beyond the minimum requirements of the WPA except for the following:

- Section 3 Applications and Fees (includes fees to Commission for reimbursement of fees for experts needed to evaluate application)
- Section 10 Enforcement, and
- Section 11 Definitions (defines "Pond" as permanent surface waters 10,000 square feet or greater, exclusive of approved wastewater treatment ponds and swimming pools)

Recommendations

- Incorporate SuAsCo WSR Conservation Plan recommendations into Master Plan under development.
- Incorporate SuAsCo WSR Conservation Plan Recommendations into next OS&R Plan.

5.4 Concord

Summary

The Assabet and Sudbury Rivers combine to form the Concord River in the Town of Concord. The upstream terminus of the Assabet WSR segment is in western Concord, 1,000 feet downstream of the Damon Mill Dam. All of portions of the Concord River and Sudbury River in Concord are designated as Wild & Scenic River. The type and intensity of development in Concord poses both challenges, such as non-point source pollution, and opportunities, such as increased opportunities for public enjoyment of the Rivers. Population growth experienced over the past 20 years or so is expected to level off in the future such that little population growth is expected over the next 20 years or so. However, the town is actively looking for options to increase the housing stock to meet the town's needs for housing that existing residents can afford. Some of the town's goals related to housing and business development may conflict with conservation goals; the promotion of eco-tourism is a goal compatible with both business development and recreation goals.

Plans

Concord's Comprehensive Long Range Plan (CLRP) "Envision Concord: Bridge to 2030 Plan" was issued in July 2018. The following summarizes the plan's vision and recommendations for Concord's future:

Vision for Concord in 2030

The Town of Concord seeks sustainable growth and diversity that protects its historical and natural resources, while preserving its values, qualities and culture.

- *Essential components of a vision for Concord include:*
- *Maintaining the high level of services on which the community depends*
- *Strengthening environmental and fiscal sustainability*
- *Broadening the diversity of Concord's population and housing stock*
- *Improving communications to ensure that all citizens have the opportunity for their comments to be heard and considered at all levels of Town government*
- *Prioritizing opportunities to provide financial and community services expenditures for all residents in an equitable manner, helping to assure the continued ability of all residents to remain in Concord*

Section 1 of the plan includes a more detailed list of attributes essential to meeting the components of the vision and values statement.

Big Idea 1:

Strengthen the sustainability of local businesses and commercial districts and the cultural, historic and civic assets in Concord by connecting businesses to cultural, historic, and civic resources, and developing coordinated strategies that serve cross-sector goals.

Big Idea 2:

Create strategies that provide more housing choices consistent with town character and sustainability principles.

Big Idea 3:

Develop innovative ways to address transportation needs and challenges by aligning residents' direct needs with other goals such as supporting economic vitality, protecting the environment, and bolstering efforts to meet the Town's sustainability goals.

Plan recommendations associated with these Big Ideas trend toward increased economic development through tourism promotion and more flexible zoning; increase in residential dwelling units to meet housing needs, and an increase in multimodal transportation options with a decreased emphasis on individual use of internal combustion motor vehicles.

Specific plan goals include:

Historic and Cultural Resource Goals:

- *Foster better collaboration between cultural organizations, historical groups, and local businesses.*
- *Promote education and awareness among residents, Town officials, the business community, and visitors about the presence, variety and value of Concord's historic and cultural resources.*
- *Identify historical resources that are not adequately documented, not fully understood, or are yet to be discovered.*
- *Review effectiveness of regulatory tools to better protect and preserve historical character and cultural resources.*

Economic Vitality Goals:

- *Renew and improve Concord's village centers as vital pedestrian-friendly, economic, and social hubs that enable community engagement on a wider scale.*
- *Become a recognized and supportive community for business and social entrepreneurs to start and grow new businesses.*
- *Build local civic and government capacity for economic development with a special focus on (a) related arts, cultural and tourism activities; (b)*

medical and healthcare specialties; and (c) green/environmental businesses.

Housing Goals:

- *Develop realistic, achievable targets for preserving or creating housing of all types. Develop additional, self-sustaining funding mechanisms to support achieving these targets.*
- *Bring together private and public groups from a variety of disciplines and interests with the goal of identifying solutions for meeting housing needs.*
- *Discourage the demolition of smaller homes and their replacement with larger, more expensive residences.*
- *Encourage renovation of existing single-family homes in all zoning districts,*
- *Identify opportunities to create accessory dwelling units within existing structures in all zoning districts,*
- *Consider zoning to allow cluster development and cohousing in designated areas.*
- *Identify regulatory tools and tax incentives to encourage developers to build housing the Town wants/needs, especially denser housing near town centers in ways that reinforce existing historical character and support sustainable development practices.*

Land Use Goals:

- *Preserve Concord's current mix of land uses and consider design standards that preserve the town's character.*
- *Explore zoning alternatives that enable higher density, mixed-use, more walkable and economically diverse neighborhoods within/near village centers.*
- *Encourage production of small-scale affordable and workforce housing.*
- *Support the expansion of commercial and industrial uses within the existing zoned areas, to improve the Town's long-term financial sustainability through an expanded commercial tax base.*
- *Require development/redevelopment to meet or exceed environmental sustainability and resilience criteria.*

Mobility and Transportation Goals:

- *Establish a central transportation planning function within Town government.*
- *Reduce motor vehicle dependence and traffic volume within Concord.*
- *Provide effective mobility options for trips within Concord, and to Boston and other regional medical centers and key destinations.*

- *Create safe, cost-effective walking and bicycling connections between key pedestrian and bicycle paths/trails to improve mobility around Concord.*
- *Improve coordination with regional partners in order to reduce traffic volume and congestion from commuter through-traffic.*
- *Develop an approach to parking that balances the principles of sustainability with the Town's economic goals. Include managing existing parking spaces and consider providing parking options outside the village centers.*

Open Space and Natural Resources Goals:

- *Determine the amount of conservation land and protected open space required to protect important ecosystems and natural systems and increase or maintain as necessary.*
- *Continue to protect rivers, wetlands, ponds, vernal pools, upland habitats, and other natural resources to preserve and enhance biodiversity.*
- *Provide responsible management of conservation lands, including protection, preservation and restoration.*
- *Promote ecosystem health and biodiversity as critical factors to achieve town-wide long-term sustainability and resiliency goals.*
- *Protect and promote local agricultural activities, land use, and traditions with sustainable practices.*
- *Ensure all Concord residents understand the value of conservation lands, natural resources, open space, agricultural activities, and recreational amenities.*
- *Enhance the connections and access to bike paths and walking trails between open spaces and the village centers, the locations of institutions and organizations, and recreation sites.*
- *Provide responsible management of recreation amenities, including programming of open spaces, public spaces, trails, and recreational facilities to encourage use by all residents.*

Public Facilities and Infrastructure Goals:

- *Continue to maintain and improve the Town's existing public buildings, facilities, infrastructure, and service delivery at a level consistent with the Town's fiscal sustainability.*
- *Evaluate cost-effectiveness of new or redevelopment of Town buildings and/or infrastructure (e.g., new middle school or new integrated Town services building).*
- *With provisions to maintain the rural character of select roads, fully consider sustainable, resilient "complete streets" principles and integrated planning into future design and construction of roadway, bikeway, and sidewalk infrastructure.*

