



## MEMORANDUM

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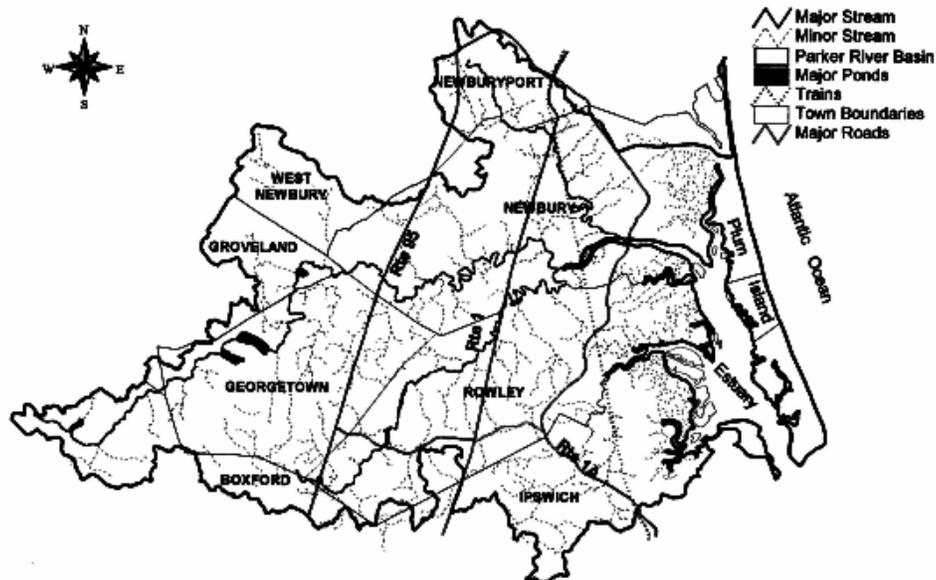
**TO:** Steven Przyjemski  
**FROM:** Scott Horsley and Katie Resnick  
**DATE:** September 22, 2008  
**RE:** Sustaining Wetlands Protection in Georgetown

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The Horsley Witten Group, Inc. (HW) has reviewed the Georgetown Wetlands Protection Bylaw and Regulations, and provides the following description of findings.

### 1.0 Background

According to the Massachusetts Association of Conservation Commission (MACC), there are currently at least 193 Massachusetts towns, or over half of the State's 351 municipalities, that have developed and adopted wetlands protection bylaws. Within the Parker River Watershed (PRW), eight of the nine towns have adopted wetlands protection bylaws (West Newbury being the only municipality without a local bylaw). A map of the PRW is provided below.



Source: Parker River Clean Water Association ([www.parker-river.org](http://www.parker-river.org))

HW compared the Georgetown Wetlands Protection Bylaw with the bylaws for the other seven towns within the PRW. These towns are listed in Table 1. In addition, HW compared the Georgetown Bylaw with the MACC Model Wetlands Protection Bylaw found within the Environmental Handbook for Massachusetts Conservation Commissioners (MACC, 2006). Overall, the Georgetown Bylaw was quite similar to other local area bylaws and relatively consistent with the MACC Model Bylaw, although we believe the Georgetown Wetlands Protection Bylaw could be improved in many sections by strengthening the language.

**Table 1. Towns within the Parker River Watershed and Wetlands Protection Bylaw Adoption Dates**

<b>Towns within the Parker River Watershed</b>	<b>Date Wetlands Protection Bylaw was Adopted</b>
Georgetown	1986 (last amended 2005)
Boxford	1986 (last amended 1998)
Groveland	1995 (last amended 2006)
Ipswich	1990 (last amended 1991)
Newbury	2005
Newburyport	2001
North Andover	1998
Rowley	2004
West Newbury	N/A

Overall, the Georgetown Wetlands Protection Bylaw should be consistent with and supplement the Massachusetts Wetlands Protection Act (WPA), and may not be less stringent than the State statute. The specific areas for consideration are described below.

