



# Ecological Safe Yield Analysis, Upper Parker River

## Parker River Clean Water Association

The Horsley Witten Group, Inc. (HW) was retained by the Parker River Clean Water Association (PRCWA) to assist with an ecological safe yield analysis of the Georgetown Public Water Supply Wells, which are located in the upper Parker River watershed adjacent to the river. The Parker River has experienced significant low flows in recent years in the vicinity of the Georgetown Wells, as observed by the PRCWA Riverways River Instream Flow Stewards (RIFLS).

HW developed a three-pronged approach to help the PRCWA and the Massachusetts Riverways Program investigate this situation. The first step was to evaluate the annual “water budget” in the Parker River watershed. This water budget approach compared the long-term groundwater recharge in the watershed under predeveloped ‘natural’ conditions with current conditions to assess whether the watershed was experiencing a net loss or gain of water in comparison with predeveloped conditions.

The second prong compared the existing Parker River flow regime with estimates of potential natural or unimpacted flow regimes. With the help of Riverways staff, this included a comparison of Parker River flow statistics to an unimpacted index streamflow station from the recently completed Draft Index Streamflow study completed by the Department of Conservation and Recreation (DCR). The third prong used a USGS stream depletion model to evaluate the time-varying streamflow depletion caused by pumping at the Georgetown wells to evaluate seasonal and other short-term fluctuations in flow and pumping, as opposed to the long-term water balance approach.

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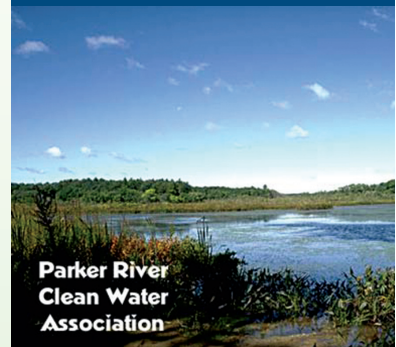
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