- *Strengthen Town sustainability goals consistent with long-term climate change and resiliency planning goals.*
- *Make landscape and infrastructure resiliency a central planning priority for Town management operations, planning, and practices in order to minimize service disruption, and economic and environmental impacts.*
- *Identify ways to optimize the ability of Concord's social service coordinators and private non-profit organizations and trusts to meet the growing demand for assistance.*
- *Establish cyber-security planning and reinforce the Town's information technology infrastructure.*
- *Assess the responsibility for staffing the Town's 66+ boards, committees and task forces from a limited pool of residents who are willing to serve as volunteers.*
- *Develop a strategy to anticipate acquisition of properties currently owned by federal or state entities within Concord's boundaries, as they become available or are declared surplus, using an integrated planning process across Town departments.*

Fiscal Planning Goals:

- *Establish a long-term (10 years) fiscal projection tool, including associated expenses for long-term capital spending.*
- *Establish a process for setting fiscal guidelines for expenditures that protects the Town's ability to maintain a balance between expenditure levels and the values described in Section 2's Community Criteria.*
- *Evaluate new spending opportunities using integrated planning principles with a view to achieving multiple objectives with any specific investment.*
- *Proactively strengthen Town-School fiscal coordination.*

The Concord CLRP references the SuAsCo WSR in several places:

Concord actively promotes the enjoyment of the town's natural bounty through stewardship of its wild and scenic rivers, conservation land, trail networks, and rural vistas, and pursues policies to maintain the natural environment and protect trees within neighborhoods, to increase resilience to climate change and associated problems. (p. 51)

In 1999, Congress specifically designated the three rivers for their "outstanding ecology, history, scenery, recreation values, and place in American literature." The Sudbury-Assabet-Concord Wild and Scenic River status describes the rivers in Concord as an historic and cultural resource. It is the only river system in the country to be designated for literature and history! (p. 92)

Goals include improved signage for greenways and riverways (p. 108).

Assess feasibility of a “Wild, Historic River tour package” to bring visitors to the nationally designated wild, historic waterway with stays at historic B&Bs or farmstays, and provision of maps with river access points and boat rentals...(p. 108)

... promote trail connections and enhancements between resources and access to the Assabet River, Nashoba Brook, and Warner’s Pond (p.135)

The confluence of three Scenic and Wild Rivers (Sudbury, Assabet, and Concord Rivers) at the heart of Concord also contributes an array of wetlands that provide critical habitat and additional environmental benefits. (p. 187)

The plan’s Open Space element identifies the Assabet, Concord and Sudbury Rivers as “Major Wildlife and Water-Protection Corridors” (p. 188-189)

Protecting water resources – rivers, streams, ponds, vernal pools, and wetlands – was a common theme in both Envision comments and reports from groups such as the NRC, OARS, and ConcordCAN. (p. 191)

Numerous, specific recommendations related to Natural Resource and Open Space goals are potentially relevant to the SuAsCo WSR; they are articulated in the plan chapter on Goals +Policies, Strategies and Actions (p. 195 – 200). Recommendations include ones related to improved public education, coordinated efforts regarding open space preservation, and measures to further protection of water resources and natural habitats.

Examples of potential improvements include: another path over the Mill Brook to better integrate Concord Center, a pedestrian bridge over the Assabet River in West Concord, and a trail along the Assabet River connecting natural areas to Thoreau School. (p. 202).

Provide walkways or running trails to generate more appreciation and recreational use of the Assabet River and Nashoba Brook in West Concord. (p. 203).

Open Space and Recreation Plan

Concord’s OSRP was issued in 2015. It is generally consistent with the more recent CLRP, but provides more detail on open space conservation priorities. The plan includes the required Seven-Year Action Plan with map, including the following:

- *Key areas to protect for their ecological, agricultural and recreational values (green numbers and areas);*
- *Potential Agricultural Overlay districts to be implemented (black polygons previously identified by the Town and proposed additional Agriculture Overlay based on current analysis in blue);*
- *Potential Transfer of Development Rights to within one-half mile of train stations;*
- *Potential vernal pools that should be surveyed and certified;*
- *Proposed trail improvements on publicly accessible protected land, making recreational re-sources more available throughout Town (dark orange and yellow lines).*

The referenced OSRP map is reproduced in Appendix C for reference.

The following goals and actions are reproduced from the Seven Year Action Plan of the OSRP (the plan identifies specific actions associated with each item below):

GOAL 1: Protect water resources and biodiversity.

- A. Protect Concord's large natural areas and major wildlife corridors.*
- B. Manage quantity and quality of groundwater and surface water to protect the town's water resources.*
- C. Protect and/or monitor Concord's streams, rivers, ponds, and wetlands.*
- D. Protect biodiversity and state-listed species in Concord.*
- E. Prioritize remaining parcels along water-ways for protection if and when they become available.*
- F. Revise zoning laws to further protect open space in town.*

GOAL 2: Improve connectivity of and access to recreational resources.

- A. Reduce major impacts of Route 2 (such as barrier to pedestrians /cyclists/wildlife, and too much salting, traffic).*
- B. Continue developing the local/ regional trail network for transportation and nature-based recreation.*
- C. Establish committee to conduct in-depth study of potential improvements in re-sources and safety for bicycling in town.*
- D. Provide neighborhood-oriented opportunities for recreation and gardening by creating informal playing fields, expanding community garden locations, maintaining and improving existing play-grounds, etc.*
- E. Improve universal access to open space resources.*
- F. Support maintenance, improvement, and potential development of active recreation resources.*

GOAL 3: Protect agricultural land including fields, meadows, and orchards.

- A. Prioritize agricultural land to protect based on threat of development, proximity to other farmland, lot size, overlap with other OSRP goals, water availability, and prime agriculture soils.*
- B. Promote zoning changes to protect agricultural land including agricultural overlay districts and transfer of development rights.*
- C. Promote conservation programs that protect farmland such as Agricultural Preservation Restrictions and Community Preservation Act.*
- D. Support farmers and local food in Concord.*

GOAL 4: Improve collaboration and management.