## **2.0 Review of Georgetown Wetlands Protection Bylaw**

### **2.1 Purpose**

The purpose of the Georgetown Wetlands Protection Bylaw (§ 161-1) reads as follows:

*“The purpose of this chapter is to protect the wetlands, related water resources and adjoining land areas in this municipality by controlling activities deemed by the Conservation Commission likely to have a significant or cumulative effect upon wetland values, including but not limited to the following: public or private water supply, groundwater, flood control, erosion and sedimentation control, storm damage prevention, water pollution, fisheries, shellfish, wildlife habitat, recreation, aesthetics, agriculture and aquaculture values (collectively, the ‘wetland values protected by this chapter’).”*

This Section is relatively consistent with the WPA as well as the other PRW local bylaws and the MACC Model Bylaw. HW recommends that the Commission incorporate a few additional wetland values based on recent research associated with climate change and site-specific values in Georgetown including rare species.

*Recommendation #1: Update Wetland Values*

HW recommends that the wetland values be updated to include “rare species habitat including plant and animal species” and “climate change mitigation.”

Since wetlands, including vernal pools, provide critical habitat for both rare plant and animal species, the MACC advises that it is crucial to include “rare species habitat including plant and animal species” as a wetland value within Town bylaws.

Climate change mitigation is another wetland value that is often overlooked, but crucial in today’s environment. A description of climate change impacts to wetlands and climate change mitigation functions of wetlands are included under Recommendation #6 and should be included within the regulations.

The Towns of Newbury and Newburyport also included a “Special Purpose” section within their bylaws which specified “enhanced protection of the Plum Island Barrier Beach.” This sensitive resource area, as well as the State designated Parker River / Essex Bay Area of Critical Environmental Concern (ACEC), which is highlighted within several of the PRW Town bylaws, is not within Georgetown. There are, however, several other State-listed sensitive environmental areas, including numerous potential and certified vernal pools, as well as Priority Habitat and Estimated Habitat for Rare Species as designated by the Massachusetts Natural Heritage and Endangered Species Program (NHESP). These resource areas and protection thereof should be highlighted within the bylaw by including “rare species habitat including plant and animal species” as a wetland value, although a “Special Purpose” section may not be necessary.

## 2.2 Jurisdiction

The Georgetown Wetlands Protection Bylaw maintains jurisdiction over the following resource areas (§ 161-2):

*“Within 100 feet of any freshwater wetland, marsh, wet meadow, bog or swamp; within 100 feet of any bank or flat; any lake, river, pond, stream, or estuary; any land under said waters; or within 100 feet of any land subject to flooding or inundation by groundwater or surface water; and within 200 feet of any river, perennial stream, brook or creek.”*

*Recommendation #2: Inclusion of vernal pools and vernal pool habitat*

As noted earlier, there are several vernal pools, both certified and not, and associated vernal pool habitat within Georgetown. Under the current Georgetown Wetlands Protection Bylaw, vernal pools are not listed specifically and uniquely as a resource area under jurisdiction. However, the Georgetown Wetlands Protection Regulations, which were adopted in 2004, do define and provide protection for vernal pools. One of the key areas where local bylaws can strengthen resource protection is by explicitly providing “protection for vernal pools and isolated kettle holes that do not meet the size thresholds for protection under the Wetlands Protection Act and do not border on other water bodies” (IRWA, 2006). HW recommends that the Georgetown Wetlands Protection Bylaw be more explicit in its protection of this valuable aquatic resource and include vernal pools and 100 feet within vernal pools among the list of jurisdictional resource areas.

*Recommendation #3: Inclusion of the statement, “Said resource areas shall be protected whether or not they border surface waters.”*

The MACC Wetlands Protection Model Bylaw ensures that all wetland resources, whether coastal, adjacent to surface waters or isolated, are protected by including the provision, “Said resource areas shall be protected whether or not they border surface waters” at the end of its jurisdiction section. HW recommends that the Town of Georgetown incorporate a similar provision to reduce confusion among which resources shall be protected.

