

Appendix A:

**Summary of Federal, State,
Municipal and Tribal
Laws, Regulations,
Ordinances and Plans**

**Wood-Pawcatuck Wild
and Scenic Rivers Study**

SUMMARY OF MUNICIPAL PLANS & ORDINANCES
WOOD-PAWCATUCK WILD AND SCENIC RIVERS STUDY

For the Towns of

Charlestown, Exeter, Hopkinton, North Kingstown,
Richmond, South Kingstown, West Greenwich, & Westerly, Rhode Island

And

North Stonington, Sterling, Stonington & Voluntown, Connecticut

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SUMMARY OF MUNICIPAL PLANS & ORDINANCES

WOOD-PAWCATUCK WILD AND SCENIC RIVERS STUDY

1.0 Introduction

This report summarizes plans and regulations for twelve towns in the Wood-Pawcatuck Wild and Scenic Rivers Study area (Figure 1. Wood-Pawcatuck Watershed). As part of that study, the Wood-Pawcatuck Wild and Scenic Rivers Study Committee (WPWSRSC or Study Committee) is preparing "...a locally-based Wood-Pawcatuck Wild and Scenic Rivers Stewardship Plan and a Study Report that describes the eligibility and suitability of a Partnership Wild and Scenic River designation for the Beaver, Chipuxet, Green Falls, Queen/Usquepaugh, Pawcatuck, Shunock, and Wood Rivers." (WPWSRSC, 2018). The Stewardship Plan will help to protect the Outstandingly Remarkable Values (ORVs) documented in the Study. The National Park Service (NPS) 2013 report "Wild and Scenic River Reconnaissance Survey of the Wood-Pawcatuck Watershed" states (p.20):

An in-depth analysis is undertaken during a Wild and Scenic Study and includes an evaluation of:

- *The adequacy of local zoning and other land use controls in protecting the Wild and Scenic River value by preventing incompatible development. ...*
- *The state/local government's ability to manage and protect the Wild and Scenic River values on non-federal lands. In conducting this evaluation a study team will determine if the communities and state have existing zoning and land use controls adequate to protect the waterways and associated ORVs, or whether additional controls are necessary to protect resources. Essential programs or regulations, together with resource objectives and recommendations for future action, are documented in the comprehensive river management plan (CRMP) developed as a part of the Study. Partnership Wild and Scenic River (PWSR) designation under the WSRA is only suitable when there is strong, broad-based support for these critical elements as included in the Plan. (NPS, 2013)*

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 described in this report. For each of the twelve member communities, this report provides a summary of community plans and municipal ordinances that relate to the use, protection, and/or management of the study rivers, and identifies potential areas for improvement.

In 2014 the U.S. congress enacted Public Law 113-291, adding the following rivers for study by the National Park Service (NPS) for potential designation as part of the National Wild and Scenic Rivers System pursuant to Section 2(a)(ii) of the National Wild and Scenic Rivers Act (PL 113-291, 2014):

- Beaver, Chipuxet, Pawcatuck, Queen, Wood, Usquepaugh

The Wood-Pawcatuck Wild and Scenic Rivers Study also includes the following rivers whose watersheds comprise the remainder of the larger Wood-Pawcatuck Watershed:

- Ashaway, Green Fall, Shunock

Currently, Rhode Island has no designated Wild and Scenic Rivers.

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, state and tribal laws and programs that directly or indirectly afford river protection. Section 4 provides a summary overview for all towns, including a summary matrix (Table 1) to facilitate comparison. The report concludes in Section 5 with a town by town summary of relevant plans and ordinances, including recommendations for each town for improved resource protection in the study area. Appendix A to this report is a separate document containing detailed information for each town.

2.0 Methods

The National Park Service Wild and Scenic River (WSR) Program guidance (NPS, 2018) was reviewed along with material provided by the Study Committee including information on ORVs identified for the study rivers, and examples of similar studies conducted for other Partnership Wild and Scenic River studies / stewardship plans (WPWSRSC, 2018). Each municipality's town plan, code of ordinances, zoning, and land development regulations were obtained and reviewed as they relate to the study river's corridor and watershed. 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 most or all town's plans and regulations are summarized below in Section 4 by subject matter or category. Relevant portions of each town's plans and regulations are summarized by town in Section 5. Maps depicting zoning, future land use plans, conservation lands and water resource constraints were evaluated for the study river corridors and watersheds in each town, and the protections afforded to the watershed ORVs are summarized for each town. Recommendations related to local regulation are included for each town.

The review of town plans and regulations varies by town in accordance with the relevancy of the subject matter to the specific study river / watershed conditions in town. For example, Sterling and Voluntown each have significant river protection afforded by the Pachaug State Forest lands, and so land development regulations are not discussed in the same depth as for communities such as North Stonington or Westerly where future development has a greater potential to affect river ORVs.

3.0 Federal, State and Tribal Protection

Regulatory protection of rivers and watersheds is based on state, tribal, and in some cases federal plans, policies and laws. This section describes key regulations at the federal, state and tribal level that protect study rivers and associated Wood-Pawcatuck Watershed ORVs. Note that this section presents the regulations by statute or regulatory program; refer to the separate section of the Stewardship Plan that lists relevant plans and regulations by ORV. 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 Narragansett Indian Tribe, the State of Rhode Island and the State of Connecticut.

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 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 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 Connecti-

cut Department of Transportation and the Rhode Island Department of Transportation receive major funds from the federal Department of Transportation and must therefore comply with NEPA.

3.1.3 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 Wood-Pawcatuck 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.

3.1.4 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 also sets the regulatory requirements municipalities must enact. The regulations generally prohibit filling and new development in the 100-year floodplain and require 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.

3.1.5 Clean Water Act

The federal Clean Water Act (CWA) regulates many activities affecting the study rivers. 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. 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 study area EPA has delegated NPDES authority to RIDEM (RIPDES program) in RI and to CTDEEP (Surface Water Discharge Permit Program) in CT.

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 RI and CT the USACE has issued General Permits (Programmatic General Permits) that effectively allows each state to be the primary permitting authority for minor activities involving wetlands and waterways. In RI this permitting is conducted by RIDEM; in CT, the authority is carried out through local implementation of the CT Inland Wetlands and Watercourses Act. In both CT and RI the USACE retains the right to step in and regulate even small impacts to wetlands. The General Permits do not relieve the USACE of its responsibilities under NEPA or Section 106 of the Historic Preservation Act.

3.1.6 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. In 1988 the EPA designated the groundwater of the entire Pawcatuck Basin Aquifer System (entire Wood-Pawcatuck Watershed) as a "Sole Source Aquifer" because of its importance as the only source of drinking water available to the public (53 FR 17108).

The EPA defines a Sole Source Aquifer as one which supplies at least 50% of the drinking water consumed in the area overlying the aquifer. EPA guidelines also require that these areas have no alternative drinking water sources(s) which could physically, legally, and economically supply water to all who depend on the aquifer for drinking water. (EPA, 2018).

This designation provides a higher level of protection of the groundwater from pollution with regard to federal activities (including federal regulations delegated to RI and CT). Within the Sole Source Aquifer area there may be:

... no commitment for federal financial assistance may be provided for any project which the EPA determines may contaminate the aquifer through its recharge area so as to create a significant hazard to public health. (EPA, 2018)

3.1.7 Coastal Zone Management Act

The federal Coastal Zone Management Act (CZMA) of 1972 established the Coastal Zone Management Program and other programs intended to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." (NOAA, 2018). The Coastal Zone Management Program provides incentives for participating states to better manage their coastal zones through enactment of state coastal zone management programs. To be eligible for the federal incentives the state's program must meet certain minimum requirements but the state's program may go further in terms of jurisdictional area and resource protection. Incentives include federal funding for certain coastal management activities and a greater voice for the state in federal decision-making, among others. The minimum jurisdictional area required by CZMA includes the area of land within 200-feet of coastal waters.

3.1.8 CERCLA, RCRA, FIFRA, and TSCA

Environmental pollution from toxic chemicals lead 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:

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 no Superfund sites in the Wood-Pawcatuck Watershed. However, the related Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) identifies a number of site remediation sites in the watershed, including old village manufacturing or industrial sites and closed dump sites. Both RIDEM and CTDEEP have primary authority for regulating site remediation and reuse.

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 Wood-Pawcatuck Watershed RCRA is important as the primary regulatory authority at the federal level for chemical use and disposal by manufacturers and industries. Both RIDEM and CTDEEP incorporate federal RCRA requirements in their solid waste and hazardous waste regulations, and these state agencies are in practice the primary regulators of hazardous and non-hazardous waste materials in their respective states.

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 Wood-Pawcatuck 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. RIDEM and CTDEEP incorporate 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. In the Wood-Pawcatuck Watershed, TSCA is perhaps most relevant as a potential source of EPA grants for cleanup of old mills / other historic buildings.

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 re-

gard 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 Narragansett Indian Tribe

The Narragansett Indian Tribe (NIT) is a sovereign nation with federally recognized tribal lands adjacent to the Pawcatuck River and extending southward to the Route 1. These tribal lands include important water resources such as Indian Cedar Swamp and Schoolhouse Pond, and are known to support a number of different rare species and habitats. The NIT tribal land overlies one of the largest groundwater reservoirs (high yield aquifers) in the region. While the designated tribal lands are certainly rich in cultural resources associated with the Narragansett Indian Tribe and their ancestors, such resources are extensive throughout the Wood-Pawcatuck Watershed. Protection of natural and cultural resources is a priority for the NIT. The Tribe is governed by the Chief Sachem and Tribal Council. Resource protection is provided by the NIT’s Department of Community Planning and Natural Resources, and the Narragansett Indian Tribal Historic Preservation Office (NITHPO).

3.2.1 Department of Community Planning and Natural Resources

The Department of Community Planning and Natural Resources provides coordinated assessment and servicing of the Narragansett Indian Tribal Reservation and Tribal Community. The mission of the department is to promote sustainable community development and ecological functions, and to expand the Tribe’s capacity to exercise its sovereign rights, through planning, analysis, education, and implementation. The goals of the department are to develop a sound economic base that will lead the Tribe to a future of self-sufficiency and enable the Tribe to continue providing services if funding from the federal government should decline or cease. The Planning Department develops ways to facilitate economic development and helps to envision future development of the Reservation lands, while being mindful of the need to protect natural resources and traditional Native American values. (NIT, 2018)

Environmental Protection and Natural Resources Management is committed to protecting the health and welfare of the Tribal culture, Community, and the natural environment by preserving, conserving, restoring, and enhancing the Reservation environment through the collection and analysis of high quality natural resource data and facilitating environmentally sound resource management, planning, policy development, and community outreach. The program is also committed to the protection of the environment and human health on the Narragansett Indian Reservation through management and regulation of use activities. Programs include: indoor and outdoor air quality, non-point source pollution, management and clean-up of solid and hazardous waste, planning for hazardous incident response, emergency response, Hazard Mitigation and Planning, control of invasive species, Safe Drinking Water, wetland protection and regulation, habitat restoration, habitat management, shoreline study, sensitive areas and other natural resources, environmental ordinance and policy development and environmental review. The programs identified are funded through the Bureau of Indian Affairs and the Environmental Protection Agency. (NIT, 2018)

3.2.2 Narragansett Indian Tribal Historic Preservation Office

The Narragansett Indian Tribal Historic Preservation Office (NITHPO) is a designated office of the Narragansett Indian Tribe. NITHPO is authorized to determine all matters on behalf of the Tribe with respect to historic preservation, Indian graves' protection, and religious freedom and other relevant cultural matters. ... NITHPO and the Tribe as a whole, view archaeological site[s]... not as finite, fragile, and non-renewable cultural resources. Any study or construction project that involves the excavation of sediments or the alteration of a resource produces an irreversible effect on the area.... Performance standards and procedures are administered by ... [NITHPO] to ensure that archaeological studies are done properly and do not inadvertently result in the loss of cultural resources through excavation or the removal of unearthed cultural materials. ... [T]he National Historic Preservation Act that requires federal or state agencies to consult federally recognized tribes when a project might impinge on a historic site ... enables the Tribe's Historic Preservation Office to consult with the Rhode Island State Historic Preservation Officer (SHPO), as well as state and federal agencies concerning proposed activities that may affect properties of traditional religious and cultural importance to the Narragansett Indian Tribe. (NIT, 2018).

3.3 State of Rhode Island

Rhode Island has many resource protection laws, policies and programs similar to other states and often developed in conformance with federal laws. These are summarized below along with those which are somewhat unique to RI. Statutes are referenced with respect to the RI General Laws (RIGL). Unlike CT, regulation of wetlands and onsite wastewater treatment systems (OWTSs, also known as septic systems) is done by RIDEM at the state level rather than at the local level as in neighboring states. State enabling legislation related to planning and zoning requires implementation at the local level in conformance with state Guide Plans and procedures.

3.3.1 Comprehensive Community Plans

In Rhode Island Comprehensive Community Plans (Comprehensive Plans, or “Comp Plans”) must be prepared by municipalities in conformance with the RI Comprehensive Planning and Land Use Regulation Act (RIGL 45-22.2) and associated regulations and guidance from the RI Department of Administration Division of Statewide Planning (RIDSP, 2018). The local Planning Board / Commission has the lead role in preparing the plan which must then be adopted by the town or city council.

Rhode Island has a reciprocal system of land use planning whereby the State sets broad goals and policies through the State Guide Plan and municipalities express local desires and conditions through the development of community comprehensive plans. These local comprehensive plans serve as the basis for land use regulation and establish an implementation program for achieving each community's stated goals. The local comprehensive plans are reviewed by the State, and when approved, become binding on State agencies by requiring conformance of their programs and projects to the comprehensive plan. (RIDSP, 2018)

State law requires the municipality's zoning map and ordinance be consistent with the Comprehensive Plan. Required contents of the plans are specified in state “Comprehensive Planning Standards Manual” and associated guidebooks. This manual identifies the various State Guide Plan elements the RIDSP will use to evaluate Comprehensive Plan consistency with state plans and policies. The State Guide Plan elements are (RIDSP, 2018):

[121: Land Use 2025: Rhode Island's State Land Use Policies and Plan](#)

[131: Cultural Heritage and Land Management Plan for the Blackstone River Valley National Heritage Corridor](#)

[140: State Historical Preservation Plan](#)

[152: Ocean State Outdoors: State Comprehensive Outdoor Recreation Plan](#)

[155: A Greener Path: Greenspace & Greenways for Rhode Island's Future](#)

[156: Urban & Community Forest Plan](#)

[161: Forest Resources Management Plan](#)

[421: State Housing Plan](#)

[423: Rhode Island Five Year Strategic Housing Plan: 2006-2010 - Five Thousand in Five Years](#)

[611: Transportation 2035: Long Range Transportation Plan](#)

[640: State Airport System Plan](#)

[651: Waterborne Passenger Transportation Plan](#)

[661: State Rail Plan](#)

[721: Rhode Island Water 2030](#)

[Energy 2035, Rhode Island State Energy Plan](#)

[RI Rising, Economic Development](#)

[Solid Waste 2038](#)

[Water Quality 2035](#)

3.3.2 Zoning and Land Development

State zoning enabling legislation is codified in RIGL 45-24. The law establishes the procedures and standards for the establishment of local zoning districts, maps, ordinance, and administration. Local Zoning Boards and Zoning Enforcement Officers have principal roles in the enforcement of zoning. The local Planning Board / Commission also has a key role in administration of the local zoning regulations. Section 45-24-33 requires zoning to conform to the approved Comprehensive Plan. Most of the state zoning law is concerned with establishing the uniform content, structure of the ordinance as well as the land development review / approval process of the ordinance.

The Rhode Island Land Development and Subdivision Review Enabling Act (RIGL 45-23) establishes the requirements for local ordinances regulating subdivision of land and major land development project. 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 open space and other public amenities and infrastructure. These regulations are administered by a member of the Planning Board or other municipal designate; the review process is conducted by the Planning Board with consultation provided by town officials and boards including the Conservation Commission; appeals are heard by the Zoning Board.

3.3.3 Freshwater Wetlands

The Rhode Island Freshwater Wetlands Act of 1971 authorized RIDEM to preserve and regulate the freshwater wetlands of the state for the public benefits that they provide. This act stated that freshwater wetlands in the vicinity of the coast are regulated by the CRMC (the jurisdictional boundary between RIDEM and CRMC regulation of freshwater wetlands was revised in the 1997 Aquaculture Act). In December 2015 the Freshwater Wetlands Act was substantially revised / replaced (RIGL 2-1-18 through 2-1-28); once the implementing regulations are promulgated the new act will increase the jurisdictional area regulated by RIDEM and CRMC but will limit municipal authority to regulate certain activities with respect to wetlands.

Under the current regulations all wetlands, floodplains and surface waters (rivers, streams, ponds, lakes) are regulated; upland areas adjacent to certain types of wetlands are also regulated: 200-feet on each side of watercourses averaging 10-feet or more in width, 100-feet on each side of flowing bodies of water less than 10-feet in width, and 50-feet outside of certain types of wetlands such as bogs, marshes and swamps. Small isolated wetlands including vernal pools have no jurisdictional “buffer area” under current regulations. The 2015 statute increases the jurisdictional areas to 200-feet on each side of any stream or river (regardless of width), and 100-feet outside of all other wetlands except floodplains.

Wetlands are identified by soils, vegetation and hydrology and projects are encouraged to avoid, minimize and mitigate wetlands impacts. Some projects include construction of replacement wetlands but 1:1 replacement by area is not normally required. Rhode Island communities are allowed (at least at present) to administer their own wetlands regulations in existence prior to the new wetland statute (12/2015), but their jurisdiction is limited by the state.

3.3.4 Groundwater Protection

Groundwater protection regulations in RI are contained in “Rules and Regulations for Groundwater Quality”(7/26/10). These regulations provide the basis for the RIDEM Groundwater Standards and Classification Program, Onsite Wastewater Treatment System (OWTS) Program, and the Groundwater Discharge Program. Additional regulations are contained in “Groundwater Discharge Rules” (11/19/14). The regulations provide for compliance with federal requirements pursuant to the SDWA and CWA with respect to groundwater. They also include provisions for compliance with EPA’s Sole Source Aquifer designations and requirements. Private and public wells are also regulated by RIDEM under these regulations; the RI Department of Health also has a role in the implementation of RI’s groundwater protection strategy. RIDEM works with USGS to identify wellhead protection areas, groundwater reservoirs and associated recharge areas.

The OWTS Program provides for permitting of wastewater treatment systems serving individual homes and businesses as well as small community systems discharging treated wastewater to the ground. Specific OWTS regulations are contained in “Rules Establishing Minimum Standards Relating to Loca-

tion, Design, Construction and Maintenance of Onsite Wastewater Treatment Systems” (6/27/16)

Permitting activities [for OWTS] are divided into three main stages: site-suitability, design review, and construction inspection. Site-suitability is a preliminary stage which assesses the suitability of a parcel of land for on-site sewage disposal. Design review entails a review to determine a design’s compliance with State standards, rules and regulations including setbacks to drinking water wells, water supplies, and sensitive water bodies. Proper design and installation is essential to protect public health and avert the potential adverse impacts of onsite wastewater treatment systems on water resources. (RIDEM, 2018)

“The Groundwater Discharge Program plays a role in the protection of these underground sources of drinking water by regulating the discharge to or above the ground surface of commercial and industrial wastewater and other fluids that have the potential to contaminate the State’s groundwater resources.” (RIDEM, 2018).

3.3.5 Wastewater Discharge Permits

Wastewater discharges to surface waters are regulated by the RIDEM RI Pollutant Discharge Elimination System (RIPDES) Program pursuant to its delegated authority under the federal CWA and RIDEM’s “Regulations for the Rhode Island Pollutant Discharge Elimination System” (2/25/03) and RIDEM’s “Water Quality Regulations” (12/28/10). The RIPDES 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. RIPDES administers discharge permits for large municipal stormwater collection systems (MS4 communities) as well as issuing general permits with requirements for managing stormwater during construction activities, industrial areas, and other activities with specialized requirements.

3.3.6 Coastal Zone Management

Rhode Island’s designated CZM authority is the RI Coastal Resources Management Council (CRMC). This agency regulates development in jurisdictional areas with a permit program in compliance with the “Coastal Resources Management Plan” (CRMP) regulations. Activities within 200-feet of any “shoreline feature” (coastal feature) such as beaches, rocky shores, coastal bluffs and coastal wetlands are regulated. Freshwater wetlands contiguous with tidal wetlands are also considered a Coastal Wetland shoreline feature. CRMC also regulates freshwater wetlands in the vicinity of the coast (as noted above), certain large projects in coastal communities (e.g. power plants), and aquaculture projects even if they are proposed outside of the coastal zone.

The CRMP defines uses that are prohibited in coastal waters and on shoreline features depending on the water classification established in the CRMP. Shore areas classified for commercial / industrial uses allow more uses and have fewer restrictions than shore areas adjacent to waters classified for conservation uses. The CRMP specifies the type of permit required for allowed uses depending on the water type classification. A Category A Assent is typically issued administratively by CRMC staff while Category B applications are decided by the full Coastal Resources Management Council – a quasi-judicial council made up of members appointed or specified by the statute.

In some areas of RI CRMC has an additional set of requirements associated with a Special Area Management Plan (SAMP). In the project area CRMC has a SAMP for the Pawcatuck River Estuary and Little Narragansett Bay (Dillingham, 1992); it was created for the benefit of having a sole management plan

that would aid in governing the multiple agencies involved, those being primarily the CT DEEP and RI CRMC. The plans' goal has been to unify differences between the two states regulations for protection and maintenance of the Pawcatuck River Watershed and its corresponding habitats. Additional controls on nonpoint pollution, stormwater, septic and sewer systems, freshwater withdrawals and discharges were made with this plan. This was an early SAMP adopted by CRMC and the precise spatial boundaries of its jurisdiction are not clear.

3.4 State of Connecticut

Connecticut's resource protection laws, policies and programs are similar to those in other states and are often developed in conformance with federal laws. These are summarized below along with those which are somewhat unique to CT. Statutory reference is made to the Connecticut General Statutes (CGS) and regulatory reference is made to the Regulations of Connecticut State Agencies (RCSA). Unlike RI, Connecticut has a formal permit program for the diversion of groundwater or surface water at a rate of 50,000 gallons per day (gpd) or more. Connecticut's Natural Diversity Data Base program has a formal process for reviewing potential impacts to rare species and their habitats, unlike Rhode Island's program. The CT coastal zone jurisdictional area extends 1,000-foot landward of tidal waters and wetlands; this is significantly larger than the RI 200-foot CRMC jurisdictional area. State enabling legislation related to planning and zoning requires implementation at the municipal level in conformance with state guidance and procedures.

3.4.1 Municipal Plan of Conservation and Development

Community planning in Connecticut is guided by CGS Section 8-23 and administered by the Connecticut Office of Policy and Management (OPM):

Section 8-23 of the Connecticut General Statutes (CGS), as amended by Public Act 15-95, sets forth required procedures by which each municipality must prepare or amend and adopt a plan of conservation and development (POCD). ... [A]ny municipality that does not adopt a POCD at least once every ten years shall be ineligible for discretionary state funding unless such prohibition is expressly waived by the OPM Secretary. The 10-year clock for discretionary state funding eligibility re-sets whenever the municipal POCD is prepared or amended and adopted in accordance with CGS Section 8-23. (OPM, 2018)

To be eligible for discretionary funding the municipality must provide a copy of the POCD to OPM, certify the POCD adoption date by the planning and zoning commission, and describe any inconsistencies between the POCD and the current State Plan of Conservation and Development.

3.4.2 Planning and Zoning

The statutes related to municipal planning and zoning are numerous and contained in various parts of the CGS. While OPM periodically publishes a "Compendium of Planning and Zoning Statutes", current requirements can only be determined by consulting the CGS (OPM, 2005). Some of the most relevant statutes related to WSR planning and zoning are contained in CGS:

- Title 7, Chapter 97a Historic Districts and Historic Properties
- Title 8 Zoning, Planning, Housing, Economic And Community Development And Human Resources, Chapter 124 Zoning

- Title 8, Chapter 125a Local Land Use Ordinances
- Title 8, Chapter 126 Municipal Planning Commissions
- Title 13a Highways and Bridges, Part IV Land Acquisition and Disposal
- Title 13b Transportation, Chapter 242 Transportation Department, Part V Waterways, Harbor Improvement Agencies
- Title 15 Navigation And Aeronautics Chapter 263 Harbors and Rivers
- Title 16a Planning and Energy Policy, Chapter 297 Connecticut’s Development and Future, Part I State Plan of Conservation and Development
- Title 22a Environmental Protection (various chapters some of which are described below by specific resource). Particular chapters of note are:
 - Ch. 440 Wetlands and Watercourses
 - Ch. 444 Coastal Management
 - Ch. 444a Harbor Management Commissions
 - Ch. 445 Hazardous Waste
 - Ch. 446d and 446e Solid Waste
 - Ch. 446h Soil Conservation
 - Ch. 446i Water Resources
 - Ch. 446j Dams and reservoirs
- Title 23 Parks, Forests and Public Shade Trees
- Title 25 Water Resources. Flood and Erosion Control (various chapters some of which are described below by specific resource). Notable chapters include:
 - Ch. 476a Flood Management
 - Ch. 477d River Protection (model river protection ordinance)
 - Ch. 484 Protected Rivers
 - Ch. 485 Multiple Use Rivers

3.4.3 Environmental Policy Act

“The purpose of the Connecticut Environmental Policy Act (CEPA) is to identify and evaluate the impacts of proposed state actions which may significantly affect the environment. This evaluation provides the decision maker with information necessary for deciding whether or not to proceed with the project. The process also provides opportunity for public review and comment.” (OPM, 2018) CGS Sections 22a-1 through 22a-1h, RCSA c. 22a-la-1 through 22a-la-12. CEPA is similar to NEPA but applies to state actions. CEPA requires state agencies to develop Environmental Classification Documents that help to identify that agencies actions which will likely require further evaluation in an Environmental Impact Report (EIR).

3.4.4 River Corridor Protection

The River Protection Act (CGS Section 25-200 to 25-206) and the Multiple Use Rivers Act (CGS Section 25-230 to 25-236) provide procedures for the establishment of river commissions, preparation and approval of river corridor management plans and management of river corridors by municipalities. DEEP oversees review and approval of plans by the state. Planning includes inventory, mapping, regulatory review and requires consultation with various agencies and the public; adopted River Corridor Management Plans must also be in conformance with the town(s) POCD(s). An approved plan requires local and state agencies to conform with plan provisions and allows the municipality to acquire lands in the corridor for preservation. DEEP greenways include river corridors designated pursuant to these acts. Many of the provisions of these acts parallel the WSRA and it appears these laws will govern the Con-

necticut municipalities' implementation of the Wood-Pawcatuck Wild and Scenic River Stewardship Plan.

3.4.5 Inland Wetlands and Watercourses

Connecticut's Inland Wetlands and Watercourses Act (IWWA; C.G.S 22a-36-45) requires each town to establish a municipal inland wetland agency to regulate activities that affect inland wetlands and watercourses within their municipal boundaries. These activities, referred to as "regulated activities," are those proposed or conducted by all persons other than state agencies. State agency actions are solely regulated by the Connecticut Department of Energy and Environmental Protection (DEEP). Inland wetlands in the state of Connecticut are defined by their soil type being hydric. Generally, watercourses are defined in Sec. 22a-38 as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon this state or any portion thereof, not regulated pursuant to sections 22a-28 to 22a-35" (CT, 2018). A minimum 100-foot jurisdictional area extending outward from the edge of wetlands and watercourses, described as an upland review area, is set forth by the DEEP and accepted by all municipalities in the state. This upland review area, or a portion of it, may be designated as a buffer area to minimize wetland impacts. Individual municipalities may extend this buffer further through adopted town ordinances.