- A. Incorporate the Open Space and Recreation Plan in town and community decision-making.*
- B. Think regionally and work collaboratively with neighboring towns.*
- C. Continue to partner with land trusts, government entities, and individuals to make full use of available government funds and programs, as well as laws and regulations, to acquire and/or protect important land parcels.*
- D. Manage all town-owned land consistent with open space objectives.*
- E. Secure funding and partner with other entities for open space land protection.*
- F. Increase educational outreach and pro-mote resource conservation, sustainability, and climate change mitigation.*

Zoning

Concord's Zoning Bylaw was adopted in April 2017. Zoning districts are identified in Section 2, including four residential districts, five business districts, eight limited business districts, two medical-professional districts, seven industrial districts, three conservancy districts (Flood Plain, Groundwater, and Wetlands), a By-Pass District, Personal Wireless Communication Facilities District, and a Public Service Corporation Overlay District

In addition to standard zoning bylaw sections (Purpose, Districts, Use Regulations, Accessory Uses, Dimensional Requirements, Non-Conforming Uses, Administration and Enforcement), the bylaw also includes provisions for Residential Compounds (Section 8), Residential Cluster Development (Section 9), and Planned Residential Development (Section 10). Section 7, Special Provisions, includes:

- 7.1 Nonconforming Uses
- 7.2 Flood Plain Conservancy District
- 7.3 Wetlands Conservancy District
- 7.4 By-Pass District
- 7.5 Earth Removal

- 7.6 Groundwater Conservancy District
- 7.7 Off-street Parking, Loading, and Design Standards
- 7.8 Personal Wireless Communications Facility
- 7.9 Large-Scale Solar Facility
- 7.10 Public Service Corporation Overlay District (PSCOD)

Concord's CLRP describes the town's current zoning (p.37):

The Town of Concord's zoning regulations have been regularly updated over the past ten years to match changing uses and community needs, as well as energy conservation and sustainability policies. The general allowed uses, however, have remained fairly constant.

Key highlights regarding land use:

- *Although almost 95% of the town is zoned Residential:*
 - *Less than 40% of land is used for residential.*
 - *The 2015 Open Space & Recreation Plan categorized approximately 59% of land as Public and Private-Owned Open Space (of which 39% is protected*).*
- *Just over 4% of land area is zoned for all Business, Medical, Industrial, and Limited Industrial uses.*
- *Existing land uses in Concord include natural areas/open space and civic/institutional uses, as well as commercial and industrial uses, but do not exactly match existing zoning categories.*

Zoning Map – From the river bend at the boundary with Bedford, extending southward to Monument Street, the Concord River is the dividing line between the Residence A zone to the south and the Residence AA zone to the north in Concord. The AA zone north of the river requires 80,000 square feet per residence with a minimum frontage of 200 feet and the A zone south of the river requires 40,000 square feet per residence with a minimum frontage of 150 feet. West of Monument Street to Egg Rock, at the confluence of the Sudbury and Assabet Rivers, the river is zoned Residential A on both banks. Land along the Assabet is also zoned A from Egg Rock westward to Lee Drive, where it changes to Residence B, with a minimum lot size of 20,000 and minimum frontage of 125. At the Elm Street / Route 2 bridge crossing, land to the south of the Assabet is zoned limited Business, with restaurants, a hotel, a gas station and car wash at the junction of Elm Street and Route 2. Land to the north is Residence B.

South of the Route 2 bridge, the Assabet flows through land zoned for Industrial Park A (I-A) and then West Concord Business (WCB). Looping south of Main Street (Route 62), the river separates land zoned Residence C to the north, with a minimum lot size of 10,000 square feet from land zoned Residence B, with a 20,000-square foot minimum lot

size, to the south. Land on both sides of the Assabet is zoned Industrial at the westerly Main Street crossing, between Water Street and Pond Lane at the Damon Mill. From there westward, the land along the river is Residence B to the town boundary.

West of Egg Rock, the Sudbury River in Concord is the dividing line between Residence A land to the north and Residence B land to the south. Between Elm St. and Route 2, the Sudbury divides Residence A land to the west from Residence C land to the east. Land at the Route 2 crossing, and south to Dugan Brook, is zoned Medical Professional on the west side and Residence AA on the East Side. Land on both sides of the Sudbury is zoned Residence AA from Dugan's Brook to Sudbury Road. East of Sudbury Road, the river divides Residence AA land to the north from Residence A land to the south along Heath's Bridge Road to Martha's Point. Both sides of the river are then zoned AA from Martha's Point to Fairhaven Bay.

Land Development

Concord's Subdivision Rules & Regulations were adopted in 2007. They includes the basic items required under state enabling legislation including a phased approach to plan approval, plan requirements and review standards, and requirements for the provision of infrastructure. It allows the Planning Board to require the developer to set aside lands for potential purchase by the town (or its designate) for municipal purposes generally (Section 6.20) and affordable housing specifically (Section 6.21).

Special Resource Protection

Concord's 2013 Wetland Bylaw is administered by the Concord Natural Resources Commission (NRC). The bylaw follows the WPA, but also identifies a 75-foot Limited Disturbance Zone and a 25-foot No Disturb Zone within the 100-foot Buffer Zone. The bylaw does not have a provision for applicant reimbursement of expert analysis that may be required by the NRC.

Recommendations

- Implement action items in OSRP and CLRP related to water resource protection, open space preservation, riverway and greenway corridors, and trails.
- Incorporate SuAsCo WSR Conservation Plan considerations in decision-making on zoning changes related to housing and commercial mixed uses.

5.5 Framingham

Summary

Framingham recently changed from a town form of government to a city form of government. Therefore, many of the City's regulations refer to the Town of Framingham, and to bylaws rather than ordinances. This has no effect on the authority of those documents. The city lies at the upstream terminus of the SuAsCo WSR on the Sudbury River WSR segment (Danforth Street Bridge). The entire city lies within the SuAsCo WSR watershed. It is one of the largest municipalities in the watershed, comprising approximately 7% of the total watershed area (similar to Concord and Sudbury). Framingham is by far the most populated community in the watershed with over 60,000 residents in 2010 (Billerica and Marlborough being the next most populated communities with approximately 40,000 residents in 2010).

Plans

The "Town of Framingham Master Plan Part 2: Master Land Use Plan" was updated in 2014. Its Vision statement includes:

2.2 Core Principles

Moving forward, the Town should ensure that its Core Principles are represented in everything that Framingham does:

Community Character - *Support existing neighborhoods, village centers, landmarks, and natural features, as well as unique historic sites that contribute to why residents and visitors value Framingham.*

Environmental Values - *Maintain the quality of the environment, natural resource ecology, public health, living conditions, and property values.*

Economic Development - *Promote economic development through public investment and private redevelopment with a focus on infusions of new capital to improve the built and natural environment.*

Downtown – *Build a strong vibrant downtown with civic, retail, service, hospitality, and residential uses that provide a strong sense of place and helps define Framingham.*

Network of Transportation - *Create links both within the community and to major transportation systems outside the community to support Framingham as the region's hub.*

Clear Planning and Development Processes - Develop clear and consistent standards for land use projects, both private and public, that enable projects to receive municipal review in a rational, managed process. Provide a hierarchy of review based on scale and intensity of the project while ensuring that projects enhance the quality of the built environment in Framingham.

Sustainable and Resilient Community - Consider how each action meets the needs of the present without compromising the needs of future generations.

The plan's Land Use Goals and Community Character (section 4.1) includes the goals:

b. Framingham shall balance open space and natural resource values with alterations of the built environment to restore damaged open space, improve habitat around natural resources, and protect remaining natural resources.

h. Framingham shall identify, restore, and protect its natural and historic resources to preserve Framingham's unique character as "a large town with villages and neighborhoods with distinct identities" through policies, education, zoning, and regulations that value preservation and compatible development.