### 2.3 Exemptions and Exceptions

The current Georgetown Wetlands Protection Bylaw (§ 161-3) provides exceptions for reparation and maintenance of specified public utilities and emergency projects “necessary for the protection of the health or safety of the public.” The bylaw goes on to state under § 161-3 (C): “other than stated in this section, the exceptions provided in the Wetlands Protection Act shall not apply.”

*Recommendation #4: Include all WPA Exemptions*

HW recommends that § 161-3 (C) of the Town Bylaw be removed. The bylaw must include all of the exemptions listed within the WPA. Specifically, the Town of Georgetown should expand the Exemptions and Exceptions section to include agricultural activities defined at 310 CMR 10.04 as potential exemptions. According to Note (5) within the MACC Model Bylaw, the Attorney General interprets state laws encouraging agriculture as pre-empting the field of regulation by local bodies. Therefore, local wetlands bylaws must provide at least the same level of exemption as is provided in the WPA (MACC, 2006).

#### 2.4 Overall Bylaw Recommendations

*Recommendation #5: Consistency with MACC Model Bylaw (updated May 2006)*

The MACC Model Bylaw was produced after years of research. In order to provide the best protection for wetland resources and also be legally sound, HW recommends that the Georgetown Wetlands Protection Bylaw be consistent with the MACC Model Bylaw (updated May 2006). Specifically, the Exemptions, Application and Fees, and Notice and Hearings sections should include the language within the MACC Model Bylaw.

With respect to the Notice and Hearings Section, the MACC Model Bylaw language should be used to ensure that the Georgetown Wetlands Protection Bylaw is legally sound. For example, although the Georgetown Wetlands Protection Bylaw Regulations specify an abutter distance, the current Georgetown Wetlands Protection Bylaw does not. To reduce confusion, a specific abutter notification distance should be included within the Bylaw. Abutter distances within the PRW range from 100 feet to 500 feet. HW recommends that Georgetown maintain the current abutter distance specified within their Regulations of 300 feet. This is also the abutter distance recommended by the MACC. The specific abutter distance language used within the Regulations should be used within the Bylaw. The Definitions section should include at least all the definitions within the MACC Model Bylaw. Other definitions could be included as necessary.

Most importantly, the Georgetown Wetlands Protection Bylaw Regulations should also be updated to be consistent with the Bylaw in all respects.

### **3.0 Review of Georgetown Wetlands Protection Bylaw Regulations**

The following includes specific recommendations for the Georgetown Wetlands Bylaw Regulations.

*Recommendation #6: Rare species considerations should be included under all resource area descriptions as applicable (3.2-3.6) and climate change impacts and mitigation should be included under description of vegetated wetlands (3.2).*

The descriptions of resource areas within the regulations should be updated to include wetlands as valuable habitat for rare species as well as important for climate mitigation.

Since wetlands, including vernal pools, provide critical habitat for both rare plant and animal species, the MACC advises that it is crucial to include “rare species habitat including plant and animal species” as a wetland value within Town bylaws. HW recommends that the Commission determine which rare species depend on Georgetown’s wetland resources and include these species concerns within the description of the resource areas with the regulations, recognizing that new observations of rare species can occur from time to time. An updated list of rare species occurrences by town is maintained by NHESP.