3.4.6 Water Diversion

Connecticut's regulates withdrawal and alteration of waters in the state through the Water Diversion Program . The program issues permits both on a general and individual level which follow the regulations set out in the Water Diversion Policy Act. (CGS 22a-365-379 and RCSA Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2). One must obtain a permit if they propose to:

- withdraw groundwater or surface water in excess of 50,000 gallons of per day;
- collect and discharge runoff, including storm water drainage, from a watershed area greater than 100 acres;
- transfer water from one public water supply distribution system or service area to another where the combined maximum withdrawal from any source supplying interconnection exceeds fifty thousand (50,000) gallons during any twenty-four hour period;
- expand a registered public water supply service beyond a service area as identified (1) within registration documents, (2) in a water supply plan submitted prior to October 1, 2016, or (3) beyond an exclusive service area identified on the Department of Public Health's 2016 withdraw groundwater or surface water in excess of 50,000 gallons of per day;
- relocate, retain, detain, bypass, channelize, pipe, culvert, ditch, drain, fill, excavate, dredge, dam, impound, dike, or enlarge waters of the state with a contributing watershed area greater than 100 acres;
- transfer water from one water supply distribution system to another in excess of 50,000 gallons per day;
- or modify a registered diversion.

Holders of such permits must annually file water diversion reports to the DEEP Water Planning and Management Division. Since the a portion of the Wood-Pawcatuck Watershed lies within the eastern public water supply management area in Connecticut, this diversion program aids in maintaining proper water levels and base flow important to maintaining fish, wildlife and recreational values.

3.4.7 Aquifer Protection

Groundwater sources in Connecticut are protected through the state's Aquifer Protection Area Program and Aquifer Protection Area statutes (CGS 22a-354a-bb) administered by DEEP. These statutes authorize municipal regulation of aquifer protection including creation of an agency, adoption of local regulations, appeals, and penalties. DEEP Level A mapping deems which wellfields in municipalities are to be regulated by law (RCSA 22a-354b-1). Level B mapping or "preliminary" mapping, does not act as a final area to be regulated for the protection program but instead offers general information on the location and size of the wells in municipalities. Zoning districts and APA's are separate in regulations. The DEEP, municipalities, and water companies all serve a role in carrying out the goals of the program and following the laws. While the DEEP provides overall program administration, municipalities have primary responsibility for implementing the land use regulations within the protection areas. Both Stonington and North Stonington have groundwater protection overlay districts and associated aquifer protection regulations. North Stonington has a mapped Level A aquifer on the Shunock River west of the Village of North Stonington.

3.4.8 Wastewater Discharge Permits

DEEP "regulates discharges to waters of the state, including all surface waters, ground waters and Publicly Owned Treatment Works (POTW) (i.e., sewage treatment plants)" through its water discharge permit program (CGS Sections 22a-416 through 22a-438; RCSA Sections 22a-430-1 through 22a-430-7).

DEEP uses both individual and general permits to regulate discharge activities. Individual permits are issued directly to an applicant, whereas general permits are permits issued to authorize similar minor activities by one or more applicants.

DEEP issues discharge permits in three major categories. While the process for each is similar, specific application requirements may vary.

- *The Surface Water Discharge Permit Program, also known as the National Pollutant Discharge Elimination System (NPDES) under federal law, regulates discharges into surface waters (either directly or through municipal storm sewer drainage systems, or through other drainage systems such as wetlands or swales).*
- *The Ground Water Discharge Permit Program regulates discharges to ground water from any source, including but not limited to large septic systems, agricultural waste management systems, and all waste landfills.*
- *The Pre-treatment Permit Program regulates discharges to a sewage treatment plant through municipal sanitary sewer drainage systems, or through combined storm and sanitary sewer systems. (DEEP, 2018)*

3.4.9 CT Endangered Species Act

"The Connecticut Endangered Species Act, passed in 1989, recognizes the importance of our state's plant and animal populations and the need to protect them from threats that could lead to their extinction. The overall goal of the legislation is to conserve, protect, restore and enhance any endangered or threatened species and their essential habitat. Species are listed according to their level of risk, and their status is reviewed every five years." (DEEP, 2018) CGS Section 26-303.

Projects requiring state approval are screened for potential impacts by using the Natural Diversity Data Base (NDDDB) maps; applicants for projects with a potential to affect mapped species / habitats file an application to DEEP's NDDDB program for project review. Rare species surveys and impact evaluation may be required and may result in requirements to avoid and/or minimize potential impacts to the listed species.

3.4.10 Coastal Management

Connecticut's Coastal Management Act (C.G.S. 22a90 – 22a-112) provides for state and municipal regulation of work in coastal / tidal waters, tidal wetlands, and associated navigable waters. Development on the shoreline of Connecticut is regulated at the local level by zoning and planning boards/commissions that follow the policies of the Coastal Management Act. Boundaries set by the Act for coastal areas are defined in Sec. 22a-94 by either: the interior contour elevation of the 100-year flood coastal zone, a one thousand foot linear setback measured from the mean high water mark in coastal waters, or a one thousand foot linear setback measured from the inland boundary of tidal wetlands mapped under section 22a-20, whichever is farthest inland. Actions and decisions made by the administrative authority of the Act, the DEEP, are further approved by NOAA (National Oceanic and Atmospheric Administration) under the federal Coastal Zone Management Act. Coastal zones within Connecticut are also protected with the Coastal Nonpoint Source Pollution Program through the Section 6217 of the Coastal Zone Management Act Reauthorization Amendments of 1990.

Also consistent with the Connecticut Coastal Management Act is the Coastal Permit Program that regulates activities in tidal wetlands and coastal/ navigable waters under the Structures, Dredging and Fill Act (CGS 22a-359 - 22a-363f) and the Tidal Wetlands Act (CGS 22a-28 - 22a-35). This program is administered by the DEEP Land and Water Resources Division.

4.0 Summary Overview of All Towns

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

4.1 Community Plans

All towns in the study area have some sort of master plan to guide growth and development in the future. Both Rhode Island and Connecticut have state laws that govern the preparation and content of such plans. Both states provide financial support to towns for plan preparation. In Rhode Island, these plans are called Comprehensive Community Plans (Comprehensive Plans, or “Comp Plans”). In Rhode Island these local plans must be prepared in conformance with the RI Comprehensive Planning and Land Use Regulation Act (RIGL 45-22.2) and associated regulations and guidance from the RI Department of Administration Division of Statewide Planning (RIDSP, 2018). In Connecticut, this plan is typically called the Plan of Conservation and Development (POCD). Those local plans are guided by the State of Connecticut 2013-2018 Conservation and Development Policies Plan (OPM, 2013), in accordance with state law (CGS 8-23). In both states, towns 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 towns include goals promoting the preservation of natural resources, open space, and the rural / historic character of the town. In most cases these preservation goals are tied to water supply protection, protection of development from flood damage, and for some towns the protection and promotion of the tourism industry. Towns 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 town. All towns protect the study river corridors to a large extent, and provide meaningful development regulations that protect water resources in the river’s watersheds. Many towns promote greenways and interconnected conservation lands; some towns specifically support the Wood-Pawcatuck Wild and Scenic River Study effort.

4.2 Zoning

All of the towns in the study area also have enacted zoning ordinances 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 ordinances 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 ordinances typically consist of two parts. The first part is the text. The text establishes zoning districts and indicates which uses are allowed within each district. Other common parts of the text include:

- Legal Authority, and Purpose
- General Provisions
- Zoning Districts and Regulations
- Use Tables
- Dimensional Requirements
- Nonconforming Uses, Structures, and Lots
- Impact Standards, Performance Standards, Review/Approval Criteria
- Administration, Enforcement and Appeals
- Amendment Procedures

The second part of the Zoning Ordinance is the Zoning Map. The Zoning Map shows the locations of the various zoning districts within the town. This analysis concentrates first and foremost on the types of zones designated in proximity to the study rivers with an eye to evaluating the level of resource protection provided by the Ordinance. Protection of watershed ORVs is also described. In addition, many communities include “overlay” districts that provide a higher level of resource protection than the underlying district. Typical overlay districts within the study area include aquifer and groundwater protection zones, wellhead protection areas, flood hazard zones, historic village districts and occasionally wetland and riverfront protection zones. Some overlay zones are explicitly mapped, others are incorporated by reference to specific maps such as the local Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs).

Finally, some zoning ordinances 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 ordinances, and Planned Unit Developments (PUD). The terms “Conservation Development” and “Low Impact Development” (LID) are also referenced in zoning and land development regulations, but often with different meanings and specificity in different towns.

In each case, the Zoning Ordinance also establishes a Zoning Board of Review or Zoning Board of Appeal. The responsibility of the Zoning Board is to hear cases where the literal application of the Ordinance 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. Most Zoning Boards also grant Special Use Permits 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 / Planning and Zoning Commission in the development review process described below.

Town zoning provides very good protection of study river corridors for the most part, especially in combination with large areas of protected conservation lands. Many of the zoning challenges with respect to resource protection are a result of the historic village developments along the river. 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 and water resource constraints such as flood hazards.

4.3 Land Development Regulations

All of the study area towns also have adopted a set of land development regulations. These may also be referred to as the “Subdivision Ordinance” and/or the “Land Development Ordinance”. These typically apply to subdivision of land into three or more lots, and large development projects. While the Zoning Ordinance indicates WHAT uses are permitted on a property, the land development ordinances 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 land development projects that may include more detail than that provided in the Zoning Ordinance. Unlike the Zoning Ordinance, the land development regulations often provide specific requirements for evaluation and protection of natural and cultural resources during the subdivision and land development process. Some towns also have separate but related design standards that are important to preserving natural resources and scenic views.

4.4 Special Resource Protection

Each of the Towns in the study area also has its own set of local ordinances. These local laws cover a wide range of topics based on local priorities. Many of them provide specific protections for resources considered important within the communities. They range from nuisance laws about garbage and debris to “dark skies” ordinances that control outside lighting. This study reviews the local requirements and guidance contained in the ordinances for the protection of wetlands, floodplains, groundwater aquifers, public wells, and any other resources that may related to the protection of the rivers.

4.4.1 Wetlands & Watercourses

Wetlands & Watercourses are protected by state law in both Rhode Island and Connecticut. In Rhode Island, development projects with a potential impact on wetlands are reviewed primarily by the Rhode Island Department of Environmental Management (RIDEM) and wetlands in the vicinity of the coast are regulated by the Coastal Resources Management Council (CRMC). Wetlands are identified by soils, vegetation and hydrology and projects are encouraged to avoid, minimize and mitigate wetlands impacts. Some projects include construction of replacement wetlands but 1:1 replacement by area is not normally required. Rhode Island communities are allowed (at least at present) to administer their own wetlands regulations in existence prior to the new wetland statute (12/2015), but their jurisdiction is limited by the state.

In Connecticut, the cities and towns implement wetlands protection through local Inland Wetlands and Watercourses Commissions (IWWCs or Wetland Commissions) pursuant to the state law. The Wetlands Commissions review development projects at the town level. Jurisdictional areas include the inland wetlands, all watercourses (intermittent and perennial), and a minimum 100-foot “upland review area” surrounding the wetlands and watercourses. Inland wetlands are primarily identified by soil indicators and applicants are required to avoid wetlands, minimize encroachment and mitigate adverse impacts. Mitigation typically requires 1:1 replacement for impacted wetlands by area although exceptions are made where it can be established that replacement of functions and values can be accomplished without 1:1 replacement. The Town of Stonington also includes coastal zone wetlands that are regulated pursuant to state law and the town’s Coastal Area Management regulations.

4.4.2 Floodplains

All of the towns in the study area have adopted flood hazard ordinances. These local ordinances 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 regulations often include flood-related provisions, the town's flood hazard ordinances are often a separate chapter of the town code, and include specific reference to the NFIP, and cite the FEMA Flood Insurance Rate Maps (FIRMs) as depicting the regulated area. Many towns 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 ordinances have been adopted by municipalities such as Westerly and Stonington with town-owned stormwater drainage systems as required by the federal Clean Water Act and administered by RIDEM / CTDEEP (the so-called MS4 requirements). Restrictions on new connections, inspection, enforcement and management of stormwater infrastructure are specified.

4.4.4 Groundwater

Most of Rhode Island's groundwater reservoirs and recharge areas lie within the Wood-Pawcatuck watershed. These represent high yield aquifers suitable for public water supply. They were created by glacio-fluvial deposits during the ice age. Areas outside these groundwater reservoirs are also used for individual water supplies and small community and non-community wells. Most of the RI communities in the Wood-Pawcatuck Watershed have groundwater protection overlay districts with additional resource protections including land use restrictions and performance standards for new development.

In Connecticut, significant aquifers are associated with the Shunock, Green Fall, Ashaway and Pawcatuck Rivers. A number of public water supply wells use these groundwater resources. CTDEEP identifies "Level A" (~wellhead) and "Level B" (recharge) aquifer areas and requires municipalities enact regulations to protect these resources. North Stonington has a mapped Level A area on the Shunock west of the North Stonington Village. Both Stonington and North Stonington show large aquifer protection areas associated with the study rivers in their towns.

4.4.5 Wastewater (Septic Systems and Sewers)

Subsurface sewage disposal systems, also known as septic systems or onsite wastewater treatment systems (OWTSS) are regulated by municipalities in Connecticut and by RIDEM in Rhode Island (with various levels of local participation by RI towns). In Rhode Island, OWTSS are regulated, reviewed under the Rules Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Onsite Wastewater Treatment Systems. Rhode Island communities are not (yet) prohibited from enforcing their own standards that are stricter than the state standards. The most common of these

local ordinances establish On-site Wastewater Management Plans (OWMP) and associated Wastewater Management Districts. An OWMP describes the elements of the municipal management program for septic systems. Program elements may include requiring system inspections, enhancing homeowner education, or specifying more stringent treatment requirements in environmentally sensitive areas. Once approved by RIDEM, an OWMP makes a town eligible to apply to the Community Septic System Loan Program (CSSLP). Local OWTS setbacks from wetlands in excess of state standards will not be allowed after RIDEM regulations are adopted in accordance with the revised Freshwater Wetlands Act enacted in December 2015. At this time no implementing regulations have been proposed by RIDEM.

In Connecticut, septic systems, defined as subsurface sewage disposal systems, are regulated by Public Health Code (PHC) Section 19-13-B103 and the associated Technical Standards for Subsurface Sewage Disposal Systems (Technical Standards). Septic systems with design flows of 7,500 gallons per day (GPD) or less are regulated and permitted by the Local Director of Health. Large septic systems serving buildings with design flows of 2,000 to 7,500 GPD, and all systems with design flows greater than 7,500 GPD must be approved by the CT Department of Public Health.

4.4.6 Soil Erosion & Sedimentation

All of the communities in the study area have their own soil erosion and sedimentation control ordinances. These ordinances tend to be oriented toward fulfilling certain requirements of the federal Clean Water Act as implemented through each state's environmental agency; 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. Where applicable, a soil erosion and sedimentation control plan (SESCP) is required to be submitted for local review and approval. Most towns in the study area have such regulations and all require such control plans as part of their land development regulations. In Rhode Island the RIDEM or CRMC reviews SESCPs associated with wetland permit applications, or otherwise regulates land disturbing activities over one acre through its RIPDES General Permit for Stormwater Discharge Associated with Construction Activity. Most towns have a local ordinance that regulates land disturbances much smaller than one acre; in some case the threshold of disturbance may relate to the proximity to regulated water resources.

4.4.7 Resource Extraction

Some of the study area communities, particularly those with a history of quarrying and/or sand and gravel excavation, have adopted local ordinances 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.

4.4.8 Solid Waste

Most study area communities 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, because recycling is mandatory in both Rhode Island and Connecticut, most of them also establish procedures for recycling as well as for solid waste storage, collection and disposal.

4.4.9 Vegetation

Relatively few of the study area towns have ordinances that relate to the protection of vegetation, except perhaps as it relates to maximum impervious cover allowed on a lot. Some towns have tree ordinances, but these are typically restricted to public street trees and/or to trees on public property. Local tree ordinances provide for minimal fines for removing public trees with permission of local authorities. Some towns 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 towns have adopted ordinances to protect rare, threatened or endangered plant species, typically by prohibiting collection and/or by regulating disturbance within critical habitat areas. Most towns’ land development regulations include provisions for vegetated buffers and / or landscaping associated with large development proposals.

4.4.10 Special Habitats

Although community plans typically identify important habitat areas in each town, and most of the towns include general requirements for protection of special habitats as part of their development regulations, very few study area towns have chosen to protect special habitats for fish, wildlife, or vegetation directly through local ordinances. Hunting, fishing, and logging are regulated at the state level supplemented by local ordinances. 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 in-lieu fee contributions to public open space are often targeted towards habitat protection. Each state’s environmental agency provides mapping of rare species and critical habitats that towns use in conservation planning. The CTDEEP Natural Diversity Data Base program maps have regulatory importance with regard to certain CTDEEP permit programs pursuant to the CT Endangered Species Act and other state laws. In contrast, the RI Natural Heritage Program provides no specific protection for state listed rare species or critical habitats, rather, the RIDEM partners with the private non-profit RI Natural History Survey to track rare species occurrences, update mapping and provide information through RIGIS and direct consultation.

4.4.11 Open Space Conservation

All the study area communities have some local ordinances or regulations for protection of open space. Some require dedication of public open space (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. All the study area towns have some form of Land Trust, Conservancy or other 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 town-specific and are active in only one town; some of these are private and some towns have a municipal land trust. Others are natural resource oriented and are active in more than one community. Jurisdictions frequently overlap such that several communities are served by multiple such organizations. (There are six different Land Trusts currently active in Westerly, RI for example.)

Most of the Land Trusts and Conservancy groups active in the study area have established criteria by which they assess properties under consideration for acquisition and protection. Where those criteria are publicly available, they almost universally include proximity to major rivers, streams, and surface

water bodies as important criteria. Most weight access to surface water very highly in choosing properties for protection. Conservation Commissions in some towns are very active in the identification, prioritization and acquisition of open space for conservation. Most study area towns call for interconnections between parcels of dedicated open space, providing greenbelts or wildlife corridors, often organized around the town's river network.

Towns also typically include other types of open space, conservation, and recreation lands in their open space planning and conservation efforts. These include federal and state protected areas, lands preserved as open space temporarily through easement or tax mechanisms (farm, forest and open space programs for example), undeveloped municipal lands, and private recreation lands.

4.4.12 Historic / Cultural Resources

The study rivers in the Wood-Pawcatuck River watershed include historic villages that date back to the early days of European colonization. Native American cultural resources are also present throughout the Wood-Pawcatuck 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 ordinance. Where enacted, such village overlay districts typically attempt to preserve the historic village character with design guidelines / standards. Some towns 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.

4.5 **Summary Comparison Matrix**

The Summary of Plans and Ordinances (Table 1 at the end of this report) lists each town along with an indication of the primary regulatory basis of resource protection, if any, for the natural and cultural resources associated with the study river corridors and watersheds. This matrix does not attempt to evaluate the effectiveness of local protections, nor does it discuss regulations applicable only outside the Wood-Pawcatuck Watershed.

5.0 Summary & Recommendations by Town

This section provides a town by town summary of relevant plans and ordinances, 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 town in alphabetical order, beginning with RI towns followed by CT towns. Each town section begins with an overview of resource protection followed by a discussion of relevant portions of the town’s plan, zoning, land development, and special resource protection regulations.

5.1 Rhode Island Towns

5.1.1 Charlestown

The Pawcatuck River forms Charlestown’s northern boundary with the towns of Hopkinton, Richmond and South Kingstown. Historic villages on the Pawcatuck include Carolina and Shannock. Extensive conservation land, wetlands and floodplains effectively protect most of the river corridor in Charlestown. Most of the river corridor outside of Carolina and Shannock villages is zoned for open space or low density residential uses. Both Villages have Historic Village Overlay Districts, and the town’s Groundwater Protection Overlay District covers much of the river corridor and watershed area in Charlestown. Overall, the Pawcatuck river watershed in Charlestown is expected to remain very rural due to large conservation areas, extensive wetlands, and low density residential zoning. Protection of river ORVs in the historic villages is a priority for the town.

Plans

Charlestown’s comprehensive plan has been undergoing a complete revision since 2014 and is expected in a full draft form in 2018. The current adopted plan is the Town of Charlestown, Rhode Island 2006 Comprehensive Plan 5-Year Update approved by the state in 2008. The 5-year update incorporated the original 1991 Comprehensive Plan by reference, especially as it related to existing conditions. The 5 –year update focused on progress towards meeting the original plan goals, and updating plan elements to reflect changed conditions including changes to state guide plans.

The land use element sets the following land use goal and policies (related to river / watershed protections):

Land Use Goal:

To protect the natural and cultural resources and rural character of the Town while providing the housing, economic base, and services necessary for the broad range of residents to enjoy the high quality of life associated with the Town....

Policy 1: Preserve the visual qualities of the villages, shorelines, important natural features, historic areas, scenic roads, and major collectors and arterials.

Policy 2: Preserve vegetated buffers between land uses and roads.

Policy 3: Preserve important natural and cultural features as part of the development regulatory review process for new residential land development and subdivisions.

Policy 4: Maintain the current general patterns, scale, and densities of development, with

the most dense development occurring in villages and generally low-density development occurring outside the village areas.

...

Policy 6: Provide flexibility in land use management tools where appropriate based on natural constraints to encourage alternative land use developments.

Policy 7: Encourage sustainable land uses that support protection of the aquifers and reflect green space development.

...

Policy 8: Work with neighboring communities including the Narragansett Tribe, to ensure that land uses along the common borders of communities are compatible.

Many of these policies include reference to implementation of conservation development practices (low impact development or LID).

The Future Land Use Map in the current plan calls for a combination of uses in the Pawcatuck River corridor including existing protected open space, low density residential uses, and medium density residential uses in the Carolina and Shannock villages. The Kenyon Industries site appears as industrial use, and several parcels of commercial use are also shown in Shannock. Both Shannock and Carolina villages are shown as potential growth centers. Note that a riverside Planned Development District depicted on current zoning maps is shown as protected open space on the Future Land Use Map, reflecting its current ownership by the Nature Conservancy.

The Natural Resources element of the plan sets the following goal with associated policies and actions related to protection of the Pawcatuck River corridor and watershed:

Natural Resource Goal:

To protect and encourage appropriate use of the town's natural resources including groundwater, surface water, the salt ponds, trees, wetland and upland habitats, wildlife, the barrier beaches, historic villages, historic cemeteries, tribal artifacts and sites, scenic views and corridors connecting habitat complexes.

Policy 1: Protect natural resources.

Policy 2: Allow and encourage development that protects natural resources and reflects the natural constraints of the land.

- *Consider density of development in Growth Centers (Cross Mills, Carolina, Shannock) while preserving rural areas from development ...*
- *Implement conservation design in subdivision zoning regulations that set high standards for the quality and configuration of the resulting open space and contribute to creating an interconnected network of open space throughout the community.*
- *Protect forested riparian areas along rivers and streams to promote improved water quality, wildlife diversity, enhanced aesthetics, and reduced flooding.*

Policy 3: Protect natural resources through zoning and the development review process, using innovative techniques as they become available or feasible.

- *Promote establishing protective undeveloped zones along water resources and other habitats through the use of setbacks, design standards, exactions, open space dedication.*
- *Consider strengthening the protections provided by the Rhode Island Freshwa-*

ter Wetlands Act by adopting an Erosion and Sedimentation Control Ordinance or amending zoning and subdivision regulations to include the following [list of comprehensive local actions to improve wetland protection in coordination with state agencies].

- *Continue to safeguard the town from new/potential non-point source pollutants.*

Policy 4: Support efforts by others to monitor, evaluate, and implement programs to improve water quality and habitat in the fresh water bodies and salt ponds of the Town.

- *Continue working with the Wood-Pawcatuck Watershed Association and other local water monitoring associations.*

Policy 5: Protect and preserve the quality and quantity of surface waters and the Town's potable water supply.

- *Continue to implement the Town of Charlestown On-Site Wastewater Management Plan.*

Policy 6: Promote appreciation of natural resources by residents and visitors.

- *Promote access to and appreciation of many of the natural resources as appropriate through the continued development of shore access points, hiking paths, and other opportunities for outdoor activities.*

- *Develop small-scale access ways to the shore, which would allow a few visitors each, such as anglers, hikers, or people who wish to sit and look at the water.*

Policy 7: Create an interconnected network of conservation and / or open space lands.

The plan's Cultural Resources Element contains the following goal and related policies relevant to the river corridor:

Cultural Resources Goal:

To protect and encourage appropriate use of the town's cultural resources, including historic villages, historic cemeteries, tribal artifacts and sites, and scenic views and corridors.

Policy 1: Preserve and protect cultural resources including buildings, features and archeological resources which define the town's character.

Policy 2: Allow and encourage development that protects the cultural resources, including historic villages, structures, and landscapes, scenic vistas and open areas, architectural heritage, and natural features that are important in defining the town's scenic rural character.

- *Establish gateways with signage and landscaping at Pawcatuck River bridges and entrances from Westerly and South Kingstown.*
- *Establish improved physical/visual access to the Pawcatuck River by creating a scenic overlook at Horseshoe Dam.*

Policy 3: Protect cultural resources through zoning and the development review process, using innovative techniques as they become available or feasible.

- *Develop design standards for cultural resources in village districts.*

The plan's Open Space and Recreation Element states the following goal and policies relevant to the Pawcatuck River corridor and watershed:

Open Space and Recreation Goal:

To promote appreciation and appropriate use of Charlestown's natural and cultural

resources by providing a wide range of recreational opportunities for Charlestown's residents and visitors of all ages. To collaborate with partners in the protection of open space through conservation easements, fee acquisition, transfer of development rights, and other techniques to protect rural character and preserve natural resources.

Policy 1: Protect natural resources, cultural resources, important views and visual corridors through open space acquisition, dedications or purchase/transfer of development rights.

A lengthy and comprehensive list of actions supporting this policy is presented; the actions are generally supportive of river protection but not specifically targeted to the river.

...

Policy 4: Continue to provide and expand opportunities for access to fresh/saltwater resources while protecting the resources from adverse impacts of overuse.

The town's Circulation Element stated goal and policies include provisions for protecting the scenic qualities of roadways, including those in the vicinity of the Pawtucket River, and to: "Recognize the importance of bike paths, hiking trails, and "blue trails" (water trails for small non-motorized boats) for recreation and tourism."

Housing and Economic Development goals and policies reiterate the need to protect natural resources and the character of historic villages on the river.

The Services and Facilities Element states the following goal and policies relevant to river protection:

Services and Facilities Goal:

To continue to provide Charlestown residents and visitors with a high level of services which supports the quality of life enjoyed in the Town and is compatible with protecting the town's natural and cultural resources and rural character, at a reasonable tax rate.

- *Policy 10: Support the Parks and Recreation Department in providing enriching recreational experiences and quality facilities.*
- *Policy 11: Revisit its Growth Management Plan to address the continuing cumulative effects of development.*
- *Policy 12: Maintain a long-range program of effective stormwater management designed to protect residents from flooding, to control erosion and sedimentation, and to maintain both surface and groundwater quality and quantity.*
- *Policy 13: Implement the On-Site Wastewater Management Plan.*

Although the current comprehensive planning effort is still underway, public discussions have continued to support the rural character and resource protection orientation of the 1991 plan and 2006 update. As it relates to the Pawcatuck River, much discussion has taken place in regard to the balance between focusing growth in Carolina and Shannock villages while not overburdening the natural capacity of the land to accommodate concentrated development in a sensitive resource area. A suggestion has also been made in the recent planning effort to implement a river corridor overlay district extending from the Pawcatuck River landward a certain distance to help protect river water quality and recreational values.