The plan's Energy and Environment Policies (section 4.2.2) includes:

l. Encourage the conservation and preservation of land through conservation easements and private donations.

m. Plant new trees on public and private land for both beautification and mitigation of local carbon demand.

n. Increase the tree canopy throughout the Town.

o. Update the municipal stormwater facilities to meet state and federal regulations under the Storm Water Municipal Separate Storm Sewer System and the National Pollutant Discharge Elimination System Phase II Permit [Storm Water Phase II MS4 Regulations, 40 CFR 122 (chapters 21 - 37)].

The plan's Natural Resource Policies (Section 4.3.7) are:

a. Improve the quality of life and the value of property in the Town by protecting environmental resources.

b. Develop strategies to allow the Town to respond quickly and efficiently to the impacts of natural hazards.

- c. Establish priorities to protect and preserve critical natural resource areas.*
- d. Encourage regulatory incentives, partnerships, and purchase preservation measures that do assume that the Town should purchase property while understanding that preserving important parcels of open space might sometimes require Town investment.*
- e. Conserve wetlands to ensure no net loss of total wetlands.*
- f. Minimize adverse visual and environmental impacts of development on open spaces.*
- g. Enhance open space functions and ecological roles as water storage and natural habitat areas.*
- h. Identify and protect wildlife habitat areas and wild life corridors.*
- i. Preserve existing forests, floodplains, and wetlands.*
- j. Improve the ecological quality and appearance of the public water supply lands.*
- k. Encourage links between and among open space parcels, wild life habitat, and wetlands.*

The plan promotes many goals and policies generally supportive of SuAsCo WSR protection: sustainability, restoration of degraded habits, reuse of urban properties and brownfields, creation of linked open spaces and greenways along river corridors, and the preservation and restoration of historic resources. Specific examples relevant to the river corridors are:

Connect the open spaces and MWRA properties to create a continuous corridor linking river corridors with Farm Pond, the surrounding public lands, and other wetlands. (p. 33)

Seek federal, state, and local funding opportunities to preserve natural resources along the Sudbury River, the historic buildings within the Centre, and preservation of historic character of the corridor. (p. 53)

Create a town-wide plan for all types of recreational trails, access to lakes, ponds, or rivers as well as municipal playing fields; (p. 73)

Map locations of public access to land along the rivers and aqueducts and determine opportunities for access points and new facilities that link to the village centers; (p. 73)

Emphasize linkages and connectivity in trails development, protection of water features, and acquisition or protection of open space. (p. 73)

Establish a Saxonville recreational walking trail (such as the Gloucester Maritime Trail). Review underlying zoning to maximize open space dedication along the Sudbury River; (p. 76-77)

Encouraging and identifying public access to and along the rivers and aqueducts. (p. 77)

Although the plan promotes river greenways and wildlife corridors, it does not specifically reference the SuAsCo WSR. The plan's Master Land Use Map depicts low density residential, Planned Unit Development Residential, Open Space, and Village Center (Neighborhood Commercial) uses in the vicinity of the Sudbury WSR segment within the city (see Appendix C maps). Note that "Low Density Residential" is a relative term that refers to zoning districts with 20,000 square foot minimum lot sizes; this would be considered moderate density development in many less developed communities.

Zoning

The Framingham Zoning By-Law is dated October 2016. Overall, it is a very comprehensive bylaw with many aspects that reflect the diversity and intensity of development in the city. The ordinance includes the standard, required sections on districts, allowed and prohibited uses, dimensional requirements, administration and enforcement. It identifies numerous standard districts: five residential, six business, office / professional, two manufacturing, planned reuse, open space / recreation, geriatric care / elderly housing, and technology park. Additional overlay districts are identified: floodplain, planned unit development, adult entertainment, highway corridor, regional center, groundwater protection, and solar. Section V. Special Regulations, includes: f. Land Disturbance and Stormwater Management, k. Neighborhood Cluster Development, l. Open Space Cluster Development, m. Agricultural Preservation Development, and o. Transfer of Development Rights.

Zoning Map Land along the Sudbury River in Framingham from Sudbury to Little Farms Road is zoned Residential (R-3) with a minimum lot size of 20,000 square feet. From there to roughly Oxbow Road, the land is zoned Planned Reuse District (PRD) on the west side of the river and Manufacturing (M) with a Planned Unit Development overlay (PUD) on the east side. South of Oxbow Street to Danforth Street, both sides of the river

are zoned Residential 1 (R-1) requiring a minimum of 8,000 square feet per dwelling unit.

Land Development

The Rules & Regulations Governing the Subdivision of Land in Framingham were published by the Planning Board and adopted in 2017. It includes standard sections including administration, “approval not required” plans, a phased plan review process with review criteria, design standards, recording procedures, and performance guarantees. Section VIII. Design Standards, includes requirements for provision of infrastructure, erosion and stormwater management, landscape and streetscape, and open space and paths/trails. These include regulations to ensure compliance with requirements for federal, state, and local stormwater compliance, dark skies (street lighting), street tree plantings, and non-vehicular footpaths between neighborhoods. Park and open space set asides are not required, but standards apply if offered as part of a subdivision development.

Special Resource Protection

Wetland Protection

The Framingham Conservation Commission administers the WPA locally through Framingham Bylaws Section 18 Framingham Wetlands Protection Bylaw (2005), and the complimentary Framingham Conservation Commission Wetlands Protection Regulations (2017). The regulations go beyond the minimum requirements of the WPA in a number of areas:

- No Net Loss of Wetland Policy
- Protection of Isolated Wetlands
- Protection of Vernal Pools not regulated under the WPA
- Additional Vernal Pool Protection
- 125-foot Vernal Pool No-Disturb Area
- 125-foot Buffer Zone Around All Resource Areas
- 30-foot No Alteration Zone Around All Resource Areas
- Commission Reimbursement for Expert Services

Recommendations

- Revise Master Plan to include SuAsCo WSR Conservation Plan recommendations.
- Reference Sudbury River WSR segment in Master Plan references to river greenways, trails and linked open spaces.
- Identify Sudbury River WSR segment on maps for neighborhood development.

5.6 Lincoln

Summary

The Sudbury River WSR forms the southwest border of Lincoln; the river flows into Lincoln at the point where Lincoln, Concord, Sudbury and Wayland boundaries meet. The western portion of the town lies within the SuAsCo WSR watershed, primarily draining to the Sudbury River. The watershed lands are largely in permanently protected conservation lands, including the town's Mt. Misery Conservation Land and town lands in conservation near Walden Woods, Fairhaven Bay and Farrar Pond.

The 2015 SuAsCo WSR Unprotected Land Inventory identifies three sites: the Grindlay properties which are now owned and protected by the Town, the Boquist property (a high priority for land preservation on the Sudbury River at Fairhaven Bay), and the Winchell Waterfront that adjoins both the Sudbury Rive and Farrar Pond (a management area priority). This 2015 Unprotected Lands Inventory indicates that lands with conservation restrictions should be reviewed along with land development regulations to "... ensure building envelopes and height cannot change drastically with new construction as this will greatly alter the natural landscape and character of Fairhaven Bay." (p. 50).