HW recommends that the following language or something similar be included within the description of vegetated wetlands (Section 3.2):

Climate change mitigation is another wetland value that is often overlooked, but crucial in today’s environment. Current climate change scenarios, which predict an increase of 1.8 to 4.0 degrees Celsius (about 3 to 7 degrees Fahrenheit) globally, all point to significant sea level rise and increased storm frequency and intensity which will have detrimental effects on ecosystems, agriculture, human health, water supply, and the economy (IPCC, 2008). It has also been determined that “most of the observed increase in global average temperatures since the mid-20<sup>th</sup> century is very likely due to observed increase in anthropogenic greenhouse gas (e.g., Carbon Dioxide) concentrations” (IPCC, 2007). Inland freshwater wetlands, including vernal pools, are among the most vulnerable ecosystems to climate change, given their limited ability for adaptation (IPCC, 2008). Ironically, wetlands represent important carbon stores and contribute significantly to the global carbon cycle, thereby working directly to mitigate climate change. (Patterson, 1999). Wetlands serve to mitigate climate change in other indirect ways as well, providing flood storage and improving water quality (IPCC, 2008). In summary, it is critical to consider expected climate change impacts to wetlands when providing future protection for the aforementioned wetland values as well as for climate change mitigation.

*Recommendation #7: Stormwater management considerations and calculations to include site-specific conditions within the Parker River Watershed and climate change impacts*

Both the Parker River and Ipswich River have been shown to be threatened by reduced base flows. Current climate change projections estimate that climate change will only exacerbate these conditions. Increased stormwater recharge can help to address these impacts and help to restore natural baseflow conditions. To accomplish this, HW recommends that post-development recharge must equal at least 50% more than pre-development conditions based on PRW status for the purpose of helping to restore reduced baseflows in the river.

Any site containing resource areas under Georgetown wetlands protection jurisdiction should provide stormwater management in the form of BMPs recommended in the Massachusetts Stormwater Handbook that provide infiltration equivalent to the values listed in the table below. Note that exemptions within the stormwater handbook (updated in January, 2008) include single family dwellings and residential subdivisions with four or less dwellings that do not discharge or affect critical areas (as noted in North Andover Bylaw).

<b>Hydrologic Group</b>	<b>Volume to recharge to mimic pre-development conditions</b>	<b>Volume to recharge to exceed pre-development conditions by 50%</b>
A	0.60 inches of runoff	0.90 inches of runoff
B	0.35 inches of runoff	0.53 inches of runoff
C	0.25 inches of runoff	0.38 inches of runoff
D	0.10 inches of runoff	0.15 inches of runoff

*Recommendation #8: Redefine/Modify current definition of Isolated Land Subject to Flooding (ILSF).*

The Town of Georgetown Wetlands Protection Regulations currently define ILSF as “an area, depression, or basin that holds a minimum of twenty-five (25) cubic feet of water...” A minimum threshold should be sought that is more scientifically defensible. In addition to providing recharge for the drinking water supply and pollution prevention, one of the primary reasons for protecting ILSF is because this land has the potential to provide suitable vernal pool habitat (310 CMR §10.57(1)(b)(1)). Therefore, the minimum threshold for ILSF protection should be consistent with a volume which could provide vernal pool habitat during most years. The WPA provides a minimum threshold for ILSF of  $\frac{1}{4}$  ac-ft, or 10,890 cubic feet, which two of the towns in the PRW (Boxford and Ipswich) have adopted. However, this “minimum” volume significantly exceeds the size of many vernal pools currently thriving in Massachusetts.

From discussions with the NHESP, HW was informed by Lisa Plagge, the State Vernal Pool Biologist, that NHESP does not collect information regarding the size of vernal pools that they certify (i.e., CVPs), and thus it would be difficult to determine a reasonable standard for protection of ILSF that would be equated with the minimum volume of water that could serve as viable vernal pool habitat. HW also consulted with Matthew Burne, formerly the NHESP Vernal Pool Biologist and current Land Conservation Coordinator for the Walden Woods Project, who indicated that from his experience, anecdotal evidence suggests that even very small volumes of water, for example, inundated tire ruts, can serve as functioning vernal pool habitat. Mr. Burne suggested that the Town of Sudbury, for instance, provides a “reasonable minimum threshold” for vernal pool habitat. The Town of Sudbury’s minimum threshold for vernal pools is 200 cubic feet of water. However, Sudbury provides a minimum threshold for ILSF at  $\frac{1}{8}$  ac-ft, or 5,445 cubic feet. Although this volume is smaller than the WPA threshold, it does not provide adequate protection for many potential vernal pool habitats.