Zoning

Charlestown's zoning ordinance is Chapter 218 of the town code. The zoning map provided through the town's GIS Department depicts several different zones along the Pawcatuck River including Open Space / Recreation, R3A (3 acre minimum lot size / dwelling unit or DU), R2A (2 ac. minimum lot / DU), and in the Carolina and Shannock villages, R40 (40,000 s.f. minimum lot / DU). These are all low density land use zones with generally low impacts. Actual residential density in the village centers is higher than zoning would indicate, due to pre-existing nonconforming lots. One of the few industrial zones in town is Kenyon Industries, an old mill facility on the Pawcatuck River in Shannock. Small commercial zones occur in both Carolina and Shannock villages near the river.

The zoning map also shows Groundwater Protection and Historic Village Overlay Districts along the river. A Flood Hazard Area Overlay District also occurs along the river.

Section 218-33 G defines Overlay Districts. These districts include additional development criteria based upon unique characteristics or environmental features of an area. Along with the regulations of the underlying zoning district, uses permitted by right or by special use permit shall be subject to the regulations of the overlay districts. These overlay districts are as intended by the recommendations of the Town of Charlestown Comprehensive Plan 1991.

ARTICLE VIII Overlay and Mixed Use Districts

*§ 218-44. Flood hazard areas.
These regulations are designed to minimize hazards to persons, damage to property from flooding, to protect watercourses from encroachment and to maintain the capacity of floodplains to retain and carry off floodwaters.*

This section of the zoning ordinance sets forth regulations for town compliance with requirements of the National Flood Insurance Act and Program. The overlay district corresponds to the areas depicted as flood hazard areas on FEMA Flood Insurance Rate Maps. It includes general prohibitions, standards and permit requirements associated with development in this overlay district. Specific requirements are contained in town code Chapter 117 Flood Damage Prevention.

*§ 218-45. Historic Village District.
The purpose of the Historic Village Overlay District (HV) is to protect, preserve and maintain the quality of the Town's villages, to preserve the Town's heritage, cultural and architectural qualities, to foster civic beauty, to strengthen the local economy and to promote the use of such districts for the education, pleasure and welfare of the citizens of the Town.*

This section requires permits for new, non-residential construction based on HV Overlay standards, and itemizes certain prohibited uses.

D. Historic District Standards. The Planning Commission acting under the relevant provi-

sions of this Article shall determine the appropriateness of design elements of proposed buildings and alterations of existing buildings within the HV. Proposals shall be evaluated in relation to existing, adjacent and surrounding buildings. To be considered appropriate, buildings shall reflect the Charlestown traditional building style which is rural in character and similar to existing buildings.

This part continues with a number of different design parameters to be considered.

§ 218-46. *Groundwater Protection District.*

The purposes of the Groundwater Protection (GWP) District are to protect, preserve and maintain the quality and supply of the groundwater resources upon which the Town depends upon for a present and future water supply. It is also intended to implement the Town of Charlestown Comprehensive Plan 1991. The character of soils and subsoil conditions in this district is such that any use introducing pollutants, contaminants or wastes into the soil or the natural drainage system could adversely affect the quality of drinking water sources. The entire Town is dependent upon groundwater, therefore, regulation of land uses and land use practices that could contribute to the degradation of groundwater quality is necessary to ensure that the Town's current and future water sources are suitable for drinking water use. The entire Town is designated a moderate protection district for groundwater protection to be regulated by the prohibited uses, district use table, and the performance standards of this Ordinance. This Section is further intended to establish the GWP District as a high protection district.

The GWP Overlay District includes all wellhead protection areas identified by RIDEM; and the groundwater reservoirs and critical recharge areas delineated by RIDEM and classified as Class GAA groundwater areas. Prohibited uses are identified and consist of uses typically associated with groundwater contamination. Additional site plan review standards pertain to development in the GWP District, including assessment of impacts to groundwater and requirements to mitigate potential contamination with site specific control measures.

Another zoning ordinance related to river protection is section 218-76 Liquid Wastes, which prohibits the discharge of liquid wastes (pollutants) into "any river, pond, stream, wetland or any drinking water supply."

Land Development

Charlestown's subdivision and land development regulations are contained in Chapter 188 of the town code to "...establish procedural provisions for the subdivision of land and land development projects. The Planning Commission shall have the power to negotiate with applicants filing under these regulations to ensure the protection of the Town's natural and built environment." The stated purposes of the ordinance includes orderly development in conformance with the Comprehensive Plan, direction of new development to areas most suitable in terms of land capability, avoidance of adverse impacts to environmental resources, and mitigation measures to eliminate adverse impacts to resources. The ordinance conforms to the state enabling legislation's procedural requirements.

This ordinance applies to all subdivision of land in town and sets administrative procedures and

technical standards for review and approval for basic types of subdivision (administrative, minor and major). Throughout these regulations there is a consistent emphasis on managed growth and protection of natural resources. Conservation development and LID practices are promoted. The articulation of guiding policies for subdivision plan review and approval are contained in section 1.3, including:

- *Conformance with the Charlestown Comprehensive Plan ...*
- *Conformance with the Charlestown Zoning Ordinance...*
- *Adherence to best available practices and techniques for site design to provide for a) adequate, and safe circulation of pedestrian and vehicular traffic and emergency services, b) control and minimization of soil erosion and stormwater runoff volume and pollutant load, c) suitable building sites, d) the preservation of natural features, and e) adequate sewage disposal.*
- *Preservation of the rural character of the Town.*
- *Protection of the Town's surface and groundwater resources, to prevent degradation of water quality, and where possible, to improve water quality.*
- *Provision of sufficient open space and recreational facilities to accommodate the projected intensity of use of the proposed site.*
- *Preservation of natural terrain, vegetation, soils, historical resources, floodplains, wetlands, drainage and reducing the need for cutting and filling on steep grades.*
- *Establishing the adequacy of existing public improvements and services in the area including but not limited to water, sewer, drainage, roads, schools, recreation facilities, solid waste, fire and police protection*
- *Minimizing flood damage and the potential thereof*

The regulation's authority and intent (section 1), definitions (section 2), general requirements (section 3) and special provisions (section 4) are clearly oriented towards managed growth, low impact development, and resource protection. Requirements include detailed environmental impact analysis. The ordinance requires all major residential subdivisions to be residential cluster subdivisions (concentrating development away from sensitive resources). Section 5 requires dedication of recreation facilities and open space as part of the proposed development, including a minimum 40% of developable land area set aside as protected open space. Section 11 Physical Design and Public Improvement Standards and section 12 Construction Specifications provide details on requirements related to flood hazard protection, stormwater management and soil erosion and sediment control among others.

Special Resource Protection

Special resource protection includes previously described overlay zoning districts for Groundwater Protection, Historic Village, and Flood Hazard Areas. The requirements for the GWP and HV overlay districts are contained in the zoning ordinance.

Flood Damage Prevention

The detailed requirements related to development in the Flood Hazard Area overlay district are contained in the town code Chapter 117 Flood Damage Prevention; the requirements ensure conformance with the NFIP administered by FEMA. This regulation requires permits for building in flood hazard areas, standards for permit approval, and administration of the regulation by the Building Official.

Boats and Waterways

Chapter 86 of the town code regulates boat operation on all waters in Charlestown. The ordinance promotes safe boat operation with respect to other waterway users including operation near bathing beaches.

Erosion and Sediment Control

Chapter 174 of the town code provides detailed requirements related to erosion and sedimentation control. This ordinance specifies that anticipated land disturbances of 1 acre or more, or smaller disturbances requiring RIDEM or CRMC permitting must first receive a determination of applicability from the building official. "Upon determination of applicability, the owner/applicant shall submit a Soil Erosion and Sediment Control plan for approval by the building official or his or her designee, as provided in Section 174-4." The specifications and procedures for submission, review and approval of this plan is set out in the remainder of this chapter.

Wastewater Management District

Chapter 210 of the town code establishes a Wastewater Management District (WWMD) as a means of promoting proper operation, inspection and maintenance of onsite wastewater management systems (OWTS, previously referred to as individual sewage disposal systems [ISDS] or simply septic systems). The WWMD is applicable to all OWTS in town so it is essentially a town-wide district. This chapter sets requirements for inspection and pumping and establishes a Wastewater Management Commission to administer the regulations. If inspection reveals a failed system the owner will be notified and compelled to make repairs.

Recommendations

- Revise Comprehensive Plan maps to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.
- Update zoning map to reflect permanently protected open space (e.g., PDD zone near railroad).

5.1.2 Exeter

Almost all of Exeter lies within the Wood-Pawcatuck Watershed. Portions of the Beaver, Queen, and Wood Rivers cross the town. A portion of the Chipuxet watershed occurs at the southeast corner of town. The Wood River segment is almost entirely within permanently protected open space (RIDEM's Arcadia Management Area), and the associated watershed is similarly dominated by protected open space, with other lands in low density uses. The Beaver River lies in a low density residential area east of the I-95 corridor with its more intensive land uses. Most of the Queen River corridor is protected by dedicated conservation lands. The groundwater reservoirs (aquifers) and associated recharge areas associated with the Chipuxet, Queen, and Wood Rivers are further protected by the towns' Ground Water Protection Overlay district. Overall, the town's plan and regulations provide good protection to the rivers and their ORVs.

Plans

Exeter's Comprehensive plan dates from 2009, with some revisions done in 2011. State approval expired in 2009, but the plan remains in effect locally. It provides the legal basis for the town's Zoning Ordinance and is still consulted in making policy decisions and setting priorities locally.

The plan portrays Exeter residents as environmental stewards not only for the town, but for the region. Page 27 says: "Rivers, streams, ponds and their associated wetlands form the core of Exeter's pristine ecosystems. They also play a key role in maintaining the water supply for much of South County."

The plan recommends a "Village" approach to development to provide for development without damaging natural resource systems. It says: "Combined with continued efforts to preserve entirely the most sensitive parcels, this approach can help to protect entire watersheds, such as the Queen River, that are critical to the future environmental health and water supply for the whole region." Locations recommended for village development are at the intersection of Route 2 and Exeter Road and in the Route 95 interchange area.

The plan is unusually frank about "rural character" describing it as "a town where open space is the dominant element, where the experience of traveling through the town is organized by river valleys, forests, ridgelines and swaths of farmland rather than strip malls and subdivisions." It talks about maintaining "the working landscape of farms, not to mention the people who work in that landscape." It recommends that Exeter establish a Municipal Land Trust to help with Transfer of Development Rights (TDR), handle "fee in lieu of" payments, and acquire property for open space and conservation

The plan compares "conventional" development with the recommended "village" development in terms of potential impacts. It also compares "village" development at a variety of densities from half acre to eighth acre (with TDR) and ends up recommending a mix of lot sizes that results in higher density in the village center and lower density around the perimeter. Chapter VII provides detailed design guidelines for the Exeter Road Village site and Chapter VIII provides draft ordinances for implementing Village development.

On page 35 there is a map illustrating watersheds in Exeter. The caption says the town contains parts of "nine or ten different river basins". The plan encourages balancing of water use with

wastewater disposal using on-site wastewater treatment systems (OWTS) to avoid inter basin transfer of water in the villages.

Zoning

Exeter's zoning (Appendix A of the town code) indicates that it takes the stewardship role described in the Comprehensive Plan seriously. The Introduction to the Zoning Ordinance says:

"Exeter, at this time, is in an excellent position to develop a series of goals and objectives for future town growth. The community presents, with minor exceptions, an unspoiled landscape which the people of Exeter and the town government have expressed a firm commitment to preserve through the adoption of a comprehensive plan. Now our Town can take positive actions to avoid the mistakes of other communities."

The Ordinance provides for eleven different zoning districts, ranging in density from undeveloped land such as Conservation and Recreation (CR—5) or Open Space and Public Lands (OSPL) to the more densely developed Business (B), Planned District (PD) and Planned Village Overlay District (PVOD). The three residential districts, RU-4, RU-3 and RE-2, all represent low density residential zones with 4 acre, 3 acre, and 2 acre minimum lot size per DU, respectively. The Ordinance includes a Groundwater protection overlay district (GWOL) with subareas for primary aquifer and for recharge area. It also provides for resource protection through Conservation Development and Rural Residential Compounds.

Exeter applies a strict standard to development near rivers, wetlands and water bodies. Section 2.5 of the Zoning Ordinance, Development Plan Review includes, among the many requirements, that: "Whenever situated in the whole or in part, within 300 feet of any pond, lake, river or other freshwater wetland (as defined by RIDEM), the proposed project shall not adversely effect [sic] the quality of such body of water or unreasonably affect the shoreline of such body of water. There will be no disturbance of soil within 100 feet of the outer edge of a wetland (as defined by RIDEM)."

The zoning map indicates that the western part of Exeter, within the Wood River watershed (west of Route I-95) is almost entirely zoned Open Space and Public Land (OSPL) or Conservation/Recreation (CR-5). There are only two small areas west of I-95 that are not zoned OSPL or CR-5 one is at Boone Lake and the other at Arcadia. Both are zoned Residential (RE-2) and are areas of existing residential development. There is also a groundwater protection overlay protecting the Wood River aquifer and recharge area. A narrow strip of Land along Route I-95 is zoned for residential (RE-2), Business (B), Light Business/Residential (LB/R) and Light Industrial (LI) uses to take advantage of the highway access. This strip of business lies at the east edge of the Wood River watershed and over three miles from the river itself.

East of I-95, the watershed of the Queen River is mostly zoned Rural District (RU-3 and RU-4) or Open Space and Public Land (OSPL). To the east, the Queen River watershed is also mostly Rural District (RU-4) except for the proposed village which is zoned Planned Development (PD). All the land along the Queen River on both sides is Conservation/Recreation (CR-5) and/or Open Space (OSPL). There is also a Ground Water Overlay (GWOL) district that applies to the Queen River aquifer and recharge area.

The Chipuxet watershed in the southeast part of Exeter is about half zoned RU-4. The other half is split between Residential (RE-2), Business (B), Planned Development (PD) and Light Business/ Residential (LB/R) zones along Route 2. This area also includes a Groundwater Overlay Zone (GWOL) applicable to the Chipuxet Aquifer and the Chipuxet recharge area.

Land Development

The Exeter Land Development and Subdivision Regulations (town code Appendix B) are consistent with the state enabling legislation at G.L. 1956, §§ 45-23-25—45-23-74, as amended. Section 1 provides the authority and purposes. One stated purpose is “To promote the protection of the existing natural and built environment and the mitigation of all significant negative impacts of any proposed development on the existing environment.” Section 2 provides definitions. Among these is “Watercourse. A permanent stream, intermittent stream, river, brook, creek, or a channel or ditch for water, whether natural or manmade.”

Section 3 lists general requirements, submissions, fees, and appeals. Subsection 3.4 provides that an Environmental and Community Impact Study (ECIS) may be required in cases where the Board finds that there is a “reasonable expectation” that the proposed subdivision or land development project may have a negative environmental impact. Among the many topics to be addressed by an ECIS, the Ordinance lists: fresh water wetlands, flooding and drainage, natural heritage sites, surface water, water quality, streams and rivers, and public wells and wellfields. The Board is empowered to impose conditions as may be necessary to minimize adverse impacts.

Section 4 lists special requirements such as off-site improvements, project phasing, waivers, reinstatement, and procedures for dedication of public land. Section 5 authorizes conservation development and specifies applicable procedures. Section 6 covers the application, review and approval process, including the process for Transfer of Development Rights (TDR). TDR is a tool for the preservation of farmland and/or open space. It is not common within the study area, but it allows receiver sites to develop to higher densities by purchasing or otherwise acquiring development rights from donor sites. There is also a “fee in lieu of” option.

Exeter and adjacent North Kingstown have an inter town TDR agreement that is unique among Rhode Island communities. Criteria for determining the score for TDR donor areas in Section 6 include: “Parcel is part of a designated green corridor priority area such as the Queen River Watershed and Arcadia Management Area.” Habitat values and rare species are also weighed heavily in the process.

Section 7 provides Design and Improvement Standards. Section 7.2 D protects wetlands, stating: “No fresh water wetlands, as defined in chapter 213 of the Public Laws of 1971 and as amended in the future, shall be excavated, drained or filled nor shall any extraneous materials be placed into these wetlands. Water flow shall not be diverted nor shall any change be made to the natural condition of fresh water wetlands without prior approval of the director of the state department of environmental management and the town council in accordance with the provisions of said chapter.”

The balance of the Ordinance is administrative. Section 8 is amendment procedures. Section 9 is on application of the regulations. Section 10 provides appeal procedures, 11 is “Severability”,

12 is the application checklist and 13 provides Construction Specifications.

Special Resource Protection

In addition to the groundwater protection noted above, Exeter has several ordinances that provide additional protection to natural resources.

Exeter regulates flood hazard areas Under Chapter 22- Environment, Article IV Special Flood Hazard. The ordinance conforms to FEMA guidance to meet requirements for participation in the National Flood Insurance Program (NFIP). Chapter 23 provides standards for erosion and sedimentation control. Article III requires an Erosion and Sediment Control Plan for earth excavation and construction activities (1/2 ac. or more, or within 100-feet of a watercourse, or on steep slopes).

Chapter 30 – Natural Resources has a [reserved] Article I and an Article II that establishes requirements for earth removal operations. Chapter 34 pertains to solid waste and recycling but includes protections for wetlands, surface water bodies, and wellhead areas. Chapter 50 – Waterways includes an Article I – In General. That section may offer some promise for a future “Blueways” ordinance but, at present, is [reserved]. Article II (the balance of the Chapter) address activities allowed and/or prohibited at Boone Lake exclusively.

Recommendations

- Revise Comprehensive Plan maps to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.

5.1.3 Hopkinton

Hopkinton lies entirely within the Wood-Pawcatuck Watershed; it is bounded on the west by the CT state line (about 2 miles west of Green Fall River) and the Ashaway River, to the south by the Pawcatuck River, and to the East by the Wood River. Significant portions of the Wood and Pawcatuck River corridors are protected by dedicated open space / conservation lands. Almost all of the remaining lands in the river corridors (and watersheds) are in low density residential use or woodlands. The areas around the I-95 interchanges are more intensely developed, and future development is planned to continue this pattern. The town also has a groundwater and wellhead protection areas that cover almost all of the river corridors (and much of the watersheds) except a short segment of the Pawcatuck River in Burdickville. The town's Comprehensive Plan includes specific support for preservation and protection of the rivers in the Wood-Pawcatuck Watershed. Overall, the town plan and regulations provide very good protection to the rivers and associated ORVs.

Plans

Hopkinton has just completed an update to its Comprehensive Plan. The new plan was adopted by the Town Council on February 5th of 2018 and accepted by the State on March 27th, 2018. The new plan starts off (page 2) with a discussion of the need for regional cooperation. It says:

“- The Pawcatuck and Wood rivers are important natural resources for the towns of Charlestown, Hopkinton, Richmond and Westerly. They contribute to recreational and economic development opportunities for all three towns. The municipalities must therefore coordinate projects to protect water quality and preserve important habitat. Cooperative activities include watershed management, open space acquisition, and groundwater protection.”

The update included a public survey and a series of programmed interactions with residents. The plan (page 3) cites strong resident support for continuing actions to protect open spaces, local rivers and watersheds.

Under the topic “Recreation, Conservation, and Open Space”, the plan discusses “blueways”. It says that the Wood and Pawcatuck rivers, along with the many lakes, ponds, and streams in Hopkinton, provide important parts of the network of blueways that traverse the state of Rhode Island. These provide canoe and kayak routes and support water based recreation for residents and visitors alike. A complete inventory of outdoor recreation and open space resources, including the “blueways” is provided in Appendix B.

According to the plan, proximity to Rivers and surface water bodies is one of the top 3 criteria used by the Hopkinton Land Trust to rank properties for acquisition.

One of the top recreational priorities is to Improve access to the rivers for hiking and fishing. Recreational Recommendation 2 (page 17) is: “Develop a plan and maintenance program for town property on the Wood River and Bridge Street to provide better access to the river for fishermen, kayakers, and canoeists and as a possible picnic site.” Recommendation 6 includes: “Organize local volunteer groups to help maintain trails, riverbank areas and greenways.”

The Economic Development part of the plan notes that canoeing, kayaking, hunting, and fishing, all activities considered “recreational” in most communities, are essential parts of the Hopkin-

ton economy. According to the plan, local gun shops, bait and tackle stores, outfitters, tour guides, restaurants, bars, and convenience stores all derive much of their revenue from visitors coming to Hopkinton to enjoy its rivers, streams, ponds and rich natural resources. The plan implies that Hopkinton “exports” these resources regionally. It’s no surprise, therefore, that Policy ED 11 (page 69) says: “Support the efforts of the Wood-Pawcatuck Watershed Association (WPWA) in pursuit of Wild and Scenic Rivers designation.” What is surprising is that this goal appears in the Economic Development chapter of the plan as well as in the Conservation, Recreation and Open Space chapter. The Economic Development section goes on to include multiple recommendations to enhance tourism including regional programs for promotional brochures, better signage for wayfinding and site identification, and improved services such as debris and trash removal and possibly rest rooms at major public sites.

The Hazard Mitigation section of the plan (page 94) notes that the same rivers that drive the local economy and help make Hopkinton a great place to live are also the sources of the most serious flooding problems in the community. Because the original settlement of Hopkinton was organized around water powered mills, the town’s historic villages tend to be along the rivers in low lying locations where they are vulnerable to flood damage. Waterways identified as flooding concerns include the Ashaway River, Wood River, the Pawcatuck River, Canonchet Brook, Tomaquag Brook, Brushy Brook, and Parmenter Brook (page 96).

Map 11 shows the flood hazard areas associated with these waterways and the Hazard Mitigation section goes on to describe a range of activities to be undertaken in each of the vulnerable areas to decrease the potential for flood damage, reduce adverse impacts of flooding, prevent erosion, minimize sedimentation, and protect water quality during flooding events.

The importance of the rivers is also included in the Land Use section. The Future Land Use Map shows most of the land along the rivers as reserved for low density residential uses, open space and recreation, and permanently protected land. Policy 1 in the Land Use section says: “Work with the Wood-Pawcatuck River Association and other groups in their efforts to preserve river corridors and develop opportunities for use of the rivers.” Recommendation LU-4 says: “Partner with the Wood-Pawcatuck River Association and other groups in public educational efforts, prioritizing areas for river use and developing joint proposals/grant applications for the preservation and utilization of river corridors.”

Zoning

The Hopkinton Zoning Ordinance provides considerable protection for the lands along the Ashaway River, Wood River, Pawcatuck River and their tributaries. The Zoning map places the overwhelming majority of land adjacent to the rivers in the RFR-80 Zone, a zone that restricts uses to residential at a density of one DU per 80,000 s.f. (approximately 2 acres per house). The RFR-80 district requires a minimum of 225 feet of frontage and very generous front rear and side setbacks of 60, 40, and 50 feet respectively. The ordinance indicates this very low density is intended to protect water quality and to preserve the rural character of the community. Exceptions occur in the historic mill villages where the zoning recognizes and encourages continuation of industrial and commercial uses that are already in place.

The stated purposes of the Ordinance include providing for orderly growth and development that recognizes: “The natural characteristics of the land, including its suitability for use based

on soil characteristics, topography, and susceptibility to surface or groundwater pollution; [and...] The values and dynamic nature of freshwater ponds and wetlands.”

Section 14 of the Ordinance includes sections providing for Residential Compounds, Cluster Developments and Planned Unit Developments as measures to allow development to proceed while protecting important natural resources. The Ordinance requires Board review of all Land Development Projects, Residential Compounds, Planned Unit Developments, and Cluster developments and provides review criteria that include reducing the potential adverse impacts of development.

Section 33 establishes a Floodplain and Watercourse Protection Zone as an overlay district that complies with the requirements of the National Flood Insurance Program. This section prohibits encroachment in the floodway and restricts development in flood prone areas unless it can be shown that:

“(1) There shall be no encroachment, interference, alteration or restriction of the natural drainage or flow within the floodplain or watercourse except by special use permit, and (2) None of the permitted uses shall result in the deposition of trash, fill earth sediment, debris, or liquid or solid waste matter of any kind into any watercourse or area within the zone except by special use permit. ”

Land Development

The Hopkinton Land Development and Subdivision Regulations (9/3/14) include several provisions specific to the rivers. In the definitions, Floodplain is defined as: “The low lands adjoining the channel of a river, stream, or water-course, lake or other body of standing water, which have been or may be inundated by flood water. The channel of a stream or watercourse is part of the flood plain; an area that has one percent (1%) or greater chance of inundation in any given year, as delineated by the FEMA pursuant to the National Flood Insurance Act of 1968, as amended (P.L. 90-448) [42 U.S.C. 4011 et. Seq.]. See R.I.G.L. § 45-220.2-4.

At page 16, the regulations define land unsuitable for development as including: “Fresh water wetlands, including that area of perimeter wetland within 50 feet of the edge of any bog, marsh, swamp or pond; or any applicable 100-foot or 200-foot riverbank wetlands, as defined by Rhode Island General Law § 2-1-20 (1987), as amended. This definition extends considerable protection to the major rivers by declaring that all land within 200 feet of any river greater than 10’ in width by is unsuitable for development.

On page 19, the plan identifies significant resources that need to be protected in development as including: “Inland rivers, streams, creeks, freshwater wetlands and marshes, wildlife habitats, beaches, islands, ponds, aquifers and recharge areas, drainage basins, historic features and public open space.”

The Development Plan Guidelines (page 144) specify that: “Building envelopes shall be located so that character-defining site features such as stone walls, open fields, stands of mature trees, rolling topography, ridgelines and outcrops, wetlands, streams, rivers, ponds, lakes, and listed historic natural resources are preserved.”

Special Resource Protection

Hopkinton also has several local ordinances directed specifically at protection of the rivers. Section 8.4 Motorized Boats prohibits “operation on any pond, lake, river or body of water in the town of any boat propelled by motor unless such motor is equipped with underwater exhaust or proper muffler or device to so reduce the noise of such motor that the operation of such boat and motor does not disturb and annoy the members of the public.”

Article II, Division 3, Section 2.66 Establishes the Hopkinton Conservation Commission and assigns it responsibility to: promote and develop the natural resources, to protect the watershed resources, and to preserve natural esthetic areas within the town.” It authorizes the Commission to “conduct research into local land areas and...coordinate the activities of unofficial bodies organized for similar purposes.” The Commission may also “recommend to the town council a program for the better promotion, development, utilization, or preservation of open areas, streams, shores, wooded areas, roadsides, swamps, marshlands, and natural esthetic areas, which shall also include areas to be included for recreational facilities for the town.”

Section 10.1 prohibits depositing “any filth, offal, papers, food, particles, glass, bottles, cans or other rubbish or any animal or vegetable matter” into rivers and streams. The Dark Skies Ordinance (16.5.2) sets requirements for waterfront lighting throughout the town. Subsection F Waterfront Lighting sets specific requirements for lighting of docks, paths and shorelines to keep lighting levels low and it prohibits light from being directed to the water’s surface more than 20 feet from shore.

Recommendations

- Revise Comprehensive Plan maps to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.