Plans

Lincoln's Comprehensive Plan was accepted by the Planning Board and Town Meeting in 2009. The plan lists the rivers as among "the town's finest assets" (page 21) and includes them along with "agricultural landscapes and acres of protected woodlands" as important natural features found within and near Lincoln's boundaries.

Under the heading Watersheds at page 59, the plan notes that Lincoln lies at a relatively high elevation and is drained by three major watersheds; the Charles, the Merrimack, and the Sudbury/Concord. It says:

In addition, the Concord River watershed includes two sub-watersheds in Lincoln: the Sudbury River and the Concord River mainstem, both federally designated as Wild and Scenic Rivers in 1999.⁶ The Concord River, part of the 377 sq. mi. SuAsCo watershed, ultimately flows into the Merrimack River in Lowell.

When discussing Water Resources (Page 59) the plan frames the relationship between the town and the river. It says:

Lincoln never attracted early industries and their attendant village settlement patterns. The Sudbury River forms part of Lincoln's westernmost boundary, but its broad, low-lying meadows supported farming. Lincoln's surface waters nonetheless have profound importance to local and regional drinking water

supplies and the wildlife diversity that endures in town, in addition to contributing to its scenic beauty.

On page 62, the plan discusses land cover. It includes “the marshes and upland along the Sudbury River” as “Highly valuable core habitats and supporting natural lands” of the community. The importance of these resources to the community is further documented on page 120, where the plan discusses Protected Open Space. Here the plan says:

The geographic distribution of conservation land varies considerably in Lincoln, with the largest parcels concentrated on the west side of town. A virtually uninterrupted conservation greenbelt extends from the Sudbury River to Route 2, west of Bedford Road and Lincoln Road, where a combination of historic estates, farms, and early public open space acquisitions help to explain the presence of several large, contiguous parcels. A large portion of the land in this area was acquired in 1969, when Lincoln purchased nearly 600 acres from five property owners for a total acquisition cost of \$1.8 million.

The plan also notes that the open space referred to above, within the watersheds of Flint’s Pond and the Sudbury River, is forest-covered land. It acknowledges, at page 132, that there is an on-going discussion about balancing conservation, passive recreation, and active recreation on open space lands. The plan does not dismiss recreational needs, but stresses conservation, noting that the town has few financial resources with which to support active recreational infrastructure. It’s action forcing provisions stress protecting lands most valuable for conservation and recreation, seeking partnerships with adjacent municipalities to meet active recreational needs, and considering the potential for multiple uses when making open space acquisition decisions.

Zoning

The Town of Lincoln Zoning By-Law is a stand-alone document last amended in March 2018. It includes standard requirements related to administration and enforcement, non-conforming uses, establishment of districts, allowed uses, dimensional requirements, and other standards applicable to all zones and those special requirements for certain zoning districts. The bylaw establishes the following conventional districts:

- R-1 Single Family Residence District
- R-2 General Residence District
- R-3 Open Space Residential Development (OSRD) District
- R-4 Planned Community Development (PCD) District
- B-1 Retail Business District
- B-2 Service Business District

B-3 Selected Light Industrial District

It also establishes the following overlay districts:

- W-Wetlands and Watershed Protection District
- FP-Flood Plain District
- NL-North Lincoln Overlay District
- WCF-Wireless Communications Facility Overlay District
- SL-South Lincoln Overlay District
- SP-Solar Photovoltaic Facilities Overlay District

Almost the entire town is zoned R-1 Single Family Residence District (low density) with higher density residential and business zones in the town center, just outside the SuAsCo WSR surface water watershed. An R-3 Open Space Residential Development occurs between Farrar Pond and the southern town boundary east of the Sudbury River.

Zoning Map - Most of the land along the Sudbury River in Lincoln is zoned Single Family Residence (R-1). This zone extends from Fairhaven Bay to South Great Road (Route 117). A small part of the east bank of the river south of Great Road is zoned for Open Space Residential Development (R-3). The R-1 zone has a minimum lot area of 80,000 square feet and a minimum frontage of 120 feet. The R-3 district provides an alternative to the R-1 District that encourages protection of open space and natural features by allowing clusters of dwelling units as long as they do not detract from the ecological and visual qualities of the environment.

Land Development

The Planning Board's "Rules and Regulations Governing the Subdivision of Land and the Laying Out of Ways" is a stand-alone document adopted in 1982. It contains standard provisions for administration, enforcement, plan believed not to require subdivision approval, a phased approach to subdivision plan approval (Preliminary and Definitive) with submission and review standards, design standards, and required improvements.

Special Resource Protection

Lincoln's Wetland Protection By-Law is Article XVIII of the General By-Laws. Section 1. C. states:

This By-law utilizes the Home Rule authority of the Town of Lincoln to protect the resource areas subject to regulation under the Wetlands Protection Act MGL, Ch. 131, §40 (the "Act") to a greater degree; to protect additional resource areas recognized by the Town as significant, beyond those subject to regulation under the Act; to protect all resource areas for their additional values beyond those

recognized under the Act, and to impose in local regulations and permits additional standards and procedures stricter than those of the Act and its implementing regulations (310 CMR 10.00) (the “Regulations”), subject, however, to the rights and benefits accorded to agricultural uses and agricultural structures of all kinds pursuant to the laws of the Commonwealth.

The Lincoln Wetland By-Law goes beyond the WPA requirements in several areas, providing additional resource protection for vernal pools and intermittent streams.

- vernal pools
- intermittent streams

Increased protections are also provided by 100-foot Buffer Zones associated with additional wetland resources protected under the by-law. Conservation Commission reimbursement for expert services is also allowed.

Other relevant chapters of the Town General By-Laws providing direct or indirect river protection include Articles:

XI	Miscellaneous (sec. 9 Motorboats, sec. 12 bicycle lanes)
XVII	Scenic Roads
XIX	Underground Storage Tanks
XX	Surface Water Supply By-Law
XXII	Community Preservation Committee
XXIII	Neighborhood Conservation District By-law
XXV	Historic District
XXVI	Right-to-Farm By-Law
XXIX	Plastic Bag Ban

Recommendations

- Revise Master Plan and OSRP to include SuAsCo WSR Conservation Plan recommendations.
- Review protection levels of conservation restrictions with respect development regulations to ensure building envelopes and heights cannot change drastically with new construction.
- Consider update of the Subdivision regulations to incorporate more up-to-date standards.

5.7 Sudbury

Summary

All of Sudbury is within the SuAsCo WSR watershed; over half of the town's eastern boundary lies along the Sudbury River segment designated as Wild and Scenic. Almost the entire town lies within the Sudbury River watershed, while the northwest corner of town lies in the Assabet River watershed. Originating in Marlborough, Hop Brook is a major tributary to the Sudbury River in the town. Most of Sudbury's development is along State Route 20, much of it near Hop Brook. Although the town Master Plan is from 2001, it still has relevancy today in terms of certain goals, objective and implementation actions. The town's OSRP is from 2009 but is in the process of being updated. Planning, zoning, and resource protection bylaws provide a solid basis for continued protection of SuAsCo WSR values.