The MACC also currently recommends a minimum threshold for protection of potential vernal pools as 200 cubic feet of water at some point during most years. To provide adequate protection for potential vernal pool habitat, HW recommends that the Town of Georgetown define the minimum volumetric threshold for ILSF as 200 cubic feet of water.

*Recommendation #9: Maintain minimum 50-foot No Disturbance Zone*

Evidence suggests that natural buffers of at least 50 feet are needed to ensure protection of wetland functions and values, including pollutant removal and wildlife habitat (CWP, 2005; EOR, 2001; Chase et al., 1997; Castelle et al., 1992). Recommended minimum buffer widths vary depending on the type of wetland. If possible, it would be best for the Town of Georgetown to specify minimum buffer widths based on wetland type within the Georgetown Wetlands Protection Regulations. An example of this is provided within the Town of Falmouth's Wetlands Protection Regulations (FWR 10.18; <http://www.falmouthmass.us/agenda.php?depkey=concom&number=1672>). Regardless of the wetland type, HW recommends that no minimum buffer width should be less than 50 feet.

Again, HW feels that it is critical that the Georgetown Wetlands Protection Bylaw and Regulations are consistent with each other. Both documents should be checked thoroughly against one another to ensure that they are in accord.

If you have any questions regarding this memo, please do not hesitate to contact me directly at 508-833-6600 ext. 127 or [shorsley@horsleywitten.com](mailto:shorsley@horsleywitten.com).

## REFERENCES

- Bates, B.C., Z.W. Kundzewicz, S. Wu and J. P. Palutikof, Eds. June, 2008. Climate Change and Water. Technical Paper of the Intergovernmental Panel on Climate Change (IPCC). Secretariat, Geneva, 210 pp.
- Castelle, A., C. Connolly, M. Emers, E. Metz, S. Meyer, M. Witter, S. Mauermann, T. Erickson, S. Cooke. 1992. Wetland Buffers: Use and Effectiveness. Adolfson Associates, Inc. Shorelands and Coastal Zone Management Program, Washington Dept. of Ecology. Publication No. 92-10. Olympia, WA.
- Center for Watershed Protection (CWP). December, 2005. Adapting Watershed Tools to Protect Wetlands. Wetlands and Watersheds Article 3. Prepared for the Office of Wetlands, Oceans and Watersheds, US EPA. Washington, DC. 85 pp.
- Chase, V.P., L.S. Deming, F. Latawiec. 1997. Buffers for Wetlands and Surface Waters: A Guidebook for New Hampshire Municipalities. Audubon Society of New Hampshire.
- Emmons & Olivier Resources (EOR). 2001. Benefits of Wetland Buffers: A Study of Functions, Values and Size. Prepared for: Minnehaha Creek Watershed District, Deephaven, MN.
- Horsley Witten Group, Inc. January, 2003. Draft Watershed Management Plan for the Ipswich River.
- Horsley Witten Group, Inc. June, 2008. Draft Water Balance, Well Pumping, and Streamflow Analysis of the Upper Parker River. 65 pp.
- Intergovernmental Panel on Climate Change (IPCC). November, 2007. Climate Change 2007: Synthesis Report, Summary for Policy Makers. 22 pp.
- Ipswich River Watershed Association (IRWA). May 2006. Waterwise Communities: A Handbook for Municipal Managers within the Ipswich River Watershed. Chapter 10: Non-Zoning Wetlands Bylaw. pp. 34-35.
- Massachusetts Association of Conservation Commissioners (MACC). 2006. Environmental Handbook for Massachusetts Conservation Commissioners, Ninth Edition. Chapter 20. pp. 528-534
- Patterson, J. 1999. Wetlands and climate change. Feasibility investigation of giving credit for conserving wetlands as carbon sinks. Wetlands International Special Publication 1, 35 pp.