5.1.4 North Kingstown

The western border of North Kingstown lies along the northeastern border of the Chipuxet River watershed. A very small portion of the Queen River watershed lies along the town border in the vicinity of Hatchery Road. Neither the Queen River nor Chipuxet River occurs in or near North Kingstown. A relatively small area of the Chipuxet watershed extends into North Kingstown in the vicinity of Slocum Road and Indian Corner Road. Zoning includes low and moderate density residential districts, light industrial and general industrial districts, and a few small parcels with commercial zoning. The future land use map depicts “protected land” over much of the existing general industry and moderate density residential zones where a turf farm presently exists. The comprehensive plan identifies these protected areas as conservation areas, including various types of protection. Overall, the potential for new development appears limited in this portion of the watershed and the future land use is expected to reflect low to moderate density residential land uses, farmland and woodland. Although a relatively small area of the watershed occurs in North Kingstown, its importance is increased by its position over the Chipuxet aquifer. The town’s Groundwater Protection Overlay District covers almost all of the Chipuxet watershed, affording an even higher level of water resource protection.

Plans

North Kingstown’s “Draft Town of North Kingstown Comprehensive Plan 2016” was reviewed as the most current and complete plan, although it has not been adopted (the previous approved plan is from 2008 and has expired).

The plan’s vision statement in Element 4 A Sustainable Town, a Plan for Open Space and the Environment is:

We are a healthy and sustainable town that invests in protecting our natural resources and open space for their economic, environmental, recreational, and scenic value. North Kingstown will protect its natural resources and provide a range of recreational opportunities that enhance the quality of life and the health of all residents, as well as contribute to a healthy ecosystem through the preservation of open spaces and the integration of climate and flood resiliency.

Goals that support this vision are:

- 1. Protect, preserve, and restore natural resources*
- 2. Promote sustainable water and energy measures to conserve resources and reduce greenhouse gas emissions*
- 3. Increase public awareness of conservation and sustainability*
- 4. Provide high quality recreation facilities and opportunities for all residents*
- 5. Enhance public access to active open space, recreation areas and the waterfront*

This element describes the importance of the groundwater aquifer and associated recharge area which covers almost all of the Chipuxet River watershed area in North Kingstown. The town’s Groundwater Overlay District coincides with the recharge area boundaries. “The groundwater overlay is the key regulation that controls development within these sensitive areas of groundwater recharge by restricting certain uses and limiting density.”

The plan promotes “...Conservation Development ... which looks at the character of each piece of land proposed for development and determines the best locations for new construction and the means to construct the project to preserve natural features and improve the livability of the project.” The Housing and Land Use Elements identify the following action item:

- *Continue to use conservation development and low impact development standards to preserve open space, facilitate stormwater management, protect surface water and groundwater resources, maintain town character, and maximize the use and efficiency of existing infrastructure and alternative modes of transportation.*

Zoning

North Kingstown’s zoning ordinance is Chapter 21 of the town code, Part III Revised Ordinances. The zoning map depicts a number of different zoning districts within the Chipuxet River watershed. However, acquisition of open space and/or development rights appears to have eliminated the need for the mapped General Industry zone, most of the Light Industry zone, and the moderate density Village Residential zone the map shows in this area. The zoning map shows residential districts throughout the remainder of the subject watershed, including Rural Residential RR-80 (80,000 s.f. minimum lot size), and Neighborhood Residential NR-40 (40,000 s.f. lots). In addition to the existing low density residential development and conservation areas, this watershed area and its high yield, sole source aquifer receive further protection through the Groundwater Protection Overlay District.

The zoning ordinance section 21-9 (b) Overlay districts, states:

The following supplemental overlay districts are established: very severe limitations, severe limitations, steep slope, groundwater recharge and wellhead and groundwater reservoir, special flood hazard, scenic, historic, residential compound development and cluster development.

The ordinance also defines “receiving area zoning district” and “sending area” overlay districts as they relate to transferable development rights (TDRs).

Article VIII of the ordinance “Overlay Districts” provides the overlay district regulations related to soil constraints (very severe limitations, severe limitations, steep slope, groundwater protection, special flood hazard, scenic and sending area overlay districts noted above). Within the Chipuxet River watershed, North Kingstown’s groundwater protection overlay district is the most important of these in terms of water resource protection.

Sec. 21-186. - Groundwater recharge and wellhead protection overlay districts.

This section establishes two zones. Zone 1 groundwater protection zones are public water supply wellhead protection areas and the area within a 1,750-foot radius around transient non-community water supply system wells. Zone 2 groundwater protection areas comprised of the critical groundwater recharge areas associated with groundwater reservoirs or otherwise named in the ordinance. Within the subject watershed, the Annaquatucket Wellhead Protection Area (Zone 1) spans the watershed divide near Route 4. The Chipuxet aquifer is specifically named in section 21-186, and it is included in Zone 1 and its critical recharge area comprises

part of Zone 2. As it applies to the underlying zoning and existing land development / conservation in the subject watershed, the development criteria limit residential density to a minimum average density of one DU per two acres and “All new commercial and industrial development must show that the nitrate loading standard of five mg/l as set forth in article VI of chapter 8 of this Code, pertaining to groundwater reservoirs and recharge areas, can be met on site using a conventional individual sewage disposal system.”

Land Development

North Kingstown’s subdivision and land development regulations are contained in Appendix A of the town code, Part III Revised Ordinances. These regulations may have applicability to some parcels in the Chipuxet watershed, but unconstrained land available for development is very limited. These regulations are intended

to establish the procedural and substantive provisions for the subdivision and development of land in order to ensure the orderly growth of the Town of North Kingstown and to:

- (1) Protect the public health, safety and welfare;*
- (2) Provide for the orderly, thorough and expeditious review and approval of land developments and subdivisions;*
- (3) Promote high quality and appropriate design and construction of land developments and subdivisions;*
- (4) Protect the existing natural and built environment and to mitigate all significant negative impacts of any proposed development on the existing environment;*
- (5) Promote design of land developments and subdivisions which are well-integrated with the surrounding neighborhoods with regard to natural and built features, and which concentrate development in areas which can best support intensive use by reason of natural characteristics and existing infrastructure;*
- (6) Provide thorough technical review of all proposed land developments and subdivisions;*
- (7) Provide local design and improvement standards to reflect the intent of the comprehensive plan with regard to the physical character of the various neighborhoods and districts of the Town of North Kingstown;*
- (8) Encourage, fairly apply and administer dedications of public land, impact mitigation and payment in lieu thereof based on clear documentation and of needs;*
- (9) Establish consistent application of procedures for local recordkeeping on all matters of land development and subdivision review, approval, and construction.*
- (10) Enhance the nature of the natural environment through the development process wherever possible;*
- (11) Encourage development consistent with the policies, goals and objectives of the town’s comprehensive plan, particularly with regard to the protection of interconnected networks of open space and greenway systems;*
- (12) Encourage the ecological enhancement and restoration of existing site conditions on land proposed for development.*

The ordinance promotes alternatives to conventional subdivisions including cluster and/or conservation development. Conservation development is based on the concept of locating development on the most suitable portion of the site, minimizing adverse impacts. To calculate the allowed density of a conservation development, the land unsuitable for development must first

be subtracted from the total lot area, the resulting buildable area is used as a basis for calculating the number of allowed DUs, based on the zoning district. North Kingstown identifies areas with severe limitations, very severe limitations, including rock outcrops, wetlands, high water table soils, and flood hazard areas as unsuitable for development (zoning section 21-22). Conservation development is described in detail in Article 13 of the subdivision regulations. Article 14.0 - Design and Improvement Standards and Article 15.0 - Construction Specifications and Methods provide specific development requirements for all subdivisions and major land development projects.

Special Resource Protection

The most applicable resource protection measures for the Chipuxet River watershed in North Kingstown are contained in the zoning ordinance as designated overlay districts previously described (e.g., groundwater protection, flood hazard, etc.). Additional or supplemental regulations in the code are included in code Chapter 8 Health and Sanitation:

- Article III Sewage Disposal
- Article VII Groundwater Reservoirs and Groundwater Recharge Areas
- Article VIII North Kingstown Wastewater Management District
- Article IX Stormwater Management
 - Division 1. - Prohibition Of Illicit Discharges And Illegal Connections
 - Division 2. - Soil Erosion And Sediment Control
 - Division 3. - Post Construction Stormwater Control

An additional and potentially relevant ordinance is code Chapter 16 - Soil and Earth Removal (e.g., sand and gravel mining or as might result from major site grading).

Sewage Disposal

Article III Sewage Disposal focuses on proper sewage disposal from septic systems (OWTS) but also includes industrial wastewater disposal. It provides standards for septic system component cleaning, septic tank pumping and regulation of septage haulers.

Groundwater Protection

Article VII Groundwater Reservoirs and Groundwater Recharge Areas provides for the protection of groundwater throughout the town as the sole source of all drinking water in town, and it identifies specific groundwater reservoirs and recharge areas (somewhat differently than described in the Groundwater Protection Overlay District in the zoning regulations). This ordinance itemizes a list of some chemical, bacterial and radionuclide pollutants and associated water quality criteria, perhaps based on RIDEM / US EPA water quality criteria.

OWTS Wastewater Management

Article VIII establishes the North Kingstown Wastewater Management District (NKWWMD) to ensure that individual sewage disposal systems are properly operated, regularly inspected and routinely maintained to prevent malfunctioning systems. This district encompasses the entire town and is similar in scope and nature to that previously described for the Town of Charlestown.

Stormwater Management

Article IX includes three divisions. Division 1 provides for the town's regulatory compliance with

RIDEM stormwater management requirements for certain (MS4) municipalities – it governs town requirements regarding management of the town stormwater drainage system including prohibitions of certain connections and discharges. Division 2 sets forth the Town’s primary erosion and sedimentation control ordinance, requiring those involved in land disturbances to first obtain a determination of applicability from the building official, and if found applicable the land owner must submit an erosion and sediment control plan to the town for approval. The ordinance lists a number of minor land disturbing activities that do not require a determination of applicability. The ordinance sets specific requirements for erosion and sedimentation control plan preparation and approval. It also sets forth inspection and compliance standards. Division 3 relates to ongoing long-term management of stormwater from certain types of development such as subdivisions. It follows state regulations related to stormwater management, requires preparation and approval of a stormwater management plan, and specifies requirements for long-term operation and maintenance of stormwater management facilities at the site.

Resource Extraction

Chapter 16 - Soil and Earth Removal governs activities such as rock quarrying, sand and gravel mining, major site grading and stripping of topsoil that could potentially result in adverse impacts to groundwater and other natural resources. Pre-existing sand and gravel operations are exempted, as are certain minor removal activities. This ordinance specifies requirements for site plan preparation and approval, including post-excavation site restoration. It also includes standards for earth removal operations.

Recommendations

- Revise Comprehensive Plan maps to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.

5.1.5 Richmond

Richmond is entirely within the Wood-Pawcatuck Watershed and is bounded on the west by the Wood River, the south by the Pawcatuck River, and the East by the Queen-Usquepaugh River. The Beaver River crosses the town from north to south. Significant portions of these rivers' corridors lie within protected open space / conservation lands. Existing land use and zoning reflects low density residential use overall, with more intensive land uses in the historic villages of Alton, Bradford, Carolina, Kenyon, Shannock, and Wyoming. Richmond's Comprehensive Plan explicitly supports the nomination of the study rivers to the NWSR system. Overall the plan and regulations provide very good protection of the rivers and associated ORVs.

Plans

The Richmond Comprehensive Plan is a recent plan approved by the Town Council and accepted by the State. The importance of the rivers to the town is frequently repeated throughout the plan. The plan notes that the Town is bounded on the west by the Wood River, on the south by the Pawcatuck River and on the east by the Usquepaugh River. The plan says that the rivers are essential to the character of the community. It says:

Historically, the people of Richmond benefited greatly from the use of the fresh water rivers and streams that make up the Town's borders. Horseshoe Falls in Shannock was used by the Narragansett's for fishing long before the arrival of European settlers. Later, the Wood, Pawcatuck, and Queen's Rivers powered sawmills, gristmills, iron works, and eventually textile mills. The population clusters in these areas eventually grew into the villages of Wyoming, Woodville, Alton, Kenyon, Arcadia, Hope Valley, Shannock, and Carolina. The Hillsdale, Usquepaug and Wood River Junction settlements were also established on smaller waterways. Today, many of the original structures within these mill villages remain intact, providing the Town with an impressive array of historically significant sites, such as those found within the Carolina Village Historic District and the Hillsdale Historic and Archeological District, both of which are included on the National Register of Historic Places.

The plan includes the results of a Community Survey and Workshop comments. Many of the citizens responding to the survey cited the rivers as important resources for the community that are critical to the character of the community. The comments also indicate there is widespread support for enhancing and protecting the rivers through protection of riverfront property.

The Plan, at page 12, specifically states that the Town supports a National Park Service designation of Wild and Scenic River for a portion of the Wood-Pawcatuck Watershed citing the importance for protection of groundwater.

The Open Space and Recreation section of the plan notes that the town is a "regional provider of open space and recreational opportunities" and specifically cites canoeing, kayaking, and fishing along the rivers as examples of the opportunities that attract people to Richmond from all over New England. It says the Town should consider "geotourism" or "Cultural Heritage Tourism" with an emphasis on exposing visitors to the unique local natural and historic resources of an area.

Several of the policies and action items in the plan specifically reference the rivers and their

watersheds. Examples include:

Policy OSR4: Increase public access opportunities to natural areas, including water bodies, river and stream corridors, and hiking trails.

Action OSR13: Support RIDEM efforts to acquire key tracts that will connect existing protected parcels for the combined purposes of hunting, hiking, greenways, rivers, and wildlife corridors

Policy NC1: Limit the development of environmentally sensitive areas.

Action NC1: Determine compatible land uses, and develop land acquisition and management programs to identify and procure open space along river corridors.

Action NC4: Amend the Subdivision, Planned Unit Development, and Development Plan Review regulations to include 300-foot buffer zones along major rivers, which are restricted by voluntary conservation easements.

The plan encourages not only local action, but also pledges the town to regional efforts to protect important resources. Specific features and areas of the Richmond landscape listed as of regional significance include the Wood-Pawcatuck Watershed. The plan says:

The Wood Pawcatuck it is the most natural and scenic river system of canoeable size in southeastern New England. The combined length of the two rivers is 53 miles, major portions of which have been included in the Nationwide Rivers Inventory of natural and undeveloped rivers throughout the Country identified for protection under the National Field and Scenic Rivers Act. In Richmond, a six and ½ mile stretch of the Pawcatuck River from the Wood River in Alton to a point where it meets the Usquepaug River in the Great Swamp is included in the National Inventory. The undisturbed nature of the river corridors lands in many ways contributes to its water quality, abundant fisheries, and extensive wildlife habitat. While most of the manufacturing formerly active along the rivers has now ceased operations, the majority of older mill housing and villages associated with these businesses are still occupied.

The plan recommends designation as a Wild and Scenic River, saying that will provide added federal protection to the Watershed through National Parks Service review of federal projects. It may also provide additional funding for management projects and open space purchases by giving priority to purchases near or adjacent to the rivers.

Map 13, the Future Land Use Map shows lands along the rivers as reserved for low density, open space, and aquifer protection purposes. As noted above, the plan encourages establishment of a 300' buffer along the rivers to sustain native brook trout populations and other unique and/or rare species and for the protection of the water quality not only of the Wood and Pawcatuck Rivers but also the streams that feed into it. It notes that most of the property adjacent to the Wood River is privately owned. It encourages the Planning Board, where opportunities exist during preapplication plan review, to consider establishing the buffer within required open space or as voluntary conservation easements to create a continuous river/stream corridor in the Watershed.

Finally, the plan recognizes that a sufficient and dependable supply of water is critical to the Town's future development and that aquifers associated with the rivers supply most of the water for the town's private wells. The most productive aquifer areas are the central parts of the river valleys where the saturated thickness and water transmitting capacity of the sediments are greatest. Areas listed as critical to future water supply include the "Chipuxet, Usquepaug-Queen's, Beaver-Pasquisset, Upper Wood, and Lower Wood" basins. The plan says that, in addition to providing drinking water, these ground and surface waters sustain thriving ecosystems and aquatic base flows, as well as supporting domestic, industrial, and fire suppression needs.

Zoning

The Richmond Zoning Ordinance, like the Comprehensive Plan, seeks to protect the rivers by limiting development of adjacent lands. According to the Zoning Map, most of the land along all three rivers is zoned R-3 for low density residential development, requiring 3 acres of land per dwelling unit. Exceptions occur within the historic Mill Villages of Wyoming, Carolina, Shannock, Alton, Wood River Junction and Kenyon. There, the ordinance recognizes existing higher development densities and industrial uses, but otherwise is R-2, requiring a 2 acre minimum area per dwelling unit.

In addition, the ordinance provides for overlay districts, including an Agricultural Overlay District, Aquifer Overlay District and a Flood Hazard Overlay District that provide additional protections. The purpose of the agricultural overlay district to preserve large contiguous areas of prime agricultural soils for farming uses by requiring subdivision and development methods that create large farm lots intended for both agricultural and residential use. Because many of these large farm tracts are located along the rivers, this ordinance also helps protect the rivers.

Similarly, the Aquifer Protection Overlay District seeks to protect, preserve and maintain the quality of the groundwater that provides a substantial portion of the town's water supply through regulation of certain land uses and activities in the areas over the groundwater reservoirs and recharge areas. Because the aquifers and recharge areas are closely associated with the rivers, the water quality protections afforded to the aquifer by the overlay are also extended to the rivers.

The Flood Hazard district assists the town in complying with the requirements of the National Flood Insurance Program (NFIP) and helps limit the damage done by periodic flooding of the rivers. In doing so, it also protects the rivers from adverse impacts of flooding such as impacts of erosion and sedimentation, contamination from flooding of residential, commercial and industrial properties served by septic systems, and the impacts of flood debris on the river systems.

The Zoning Code also includes innovative development zones including a provision for Cluster Development (18.41) that allows development to be concentrated on one part of a property to protect important resources on another part of the property and a Planned Unit Development Village Center District (18.42) that allows mixed uses and provides flexibility for development in the historic mill villages along the rivers.

The ordinance at 18.30 establishes conditions for Special Use Permits. Included among them are sections that regulate domestic livestock to protect wells and surface waters, regulations on manure stockpiles within 200' of wells or wetlands and sets specific guidelines for composting

operations and energy facilities relative to wetlands.

Land Development

Richmond's Land Development Regulations specifically include among their purposes "the protection of interconnected networks of open space and greenway systems" The regulations require all development to follow LID principles, including maintaining natural drainage flow patterns, minimizing land clearance, clustering buildings, and minimizing impervious surfaces "to the greatest extent practicable." The regulations, at Section 13.2, require developments to be designed to avoid adversely affecting ground water and aquifer recharge, to reduce cut and fill, to avoid unnecessary impervious surfaces, to prevent flooding, to provide adequate access to lots and sites, and to mitigate adverse effects of shadow, traffic, drainage, and utilities on neighboring properties. Further, to the greatest extent practicable, developments have to be designed to maintain or replicate the existing hydrology on the site through use of small-scale controls integrated throughout the site to manage runoff as near as possible to its source.

Within the regulations "Land Unsuitable for Development" is defined to specifically include wetlands. The regulations allow the inclusion of wetlands when determining gross lot area, but do not allow inclusion of wetlands and waters in determining development density. The regulations require that site plans identify the site context to include relationship between the development site and wetlands, or more specifically, "Unique or fragile areas, including freshwater wetlands and vernal pools." 13.2.3.1.

Section 13.12.2 provides that "Existing wetlands shall not be used for stormwater treatment. However, where groundwater and surface water hydrology permit, and conditions favor creation of functional wildlife habitat, creation of wetland stormwater systems is encouraged." Subsection (h) says that "Natural drainage patterns shall be maintained and existing watercourses shall be left open wherever practicable."

Special Resource Protection

The Richmond town Code, at 8.06.020 defines a Watercourse as "Any river, stream, intermittent stream, or channel, whether natural or built, that flows long enough during the year to develop and maintain defined channels, and generally has flowing water at times other than those periods immediately following storm events."

Richmond has an Erosion and Sedimentation Control Ordinance (15.06) that requires a soil erosion and sedimentation control plan for every land development project, every subdivision, and every development plan within the authority of the Planning Board. The town also has an Earth Removal Ordinance (15.16) that puts very specific limits on earth removal projects such as quarries and gravel pits to protect air and water quality, reduce erosion and prevent sedimentation in and around excavated areas.

Recommendations

- Revise Comprehensive Plan Natural Resources Map and Land Use Plan Map (13) to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards in development regulations.

5.1.6 South Kingstown

A large area of central and northwestern South Kingstown includes the Chipuxet River and segments of the Queen – Usquepaugh and Pawcatuck Rivers. A significant portion of these rivers' watersheds in South Kingstown are dedicated open space, principally the RIDEM Great Swamp Wildlife Management Area and Worden Pond. Most of the watershed area that is not dedicated open space is developed at a low density with the exception of the University of Rhode Island and its surroundings. Town zoning reflects this existing pattern of development. There is potential for new residential development in the watershed but town planning, zoning and land development regulations suggest new growth will occur in a controlled manner that protects the rivers' free flow condition, water quality and their ORVs.

Plans

The Town of South Kingstown Comprehensive Community Plan (2014) is a relatively recent plan that follows the format and requirements in place prior to the current RI Statewide Planning Program guidance. However, it appears to meet current guidance in most respects.

The plan provides a town-wide vision for its future land use:

South Kingstown will continue to be a village-based, rural tradition residential community with three primary assets: involved and proactive citizens with diverse socioeconomic backgrounds, a rich historic and prehistoric legacy, and abundant natural resources. The Town will endeavor to maintain a sustainable quality of life that limits growth based on the capacity of natural resources and public infrastructure. ...

The Town will embrace the needs of residents, students, and tourists in environmentally and culturally sensitive sustainable development. ...

The Town recognizes the importance of protecting open space to maintain its natural and cultural resources, ... and will restrict development to appropriately scaled construction in compliance with the Comprehensive Plan.

LU Goal 2: To maintain a sustainable rate of development which is consistent with the ability of the Town to provide essential services, to achieve a stable tax rate, to protect environmental, historic, and cultural resources, and to provide a healthy environment.

Policies and implementation strategies related to this goal include evaluation of cumulative impacts to natural resources, infrastructure management, development phasing and annual growth analysis.

LU Goal 3: To promote and require high standards of development to preserve and enhance the quality of life, to encourage a sense of community, to support a healthy, walkable environment and to protect the natural resources of the Town.

Policies and implementation strategies related to this goal include environmental impact analysis of new development (natural & cultural resources, recreation, etc.), improving the town's ability to perform critical review of development proposals, and a LID approach overall.

These and other goals / policies in the plan promote the concentration of new development

in historic villages (“village-centric approach) as a means of managing growth and protecting natural resources. The village of Usquepaugh lies alongside the Queen - Usquepaugh River in the northwest part of town.

The plan offers protection of the study rivers with various mechanisms including designated greenways. “Greenways are shown on Map 2.3 Land Use Plan Map as following the Saugatucket River, the Queens River, and the Chipuxet River corridor linking Hundred Acre Pond, Thirty Acre Pond, Great Swamp and Worden Pond.” Note however that the referenced map does not actually depict a greenway on the Chipuxet River.

Map 2.3 shows South Kingstown’s vision for future land use; in addition to these Greenways, this map depicts medium density residential growth in a small area of Usquepaugh along the river, and medium and high density residential development in the villages of West Kingston and Kingston (URI remains the most intensive use in the Kingston village area). The village of West Kingston also includes the existing industrial zone near the railroad station. Otherwise, the subject river watersheds are planned for open space, low density (<1.09 DU/ac.) residential uses, and four major areas of medium density (1.09 to 1.99 DU/ac.) residential use. The Land Use Plan map shows the historic villages of Usquepaugh and West Kingston with the highest intensity uses along the study rivers; otherwise the river corridors are shown with dedicated open space or low density residential uses (except for a small strip of government / institutional land between Route 110 (Ministerial Road) and the Chipuxet River south of Route 138 and north of the Great Swamp Management Area).

The Plan’s Economic Development element vision statement supports thoughtful, measured economic growth, concluding “Economic development initiatives intended to improve the economic quality of life for town residents must also protect our natural and cultural resources.” This element highlights the need to:

- *Recognize the unique strength of South Kingstown’s tourism economy related to the ocean front beaches, rivers, salt and freshwater ponds, and other natural resources.*
- *Continue to protect South Kingstown’s valuable historic buildings and structures to support the tourism economy.*

The plan’s Economic Development goals and policies are consistent with resource preservation in the subject watersheds. For example:

ED Goal 2: To identify constraints to economic development that must be considered by local boards and commissions, the local business community and/or future investors.

Policy 2.4 – The Town supports balancing economic development with the need to protect natural, cultural, historic, and recreational resources throughout the community.

Implementation

- *The Town shall continue to compare the adequacy and ability of local and state infrastructure (roads, drainage systems, water, sewer, etc.) to support future economic development with build out analyses developed by the Town. Comparisons will include an assessment of development potential against the capacity of our public water supply and stormwater system.*

Economic development goals and policies also support managed growth of designated village centers, including a specific plan for development of West Kingston in anticipation of infrastructure improvements and better linkage of the village with URI. Regulatory revisions and new design standards are promoted as a means of increasing the viability of village centers.

The Comprehensive Plan's Natural and Cultural Resources element highlights the abundant and diverse resources of the town as integral to the town's rural character and its vision for the future. The plan notes that biological diversity in South Kingstown is greater than any other RI town based RI Natural Heritage Program data. The Chipuxet River aquifer is a sole source aquifer and vital water supply to area residents and businesses. The plan acknowledges risks to the study rivers' watersheds:

Some of the primary threats to the Town's natural and cultural resources include:

- *Potential degradation of groundwater supplies and potential draw down of the aquifer;*
- *Development adjacent to wetlands that has the potential to impair surface and groundwater quality;*
- *Loss of natural wildlife corridors for many indigenous species, including those federally protected and those recognized by the RI Natural Heritage Program;*
- *Insufficient protection of historic resources outside of the Historic Zoning Overlay; and*
- *Vulnerability of cultural landscapes to future development.*

Town natural and cultural resource goals, policies and implementation actions relevant to the study rivers are listed below. Note however that statutory changes to the state's freshwater wetlands act in December 2015 may invalidate some local initiatives related to wetland protection once the implementing regulations are adopted.

NCR Goal 1: To protect and to preserve the quality and quantity of the Town's potable water supply.

Policies and implementation strategies call for a town-wide and region-wide approach to protection of both groundwater and surface water, with increased efforts to mitigate non-point source pollution and continued evaluation of the town's Groundwater Protection Overlay District effectiveness.

NCR Goal 2: To protect and to preserve both freshwater and coastal wetland resources.

Policy 2.1 - The Town will work toward protecting the integrity of the varied wetlands which serve many important ecological and economic functions. Protection efforts will be directed toward swamps, marshes, bogs, floodplains, rivers, streams, ponds, wet meadows, aquatic beds, beaches, and all other wetlands as defined by DEM Freshwater Wetlands Act, April 1998, as amended. The Town will pursue both regulatory and non-regulatory options for ensuring the protection of these resources.