Plans

The "Sustainable Sudbury Master Plan" (2001) contains goals and policies that are valid today, but some information appears outdated. For example, some open space priorities are based on the 1996 OSRP, while the most recent Sudbury OSRP was published in 2009 (and an OSRP update is underway).

Plan goals and policies with potential relevance to the SuAsCo WSR include:

LAND USE GOALS, OBJECTIVES AND IMPLEMENTATION STRATEGIES

Goal 1: Strive for comprehensive, integrated land use decisions which attempt to achieve environmental, economic and aesthetic sustainability.

Objective A: Protect and preserve critical natural resources and wildlife habitat in all land use decisions and policies.

- 1 Implement the recommendations of the Land Use Priorities Committee and the Open Space and Recreation Plan by:*
- (1) identifying critical parcels of land for municipal purchase or other methods of permanent protection from residential or commercial development*
 - (2) establishing and maintaining lines of communication with landowners to take advantage of opportunities to acquire and/or preserve property*
 - (3) supporting town acquisition of open space based on identified priorities, and*

(4) exploring means and costs of purchasing development rights and other options for funding open space preservation.

2 Review the Cluster Development bylaw and other open space bylaws to make them more usable and therefore more effective in preserving open space.

3 Actively support the Community Preservation Act to establish funding mechanisms for open space preservation.

4 Ensure that all new development is compatible with the purposes of the Water Resource Protection District Bylaw and the Sudbury Wetland Administration Bylaw.

Objective B: Maintain the community's traditional, historic character.

Objective C: Encourage land use options that are directed toward economic sustainability in all sectors (commercial/industrial, housing, open space) in order to balance growth with the Town's ability to provide services. ...

4 Develop eco-tourism and historic tourism opportunities in Sudbury.

NATURAL AND CULTURAL RESOURCE GOALS, OBJECTIVES AND IMPLEMENTATION STRATEGIES

Goal 1: Ensure the preservation of the town's natural resources.

Objective A: Protect and maintain surface and groundwater quality and quantity.

1 Assess alternative wastewater treatment options along Route 20.

2 Require higher level of maintenance of septic systems in the Water Resource Protection District Zone II.

3 Improve stormwater management practices along Town roads to reduce non-point source pollution.

... additional actions to conserve water and reduce non-point sources of water pollution

13 Support the efforts of the Hop Brook Protection Association, Earth Decade Committee, Sudbury Valley Trustees and other local conservation and environmental groups.

Objective B: Preserve, enhance and connect, where feasible, large parcels currently in agriculture, open space and recreational use, and other undisturbed natural areas.

Actions support implementation of OSRP

Objective C: Direct new development to sustain or improve natural and other resources and to be consistent with town character.

1 Implement the Scenic Roads Bylaw to restrict changes to roadside appearance and minimize impacts on historic roads.

2 Provide density incentives to developers who meet town goals by maintaining community character, providing open space, linking greenways or maintaining agricultural lands.

3 Enforce strict natural resource protection standards in land planning and development.

Goal 2. Preserve the town's cultural and historic resources.

Goal 3: Support the existing recreational facilities, areas and programs, and create additional facilities, areas and programs to serve the needs of Sudbury residents while protecting our limited natural resources....

2 Expand trail systems on conservation land for passive recreational use.

Specific plan references to the SuAsCo WSR include:

The beauty of open spaces, wetlands, forests and wildlife, the historic landmarks, conservation trails and scenic roads, and the Sudbury River with its newly designated status as "Wild and Scenic" are all components of Sudbury's character. The importance of town character to the Natural and Cultural Resources Element cannot be over-emphasized. (p. 50)

Sudbury and surrounding towns and cities are partners in a consortium known as the SuAsCo Watershed Community Council (named after the Sudbury, Assabet and Concord Rivers that are a common resource in these communities). Fostering sustainable economic growth within the limits of our natural resources is one of the main objectives of the Community Council. Open space preservation and creating regional greenways is also a goal, as identified in a report entitled "Greenways Plan for the SuAsCo Watershed" prepared by the Sudbury Valley Trustees, April 2000. (p.51)

Zoning

Article IX Zoning Bylaw of the General Bylaws is provided as a separate document, The Town of Sudbury Zoning Regulations (2015). The regulations include the standard sections dealing with administration and enforcement, zoning district descriptions, allowed uses, dimensional requirements,

Section 2110 establishes the following zoning districts:

- Single Residence "A" (A-Res.)
- Single Residence "C" (C-Res.)
- Wayside Inn Historic Preservation (WI)
- Business (BD)
- Limited Business (LBD)
- Village Business (VBD)
- Industrial (ID)
- Limited Industrial (LID)
- Research (RD)
- Industrial Park (IP)
- Open Space (OS)

In addition to these conventional zoning districts, the bylaw states:

"Overlay" districts are also hereby created: Flood Plain Overlay District (reference section 4100), Historic Districts (Old Sudbury and Hudson Road Historic District, Wayside Inn Historic Districts 1 and 2, King Phillip Historic District (reference Appendix C), Water Resource Protection Overlay District (reference section 4200), Wireless Services Overlay District (reference section 4300) and Wastewater Treatment Facility Restricted Zones (reference section 4500).

According to the table appearing on the online (pdf) version of the zoning map, about 92% of the town is zoned for residential use. Most (70% of town) is Single Residence A. Open Space zoning covers 721 acres or about 4.6% of town. The other zones (Business, Industrial, Research) total about 3.7% of the town area.

Zoning Map – Land along the Sudbury River in Sudbury is zoned Single Residence A (SRA) with a minimum lot size of 20,000 square feet and a minimum frontage of 50'. This classification also includes most of land within the watersheds of multiple tributaries of the Sudbury river flowing generally west to east across the town. Part of

the tributary watersheds, not adjacent to the Sudbury River, is zoned Single Residence C (SRC) with a minimum lot size of 30,000 square feet and a minimum frontage of 30 feet.

Land Development

The Sudbury Planning Board's "Rules and Regulations Governing the Subdivision of Land" (2014) contains typical sections covering administration, enforcement, non-subdivision plans, procedural and substantive requirements for phased plan submission and approval (Preliminary and Definitive), performance guarantees, design standards, and required infrastructure improvements. The regulations include provisions for cluster development. Design standards (Section V) include standards for land suitability, roadways, natural resource protection, open space, stormwater management, flood management. The open space standard (V. D.) states the Board

may require the plan to show a park or parks suitably located for playground or recreation purposes or for providing light and air. The park or parks shall be of reasonable size, but generally not less than five percent (5%) of the area of the land to be subdivided, depending upon the location and quality of the land being set aside. The minimum area acceptable, for later public acquisition, shall be three (3) acres. The Board may by appropriate endorsement on the plan require that no building be erected upon such park or parks without its approval for a period of three (3) years.

Special Resource Protection

The Sudbury Wetland Administrative Bylaw (General Bylaw Article XXII) and associated Regulations (2017) are administered by the Conservation Commission. The regulations provide compliance with minimum WPA requirements. Additional protection beyond the WPA minimum requirements include expanded protection of isolated wetlands, vernal pools, rivers, intermittent streams, and cold water fisheries resources. The bylaw also allows fees for expert assistance to be collected from an applicant.