Implementation

- *The Town shall work with DEM to establish the regulatory right of the Town to deny and / or condition Freshwater Wetlands Permits based on compliance with the Comprehensive Plan.*
- *The Town shall implement recommendations of its RI Pollutant Discharge Elimination System (RIPDES) Phase II Stormwater Management Plan.*

- *The Town shall adopt a wetland protection ordinance to protect specific areas identified as critical wetland resource areas.*
- *The Town shall adopt a river corridor overlay protection district to protect: a) the wildlife habitat associated with the rivers; b) the scenic, rural quality associated with the rivers; and c) the water quality of the rivers.*
- *The Town shall develop a freshwater ponds and lakes management plan to address such issues as docks, public access and land use in the watershed.*
- *The Town shall develop a system to track the state wetland permits to identify areas of wetland disturbance and to monitor compliance with local and state approval conditions.*
- *The Town shall develop a wetlands protection checklist for development proposals. This would formalize recommendations made in the RI Soil Erosion and Sediment Control Handbook (1989), as amended, and the DEM Stormwater Design and Installation Standards Manual (2011), as amended. The checklist shall be used by the Conservation Commission and Planning Board to ensure a consistent wetland protection policy.*

Policy 2.4 - The Town will work toward developing corridors of open space throughout the Town to ensure the protection of rivers, streams, wetlands, agricultural lands, scenic features, groundwater reservoirs and recharge areas, and wildlife habitat.

- *The Town shall continue to support the concept of corridor zoning to provide for a conservation zone or greenway along selected rivers within the Town, in order to both maintain the rural character of the Town and to protect river resources.*

NCR Goal 3: To protect and preserve agricultural land within the Town.

NCR Goal 4: To protect and to preserve other natural resource areas within the Town.

Policies and implementation items relate to preservation of trees and forests among others.

NCR Goal 5: To expand the measures available for protecting cultural resources to provide maximum protection to South Kingstown's historic and prehistoric resources.

Policies and implementation items include expansion of the inventory of resources, expansion of the Historic Overlay District, updating District regulations, and review of cultural resource impacts of development proposed outside of designated Historic Overlay Districts. The plan also proposes measures to preserve scenic landscapes (viewsapes) of cultural importance, including preservation of historic village characteristics.

The plan's Services and Facilities element provides strong commitment to managed growth, low impact development, and protection of water resources. Modest sewer service and water service expansions are proposed for the villages of Kingston and West Kinston within the state designated Urban Services Boundary (USB). Planning and management of public water facilities is emphasized along with associated groundwater protection. Water resources are also to be protected through stormwater management. Continued implementation of the Onsite Wastewater Management Ordinance is recommended, along with other measures to mitigate OWTS impacts to water resources.

The Comprehensive Plan's Open Space and Recreation Action Plan promotes provision of rec-

recreation services/opportunities and preservation of open space with certain goals and policies relevant to the study rivers:

OSR Goal 1: To acquire land for open space and conservation in order to maintain the rural character of the community.

Policies and implementation strategies include continued acquisition of open space and recreation land, application of a watershed approach in planning, and consideration of connectivity and access. In particular:

Policy 2.1 – To create a system of greenways throughout town to protect and preserve open space and natural resources, to ensure the connectivity of these resources, and to increase accessibility for all residents.

Implementation

- *The Town shall encourage accessible open space and recreation facilities within walking distance of all homes in the community to support a healthy living environment.*
- *The Town shall preserve the following greenways which follow natural geologic or geographic features: Chipuxet River corridor (Hundred Acre Pond - Thirty Acre Pond – Great Swamp - Worden Pond), Queens River corridor, ...*
- *The Town shall continue to ensure that identified greenways will be protected from the adverse effects of future growth and development through the zoning ordinance and subdivision regulations, land use policies, and open space acquisition.*
- *The Town shall continue to implement its Greenways Master Plan.*

The plan also promotes access to public open space, conservation, and recreation areas, including provision of ADA accessible facilities.

The Comprehensive Plan contains an element focused on URI. Of particular importance to the protection of the Chipuxet River is:

URI Planning Goal 4: Preserve Open Space, Provide for a Sustainable Campus Environment and Enhance Natural Systems Protection.

Policy 4.1 – To protect wetlands and surface and groundwater resources associated with the Chipuxet Aquifer, the Town supports, encourages and expects that the University will utilize best management practices for drainage handling and soil and sedimentation control all capital improvement projects, campus renovations and infrastructure management.

The plan also calls for more cooperative planning efforts between the town and URI, including master planning of URI properties north of Flagg Road near Hundred Acre Pond and the Chipuxet River.

Zoning

South Kingstown's zoning ordinance is Appendix A of the town code. The town zoning map provided online was consulted in regard to the existing zoning along the study rivers and their watersheds. Zoning districts along the Queen – Usquepaugh River and Chipuxet River segments are primarily Open Space and residential uses with minimum lot sizes of 80,000 s.f. (R80 and R120 zones). Some residential zones with higher allowed densities occur in the historic village

centers of Usquepaugh and West Kingston near the subject river segments. Within the subject watersheds, Open Space and low density residential zones predominate, although some industrial zoned land occurs along the railroad in West Kingston, and some commercial land is zoned in the village of Kingston. URI properties zoned as Government and Institutional about the Chipuxet River near West Kingston and dominate the Chipuxet watershed to the northeast.

The zoning ordinance also specifies several overlay districts which provide additional protection of the rivers' ORVs:

Sec. 102. - Overlay and special management districts.

These are districts that are superimposed on existing zoning district(s) or part of a district, and impose specified requirements in addition to, but not less than, those otherwise applicable for the underlying district(s).

A. Historic Overlay District. This overlay district includes an area within the Village of Kingston designated as an Historic District and is on the National Register of Historic Places. It is covered by special zoning restrictions which apply to all structural exterior building changes, street or traffic improvements, landscaping, erection of signs, and removal of trees.

C. Groundwater Protection Overlay District. This is an overlay district which is superimposed over any other zoning district in order to provide additional controls to protect groundwater and interrelated surface water resources.

As indicated, the one existing Historic Overlay District is in the village of Kingston (although the Comprehensive Plan calls for expansion of this overlay district to other sites in town).

The Groundwater Protection Overlay District (GPOD) includes RIGIS mapped groundwater reservoirs and associated aquifer recharge areas designated by RIDEM as Class AA groundwater (Comprehensive Plan Map 5.5). The GWPOD includes all of the Queen – Usquepaugh River segment and all of the Chipuxet River segment that lies outside the Great Swamp Management Area. The GPOD covers most of the Queen-Usquepaugh River watershed and large portions of the Chipuxet River watershed in South Kingstown. The GPOD ordinance prohibits a number of land uses considered a threat to groundwater quality such as automotive – related businesses and most underground storage tanks; agricultural uses are not prohibited however. The ordinance specifies certain design site standards such as those related to stormwater management, storage tanks, solid waste management, earth removal, and OWTS.

Note that the town's floodplain overlay district is adopted in the town code of ordinances chapter 21, and is not identified as an overlay district per se in the zoning ordinance (Appendix A of the town code). The floodplain overlay district is described below under Special Resource Protection. The floodplain overlay district is not to be confused with the High Flood Danger (HFD) Overlay District described in the zoning ordinance – the HFD Overlay District relates to coastal flooding outside the study area.

South Kingstown's zoning ordinance section 504 requires a special use permit where an OWTS is to be located within 150-feet of a wetland, including the study rivers. This special use permit requirement will be invalidated once the RIDEM regulations implementing the 2015 statutory changes to the state wetlands act are implemented.

Section 510 of the zoning ordinance relates to solar energy systems. “The standards are intended to ensure that solar energy systems are compatible with the surrounding area, provide for public safety, and minimize impacts on scenic, natural, and historic resources.” Requirements intended to limit vegetative clearing and protect scenic viewsheds are included.

The zoning ordinance also identifies certain stormwater management and soil erosion and sedimentation control requirements, and references the town’s Subdivision and Land Development Regulations (Table 1).

Land Development

The Town of South Kingstown, R.I. Subdivision and Land Development Regulations (2012) provide specific procedures and requirements for subdivision of land. The procedures follow the general format set forth in state enabling legislation. The regulation’s authority and intent (Section I), general requirements (Section III) and special requirements (Section IV) are clearly oriented towards managed growth, low impact development, and resource protection. Section XIII. Design and Public Improvement Standards, and Section XIV. Construction Methods and Specifications provide details on requirements related to flood hazard protection, stormwater management and soil erosion and sediment control among others. The town also promotes residential development in keeping with the South Kingstown Residential Design Manual (1999).

Special Resource Protection

Special resource protection in the subject watersheds is implemented primarily through the zoning ordinance, including the Historic Overlay District and Groundwater Protection Overlay Districts described above.

Stormwater Management

Chapter 20 of the town code, Stormwater Management, sets forth the regulations for town compliance with the “RIDEM RIPDES General Permit for Stormwater Discharge from Small Municipal Separate Storm Sewer Systems and from Industrial Activity at Eligible Facilities Operated by Regulated Small MS4s”. It specifies prohibited discharges to watercourses and stormwater drainage systems, identifies BMP requirements, and property owner requirements regarding watercourse protection. Article II of Chapter 20, Soil Erosion, Runoff and Sediment Control, specifies that anticipated land disturbances of 1,000 s.f. or more, any such disturbance within 200-feet of a watercourse, or any such disturbance resulting in steep slopes (10% or more) must first receive a determination of applicability from the building official. “Upon determination of applicability, the applicant shall submit a soil erosion, runoff and sediment control plan for approval to the building official or to the planning board as provided in section 20-54.” The specifications and procedures for submission, review and approval of this plan is set out in the remainder of this chapter.

Floodplain Management and Flood Hazard Overlay District

Chapter 21 of the town code, Floodplain Management, sets forth the regulations for town compliance with requirements of the National Flood Insurance Act and Program.

*The special flood hazard areas are herein established as a floodplain overlay district.
The district includes all special flood hazard areas within the Town of South Kingstown*

designated as zone A, AE, AH, AO, A99, V, or VE on the Washington County Flood Insurance Rate Map (FIRM) and Digital FIRM issued by the Federal Emergency Management Agency (FEMA) for the administration of the National Flood Insurance Program. ... The exact boundaries of the district may be defined by the 100-year base flood elevations shown on the FIRM and further defined by the Washington County Flood Insurance Study (FIS) report ... The office of the building official is responsible for floodplain management. The FIRM and FIS report and any revisions thereto are incorporated herein by reference and are on file with the planning department and building official.

Chapter 21 describes permit requirements associated with development in this overlay district.

Recommendations

- Revise Comprehensive Plan Land Use Plan Map 2.3 to show Chipuxet River Greenway described in the plan.
- Revise Comprehensive Plan maps to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.
- Incorporate scenic river guidelines / standards in development guides and village plans.
- Evaluate town plans and regulations potentially affected by the state freshwater wetlands act (December 2015) and evaluate associated RIDEM regulations once they are presented for public comment.

5.1.7 West Greenwich

West Greenwich includes segments of the Wood River and Queen River. The Wood River watershed covers most of western West Greenwich, and the river corridor there is almost entirely within protected conservation land (largely the RIDEM Arcadia Management Area). Other existing uses and future plans reflect low density residential uses in that watershed. The Queen River corridor is well protected by protected conservation lands, with the exception of an industrial zoned tract at the southeastern corner of town. Proposed future development focuses on intensification of uses along I-95 and certain villages. Overall the town's plan and regulations provide good protection of the river corridors and ORVs.

Plans

The West Greenwich Comprehensive plan was written in 1995 and amended in 2004, 2006, 2007 and 2008. The 2004 amendments created a Special Management District (SMD) at Exit 7 and added an Affordable Housing section to the plan. The 2006 amendments created a Corporate Zoning District. The 2007 amendments revised the Special Management District and the 2008 amendments set Senior Residential Development goals. The state lists the approval status of the West Greenwich plan as "denied" presumably because the plan does not conform to state requirements. The town has been updating the plan for several years and has made both the original, and parts of the proposed update, available on-line.

This is an old plan, prepared to the standards of a different time. However, it still contains valuable information and, being locally approved, it still has some validity. The plan recognizes the importance of the Pawcatuck River Watershed to the community. In Natural Resources, it devotes roughly half a page to explaining what a watershed is. It then provides a map of watersheds in West Greenwich, and discusses the Pawcatuck specifically. It says:

The Pawcatuck Watershed is located in southwestern Rhode Island and portions of southeastern Connecticut, encompassing ten Rhode Island towns and four Connecticut towns. Total acreage of the Pawcatuck Watershed is 194,000 acres. The Pawcatuck Watershed is drained by seven major rivers and their tributaries: the Chipuxet, Chickasheen, Wood, Queen and Pawcatuck Rivers of Rhode Island; and the Shunuck and Green Fall Rivers of Connecticut.

It also discusses wetlands, flood plains and rare species habitats within the watershed. Goal 3 in this section says: "Develop water resource management strategies designed to preserve lakes, ponds, rivers, wetlands and associated buffer strips." Goal 4 says: "Protect ground water resources and recharge areas used for existing and potential public water supply from contamination from point and non-point pollution sources."

Many of the policies articulated by the plan pertain directly to water resources. Policy P3 says: "Prohibit direct storm water discharges from all development into lakes, ponds, streams or wetlands." P6 says: "Ensure protection of wetland systems recognized as valuable natural resources that provide functions of flood storage, water quality protection, wildlife habitat, recreation, and pollution control by requiring compliance with provisions of state law and local ordinances." P8 says: "Promote the Town of West Greenwich as a regionally significant GREENWAY as the Town is located amidst adjacent communities that have formed a large greenbelt separating

urban areas.”

Some of the policies anticipate future actions with the potential to affect water resources. P16 recommends changes to the zoning and subdivision regulations to require applicants to identify “natural resources and constraints to development” as part of the application process and to establish a Development Impact Statement (DIS) for certain types of development projects. P18 recommends authorizing cluster development and altering setbacks to protect natural resources. P18 encourages formation of the municipal land trust to “acquire and receive donations of land to be preserved for the public good.”

Under Goal 4: Groundwater Protection, four actions are recommended: 1) Develop a comprehensive local groundwater protection strategy. 2) Consider zoning ordinance and map amendments to include an aquifer protection overlay district. 3) Develop an inventory of potential contamination sources, and 4) Amend the Zoning Ordinance to prohibit hazardous waste generators from polluting groundwater quality for potential public wells.

In the Open Space and Recreation chapter, the plan acknowledges the link between rural character and public open space. It says: “The sense of openness in the Town is due to large areas dedicated to public use in the form of the Arcadia Management Area, the W. Alton Jones Campus of the University of Rhode Island, the Big River Reservoir property, Wickaboxet Management Area, Beach Pond State Park and other public lands.” The plan provides specific discussions for each of these publicly owned areas.

The discussion of Acadia notes the large amount of conservation land, the diversity of habitat types, and the benefits of state control. It also says: “The Wood River, one of the finest trout streams in the state and Rhode Island’s best example of a scenic and wild river, flows through the management area. Primary tributaries to the Wood River include the Falls River, Flat River, Parris Brook and Roaring Brook, all found within the management area.”

The Future Land Use Map shows the vast amount of open space and public land referred to in the previous sections. Most of the rest of the town is shown as low density residential and greenbelt overlay except for land along I-95, certain designated “special planning areas” for possible location of neighborhood businesses, and a few “Special Area Management Plan / Mini-Plan” areas.

Zoning

The West Greenwich Zoning Ordinance establishes six zoning districts within the town. These include residential uses: RFR-2 (2 acres), RFR-1 (1 acre), Open Space and Public Land (OSPL), Neighborhood Business (NB), Highway Business (HB), Industrial A (IA) and Industrial B (IB). Later amendments added the Exit 7 Special Management District (SMD) and the Senior Residential District (SMD) and provides standards for development in each of these districts. The ordinance also provides for Residential Compounds and Conservation Design Development.

The use tables are quite extensive, with an exhaustive list of prohibited and permitted uses. Article X regulates extractive industries (gravel pits, quarries, and certain types of agriculture). Multi-family development is allowed, but Section 13 places limits on the number of bedrooms (20) that can be served by a single septic system. Article VII in the amendments provides the

town's Growth Control Ordinance which provides building quotas designed to control growth to within limits that can be accommodated by town infrastructure and natural resource constraints.

The Zoning Map is represented on most, but not all of the 60 plat maps, making it difficult to see the relationship between zones across the whole town. However, the pattern roughly corresponds to the Future Land Use Map in the Comprehensive Plan, with large areas of Open Space and Public Land surrounded by Rural Farm Residential Zoning. RFR-2 is the "default" zone and the ordinance states that, where the zoning district is not identified on the plat map, it is RFR-2.

Land Development

The West Greenwich Subdivision and Land Development regulations date from 1995, but they have been amended numerous times between 2000 and 2015. Section III defines land unsuitable for development to include:

- a. Fresh water wetlands, not including areas subject to storm flowage (ASSF), but, including that area of perimeter wetland within fifty (50) feet of the edge of any bog, marsh, swamp or pond; and any applicable 100-foot or 200-foot riverbank wetlands, as defined by Rhode Island General Laws Section 2-1-20 (1987), as amended; and drainage facilities.*
- b. Areas within a 100 year flood zone, as defined by FEMA*
- c. Land within any existing and proposed easement areas for utility use, access, or drainage, and*
- d. Historical cemeteries*

This section also requires that: "a minimum of seventy percent (70 %) of the minimum lot size in each zoning district shall be contiguous suitable and shall be accessible from the lot's frontage for the development site." Applicants are required to identify natural resource areas on their plans including:

- i. Natural waterways and water bodies, particularly those which could be susceptible to sedimentation or erosion (e.g. lakes, ponds, rivers, streams, wetlands, etc.);*
- ii. Man-made waterways and water bodies, including detention basins, retention basins, catch basins and other drainage system inlets, etc.);*
- iii. Areas particularly susceptible to erosion due to soil type,*

Applicants are also required to site buildings in such a manner that these resources are protected whenever possible. The ordinance includes requirements for Erosion and Sedimentation Controls and requires Storm Water Management Plans for major developments. Developers are strongly encouraged to use structural SMP measures which promote volumetric mitigation in addition to peak flow rate mitigation, specifically by means of stormwater infiltration, where practicable based on soil types and depth to groundwater table.

Section C discusses dedication of public land and requires that: "The Planning Board shall require all land developments and subdivisions subject to the provisions of Section 2 below, to dedicate a portion of the buildable land being subdivided for the purpose of providing open space, conservation, park and recreational facilities to serve present and future residents of the proposed land development or subdivision." It also provides that: "The Planning Board may, in

its discretion, require the payment of a fee in-lieu of land dedication, or a combination of land dedication and payment of a fee, as an alternative to the dedication of land.”

Special Resource Protection

Ordinance 40 establishes a Conservation Commission and sets its purposes as:

- a. To promote and develop the natural resources*
- b. To protect the watershed resources*
- c. To preserve natural esthetic areas within said municipalities [sic] and*
- d. To conduct researches [sic] into its local land areas and shall seek to coordinate the activities of unofficial bodies organized for similar purposes.*

Ordinance 67 establishes the West Greenwich Land Trust “for the purpose[sic] of acquiring development right [sic] to real property within the town as well as the acquisition of real property, or interest therein, to preserve agricultural, recreational, historical, or littoral lands, open spaces, fresh water wetlands, estuaries, and adjoining uplands, groundwater recharging areas, well fields, wildlife habitats, land for bicycle and hiking paths and land for future public recreational facilities and use.”

Ordinance 79 is the Soil Erosion and Sediment Control Ordinance. This ordinance provides “teeth” for the requirements of the Zoning, Subdivision and Development Regulation’s requirement for erosion and sedimentation control and stormwater management plans.

Ordinance 90 Illicit Stormwater Ordinance prohibits discharge of untreated stormwater into the town’s stormwater drainage system. This ordinance complies with the illicit discharge detection and elimination requirements of the RIPDES general permit (RIR040029) granting coverage under the General Permit for stormwater discharges in West Greenwich.

Recommendations

- Revise Comprehensive Plan maps to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.

5.1.8 Westerly

The Pawcatuck River forms Westerly's northern and western boundaries, and most of the town north of Route 1 is within the watershed. The Pawcatuck River corridor includes significant areas of protected open space / conservation land from Chapman Pond east, and the watershed associated with this segment is largely expected to remain in open space and low density residential uses with the exception of development in Bradford Village. The river east of Chapman Pond is a mix of uses reflecting the river's historic past as a focus of commerce and development. The downtown riverfront area is densely developed and public water and sewer service are available. The river downstream is intertidal and the shorefront coastal in character. The town's Comprehensive Plan recognizes the importance of the river to many of the town's interests, and calls for a River Corridor Overlay zoning district to be enacted. The town's plan and regulations provide good protection of the river and associated ORVs.

Plans

Westerly is in the process of updating its Comprehensive Plan. The update is available in draft form but has not yet been adopted. The plan currently in force was adopted in February of 2010. This analysis focuses on the newer plan in the anticipation that it will soon be adopted by the Town and accepted by the State.

The plan cites the town's unique geography as key to the affection residents feel for the community, citing: "its spectacular location along the Pawcatuck River, Little Narragansett Bay, salt ponds and the Atlantic Ocean" as well as "the charm and history of its busy urban and quiet rural areas." The plan attributes Westerly's early settlement and prosperity to its location on a navigable stretch of the river, which led to early farming, fishing and shipbuilding activity and supported later industrialization.

The plan urges cooperation with surrounding towns to secure riverfront property and protect water quality. The Executive Summary says, somewhat ironically, that "The same river crossing and ocean front that originally brought settlers to Westerly now provide some of the biggest challenges to the sustainability and vitality of the quality of life developed here." This theme is carried forward into Chapter 2 which notes that: "A shore community subject to catastrophic storm surges, an urbanized downtown located on a coastal estuary, and an inland river subject to flooding require this community to include resiliency planning as part of any future land use discussion."

The Pawcatuck River continues to be an important economic driver for the community. In Chapter 3, Section 3.3.3 Economic Development, Westerly Landing, located along Main Street and the Pawcatuck River, is identified as a key economic development opportunity due to its riverfront location and river access.

Section 3.4 Natural Resources notes how dependent Westerly is on the Pawcatuck for water supply. It says: "Westerly's groundwater resources exist within three aquifers – Ashaway, Bradford and Westerly. These are all located within the Pawcatuck River Aquifer Region, which is the sole source of drinking water for the town." The plan recognizes the important role played by wetlands along the rivers, streams and ponds, because they remove nutrients, pollutants, and sediments from surface water runoff, recharge water supplies, reduce shoreline erosion and flood risks and provide fish and wildlife habitat.

Section 3.5.2 notes that the town has a sewer system and wastewater treatment plant that discharges into the Pawcatuck River as regulated by RIDEM. A major upgrade in biological nutrient removal capability was added to the plant in 2003 to reduce the potential for impacts to river water quality from algae “blooms” promoted by nutrient discharges. The plan says the wastewater treatment plant is functioning near treatment capacity but indicates that it has sufficient capacity for all currently proposed and approved subdivisions. The plan indicates that the town is working to limit the amount of groundwater infiltrating into the sewer system to reduce the amount of water currently being treated. It also says the treatment plant is designed so that its capacity can be increased by the installation of additional components.

Section 3.5.3 address stormwater management requirements. The town has a separate storm sewer system that discharges mostly to the Pawcatuck River. The plan says the town has established an ongoing maintenance program for the stormwater system that includes cleaning catch basins and pipes and replacing aging pipes and structures.

Section 3.7.7 addresses boats and water access. It says boats can be launched during the operating season at the Westerly marina. The marina is operated under a lease agreement between the owners and the Town and the boat launch is free to all Westerly residents. The RIDEM facility located on Main Street provides another free boat launch area with parking for boat trailers. In addition, the plan says there are several other marinas on the Pawcatuck River where boat ramps are available for a fee. The plan also indicates that Westerly has a Harbor Management Plan under development and predicts that its successful completion should help manage the growing activity within the Pawcatuck River and Little Narragansett Bay.

Section 3.8.3 lists recreation needs and expresses support for town and state efforts to establish greenways that follow the Pawcatuck River and the Town’s coastline. This section says: “79 percent of respondents in the Westerly community survey agreed or strongly agreed that the riverfront should be developed with more greenspace. This finding implies that one of the key recreation focuses should be on the development of greenspace along the river [and] enhancing the efforts of the riverwalk project.”

Section 4.1 articulates a vision for the future of Westerly, including the vision that: “The shoreline, Pawcatuck River, salt ponds and greenspace will remain Westerly’s trademark, carefully managed to sustain their uses while preserving their health and natural beauty for future generations to enjoy.”

Section 4.4.6, Special Districts, calls for a River Corridor Overlay Zoning District. It describes the district as follows:

... an overlay district and zoning ordinance provisions that would provide protection to the Town’s supply of drinking water, encourage appropriate redevelopment and economic growth and provide important recreational opportunities in town. Westerly needs a special river corridor overlay zoning district because the Pawcatuck River is vital to the continuing prosperity of the town. First, the river is connected to and provides water to the underground aquifer that is the primary source of water supply for Westerly. Second, land fronting on and near the Pawcatuck River in the downtown area will have an important role in continuing renovation and revitalization in Westerly. Third, the river provides

important recreational opportunities for residents and tourists and affects the quality of habitat for fish and shellfish and other wildlife in the river and in Little Narragansett Bay.

The Goals, Policies and Actions section of the plan includes multiple goals and actions related to protection of the river and related natural resources. The importance of the river to the community is indicated by the pervasiveness of river related recommendations throughout the section. River resources are cited in Economic Vitality recommends encouraging efforts to recognize the continuing importance of the river in sustaining the local economy; Sustainable Natural Resources, which recognizes that Westerly is dependent on the watershed for water supply; Recreation which encourages improved access to the river and upgrades to existing access points; Transportation, which encourages use of the river and the harbor for water transportation to reduce traffic congestion; Energy, which encourages use of water power as one means to help meet alternative energy needs; and Natural Hazards which includes recommendations to reduce the potential for flood damage and reduce the potential for water quality impacts on the river from flooding of adjacent land.

Zoning

Westerly's current Zoning Code was originally adopted in 1998 and then readopted, with amendments in 2003. It provides definitions for water, watercourse, and for wetlands. The Zoning Code includes a title, at 260-56, for a River Corridor Overlay District, although the section is [reserved] indicating that it has not yet been developed or adopted. There is also a River Condominium Overlay District at Section 260.15E, also [reserved]. Aquifer Protection Overlay and Historic Mill Overlay districts are included in Sections 260-55 and 260-57.

Other related Zoning Districts include:

- *Marine Commercial - dedicated to marine (water-dependent) and marine-related uses consistent with the Rhode Island CRMC Program for waters designated Class 3, High-Intensity Boating.*
- *Shore Commercial - to promote the use of waterfront locations for servicing local and tourist seasonal businesses and water-related activities and provide for both direct and indirect access to the water by the public.*
- *Open Space and Recreation - for areas already in use as open space or for recreation. This district covers a variety of uses including conservation lands, the Town's well fields, and major parks and recreation areas.*

The Zoning Map shows that land adjacent to the river is zoned for a wide variety of uses, due to Westerly's historic pattern of development along the river. There is Open Space and Recreation (OS/R) land in the northeast corner of Westerly in Bradford, abutting Hopkinton. Moving down river, Zoning reflects the village settlement pattern, with Low Density Residential (LDR-40), Medium Density Residential (MDR-20 and MDR-30), and High Density Residential (HDR-15) uses leading to the Bradford Mill property. The mill property is zoned for Light Industrial (LI) use although most of it is presently open space.

Open Space and low to medium density residential uses abut most of the riverfront facing North Stonington. Low Density Residential (LDR-40) Rural Residential (RR-60) and Open Space and Recreation (OS/R) uses predominate. Land at the Cherenzia Quarry, facing both Stonington and

North Stonington, is zoned Light Industrial (LI) and land north and south of Route 78 is (OS/R). Thereafter, districts and densities increase entering “downtown” Westerly.

Zones in this area include Office Research, Assembly and Technology (ORAT), Downtown Business I (DB-I), Downtown Business II (DB-II), Neighborhood Business (NB) and General Industrial (GI). South of the “downtown”, the uses abutting the river are High Density Residential (HDR-6), Marine Commercial (MC), and General Industrial (GI). Avondale on the waterfront is mostly zoned Medium Density Residential (MDR-30 with some MDR-20). To the south, the Watch Hill neighborhood is mostly Low Density Residential (LDR-43) with Shore Commercial (SC-WH) in Watch Hill proper and Open Space / Recreation (OS/R) at the beach.

Land Development

Westerly’s Land Development and Subdivision regulations specify the procedures by which proposals to subdivide or develop land are reviewed. The administration and procedures are consistent with the requirements of the state enabling legislation, providing for a three-step review process for major subdivisions and development projects; Master Plan, Preliminary, and Final.

Section A-261-15 defines land unsuitable for development to include freshwater wetlands (except RI “Perimeter” and “Riverbank” wetlands), coastal wetlands (except “Contiguous Areas”) and areas within the one-hundred-year flood zone as defined by FEMA.

Development plans are required, at A261-30, to provide written and/or graphic analysis of “site context; geology and soil; agricultural lands; watercourses, wetlands; coastal features; topography; climate; ecology; existing vegetation, structures, and road networks; visual features; and past and present uses of the site.” The regulations require that certain specific areas “shall be preserved as undeveloped open space or lot area, to the extent consistent with the reasonable utilization of land, and in accordance with applicable state or Town regulations”. Resources to be preserved include: “Unique and/or fragile areas, including freshwater wetlands, associated buffers and coastal features including associated buffers and floodplains.” The regulations require that proposals for development plans include an erosion and sediment control plan.

Special Resource Protection

Special resource protections, in addition to those noted above, include:

Chapter 5 Article III of the Westerly Town Code establishes the Westerly Conservation Commission and assigns them responsibility to gather and disperse information regarding natural resources, to make recommendations on the use and management of natural resources, and to work with the Town Council, Department of Public Works, and Planning Department to locate developments in a manner that protects natural resources.

Chapter 30 Establishes the Westerly Land Trust and invests them with authority to identify and purchase land for open space, own land, hold conservation easements, and serve as rights holders for acquisition of property development rights in Westerly.

Chapter 86 Boats and Waterways sets standards for operating boats on Westerly Waters, includ-

ing safety requirements, standards for marine sanitation, and pollution control. Section 86-30 makes it unlawful to jump off any bridge traversing any waterway within the Town of Westerly and establishes a fine of \$50 for willful violations.

See also habitat related protections listed in Table 1.

Recommendations

- Revise Comprehensive Plan maps to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.

5.2 Connecticut Towns

5.2.1 North Stonington

North Stonington includes all of the Shunock River, and a large segment of the Green Fall River. The Pawcatuck River is the Town's southeast border with Westerly. The watersheds associated with these rivers covers the eastern portion of the town. The Green Fall River corridor and watershed are expected to remain very rural with a combination of conservation land, farms, and low density residential uses. The Shunock River north and west of Route 184 is likewise expected to remain rural, with the exception of the historic Village of North Stonington. Most of the Pawcatuck corridor is expected to remain undeveloped. Most intensive development is planned for the two I-95 interchanges in town, at the very southeast portion of town; the western interchange occurs where the Shunock flows into the Pawcatuck; the eastern interchange occurs at the state line near the Ashaway River. Existing regulations provide a good level of river protection in this southern area. Overall, the town's plan and regulations provide very good protection of river corridors and watershed ORVs.

Plans

Plan of Conservation and Development

The 2013 North Stonington Plan of Conservation and Development states the following as its overall goal:

The goal of North Stonington's 2013 Plan is to create a relationship between preservation and development by translating the selected themes of livability, sustainability, progress, and community into specific objectives to move North Stonington into the future in a sustainable manner.

The plan groups subordinate goals and objectives into four major categories, the principal category relevant to the protection of the rivers and their watersheds is "Preserving the Environment and Rural Character"

Chapter 7 Natural Resources and rural Character provides the town's vision for conservation: *Conservation should be achieved through smart development choices, regulation enforcement, and thoughtful open space planning that protects and preserves natural and historic resources and our rural character. The presence of farms enhances sustainability and livability of the community by providing a quiet rural setting, economic opportunity, and healthy food choices. People define progress as moving toward a cleaner, healthier, protected environment, with opportunities to 'go green' and buy local.*

The plan inventories and maps a number of different natural resource constraints to development such as wetlands, steep slopes, and floodplains. It indicates that progress towards achieving conservation goals will be achieved through strict implementation of existing town regulations such as the inland wetland and watercourses regulations. It also cites implementation of the Plan of Conservation and Recreation Lands prepared by the Conservation Commission (Appendix C of the POCD).

Section 7.5 Water discusses the importance of surface water resources and groundwater re-

sources to the water supply needs of the town (also discussed in section 10.6 Water Infrastructure). The importance of wetlands for ecological, flood control, water quality, and water supply is described. The importance of groundwater protection is emphasized:

Nearly three-quarters of the town's residential population is served by private on-site wells. The Pawcatuck groundwater hydrologic system is a federally designated sole-source aquifer due to its vital importance in supplying drinking water to the town and region for both present and future residential and economic development needs. It encompasses the Shunock, Wyassup, Pawcatuck, Ashaway and Green Falls sub-regional drainage basins.

The town has identified its Planning and Zoning Commission (PZC) the "Aquifer Protection Agency" required by DEEP to develop and implement land use controls to protect the DEEP delineated Level A Aquifer Protection Area north of Route 2. This Level A Aquifer Protection Area is relatively small, but critically located over the public water supply wellhead area on the Shunock River upstream of the village of North Stonington. The Level B aquifer protection area has not yet been defined by CTDEEP (see discussion below).

Section 7.6 Vegetation and Wildlife describes the importance of these biological – ecological resources, including the occurrence of 35 Critical Habitats and Natural Diversity sites identified by CTDEEP across the town. In addition, "The Fisheries Division [of CTDEEP] is especially interested in North Stonington's cold-water fish population in the Shunock River, a state-designated and managed wild trout stream."

Plan sections 10.6 Water Infrastructure and 10.7 Sewer Infrastructure are important to the rivers and their watersheds because this infrastructure exists in the watershed and may pose important limits to growth and development. Water is abundant and the POCD indicates modest water service expansion in the southern part of town. North Stonington does not have a wastewater treatment plant but a small area in the southern part of town is served by sewers which convey wastewater to the Town of Stonington for treatment and discharge through its treatment plant. The existing sewer service area occurs along I-95, nearby Route 2, and along the western half of the towns' border along the Pawcatuck River. Sewer expansion is not anticipated by the POCD although wastewater treatment alternatives were being evaluated by the town at the time the POCD was prepared.

Consolidated town goals, objectives and implementing actions are presented in Chapter 11 of the plan. The most important ones related to the rivers are:

- *Be proactive, responsive and deliberate in all planning efforts to better prepare for and manage the rate, style, and amount of change. (II.C.1)*
 - *Ensure that the built and natural environments reflect the heritage of North Stonington.*
 - *Create speculative master plans or concept plans for the Highway Commercial and Commercial 2 Zone and the zones around the rotary. Include specifications and regulations to minimize traffic impacts, address infrastructure needs and availability, and treat the Shunock River as an amenity.*
 - *Adopt clear and specific design guidelines and architectural standards to better inform future development and/or consider forming a Design Review Committee*

to advise the Planning and Zoning Commission.

- *Ensure that all new development will be of appropriate scale and design relative to its location. (III.A)*
 - *Develop design guidelines that are clear yet flexible to ensure good (suitable) design but allow for creative alternate designs. Design guidelines or architectural standards should clearly reflect the desired “look” for North Stonington (in keeping with its rural character).*
 - *Master Plan specific areas with the help of consultants or planning students to develop a clear concept or visions for the specific areas that include desired uses and design and considers all impacts to the natural resources.*
- *Invest in the necessary planning and land purchase, and enact appropriate regulations to ensure the preservation and protection of North Stonington’s valuable natural resources and open space. (III.C.)*
 - *Establish an overall goal for the amount of open space to be permanently protected.*
 - *Identify existing and potential wildlife or green corridors on a map and encourage preservation and purchase of open space parcels within. Concentrate on connecting corridors by utilizing all types of open space and learn how they can work together to create these corridors.*
 - *Continue to prevent urban sprawl through effective zoning regulations and master planning.*
 - *Encourage and facilitate the private purchase of open space (by land trusts or other similar organizations).*
 - *Promote purchase/transfer of development rights and permanent conservation easements.*
 - *Continue to preserve farmlands and forests (under PA 490, 10 mil or permanently).*
 - *Continue to support fee-in-lieu of provision in subdivision regulations to create and maintain a funding source to be used to purchase desired parcels (consistent with the Plan of Conservation and Recreation Lands) and to facilitate acceptance of only meaningful set-aside areas (rather than random bits of open space).*
 - *Enforce wetlands regulations.*
 - *Actively support goals, objectives and actions identified by the Conservation Commission in the Plan of Conservation and Recreation Lands (PCRL).*
 - *Invest in necessary planning and infrastructure improvements, and enact appropriate regulations to ensure the preservation and protection of North Stonington’s lakes and waterways.*
- *Engage in proactive planning to ensure that all future plans consider the need to preserve North Stonington’s character, and clearly identify smart development choices. (III.D.)*
 - *Increase awareness about littering, pollution, and blight.*
 - *Enforce/maintain existing regulations concerning setbacks, buffers and lot size. Create a Future Land Use Map as well as a Future Conservation Plan Map and revise zoning regulations to support these plans.*
 - *Encourage creative adaptation and reuse of historic structures.*
 - *Encourage succession plans and the transfer of development rights to protect farms.*

- *Develop a farm and forest preservation plan.*

POCD Section 12 Future Land Use Plan presents North Stonington's vision for its future, displayed graphically on the Future Land Use Map. The study rivers' watersheds in North Stonington are designated for the most part as Conservation & Recreation, Rural Preservation (R80), Medium Density Residential (R60), and High Density Residential (R40). Most of the future R60 and R40 zones lie along an existing development corridor in the southern part of town, generally along I-95 and Route 2. Other land uses are shown in this corridor including industrial, commercial and conservation areas. Three "Planning Opportunity Areas" are shown in this corridor, one along Route 2, one at the intersection of Route 2 and the southern I-95 exit, and one at the northern I-95 exit. Additionally, the Future Land Use Map shows "Under Utilized Parcels" scattered around town; they represent a type of "Opportunity Area". The Under Utilized Parcels are presented in Section 12 as a type of site which might be appropriate for new commercial development, but other portions of the plan (Appendix C described below) indicate some of those along the Shunock and Green Fall Rivers are best suited for conservation.

Overall the Future Land Use Plan reflects existing development patterns, with some increase in development density, particularly in the southern part of town. The Shunock River lies just to the north and parallel to the historic development along Route 2; it will therefore be subject to more development than the Green Fall River. Even so, most of the Shunock River corridor and watershed will remain in an undeveloped or very low density development condition. The town's Level A Aquifer Protection Zone occurs along the Shunock aquifer just west of the Village of North Stonington (Milltown), affording an increased level of resource protection. Development near the Shunock at the village should not adversely affect the river because this area lies within the Village Preservation Overlay District. The principal area of concern with regard to future development near the Shunock River is the area generally from Route 184 to I-95 and finally to its confluence with the Pawcatuck River at the southernmost corner of Town. This area is shown in the future with various commercial land uses, some medium density residential uses, and vacant parcels within a Planned Opportunity Area; the area also has water and sewer service. With the I-95 interchange immediately nearby, this area could experience an intensification of commercial development.

The Pawcatuck River that forms a southern border of North Stonington could also be subject to development impacts near the Planned Opportunity Area at I-95 and Route 2. Development of Medium Density Residential (R60) along the Pawcatuck is not likely to impact the river ORVs because of the large lots and modest development density.

The Future Land Use Plan shows the entire segment of Green Fall River within either protected conservation land or the Rural Preservation (R80) zone. Assuming Under Utilized Parcels shown along the Green Fall River remain in a largely undeveloped condition, consistent with the Rural Preservation Zoning and the conservation plan described below, the Future Land Use Plan provides excellent protection of the river ORVs and the resources throughout the watershed.

Plan of Conservation and Recreation Lands

The Plan of Conservation and Recreation Lands (PCRL) was prepared by the Conservation Commission in 2013 and is incorporated by reference as Appendix C of the POCD. This plan provides a high level of detail regarding conservation and recreation resources and priorities for future

preservation, acquisition, and management. Much of this PCLR is relevant to the protection of the Shunock, Green Fall and Pawcatuck Rivers. The report's major findings include:

Areas of the town most prone to increased development and density are generally located where valuable surface and underground water resources occur as well as in areas of prime farmland. The need to protect these waters and rich farmland soils substantially heightens the need for sound planning and enforcement and renewed effort to increase awareness about the value of greenways and wildlife corridors.

The PCRL's Focus Areas Map emphasizes "...the Green Falls River and Shunock River watersheds as the dominating features of the eastern and western sides of town respectively."

The PCRL highlights the importance of these two rivers:

The town of North Stonington has two major river basins, the Shunock River Corridor in the west section of town and the Green Falls River Corridor in the east. Each of these important rivers runs through parts of the largest aquifer in the state of Connecticut before joining the Pawcatuck River and emptying into Long Island Sound. The protection of these water sources and their tributaries is of paramount importance to the health of our town, our state and our regions coast line. The efforts of The Wood-Pawcatuck River Association to attain federal recognition as a Wild and Scenic River is well underway. Once designated, the Shun[o]ck and Green Falls Rivers as major tributaries will be included in that protection.

A large portion of Pachaug Forest separates the two basins through the center of North Stonington. Town regulations specify a 100' buffer along all water courses. This regulation, combined with current conservation easements, open space parcels, and land protected by private conservation organizations establish the foundation for eastern and western greenway/wildlife corridors. Properties identified on the Desired Areas for Future Recreation or Preservation Map on page 17 will add to these corridors for wildlife and resource protection on into the future. Currently, approximately 8% of the total land in North Stonington is considered to be protected open space (i.e., conservation easements, owed by a land trust, development rights sold), with another 45% temporarily protected (including PA 490 farm and forest land and Pachaug State Forest). The goal is to increase the amount of protected open space especially within above mentioned eastern and western greenway/wildlife corridors, through public or private acquisition of available parcels or by encouraging conservation easements, restrictions, or sale of development rights.

The PCRL provides great detail regarding river resources in Section 2.1 Western Resources and Shunock River Greenway Corridor, and Section 2.2 Eastern Resources and Green Falls River Greenway Corridor.

Section 3 of the PCRL, Future Conservation and Recreation Lands, "...identifies five broad goals for preserving and planning for the future conservation and recreation needs of the town. These goals aim to: maintain the rural character; protect the existing natural and historic resources; permanently protect water quality and quantity; provide appropriate areas for active and passive recreation; and improve regulatory procedures and prioritize land acquisition and uses."

Protecting the streams, wetlands, and headwater ponds and lakes that overlie and recharge aquifers is essential to safeguard the quantity and long-term quality of the town's drinking water. To protect the potential drinking water resources in the Shunock, Green Falls, Wyassup, and Pawcatuck Rivers, a 100 foot buffer must be maintained to restrict development within the area.

The Desired Areas for Future Recreation or Preservation Map highlights the primary greenway/wildlife corridors in town which include the Shunock River Corridor (Western Border Greenway/Wildlife Corridor) and the Green Falls River Corridor (Eastern Border Greenway/Wildlife Corridor).

Section 3.3 "identifies 26 parcels selected for future preservation within these three corridors should the opportunity arise. ... and are identified on the Desired Areas for Future Recreation or Preservation Map." This map, and the table in Section 3.3 identifies site no.s 5 – 7 bordering Green Fall River, and site no.s 13 – 20 and 25 bordering the Shunock. Additional priorities for preservation are shown on the map, including CTDEEP Natural Diversity areas following all of the Pawcatuck River corridor, and most of the Shunock River corridor.

Section 3.4 Desired Future Recreation Land notes: "Passive recreation lands can be expanded through state, town, or land trust purchase of tracts rather than through the acquisition of conservation easements on private land that would be closed to the public. Ecologically sensitive areas and species can be best protected under trust management. These tracts can provide connective corridors and trails for enhancing town-wide conservation and recreational opportunities."

PCRL goals and objectives (section 4) include the following that are particularly relevant to rover protection:

- *Encourage expansion of the Village Protection Overlay Area and the North Stonington Village National Register of Historic Places district to include and buffer historic features associated with the village. (I.9)*
- *Seek funding to develop and implement a program for monitoring pollution to surface and underground waters, and for maintaining an adequate quantity of water needed to protect species' habitat, conservation areas, and recreation resources of the town. (II.2)*
- *Remap the aquifer protection area to better describe its actual boundaries and to include the Green Falls Aquifer. (II.3)*
- *Continue to avoid sewers in all residential zones, but consider sewers in commercial and industrial areas that are situated over the aquifer. (II.4)*
- *Designate the Shunock and Green Falls River and Valley, and the Wyassup Brook, corridor and their tributaries as areas of prime interest to the community as pure water resources and wildlife corridors. (III.4)*
- *Recognize the Green Falls River basin as an important resource from Voluntown to the Pawcatuck River for both the protection of pure water and as an important unspoiled wildlife corridor. (III.8)*
- *Recognize and maintain the 100-foot buffer zone to water resources (lakes, ponds,*

- streams, and wetlands) along the Green Falls, Shunock and Wyassup water ways and their tributaries as identified in Inland Wetlands and Watercourses regulations. (III.9)*
- *Support the current Federal Efforts to designate the Wood-Pawcatuck Rivers and their tributaries as wild river status. (III. 14)*
 - *Continue to develop a network of trails and pathways that will provide the public with safe active and passive recreational opportunities, and provide connectivity to conservation and recreation lands. (IV.4)*
 - *Focus resources and conservation efforts on parcels that have been specifically recommended (and identified on the Desired Areas for Future Recreation or Preservation Map)... (V.3)*
 - *With respect to new subdivisions, continue to seek fee-in-lieu of open space rather than accepting isolated parcels of little use to the town that are costly to monitor and maintain. (V.7)*

Zoning

Both the zoning ordinance and zoning map for North Stonington are current as of November 2017. Both are stand-alone documents separate from the town code of ordinances; however, the town code essentially incorporates them by reference. The town code contains administrative regulations on roles and responsibilities of various town officials and commissions, and certain ordinances directly or indirectly related to zoning.

Within the study rivers' watersheds, the entire northern area of town is zoned Rural Preservation Zone (R80), with minimum residential lot sizes of 80,000 s.f.. The Pachaug State Forest is labeled but shown within this zone because the town's zoning does not separate government, conservation or preserved open space as a separate zoning category or district. Within this R80 zone there is a Seasonal Use Overlay Area forming a narrow band along the shore of Wyassup Lake.

All other zoning districts in the watershed are along or south of the Route 2 and Route 184 corridors. A large Economic Development District (200,000 s.f. minimum lot size) occurs in the area around the Route 2 – Route 184 intersection (rotary) and extending south to the Route 2 interchange with I-95; this zone includes the southern reach of the Shunock River in North Stonington. A large Industrial Zone (80,000 s.f. minimum lot size) is shown on the east side of this interchange, on both sides of I-95, and extending south to the Pawcatuck River. A Highway Commercial Zone (60,000 s.f. minimum lot size) is shown at the eastern border of town, south of Green Fall River, and on both sides of the I-95 interchange with Route 216. The Ashaway River flows through this zone, an area of existing highway related businesses.

Small areas of Commercial zoning (40,000 s.f. minimum lot size) occur in two locations along Route 2 south of the Shunock River corridor. Otherwise the zoning in the southern part of the watershed is Medium Density Residential (R60) with a 60,000 s.f. minimum lot size, and High Density Residential (R40) with a 40,000 s.f. minimum lot size. Despite their designations of High Density and Medium Density residential zones, many communities would consider the minimum lot sizes as representing a medium to low density of residential development. Two overlay areas occur along the Shunock River: the Level A Aquifer Protection Zone and Village Preservation Overlay Area, both described above in connection with the future land use plan.

The findings regarding North Stonington's existing zoning are essentially the same as described above in regard to the future land use plan:

- The Green Fall River and its watershed are well protected by the Rural Preservation Zone and the Pachaug State Forest
- The Ashaway River near I-95 is close to existing businesses within the Highway Commercial Zone
- The Shunock River upstream of Route 184 is well protected by the Rural Preservation Zone and Village Preservation Overlay Area where it flows through the village; south of Route 184 the Shunock flows through the Economic Development District associated with the I-95 and Route 2 interchange.
- The Pawcatuck River borders the Industrial Zone to the west and a Medium Density Residential (R60) zone to the east; lot sizes and environmental constraints suggest the river's ORVs will be protected.

Zoning ordinance section 307 Special Flood Hazard Area Requirements includes the additional requirements for Special Flood Hazard Areas (SFHAs) throughout town. This section of the zoning ordinance, in association with town code Division 3. - Provisions for Flood Hazard Reduction, set the requirements for development in floodplains and floodways and provides municipal compliance with the NFIP administered by FEMA. Although the zoning ordinance focuses on the FEMA mapped flood hazard areas, it includes additional areas known to flood and unprotected areas below established base flood elevations. Section 307 provides the permitting requirements for development in SFHAs.

The zoning ordinance offers additional resource protection with its minimum buildable area (MBA) requirements (section 402) which excludes wetlands, watercourses, floodplains and restrictive easements from buildable area required for residential lots. The MBA for R80, R60 and R40 zones are 40,000 s.f., 32,400 s.f. and 25,600 s.f. respectively.

Zoning ordinance section 505 Cluster Development for Open Space Preservation, allows the PZC to approve a cluster subdivision that meets certain requirements including preservation of at least one third of the site as open space. It includes provision for a visual buffer between the development and the open space, and the ordinance specifically references the creation of connected open space corridors and greenways.

Chapter 7 Overlay Areas describes the town's overlay areas including the Village Preservation Overlay Area in the Village of North Stonington, and the Water Supply Protection Overlay Area. The Village Preservation Overlay Area helps to protect the historic – cultural ORVs of the Shunock River where it flows through the village. This overlay area is “is intended to protect and preserve the appearance and character of the Village and its individual buildings, regardless of the type of land uses involved. The purpose of this Overlay Area is to recognize and preserve the unique historical character of the Village area.”

703 WATER SUPPLY PROTECTION OVERLAY DISTRICT

703.1 Purpose. It is the purpose and intent of the Water Supply Protection Overlay Area (WSPOA) to:

- A. protect existing and potential public surface water supply watershed areas from sources of contamination;*
- B. protect areas of high groundwater availability from sources of contamination;*

- C. promote public health and the general welfare of the community; and*
- D. promote environmental protection.*

The WSPOA regulations include prohibitions of certain uses such as landfills, requires BMPs for certain land uses, provides performance standards regarding stormwater runoff and erosion and sedimentation control (among others) and includes requirements for environmental analysis of certain categories of proposed development. The WSPOA, however, is not shown or referenced on the town's zoning map. The zoning map does show the Level A Aquifer Protection Zone described above.

The town's Aquifer Protection Areas map (9/4/2013) shows both the Level A Aquifer Protection Area and an Aquifer Protection Zone. It appears the Aquifer Protection Zone generally encompasses areas mapped as aquifer by CTDEEP. The town's "Aquifer Protection Area Regulations" (2010) reference the protected area as CTDEEP mapped Level A and Level B areas. As of March 2018, only the one Level A Aquifer Protection Area has been delineated by CTDEEP, and this is the area that is shown on both the zoning map and the Aquifer Protection Areas map. The Level A Aquifer Protection Area is in the immediate area around the public water supply well next to the Shunock River west of the village. The Level B area is the larger area that contributes to recharge of that aquifer; this Level B area has not been delineated by CTDEEP at this time.

The status of the WSPOA boundary and its relationship, if any, to the larger Aquifer Protection Zone depicted on the Aquifer Protection Areas map is unknown.

Chapter 11 of the zoning ordinance provides design standards, including those related to sustainable development, landscape design, architectural character, historic landscape preservation, outdoor illumination, soil erosion and sediment control requirements, and stormwater management. This chapter contains most of the substantive requirements regarding stormwater management and erosion and sedimentation control. The substantive requirements related to flood hazard zones is in the zoning ordinance section 307 SFHA requirements and the town code Chapter 10, Floods.

The zoning ordinance provides procedural requirements for obtaining required permits or other approvals regarding land development, following the requirements of state enabling laws as applicable:

Chapter 12 Permits by Staff

1201 Zoning Permit

1202 Certificate of Zoning Compliance

1203 Change of Business/Commercial or Industrial Use of Buildings and Properties

1204 Property Line Adjustment/Lot Division ("Free Split")

1205 Soil Erosion and Sediment Control (SE&SC) Plan

1206 Land Disturbance Permit

Chapter 13 Permits by Commission

1301 Preliminary Concept Plan

1302 Site Plan Application

1303 Special Permit Application

1304 Text Amendment Application

Land Development

“Subdivision Regulations, Town of North Stonington, Connecticut” effective 11/2/15, is a town ordinance provided as a separate document cross referenced by both the town code and zoning ordinance. They “...are intended to insure that land to be subdivided shall be of such character that it can be used for building purposes without danger to health or the public safety; and that proper provision be made for flood control, roads, drainage, utilities, open space, parks, playgrounds, erosion and sedimentation control, and measures that encourage the increased use of solar energy systems and other renewable forms of energy.” The regulation applies to any subdivision of land into three or more parcels, except for those developments related to municipal, conservation or agriculture.

The regulations describe the process for subdivision review and approval, beginning with an optional sketch plan review, the formal application process, required referrals from the IWWC and Health Official, required notifications, and the public hearing process. Section 5 specifies plan requirements including site analysis plan, construction plan, soil erosion and sedimentation control plan and stormwater management plan. Section 6 presents subdivision design standards and Section 7 provides specifications for required improvements including those related to inspection and control. The regulations call for a minimum open space dedication of land amounting to 15% of the total area, or a payment in lieu of land dedication of equal value. If a land dedication is made, no more than 20% of the required amount may be wetland, 100-year floodplain or steep slopes.

Although the regulations include standard 6.9 Protection of Natural and Historic Features, the standard is very general: “Due regard shall be shown for all natural and historic features, such as large trees, watercourses, scenic points, historic spots, and similar community assets, which, if preserved, will add attractiveness and value to the subdivision.” The plan requirements include a detailed inventory of site resources which should allow the Commission to make an informed decision regarding natural and historic resources.

Special Resource Protection

In addition to the aquifer protection and special flood hazard area protection described above, the principle relevant ordinance is the town’s Inland Wetlands and Watercourses Regulations (3/22/12). These regulations regulate the standard 100-foot upland review area, and include the basic requirements in conformance with the state law. In recent years the town has required applicants for various permits to include electronic plan submissions or otherwise provide information allowing the town to accumulate and improve its natural resource database. In the case of the IWW regulations the town requires a list of all wetland boundary markers (flag) with their GPS coordinates, along with reference coordinates on site boundaries, facilitating wetland edge review and incorporation of approved boundaries on the official town wetlands map.

Recommendations

- Revise POCD and Future Land Use Map to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.
- River corridor preservation should be included in any planning along these rivers, especially in the areas south of route 184 and near I-95.
- Acquire or otherwise preserve “Under Utilized Parcels” shown along the Shunock River and the Green Fall River and prioritized for preservation in the PCRL.
- Show or provide reference to town Aquifer Protection Zone on Zoning Map.