Sudbury also has the Conservation Commission's "Sudbury Land Use Policy & Regulations for Use of Sudbury Conservation Lands" (2009). The regulations identify conservation lands open to the public, locations of non-motorized boat launches, and provides restrictions on hours of access, allowed activities and requirements, prohibited activities, fees, fines, and procedures to request access to conservation lands with restricted / prohibited public access.

The Sudbury Planning Board also administers "Rules and Regulations for Special Permits in the Water Resource Protection Districts" pursuant to the bylaw. These regulations provide the procedural and substantive requirements for special permit application submission, review and approval.

General Bylaw Article XXIV Upper Hop Brook Protection, provides for public use of the Upper Hop Brook Ponds with certain limitations such as the prohibition of motor vehicles.

Recommendations

- Update Master Plan, incorporate latest OSRP recommendations and SuAsCo WSR Conservation Plan recommendations.
- Incorporate SuAsCo WSR Conservation Plan recommendations into updated OSRP.

5.8 Wayland

Summary

The Sudbury River flows north along the western portion of Wayland, forming its border with the Town of Sudbury north of Old Sudbury Road. This entire section is designated Wild and Scenic River. Portions of the Great Meadow NWR occur in Wayland in this western portion of town. Almost the entire town is within the SuAsCo WSR watershed. New subdivisions or large lot development opportunities are scarce due to extensive existing development, permanent conservation lands, and resource constraints such as wetlands. A few of these last large remaining lots, and other lots close to the river are designated priorities for land protection in the SuAsCo 2015 Unprotected Lands Inventory; all of the land protection priority sites are also shown as priorities in the town's OSRP (2016 Draft, Section 9).

Plans

The Wayland Master Plan was adopted in 2004 and underwent review in 2010.

Wayland's Vision for the Future (p.3)

People want Wayland to remain basically the same only better as time goes on.

In the future:

- *Wayland continues to be a "semi-rural" community, which means a residential community with historic character and ample open space.*
- *The Town provides a top quality public education system and effective and responsive government.*
- *Wayland maintains a healthy environment and protects and conserves its natural resources.*
- *Wayland promotes a diversity of residents in terms of cultural and ethnic background, economic status, time of life, and household characteristics.*
- *Building on its vibrant local business community, its diverse cultural and recreational offerings, and its strong volunteer tradition, Wayland develops an even greater cohesiveness and sense of identity.*

The Land Use chapter includes a comparison of build-out analyses done at different times by different entities. The chapter concludes:

The buildout analyses present several challenges and implications for future planning in the Town.

Specifically:

- *Full buildout of the Town would result in a 22% increase in the Town's population and school enrollments.*

- *The Town is relatively close to buildout, with less than 15% of the Town remaining as buildable land. This means that most of the prime development sites have already been built upon. Therefore, future development will focus increasingly on marginal development sites, which may present access difficulties or have environmental constraints. On these sites, it is especially important for the Town to be vigilant to ensure that new development does not have a deleterious effect on surrounding properties.*
- *Much of the future growth and change in the Town (especially commercial growth) will be in the form of redevelopment, not new development. Effective redevelopment may require a different regulatory approach than new development.*
- *The buildout studies do not consider the possible impact of Comprehensive Permit housing projects, which could increase the Town's residential buildout above the 1,100 units calculated in these studies.*

Population data from the US Census and state population projections (Table 2) suggest little change over the period, with 2035 forecast population essentially equal to the town's population in 1980.

The plan's goals and objectives of greatest significance are subordinate to the General Goal to Preserve Wayland's Semi-Rural Character as noted above. Subordinate goals and objectives are:

Preserve Community Resources

- *Preserve and protect the Town's water supply.*
- *Preserve, protect and maintain natural areas in order to mitigate flooding problems, provide wildlife habitat and corridors, promote environmental education, provide opportunities for passive outdoor recreation, and maintain scenic vistas and a sense of openness.*
- *Preserve, conserve, restore and maintain cultural and historic assets that connect us with our cherished and distinctive history.*
- *Design and utilize environmentally sound and energy-efficient products in new construction and in major renovations in order to enhance environmental quality and improve public health.*
- *Promote Wayland's financial well-being by balancing the demand for services, infrastructure and affordability by residents in a broad range of financial circumstances.*
-

Preserve and Enhance Municipal Services

- *Maintain and enhance a high-quality educational system that meets the needs of all students, in order to assist young people in becoming responsible citizens and in pursuing meaningful and productive lives.*

- *Build and maintain a sound public infrastructure, including roads, public buildings, the water supply system, waste-disposal operations, public transportation, recreational facilities, and other needed facilities.*
- *Provide bike paths or lanes, sidewalks, pedestrian crossings, and other infrastructure that will promote walking and bicycling and other active recreation, thereby enhancing public health and safety and making it more enjoyable and efficient to live in, work in, or visit Wayland.*

Manage Development

- *Foster a village-like center in Cochituate in order to maintain or improve the quality of life for local residents and to support future development that conforms to the existing character of the neighborhood.*
- *Create a sense of place in Wayland Center by designing and developing a Town center that conforms to the historic character of the Town but is a mixed-use area appealing primarily to people who live and work in Town.*
- *Encourage businesses that provide products, services and employment desired and needed primarily by local residents and workers.*
- *Improve the overall attractiveness of business districts in order to enhance the Town's physical image, improve the viability of the businesses located there, and maintain sensitivity to the needs of the surrounding areas.*
- *Promote a variety of housing options to encourage economic and social diversity.*

Specific reference to the SuAsCo WSR and other Sudbury River protections in the plan include:

Land along the Sudbury River comprises a valuable ecological corridor, including outstanding migratory bird habitat. Undeveloped land along the river also helps maintain water quality by treating polluted runoff. (p. 160)

The Wayland Country Club and Sandy Burr Country Clubs are both identified as important for conservation restrictions because they are each "... an important link in the Sudbury River Corridor. A country club is an acceptable future use here, but further significant development should be avoided if possible." (p. 162)

Zoning

Wayland's Zoning Bylaw is Chapter 198 of the Town Code. It includes the typical sections regarding administration and enforcement, establishment of districts, use regulations

It establishes four residential zones, three business zones, a light manufacturing district, a limited commercial district, a planned development district, and a refuse disposal

district. Additional overlay districts are created under this Chapter 198, Chapter 300 Aquifer Protection District Planning Board Regulations, and Chapter 301 Conservation Cluster Development; these overlay districts are:

- Aquifer Protection
- Conservation Cluster
- Floodplain
- Federal Flood Plain Hazard
- Mixed Use
- Wireless Communication
- Senior and Family Housing
- Southeast Wayland - Cochituate Planning
- Reeves Hill Wireless
- Municipal Services
- River's Edge Housing

Note that the Town Code still refers to a Watershed Protection Overlay District in some places although that district was repealed in 2005.