5.2.2 Sterling

The Wood River headwaters are in the Pachaug State Forest in southern Sterling. All of the river corridor and most of the watershed is in dedicated open space, principally associated with the state forest. Additional large lots not shown as conservation are in agricultural preservation or public ownership (e.g. large lots south of Bailey Road and east of Porter Pond Road). Residential density is very low overall. Sterling has only one zoning district applicable to the watershed area; it allows residential and non-residential uses and controls development primarily through prohibitions, restrictions and standards. The extensive protection afforded by the Pachaug State Forest in combination with the town's low density requirements for land development should afford a very good level of river resource protection.

Plans

The Sterling 2009 Plan of Conservation and Development provides the following vision for the town:

the residents of Sterling appreciate the general nature and atmosphere that has existed in town that has helped to define the community. However, as internal and external forces pressure this unique balance between the historic development and new development, which, has had a visible impact on the town's historic landscape, the residents have become increasingly concerned about the future and direction of the community. This Plan of Conservation and Development identifies the critical issues that must be faced over the next ten years and beyond to address a vision for Sterling:

Sterling will guide future growth and change to:

- *Protect its quintessential rural character,*
- *Provide business opportunities in order to build a strong economic base, and*
- *Provide infrastructure to enhance the quality of life for its residents.*

To achieve this vision, Sterling will pursue four [sic] guiding objectives:

- *Preserve the historic community character,*
- *Establish efficient Town Villages in Oneco and Sterling Center*
- *Explore developing a municipal campus at the former Sterling Central School*
- *Guide residential growth through appropriate land use controls; and*
- *Guide non-residential development in a [manner] that will encourage economic development.*

The Future Land Use Plan (map) shows no change in development for the southern portion of town where the Wood River and its watershed occurs. The Rural Growth Corridors and Rural Growth Centers depicted on the map all occur in the center of town in the historic villages of Oneco and Sterling along Plainfield Pike (Route 14A) and Sterling Road (Route 14).

The Future Land Use Plan ... provides a graphic representation of the possible future land uses, structural, and other physical concepts discussed in this Plan. Sterling has developed over the past 200 hundred plus years without regulatory guidance. The Town has not created a regulatory environment utilized in most Connecticut Town's (ie. zoning). As Sterling faces may internal and external forces which shape the way that land is developed and utilized they may want to choose to investigate way to influence growth in the community.

Important recommendations of the plan relative to the Wood River watershed include:

- Creation of a Conservation Commission
- Development of an Open Space Plan
- Strengthening regulations protecting wetlands and watercourses
- Evaluate and revise environmental and site development monitoring and inspection procedures
- Explore developing modern land use regulations related to buildable areas, subdivision density, and non-residential uses among others
- Develop design standards for non-residential uses

Zoning

Sterling's Zoning Regulations (1/29/18) specify one basic zoning district for the town, and one overlay district (Age Restricted Housing Overlay District or ARHOD):

The Town of Sterling shall have one primary zoning district and an overlay district, subject to the following provisions. Any use otherwise permissible under state and federal law shall be permissible within the district provided that the other requirements of these regulations are met, except as listed in Section 30 1.2. Different uses, including residential and nonresidential uses, may be combined on a single lot provided that such uses comply with the other requirements of these regulations. Certain uses shall require the submission and approval of a site plan.

Nonresidential uses include commercial and industrial uses. In terms of prohibited uses, "No Camp Trailer or Camper or Mobile Home shall be occupied as a residential unit."

The minimum lot area for all uses is two acres, with a minimum buildable area of 30,000 square feet. Buildable area is defined as:

A contiguous area of a lot within which permitted buildings or other structures may be readily erected, used and maintained, and primary and reserved septic systems, domestic water, and personal open space and recreation areas may be readily supported, due to favorable soil, groundwater, and other natural characteristics.

Section 4.2 of the regulations provides detail on natural resources considered unbuildable, including wetlands and floodplains.

A two unit dwelling (duplex unit) is allowed, but the minimum lot area is then four acres.

There shall be no restriction on the number of nonresidential buildings or uses that may be established on any lot, provided that all of the other applicable requirements of these Regulations are met.

In addition to dimensional standards such as minimum setbacks, the ordinance specifies maximum lot coverage for buildings of 10% for residential and 40% for other uses. Maximum lot coverage by impervious surfaces is specified as 20% for residential and 60% for non-residential uses.

Use regulations include standards for septic system and well separation (75-feet), lighting, and excavations (see Appendix A discussion below).

All development requires a zoning permit, and where applicable an Inland Wetland and Watercourses permit. Site plans:

... shall be drawn to scale and shall show: (i) the total area of the lot and the area of each and every accessway, inland wetland and watercourse; (ii) the amount of street frontage; (iii) the locations of all existing and proposed buildings, structures, wells and subsurface sewage disposal systems; and (iv) the distances of all proposed wells and subsurface sewage disposal systems from all property boundaries.

The PZC and may require site plan preparation by a professional land surveyor and/or a professional engineer.

Appendix A of the zoning regulations includes additional requirements regarding land excavation proposals, setting out the requirements for an Excavation Permit. This appendix to the zoning regulations incorporates the town code Excavation Ordinance also known as the Excavation Regulations (9/18/1999). The Excavation Permit application requirements and standards for review and approval are provided. Pursuant to section 6.03 Excavations, the regulations in Appendix A general apply to excavations of 500 cubic yards of material or more per year, and any land disturbance over one-half acre. Certain activities do not require an Excavation Permit if a Soil Erosion and Sediment Control Plan (SESCP) for the activity is submitted and approved by the Zoning Enforcement Officer. Projects requiring an Excavation Permit are also required to submit a SESCO for review and approval in accordance with Appendix A regulations. Inspection and enforcement are also included in these regulations. The town code (p. 15) also has an ordinance - Sand or Gravel Pits and Quarries (7/26/64) which allows such operations if they do not diminish surrounding land / property values, "... assure adequate surface gravity, drainage after such removal..." and further indicates the board of Selectmen may require a "Development Plan" be filed. Approval for such land use would presumably fall under the zoning regulations, including the provisions of Appendix A specifically.

Note the town ordinances still include "An Ordinance Establishing Minimum Land Use Regulations which went into effect in 2006"; it set a minimum buildable area of 50,000 square feet per lot, but this ordinance expired in 2011.

Land Development

Sterling's Subdivision Regulations (3/23/2010) include procedures for subdivision of land, and requirements related to site plans, soil erosion and sediment control plan, special flood hazard areas, open space dedication, design and construction standards, potable water and sanitary wastewater disposal.

The PZC is to render approval or disapproval of subdivision proposals in consideration of a number of factors including impacts to water supplies, flood hazard areas, and

Proper provision shall be made for the conservation of natural and cultural resources and

the preservation of open space, stream belts, agricultural lands and recreation areas as identified in the Town Plan of Development and the Sterling Town Ordinances, as amended;

Proper provision shall be made to control soil erosion and sedimentation and to prevent the pollution of wetlands, watercourses, and water bodies; ...

Note these subdivision regulations reference a minimum buildable area of 50,000 s.f., which appears to be superseded by the current zoning regulations which specify 30,000 square feet as the minimum buildable area.

Special Resource Protection

The Town of Sterling Ordinances and Regulations May 1796 through August 13, 2014 (revised 12/17/14) include a number that relate to excavation such as sand and gravel mining, flood hazard areas, sewage disposal and erosion control. It is important to review the entire code relative to specific resources or standards because these town ordinances are presented in chronological order, and include ordinances that have expired or been superseded as noted above.

Inland Wetland and Watercourses

The most relevant regulations for protection of the Wood River watershed are the town's Inland wetland and Watercourses Regulations (March 2012). The ordinance follows the requirements of the state act and regulates activities in wetlands, watercourses, and the standard 100-foot upland review area. The regulations include a 200-foot upland review area on either side of the Moosup River (outside the study area).

Sewage Disposal

The town code (p. 24) includes a Sewage Disposal Ordinance (8/18/1970) that requires approval for new septic systems by the Director of Health or their designated Town Sanitary Inspector in accordance with state health code requirements. Note that town ordinances related to sewers apply to an area outside the Wood-Pawcatuck Watershed.

Recommendations

- Revise POCD and Future Land Use Map to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.
- Evaluate potentially developable parcels in the Wood River watershed for potential impacts from allowed non-residential uses.
- Implement POCD recommendations to establish a Conservation Commission and to update land use regulations.

5.2.3 Stonington

The Pawcatuck River forms Stonington's eastern boundary with Westerly; the river centerline forming both the town boundary and state boundary for most of its length. The river corridor and watershed in Stonington is almost entirely within the Village of Pawcatuck (which includes Clarks Village south of the railroad). South of the village the river corridor and watershed narrows to Pawcatuck Point as the river enters Little Narragansett Bay. The southern half of the Pawcatuck River in Stonington is intertidal and lies within the Coastal Management Area. Shellfish beds underlie this southernmost reach of the Pawcatuck River. The Village of Pawcatuck is largely comprised of older commercial and residential properties on small lots, in keeping with the historic roots of this village as a nexus of road, rail, river and sea transportation. The historic center of downtown Pawcatuck is included on the National Register of Historic Places.

Commercial properties and zoning dominate the Route 2 corridor north of the Route 78 interchange, but the river corridor remains largely wooded there. The historic downtown area of Pawtucket contains relatively dense residential use with mixed commercial uses along the waterfront. Downstream of the West Broad Street (Route 1) river crossing the land uses are predominantly residential with lot size increasing southward towards Pawtucket Point. Residential docks and marinas occur throughout this southern reach. There appears to be little opportunity for new development along the river corridor south of Route 78. The town POCD, zoning, aquifer protection, wetland, flood hazard and development regulations all serve to protect and preserve the Pawcatuck River corridor and watershed in its present condition.

Plans

The "Town of Stonington 2015 Plan of Conservation & Development" (6/30/15) states three guiding principles: providing for sustainable development, strengthening existing villages, and promoting low impact commercial and residential approaches. A low projected population growth rate suggests a slow rate of growth and low development pressure. A community questionnaire conducted to help guide the plan in 2013 showed strong public support for open space and recreation:

Things people indicated they would like to see more of:

- *Bicycle and walking trails (89%)*
- *Open space and nature preserves (79%)*
- *Waterfront public access (78%)*
- *Park and recreation facilities (77%)*
- *Development with more open space (73%)*

Respondents also indicated their highest priority for the town was natural resource and open space preservation:

When asked to score 10 issues in terms of their importance in the Town of Stonington, respondents indicated the following (1 = lowest score, 10 = highest score):

- *Protection of natural resources and open space preservation (7.45)*
- *Enhancement the school system (6.70)*
- *Maintenance of local roads and utility infrastructure (6.48)*
- *Expansion of parks / recreational / walking paths / trails / sidewalks (6.30)*

- *Revitalization of existing village areas and filling current commercial vacancies (5.87)*
- *Protection of historic sites and buildings (5.75)*
- *Protection and enhancement of agriculture (5.15)*
- *Promotion of new commercial development (4.41)*
- *Expansion of public transportation opportunities (3.61)*
- *Promotion of affordable housing (3.31)*

The plan includes a major focus on coastal resources because most of Stonington’s developed areas are along the coast and tidal rivers. As part of the town’s approach to coastal management,

The Town of Stonington has three separate Harbor Management Commissions. The Pawcatuck, Stonington and Mystic Harbor Management Commissions are responsible for preparing and implementing plans which manage these public resources. There is not an active Pawcatuck Harbor Management Plan as draft plans have been rejected by voters several times.

Section 3.1 Protect and Restore Coastal Resources states:

The identified wetlands, floodplains and adjoining uplands need to be protected through restrictions on new building with construction standards, setbacks and buffering so as to provide a margin from storm induced wave action, septic infiltration, increased flooding and more intense rain and wind events.

The plan’s recommendations for protection coastal resources sets as an initial goal the adoption of a Harbor Management Plan for the Pawcatuck River. Another relevant recommendation is “...to ensure that all Planning and Zoning development proposals shall address provisions for public access to the coast, its resources and recreational opportunities.” Chapter 3 of the POCD includes many recommendations related to climate change and sea level rise.

POCD Chapter 4 Agriculture promotes the preservation of agriculture and shellfish beds, relevant in the southernmost reach of the Pawcatuck River.

Chapter 5 Natural Resources has a primary emphasis on the protection of water resources including surface waters, wetlands, and groundwater. Section 5.1 discusses water quality, noting the southern portions of the Pawtucket River that do not meet water quality criteria and where shellfish restrictions apply. The river and its watershed are shown as areas of high groundwater availability, and the northern portion of the watershed is shown within the town’s Aquifer Protection Zone. The plan’s recommendations regarding natural resource protection include a number that promote LID practices and various efforts to reduce non-point sources of pollution including stormwater management and public education. Additional recommendations in this chapter include:

- *Address the recommendations in CTDEEP’s Pawcatuck River Watershed Bacteria TMDL Report. (5.1.15)*
- *Create a Watershed Plan to address stormwater management in the Town’s various drainage basins. (5.1.16)*
- *Require vegetative buffers, swales and other appropriate drainage diversion and minimi-*

*zation methods to wetland and watercourses to filter pollutants from stormwater runoff.
(5.2.1)*

Chapter 6 Open Space inventories different types of open space and notes the potential to develop agricultural parcels preserved under the state's PA-490 program (two sizeable parcels along the Pawcatuck corridor are shown as PA-490 parcels). Chapter 6 notes:

Subdivision Regulations have been revised to ensure that either open space is part of every residential development or a fee equal to 10% of the parcel value is collected for the purpose of open space acquisition elsewhere. A proposal to increase the open space set-aside from 15% to 20% of the development area was not endorsed by the Planning and Zoning Commission, but the Commission has been requiring easements over natural resource areas during development application approvals.

Detailed recommendations regarding open space acquisition and land development regulations are provided, however most appear to have limited application in the Pawcatuck River corridor except to the extent it promotes acquisition of open space in important corridors / greenways, recommends a town (municipal) land trust, and recommends application for CTDEEP Greenway designation for selected and planned greenways. The POCD cites the 2007 Open Space Plan, and calls for its "maintenance". That 2007 Open Space Plan recommended the town "develop regulations that require open space considerations during redevelopment along rivers, streams, and watersheds."

Chapter 7 of the POCD, Scenic and Historic Resources, designates the entire Pawcatuck River shoreline south of Route 1 as a scenic area. The plan shows the Mechanic Street National Register Historic District, three National Register Sites and five historic mill sites along the river. The plan recommends a number of actions which might help to preserve the character of the historic shoreline of the Pawcatuck River including greater use of the Architectural Design Review Board and preserving public views to the water. The plan promotes "... adaptive re-use of the Town's mill buildings and other underutilized historic commercial buildings through regulatory incentives."

The POCD focuses on Villages in Chapter 8, promoting preservation of the historic character of Pawcatuck Village, encouraging economically viable mixed uses, and balancing the needs of updating stormwater management facilities with the historic resources. The plan calls for new, more detailed village plans and greater involvement of the Architectural Design Review Board.

Chapter 10 Commercial and Industrial Development identifies Pawcatuck village as a priority area for economic redevelopment:

The POCD questionnaire showed that there is overall desire, need and opportunity for economic development in Pawcatuck and is the priority area for economic development in Stonington. There are many opportunities for reuse and re-development including the Mechanic Street mills and properties near the intersection of Rt. 2 and Rt. 1. Pawcatuck has very little vacant land in the village and will require private investment in the existing downtown area properties.

There are no major regulatory obstacles to development in the village of Pawcatuck with

conducive zoning, parking and infrastructure.

The plan cites a number of downtown restoration / rehabilitation accomplishments but notes:

The main challenges in downtown Pawcatuck today include the lack of interest in investment in commercial properties for lease and deferred maintenance on key commercial buildings in the village.

The Route 2 interchange with I-95 is an economic growth and development center located along the Pawcatuck River north of Bridge Street. The plan states:

The 2004 recommendation to create a new Highway Interchange Zone (HI-60) specifically at Exit 92 to encourage more economic development has been completed. After the change in zoning, new commercial buildings were completed in the Pawcatuck Farms commercial complex, including a new Stop & Shop supermarket, bank and fast-food restaurant. Also constructed over the past 10 years were a new La Quinta hotel and Tractor Supply retail store. Additional buildings are planned as part of the approved but un-built Liberty Crossing commercial complex. This development was approved in 2006 and included two large national retailers.

Additional commercial development continues to be appropriate for the Exit 92 highway interchange area. There are a number of planned and permitted projects and pads that are shovel ready but lack funding due to the change in the economy. At the southern end of the Highway Interchange (HI-60) zone, the former Maple Breeze Park property was foreclosed and is available for development. Due to market conditions, the biggest challenge has been attracting new businesses to the area.

There are no major zoning impediments to development in this area of Pawcatuck, but new development must continue to meet environmental and regulatory constraints to protect groundwater resources in this area. The Town needs to work with property owners to find a good balance between the business uses and the sensitive groundwater and other natural resources in this area, especially in the Alice Court area.

Specific economic development recommendations relevant to the Pawcatuck River are to:

- *Encourage re-use of the mills and other underutilized commercial and industrial sites. (10.2.1)*
- *Encourage flexibility and creative adaptations regarding some flood hazard requirements in historic zones, specifically for historic structures. (10.2.2)*
- *Guide development to Exit 92 and Village of Pawcatuck. (10.2.4)*
- *Create a Heritage Mill District (HM) zone for historic mill sites. (10.2.10)*
- *Participate in the creation of a regional tourism master plan to identify current and potential visitor attractions/amenities/experiences. (10.4.3)*
- *Develop ways to make tourist attractions/ destinations more connected/integrated and more easily navigable via different forms of transportation, including bikes, sidewalks, public transportation, water taxi, etc. (10.4.4)*

Chapters 11 and 12 of the POCD describe municipal services and facilities and utilities, respec-

tively. For the Pawcatuck River, the most important facilities relate to water and sewer service. Public water service is provided throughout most of the watershed area by the Westerly Water Department. The Town of Stonington Water Pollution Control Authority (WPCA) manages the Sewer Service District covering the Pawcatuck River watershed from River Road north to the town boundary with North Stonington. Sewer service is available in all but the southernmost portion of the District. The Pawcatuck Water Pollution Control Facility is west of Hall Cove near the river. “The Pawcatuck WPCF was designed to treat an average wastewater flow of 1.3 MGD, and projected average flow for year 2025 is 0.94 MGD.”

Transportation and Mobility (Chapter 13) of the plan includes a number of recommendations to improve pedestrian and bicycle access in the Pawcatuck River corridor. It also recommends creating “... a town-wide connected greenway trail plan.” and improving pedestrian access to Westerly.

Chapter 14 Sustainability and Resiliency remarks on the importance of protecting coastal areas (particularly) from the effects of rising sea levels and flooding events:

- *Continue to review and improve hazard mitigation plans for recurring events, such as flooding as well as the threat of sea level rise. (14.6.1)*
- *Pursue accreditation of the Mechanic Street Flood Control Barrier. (14.6.3)*

POCD Chapter 15 Future Land Use presents Stonington’s vision for the future with respect to land use. Within the Pawcatuck River corridor and watershed, the Future Land Use Map reflects existing land uses for the most part. The downtown village area and lands southward reflect current uses. Between the downtown village area and Route 78 the plan depicts the existing residential south of West Vine Street, and Managed Open Space to the north (West Vine Street School and St. Michaels New Cemetery). North of Route 78 the Future Land Use Map shows Highway Interchange land use. New development or redevelopment in this Highway Interchange area appears to have the most potential to affect land uses along the Pawcatuck River corridor in Stonington. The plan describes the Highway Interchange area intent to:

- *Focus on larger scale commercial development near highway interchanges and be*
- *Sensitive to environmental resources, including groundwater resources, traffic impacts and community character*

Zoning

The Town of Stonington Zoning Regulations (2/1/18) are provided as a stand-alone document by the Planning Department. The town’s Zoning Map Atlas (9/19/17) shows zoning districts in the Pawcatuck River corridor (from north to south):

- Commercial Highway Interchange HI-60 from the town line with North Stonington south to Route 78,
- Greenbelt Residential GBR 130 from Route 78 south to West Vine Street,
- Residential RH-10 from West Vine Street south to the Pawtucket Village District, with an Industrial Heritage Re-Use District at the old mill site,
- Pawtucket Village (PV-5) Commercial District in the historic downtown area,
- A Heritage Mill District between the River and Mechanic Street south of downtown, and

- Several residential districts including Residential Single Family RA15 in Clarks Village, Rural Residential RR80 and Residential Coastal RC-120 elsewhere along the riverfront, with three small areas zoned Commercial MC-80 along this coastal waterfront where existing marinas occur.

These zoning districts promote preservation of the existing Pawcatuck River corridor and watershed land uses for the most part. Continued development in the Highway Interchange Commercial District poses the greatest potential for land use change in the vicinity of the river corridor.

Section 4.9 Highway Interchange Zone (HI-60) of the zoning regulations provides the following description of this zone:

This zone encourages the development of high quality commercial office, retail, hotel, light industrial development, and age-restricted housing surrounding the interchanges of Interstate-95 with Routes 2, 49, and 78. It promotes land use which is compatible with the environmental conditions of the area, in particular, underlying aquifers and adjacent water bodies.

Further, section 4.9.4.7 requires:

Where development abuts the Pawcatuck River, a 100 foot noninfringement area shall be provided. Such non-infringement area shall remain undisturbed with the exception of any public trails, stormwater detention/retention ponds and/or wetland plantings required to renovate stormwater before entering the river.

Section 4.11 Pawcatuck Village (PV-5) describes the zone:

This zone provides opportunities for village-scale, mixed use development in the Downtown Pawcatuck area that is sensitive to historic resources, minimizes impervious surfaces and maximizes green spaces and buffers to the extent feasible, in accordance with Section 6.4 when applicable. Public access to the Pawcatuck River is desired, especially as a Riverwalk.

Article VII Special Regulations, establishes several overlay districts of importance to the Pawcatuck River corridor and watershed. Section 7.2 Groundwater Protection Overlay District (GPOD) is intended to:

protect and preserve groundwater quality within stratified drift aquifers which are existing or potential public drinking water supplies, to protect the public health, safety and welfare through the preservation of the Town's major groundwater resources to insure a future supply of safe and healthy drinking water for the Town of Stonington and its residents.

The mapped GPOD includes all of the river corridor and most of the watershed north of the village, including all the HI-60 zone. The associated regulations prohibit a number of land uses known to contribute to groundwater contamination such as certain automotive – related uses (service stations) and others where chemicals are routinely handled or transported. The regula-

tion requires a Groundwater Protection Permit be issued by the PZC for any new development including subdivisions. Single family and duplex residences are generally exempt from this regulation. Performance and design standards are set in section 7.2.7, including those related to stormwater management.

Section 7.3 Coastal Area Management Overlay District (CAMOD or simply CAM area) includes the coastal flood zone identified by FEMA, all areas within 1,000-feet of the mean high water mark of coastal waters, and all areas within 1,000-feet of all tidal wetlands. The CAM area covers all of the Pawcatuck River corridor, and much of the watershed, south of Prospect Street. The CAMOD regulations provide additional requirements for development consistent with the state and federal requirements pursuant to the federal Coastal Zone Management Act.

Section 7.6 Erosion and Sedimentation Control Standards requires:

A soil erosion and sediment control plan shall be submitted with any application for development when the disturbed area of such development is cumulatively more than one-half (½) acre.

This section sets plan requirements, including conformance with the state guidelines, and describes the process for plan certification (approval). Inspection and enforcement measures are specified.

Section 7.7 of the zoning regulations establishes the Flood Hazard Overlay District (FHOD). This section provides for town compliance with the NFIP. The FHOD provides limitations to new development in a number of locations along the river, in particular some of the HI-60 zoned land north of Route 78 and most of the shorefront from Clarks Village south.

Section 7.8 Residential Use Growth Management regulates development proposals of five residential units or more, in addition to other zoning and subdivision regulations (excluding elderly and low-income housing). It provides a limit on the number of residential building permits that can be issued in a given year.

The zoning regulations provide detailed standards for all districts, including standards related to renewable energy systems (7.22).

Article VII Administration and Enforcement sets the procedures for land development permitting including the process for subdivision review. Requirements for site plans, impact statements, public hearings and appeals are included in this Article.

Land Development

Stonington's subdivision regulations (Regulations Providing for Standards of Subdivision Development for The Town of Stonington, Connecticut, 8/8/16)

have been developed to be used in concert with the following land use regulations and documents, as amended:

1. Town of Stonington Zoning Regulations. The Zoning Regulations, along with the Town's Zoning Map Atlas, regulate land uses and various bulk requirements in different zoning

districts. The Zoning Regulations establish minimum lot sizes and other such requirements necessary for the design of a subdivision plan.

2. Town of Stonington Technical Standards of Land Development and Road Construction. This document provides many of the details and specific standards for road development, drainage design, utilities and other elements of subdivision design.

3. Town of Stonington Plan of Conservation and Development. This planning document provides goals and strategies for the long range development of the Town, including land use policies and recommended layouts of transportation networks.

4. Town of Stonington Open Space Plan. This planning document, which has been adopted as part of the Plan of Conservation and Development, provides goals and strategies for the preservation of open space, including recommended areas for conservation.

The regulations apply to subdivision of land into three lots or more, exclusive of those for agricultural, conservation or municipal purposes. The subdivision application process and standards are set out, including reference to required conformance to the Technical Standards for Land Development and Road Construction (3/21/11, authorized under separate ordinance effective 10/10/11). Requirements related to stormwater management, erosion and sedimentation control, water supply, sanitation, rare species/habitat and others related to natural and cultural resources are specified.

Subdivisions shall be designed according to the following principles:

5.1.1 To make best use of the natural terrain and preserve natural features including substantial trees, woods, rock outcroppings, views and vistas, wetlands and watercourses.

5.1.2 To preserve historic and archaeological features.

The subdivision regulations and associated technical standards are comprehensive and protective of natural resources, historic/cultural resources, and generally the ORVs associated with Stonington's shoreline along the Pawcatuck River. Very few parcels along the corridor appear available for new development that would change the character or resource values associated with the river corridor. This appears true of the watershed area as well, although new development in the watershed in the Highway Interchange zone is expected.

Additional resource protection is provided by the Architectural Design Review Board (ADRB) and associated "Town of Stonington Design Review Guidelines" (2009).

ADRB review is required for the following development proposals submitted to the Planning and Zoning Commission (ZR Section 2.15.3):

- New commercial, institutional, industrial, multi-family residential or mixed-use construction for which Planning & Zoning Commission site plan or special use permit approval is required.*
- Exterior changes to existing commercial, institutional, multi-family or mixed-use structures, defined as building additions, partial demolitions or replacement of materials comprising 25% or more of a structure's exterior façade.*
- Special Detached Signs (ZR Section 7.12.7.4) and Multi-Tenant Signage Programs (ZR Section 7.12.8).*

ADRB provides advisory opinions to the PZC for the developments noted above; their guidelines identify two districts in the Pawcatuck River corridor: the Exit 92 Interchange Zone, and Down-

town Pawcatuck. The design guidelines provide general aesthetic visions for these two districts. The Downtown Pawcatuck vision is essentially one of preserving the village character including historic building facades and streetscapes. The vision for the Exit 92 District includes:

Building designs and landscape plans that take the rough edge off commercial strip development, and foster a style of architecture that is both sensitive to and suggestive of Stonington's historic villages.

Special Resource Protection

Stonington's zoning and land development ordinances mentioned above include resource protection related to floodplains, aquifers, water supply, stormwater, erosion and sedimentation control, wetlands and wastewater disposal. In addition, the town has related regulations specifically oriented towards aquifer protection, inland wetlands and watercourses, and septic systems.