In addition, Chapters 196 Historic Districts, establishes the following Historic Districts:

- Wayland Historic District
- Bow Road Historic District

Zoning map - Land along the Sudbury River north of Sherman's Bridge Road in Wayland is zoned for Residence 60,000 with 210 feet of frontage. South of Sherman's Bridge Road it is zoned Residence 40,000 with 180-foot frontage except at Boston Post Road (Route 20) where there is a Limited Commercial district on the east bank. There is also a short stretch of the river in the southwestern part of town, near Stonebridge Road, where the Wayland side of the River is zoned Residence 20,000 with 120' frontage.

Land Development

Wayland's Subdivision regulations are Chapter 303 of the Town Code (Subdivision of Land). However, these regulations are under review and have not been codified into Chapter 303 as of July 2018. Currently the Wayland "Rules and Regulations for the Subdivision of Land" (2015) are published as a stand-alone document by the Planning Board. These regulations follow the standard requirements of the state enabling law and include: provisions for administration and enforcement, plan believed not to require approval, suitability of land, phased subdivision plan review and approval procedures and standards (Preliminary and Definitive), design standards, required improvements and performance guarantees. These regulations require any proposed subdivisions to be consistent with the town's Master Plan and OSRP.

Special Resource Protection

The town's Wetland Bylaw is Chapter 194 of the Town Code, Wetlands and Water Resource Protection. The Chapter begins with the following statement of purpose:

The purpose of this chapter is to provide a greater degree of protection of wetlands, buffer zones, and related water resources, than the protection of these resource areas provided under MGL c. 131, § 40, and the Wetlands Regulations promulgated thereunder by the Massachusetts Department of Environmental Protection. This greater degree of protection shall be by preconstruction review and control of activities deemed by the Conservation Commission likely to alter, degrade, or have an adverse cumulative effect upon wetland values and functions, including but not limited to the following: public or private water supply, groundwater, flood control, erosion and sedimentation control, storm damage prevention, water pollution prevention, stormwater quality, water quality, fisheries, unusual plants, wildlife, wildlife habitat, passive recreation and aquaculture values (collectively, the "wetland values protected by this chapter").

The bylaw provides compliance with WPA requirements, but as stated, provides additional protections including:

- Increased protection of isolated wetlands
- Increased protection of vernal pools
- 100-foot no-build setback
- 50-foot no disturbance setback
- Reimbursement of expert expenses for application review

Other relevant chapters of the Town Code providing direct or indirect river protection include Chapters:

101 Boats and Boating
193 Stormwater and Land Disturbance
196 Historic Districts
300 Aquifer Protection District Planning Board Regulations
301 Conservation Cluster Development
302 Site Plan Review and Approval

Recommendations

- Revise the Master Plan and OSRP to include recommendations of the SuAsCo WSR Conservation Plan.
- Implement priority land conservation recommendations of the 2015 (or more recent) SuAsCo WSR Unprotected Land Inventory.
- Correct references to Watershed Protection District that was repealed in 2005.

REFERENCES

- Bedford. (2013). *The Bedford We Want: Shaping Our Future, Comprehensive Plan*. Town of Bedford: Bedford Planning Board.
- Billerica. (2018). *Town of Billerica, MA 2018 Master Plan*. prepared by VHB / NMCOG.
- Carlisle. (2013). *Town of Carlisle Open Space & Recreation Plan*. Town of Carlisle 2013 Open Space and Recreation Plan Committee.
- Carlisle. (2017). *Carlisle Master Plan Report*. Town of Carlisle.
- Colman, J. A., & Friesz, P. J. (2001). *Geohydrology and Limnology of Walden Pond, Concord, Massachusetts*. Northborough, MA: U.S. Geological Survey.
- DCR. (2018, June). *Greenways and Trails Program*. Retrieved from Mass.gov: <https://www.mass.gov/guides/greenways-trails-program>
- DCR. (2018, May). *Guide to Floodplain Management*. Retrieved from Mass.gov: <https://www.mass.gov/guides/floodplain-management>
- DCR. (2018, June). *Recreational Trails Program*. Retrieved from Mass.gov: <https://www.mass.gov/guides/recreational-trails-program>
- EEA. (2016). *Guide to Water Resource Management Planning*. Executive Office of Energy and Environmental Affairs. Retrieved from <https://www.mass.gov/files/documents/2016/08/uf/iwrmp.pdf>
- EPA. (2018, July). *SEMS Search*. Retrieved from United States Environmental Protection Agency: <https://www.epa.gov/enviro/sems-search>
- EPA. (2018, April). *Sole Source Aquifer Program*. Retrieved from Region 1: EPA New England: https://www3.epa.gov/region1/eco/drinkwater/pc_solesource_aquifer.html
- EPA. (2018, April). *Summary of the Federal Insecticide, Fungicide, and Rodenticide Act 7 U.S.C. §136 et seq. (1996)*. Retrieved from U.S. Environmental Protection Agency: <https://www.epa.gov/laws-regulations/summary-federal-insecticide-fungicide-and-rodenticide-act>
- EPA. (2018, April). *U.S. Environmental Protection Agency*. Retrieved from Summary of the Toxic Substances Control Act 15 U.S.C. §2601 et seq. (1976): <https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act>
- M.G.L. (1996). *The Massachusetts Rivers Protection Act*. Retrieved from mass.gov: <http://archives.lib.state.ma.us/actsResolves/1996/1996acts0258.pdf>
- M.G.L. (2012). *The Massachusetts Wetlands Protection Act*. Retrieved from mass.gov: <https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXIX/Chapter131/Section40>
- MassDEP. (2018, June). *Mass.gov*. Retrieved from Underground Injection Control (UIC): <https://www.mass.gov/underground-injection-control-uic>
- MassDEP. (2018, May). *Massachusetts Rivers Protection Act*. Retrieved from MassDEP: <https://www.mass.gov/files/documents/2018/04/17/about-rpa.pdf>
- MassDEP. (2018, June). *The Source Water Assessment & Protection (SWAP) Program*. Retrieved from Mass.gov: <https://www.mass.gov/service-details/the-source-water-assessment-protection-swap-program>
- MassWildlife. (2018, June). *MA Endangered Species Act (MESA) Overview*. Retrieved from Mass.gov: <https://www.mass.gov/service-details/ma-endangered-species-act-mesa-overview>
- NPS. (1995). *Sudbury, Assabet and Concord Wild and Scenic River Study River Conservation Plan*. Boston: National Park Service.

- NPS. (2013). *Wild and Scenic River Reconnaissance Survey of the Wood-Pawcatuck Watershed*. National Park Service Northeast Region.
- NPS. (2018). *National Park Service Wild and Scenic Rivers Program*. Retrieved from <https://www.nps.gov/orgs/1912/index.htm>
- PL 113-291. (2014, 12 19). *Public Law 113 - 291*. Retrieved from Congress.gov: <https://www.congress.gov/113/plaws/publ291/PLAW-113publ291.pdf>
- SVT. (2015). *Sudbury, Assabet, and Concord Wild and Scenic Rivers: Unprotected Land Inventory 2015 Update*. Sudbury Valley Trustees.
- USFWS. (2018, April). *About the WSR Act*. Retrieved from National Wild and Scenic River System: <https://www.rivers.gov/wsr-act.php>

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