Aquifer Protection

Stonington's Aquifer Protection Area Regulations (5/12/05) are administered by the PZC as the designated Aquifer Protection Agency. The regulations specify delineation of aquifer protection areas, prohibited activities, permit application requirements, and standards for approval. The regulations require new development use best management practices for groundwater protection. As noted previously these regulations are particularly relevant to new development in the HI-60 zone north of Route 78.

Inland Wetlands & Watercourses

Stonington's Inland Wetland and Watercourse Regulations (10/5/2006) establish the Inland Wetlands and Watercourses Commission (IWWC) to administer and enforce the regulations which follow the state law's requirements. These regulations regulate the standard 100-foot upland review area but the IWWC may also regulate other activities outside the standard regulated areas if it determines the activity is likely to impact / affect wetlands or watercourses. In addition to standard permit procedures and review criteria, section 10.7 Conservation Easements and Non-encroachment Lines defines buffer areas to provide various conservation functions such as habitat protection, surface water and/or groundwater protection, recreation, education, erosion prevention and flood protection. "An applicant may propose a conservation easement and/or nonencroachment lines as a "management practice" to accomplish the purposes above described. In all cases where the applicant proposes nonencroachment lines or conservation easements, limits of a buffer or setback shall be determined on an individual basis." The regulations list a number of factors to consider in determining such setbacks or buffers.

Flood and Erosion Control Board

The town ordinance establishing the Stonington Flood and Erosion Control Board provides the regulations required for the town to comply with state and federal regulations for management of municipal stormwater systems.

Pawcatuck River Harbor Management

Pawcatuck River Harbor Management Commission was established by local ordinance to "...develop, adopt and implement a harbor management plan for the Connecticut side of the Pawcatuck River Harbor." The jurisdictional area is the Pawcatuck River extending from Route 1 south

to buoy 19 and across to Pawcatuck Point, and landward to the mean high water mark. As noted previously, a harbor management plan has not been adopted at this time.

Septic Systems

The town is part of the Ledge Light Health District. Ledge Light provides permitting review and approval for onsite septic systems in accordance with state law. Most of the Pawcatuck River corridor and watershed is within the existing sewer service area, but individual septic systems are used outside the service area, generally south of Clarks Village.

Recommendations

- Revise POCD and Future Land Use Map to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.

5.2.4 Voluntown

A segment of Wood River is located in northeastern Voluntown and the headwater segment of Green Fall River is in southeastern Voluntown. Both rivers' watershed areas in Voluntown are almost entirely comprised of dedicated open space (Pachaug State Forest); the remainder is mostly undeveloped, low density residential and agricultural use. Dedicated open space, low density residential zoning and town regulations afford an excellent level of protection for the rivers and their ORVs.

Plans

Voluntown's Plan of Conservation & Development (2010) stated goals include:

- *Retain Voluntown's rural character throughout as much of the town as possible.*
- *Protect the natural resources of Voluntown, particularly the quality of surface and ground waters.*
- *Maintain a safe, attractive, and socially sound living environment for present and future residents of all ages.*

While Voluntown's POCD references a minimum lot size of 120,000 s.f. throughout the Rural District, it also indicates "This requirement could be reduced in various areas of town." (POCD 2010, p. 29). The current zoning in fact specifies 80,000 s.f. as the minimum lot size in the Rural District (see below). Voluntown's Future Land Use map indicates all of the lands within the study rivers' watersheds should remain in state forest.

Zoning

Voluntown's zoning regulations are cited as section 4 of the town code, but are provided as a separate document (Zoning Regulations, March 2012). Section 2 of these zoning regulations provides definitions for key terms, including:

2.5 Buildable Area: Land area on a parcel exclusive of: wetland and watercourses; areas within the 1 00-year flood boundary; slopes in excess of 25%; rock or ledge outcrops; rights of ways or easements, and, utility and drainage easements.

2.16 Excavation. (1 / 1/90) The excavation, grading, depositing (7 /1/98), or removal of earth material, including, but not limited to, topsoil, sand, gravel, clay or stone, which involves more than 100 cubic yards of material in a single calendar year, except in connection with (a) a bonafide construction project for which a zoning permit has been issued; (b) a subdivision approved by the Commission; or (c) farming conducted on the same property or adjacent property, provided no such material is sold to another and no more than 400 cubic yards of material is removed in any one (1) calendar year.

All of the land within the subject river watersheds is shown as Rural District, State Forest, or Water on the zoning map. The Rural District is defined in section 4.1.2:

Rural District: Most of the Town is included in this district, which is intended to preserve as much of the Town as possible in a low density settlement pattern. This is intended both to retain the rural character of the Town and to minimize the need for extending

public facilities and services throughout the entire Town.

Section 6.1 defines the allowed uses in the Rural District: single family and two-family residences, agriculture, forestry, religious and government institutions, public utilities, home businesses, kennels, horse riding/training/boarding, family home day care, and cemeteries.

Section 6.2 lists uses requiring a special exception pursuant to section 9. These uses include automotive facilities, hotels, campgrounds, sand and gravel extraction/processing, and telecommunications towers.

Section 6.3 specifies a minimum lot size of 80,000 s.f. per residential unit or other use, with a minimum of 30,000 s.f. of developable land (140,000 s.f. for a two family dwelling with at least 50,000 s.f. of developable land). Requirements for the building / septic system envelop within the developable land area are also specified.

Section 8.3 lists prohibited uses including junkyards and refuse disposal areas (except the town's designated facility).

Section 8.4, Uses near water specifies a minimum setback of 25-feet for buildings and 75-feet for septic systems from the edge of any watercourse, waterbody or wetland as measured from the edge of high water (flood).

Section 8.5 requires development in Special Flood Hazard Areas to meet the requirements of the town's Flood Damage Prevention Ordinance.

Section 8.8 specifies the requirements for approval of "Wind Energy Conversion Systems", including those related to lot size, height, setbacks and noise.

Land Development

Voluntown's subdivision regulations are cited as section 5 of the town code but are provided as a separate document (Subdivision Regulations, Town of Voluntown, July 2011). These basic regulations govern lot subdivisions into three or more lots. A pre-application sketch plan is recommended, but not required. An E&S control plan is required, and various reports regarding proposed infrastructure. Compliance with other town ordinances (e.g., wetlands, flood zones) is required. Basic design standards are set forth, including a minimum 50-foot subdivision road right-of-way.

Section 7 includes requirements for reservation of open space to be conveyed to the town or subdivision homeowner's association:

The total amount of area to be reserved for open space, parks and playgrounds shall not be less than one (1) acre per twenty (20) lots or a minimum of ten percent (10%) of the gross site, except by mutual agreement between the applicant and the Commission.

The town may require the developer to satisfy this requirement in whole or in part through an in lieu fee payment.

Very little land area in the subject watersheds appears available for further subdivision.

Special Resource Protection

Voluntown's Code of Ordinances incorporates the Zoning Regulations (described above) as section 4, and the town's inland wetlands & watercourses regulations (described below) as section 3. The additional special resource protection ordinances described below relates to flood damage prevention. Note that the current town code, updated in 2014, includes ordinances such as the flood damage prevention ordinance enacted in 1998 (p. 31-37) that was subsequently replaced in its entirety by the current flood damage prevention ordinance enacted in 2011 (p. 66-75). It is therefore important to search for the revisions, amendments, repeals or other changes in the code. The zoning, subdivision and wetland regulations that are part of the town code are provided as separate documents, and appear to represent the current regulations. The town regulations governing the establishment, makeup and function of the town boards and commissions that oversee the zoning, subdivision and wetland regulations appears in the town code, and some have changed over time.

Inland Wetlands and Watercourses

The town's Regulations for The Protection and Preservation of Inland Wetlands and Watercourses are section 3 of the town code of ordinances but are provided as a separate document current as of June 1, 2012. These regulations regulate the standard 100-foot upland review area but the town may increase this upland review area if slopes >15% are adjacent to any area. The regulations indicate the IWWC may also regulate other activities outside the standard regulated areas if it determines the activity is likely to impact / affect wetlands or watercourses.

Flood Damage Prevention Ordinance

The current Flood Damage Prevention Ordinance (Code p. 66 - 75) was enacted in 2011 and it supersedes the older ordinance of the same name (Code p. 31 – 37). This ordinance regulates development in FEMA designated flood hazard areas in compliance with federal and state requirements for participation in the NFIP.

Recommendations

- Revise POCD and Future Land Use Map to show areas proposed for Wild and Scenic River designation.
- Incorporate scenic river guidelines / standards into development regulations.
- Update the town code to eliminate superseded ordinances

REFERENCES

- CGS 8-23. (n.d.). Connecticut General Statutes. *Sec. 8-23. Preparation, amendment or adoption of plan of conservation and development*. Connecticut General Assembly.
- CT. (2018, April). Retrieved from https://www.cga.ct.gov/2015/pub/chap_440.htm#sec_22a-38
- DEEP. (2018, April). *Endangered, Threatened and Special Concern Species in Connecticut*. Retrieved from CT Department of Energy & Environmental Protection: http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323486&deepNav_GID=1628
- DEEP. (2018, April). *Wastewater Discharges (Fact Sheet)*. Retrieved from CT Department of Energy & Environmental Protection: http://www.ct.gov/deep/cwp/view.asp?a=2709&q=324208&deepNav_GID=1643
- Dillingham, T. P. (1992). • *Dillingham, T. P., Abrams, R., Desbonnet, A., and J.M. Willis. The Pawcatuck River Estuary and Little Narragansett Bay: An Interstate Management Plan*. National Oceanic and Atmospheric Administration.
- 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>
- NIT. (2018). Retrieved from <http://narragansettindiannation.org/departments/community-planning-and-natural-resources/>
- NIT. (2018, April). *Community Planning and Natural Resources*. Retrieved from The Narragansett Indian Tribe: <http://narragansettindiannation.org/departments/community-planning-and-natural-resources/>
- NIT. (2018, April). *Preservation*. Retrieved from The Narragansett Indian Tribe: <http://narragansettindiannation.org/history/historic-preservation/>
- NOAA. (2018, April). *Coastal Zone Management Act*. Retrieved from National Oceanic and Atmospheric Administration Office for Coastal Management: <https://coast.noaa.gov/czm/act/>
- 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>

- OPM. (2005). *Compendium of Planning and Zoning Statutes*. Hartford: State of Connecticut Office of Policy Management.
- OPM. (2013). *Conservation and Development Policies Plan 2013 - 2018*. CT Office of Policy and Management.
- OPM. (2018, April). *Connecticut Environmental Policy Act Overview*. Retrieved from CT Office of Policy & Management: http://ct.gov/opm/cwp/view.asp?a=2990&q=383206&opmNav_GID=1807
- OPM. (2018, April). *Municipal Plans of Conservation and Development*. Retrieved from State of CT Office of Policy and Management: http://ct.gov/opm/cwp/view.asp?a=2990&q=389822&opmNav_GIS=1807
- PL 113-291. (2014, 12 19). *Public Law 113 - 291*. Retrieved from Congress.gov: <https://www.congress.gov/113/plaws/publ291/PLAW-113publ291.pdf>
- RIDEM. (2018, April). *Groundwater / Wellhead Protection Programs*. Retrieved from RI Department of Environmental Management: <http://www.dem.ri.gov/programs/water/quality/groundwater/>
- RIDEM. (2018, April). *Onsite Wastewater Treatment Systems (OWTS)*. Retrieved from RI Department of Environmental Management: <http://www.dem.ri.gov/programs/water/owts/>
- RIDSP. (2018). *Local Comprehensive Planning & Planning Assistance*. Retrieved from <http://www.planning.ri.gov/planning-areas/local-comprehensive-planning/>
- RIDSP. (2018, April). *State Guide Plan Overview*. Retrieved from State of RI Department of Administration Division of Statewide Planning: <http://www.planning.ri.gov/publications/overview.php>
- RIGL 45-22.2. (n.d.). RI General Laws Chapter 45-22.2. *Rhode Island Comprehensive Planning and Land Use Act*.
- USFWS. (2018, April). *About the WSR Act*. Retrieved from National Wild and Scenic River System: <https://www.rivers.gov/wsr-act.php>
- WPWSRSC. (2018). *Study Documents*. Retrieved from Wood - Pawcatuck Wild and Scenic Rivers: <http://wpwildrivers.org/study-committee/>

Table 1. Summary of Plans and Ordinances, Wood-Pawcatuck Wild and Scenic Rivers Study

Table 1. Summary of Plans and Ordinances
Wood - Pawcatuck Wild and Scenic Rivers Study

Town	Rivers ¹	Comprehensive Plans (RI) and Plan of Conservation and Development (CT)		Future Land Use Plan / Map Protection of River Values ³			Comments
		Plan Date & Status ²		Corridors	Watersheds		
		Adopted Plan	Draft Plan				
Charlestown	P	2006 E	expected 2018	Yes	Yes	2 historic villages	
Exeter	B, QU, W	2011 E		Yes	Yes	village approach	
Hopkinton	A, P, W	2/5/2018		Yes	Yes	WPWSR support	
North Kingstown	Only C (QU) watersheds	8/20/2008 E	July 2016	Not Applicable	Yes		
Richmond	B, P, QU, W	9/20/16 E		Yes	Yes	WPWSR support	
South Kingstown	C, P, QU	1/11/16 E		Yes	Yes		
West Greenwich	QU, W	2008		Yes	Yes	plan not accepted by state	
Westerly	P	11/7/2011 E	expected 2018	Yes	Yes		
North Stonington	GF, P, S	2/12/2013		Yes	Yes	WPWSR support, OS Plan 2013	
Sterling	W	June 2009		Yes	Yes		
Stonington	P	5/7/2015		Yes	Yes	OS Plan 2007	
Voluntown	GF, W	2010		Yes	Yes		

- Notes:
1. A = Ashaway, B = Beaver, C = Chipuxet, GF = Green Fall, P = Pawcatuck
QU = Queen / Usquepaugh, W = Wood, watershed = C and QU watershed only
 2. Date of Town adoption; E = expired
 3. Wild & Scenic River values are free-flowing condition, water quality and
Outstandingly Remarkable Values (ORVs) identified in the study watershed

Table 1. Summary of Plans and Ordinances
Wood - Pawcatuck Wild and Scenic Rivers Study

Town	Source	Date	Zoning Districts ⁴		Cluster	Comments
			Corridors	Watersheds		
Charlestown	Code Ch. 218	1/8/2018	OS, LDR, VO, GWO	OS, LDR, VO, GWO	Yes	VO w/ MDR, C, I
Exeter	Code Ap. A	10/2/2017	OS, LDR, GWO	OS, LDR, GWO, C, MU	Yes	C, MU along Rt. 2 south
Hopkinton	Code Ap. A	12/21/2007	LDR, C, M, GWO	LDR, C, M, GWO	Yes	Also Code Ch 13.5
North Kingstown	Code Ch. 21	7/17/2017	Not Applicable	LDR, C, I, GWO	Yes	
Richmond	Code Ch. 18	1/2/2018	LDR, C, I, GWO	LDR, C, I, GWO, PD	Yes	
South Kingstown	Code Ap. A	2/12/2018	OS, LDR, GRW	OS, LDR, I, C, GWO	Yes	
West Greenwich	Ord. 16 ⁵	5/10/2017	OS, LDR, I	OS, LDR, MDR, HDR, I, C, MU, GWO, HMO	Yes	Wood - OS & LDR, Queen - OS, LDR, I
Westerly	Code Ch. 260	2/26/2018	OS, LDR, MDR, HDR, I C, MU, GWO, HMO	OS, LDR, MDR, HDR, I, C, MU	Yes	River Corridor Overlay is reserved
North Stonington	Indep. Doc. ⁵	11/17/2017	LDR, VO, C, I, GWO	LDR, VO, C, I, GWO	Yes	
Sterling	Indep. Doc. ⁵	1/29/2018	LDR, MU see comments	LDR, MU see comments	Not Explicitly	one primary zone allows various uses if they meet standards and are not prohibited
Stonington	Indep. Doc. ⁵	2/1/2018	LDR, MDR, HDR, C, I, MU, GWO, CAMO	LDR, MDR, HDR, C, I, MU, GWO, CAMO	Yes	Pawtucket Village, Industrial Heritage Re-Use and Heritage Mill Districts along river. Also sep. Aquifer Protection Reg's
Voluntown	Code Sec. 4 ⁵	3/1/2012	OS, LDR	OS, LDR	Not Explicitly	

Notes: 4. Zoning districts generalized to facilitate comparison, see town discussion and Appendix A maps and ordinances for town specific zones. Does not include overlay districts for flood hazards or wetlands. District codes: C = Commercial; GWO = groundwater / aquifer protection overlay; HMO = Hist. Mill overlay I = Industrial LDR / MDR / HDR = Low, Medium, High Density Residential (2+ acre, 1 ac. +/-, and 0.5 ac. or smaller lots, respectively; M = Manufacturing; MU = Mixed Use; OS = Open Space; PD = Planned Development; VO = Village Overlay

Table 1. Summary of Plans and Ordinances
Wood - Pawcatuck Wild and Scenic Rivers Study

Town	Source	Date	Protection of River Values ²		Comments
			Corridors	Watersheds	
Charlestown	Code Ch. 188	1/8/2018	Yes	Yes	requires cluster residential
Exeter	Code Ap. B	10/2/2017	Yes	Yes	TDRs
Hopkinton	Code Ch. 18 ⁵	9/3/2014	Yes	Yes	Also Stormwater and Hazard Mit. Plans
North Kingstown	Code Ap. A	7/17/2017	Not Applicable	Yes	Little opportunity for new development in watershed
Richmond	Code	10/27/2015	Yes	Yes	
South Kingstown	Indep. Doc. ⁵	12/12/2012	Yes	Yes	
West Greenwich	Ord. 4 ⁵	5/18/2015	Yes	Yes	
Westerly	Code Ch. A261	2/26/2018	Yes	Yes	
North Stonington	Indep. Doc. ⁵	11/2/2015	Yes	Yes	
Sterling	Indep. Doc. ⁵	3/23/2010	Yes	Yes	
Stonington	Indep. Doc. ⁵	8/8/2016	Yes	Yes	Also sep. Design Review Guidelines 8/09, Technical Standards 3/21/11
Voluntown	Code Sec. 3 ⁵	7/1/2011	Yes	Yes	

Notes: 5. Published as a separate document from town code.

Table 1. Summary of Plans and Ordinances
Wood - Pawcatuck Wild and Scenic Rivers Study

Special Resource Protection (continued on next page)

Town	Study Rivers	Wetlands & Watercourses	Floodplains	Stormwater	Groundwater	Septic Systems & Sewers	Soil Erosion & Sediment Control
Charlestown		Ch. 174, 188, 210, 218	FHO, Ch. 117	Ch. 188	GWO	S. 11	Ch. 174, Ch 188
Exeter		App. A Sec. 2.5.2, (Ch. 22 Art. IV	App. A Sec. 2.5.2	GWO	App. A Sec. 2.5.2	Ch. 23
Hopkinton		Ap. A Sec. 33	FHO, Ap. A Sec. 33	Ch. 13.5, SWMPP	GWO	WW/MMD Ch. 21	Ch. 13.5
North Kingstown		Ch. 8 Art. IX	FHO, Sec. 21- 188	Ch. 8 Art. IX	GWO, Ch. 8 Art. VII, S. 21-186	Ch. 8 Art. III, VIII	Ch. 8 Art. IX Div II
Richmond		LDSR	FHO, Ch. 18.44	Ch. 8.06	GWO, Ch. 18.7	LDSR	Ch. 15.06
South Kingstown		Ch. 20, 21, LDSR	FHO, Ap. A Sec. 601, Ch. 21	Ch. 20	GWO, Ap. A Sec. 602	WW/MMD, Ch. 19 Art. 2	Ch. 20 Art. 2
West Greenwich		Ord. 1a, 4, 16 Art. VII Sec. 10, Art. IX	Ord. 4, 91	Ord. 4, 90	Ord. 4, 16, 84	Ord. 4, 7	Ord. 4, 79
Westerly	Sec. 260-57, (260- 15E & -56 res)	Ch. 86, 223, 260, A261	FHO, Ch. 127, 260, A261	Ch. 223, 224, 260, A261	GWO Sec. 260- 52, Ch. 251	Ch. 206, 260, A261	Ch. 224, 260-89, A261
North Stonington		IWWC reg.s, LDSR	FHO, Ch. 10, Zoning 307, LDSR	Ch. 10, Zoning 1112, LDSR	GWO APA Reg.s, Zoning 703	Ch. 9 Art. II	Ch. 10, Zoning 1111, LDSR
Sterling		IWWC reg.s, Zoning Ap. A, C, LDSR	Code p. 47, 78, 97, LDSR Sec. 7	Code p. 124, Zoning Ap. A, C, LDSR S. 10	Code p. 124, Zoning 703	Code p. 24, LDSR S. 11	Code p. 97, 124, Zoning, 603, Ap. A, LDSR Sec. 6
Stonington	P.R. Harbor Manag. Com., Zoning 4.9.4.7	IWWC reg.s, Zoning 7.3, LDSR	FHO, Zoning 7.7, LDSR 7.5	Ord. Illicit Disch. ...Zoning 7.13, LDSR 5.7, 5.9, 7.4	GWO, Zoning 7.2, Aquifer Prot. Regs	Zoning 6.6, 7.2, 7.8, 8	Zoning 7.6, LDSR 5.8, 7.6
Voluntown		IWWC reg.s, Zoning 8.4, LDSR	Code p. 66, Zoning 8.5, LDSR 5.4	Road Ord. p. 47, LDSR 4.3, 5.4.3	Zoning 9.5.1, LDSR 3.1.2 (wells)	Zoning 3.2.2, 9.5.1, LDSR 4.3	Zoning 10.4.1, LDSR 4.4

Notes:

Table 1. Summary of Plans and Ordinances
Wood - Pawcatuck Wild and Scenic Rivers Study

Special Resource Protection (cont.)						
Town	Resource Extraction	Solid Waste	Vegetation	Special Habitats	Open Space / Conservation	Historic / Cultural Resources
Charlestown	Ch. 174, 218	Ch. 165, 218	Ch. 163, 188	Ch. 188, 218	Ch. 11, 163, 184, 218	VO, Ch. 188, 218
Exeter	Ch. 30 Art. I, II Ap. A, Ch. 17, Earth Rem. Ord.	Ch. 34	App. A Sec. 2.5.2	App. A Sec. 2.5.2	App. B Sect. 5	App. A Sec. 2.5.2
Hopkinton		Ch. 16	Ch. 13.5	Ch. 13.5	LT, Ch. 19.7, LDSR	Ch. 7, 13.5
North Kingstown	Ch. 16	Ch. 6	Ch. 8 Art. IX, Ch. 17 Art. IV, Ap. A	App. A 16.6.3	Ch. 21 Art. VII, Sec. 21-218	Ch. 21 Art. XIII, Sec. 12-5
Richmond	Ch 15.16	Ch. 8.18	Ch. 18, LDSR	LDSR 13.2.3.1	Ch. 18.38, 18.41, LDSR Art. 4	Ch. 18, LDSR
South Kingstown	Ap. A	Ch. 15	Ch. 18.5, LDSR	Ap. A Sec. 510	LDSR Art. III, V	Ch. 14 Art. 2, HOD, Ap. A Sec 600
West Greenwich	Ord. 16	Ord. 1a, 2, 7, 28, 44, 60, 74	Ord. 4, 16 Art. VII, IX	Ord. 4, 16 Art. IX	Ord. 4, 16 Art. VII, LT, Ord. 67	Ord. 4, 16 Art. VII, IX
Westerly	A261, Temp Measure 4/3/17	Ch. 217	Ch. 128, 260, A261	Sec. 260-84, A261-30	LT, Ch. 30, 260-13, 260 Art. IX	Ch. 137, 260 (-55 res), 260-57, A261
North Stonington	Zoning 202, 1006	Ch. 17	Zoning CH. 10 & 11, LDSR	Zoning 1009.4, 13 J, LDSR 6.6	Ch. 16-7, Zoning 505, LDSR	Zoning 702, 1109, LDSR
Sterling	Code p. 15, 124, Zoning Ap. A	Code p. 30, 75, 106, Zoning 116.14	Code p. 124, Zoning Ap. A, C, LDSR 2.6	Zoning Ap. C	Zoning Ap. C, LDSR Sec. 8	Zoning Ap. B, C, LDSR S. 5
Stonington	Zoning 7.5	Ord. Solid Waste	Zoning 2.16	Zoning 2.16, 8.8, LDSR 7.9	Zoning 6.6.22, LDSR Ch. 8, 10	Zoning 6.6.24, 8.8, LDSR 7.8
Voluntown	Zoning 9.5.7	Recycling Ord. p. 21, 27, Zoning 8.3	LDSR 4.3, 8.1.2	LDSR 8.1.2	LDSR 7.1, 7.3	Zoning 10.2, LDSR 4.3

Notes:

Table 1. Summary of Plans and Ordinances
Wood - Pawcatuck Wild and Scenic Rivers Study

Town	Date	Source Online or Other	Code of Ordinances	Comments
Charlestown	1/8/2018	https://ecode360.com/CH1115		
Exeter	10/2/2017	https://library.municode.com/ri/exeter/codes/code_of_ordinances		
Hopkinton	12/21/2007	https://library.municode.com/ri/hopkinton/codes/code_of_ordinances		
North Kingstown	7/17/2017	https://library.municode.com/ri/north_kingstown/codes/code_of_ordinances		
Richmond	3/6/2018	http://clerkshq.com/default.aspx?clientsite=richmond-ri		
South Kingstown	2/12/2018	https://library.municode.com/ri/south_kingstown/codes/code_of_ordinances		
West Greenwich	undated 2016-2018	https://www.wgtownri.org/town-clerk/pages/ordinances		Each Ord. sep. dated doc.
Westerly	2/26/2018	https://ecode360.com/WME1997		
North Stonington	9/18/2017	https://library.municode.com/ct/north_stonington/codes/code_of_ordinances		
Sterling	8/13/2014	http://www.sterlingct.us/wp-content/uploads/2015/05/Ordinance-Rev-December-17-2014.pdf		
Stonington	undated on town website	http://www.stonington-ct.gov/special-acts-and-local-ordinances		
Voluntown	2014	NA online		

Notes:

Table 1. Summary of Plans and Ordinances
 Wood - Pawcatuck Wild and Scenic Rivers Study

References and Contacts

Town	website	Town Clerk	Town Planner / Planning Department
Charlestown	http://www.charlestownri.org/	(401) 364-1200	(401) 364-1225
Exeter	https://www.town.exeter.ri.us/	(401) 294-3891	(401) 294-2592
Hopkinton	http://www.hopkintonri.org/	(401) 377-7777	(401) 377-7770
North Kingstown	http://www.northkingstown.org/	(401) 268-1551	(401) 268-1572
Richmond	http://www.richmondri.com/	(401) 539-9000 x 9	(401) 539-9000 x 6
South Kingstown	http://www.southkingstownri.com/	(401) 789-9331 x1236	(401) 789-9331 x 1241
West Greenwich	https://www.wgtownri.org/	(401) 392-3800	(401) 392-3800 x 121
Westerly	https://westerlyri.gov/	(401) 348-2508	(401) 348-2562
North Stonington	https://www.northstoningtonct.gov/	(860) 535-2877 x 21	(860) 535-2877 x 26
Sterling	http://www.sterlingct.us/	(860) 564-2657	(860) 564-2275
Stonington	http://www.stonington-ct.gov/	(860) 535-5060	(860) 535-5095
Voluntown	http://www.voluntown.gov/	(860) 376-4089	(860) 376-3867

Notes:

